

**State of New Mexico  
Continuing Planning Process  
Appendix A**

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**Antidegradation Policy  
Implementation Procedure  
for Regulated Activities**



**Originally Approved 2004  
Approved Revision October 23, 2020**

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## Glossary

**Alternatives Analysis:** An evaluation of possible cost-effective, reasonable alternatives to regulated discharges that might degrade water quality, including less-degrading alternatives, non-degrading alternatives, and no-discharge alternatives, such as treatment process changes, relocated discharge facilities, land application, reuse, and subsurface discharges. The evaluation must provide substantive information pertaining to the cost and environmental impacts associated with the proposed discharge and the alternatives being evaluated, so that alternatives that are cost-effective and reasonable and least degrading are identified.

**Antidegradation:** A regulatory policy and implementation procedure approved by EPA and the WQCC to protect existing uses of surface waters and to specify how the WQCC will determine, on a case-by-case basis, whether and to what extent, existing water quality may be lowered in a surface water.

**Assimilative Capacity:** The difference between the baseline water quality concentration for a pollutant and the most stringent applicable water quality criterion for that pollutant.

**Baseline Water Quality (BWQ):** A characterization of selected pollutants in a perennial surface water as measured and expressed during a specified time period. Once established, baseline water quality is a fixed quantity/quality unless it is updated by NMED to reflect changes in water quality.

**Bio-accumulative Pollutant:** a pollutant, such as pesticides or other chemicals, that accumulates in aquatic organisms when ingestion and absorption rates are faster than metabolic and excretion rates (*see* human health-organism only criteria in 20.6.4.900 NMAC).

**Degradation:** A decline in the chemical, physical, or biological conditions of a surface water or other decline in water quality as measured on a pollutant-by-pollutant basis.

**Detection Limit:** The minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.

**Designated Use:** A use of a surface water specified in the *Standards for Interstate and Intrastate Surface Waters* (20.6.4 NMAC). Designated uses include domestic water supply, irrigation and irrigation storage, primary contact, secondary contact, livestock watering, wildlife habitat, aquatic life, and fish culture and water supply.

**Effluent-Dependent Water:** An effluent-dependent water is a surface water that without the point source discharge of wastewater would be an ephemeral water.

**Ephemeral Surface Water:** A surface water that contains water briefly only in direct response to precipitation; its bed is always above the water table of the adjacent region.

**Existing Use:** A use and the water quality necessary to support the use that has been attained in a surface water on or after November 28, 1975, whether or not it is a designated use in the surface water quality standards (20.6.4 NMAC) or if it is currently attaining the quality required for that use.

**Existing Water Quality:** Baseline water quality.

**High Quality Water:** A surface water with water quality that is better than the applicable water quality standard as determined on a pollutant by pollutant basis.

**Intermittent Surface Water:** A surface water that contains water for extended periods only at certain times of the year, such as when it receives seasonal flow from springs or melting snow.

**Less-Degrading Alternative:** A cost-effective, reasonable alternative to a proposed discharge that would result in fewer detrimental changes to water quality as characterized by the baseline water quality evaluation.

**Loading Capacity:** total assimilative capacity of a waterbody for the pollutant of concern at critical flow. The loading capacity is the maximum amount of pollutant loading that a waterbody can receive and still meet water quality standards.

**Minimal Degradation:** A deterioration or decline in water quality that results in the consumption of less than 10 percent of the available assimilative capacity for a pollutant.

**National Pollutant Discharge Elimination System [NPDES]:** The point source discharge permit program established by Section 402 of the Clean Water Act (33 U.S.C. § 1342).

**Non-Degrading Alternative:** A cost-effective, reasonable alternative to a proposed discharge that would result in no significant degradation of water quality as characterized by the baseline water quality evaluation.

**Outstanding National Resource Water (ONRW):** A surface water that is classified as an outstanding national resource water under 20.6.4.9 NMAC.

**Perennial Surface Water:** A surface water that typically contains water throughout the year and rarely experiences dry periods.

**Regulated Discharge:** A point source discharge regulated under Section 402 of the CWA, a discharge for Dredge and Fill material regulated under Section 404 of the CWA, and any discharged authorized by a federal permit or license that is subject to state water quality certification under Section 401 of the CWA.

**Relative Percent Difference (RPD):** RPD is an expression of the degree of variation between two water quality samples taken under similar conditions. RPD is calculated using the following equation, where S represents the concentration of the pollutant in the original sample and D represents the concentration of the pollutant in the new sample.

$$RPD = \frac{|S - D|}{(S + D)/2} \times 100$$

**Short-Term Degradation:** Degradation that is six months or less in duration, i.e., water quality returns to baseline water quality within six months after the discharge commences.

**Significant Degradation:** The consumption of 10 percent or more of the available assimilative capacity for any pollutant of concern at critical flow conditions or any consumption of assimilative capacity that exceeds a cumulative cap of 50% of assimilative capacity.

**Significantly Improved Water Quality:** For purposes of a BWQ re-evaluation, significantly improved water quality compares the original baseline water quality data to new water quality data acquired or submitted to the Department and calculates the relative percent difference (RPD) between the two data points. If the RPD is greater than or equal to 20% and sampling technique, sample processing and transport, and laboratory analyses are comparable, a new baseline characterization may be warranted.

**Surface Waters of New Mexico:** All surface waters situated wholly or partly within or bordering upon the state, including lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands, any manmade bodies of water that were originally created in surface waters of the state or resulted in the impoundment of surface

waters of the state, and any “waters of the United States” as defined under the Clean Water Act that are not included in the preceding description.

**Temporary Degradation:** Degradation that is six months or less in duration, i.e., water quality returns to baseline water quality within six months after the discharge commences; short-term degradation.

**Tier 1 Protection:** Policies and procedures that prohibit degradation which results in the loss of an existing use, or violation of water quality criteria; and prohibit degradation of existing water quality where pollutants of concern do not meet applicable water quality standards. Tier 1 defines the minimum level of protection for all waters and requires that water quality be maintained such that the existing and designated uses of the water are supported. This applies to waters that do not meet or meet but are not better than the water quality standards for existing or designated uses. Surface waters with this protection may already be of lower quality.

**Tier 2 Protection:** Policies and procedures that prohibit significant degradation of a surface water unless a review of reasonable alternatives and social and economic considerations shows that the lowering of water quality is necessary for important social and economic considerations in the area where the water is located. Tier 2 protection level applies to perennial and intermittent waters where data confirm high quality water (i.e., where existing water quality is better than applicable water quality standards as determined on a pollutant-by-pollutant basis).

**Tier 3 Protection:** Policies and procedures that prohibit any lowering of water quality in Outstanding New Mexico Waters as identified under 20.6.4.9 NMAC unless impacts are minimized and temporary.

**Toxic Pollutant:** A pollutant or combination of pollutants, including disease-causing agents, that after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, shortened life spans, disease, adverse behavioral changes, reproductive or physiological impairment or physical deformations in such organisms or their offspring.

**Translator:** Methodologies to guide the calculation of site-specific numeric targets (not criteria) based on a given narrative standard.

**Water Contaminant:** Any substance that, if discharged or spilled, could alter the physical, chemical, biological or radiological qualities of water.

**Water Pollutant:** A water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property. Pollutants may include liquid, solid, gaseous, or hazardous substances such as contaminants, toxic pollutants, solid waste, chemicals, pesticides, herbicides, fertilizers, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, dirt, and mining, industrial, municipal and agricultural wastes.

**Water Quality Criteria:** Elements of water quality standards that are expressed as pollutant concentrations, levels, or narrative statements representing a water quality that supports a designated use.

# 1 Overview of New Mexico's Antidegradation Approach

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Water quality standards (WQS) are the foundation for a wide range of programs under the Clean Water Act (CWA). WQS consist of designated uses such as aquatic life and recreation, water quality criteria necessary to protect those uses, and antidegradation requirements. Each State must develop, adopt, and retain a statewide antidegradation policy regarding water quality standards and establish procedures for its implementation through the water quality management process. Antidegradation implementation is based on a set of procedures to be followed when evaluating activities that may impact the quality of New Mexico's surface waters. Antidegradation implementation is an integral component of a comprehensive approach to protecting and enhancing surface water quality.

Antidegradation protections consist of three levels, or tiers, of protection defined by New Mexico's water quality standards in 20.6.4.8 NMAC. Tier 1 protections provide a floor of protection, ensuring that existing instream water uses and the level of water quality necessary to protect those existing uses are maintained and protected. Tier 2 protections maintain and protect water quality that exceeds water quality numeric and narrative criteria, prohibiting any lowering of water quality unless necessary to accommodate social or economic need. Tier 3 protections are afforded to waters designated by the Water Quality Control Commission (WQCC) as Outstanding National Resource Waters (ONRWs). In ONRWs, no degradation is permitted except in limited, specifically defined instances, such as to accommodate public health or safety activities or to enable activities to restore or maintain water quality.

Antidegradation applies to all activities with the potential to adversely affect water quality or existing or designated uses, including:

- Any proposed new or increased point source or nonpoint source discharge of pollutants that would lower water quality or affect the existing or designated uses.
- Any proposed increase in pollutant loadings to a waterbody when the proposal is associated with existing activities.
- Any increase in flow alteration over an existing alteration.
- Any hydrologic modifications, such as dam construction and water withdrawals.

This document has been drafted to provide guidance to persons responsible for regulated discharges that may degrade water quality in New Mexico. Regulated discharges include those that require a permit and/or a water quality certification under Section 401 of the Clean Water Act (CWA) pursuant to state or federal law. The Nonpoint Source Management Plan, a separate document incorporated by reference into the WQMP/PPP, describes antidegradation implementation procedures applicable to nonpoint source discharges. The information contained in this document is intended to provide guidance only and is not a substitute for the provisions of any other laws, rules, or regulations.

The guidance that follows addresses implementation procedures for New Mexico's antidegradation rule at 20.6.4.8 NMAC, and the federal antidegradation policy at 40 CFR 131.12. NMED is required by 40 CFR 131.12(a) to develop and adopt a statewide antidegradation policy and to identify methods for implementing that policy. The guidance generally includes:

- Processes for identifying the antidegradation protection level (i.e., the "tier") that applies to a surface water;
- Procedures for determining baseline water quality (BWQ);

- Approaches for evaluating water quality degradation;
- Procedures for identifying and evaluating less degrading or non-degrading alternatives;
- Procedures for determining the importance of economic or social development to support significant degradation of high quality surface waters; and,
- Information on intergovernmental coordination and public participation processes.

## **1.1 DESIGNATED USES AND WATER QUALITY CRITERIA**

Water quality standards, including designated uses and associated water quality criteria can be found at 20.6.4 NMAC. Under the Clean Water Act (CWA) and New Mexico’s surface water quality standards, various uses are assigned to surface waters. Designated uses include domestic water supply, irrigation and irrigation storage, primary contact, secondary contact, livestock watering, wildlife habitat, aquatic life, and fish culture and water supply. Designated uses are accompanied by an established set of *water quality criteria* designed to ensure that the designated uses are achieved. In accordance with state regulations, designated uses can be established or changed only through administrative rulemaking. Most surface waters have several designated uses. Where more than one use exists, or has been designated for a surface water, the use with the most stringent water quality criteria must be maintained and protected.

## **1.2 COVERAGE AND GENERAL APPLICABILITY**

In general, the antidegradation implementation procedures described in this guidance apply to every proposal for a new or increased permitted discharge of a pollutant to a “surface water of the State.” Permitted discharges are those discharges regulated under the authority of the CWA and discharges regulated pursuant to 20.6.2 NMAC that have the potential to impact surface water quality. These include National Pollutant Discharge Elimination System (NPDES) point source discharges regulated under Section 402 of the CWA; discharges which result in the placement of dredged or fill material into surface waters regulated under Section 404 of the CWA; and any discharge authorized by federal permits and licenses that are subject to state water quality certification under Section 401 of the CWA.

These procedures do not apply to non-point sources (NPS). In instances when significant degradation is determined to be a concern and NPS sources are impacting water quality, NMED will work with stakeholders to identify and implement best management practices, as described in the Nonpoint Source Management Plan.

These procedures also do not apply to other water quality-related actions, including revision of Commission documents (e.g., New Mexico Water Quality Standards, Continuing Planning Process, Statewide Water Quality Management Plan, and New Mexico Nonpoint Source Management Plan); the Commission’s establishment of Total Maximum Daily Loads (TMDLs); or the conduct of studies, including use attainability analyses, by any party, including NMED. These types of water quality-related actions already are subject to extensive requirements for review and public participation, as well as various limitations on degradation imposed by state and federal law.

Section 3 summarizes the antidegradation review approach used in New Mexico, which is based on the type of regulated discharge under consideration (e.g., by permit type), the receiving water, and the BWQ for relevant pollutants of concern in the receiving surface water.

### 1.3 COORDINATION WITH ASSESSMENT AND IMPAIRMENT LISTING

Section 305(b) of the CWA requires each state to prepare and submit to the U.S. Environmental Protection Agency (EPA) a biennial report describing water quality of all surface waters in the state. Each state must monitor water quality and review available data to determine if water quality standards are being met. From the assessment, the CWA Section 303(d) List (“303(d) list”) is created which identifies surface waters that do not meet water quality standards. These waters are known as water quality limited waters or impaired waters. Identification of a surface water as impaired may be based on a violation of a numeric or narrative water quality criterion. NMED’s antidegradation policy implementation procedure (i.e., this appendix) assigns a protection category for the receiving water based on whether water quality standards are being met.

To coordinate antidegradation reviews with the 305(b) reporting and 303(d) listing activities, NMED will implement the following protections:

- *Tier 1 Protection (applicable to all waters):* No further degradation is permitted in a surface water where the most current water quality for that criterion does not meet, or meets but is not better than, the applicable water quality standards. Impaired waters are identified on New Mexico’s 303(d) list and targeted for future water quality management planning (e.g., TMDLs, Watershed Based Plans (WBPs), etc.) to improve water quality and attain WQS.
- *Tier 2 Protection (applicable to perennial and intermittent waters where data confirm high-quality water is present):* Where possible, NMED may award priority points for grant or other funding programs that target water quality protection and restoration and support actions needed to protect and restore water quality. NMED may also revise the BWQ based upon more recent water quality data included in the biennial assessment of surface waters.
- *Tier 3 Protection (applicable to all waters designated as an ONRW):* No degradation is allowed in an ONRW, except in limited, specifically defined instances, such as to accommodate public health or safety activities or to enable activities to restore or maintain water quality, as outlined in 20.6.4.8(A)(3) and 20.6.4.8(A)(4) NMAC. For activities that may cause short-term degradation, NMED may award priority points for grant or other funding programs that target water quality protection and support actions needed to protect and restore water quality.

In addition, NMED participates in reviews for Clean Water State Revolving Funding. Applications are reviewed for compliance with water quality standards for both surface and groundwater, and projects that directly implement a fix to a water quality problem are awarded priority points to allow more rapid implementation of those projects. This results in a more proactive approach from the Department to restore or maintain water quality in surface waters across the state.

### 1.4 INTERGOVERNMENTAL COORDINATION AND REVIEW PROCESS

Federal and state regulations require intergovernmental coordination and public participation for Tier 2 reviews and public participation in decisions that may result in water quality degradation. Coordinating antidegradation reviews among various agencies and other interested parties will involve significant cooperation in gathering data, conducting evaluations, analyzing alternatives and evaluating potential social and economic impacts. A list of agencies that may be involved in the intergovernmental coordination and review process is included as Appendix A.5 of this document.

For comprehensive Tier 2 reviews on perennial waters, determining BWQ, evaluating projected impacts, analyzing possible alternatives, and evaluating economic or social benefits, if applicable, must occur prior to issuing an individual NPDES permit. Therefore, it is recommended that an applicant discharging into a perennial water meet with NMED in a pre-application conference at least one year prior to permit issuance. Timely notification and early consultation with NMED will help ensure that the issuance of permits can proceed without disruption to facility design, construction, or other activities planned by the applicant.

## **1.5 PUBLIC NOTIFICATION AND PARTICIPATION**

Information on BWQ, designated uses, water quality standards, applicability of protection tiers, impact analyses, alternatives analyses, agency decisions, and other matters related to antidegradation reviews will be documented by NMED and made part of the public record. Public notification of proposed actions and requests for public comment will be made in accordance with Chapter 8 of this appendix.

## 2 Tiered Protection Levels

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### 2.1 TIER DEFINITIONS

Federal law requires that surface waters be protected from discharges that might degrade water quality. To implement this requirement, it is necessary to identify antidegradation protection levels, or tiers, appropriate to each surface water. The state antidegradation rule at 20.6.4.8 NMAC delineates three tiers of protection for New Mexico surface waters. These tiers are applied on a pollutant-by-pollutant basis. Although Tiers are defined on a pollutant-by-pollutant basis, ONRWs are identified on a waterbody basis as described further below in this section and in NMAC 20.6.4.9(D) NMAC. Under this approach, surface water quality might degrade for one or more pollutants of concern but be unaffected for other pollutants. Degradation may be further described as *de minimis* (consumption of less than 10% of the assimilative capacity for a pollutant of concern) or significant (consumption of 10% or more of the assimilative capacity for a pollutant). Minimal (*de minimis*) degradation is permitted under the antidegradation rule and does not trigger comprehensive Tier 2 antidegradation review requirements. Significant degradation triggers the comprehensive Tier 2 antidegradation implementation procedures described below. The tiered protection levels are applied as follows:

**Tier 1** – Applies as the default protection level for all surface waters, including intermittent waters, ephemeral waters, effluent dependent waters, and other surface waters and requires that water quality be maintained such that the existing and designated uses of the water are supported. Tier 1 prohibits further degradation of existing water quality where a pollutant of concern does not meet or meets but water quality is not better than applicable water quality criteria. Tier 1 protection for impaired waters apply only to those pollutants that resulted in the 303(d) listing.

**Tier 2** – Applies to perennial surface waters with high quality water (i.e., where existing water quality is better than applicable water quality standards as determined on a pollutant-by-pollutant basis). Tier 2 requires that existing high-quality water be maintained but allows for limited (*de-minimis*) degradation. The Tier 2 protection level prohibits significant degradation unless a review of reasonable alternatives and social and economic considerations supports a lowering of water quality. Tier 2 may also apply to intermittent waters if data are available and indicate a high-quality water (i.e., water quality better than applicable WQS). Tier 2 is the default protection level for all high-quality perennial and intermittent waters (i.e., water quality is better than the applicable WQS).

**Tier 3** – Applies only to New Mexico Outstanding National Resource Waters (ONRWs) identified in 20.6.4.9(D) NMAC. Tier 3 prohibits any degradation and lowering of water quality in an ONRW unless impacts are minimal and temporary. Approval for any degradation must be obtained according to the process outlined in 20.6.4.8(A)(3) and 20.6.4.8(A)(4) NMAC.

Antidegradation is more about levels of protection than it is about levels of quality. In fact, for Tier 3 it could be said that antidegradation is all about protection, as the outstanding character may have little to do with actual water quality in the traditional sense of pollutant concentrations (e.g., waters may have particularly high ecological value). Numeric water quality criteria are considered in an antidegradation analysis, however NMED takes other considerations into account as warranted. For example, Tier 3 (ONRWs) analyses require consideration of the essential character or special use that makes the water an ONRW, such as high ecological or recreational value.

Most of the involvement in the antidegradation policy is regarding Tier 2 waters. This tier is where antidegradation procedures can work to maintain high quality water and is also where dischargers may have to expend extra effort to reduce their proposed degradation of water quality or demonstrate that allowing lower water quality is necessary to accommodate important economic and social development in the area in which the water is located.

## **2.2 DESIGNATION OF TIER CATEGORY**

At a minimum, all surface waters in New Mexico are protected in accordance with Tier 1 antidegradation requirements. Tier 1 applies categorically to all intermittent and ephemeral streams, effluent dependent waters, and all surface waters on the 303(d) list on a pollutant-by-pollutant basis. Where a surface water is listed on the state's 303(d) list for one or more pollutants, and where existing water quality for other pollutants is better than water quality standards, the surface water will be afforded Tier 1 and Tier 2 protection on a pollutant-by-pollutant basis. That is, Tier 1 protection for the pollutants not meeting water quality standards and Tier 2 protection for pollutants that are better than water quality standards.

Perennial waters, and possibly some intermittent waters, that are found to have existing water quality better than applicable water quality standards are protected at the Tier 2 level. For Tier 2 protection, determinations regarding the significance of degradation are based on BWQ and the relative change in water quality projected to result from the discharge under review. In general, BWQ, as discussed in Chapter 4 of this appendix, defines existing water quality for purposes of antidegradation reviews. BWQ can be established for surface waters through monitoring and water quality assessments conducted by NMED, regulated entities, or by others (e.g., contractors). Tier 3 protection applies to ONRWs listed in 20.6.4.9(D) NMAC. Tier 3 protection will be afforded for all pollutants of concern in an ONRW.

Where a perennial water has been assessed but has not been listed as an impaired water or as an ONRW, the presumed antidegradation protection level is Tier 2 for all pollutants of concern. If a protection tier has not already been determined for a perennial surface water, NMED will establish the tier by identifying the use(s) of the segment, determining BWQ, and comparing the attributes of the surface water under study to the criteria for the tiers as cited above.

Upon establishing the appropriate tier(s) for a surface water, NMED will document its findings along with BWQ characterization and make this information available as part of the public record. Tier levels established by NMED may be revised, or alternate tier assignments may be assigned when waters are added or removed from the 303(d) list or are added to the list of ONRWs (see 20.6.4.9(D) NMAC).

Table 2-1 summarizes decision criteria for assigning protection tiers and the antidegradation requirements for each. More information on conducting the antidegradation reviews for waters requiring Tier 2 and Tier 3 protection can be found in Chapter 3 of this document.

Table 2-1. Tier Descriptions and Summary of Antidegradation Protection Requirements

Tier	Waters Included	Protection Requirements
1	<p>All surface waters that meet but are not better than applicable water quality criteria, i.e., not considered “high quality,” as determined on a pollutant by pollutant basis.</p> <p>All surface waters on the state’s 303(d) list of impaired waters for the pollutant that resulted in the listing.</p> <p>Intermittent waters.<sup>1</sup></p> <p>All ephemeral waters.</p> <p>All effluent dependent waters.</p>	<p>The minimum level of protection necessary to maintain the existing and designated uses of a surface water. Where a surface water is impaired or meets, but water quality is not better than, applicable water quality criteria, there shall be no lowering of the water quality with respect to the pollutant causing the impairment. Tier 1 protection applies regardless of any economic or social benefits associated with a proposed discharge.</p>
2	<p>For intermittent<sup>1</sup> and perennial waters reflecting high-quality waters, i.e., where the level of water quality is better than applicable water quality criteria as determined on a pollutant-by-pollutant basis. Tier 2 is the default protection level for high-quality perennial and intermittent waters that are not ONRWs or on the 303(d) list.</p>	<p>High-quality water in perennial and intermittent (if known) streams and lakes must be protected at a level that minimizes degradation of that water quality. No significant degradation of the Tier 2 pollutants in the surface water is allowed unless a comprehensive antidegradation review of reasonable alternatives demonstrates that the lowering of water quality is necessary for important social and economic considerations in the area in which the waters are located.</p>
3	ONRWs.	<p>No new or expanded direct discharges. No lowering of water quality allowed unless it is minimized and temporary, <i>and</i> degradation is approved according to 20.6.4.8 NMAC.</p>

<sup>1</sup> For intermittent waters, if water quality data are available and assessable, and indicate a high-quality water (i.e., water quality better than applicable WQS), then Tier 2 protection applies on a pollutant-by-pollutant basis.

## 3 Antidegradation Review Requirements

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The antidegradation review procedure is based on the protection tier assigned to the receiving water, the type of receiving water, existing (i.e., baseline) water quality in the receiving water, the projected impacts, and nature of the proposed discharge.

In general, the antidegradation review requirements described in this guidance apply to regulated discharges that have the potential to degrade water quality. These include NPDES point source discharges regulated under Section 402 of the CWA; discharges which result in the placement of dredged or fill material into surface waters regulated under Section 404 of the CWA; and any discharge authorized by federal permits and licenses that are subject to state water quality certification under Section 401 of the CWA.

### 3.1 ANTIDEGRADATION REVIEW REQUIREMENTS BY TIER

#### Tier 1: Reviews to Protect Existing Uses

Tier 1 reviews must ensure that the level of water quality necessary to protect existing uses is maintained and protected. In general, the “level of water quality necessary to protect existing uses” is defined by state-adopted surface water quality standards.

##### ***General Applicability***

Tier 1 protection applies to all surface waters. In determining whether a surface water is afforded only Tier 1 protection, NMED will focus on whether the surface water meets or fails to meet applicable WQS.

##### ***Impaired Waters***

For surface waters listed as impaired on the 303(d) list and for those waters that meet but are not better than the water quality criteria for a particular designated use, Tier 1 protection will be provided for the listed pollutants. Non-listed pollutants in 303(d) listed waters and those surface waters that are of high-quality may be afforded Tier 2 protection. Under Tier 1, no discharges will be permitted to cause further degradation for pollutants that do not meet applicable water quality standards. Where existing uses of a surface water are impaired, there will be no lowering of the water quality with respect to the pollutant(s) of concern causing the impairment.

##### ***Non-Perennial and Effluent Dependent Waters***

Lack of flow in ephemeral and intermittent waters makes it difficult to characterize BWQ and conduct Tier 2 antidegradation reviews. Similarly, lack of flow and/or the nature of flow in effluent dependent waters also makes these waters difficult to characterize, other than simply characterizing the effluent being discharged. These non-perennial waters will receive Tier 1 protection for all pollutants of concern unless there is sufficient BWQ data to demonstrate a high-quality water for intermittent waters to which a Tier 2 evaluation would be appropriate. Applicable WQS must be maintained and protected for these surface waters.

For example, certain individual and general permit applicants will likely discharge to a non-perennial stream segment where there is no other existing discharge to the segment, little or no flow in the channel beyond the immediate area of the discharge, and no available ambient water quality data. No BWQ

evaluation will be required for these discharges. Antidegradation reviews for most discharges to non-perennial waters will focus on requirements that applicable WQS be met end-of-pipe (unless ambient water quality data are available for a BWQ evaluation), and technology-based requirements, e.g., best available technology (BAT), are applied as required by permit conditions. Antidegradation review for NPDES individual municipal separate storm sewer system (MS4) and general permits as well as dredge or fill permits under Section 404 of the CWA for will focus on meeting WQS in receiving waters by ensuring compliance with the permit or state certification of the permit pursuant to Section 401 of the CWA.

***General (Narrative) Criteria under 20.6.4.13 NMAC***

**Total Dissolved Solids (TDS)** – NMED will follow the guidance laid out in the Colorado River Salinity Control Forum. Compliance with the Forum requirements will be considered to meet the intent of the narrative standard.

**Plant Nutrients** – NMED will evaluate nutrient discharges in accordance with available thresholds (i.e., translators) and will use applicable thresholds for the Tier 1 antidegradation review. A similar approach has been taken with Raton and Santa Fe WWTPs, capping the facilities at their current level of discharge/degradation. Depending on the data available, limits will be derived using a percentile of the data set (85<sup>th</sup>, 95<sup>th</sup>, etc.) that is reasonably achievable and still maintains and protects existing water quality. There are no technologically based effluent limits (TBELs) available for nutrients for publicly-owned treatment works (POTWs) at this time, but based on the type of treatment system available, NMED will work with the facility to incorporate limitations that maintain or reduce current levels of nutrient loading.

**Other General Criteria** – If a narrative standard does not have associated numeric thresholds or translators, NMED will not evaluate the narrative standard for antidegradation purposes due to the impracticality of such an evaluation.

## **Tier 2: Reviews to Protect High Quality Waters**

Tier 2 protection applies to high quality perennial and intermittent (if data are available and assessable) waters with water quality better than applicable WQS, as determined on a pollutant-by-pollutant basis. Existing water quality in high quality surface waters must be maintained and protected. Tier 2 prohibits significant degradation unless a review of reasonable alternatives and social and economic considerations support a lowering of water quality, and after opportunity for intergovernmental review and public comment and hearing. If degradation is allowed, it must not result in a violation of applicable WQS.

***General Applicability***

Any regulated discharge to a high quality water is subject to Tier 2 antidegradation review to determine if the discharge will significantly degrade water quality. Determinations issued under these provisions will be made in accordance with the public notification process described in Chapter 8 of this appendix. If NMED determines after an initial evaluation that comprehensive Tier 2 review requirements do not apply to a proposed discharge, the discharge must still achieve the requirements of the permit or conditions of the water quality certification.

***Basic vs. Comprehensive Tier 2 Review***

A basic Tier 2 antidegradation review is used to determine whether or not significant degradation will occur from a regulated discharge, i.e., whether or not 10% or more of the available assimilative capacity

for any pollutant of concern will be consumed as a result of the proposed discharge during critical flow conditions or any consumption of assimilative capacity that exceeds a cumulative cap of 50% of assimilative capacity. The BWQ and applicable WQS must be reviewed as part of a basic Tier 2 antidegradation review.

A comprehensive Tier 2 antidegradation review, which includes an alternatives analysis and social and economic demonstration for the degradation, is required for any new or expanded discharge that may significantly degrade a Tier 2 protected water.

No comprehensive Tier 2 antidegradation review is required for discharges regulated under a general NPDES permit or a Section 404 dredge or fill permit. These discharges will be required to meet the conditions of the general permit or Section 401 water quality certification.

### **Tier 3: Reviews to Protect Outstanding New Mexico Waters**

Existing water quality in ONRWs must be maintained and protected. Any discharge that would degrade existing water quality in an ONRW is prohibited, unless the applicant demonstrates that the water quality impacts are temporary and necessary for public health and safety or restoration, and the applicant receives approval for the activity according to the process in 20.6.4.8 NMAC.

#### ***General Applicability***

Tier 3 protection applies only to surface waters that are classified as ONRWs and identified under 20.6.4.9(D) NMAC.

#### ***Tier 3 Review***

Discharges that impact ONRWs are subject to Tier 3 antidegradation review. New or expanded discharges that may cause degradation directly to an ONRW identified under 20.6.4.9(D) NMAC are prohibited, except in limited, specifically defined and temporary events, such as to accommodate public health or safety activities or to enable activities to restore or maintain water quality, as outlined in 20.6.4.8.A(3) and (4) NMAC. In general, temporary is defined as occurring for a period of six months or less and is not recurring. In addition, NMED will impose necessary controls on indirect discharges that occur upstream or to tributaries of an ONRW to maintain and protect existing water quality in the downstream ONRW.

Determinations regarding antidegradation reviews for activities that affect ONRWs, such as public health or safety activities or activities to restore or maintain water quality, will be made on a case-by-case basis after consideration of the following factors outlined in 20.6.4.8(A)(3) and 20.6.4.8(A)(4) NMAC:

- The degradation shall be limited to the shortest possible time and shall not exceed six months;
- The degradation shall be minimized and controlled by best management practices or in accordance with permit requirements as appropriate; all practical means of minimizing the duration, magnitude, frequency and cumulative effects of such degradation shall be utilized;
- The degradation shall not result in water quality lower than necessary to protect any existing use in the ONRW; and
- The degradation shall not alter the essential character (e.g., exceptional recreational or ecological significance) or special use (e.g., state special trout water; national or state park, monument, wildlife refuge; designated wilderness or wild river) of the ONRW, as supported by the proceedings and final decision establishing the water as an ONRW.

Prior to the WQCC's decision, NMED will provide a written recommendation to the commission. This recommendation will take into account the following factors:

- Change in ambient concentrations predicted at the appropriate critical flow condition(s)
- Change in loadings (i.e., the new or expanded loadings compared to total existing loadings to the segment)
- Reduction in available assimilative capacity
- Nature, persistence and potential effects of the pollutant
- Potential for cumulative effects
- Degree of confidence in the various components of any modeling technique utilized (e.g., degree of confidence associated with the predicted effluent variability)

The antidegradation review findings must be documented and public participation activities initiated, as per the procedures in 20.6.4.8(3)(a) NMAC. If the review finds that the proposed discharge will not be temporary, the proposed discharge will be denied. In all cases, Tier 1 protection must be maintained.

### ***Emergency Response Action***

If an emergency response action is occurring in proximity to an ONRW and is necessary to mitigate an immediate threat to public health or safety, it may proceed prior to notification to the WQCC and NMED, in accordance with the following as outlined in 20.6.4.8(A)(3)(c) NMAC:

- only actions that mitigate an immediate threat to public health or safety may be undertaken pursuant to this provision; non-emergency portions of the action shall comply with the requirements of 20.6.4.8 NMAC;
- the discharger shall make best efforts to comply with requirements noted above;
- the discharger shall notify the department of the emergency response action within seven days of initiation of the action; and,
- within 30 days of initiation of the emergency response action, the discharger shall provide a summary of the action taken, including all actions taken to comply with the requirements above.

### ***Upstream Discharges & Tier 3 Review***

A discharge upstream of an ONRW is prohibited where the proposed discharge would degrade existing water quality of the downstream ONRW on a longer than temporary basis. To determine whether the proposed discharge will result in the lowering of water quality in the downstream ONRW, the following factors may be considered:

- Change in ambient concentrations predicted at the appropriate critical flow condition(s)
- Change in loadings (i.e., the new or expanded loadings compared to total existing loadings to the segment)
- Reduction in available assimilative capacity
- Nature, persistence and potential effects of the pollutant
- Potential for cumulative effects
- Degree of confidence in the various components of any modeling technique utilized (e.g., degree of confidence associated with the predicted effluent variability)

If a preliminary determination is made that the requirements above will be met, the antidegradation review findings must be documented and the applicable public participation activities must be initiated. If the review finds that the proposed discharge will result in the lowering of water quality in a downstream ONRW, the proposed discharge will be denied.

## **3.2 ANTIDEGRADATION REVIEW REQUIREMENT BY TYPE OF PERMIT**

Antidegradation review requirements for regulated discharges that may degrade water quality vary according to 1) classification, existing uses, and condition of the receiving water; 2) the type of discharge and permit under which the discharge is conducted; and 3) the range and severity of projected impacts on the surface water. For example, antidegradation review requirements for discharges authorized under general permits differ from antidegradation review requirements for discharges regulated by individual permits. This section outlines the antidegradation review requirements for regulated discharges that may degrade water quality, including those with individual and general NPDES permits and those covered under Section 404 of the CWA (Dredge or Fill permits).

Compliance with the requirements of general permits and prompt attention to conditions that might result in water quality degradation will help ensure that discharges authorized by general permits do not cause violations of WQS. Moreover, some new or expanded discharges formerly authorized by a general permit may not be eligible for such coverage in the future if NMED believes they could significantly degrade a surface water. In those cases, applicants will be required to seek coverage under an individual permit.

**In order to implement New Mexico's antidegradation policy in an efficient manner, it is recommended that persons proposing individually-permitted discharges which might degrade water quality in a perennial water notify NMED before determining BWQ (see Chapter 4 of this appendix) or applying for a permit.** Such an approach will help ensure that the antidegradation review proceeds smoothly, without delay, and that planned facilities will comply with applicable statutes and rules. Figure 3-1 summarizes the Tier 2 review process for individual NPDES permit reissuance and new or expanded NPDES permits. Figure 3-2 summarizes the review requirements for individual NPDES; NPDES Stormwater Permits; general NPDES permits; individual and nationwide Section 404 permits, and federal permits and licenses subject to Section 401 water quality certification.

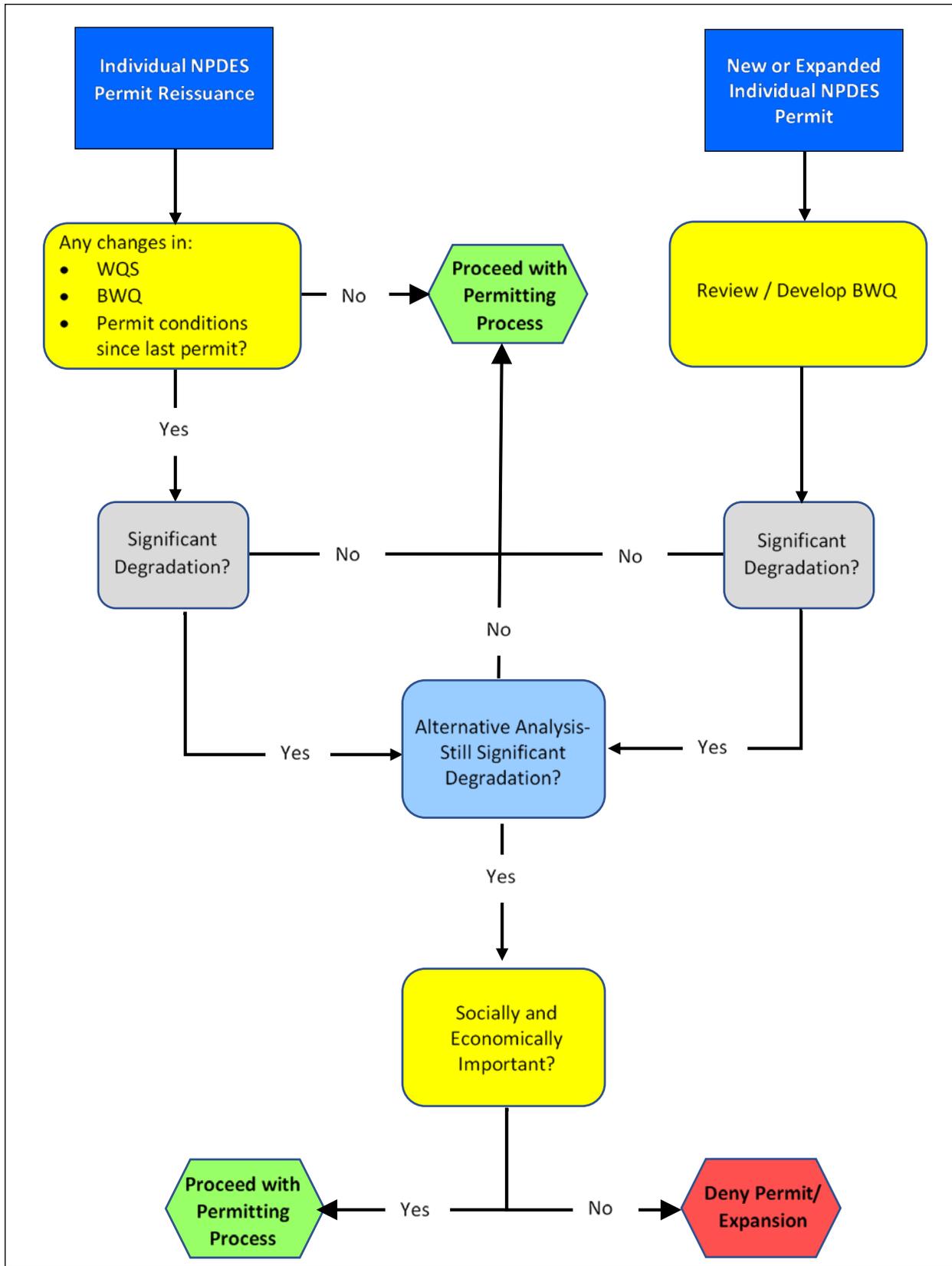


Figure 3-1. Tier 2 Antidegradation Review Process for Individual NPDES Permits

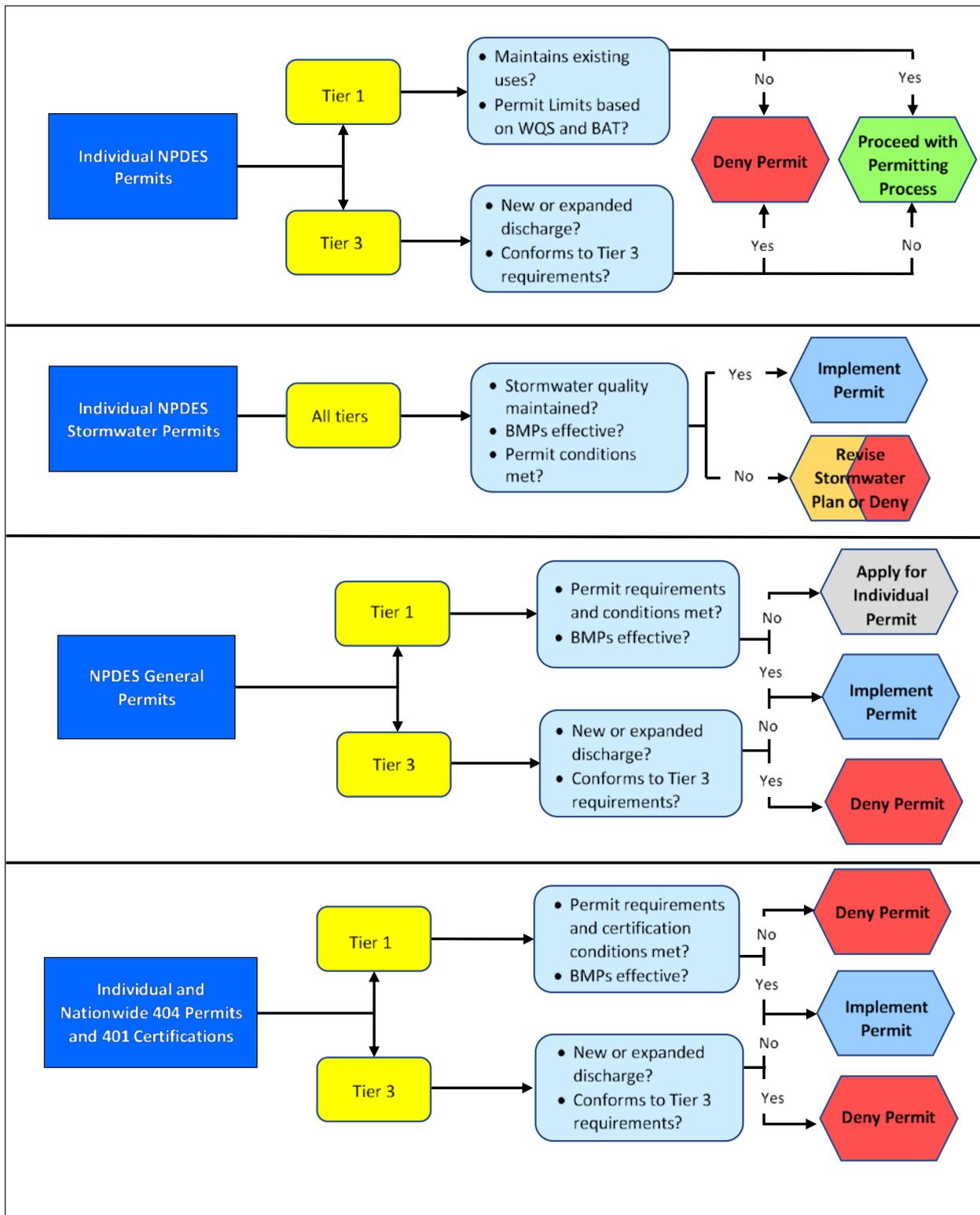


Figure 3-2. Antidegradation Review Requirements by Permit Type

### **3.3 INDIVIDUAL NPDES PERMITS**

#### **General Applicability**

All point source discharges regulated by individual NPDES permits are subject to an antidegradation review at the time of issuance, modification, or renewal of a permit. All NPDES permits must ensure that water quality is protected at the appropriate tier based on available water quality information; however, at a minimum, the level of water quality necessary to maintain existing uses must be maintained and protected.

#### **Reasonable Potential for Minor POTWs**

Facilities less than 0.1 million gallons per day (MGD) are not required to sample or report any toxic substances on their NPDES permit applications, since studies indicated they have "no reasonable potential" to discharge toxic substances in amounts that would violate state WQS. Facilities greater than 0.1 MGD, but less than 1 MGD report some toxic substances that are present in facility discharges of that size.

Supporting information for this decision was published by EPA as "Evaluation of the Presence of Priority Pollutants in the Discharges of Minor POTW's," June 1996, and was sent to all state NPDES coordinators by EPA Headquarters. In this study, EPA collected and evaluated data on the types and quantities of toxic pollutants discharged by minor POTWs of varying sizes from less than 0.1 MGD to just under 1 MGD. The Study consisted of a query of the EPA Permit Compliance System (PCS) database from 1990 to 1996, an evaluation of minor POTW data provided by the State agencies, and on-site monitoring for selected toxics at 86 minor facilities across the nation.

Therefore, in the cases of facilities under 0.1 MGD, these facilities have already been assessed as having no reasonable potential to discharge toxic substances in toxic amounts. Additional historical records may provide information to assess reasonable potential.

#### **Overview of the Antidegradation Review Procedure**

The antidegradation review for individual NPDES permits will be based upon the assigned protection tier, the existing uses of the segment, applicable WQS, flow regime of the receiving water, pollutants of concern associated with the discharge, projected impacts on the receiving water, cumulative impacts from other pollutant sources, and the significance of any degradation that might occur as a result of the discharge.

All applicants will be required to identify pollutants reasonably expected to be in the discharge, estimate flow rates, and characterize pollutant concentrations and/or mass pollutant loads, as specified by NMED. In addition, applicants for new and expanded discharges to perennial waters under an individual permit are required to collect and submit existing or new information on BWQ needed to analyze the impact(s) of the discharge to a perennial water if ambient water quality data are not available. For the purpose of this analysis, expanded means an increase in design flow of the facility. In many cases, NMED's current water quality monitoring (conducted on a rotating basis in watersheds across the state) will provide applicable baseline data for use in these evaluations; however, for certain cases, the applicant may need to generate additional data for consideration in the antidegradation analysis if there are atypical pollutants of concern that are not normally monitored by NMED. For intermittent streams, the applicant

may choose to collect and submit water quality data for BWQ, which will help to evaluate appropriate and protective limits that may not be end-of-pipe requirements.

**If feasible, it is recommended that an applicant discharging to a perennial water meet with NMED in a pre-application conference at least one year prior to individual NPDES permit issuance** because of the substantial information requirements associated with development of effluent limits and, if necessary, a comprehensive Tier 2 antidegradation review.

## **Permit Limits and Antidegradation Requirements for Individual Permits**

During the permit development process, EPA Region 6 will coordinate with NMED, who will evaluate existing water quality using both internal and applicant-supplied data, identify designated uses of the receiving water and analyze the impacts of the discharge as well as cumulative discharges that might affect the assimilative capacity of the receiving surface water for relevant pollutants of concern. Individual permit limits for discharges to perennial waters will be based upon applicable effluent guidelines, the characteristics of the discharge, and analyses designed to ensure that no significant degradation of the receiving water occurs. Permit limits for discharges to ephemeral, intermittent, and effluent dependent waters will be based on the WQS and EPA effluent guidelines and other technology-based requirements (e.g., secondary treatment requirements, BAT, MEP). Regardless of hydrology, all permit limits must ensure that existing uses are maintained and protected. NMED will use its authority under Section 401 of the Clean Water Act to conditionally certify federal permits that authorize discharges to Waters of the United States where the antidegradation analysis shows that stricter water quality controls are needed.

Proposed new or expanded discharges that may significantly degrade waters protected at the Tier 2 level must undergo a comprehensive antidegradation review to determine whether less degrading or non-degrading alternatives exist and whether significant degradation is necessary to accommodate important economic or social development in the area where the surface water is located. As it pertains to implementation of New Mexico's antidegradation policy, significant degradation is defined as the consumption of 10% or more of assimilative capacity of the receiving water for any pollutant of concern associated with the discharge during critical flow (e.g., 4Q3) conditions or any consumption of assimilative capacity that exceeds a cumulative cap of 50% of available assimilative capacity.

Early notification and consultation between the applicant, EPA, and NMED will help ensure that the NPDES permitting process proceeds efficiently. The following steps outline the general procedure for processing an NPDES permit:

- Applicant notifies NMED and EPA Region 6 of intent to apply for or renew permit coverage
- EPA determines eligibility for general permit or individual permit coverage
- Applicant consults with NMED on BWQ and available assimilative capacity in the receiving waterbody.
- NMED conducts antidegradation review and drafts a letter to document BWQ and available assimilative capacity; determination of minimal/significant degradation; and if a comprehensive Tier 2 antidegradation review is required. The letter is mailed to EPA and the permittee.
- If required, undergo comprehensive Tier 2 antidegradation review (alternatives analysis, economic/social documentation) – see Chapters 6 & 7 of this appendix.
- If significant degradation is deemed necessary based on the comprehensive Tier 2 review, conduct public participation and intergovernmental coordination consistent with Chapter 8 of this appendix.

- Applicant applies for permit after consultation with NMED.
- EPA (in consultation with NMED) develops draft permit limits based on effluent guidelines, applicable WQS, BWQ (if required), and antidegradation requirements.
- NPDES permitting process/comment period addresses both public notice requirements for antidegradation review and NPDES permitting.
- NMED prepares a Section 401 Water Quality Certification.
- Final permit drafted and issued.

Applicants seeking individual permit coverage for new or expanded discharges to a perennial surface water will be required to provide or collect BWQ information on pollutants of concern (e.g., pH, metals), if that information is not available (see Chapter 4). Data collection may be required depending on the availability of water quality data, nature of the proposed discharge, and the pollutants reasonably expected in the discharge.

***Comprehensive Tier 2 Antidegradation Review Procedure for New or Expanded Discharges to Perennial Waters Requiring an Individual NPDES Permit***

Degradation under Tier 2 will be deemed significant if the new or expanded discharge requiring an individual NPDES permit results in a reduction of available assimilative capacity (the difference between the BWQ and the applicable water quality criterion) of 10% or more at the defined critical flow condition(s) for the pollutant(s) of concern or any consumption of assimilative capacity that exceeds a cumulative cap of 50% of available assimilative capacity for the pollutant(s) of concern. Significant degradation will be determined on a pollutant-by-pollutant basis.

It should be noted that pollutants of concern for Tier 2 antidegradation reviews include those pollutants reasonably expected to be present in the discharge for which a numeric water quality criterion exists. If multiple water quality criteria apply, assimilative capacity will be calculated using the most stringent applicable WQS.

If a determination is made that significant degradation will occur, NMED will determine whether significant degradation is ***necessary*** by evaluating whether reasonable and cost-effective, less degrading or non-degrading alternatives to the proposed new or expanding discharge exist. The applicant will be responsible for conducting an alternatives analysis as described in this guidance. NMED will evaluate the alternatives analysis submitted by an applicant for consistency with the requirements outlined in Chapter 6. The alternatives analysis must provide substantive information on all reasonable, cost effective, less degrading or non-degrading alternative. Alternatives may include:

- Pollution prevention measures
- Reduction in scale of project
- Water reuse
- Treatment process changes
- Innovative treatment technology or technologies
- Advanced treatment technology or technologies
- Seasonal or controlled discharge options to avoid critical flow periods
- Improved operation and maintenance of existing treatment systems
- Alternative discharge locations, including subsurface discharges
- Zero discharge alternatives

As a rule of thumb, NMED will consider non-degrading or less degrading pollution control alternatives with costs that are less than 110 percent of the base costs of the pollution control measures associated with the proposed discharge to be cost-effective and reasonable (see Chapter 6.4 of this appendix).

If it is determined that reasonable, cost-effective, less degrading or non-degrading alternatives to the proposed discharge exist, the project design must be revised accordingly. In general, if such alternative(s) exist, the alternative or combination of alternatives that result in the least degradation must be implemented. If the regulated entity does not agree to adopt such reasonable and cost-effective alternatives, the alternatives analysis findings will be documented and the discharge will not be allowed. If significant degradation would occur even after application of reasonable less degrading or non-degrading alternatives, a determination must be made as to whether the proposed discharge is necessary to accommodate important economic or social development in the area in which the waters are located. NMED will evaluate the social and economic documentation for consistency with the requirements outlined in Chapter 7.

If the proposed discharge is determined to have social or economic importance in the area where the surface water is located, the basis for that preliminary determination will be documented and the Tier 2 review will continue. If significant degradation is proposed, the applicant also must show that the highest requirements for new and existing point source discharges are achieved, that all cost-effective and reasonable best management practices for non-point source pollution control are identified and effectively implemented and that Tier 1 protection is provided.

Tier 2 reviews include the public participation provisions outlined in Chapter 8. Once the intergovernmental coordination and public participation requirements are satisfied, NMED will make a final determination concerning the social or economic importance of the proposed discharge. All key determinations, including determinations to prohibit the discharge, must be documented and made a part of the public record (40 CFR 131.12 (b)).

### **3.4 INDIVIDUAL NPDES STORMWATER PERMITS**

Urban areas with populations greater than 100,000 based on the 1990 census were considered Phase I Municipal Separate Storm Sewer Systems (MS4) communities and were required to apply for an individual NPDES stormwater permit. Urban areas as defined in the 2000 and subsequent census surveys every 10 years are considered Phase II MS4 communities. Stormwater discharges from Phase II MS4s are authorized by individual or general NPDES stormwater permits. However, neither Phase I nor Phase II MS4s authorized under individual stormwater permits are required to meet the same antidegradation requirements that apply to other individual NPDES permits outlined above.

In addition to MS4s, other entities can be required to obtain an individual NPDES stormwater permit by EPA on a case by case basis.

#### ***Overview of the Antidegradation Review for Individual Stormwater Permits***

Antidegradation reviews for individual NPDES stormwater permits will be based on an adaptive management approach. This approach may include routine monitoring of stormwater quality at representative outfalls to adequately characterize stormwater discharges. The permittee will then evaluate, through effectiveness monitoring, whether storm water quality is being maintained, improving, or degrading and whether Best Management Practices (BMPs) identified in the permittee's stormwater pollution prevention plan are effective at controlling the discharge of pollutants. Future antidegradation

review of individual NPDES stormwater permits will consist of an analysis of the effectiveness of the BMPs and compliance with the requirements of the stormwater permit.

### **3.5 GENERAL NPDES PERMITS**

A number of discharges to surface waters are authorized under general NPDES permits. These include stormwater runoff from municipalities required to comply with the Phase II MS4 stormwater permit, industrial activities covered by the stormwater program (Multi Sector General Permits), stormwater from construction sites one acre or larger (Construction General Permits), pesticide applications in or adjacent to surface waters (Pesticide General Permit), and concentrated animal feeding operations (CAFOs).

All NPDES general permits require preparation of a stormwater pollution prevention plan (SWPPP) that includes identification and control of all pollutants associated with the activities to minimize impacts to water quality. The permits also include requirements to implement site-specific interim and permanent BMPs and/or other controls to reduce (or eliminate) pollutant loading to minimize impacts to water quality. BMPs are designed to prevent to the maximum extent practicable an increase in pollutant load to the water body. BMPs also include measures to reduce flow velocity to assure that applicable water quality standards, including the antidegradation policy, are met. Compliance with the terms and conditions of the general permits is required to maintain authorization to discharge under the general permit. Discharges covered by a general permit that do not comply with general permit conditions or antidegradation requirements will be required to seek coverage under an individual permit.

#### ***Overview of the Antidegradation Review for General Permits***

Regulated discharges authorized by general permits are not required to undergo a Tier 2 antidegradation review as part of the permitting process. However, new and reissued general permits must be evaluated to consider the potential for significant degradation as a result of the permitted discharges.

Discharges covered by general permits are transient or essentially non-existent (e.g., “no discharge”) with temporary or short-term impacts. Further, dischargers seeking coverage under a general permit are required in their SWPPP to identify pollutants on a pollutant-by-pollutant basis and to design and implement controls to minimize impacts to water quality. As a result, discharges that comply with general permits are not likely to cause significant degradation of water quality. In addition, activities covered under general permits (e.g., construction, industries, municipalities, dairies, feedlots, etc.) are considered to have social and economic importance to New Mexico. Therefore, antidegradation review for general permits will be based on whether or not the permit conditions are met and if the BMPs are effective at limiting (or eliminating) pollutant loading to minimize water quality impacts.

### **3.6 SECTION 404 PERMITS**

Section 404 of the CWA regulates the placement of dredged or fill material into the “waters of the United States.” The U.S. Army Corps of Engineers (Corps) administers the permit program dealing with these discharges (e.g., wetland fills, in-stream sand/gravel work, etc.), in cooperation with the EPA and in consultation with other public agencies. Individual permits are issued for discharges with significant impacts. Discharges covered under Section 404 permits include any activity that results in the placement of dredged or fill material within the ordinary high-water mark of the waters of the U.S. or within wetlands recognized as waters of the U.S.

### **Overview of the Antidegradation Review for Regional or Nationwide Permits under Section 404 of the CWA**

Antidegradation reviews involving the placement of dredged or fill material will be performed via the water quality certification process under Section 401 of the CWA. New Mexico manages its Section 401 water quality certification program to ensure that discharges resulting in the placement of dredged or fill material into surface waters do not cause water quality impairments or significant degradation of surface waters. New Mexico certifies general Section 404 permits (“regional” permits issued by the Albuquerque district of the Corps, and “nationwide” permits issued at the national level) in advance of individual projects that will be covered by the permits. New Mexico denied certification of the 2017 nationwide permits for projects in ONRWs, except for projects covered by Nationwide Permit 27 (for “Aquatic Habitat Restoration, Enhancement, and Establishment Activities”). Pursuant to Section 404, the Corps requires dischargers to obtain specific authorization from the Corps before commencing a discharge under a nationwide or regional permit. A Corps notification requirement (Regional Condition 2b) coupled with a state Section 401 certification condition provides NMED the opportunity to review projects proposed for authorization under a nationwide permit and confirm their consistency with the existing Section 401 certification. This review process often results in improvements in project design and BMP selection and ensures compliance with the antidegradation policy.

For new nationwide Section 404 permits, new regional Section 404 permits, or projects covered by existing Section 404 permits that have not yet received Section 401 certification (as of 2020, projects located in ONRWs and not covered by Nationwide Permit 27), NMED considers developing new Section 401 certifications. Based on this review, NMED may make one of three decisions: 1) grant the certification, 2) grant the certification with conditions, or 3) deny the certification.

NMED’s Surface Water Quality Bureau (SWQB) will use the Section 401 certification process to evaluate whether a discharge will cause significant degradation to water quality. Pollutant loads from dredge or fill projects regulated under Section 404 of the CWA are often difficult or impossible to quantify in the same manner as practiced in NPDES permits. Dredge or Fill permits are often used for temporary construction measures in or near a watercourse that may result in disturbance or deposition of sediments in the water. The primary tool for limiting the discharge of pollutants (e.g., sediment and contaminated sediment) from these activities is through certification conditions mandating the installation and operation of BMPs that prevent pollutant transport to a watercourse and thereby degradation. The SWQB reviews dredge or fill projects pursuant to the State’s water quality certification procedures as described under 20.6.2.2002 NMAC and Section 401 of the CWA. To protect and maintain water quality, the SWQB has long employed a strategy of requiring the implementation of BMPs that are designed to prevent to the maximum extent possible the discharge of pollutants to a surface water.

Under the BMP-based approach adopted by New Mexico, regulated discharges that qualify for coverage under the Corps regional or nationwide Section 404 permits that have been certified by the state pursuant to Section 401 of the CWA will not be required to undergo a formal antidegradation review at the time of submitting a Preconstruction Notification and receiving authorization to discharge under the nationwide permit. Antidegradation requirements will be deemed to be met if all appropriate and reasonable BMPs related to erosion and sediment control, project stabilization, and prevention of water quality degradation (e.g., preserving vegetation, stream bank stability, and basic drainage hydrology) are applied and maintained. Applicants desiring to fulfill antidegradation review requirements under this approach will be responsible for ensuring that nationwide permit requirements and relevant water quality certification conditions are met.

Regulated discharges that may degrade waters protected at the **Tier 3** level must comply with the antidegradation requirements applicable to that protection level (i.e., only temporary impacts are allowed as authorized under procedures laid out in 20.6.4.8(A)(3) and 20.6.4.8(A)(4) NMAC) before a certification will be granted under Section 401 of the CWA. Any discharge authorized under an individual or nationwide permit (with the exception of Nationwide Permit 27) under Section 404 of the CWA currently requires an individual certification if it will discharge to an ONRW to ensure that impacts will be temporary.

NMED reserves the right to make case-specific determinations regarding the implementation of this approach during the Section 404 permitting or Section 401 water quality certification processes, which must be completed prior to the commencement of any discharges that result in the placement of dredged or fill material into New Mexico surface waters.

### ***Impacts to Downstream or Adjacent Waters***

It is important to note that where a discharge covered by a regional or nationwide general permit under Section 404 of the CWA, the permit only applies to the site of the fill and does not apply to activities or conditions downstream of or adjacent to the site of the fill.

Certain nationwide and regional permits require individual certification by the State of New Mexico in accordance with Section 401 of the CWA. During that individual certification process, NMED will evaluate any potential impacts to downstream waters and incorporate certification requirements to ensure compliance with all aspects of the antidegradation rule.

### ***Overview of the Antidegradation Review for Individual Permits Under Section 404 of the CWA***

The decision-making process for individual Section 404 permits is contained in the Section 404(b)(1) guidelines and contains all of the required elements for a Tier 1 and Tier 2 antidegradation review. (40 CFR Part 230). Prior to issuing a permit under the Section 404(b)(1) guidelines, the Corps must: 1) make a determination that the proposed discharges are unavoidable (i.e., necessary); 2) examine alternatives to the proposed discharge and authorize only the least damaging practicable alternative; and 3) require mitigation for all impacts associated with the discharge. A Section 404(b)(1) findings document is produced as a result of this procedure and is the basis for the permit decision. Public participation is also provided for in this process. Because the Section 404(b)(1) guidelines meet the requirements of a Tier 1 and Tier 2 antidegradation review, NMED will not conduct a separate review for the proposed discharge. Tier 1 and Tier 2 antidegradation review will be met through Section 401 certification of individual Section 404 permits and will rely upon the information contained in the Section 404(b)(1) findings document. Any discharge to a Tier 3 water authorized under an individual or nationwide permit under Section 404 (with the exception of Nationwide Permit 27) currently requires an individual Section 401 certification.

## 4 Determining Baseline Water Quality

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*Existing* – or Baseline Water Quality (BWQ) – provides the reference against which predicted degradation associated with a regulated discharge is measured. This section describes how BWQ is characterized through:

- Establishment of BWQ information for perennial surface waters using existing water quality data.
- Approaches which consider the size and potential impacts of the proposed discharge when determining data needs for BWQ characterization and antidegradation review.
- Cooperative action by both NMED and the applicant to generate BWQ information where few or no data exist.

### 4.1 SUMMARY OF APPROACH

BWQ is used to evaluate an activity or discharge and determine whether it will degrade or **lower water quality**. Only an activity or discharge that might cause degradation is subject to a Tier 2 antidegradation evaluation. This evaluation is performed for each parameter or pollutant of concern for which the surface water is afforded Tier 2 protection.

In general, BWQ for perennial waters will be based upon existing data collected under NMED monitoring and assessment programs. Evaluations of BWQ will seek to gather information on pollutants of concern reasonably expected to be in discharges regulated by an individual NPDES permit, including suspended and settleable solids, sediment, nutrients, bacteria, biological oxygen demand, and metals. Information about other pollutants of concern will be handled on a case by case basis.

Where no, or few, data exist, NMED will advise the applicant on what data are needed and provide guidance to the applicant on how to collect and report the needed information to NMED. For perennial waters, the priority approach for evaluating BWQ is to use existing water quality data where available. Where adequate data are not available, the second priority approach is to collect BWQ data. Note that due to the lack of flow on intermittent, ephemeral, and effluent dependent, these types of surface waters will be subject to Tier 1 protection levels and appropriate water quality-based effluent limits designed to achieve applicable water quality standards. If ambient water quality information is available for an intermittent water, BWQ will be determined and Tier 2 requirements applied to the waterbody. Therefore, applicants proposing discharges to these surface waters will not be required to determine BWQ.

The regulated entity for a new or expanded discharge to a perennial water that will be regulated by an individual permit generally will be required to provide BWQ data for pollutants of concern that are reasonably expected to be discharged to help NMED determine BWQ, existing uses, and the applicable tier. **The regulated entity is advised to contact NMED prior to initiating an evaluation of BWQ to seek guidance and concurrence regarding the pollutants to be evaluated and the proposed sampling protocols.** This initial consultation may also be used by regulated entities to evaluate the availability of existing data that may be used as a supplement to, or in lieu of, new BWQ data.

*Once BWQ is established for a surface water, it is the yardstick against which degradation is measured during all future antidegradation reviews for that surface water unless BWQ is updated by NMED to reflect changes in water quality. Antidegradation policy generally does not allow a lowering of BWQ. However, certain circumstances may allow for re-evaluation of BWQ. For example, if it is shown that there was an*

error in determining BWQ, then BWQ can be re-evaluated. Likewise, if water quality has improved, allowing for additional available assimilative capacity, then a request for re-evaluation of BWQ will be considered by NMED.

Table 4-1 shows the minimum BWQ information required, by size of discharge (design flow in million gallons per day), before permit development. Data collection for other pollutants may be required depending on the nature of the proposed discharge and the pollutants reasonably expected in the discharge. The BWQ requirements will be based on the surface water quality upstream of the facility.

**Table 4-1. Minimum BWQ Information for Dischargers**

Parameter/Pollutant	All Dischargers	Discharges >0.1 MGD	Discharges > 1.0 MGD
Flow	Y	Y	Y
Temperature	Y	Y	Y
BOD5/CBOD5/DO	Y	Y	Y
<i>E. coli</i>	Y	Y	Y
Total Suspended Solids	Y	Y	Y
pH	Y	Y	Y
Total Ammonia		Y	Y
Total Residual Chlorine		Y	Y
Total Nitrogen		Y	Y
Total Phosphorus		Y	Y
Total Dissolved Solids		Y	Y
Aluminum, either dissolved or TR			Y
Antimony, dissolved			Y
Arsenic, dissolved			Y
Beryllium, dissolved			Y
Barium, dissolved			Y
Boron, dissolved			Y
Cadmium, dissolved			Y
Chromium, dissolved <sup>1</sup>			Y
Cobalt, dissolved			
Copper, dissolved			Y
Cyanide, TR			
Lead, dissolved			Y
Manganese, dissolved			

<sup>1</sup> Upon consultation, NMED may require speciation of chromium into chromium III and chromium VI.

Parameter/Pollutant	All Dischargers	Discharges >0.1 MGD	Discharges > 1.0 MGD
Mercury <sup>2</sup>			Y
Molybdenum, either dissolved or TR			
Nickel, dissolved			Y
Selenium, either dissolved or TR			Y
Silver, dissolved			Y
Thallium, dissolved			Y
Uranium, dissolved			Y
Vanadium, dissolved			Y
Zinc, dissolved			Y
Hardness, dissolved – must be taken concurrently with metals sampling.			Y
Other constituents (i.e. organics, PCBs, or other applicable pollutants) based on consultation, type of facility	Y	Y	Y

## 4.2 BASELINE WATER QUALITY EVALUATION PROCEDURES

As needed, BWQ will be established if no BWQ characterization is available or if no information is available for a pollutant of concern reasonably expected to be discharged into the surface water. Data used for a BWQ characterization must meet the following criteria: 1) collected in accordance with an approved quality assurance project plan (QAPP); and 2) collected using specified sample collection and analysis protocols (SOP, SAP, etc.).

Given the complexity of the issue, BWQ characterizations may take some time to complete. It is recommended that regulated entities submit their BWQ monitoring plan and QAPP well in advance of any planned activities or permit application submittals, to facilitate and streamline the permitting process. In addition, environmental groups, trade organizations, the general public, and other governmental agencies may elect to generate BWQ data with the prior approval of NMED and under appropriate, documented quality assurance / quality control (QA/QC) procedures. The objective of this effort is to generate a reasonable, credible, and scientifically defensible characterization of existing water quality for antidegradation reviews.

During data generation projects by regulated entities or third parties, NMED may conduct field, laboratory, or QA/QC audits to verify that data generators are adhering to established sampling protocols, and may split samples for independent analysis. **Data generators that proceed without agency**

<sup>2</sup> Upon consultation, NMED may require speciation of total mercury or dissolved mercury. Methylmercury analysis may also be required.

**notification and concurrence risk rejection of the data and significant delays in the permitting process.** Potential generators of BWQ data are also encouraged to notify other regulated entities and stakeholders in the water quality segment or watershed of their intent to generate BWQ data. Stakeholder cooperation in the BWQ evaluation process may allow sharing of the cost of data generation and avoidance of conflict in subsequent permitting actions.

### **4.3 BWQ SAMPLING LOCATION**

For new or expanded discharges into a perennial water where there are no existing water quality data on the surface water (i.e., where new data must be collected for evaluation of BWQ), the BWQ sampling location generally will be immediately upstream of the proposed discharge location. Determinations regarding BWQ characterization and accommodation of variations caused by seasonal impacts, water level fluctuations, or other factors will be made by NMED. Information submitted by permittees will be considered on a case-by-case basis.

Where there is adequate, existing water quality data from multiple sampling sites on a surface water, these stations can become the BWQ stations from which a composite BWQ characterization can be developed. Alternatively, NMED may choose one existing monitoring site as the BWQ station from which to characterize baseline water quality. NMED may request additional monitoring at the site if the existing data are insufficient, e.g., where no information has been collected on pollutants of concern reasonably expected in the proposed discharge. Applicants also may be required to collect BWQ data after the permit is issued to develop a BWQ profile during build-out of the activity's discharge capacity.

#### ***Sampling and Analysis Protocol***

In general, BWQ will be established through existing monitoring and assessment programs sponsored or approved by NMED. NMED will consider the use of older data on a case-by-case basis, as deemed appropriate, if such data is representative of BWQ conditions. In cases where significant changes have occurred in the watershed, it may be appropriate to use a shorter period of record. The minimum elements of an acceptable BWQ monitoring plan include the collection of at least four samples (one sample per quarter) over a minimum one-year period. Data generators may sample more frequently than specified, but are expected to provide the results of all monitoring. Only NMED-approved monitoring results will be used in the establishment of BWQ. Applicants are advised to seek input from NMED prior to developing a BWQ sampling plan and/or collecting samples.

The sampling plan should address the following elements: experimental design of the sampling project; project goals and objectives; evaluation criteria for data results; background of the sampling project; identification of target conditions (including a discussion of whether any weather, seasonal variations, stream flow, lake level, or site access may affect the project); data quality objectives; types of samples scheduled for collection; sampling frequency; sampling period; sampling locations and rationale for site selection; and a list of field equipment (including tolerance range and any other specifications related to accuracy and precision).

Samples, containers, preservation techniques, holding times, and analysis should be conducted in accordance with *Guidelines Establishing Test Procedures and Analysis of Pollutants* at 40 CFR Part 136 and performed by a laboratory certified by the New Mexico Department of Health. The use of other validated analytical methodologies may be authorized where such use can be technically justified. Stream flow should be measured each time BWQ sampling is performed.

It is important to note that the BWQ pollutant concentrations derived from the data generated will be assumed to be the concentration present during the normal annual low-flow period. All stream samples should be taken when there is a measurable surface flow in the segment at the BWQ sampling location. If environmental conditions prevent achieving the minimum collection requirements, the sampling period should be extended until at least 4 samples are obtained. Acceptable methods for flow measurement include those described in the *Standard Operating Procedure for Stream Flow Measurement* (NMED/SWQB 2015) or at [https://www.env.nm.gov/wp-content/uploads/2017/06/SOP\\_7.0\\_Discharge\\_4-7-15.pdf](https://www.env.nm.gov/wp-content/uploads/2017/06/SOP_7.0_Discharge_4-7-15.pdf), or in the U.S Geologic Survey manual *Techniques of Water Resources Investigations of the United States Geologic Survey* (Chapter A8, Book 3, “Discharge Measurements at Gauging Stations”) or at <https://pubs.water.usgs.gov/TWRI3A8/>.

## **4.4 POLLUTANTS OF CONCERN**

Pollutants of concern are those pollutants reasonably expected to be present in a discharge and may adversely affect the water quality of a receiving water body. Not every chemical found in the discharge nor every pollutant for which there are water quality criteria will be of concern. Pollutants that rise to the level of concern will vary by discharge—its quality as well as size—and location of that discharge (i.e., quality of the receiving water).

New or expanded dischargers regulated by an individual permit may be required to generate BWQ data for any pollutants of concern associated with the proposed discharge to a perennial water. In addition to the pollutants of concern, regulated entities may also be requested to provide water quality data for parameters necessary to determine the appropriate value range of water quality criteria (e.g., pH, temperature, hardness). The applicant may also be required to collect data pertaining to impairments in the receiving waterbody. Again, the importance of consultation between BWQ data generators and NMED staff prior to BWQ data generation cannot be overstated.

## **4.5 INTERPRETATION OF DATA AND ESTABLISHMENT OF BWQ**

Generators of BWQ data are expected to provide documentation of their adherence to approved or established protocols and certification that the submitted information is accurate and complete. NMED will review available data and determine BWQ for surface waters on a pollutant-by-pollutant basis. Data generators should make every effort to use the most sensitive, practical analytical methods available. **The use of less sensitive analytical methods may cause rejection of the data set.**

In general, NMED will calculate the geometric mean of all credible data to determine BWQ for a particular pollutant, except *E. coli* bacteria for which the geometric mean will be calculated. For data sets that contain “not detected” or “less than” analytical results, BWQ will be considered to be the detection limit where the reported detection limit is less than or equal to the applicable water quality standard for the pollutant. If at least one data point is detected above the detection limit and the rest of the data points are reported as “less than”, then all the data reported as “less than” will be counted as ½ the detection limit when calculating the geometric mean for the BWQ determination.

For data sets where the detection limit is greater than the applicable standard for a pollutant and the reported data are “not detected” or “less than”, NMED may request additional data that is analyzed at an appropriate detection level. If additional data are not provided, NMED will use ½ the detection limit when calculating the geometric mean for the BWQ determination.

NMED will use the initial BWQ value established for a particular pollutant in a surface water to judge the impact of all subsequent proposals for discharges involving that pollutant. BWQ re-evaluations may be appropriate if the data used in the original determination is shown to be inaccurate or invalid or if the water quality of the segment is significantly improved when compared with the original BWQ determination. Affected stakeholders may submit a request to NMED for a BWQ re-evaluation under those circumstances. Sampling and analysis will follow the approach in Section 4.3 of this policy, including collection of a minimum of four data points for the re-evaluation.

For a waterbody to show significant improvement, NMED will evaluate old versus new data using the Relative Percent Difference (RPD) of the data. In perennial waterbodies, if the RPD indicates that the water has improved (with respect to specific analytes) according to the matrix listed below, a BWQ re-evaluation may be warranted. Other considerations for a re-evaluation of BWQ include sampling techniques, sample processing and transport, and laboratory analyses.

Table 4-1

<b><u>Analyte Class (as noted in 20.6.4.900 NMAC)</u></b>	<b><u>Relative Percent Difference (RPD) threshold for BWQ Re-evaluation</u></b>
Persistent/Bio-accumulative (HH-OO)	No re-evaluation – NMED will consider bio-accumulative pollutants on a case by case basis
All other analytes	≥20% improvement in water quality

## 5 Evaluating the Level of Degradation of Proposed Discharges

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Antidegradation reviews are required for all regulated discharges that have the potential to degrade water quality in New Mexico. The review procedures described in this chapter do not apply to non-point sources of pollution (addressed in the Nonpoint Source Management Plan), discharges covered under Section 404 of the CWA (addressed through certification conditions and implementation of BMPs) or NPDES general permits (addressed through the implementation of benchmarks and BMPs). The antidegradation procedures vary by the tier level of protection and by the type of surface water. For pollutants with Tier 2 protection levels, the degradation evaluation determines whether or not significant degradation will occur – i.e., whether or not 10% or more of the available assimilative capacity for any pollutant of concern will be consumed as a result of the proposed discharge during critical flow (e.g., 4Q3) conditions or the cumulative cap of 50% of available assimilative capacity is exceeded. The level of degradation will be evaluated from BWQ conditions.

For Tier 3 protection levels, the degradation evaluation must determine that no degradation will occur as a result of the proposed discharge unless the impacts are temporary. As a general rule of thumb, temporary impacts are defined as impacts of less than six months duration.

### 5.1 APPLICABILITY OF DEGRADATION TO THE VARIOUS PROTECTION TIERS

The concept of degradation is relatively simple: any discharge that results in a decline of water quality (as determined on a pollutant-by-pollutant basis). Degradation is not allowed to cause or contribute to impairments that result in the loss of existing uses (i.e., the Tier 1 threshold), and is not allowed at all in Outstanding New Mexico Waters (ONRWs) unless it is temporary (i.e., the Tier 3 threshold) as determined by NMED and approved according to 20.6.4.8 NMAC.

Significant degradation may be allowed in surface waters protected at the Tier 2 level if the applicant for a new or expanded discharge characterizes the effluent and BWQ, completes an alternative analysis, and provides social and economic supporting documentation. For Tier 2 reviews, determining BWQ, evaluating projected impacts, analyzing possible alternatives, and evaluating economic or social benefits, if applicable, must occur **prior to** issuing an individual NPDES permit. Therefore, it is recommended that an applicant discharging to a perennial water meet with NMED in a pre-application conference **at least one year prior** to the anticipated date of NPDES permit issuance.

Decisions regarding significant degradation of Tier 2 protection levels will only be made after the required alternatives analysis along with economic and social benefits justification have been completed, after technology-based and nonpoint source control requirements are met, and after the intergovernmental coordination and public participation provisions in Chapter 8 have been satisfied.

## **5.2 PROCEDURE FOR TIER 2 DEGRADATION EVALUATION**

Tier 2 evaluation procedures vary by the type of surface water, as outlined below:

### ***Discharges to Non-Perennial Waters***

Many individual NPDES permit applicants will likely discharge to an ephemeral, intermittent, or effluent dependent water. Tier 2 degradation evaluation procedures do not apply to these discharges. Discharges to non-perennial waters will be required to meet applicable surface water quality standards and technology-based standards, e.g., best available technologies (BAT) at the “end-of-the-pipe” (i.e., Tier 1 degradation evaluation procedures).

In some limited cases, data may be available to determine BWQ in these non-perennial waters. If data are available and assessable and confirm a high-quality water, NMED would conduct a Tier 2 antidegradation review. Similar to perennial waters, no significant degradation of the Tier 2 pollutants would be allowed unless a comprehensive antidegradation review of reasonable alternatives and social and economic considerations supports a lowering of water quality.

### ***Discharges to Perennial Waters***

All other individually-permitted discharges to perennial waters must conduct an antidegradation review to determine whether or not significant degradation will occur, i.e., whether or not 10% or more of the available assimilative capacity for any pollutant of concern will be consumed as a result of the proposed discharge during critical flow (e.g., 4Q3) conditions or the cumulative cap of 50% of assimilative capacity is exceeded. The Tier 2 degradation review for new or expanded discharges is based on these characterizations:

- BWQ, as determined by data collected pursuant to Chapter 4
- The critical in-stream flow (e.g., 4Q3)
- The flow and pollutant loads resulting from the proposed discharge
- Projected changes in water quality that occur as a result of the proposed discharge

The results of the antidegradation review will be used to determine whether the proposed discharge will be subject to additional requirements as part of the permitting process, such as analyses of reasonable, cost-effective, less degrading or non-degrading alternatives and examination and justification of important economic and social costs and benefits (see Chapter 6 and Chapter 7, respectively).

### ***Mixing Zones***

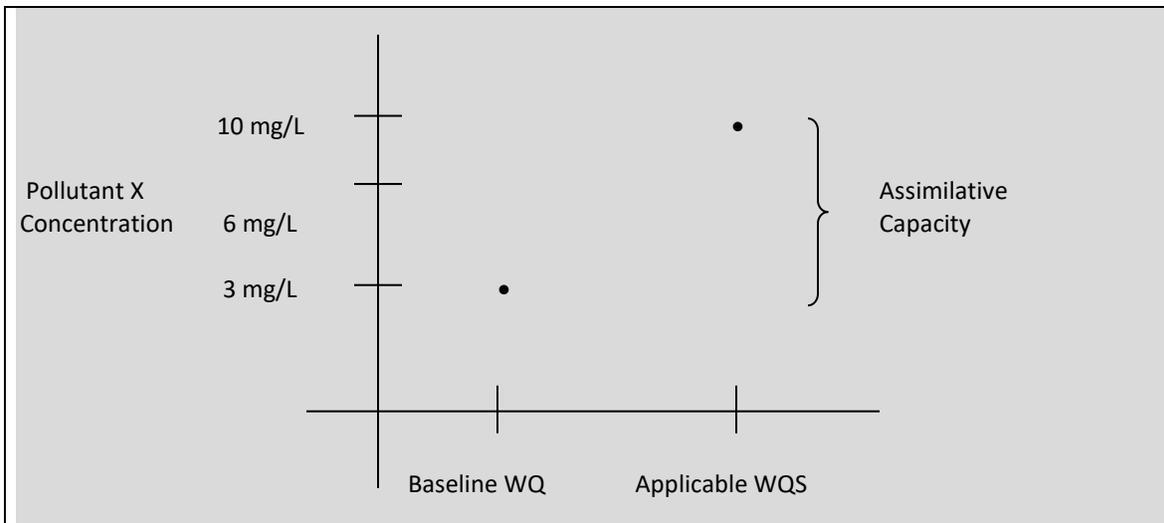
If needed, a new or expanded facility who discharges to a perennial water may be evaluated for the applicability of a mixing zone analysis on a case by case basis.

## **5.3 CALCULATIONS TO DETERMINE SIGNIFICANCE OF DEGRADATION**

At the Tier 2 protection levels, BWQ is better than the water quality standards for one or more pollutants. Therefore, no significant degradation from BWQ is allowed unless a comprehensive antidegradation review of reasonable alternatives and social and economic considerations supports a lowering of water quality. Degradation is generally assumed to be “significant” if a discharge consumes 10% or more of a surface water’s assimilative capacity for any pollutant of

concern (other than bio-accumulative pollutants as defined by the human health-organism only (HH-OO) criteria at 20.6.4.900 NMAC) under critical flow conditions or the discharge consumes any percentage of the cumulative assimilative capacity beyond 50%.

To determine if a discharge will cause significant degradation, assimilative capacity must be calculated and then evaluated under critical flow conditions. The first step in this process is to calculate the assimilative capacity and significant degradation limit. The assimilative capacity of the waterbody for any pollutant of concern under review is the difference between *observed* BWQ and the most stringent applicable water quality criterion. Figure 5-1 provides a simplified visual representation of assimilative capacity for a given pollutant (Pollutant X). In this example, the most stringent applicable water quality criterion for Pollutant X is 10 mg/L and the *observed* BWQ measurement is 3 mg/L. In Figure 5-1, the assimilative capacity of Pollutant X is the difference between the water quality criterion and the BWQ, or 10 mg/L minus 3 mg/L, and equals 7 mg/L. The “significant degradation” limit is 10% of the assimilative capacity (7 mg/L) or 0.7 mg/L. Thus, a regulated discharge undergoing a Tier 2 review would be considered *de minimis* (i.e., no significant degradation) if it did not cause the water quality in the receiving surface water to exceed the BWQ (3 mg/L) plus the significant degradation limit (0.7 mg/L), or 3.7 mg/L for Pollutant X.



**Figure 5-1. Simplified Representation of Assimilative Capacity**

The second step to determine the significance of degradation is to evaluate the “significant” assimilative capacity concentration, identified in step one, under critical flow conditions. While NMED’s antidegradation formula evaluates the assimilative capacity concentration similar to the example shown above in Figure 5-1, that resultant concentration is converted to a load using the receiving stream’s critical flow and a conversion factor of 8.34. For example, the significant degradation concentration limit of 3.7 mg/L for Pollutant X in Figure 5-1 is converted to a loading capacity using the following formula:

$$Load\ Capacity\ \left(\frac{lbs}{day}\right) = concentration\ \left(\frac{mg}{L}\right) \times flow\ (4Q3, million\ gallons\ per\ day) \times 8.34$$

**Consideration of Multiple Discharges – 50% Cumulative Cap**

To address degradation associated with multiple regulated discharges to the same receiving water over time, NMED is establishing a separate significance threshold of a 50% cumulative cap on the consumption of assimilative capacity. This approach creates a “backstop” so that multiple regulated discharges to a water body over time which individually do not consume 10% of the assimilative capacity do not result in the consumption of the majority of the assimilative capacity without NMED ever conducting a comprehensive Tier 2 antidegradation review. NMED has established this significance threshold at 50% of the assimilative capacity when BWQ is characterized. This means that once 50% of the assimilative capacity is used in a surface water for a pollutant of concern, any further lowering of water quality is considered significant degradation. NMED will conduct a comprehensive Tier 2 antidegradation review for each lowering of water quality once the 50% cumulative cap is exceeded, regardless of the amount of assimilative capacity that would be used by the regulated discharge.

**Critical Flow**

The calculations noted above are to be executed under critical flow conditions for the pollutants of concern. For point source discharges, critical flow for all criteria/pollutants, except HH-OO, is the minimum four consecutive day flow that occurs with a frequency of once in three years (4Q3) in the receiving water. (20.6.4.11(B)(2) NMAC). Critical lake and reservoir water levels will be determined on a case-by-case basis.

**Calculations for Tier 2 Pollutants**

The calculation to determine if a discharge will result in significant degradation is a variation of the mass balance equation that is used to determine water quality-based effluent limits:

$$(Q_d)(C_d) + (Q_s)(C_s) = (Q_r)(C_r)$$

Where:

$Q_d$  = discharge flow cfs

$Q_s$  = stream flow (4Q3)

$Q_r$  = resulting in-stream flow (downstream of discharge, or  $Q_s + Q_d$ )

$C_d$  = discharge concentration,

$C_s$  = concentration in stream

$C_r$  = resultant in-stream concentration

Solve for  $C_d$ :

$$C_d = \frac{[C_r(Q_d + Q_s)] - [(C_s)(Q_s)]}{Q_d}$$

For purposes of Tier 2 antidegradation reviews, NMED solves for the discharge concentration that uses 10% of the assimilative capacity:

Where:

$C_{bwq} = BWQ$

$C_r = \text{resultant in-stream concentration} = [(WQS - C_{bwq}) \times 0.1 + C_{bwq}]$

$$C_d = \frac{[(WQS - C_{bwq}) \times 0.1 + C_{bwq}](Q_d + Q_s) - [(C_s)(Q_s)]}{Q_d}$$

The calculated discharge concentration ( $C_d$ ) is compared with the proposed discharge concentration. If the calculated concentration is greater than the proposed concentration, then a determination of “no significant degradation” is found. If the level of degradation is estimated to be less than 10% of the assimilative capacity, and less than 50% of the cumulative cap (if applicable), *and* existing uses are maintained, the antidegradation review process is complete and the permitting process may proceed.

If the discharge is found to consume more than 10% of available assimilative capacity (calculated < proposed) or exceeds the 50% cumulative cap, a comprehensive Tier 2 review is required. The regulated discharge would be required to conduct an alternatives analysis (Chapter 6) and demonstrate “important economic or social development” (Chapter 7) if allowances are sought to further reduce assimilative capacity. If such demonstrations are made, the WQCC may allow consumption of additional assimilative capacity (degradation) as long as intergovernmental and public participation processes are followed and water quality standards are not violated.

## 6 Identifying and Evaluating Pollution Control Alternatives for Tier 2 Protection

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A regulated entity proposing a new or expanded discharge requiring an individual NPDES permit that would significantly degrade water quality in a Tier 2 surface water (i.e., consume 10% or more of the assimilative capacity or exceed the cumulative cap of 50% for any pollutant of concern) is required to prepare an evaluation of alternatives to the proposed discharge. The evaluation must provide substantive information pertaining to the cost and environmental impacts associated with the proposed discharge and the alternatives evaluated. This chapter provides guidance on how to evaluate alternatives when an impacts analysis determines that significant degradation may occur.

The intent of the alternatives analysis is to identify cost-effective and reasonable *less degrading* or *non-degrading* approaches for reducing discharge-related impacts so they do not result in significant degradation of the receiving water.

### 6.1 LESS DEGRADING AND NON-DEGRADING POLLUTION CONTROL MEASURES

Under New Mexico's antidegradation implementation procedures, applicants are required to analyze these alternatives if their proposed discharge will cause significant degradation of higher quality (i.e., Tier 2) waters. Less degrading or non-degrading pollution control alternatives identified and evaluated during this process should be reliable, demonstrated processes or practices that can be reasonably expected to result in a defined range of treatment or pollutant removal.

Applications containing proposals for new or experimental methods will be required to append information regarding likely performance results and may be approved at the discretion of NMED with the understanding that if the proposed technology does not meet projected pollutant control targets the applicant must adopt conventional or other pollution control measures that meet state antidegradation requirements.

Pollution control alternatives that may be evaluated when a proposed discharge will result in significant degradation of the receiving water segments may include the following:

- Alternative methods of production or operation
- Pollution prevention and treatment process changes
- Recycling/reusing wastewater (i.e., closed loop systems)
- Holding/transport facilities for treatment/discharge elsewhere
- Groundwater recharge (i.e., soil-aquifer treatment, injection)
- 100% reuse
- Advanced or innovative biological/physical/chemical treatment
- Pollution prevention and process changes
- Improvements in the collection system
- Improved operation and maintenance of existing treatment system

- Seasonal or controlled discharges to avoid critical periods
- Alternative discharge locations, and associated water quality impacts at those locations
- Reduction in the scope of the proposed project

Applicants will be expected to address reasonable and cost-effective alternatives, or mix of alternatives, in their evaluations. NMED staff and the applicant will meet to discuss these and other issues early in the process. It is the responsibility of the applicant to screen for and propose a list of reasonable, cost-effective alternatives that will be evaluated in detail. NMED may require that additional alternatives be analyzed.

If the project results in significant degradation even after applying reasonable, cost-effective alternatives, the proposal must demonstrate 1) important social or economic development as outlined in Chapter 7; 2) the level of water quality necessary to protect existing uses is maintained (i.e., Tier 1 protection); 3) all cost-effective and reasonable BMPs for nonpoint source control are implemented; and 4) the highest statutory and regulatory requirements for all new and existing point sources are achieved (20.6.4.8(A)(2) NMAC).

## **6.2 IDENTIFYING COST COMPONENTS AND ASSESSING COSTS**

An assessment of costs related to the alternatives summarized above is necessary to determine whether or not a prospective alternative pollution control measure is reasonable. General cost categories include:

- Capital costs
- Operating costs
- Other costs (one-time costs, savings, opportunity cost, salvage value)

In order to develop a standardized framework for projecting, evaluating, and comparing costs associated with various pollution control measures, applicants should use a “present worth” framework for generating and reporting cost information. Components of the present worth framework include:

$$P = C + O + [A * (P/A, d, n)] - S - L$$

Where:

- P = Present worth,
  - C = Capital cost,
  - O = Other costs (expressed as dollars invested at the beginning of the project),
  - A = Annual operating cost,
  - d = Discount rate,
  - n = Useful life in years,
  - S = Present worth of salvage value of facilities,
  - L = Present worth of salvage value of land, and
- (P/A, d, n) = Equal series present worth factor, =  $[(1 + d)^n - 1] / [d (1+d)^n]$ .

The present worth calculated for the alternative technologies depends on the right choice for the discount rate (d), and the useful life (n) of the equipment or facility. Recommended discount rates for New Mexico are provided by the New Mexico Water Infrastructure Finance Authority (WIFA). The useful life of the facility or equipment is based upon similar facilities or equipment handling similar wastes and flows and must be approved by NMED. Speculative costs for land, facilities,

etc., will not be allowed. For more information on the present worth calculation and other methods that may be used to assess costs, see Appendix A1, Direct Cost Comparison of Alternatives.

### **6.3 EVALUATING ENVIRONMENTAL IMPACTS ASSOCIATED WITH ALTERNATIVES**

Pollution control measures evaluated as alternatives to a proposed discharge may have environmental impacts that help define their overall value and/or desirability. Applicants are required to provide substantive information pertaining to both the cost and environmental impacts associated with pollution control alternatives evaluated for discharges that would significantly degrade Tier 2 level of protection. The information related to environmental impacts should include impacts on the natural environment (i.e., land, air, and water) resulting from implementation of the alternative. The types of impacts evaluated during this process may include:

- Sensitivity of stream uses
- Need for low-flow augmentation
- Sensitivity of groundwater uses in the area
- Potential to generate secondary water quality impacts (storm water, hydrology)
- System or technology reliability, potential for upsets/accidents
- Effect on endangered species
- Non-water quality environmental impacts
- Nature of pollutants discharged
- Dilution ratio for pollutants discharged
- Discharge timing and duration
- Siting of plant and collection facilities

Review of these impacts might be on a qualitative or quantitative basis, as appropriate. Non-water quality environmental impact analyses to be submitted by the applicant include estimations of the potential impact of the alternative(s) on odor, noise, energy consumption, air emissions, and solid waste generation. Odor and noise may be addressed qualitatively while other non-water quality impacts might need to be addressed quantitatively. The energy use, air emission, and solid waste generation impacts can be expressed as a percent increase/decrease as compared to the proposed discharge. Other factors that should be considered during the review include the technical, legal, and local considerations of the various alternatives examined. The schedule and the estimated time of completion of the project should also be provided for each alternative discussed.

### **6.4 COST AND REASONABLENESS CRITERIA FOR ALTERNATIVES EVALUATION**

In general, an alternative or suite of alternatives is considered to be cost-effective and reasonable if it is feasible and the cost is less than 110% of the *base costs* of pollution control measures for the proposed discharge in present worth costs. It should be noted that the 110% cost-effectiveness criterion is a general rule-of-thumb – if pollution control costs for alternatives that

would result in water quality benefits exceed the 110% cost threshold, those alternatives may be required if the water quality and environmental benefits outweigh the economic costs.

When calculating the cost of a proposed discharge and any less- or non-degrading alternatives, it is important to identify the base cost for required pollution control measures for any proposed discharge. The base cost for NPDES-permitted facilities is the cost of treatment to meet applicable water quality standards or the cost of meeting federal technology-based requirements, whichever is more stringent and legally applicable. The base cost for Section 404 dredge-and-fill permits (e.g., wetland fills, mining streambed fills) is the cost of pollution controls to meet minimum Section 404 permit and Section 401 water quality certification requirements.

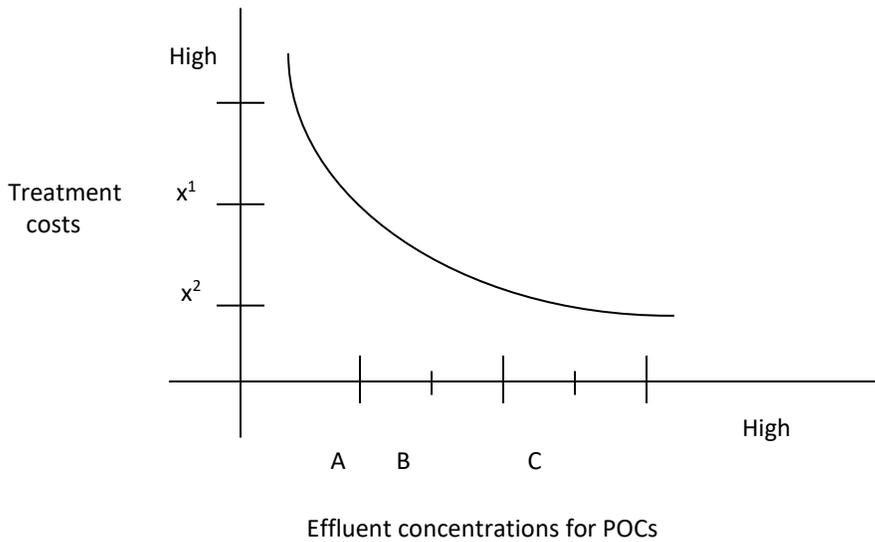
## **6.5 PROCEDURE FOR COMPARING COSTS OF VARIOUS ALTERNATIVES**

In reviewing costs for a variety of discharge scenarios, three reference costs can be identified (see Figure 6-1):

- The cost of treatment that results in no discharges of any pollutants of concern (the “no-discharge” cost).
- The cost of treatment that produces an effluent that results in no significant degradation of the receiving water, i.e., that does not consume more than 10% of the available assimilative capacity for any pollutant of concern.
- The cost of treating an effluent to a quality that meets specific effluent/ BAT limits or water quality criteria for any/all pollutants of concern (i.e., the conceptual minimum Tier 1 requirement).

The base cost for comparing the reasonableness and cost-effectiveness of less degrading or non-degrading alternatives is the cost of producing an effluent that meets water quality standards or the cost of meeting federally-required effluent concentration limits or best available technology, whichever is more stringent (level C in Figure 6-1).

Applicants will be required to submit cost information to NMED for base pollution control measures as defined above and alternative pollution control measures that would result in no significant degradation (level B). NMED may request cost or other information regarding preventing degradation (level A). NMED will evaluate the limitations of the alternatives analysis and may request additional analyses or information, as needed, to make a determination.



A = The “no degradation” alternative  
B = Activity modifications resulting in “no significant degradation,” i.e., does not consume more than 10 percent of the available assimilative capacity for any other pollutant of concern (POC)  
C = Activity modifications that achieve or maintain minimally required use-based water quality criteria or best available demonstrated control technology  
x<sup>1</sup> = Costs for implementing the “no degradation” alternative  
x<sup>2</sup> = Costs for less degrading alternative(s)

**Figure 6-1. Comparison of Treatment Costs to Produce Effluents of Varying Quality**

## 6.6 SUMMARY OF THE ALTERNATIVES ANALYSIS PROCESS

The preceding discussion describes the approach that will be followed by NMED for determining whether or not less- or non-degrading alternatives to the proposed new or expanded discharge will be required to prevent significant degradation of perennial surface water. The following steps summarize the alternatives analysis process and other relevant actions during comprehensive Tier 2 reviews:

- Based on characterizations of the new or expanded proposed discharge, BWQ, and projected impacts on the receiving water segment, NMED will determine whether or not the proposed discharge will significantly degrade water quality, i.e., consume more than 10% of the available assimilative capacity for any other pollutant of concern.
- If it is determined that significant degradation would likely occur due to the proposed discharge, an analysis of less degrading or non-degrading alternatives to the proposed discharge will be required.
- The applicant will be required to submit cost information for base pollution control measures associated with the proposed discharge, alternative pollution control measures that would result in no significant degradation, and for other less or non-degrading alternatives as appropriate.

- NMED will evaluate the proposed discharge, the less and non-degrading alternatives, and the costs and feasibility associated with each mix of options.
- NMED will approve the least degrading alternative – or mix of alternatives – that does not exceed the 110% base cost threshold (i.e., is cost-effective and reasonable).
- If the approved alternative (i.e., pollution control alternative or mix of alternatives) will not result in significant degradation of the receiving water segment, permitting of the discharge may proceed. If the approved alternative will still result in significant degradation of the receiving water, the applicant will be required to conduct an analysis of economic and social benefits so the WQCC can determine whether or not the discharge can be permitted.
- All water quality impacts in the alternatives analysis will be evaluated at the BWQ station and back-calculated to develop the upstream effluent limit (i.e., the degradation of proposed discharges including alternatives will be evaluated at the BWQ point, while permit limits and permit compliance will be developed and evaluated at the discharge point).

If the project results in significant degradation even after applying reasonable, cost-effective alternatives, in order to allow such degradation and lowering of water quality the proposal must demonstrate that the new or expanded discharge is important to economic and social development (as outlined in Chapter 7), protects existing uses (i.e., maintains Tier 1 protection), achieves the highest statutory and regulatory requirements for point sources, and implements cost-effective and reasonable BMPs for nonpoint source control (20.6.4.8(A)(2) NMAC). NMED encourages watershed planning to further protect surface water quality and CWA Section 319 grants are available for various groups to plan and implement on-the-ground improvement projects. In addition, Clean Water State Revolving Fund (CWSRF) loans are available for a wide range of wastewater or storm drainage projects that protect surface and ground water, including projects that control nonpoint source pollution.

# 7 Social and Economic Importance for Tier 2 Reviews

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## 7.1 REGULATORY REQUIREMENTS FOR SOCIAL AND ECONOMIC ANALYSIS

As discussed in previous chapters, if an alternatives analysis has been conducted for a proposed new or expanded discharge to a Tier 2 protected water requiring an individual NPDES permit, and the least degrading, cost-effective alternative still results in significant degradation, an analysis of the social and economic importance of the discharge must be conducted. Under New Mexico's antidegradation policy, found at 20.6.4.8(A)(2) NMAC, the Commission may authorize a proposed discharge that would significantly lower the water quality of a Tier 2 water, if allowing lower water quality is necessary to accommodate important economic and social development in the area in which the surface water is located.

There are several steps in determining social and economic importance. First, the applicant conducts an analysis of the social and economic benefits/costs associated with the discharge. The applicant must document any social and economic benefits/costs associated with the proposed discharge and report them to NMED, including identifying and documenting general environmental justice issues in the area where the discharge will be located that may impact the benefits/costs analysis<sup>3,4</sup>. NMED then reviews the information and may require additional information and/or a more in-depth, substantial and widespread impact analysis if there is not enough information to make a decision or if the proposed discharge is complex. Additional information is included in Appendix A.3 and Appendix A.4. If enough information has been submitted, NMED will make a preliminary determination to deny or authorize the degradation. Finally, "after public comment and intergovernmental coordination, the WQCC analyzes all information and makes a final determination (20.6.4.8(A)(2) NMAC).

## 7.2 ROLE OF THE APPLICANT

The role of the applicant is to demonstrate the social and economic benefits of the proposed new or expanded discharge associated with allowing significant degradation of high-quality water. The report on social and economic benefits/costs (positive and negative) associated with the project is relatively simple and straightforward. NMED requires that up-to-date and accurate data are included in the report, and that estimates of job gains/losses, housing impacts, etc., be summarized completely and based on defensible estimates. Using the *Social and Economic Importance Worksheet*, Appendix A.2, the applicant must document how the proposed new or expanded discharge affects the social, economic, and environmental factors listed below.

### ***Social, Economic, and Environmental Considerations***

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<sup>3</sup> For information on the EPA Region 6 EJ Action Plan, visit: <https://www.epa.gov/environmentaljustice/region-6-new-mexico-ej-action-plan>

<sup>4</sup> Environmental Justice Screening and Mapping Tool: <https://www.epa.gov/ejscreen>

Below are the **economic and social** benefits/costs most commonly associated with this socio-economic analysis:

- Creating, expanding or maintaining employment
- Reducing the unemployment rate
- Increasing median household income
- Reducing the number of households below the poverty line
- Increasing needed housing supply
- Increasing the community tax base
- Providing necessary public services (e.g., fire department, school, infrastructure)
- Correcting a public health, safety, or environmental problem
- Improving quality of life for residents in the area

Below are the **environmental** benefits or costs most commonly associated with this analysis:

- Promoting/impacting fishing, recreation, and tourism industries
- Enhancing/impacting threatened and endangered species
- Providing increased flood control and sediment trapping through maintaining or creating wetlands and riparian zones or impacting wetlands and riparian zones
- Reserving assimilative capacity for future industry and development or reserving no capacity for future discharges.

The applicant may choose or may be required to describe additional factors as needed to strengthen its Social and Economic Importance Analysis. Appendix A.4, *Other Economic and Environmental Considerations*, provides examples of other issues that might be helpful to address in developing an analysis. All information provided should be based upon the most current, available data.

## **7.3 ROLE OF NMED**

Prior to issuance of any proposed new or expanded discharge permit that would significantly lower the water quality of a Tier 2 protected water, NMED will ensure that the proposed discharge is necessary to accommodate important economic or social development in the area in which the waters are located. NMED may also collect and analyze additional information to assess the market and non-market social and economic benefits and costs of the proposed discharge, including by soliciting public information and comment where appropriate or by accessing information available from the New Mexico Community Data Collaborative (<http://www.nmcdcmaps.org/>), the Distressed Communities Index (<https://eig.org/dci>), or EPA, including EJSCREEN (<https://www.epa.gov/healthresearch/tools-support-environmental-justice>). In making a preliminary decision, NMED will rely primarily on the demonstration made by the applicant. NMED will analyze all information and make a preliminary determination on the facts on a case-by-case basis.

If information available to NMED is not sufficient to make a preliminary determination regarding the socioeconomic importance of the proposed new or expanded discharge, NMED may require the project applicant to submit specific items of information needed to make a determination. NMED may also require use of quantitative models for large proposed discharge (e.g., major industrial wastewater treatment facility, large concentrated animal feeding operation, etc.).

Once the available information pertaining to the socioeconomic importance of the proposed new or expanded discharge has been reviewed by NMED, a preliminary determination to deny or authorize the degradation will be made. If the proposed discharge is determined to be necessary to accommodate important economic or social development in the area in which the affected waters are located, the substance and basis for that preliminary determination will be documented and the Tier 2 review will continue. NMED will make the preliminary determination available to the public and forward its preliminary determination to governmental agencies that may be impacted by the discharge.

Once the public participation and intergovernmental coordination requirements are satisfied, the WQCC will make a final determination concerning the social or economic importance of the proposed new or expanded discharge and whether to deny or authorize the discharge (20.6.4.8(A)(2) NMAC). All social and economic importance findings and other required findings, including determinations to deny issuance of a permit for a discharge, will be documented and made part of the public record.

## **8 Requirements for Intergovernmental Coordination and Public Participation**

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This chapter outlines public participation and intergovernmental coordination and review requirements. Antidegradation reviews for NPDES-permitted facilities will employ the public participation procedures that are available through the permitting process (e.g., draft permits, fact sheets, opportunities to comment, etc.). The NPDES permit fact sheet will include a discussion for the public of NMED's antidegradation review.

Once the intergovernmental coordination and public notice requirements outlined below are satisfied, NMED will make a final determination concerning the social or economic importance of the proposed new or expanded discharge in the area in which the affected receiving waters are located. All determinations, including determinations to prohibit the discharge, will be documented and made a part of the public record.

### **8.1 PUBLIC NOTIFICATION REQUIREMENTS**

There are a number of opportunities for public participation in the review of new and increased discharges into Tier 1 waters. The WQCC adopts Total Maximum Daily Loads (TMDLs) with applicable wasteload allocations for point sources discharging to Tier 1 waters not meeting water quality objectives. This process includes public notice and comment. The EPA and Army Corps follow detailed procedures requiring public notice and comment when issuing NPDES and Section 404 dredge or fill permits. Finally, the NMED's Section 401 certifications can be appealed and a full hearing held before the WQCC.

Public notice and opportunity for public comment is also provided for all comprehensive Tier 2 reviews. NMED will publish notice and provide an opportunity to comment on the preliminary decision and statement of basis. The public comment period will be at least 30 days. Public notice and opportunity for comment may be combined with other public participation procedures, such as those related to NPDES permitting processes or intergovernmental coordination / review procedures. During the public comment period, any interested person may submit written comments and request a public hearing. A request for a public hearing must be in writing and must state the nature of the issues to be raised. If NMED determines that the request for public hearing raises issues of significant public interest within the scope of the antidegradation policy, the Department will hold a public hearing. The public hearing will be held in a location near the water affected by the discharge.

Discharges that may result in a significant degradation of water quality for Tier 2 pollutants may be approved by the WQCC, after full satisfaction of the intergovernmental coordination and public participation processes, provided that:

- The level of water quality necessary to protect existing uses is fully protected. Water quality shall be maintained and protected in all surface waters of the state (20.6.4.8(A)(1) NMAC).

- The highest statutory and regulatory requirements for new and existing point sources are achieved.
- All cost-effective and reasonable best management practices for non-point source pollution control are implemented.
- Allowing lower water quality is necessary to accommodate important economic or social development in the area where the surface water is located.
- Watershed-based planning as a further means to protect surface waters is encouraged.

All comprehensive Tier 2 findings will be documented by NMED and made part of the administrative record. Review documents – including evaluations of BWQ, existing uses, the level of review conducted, alternatives analyses, social/economic studies, impacts analyses, and any decisions or findings – will be made available to the public.

For activities that may impact Tier 3 waters, NMED will publish notice and provide a 30-day public comment period. After the comment period, NMED will provide a recommendation to the Commission. NMED will provide notice of activities approved by the WQCC pursuant to 20.6.4.8(A)(3)(a) NMAC and of activities conducted pursuant to 20.6.4.8(A)(4) NMAC by posting a brief description, location, and timeframe for such activities on a dedicated Department website.

## **8.2 OPPORTUNITIES FOR PUBLIC PARTICIPATION**

Public participation in the implementation of New Mexico’s water quality antidegradation policy can be broad or specific. Opportunities for broad participation include involvement in the triennial review of the water quality standards program (i.e., use designations, water quality criteria determinations, antidegradation implementation procedures) and participation in rule development relative to permitting processes. In addition, any interested party may nominate a water segment for protection at the Tier 3 level by following the procedure for consideration outlined under 20.6.4.9 NMAC (see Chapter 2). Finally, interested groups can conduct volunteer monitoring under an NMED-approved plan to support BWQ determinations.

Wherever possible, NMED will seek to integrate public participation regarding antidegradation reviews with existing NMED public participation procedures (e.g., NPDES permitting procedures).

## **8.3 INTERGOVERNMENTAL COORDINATION AND REVIEW**

Intergovernmental coordination is required prior to approving a new or expanded discharge requiring an individual NPDES permit that would significantly degrade a surface water protected at the Tier 2 level. This requirement seeks to ensure that all relevant public entities at the local, state, and federal levels are aware of any proposal to significantly lower water quality and are provided with an opportunity to review, seek additional information, and comment on the proposal. The intergovernmental coordination and review process occurs prior to the issuance of any final determination on the social and/or economic importance of the proposed discharge, and may occur in tandem with public notice procedures outlined in the previous section. The time period afforded to commenting agencies will be consistent with the requirements for submission of public comments.

Intergovernmental coordination requirements will be satisfied by providing a written notice and request for comment to the appropriate agencies listed in Appendix A.5. Such notice will include summary information on the proposed new or expanded discharge, the receiving water segment, the BWQ of the receiving water segment, the tier designation, estimated impacts of the proposed discharge upon the receiving water, the alternatives reviewed, and the projected social or economic importance of the proposed discharge. In providing notice to these agencies, staff should note the importance of circulating the notice to local or regional constituents of the agencies involved so that NMED receives timely and complete responses from governmental entities that might have information regarding the proposal or might be affected by it.

## **8.4 APPEALS OF ANTIDEGRADATION REVIEW DECISIONS**

Persons adversely affected by any final decision of the Department may appeal to the WQCC in accordance with the New Mexico Water Quality Act, NMSA 1978, Sections 74-6-1 to -17.

## **Appendix A.1**

### **Direct Comparison of Alternatives**

Direct cost comparisons of alternatives are typically performed on the basis of present worth calculations or calculations of uniform annual cost (if the useful life of each alternative is different), using an applicable interest (discount) rate. The present worth calculation is a well-established method for integrating the upfront capital costs (and associated indebtedness) of a project with its ongoing annual costs of operation, and transforming the integrated costs to one equivalent value. The calculation yields the total equivalent dollars which would have to be invested at the beginning of a project in order to finance it for the life of the facility. The monetary costs considered in the calculations include the total value of the resources, which are attributable to the wastewater treatment, control, and management systems and the component parts. To determine these values, all monies necessary for capital construction costs, operational costs, and maintenance costs should be identified.

Capital construction costs used in cost comparison analysis consist of estimates of the construction costs, including overhead and profit; costs of land (including land purchased for the treatment works site and land used as part of the treatment process or for ultimate disposal of residues), relocation expenses, and right-of-way and easement acquisitions; costs of design engineering, field services (including cost of bond sales); startup costs such as operator training; financing costs and interest during construction; and the costs of any other site-related environmental controls, such as erosion and sediment control practices.

Operational and maintenance costs are usually considered on an annual basis and include operational staff salaries, cost of energy and fuels, cost of treatment chemicals, cost of routine replacement of equipment and equipment parts, and other expenditures necessary to ensure effective and dependable operation over the life of the facility. Annual operation and maintenance costs should be averaged to account for variations, which might occur, year-to-year due to varying production or wastewater volume.

The salvage value of equipment, tankage, and materials from the treatment works is part of the present worth calculation. Salvage value is estimated using straight-line depreciation during the useful life of the project and can generally only be claimed for equipment where it can be clearly demonstrated that a specific market or re-use opportunity will exist. Salvage value estimation should also take into account the costs of any restoration or decommissioning of treatment units and final disposal costs. It is possible in some cases that these costs may be high enough that the net salvage value will be negative.

Land purchased for the treatment works site is also assumed to have a salvage value at the end of the project useful life equal to its market value at the end of the analysis period. The local inflation rate for land in the use area should be used to project the market value at the end of the analysis period.

It is also important to evaluate any opportunity cost associated with different alternatives. Opportunity costs should not be considered for speculative growth or production increases claimed by an applicant. Any costs claimed should be clearly associated with integral portions of projects, which are realistically available, and are otherwise locally approvable.

The discount rate used in the present worth or uniform annual cost calculation for public sewerage projects should be that rate published by the NMED Construction Program Bureau and associated funding agencies for the planning review and evaluation of water resource projects. The rate is available from NMED. For private sector projects, the interest rate utilized should be that rate at which the applicant can borrow funds. Since the present worth calculation is being performed more to compare alternatives rather than to obtain a very accurate estimation of

actual costs, the fact that the same interest rate assumption be utilized for each alternative is more important than the actual interest rate selected.

Cost estimates have an associated level of precision. The cost estimates prepared by the project sponsor should include an estimate of the error for each alternative. The applicant is responsible for documenting and defending all cost estimates used in the analysis.

**Cost estimate equations:**

The equations below are the basic expressions of the present worth and equivalent annualized cost concepts. Additional mathematical factors and apportionment of costs are incorporated into the equations where appropriate.

- I. The basic present worth calculation should be performed in accordance with the following equation:

$$P = C + O + [A * (P/A,d,n)] - S - L$$

where,

P = present worth

C = capital cost

A = annual operating costs

(P/A,d,n) = equal series present worth factor  $[(1 + d)^n - 1] / [d (1 + d)^n]$

d = discount rate

n = useful life in years

S = present worth of salvage value of facilities

L = present worth of salvage value of land

O = other costs (if any)

A gradient factor may be added into the equations to account for inflation of annual operating costs, as opposed to using an average value throughout the project life, by simply adding the additional following term onto the right-hand side of the above equation:

$$[G * (P/G,d,n)]$$

where,

G = uniform increase in annual costs

(P/G,d,n) = present worth factor for a gradient =

$$(1 - nd) [(1 + d)^n - 1] / [d^2 * (1 + d)^n].$$

- II. If the alternatives have different useful lives, the cost comparison may be performed using the Equivalent Uniform Annual Cost Method. The equation for this method is:

$$EUA = (C + O) * (A/P,d,n) + A - [(S + L) * (A/F,d,n)]$$

where,

EUA = equivalent uniform annual cost

(A/P,d,n) = capital recovery factor  $[(1 + d)^n - 1] / [d (1 + d)^n]$

(A/F,d,n) = uniform series sinking fund factor  $d / [(1 + d)^n - 1]$

To add a gradient factor, the following additional term is simply added to the right hand side of the above equation:

$$[G * (A/G,d,n)]$$

where,

$$(A/G,d,n) = \text{EUA factor for a gradient} = [(1 + d)^n - 1 - nd] / d * [(1 + d)^n - 1].$$

**Additional cost factors:**

Other costs, such as opportunity costs, while presented above as one-time present losses, may also have an annual lost revenue component, which could be accounted for by apportioning the costs as both upfront and annual costs.

In general, it is the responsibility of the applicant for a permit or approval to prepare detailed cost estimates for all appropriate and approvable discharge, non-discharge, and combination discharge/non-discharge alternatives. The cost estimates may be prepared by a licensed professional engineer, accountant, economist or other professional qualified in the field, but they must be submitted under a professional engineer seal as part of the permit application.

The sources and rationale for all data and assumptions must be clearly indicated. NMED will review the cost estimates for completeness, accuracy, and validity of assumptions. Where deficiencies are discovered, NMED will either request additional information or obtain the information on its own, or both. Following the review process, NMED will advise the applicant on which alternatives (or combination discharge/non-discharge alternatives) are cost-effective, and processing of a permit application will proceed on that basis. In general, an alternative or suite of alternatives is considered to be cost-effective and reasonable if it is feasible and the cost is less than 110% of the base costs of pollution control measures for the proposed discharge (present worth costs).

**Other factors:**

While the basic concept behind the direct comparison is the present worth method, which has traditionally been used, other approaches and factors may be proposed by applicants and will be considered by the Department (e.g., EPA's Water Quality Standards Handbook – *Interim Economic Guidance for Water Quality Standards*, EPA-823-B-95-002, 1995).

**Combined approach:**

Aspects of the other approaches can be integrated or combined with the direct comparison approach. For instance, in EPA's guidance document, the 1 percent of median household income user-fee criteria can be applied as a first test of cost-effectiveness, even before the direct cost comparisons are considered. Only if the user-fees exceed the screening criteria would the direct comparison of the alternative come into play.

Where appropriate, NMED may require that the submitted demonstration of cost-effectiveness include information to support both a primary screening/affordability evaluation as well as a secondary alternative-to-alternative cost comparison.

## **Appendix A.2**

# **Social and Economic Importance Worksheet**

## **Social & Economic Worksheet**

### **Social and Economic Benefits/Costs**

Does your proposed activity:

1. Create or expand employment?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable Why not? \_\_\_\_\_

2. Reduce the unemployment rate?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable Why not? \_\_\_\_\_

3. Increase median family income?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable Why not? \_\_\_\_\_

4. Reduce the number of households below the poverty line?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable Why not? \_\_\_\_\_

5. Increase needed housing supply?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable \_\_\_\_\_ Why not? \_\_\_\_\_

6. Increase the community tax base?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable \_\_\_\_\_ Why not? \_\_\_\_\_

7. Provide necessary public services (e.g., fire department, school, infrastructure)?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable \_\_\_\_\_ Why not? \_\_\_\_\_

8. Correct a public health or environmental problem?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable \_\_\_\_\_ Why not? \_\_\_\_\_

9. Improve quality of life for residents in the area?

Yes \_\_\_\_\_ Describe \_\_\_\_\_

No \_\_\_\_\_ Describe \_\_\_\_\_

Don't Know \_\_\_\_\_

Not Applicable \_\_\_\_\_ Why not? \_\_\_\_\_

## **Environmental Protection Benefits/Costs**

Explain how your proposed activity positively or negatively affects the following:

1. The societal and economic benefits/costs of better health protection.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

2. Fishing, recreation, and tourism industries.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

3. The general societal value of maintaining the quality of the environment.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

4. Threatened and endangered species.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

5. Increased flood control and sediment trapping through maintaining wetlands and riparian zones.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

6. Reservation of assimilative capacity for future industry and development.

Describe \_\_\_\_\_  
\_\_\_\_\_

Don't Know \_\_\_\_

Not Applicable Why not? \_\_\_\_\_

If you need more space to “describe” how this discharge will impact the social, economic and environmental benefits/costs above, please attach additional sheet(s) to this form.

Likewise, if additional considerations are desired or required in your social and economic justification analysis, please refer to Appendix A.3 and Appendix A.4.

## **Appendix A.3**

### **Information for Substantial and Widespread Impact Analysis (OPTIONAL)**

## Attachment 1 – Tier 2 Review of a Public Facility

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Attachment 1 includes additional information that may be required by the Department to evaluate socio-economic factors of a public facility during a Tier 2 review. This evaluation is based on two types of impacts, referred to as “substantial” and “widespread”. The Substantial Impacts analysis is found in Tables 1-3 – 1-7. The Widespread Impacts<sup>12</sup> analysis is found in Table 1-8.

### **SUBSTANTIAL IMPACTS - SUMMARY**

Purpose of Substantial Impacts analysis: Determine whether a public facility can afford pollution controls in order to avoid any degradation of water quality.

The first step in a Substantial Impacts analysis is to provide data on the socio-economic factors listed in the worksheets in Tables 1-1 and 1-2. This data is then used to determine two indicators called the “Municipal Affordability Screener” (Table 1-3) and the “Secondary Affordability Test” (Tables 1-4 – 1-6). The results of these indicators are then compared in the “Assessment of Substantial Impacts Matrix” (Table 1-7) as a way to determine overall affordability to the community.

### **Widespread Impacts<sup>5</sup> - Summary**

Purpose of Widespread Impacts Analysis: evaluates the social costs of pollution control requirements by: 1) defining the affected community; 2) evaluating the community’s current characteristics; and 3) evaluating how community characteristics would change if discharger must avoid degradation to water quality.

If the conclusion from the Substantial Impacts analysis is “Questionable Affordability” or “Community cannot afford the pollution control”, then a Widespread Impacts analysis may be completed to further resolve the affordability issue. This analysis is primarily a qualitative evaluation based on community socioeconomic factors that are expanded to a larger scale than the Substantial Impacts analysis.

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<sup>5</sup> Widespread Impact Analysis forms derived from EPA’s Water Quality Standards Academy Participant Manual Update-4, 2000 [EPA 823-B-00-005].

**Table 1-1. Antidegradation Data Worksheet**

SOCIO-ECONOMIC INDICATORS	DATA
<b>CITY'S DEMOGRAPHICS</b>	
Population_____ (year)	
Current Population_____ (year)	
Type of household moving away from _____ (city)	
Number of households	
Median Household Income (U.S. Census, Census Designated Place)	
Median Household Income (Local Planning Board Estimates, City)	
Median Household Income (U.S. Census, State)	
Median Household Income (U.S. Census, County)	
Major Type of Employment	
Regional Economic Conditions	
% of Total Wastewater Flow from Residential & Municipal Sources	
Unemployment Rate (City)	
Unemployment Rate (County)	
Unemployment Rate (State)	
<b>CITY'S FINANCIAL HISTORY</b>	
Property Tax Revenues (year)	
Sales Tax & Miscellaneous Revenues (year)	
Total Government Revenues_____ (year)	
Property Tax Revenues (FY_____)	
Sales Tax & Miscellaneous Revenues (FY_____)	
Total Government Revenues (FY_____)	
Current Market Value of Taxable Property (FY_____)	
Property Tax Delinquency Rate	
Bond Rating - insured sewer	
Bond Rating - non insured sewer	
Overall Net Debt (FY_____)	

**Table 1-2. Antidegradation Data Worksheet**

SOCIO-ECONOMIC INDICATOR	DATA
<b>Cost of Treatment Options (pollution controls) that will Avoid Degradation of Water Quality</b>	
Capital Improvements	
OPTION 1. (year)_____dollars	
OPTION 2. (year)_____dollars	
Annual Operating Costs	
OPTION 1. (year)_____dollars	
OPTION 2. (year)_____dollars	
<b>FINANCING FOR WASTEWATER TREATMENT OPTIONS</b>	
OPTION 1. Source of Financing	
Repayment Term, Vehicle	
Bond Rate	
Total Annual Cost of Existing Plant	
OPTION 2. Source of Financing	
Repayment Term, Vehicle	
Bond Rate	
Total Annual Cost of Existing Plant	

**Table 1-3. Substantial Impacts Analysis – Part I**

<b>PART I. CALCULATING THE MUNICIPAL AFFORDABILITY SCREENER</b>		
This screener is used to evaluate expected impacts to households. It indicates whether community households can afford to pay the total annualized pollution control costs to avoid water quality degradation.		
<b>A. Calculate Average Annualized Cost Per Household</b>		
<b>1. Calculate the Total Annual Cost of the Project</b>		
Interest Rate for Financing ( <i>i</i> ) =	_____ (expressed as a fraction)	
Time Period for Financing ( <i>n</i> ) =	_____ (years)	
Annualization Factor: $\frac{i}{(i + 1)^n - 1} (+ i) =$	_____ (1)	
Total Capital Cost of Project to be Financed =	_____ (2)	
Annual Operating Costs of Project =	_____ (3)	
Annualized Capital Cost [(1) x (2)] =	_____ (4)	
Total Annual Cost of Project [(3) + (4)] =	_____ (5)	
<b>2. Calculate the Total Annual Cost to Households</b>		
Total Annual Cost of Project (5) x Percentage of Total Wastewater Flow Attributable to Residential and Municipal Wastewater Flows =	_____ (6)	
Total Annual Cost of Existing Plant (\$) x Percentage of Total Wastewater Flow Attributable to Residential and Municipal Wastewater Flows =	_____ (7)	
Total Annual Cost to Households [(6) + (7)] =	_____ (8)	
<b>3. Calculate the Average Annualized Cost Per Household</b>		
Total Annual Cost to Households (8) =		_____ (9)
Number of Households		
<b>B. Calculate Screener Value:</b>		
Average Annualized Cost Per Household (9) (x 100) = Median Household Income		_____ % municipal affordability screen (10)
What type of impact does the Municipal Affordability Screener Indicate in table below?		
Little Impact	Mid-Range Impact	Large Impact
< 1.0 %	1.0% - 2.0%	> 2.0%
_____ impact		
<b>Explanation of Impacts:</b> <u>Little Impact</u> – high affordability; households can afford to pay pollution control costs <u>Mid-Range Impact</u> – uncertain affordability <u>Large Impact</u> – low affordability; pollution control costs may cause economic hardship on households		
<b>Is there a need to proceed to the Secondary Affordability Test? (yes, if large impact or mid- range impact)</b>		_____ (yes/no)

**Table 1-4. Substantial Impacts Analysis – Part II**

<b>PART II. APPLYING THE SECONDARY AFFORDABILITY TEST</b>				
<b>A. EVALUATING THE DEBT INDICATORS</b>				
<b>Bond Rating:</b> This is a Measure of the Credit Worthiness of a Community				
What is Bond Rating of (name of municipality) _____ ?				
What is the resulting score? (assign score from table below)				
Source of Bond Rating	Weak	Mid-Range	Strong	_____ score points (11)
S&P	below BBB	BBB	above BBB	
Moody's	below Baa	Baa	above Baa	
Score	1	2	3	
<b>Overall Net Debt to Market Value of Taxable Property:</b> This measures Debt Burden on Residents within the Community				
(municipality) _____ Overall Net Debt = _____ (12)				
(municipality) _____ Market Value of Taxable Property = _____ (13)				
_____ Overall Net Debt (12) _____ (x 100) = _____ % Market Value of Taxable Property (13) (13a)				
What is the resulting score? (assign score from table below)				
	Weak	Mid-Range	Strong	_____ score points (14)
Compare % from 13a	>5%	2% - 5%	<2%	
Score	1	2	3	
<b>Explanation of Ratings:</b> <u>Weak</u> = negative effect on indicator from increased costs for pollution controls <u>Mid-Range</u> = uncertain effect on indicator <u>Strong</u> = indicator can withstand increased costs for pollution controls				

**Table 1-5. Substantial Impacts Analysis – Part II**

<b>PART II. APPLYING THE SECONDARY AFFORDABILITY TEST (continued)</b>				
<b>B. EVALUATING THE SOCIOECONOMIC INDICATORS</b>				
<b>Unemployment Rate:</b> This measures the General Economic Health of the Community				
What is (municipality) _____ Unemployment Rate? _____				
Is this above, below, or equal to the State’s rate?				
What is the resulting Score? (assign score from table below)				
	Weak	Mid-Range	Strong	
Compare unemployment rate	Above State Average	State Average	Below State Average	
Score	1	2	3	
				_____ score points (15)
<b>Median Household Income:</b> This Measure Provides an Overall Indication of Community Earning Capacity				
What is (municipality) Median Household Income?				
Is this above, below, or equal to the State’s rate?				
What is the resulting Score? (assign score from table below)				
	Weak	Mid-Range	Strong	
Compare median income	Below State Average	State Average	Above State Average	
Score	1	2	3	
				<b>score points (16)</b>

**Table 1-6. Substantial Impacts Analysis – Part II**

<b>PART II. APPLYING THE SECONDARY AFFORDABILITY TEST (continued)</b>				
<b>C. EVALUATING THE FINANCIAL MANAGEMENT INDICATORS</b>				
<b>Property Tax Revenue to Full Market Value of Taxable Property:</b> This Measures Funding Capacity Available to Support Debt Based on Community's Wealth				
What is (municipality) _____ Property Tax Revenue?				_____ (17)
What is the Full Market Value of Taxable Property?				_____ (18)
$\frac{\text{Property Tax Revenue (17)}}{\text{Full Market Value of Taxable Property (18)}} (x 100) =$				_____ % (18a)
What is the resulting Score? (assign score from table below)				
	Weak	Mid-Range	Strong	_____ score points (19)
Compare % from 18a	<2%	2% - 4%	>4%	
Score	1	2	3	
<b>Property Tax Collection Rate:</b> This Measures How Well the Local Government is Administrated				
What is the Property Tax Collection Rate of (municipality)				_____ %
What is the resulting Score? (assign score from table below)				
	Weak	Mid-Range	Strong	_____ score points (20)
Compare tax collection rate	<94%	94% - 98%	>98%	
Score	1	2	3	
<b>D. CALCULATE THE CUMULATIVE SECONDARY AFFORDABILITY TEST SCORE:</b> This is the average score of all the indicators calculated above.				
$\frac{(11) + (14) + (15) + (16) + (19) + (20)}{6} =$				_____ cumulative score (21)
In what impact range does the cumulative secondary score fall?				
	Weak	Mid-Range	Strong	_____ impact range
Compare cumulative score from 21	< 1.5	1.5 – 2.5	> 2.5	

**Table 1-7. Substantial Impacts Analysis – Part III**

<b>Part III. Assessment of Substantial Impacts Matrix</b>																
THE MUNICIPAL AFFORDABILITY SCREENER (10) =	_____ %															
<b>THE CUMULATIVE SECONDARY AFFORDABILITY TEST SCORE (21) =</b>	_____ score points															
Where does (municipality)_____ appear in the Substantial Impacts Matrix below?																
<b>Substantial Impacts Matrix</b>																
<b>Secondary Assessment Score</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="3" style="padding: 5px;">Municipal Affordability Screener</th> </tr> <tr> <th style="width: 33%; padding: 5px;">&lt;1.0%</th> <th style="width: 33%; padding: 5px;">1.0% - 2.0%</th> <th style="width: 33%; padding: 5px;">&gt;2.0%</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">&lt; 1.5</td> <td style="padding: 5px;">?</td> <td style="padding: 5px;">X</td> </tr> <tr> <td style="padding: 5px;">1.5 – 2.5</td> <td style="padding: 5px;">√</td> <td style="padding: 5px;">?</td> </tr> <tr> <td style="padding: 5px;">&gt; 2.5</td> <td style="padding: 5px;">√</td> <td style="padding: 5px;">?</td> </tr> </tbody> </table>	Municipal Affordability Screener			<1.0%	1.0% - 2.0%	>2.0%	< 1.5	?	X	1.5 – 2.5	√	?	> 2.5	√	?
Municipal Affordability Screener																
<1.0%	1.0% - 2.0%	>2.0%														
< 1.5	?	X														
1.5 – 2.5	√	?														
> 2.5	√	?														
<p><b>? = Questionable affordability</b>  <b>√ = Community can afford the pollution control</b>  <b>X = Community cannot afford the pollution control</b></p>																
<p>Based on the Substantial Impacts Matrix above, what is the affordability status (afford, not afford, or questionable) of the (municipality)_____?</p> <p>In other words, can the project proponent afford to upgrade the facility in order to avoid water quality degradation?</p>	<p>_____</p> <p>Matrix Result</p>															
<p>If the conclusion from the Substantial Impacts analysis is either “Cannot Afford” or “Questionable Affordability”, then proceed to the Widespread Impacts analysis for further evaluation.</p>	<p>Complete Widespread Impacts Analysis?</p> <p>_____ (yes/no)</p>															

**Table 1-8. Widespread Impacts Analysis – Public Facility**

**1. Define the Affected Community**

Evaluate the Discharger's Contribution to the Community:

- Contribution to economic base (e.g., property taxes and employment)
- Provides product or service upon which other businesses or the community depend

**2. Evaluate Community's Current Characteristics**

Evaluate how community's current socioeconomic health may change if proposed project must avoid degradation to water quality by considering the following factors:

- Median household income
- Unemployment rate
- Rate of industrial development
- Developing and declining industries
- Percent of households below poverty line
- Ability of community to carry more debt
- Local and regional factors

Other applicable information on the local and regional economy that should also be reviewed includes:

- Annual rate of population change
- Current financial surplus as a percentage of total expenditures
- Percentage of property taxes actually collected
- Property tax revenues as a percentage of the market value of real property
- Overall debt outstanding as a percentage of market value of real property
- Overall debt per capita
- Percentage of outstanding debt due within 5 years

**3. Evaluate How Community Characteristics Would Change if Discharger Must Avoid Degradation to Water Quality**

Evaluate the projected adverse socioeconomic impacts of adding pollution controls to the project to meet antidegradation requirements by considering the following:

- Property Values
- Employment Rate
- Commercial Development Opportunities
- Tax Revenues
- Expenditure on Social Services
- State level impacts such as loss of revenues and increased expenditures

## Attachment 2 – Tier 2 Review of a Private Facility

Attachment 2 includes additional information that may be required by the Department to evaluate socio-economic factors of a private facility during a Tier 2 review. This evaluation is based on two types of impacts, referred to as “substantial” and “widespread”. The Substantial Impacts analysis is found in Table 2-2. The Widespread Impacts analysis is found in Table 2-3.

### **SUBSTANTIAL IMPACTS - SUMMARY**

Purpose of Substantial Impacts analysis: Determine whether a private facility can afford pollution controls in order to avoid any degradation of water quality.

The first step in a Substantial Impacts analysis is to provide data on the socio-economic factors listed in the worksheet in Table 1. This data is then used to calculate four financial tests that in turn indicate the financial health of a private entity (Table 2).

### **WIDESPREAD IMPACTS - SUMMARY**

Purpose of Widespread Impacts analysis: Evaluates the social costs of pollution control requirements by: 1) defining the affected community; 2) evaluating the community’s current characteristics; and 3) evaluating how community characteristics would change if discharger must avoid degradation to water quality.

If the Substantial Impacts analysis (i.e., the four financial tests) indicates that the private entity’s financial health is questionable, then a Widespread Impacts analysis may be completed to further resolve the affordability issue. This analysis is primarily a qualitative evaluation based on community socioeconomic factors that are expanded to a larger scale than the Substantial Impacts analysis.

**Table 2-1. Data Worksheet for Financial Factors**

<b>Financial Factor</b>	<b>Data</b>
Current Assets	
Current Liabilities	
Cash flow per given year	
Total debt of the entity	
Amount firm has borrowed (debt)	
Amount of stockholders’ capital (equity)	
Pre-tax earnings	
Annualized pollution control cost	

**Table 2-2. Substantial Impacts Analysis - Financial Tests Used to Measure the Financial Health of a Private Entity**

<p><b>1. Liquidity Test</b> - Indicates how easily an entity can pay its short-term bills.</p> <p>Current Ratio = Current Assets / Current Liabilities NOTE: A ratio greater than 2 indicates affordability</p>
<p><b>2. Solvency Test</b> - Indicates how easily an entity can pay its fixed and long-term bills.</p> <p>Beaver's Ratio = Cash flow per given year / Total debt of the entity NOTE: &gt; 0.20 Indicates private entity is solvent &lt; 0.15 Indicates private entity may go bankrupt</p>
<p><b>3. Leverage Test</b> - Indicates how much money the entity can borrow.</p> <p>Debt-to-Equity Ratio = Amount firm has borrowed (debt) / Amount of Stockholders' capital (equity)</p> <p>NOTE: The larger the Debt-to-Equity Ratio, the less likely that the entity will be able to borrow funds</p>
<p><b>4. Earnings Test</b> - Indicates how much the entity's profitability will change with the additional pollution control needed to avoid degradation of water quality.</p> <p>Earnings = Pre-tax – Annualized Pollution Control Cost</p> <p>NOTE: Compare earnings result with entity's revenues to measure post-compliance profit rate</p>
<p><b>Guidelines to evaluate financial tests:</b></p> <ul style="list-style-type: none"><li>○ Results of all four tests above should be considered jointly</li><li>○ Ratios and tests should be compared over several years</li><li>○ Financial ratios should also be compared against those of "healthy" entities</li><li>○ The role the entity plays in a parent firm's operations should also be considered</li></ul>

**Table 2-3. Widespread Impacts Analysis – Private entity/facility**

**1. Define the Affected Community**

Evaluate the Discharger's Contribution to the Community:

- Contribution to economic base (e.g., property taxes and employment)
- Provides product or service upon which other businesses or the community depend

**2. Evaluate Community's Current Characteristics**

Evaluate how community's current socioeconomic health would change if proposed project must avoid degradation to water quality by considering the following factors:

- Median household income
- Unemployment rate
- Rate of industrial development
- Developing and declining industries
- Percent of households below poverty line
- Ability of community to carry more debt
- Local and regional factors

Other applicable information on the local and regional economy that should also be reviewed includes:

- Annual rate of population change
- Current financial surplus as a percentage of total expenditures
- Percentage of property taxes actually collected
- Property tax revenues as a percentage of the market value of real property
- Overall debt outstanding as a percentage of market value of real property
- Overall debt per capita
- Percentage of outstanding debt due within 5 years

**3. Evaluate How Community Characteristics Would Change if Discharger Must Avoid Degradation to Water Quality**

Evaluate the projected adverse socioeconomic impacts of adding the pollution control to the project to meet antidegradation requirements by considering the following:

- Property Values
- Employment Rate
- Commercial Development Opportunities
- Tax Revenues
- Expenditure on Social Services
- State level impacts such as loss of revenues and increased expenditures

## **Appendix A.4**

# **Summary of Other Economic and Environmental Impact Categories**

- 1. Public Need/Social Service**
  - Health/Nursing Care
  - Police/Fire Protection
  - Infrastructure Need
  - Education (primary)
  
- 2. Consistency with Local Zoning and Planning**
  - Sewage Facility Planning
  - Zoning Requirements
  - Land Use Plans
  - Patterns of Growth/Development
  
- 3. Quality of Life**
  - Educational (post-secondary)
  - Cultural
  - Recreational
  
- 4. Housing**
  - Quantity
  - Affordability
  
- 5. Employment**
  - Number and Type of Jobs Relative to Local Unemployment Rate and Local Labor Force
  - State Local Mean Qualified Income
  
- 6. Tax Revenues**
  - Tax Revenue Income for Relative to Increased Private Demand for Services
  - Public and Private Change in Property Value or Tax Status
  
- 7. Development Potential**
  - Potential to Spur Increased Growth
  
- 8. Sensitivity of Water Use**
  - Presence of Threatened and Endangered Species
  - Public Water Supply Use
  - Water Contact Sports
  
- 9. Nature of Pollutants**
  - Synthetic
  - Bioaccumulative
  - Naturally Occurring
  
- 10. Proposed Degree of Change in Water Quality**
  - Available Dilution
  - Amount of Assimilative Capacity Used

**11. Proximity to Wetlands or Floodplain**

- Presence of Wetlands
- Location with Respect to Stream Channel

**12. Duration of Discharge**

- Permanent
- Continuous
- Short-term

**13. Reliability of Treatment Technology**

- High Tech/Experimental
- Energy Intensive
- Maintenance Intensive
- Natural System
- Overall Reliability

**14. Compliance Record**

- Current Violations
- Historical Violations
- Overall Record

**15. Secondary Beneficial Impacts**

- Groundwater Recharge
- Post-Construction Storm Water
- Hydromodifications
- Thermal Modification
- Construction on Previously Undisturbed Lands
- Discharge to Previously Undegraded Waters

## **Appendix A.5**

# **List of Agencies Involved in Intergovernmental Coordination**

## **Interagency Coordination for Antidegradation Review**

In accordance with 20.6.2.2001 NMAC, and to the extent practicable, the Department will provide joint public notice with the EPA that the Department is reviewing a draft NPDES permit (which contains the antidegradation review) for the purpose of preparing a state certification or denial pursuant to Section 401 of the CWA. When joint notice is impractical, the Department provides notice that it is reviewing a draft NPDES permit for purpose of preparing a state certification or denial pursuant to Section 401 of the CWA by mailing or emailing the notice, as appropriate, to:

- the NPDES permit applicant or permittee;
- any user identified in the permit application of a privately-owned treatment works;
- any affected federal agency, such as EPA Region 6, the U.S. Fish & Wildlife Service and affected federal public land managers (i.e., U.S. Forest Service, BLM, and National Park Service);
- any affected state agency, such as the NM Office of the State Engineer, New Mexico Game & Fish Department, NM State Land Office, and New Mexico State Parks - EMNRD;
- any affected tribal agency;
- any affected local agency, including each applicable county department of health, environmental services or comparable department;
- any affected Council of Government (COG);
- any federal and state agencies with jurisdiction over fish, shellfish, and wildlife resources;
- the New Mexico Historic Preservation Office;
- the U.S. Army Corps of Engineers; and,
- any person who requests public notice in writing.

**Appendix A.6**  
**Antidegradation Policy and Implementation Plan**  
**(20.6.4.8 NMAC)**

**20.6.4.8**

**ANTIDEGRADATION POLICY AND IMPLEMENTATION PLAN:**

**A. Antidegradation Policy:** This antidegradation policy applies to all surface waters of the state.

**(1)** Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected in all surface waters of the state.

**(2)** Where the quality of a surface water of the state exceeds levels necessary to support the propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the commission finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic and social development in the area in which the water is located. In allowing such degradation or lower water quality, the state shall assure water quality adequate to protect existing uses fully. Further, the state shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable BMPs for nonpoint source control. Additionally, the state shall encourage the use of watershed planning as a further means to protect surface waters of the state.

**(3)** No degradation shall be allowed in waters designated by the commission as outstanding national resource waters (ONRWs), except as provided in Subparagraphs (a) through (e) of this paragraph and in Paragraph (4) of this Subsection A.

**(a)** After providing a minimum 30-day public review and comment period, the commission determines that allowing temporary and short-term degradation of water quality is necessary to accommodate public health or safety activities in the area in which the ONRW is located. Examples of public health or safety activities include but are not limited to replacement or repair of a water or sewer pipeline or a roadway bridge. In making its decision, the commission shall consider whether the activity will interfere with activities implemented to restore or maintain the chemical, physical or biological integrity of the water. In approving the activity, the commission shall require that:

**(i)** the degradation shall be limited to the shortest possible time and shall not exceed six months;

**(ii)** the degradation shall be minimized and controlled by best management practices or in accordance with permit requirements as appropriate; all practical means of minimizing the duration, magnitude, frequency and cumulative effects of such degradation shall be utilized;

**(iii)** the degradation shall not result in water quality lower than necessary to protect any existing use in the ONRW; and

**(iv)** the degradation shall not alter the essential character or special use that makes the water an ONRW.

**(b)** Prior to the commission making a determination, the department or appropriate oversight agency shall provide a written recommendation to the commission. If the commission approves the activity, the department or appropriate oversight agency shall oversee implementation of the activity.

**(c)** Where an emergency response action that may result in temporary and short-term degradation to an ONRW is necessary to mitigate an immediate threat to public health or safety, the emergency response action may proceed prior to providing notification required by Subparagraph (a) of this paragraph in accordance with the following:

**(i)** only actions that mitigate an immediate threat to public health or safety may be undertaken pursuant to this provision; non-emergency portions of the action shall comply with the requirements of Subparagraph (a) of this paragraph;

(ii) the discharger shall make best efforts to comply with requirements (i) through (iv) of Subparagraph (a) of this paragraph;

(iii) the discharger shall notify the department of the emergency response action in writing within seven days of initiation of the action;

(iv) within 30 days of initiation of the emergency response action, the discharger shall provide a summary of the action taken, including all actions taken to comply with requirements (i) through (iv) of Subparagraph (a) of this paragraph.

(d) Preexisting land-use activities, including grazing, allowed by federal or state law prior to designation as an ONRW, and controlled by best management practices (BMPs), shall be allowed to continue so long as there are no new or increased discharges resulting from the activity after designation of the ONRW.

(e) Acequia operation, maintenance, and repairs are not subject to new requirements because of ONRW designation. However, the use of BMPs to minimize or eliminate the introduction of pollutants into receiving waters is strongly encouraged.

(4) This antidegradation policy does not prohibit activities that may result in degradation in surface waters of the state when such activities will result in restoration or maintenance of the chemical, physical or biological integrity of the water.

(a) For ONRWs, the department or appropriate oversight agency shall review on a case-by-case basis discharges that may result in degradation from restoration or maintenance activities, and may approve such activities in accordance with the following:

(i) the degradation shall be limited to the shortest possible time;

(ii) the degradation shall be minimized and controlled by best management practices or in accordance with permit requirements as appropriate, and all practical means of minimizing the duration, magnitude, frequency and cumulative effects of such degradation shall be utilized;

(iii) the degradation shall not result in water quality lower than necessary to protect any existing use of the surface water; and

(iv) the degradation shall not alter the essential character or special use that makes the water an ONRW.

(b) For surface waters of the state other than ONRWs, the department shall review on a case-by-case basis discharges that may result in degradation from restoration or maintenance activities, and may approve such activities in accordance with the following:

(i) the degradation shall be limited to the shortest possible time;

(ii) the degradation shall be minimized and controlled by best management practices or in accordance with permit requirements as appropriate, and all practical means of minimizing the duration, magnitude, frequency and cumulative effects of such degradation shall be utilized; and

(iii) the degradation shall not result in water quality lower than necessary to protect any existing use of the surface water.

(5) In those cases where potential water quality impairment associated with a thermal discharge is involved, this antidegradation policy and implementing method shall be consistent with Section 316 of the federal Clean Water Act.

(6) In implementing this section, the commission through the appropriate regional offices of the United States environmental protection agency will keep the administrator

advised and provided with such information concerning the surface waters of the state as he or she will need to discharge his or her responsibilities under the federal Clean Water Act.

**B. Implementation Plan:** The department, acting under authority delegated by the commission, implements the water quality standards, including the antidegradation policy, by describing specific methods and procedures in the continuing planning process and by establishing and maintaining controls on the discharge of pollutants to surface waters of the state. The steps summarized in the following paragraphs, which may not all be applicable in every water pollution control action, list the implementation activities of the department. These implementation activities are supplemented by detailed antidegradation review procedures developed under the state's continuing planning process. The department:

(1) obtains information pertinent to the impact of the effluent on the receiving water and advises the prospective discharger of requirements for obtaining a permit to discharge;

(2) reviews the adequacy of existing data and conducts a water quality survey of the receiving water in accordance with an annually reviewed, ranked priority list of surface waters of the state requiring total maximum daily loads pursuant to Section 303(d) of the federal Clean Water Act;

(3) assesses the probable impact of the effluent on the receiving water relative to its attainable or designated uses and numeric and narrative criteria;

(4) requires the highest and best degree of wastewater treatment practicable and commensurate with protecting and maintaining the designated uses and existing water quality of surface waters of the state;

(5) develops water quality based effluent limitations and comments on technology based effluent limitations, as appropriate, for inclusion in any federal permit issued to a discharger pursuant to Section 402 of the federal Clean Water Act;

(6) requires that these effluent limitations be included in any such permit as a condition for state certification pursuant to Section 401 of the federal Clean Water Act;

(7) coordinates its water pollution control activities with other constituent agencies of the commission, and with local, state and federal agencies, as appropriate;

(8) develops and pursues inspection and enforcement programs to ensure that dischargers comply with state regulations and standards, and complements EPA's enforcement of federal permits;

(9) ensures that the provisions for public participation required by the New Mexico Water Quality Act and the federal Clean Water Act are followed;

(10) provides continuing technical training for wastewater treatment facility operators through the utility operators training and certification programs;

(11) provides funds to assist the construction of publicly owned wastewater treatment facilities through the wastewater construction program authorized by Section 601 of the federal Clean Water Act, and through funds appropriated by the New Mexico legislature;

(12) conducts water quality surveillance of the surface waters of the state to assess the effectiveness of water pollution controls, determines whether water quality standards are being attained, and proposes amendments to improve water quality standards;

(13) encourages, in conjunction with other state agencies, implementation of the best management practices set forth in the New Mexico statewide water quality management plan and the nonpoint source management program, such implementation shall not be mandatory except as provided by federal or state law;

(14) evaluates the effectiveness of BMPs selected to prevent, reduce or abate sources of water pollutants;

**(15)** develops procedures for assessing use attainment as required by 20.6.4.15 NMAC and establishing site-specific standards; and

**(16)** develops list of surface waters of the state not attaining designated uses, pursuant to Sections 305(b) and 303(d) of the federal Clean Water Act.

[20.6.4.8 NMAC - Rp 20 NMAC 6.1.1101, 10-12-00; A, 05-23-05; A, 08-01-07; A, 01-14-11]