ANTIDEGRADATION IMPLEMENTATION

The majority of EPA's comments, recommendations, suggestions and questions are intended to provide an opportunity for EPA to better understand and ADEQ to better articulate its intentions so that we can assist ADEQ in developing a document using clear and consistent terminology. Clarity is essential given the nuanced nature of antidegradation implementation.

One of EPA's overarching questions is about ADEQ's path forward for finalizing this document: Does ADEQ intend to solicit public comment? Will this become part of the state's CPP? As mentioned in our previous comments to AR: Federal regulations require that the state "…shall provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods." (40 CFR 131.12(b)) ADEQ has involved selected members of the public/regulated community in the development of these implementation methods, but it is unclear how the state intends to engage the general public as a whole consistent with federal regulations.

The following includes EPA's comments, suggestions and questions and/or specific edits where appropriate.

1. DEFINITIONS

Activities: Pproposed new or expanded NPDES permits, CWA § 404 dredge and fill permits, or any activity requiring a CWA § 401 certification.

Alternatives Analysis: A structured evaluation of the practicability of less- and non-degrading alternatives to an activity likely to cause lowering of water quality.

EPA: *Given the requirement found in 40 CFR 131.12(a)(2)(ii), rather than evaluating the practicability of options, "The analysis of alternatives shall evaluate a range of practicable alternatives…" This analysis should be comparing the different options that have already been determined to be practicable and that lessen or prevent degradation. EPA recommends structuring the alternatives analysis to compare different practicable options that prevent or lessen degradation.*

Antidegradation Policy: A policy ~~The implementation methods~~ that outlines how the Arkansas Division of Environmental Quality will determine, on a case-by-case basis, whether and to what extent, existing water quality may be degraded in a Water of the State. The Antidegradation Policy refers to binding regulatory language or statute, while the antidegradation implementation is the process by which activities are reviewed.

EPA: *Recommend restructuring this definition. Perhaps naming this either Antidegradation Requirements or Antidegradation Policy and Implementation Methods, if the state would like to address both in the same definition. If not, this could be divided into two definitions, "Antidegradation Policy" and "Antidegradation Implementation Methods." In addition, the final sentence could potentially be expanded and used as a separate definition.*

Arkansas 303(d) List: A list of waterbody segments that are currently not supporting one or more designated uses and/or not meeting water quality criteria.

Assimilative Capacity: ~~Ability of body of water to receive pollutants without 1) causing harm or damage to aquatic life or human health, or 2) exceeding water quality standards.~~ The ability of a water body to receive additional quantities of a pollutant (or pollutants) and still meet the water quality necessary to support the uses specified in CWA section 101(a)(2). *Assimilative capacity* is the difference in water quality between what is needed to protect the uses specified in CWA section 101(a)(2) and the actual, more protective, water quality in the water body.

Baseline Water Quality (BWQ): The level of water quality that is used to establish the assimilative capacity within a water body. ~~For a new facility or activity,~~ BWQ will be determined the first time that a new or expanded discharge is considered for authorization after XXXX 2020. For a new authorization, the BWQ shall be representative of the water quality at or immediately upstream from a discharge ~~the activity~~. For an expanding~~-~~ authorization, that was last authorized prior to [Month] 2020 ~~facility~~, the BWQ shall include the levels of pollutants already permitted to be discharged at maximum design flow. Once established, BWQ is a fixed quantity expressed as a concentration.

Beneficial Uses: All existing and designated uses of waters of the State as defined in APC&EC Rule No. 2.

Best Management Practice (BMP): A practice, or combination of practices, that is determined to be an effective and practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution.

Clean Water Act (CWA): The federal Water Pollution Control Act, as amended 33 U.S.C. §§ 1251 *et. seq.*

Critical Flow Conditions: The point in time when the beneficial uses within a water of the State are most susceptible to anthropogenic and/or hydrologic effects; generally, but not necessarily, when a stream is at or below its Q7-10 flow or harmonic mean (APC&EC Rule 2.106 "critical flows"). A lake's critical condition shall be determined on a case-by-case basis.

Cumulative Degradation: Within a water body or a water body segment, ~~The~~the collective reduction of ~~a waterbody's~~ assimilative capacity from multiple activities or increased discharges over~~through~~ time and space.

EPA: *Please clarify what idea is meant to be captured by including the phrase "and space" here.*

Degradation: An increase in the concentration or load of the pollutants of concern within a surface water measured on a parameter-by-parameter basis.

Division: Arkansas Division of Environmental Quality (Division).

Designated Use: Those uses specified in the water quality standards for each waterbody or stream segment whether or not they are being attained.

Effluent: Water that is not reused after flowing out of any wastewater treatment facility or other works used for the purpose of treating, stabilizing, or holding wastes.

Existing Activity: NPDES permits, state permits, any activity having a CWA § 401 certification, or any activity that threatens the most sensitive use or results in significant degradation, at the time the baseline water quality is determined.

EPA: *Please clarify how the phrase "…results in significant degradation…" would be determined.*

Existing Use: Those uses listed in Section 303(c)(2) of the Clean Water Act, 33 U.S.C. § 1313(c)(2) (i.e., public water supplies, propagation of fish and wildlife, recreational uses, agricultural and industrial water supplies, and navigation), which were actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

Existing Use Water (EUW): All waters are designated for all uses unless the use has been removed following APC&EC Rule 2.406.

EPA: *Recommends clarifying whether this refers to existing uses as defined in 40 CFR 131.5. If not, EPA recommends use of a different term. Also. should this refer to rule 2.306 instead of rule 2.406?"*

Expanding Wastewater Source: A source with an increased volume of discharged water or increased concentration or mass of pollutants.

High Quality Water (HQW): All other waters that are not defined as Tier 1 or 3 and have water quality that is better than water quality criteria.

EPA: *This definition is currently worded to imply that antidegradation protection applies to all uses. The CWA only requires application of antidegradation protection to uses derived from section 101(a)(2) of the CWA. EPA recommends clarifying which uses the state intends to apply antidegradation protections to. Does the state intend to expand antidegradation protection to all uses or just apply it to the CWA 101(a)(2) uses?*

Hybrid Approach: Consists of a combination of waterbody-by-waterbody and parameter-by-parameter approaches to classify waterbody tiers.

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.

EPA: *Recommend using the word "practicable" in place of "cost-effective and reasonable." If ADEQ intends to use the term "practicable" then EPA also recommends adding a definition of practicable consistent with 40 CFR 131.3(n): Practicable, in the context of §131.12(a)(2)(ii), means technologically possible, able to be put into practice, and economically viable.*

Non-Degrading Alternative: An alternative to a proposed activity that would not result in lowering of water quality.

Non-Significant Lowering of Water Quality: A reduction of less than 10 percent of the waterbody's assimilative capacity for any pollutant as a result of ~~any single discharge/activity or as a result of~~ all discharges/activities combined after baseline water quality has been determined. Events or activities causing non-significant lowering of water quality are not required to undergo a Tier 2 review.

EPA: *EPA recommends deleting the marked text above because it is redundant. The term "all" indicates that non-significant lowering of water quality encapsulates the reduction coming from either a single discharger or multiple dischargers and also highlights the cumulative cap on degradation.*

Non-Point Source: Pollution that originates from many diffuse sources.

Outstanding Resource Waters (ORW): Waters designated in APC&EC Rule No. 2 as Extraordinary Resource Waters (ERW), Ecologically Sensitive Waterbodies (ESW), and Natural and Scenic Waterways (NSW). These high-quality waters constitute an outstanding state resource, with significant aesthetic, recreational, or scientific value.

Parameter-by-Parameter Basis: The review of the pollutants in a waterbody by assessing the level of each pollutant of concern, as opposed to assessing the overall condition of a waterbody, for the purpose of determining the level of antidegradation review applicable to the waterbody.

EPA: *Recommend that ADEQ expand this definition to add: When an activity is proposed, the state, territory, or authorized tribe determines which parameters have water quality that is better than the applicable criteria developed to protect the CWA section 101(a)(2) uses. The water body is then considered high quality for those parameters. Using this method, a water body can be tier 2 for some parameters and tier 1 for others. Determinations of protection are made at the time of the antidegradation review.*

Pollutant of Concern (POC): Pollutants generated by activities that affect beneficial use(s) in waters of the State. POCs include pollutants that create conditions unfavorable to beneficial uses in the waterbody receiving pollutants generated by activities or proposed to receive pollutants generated by activities. (For example, where pH, temperature, and dissolved oxygen are in noncompliance with applicable numeric criteria or if nonpoint source activities have led to violations of turbidity criteria.)

Pollution: Contamination or other alteration of the physical, chemical, or biological properties of any waters of the State, or such discharge of any liquid, gaseous, or solid substance in any waters of the State as will, or is likely to, render the waters harmful, detrimental, or injurious to public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish, or other aquatic life (A.C.A. § 8-4-102 (2011)).

Point Source: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Practicable Alternative: Wastewater treatment or control alternative determined to be the least degrading and most economically efficient, socially beneficial, and affordable alternative or otherwise defined by 40 CFR 131.3 (n).

EPA: *Recommend that the state revisit their concept of a practicable alternative and clarify the intention of this definition. The alternatives analysis is intended to identify several practicable alternatives that are non-degrading or less degrading than the originally proposed option. Then, if one is identified, the federal regulation requires that one of these options be implemented in order to allow the lowering of water quality in a high-quality water. This current definition will result in one alternative. The state may not want to limit themselves in this way. Also, this definition identifies several qualities that the state wants in an alternative that may not be true for every alternative. For example, the least degrading alternative may not be the most economically efficient. EPA recommends that ADEQ consider breaking this process into two steps: 1) Identify practicable alternatives as defined by 40 CFR 131.3(n) and 2) Compare those alternatives to determine which has the most desired characteristics for the state.*

Q7-10: A flow volume equal to or less than the lowest mean discharge during 7 consecutive days of a year which, on the average, occurs once every 10 years.

Significant Lowering of Water Quality: A reduction by 10 percent or more of the waterbody's assimilative capacity for any pollutant as a result of any single activity or as a result of all activities combined after baseline water quality was determined, or an assumption of such a reduction in assimilative capacity. Events or activities causing significant lowering of water quality are required to undergo a Tier 2 review.

Social and Economic Importance: The social and economic benefits to the community that will occur from new or increased discharge/activity or waste load.

Tier: Level of antidegradation protection~~review~~ assigned to waterbodies, as detailed in Section 3.

Temporary Lowering of Water Quality: Lowering of water quality that is non-permanent and effects can be regarded as insignificant following a review of 1) length of time during which water quality will be lowered, 2) percent change in ambient conditions during critical conditions, 3) parameters affected, 4) likelihood for long term water quality benefits to the waterbody (i.e., as may result from dredging of contaminated sediments), 5) degree to which achieving the applicable water quality standards during the proposed activity may be at risk, and 6) potential for any residual long-term influences on existing uses or factors outlined in Section 5.C of this document.

Total Assimilative Capacity: The ability of a waterbody to naturally attenuate a substance without causing a violation of water quality criteria or impairing beneficial uses. It is the difference between the current baseline water quality at critical flow conditions and water quality criteria. The baseline water quality must take into consideration all pollutant contributions from all sources present at the time of determination of the baseline water quality.

EPA: *What is the difference between this definition of "total assimilative capacity" and the prior definition of "assimilative capacity"? If the prior definition is revised as recommended above, this definition could and should be deleted.*

Water Quality Criteria (WQC): Chemical, physical, and biological attributes of waterbodies that are necessary to protect beneficial water uses ~~or the water quality standards~~, which are expressed as the maximum allowable pollutant concentrations, or other conditions necessary for a waterbody to fully support a beneficial use.

EPA: *Recommend deleting the phrase "or the water quality standards" because it is not clear what this could be referring to besides the beneficial water uses. Alternately, consider replacing this definition with the definition of water quality criteria from federal regulation: "Criteria are elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use."*

Water Quality Standards (WQS): Covering water classification, beneficial uses (40 CFR 131.10), general and specific water quality criteria (40 CFR 131.11), antidegradation, and general policies (40 CFR 131.12) conditions for waters of the State.

Waterbody-by-Waterbody Approach: The review of the pollutants in a waterbody by assessing the overall or combined levels of the pollutant of concern as opposed to assessing the level of each pollutant of concern in a waterbody for the purpose of determining the level of review applicable to the waterbody.

EPA: *This approach should/can consider more than just the pollutant concentrations. It should be a holistic assessment. Also, it is for determination of level of protection, not level of review.*

EPA recommends replacing with this definition: ***Water body-by-Water body Approach:*** *An approach for determining whether a water body/waterbody segment is high quality based on a judgment of the overall quality of the water body considering a variety of factors. A judgment of quality is made on a weighted assessment of chemical, physical, biological, and other applicable information. Waters can be identified as high quality even if criteria for certain pollutants are not attained or if some designated uses are not fully supported. The presence of a water body on the CWA section 303(d) list for one CWA 101(a)(2) use does not automatically exclude it from potentially being identified as a Tier 2 water. The quality of the water body can either be determined before or at the time of the antidegradation review.*

Waters of the State: All streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state. A.C.A. § 8-4-102 (2017).

2. INTRODUCTION

Arkansas's Antidegradation Policy, herein "Policy", is set forth in Chapter 2 of the APC&EC Rule No. 2. States are required to develop and adopt an Antidegradation Policy and develop methods for implementing such policy (40 CFR § 131.12). This document shall serve as the implementation methodology for the Antidegradation Policy and describes how- antidegradation protection will be implemented~~activities are to be reviewed~~.

The Policy protects water quality and beneficial uses from degradation. However, the Policy ~~must also provide for alternatives analysis and~~also specifies ~~methods for~~ exceptions for lowering water quality in a high quality water in certain situations (40 CFR § 131.12(a)(2)). Lowering of water quality is allowed only after a systematic decision-making process, including an alternatives analysis. ~~considering many factors~~. This process considers a number of ~~These~~ factors includinge the classification of the waterbody, consideration of non-degrading and less degrading alternatives to the proposed activity, and comparison of economic and social benefits of the lowering of water quality proposed by the activity. In addition, the Antidegradation Policy requires the involvement of the public ~~through permitting procedures outlined in APC&EC Rule No. 8~~ and ~~through~~ coordination with other government agencies when allowing a lowering of water quality in a high quality water. through permitting procedures outlined in APC&EC Rule No. 8

3. TIER PROTECTION LEVELS

An Antidegradation Policy provides a means for maintaining and protecting surface water quality by requiring all activities with the potential to affect ~~baseline~~ water quality to undergo review and a comment period prior to any decision to approve or deny the activity. In compliance with 40 CFR § 131.12, implementation procedures for Arkansas's Policy identifiesy levels of antidegradation protection~~review~~ (tiers), determination of baseline water quality (BWQ), assessing and determining extent of acceptable lowering of water quality in a high quality water, and identification of less-degrading or non-degrading alternatives. A waterbody's tier identification may be completed using~~on~~ a parameter-by-parameter or waterbody-by-waterbody approach. Arkansas is implementing a hybrid approach in that Tier 1 and Tier 2 protection ~~reviews~~ will be identified on a ~~completed~~ parameter-by-parameter basis and Tier 3 protection~~reviews~~ will be identified on a waterbody-by-waterbody basis (Figure 1).

Tier 1: **Existing Use Waters (EUW)** the basic protection afforded to all waterbodies regardless of current water quality, which is that existing uses will be maintained and protected. EUW waterbodies include, canals/ditches, storm water control structures, and structures purposefully created for effluent conveyance with an existing use attained on or after November 28, 1975, whether or not they are included in the water quality standards.

EPA: Recommend revising this definition for clarity, as its current intention is unclear. EPA also notes that existing use protection applies to all waters of the US. Tier 2 and Tier 3 waters will also receive Tier 1 protection. In this current definition, AR seems to be specifying that certain waters will only receive Tier 1 protection, however the sentence directly before it says that Tier 1 protection will be decided on a parameter – by – parameter basis. Please clarify. At a minimum,

EPA recommends deleting the entire second sentence or specifying that it only applies to waters of the US.

Tier 2: **High Quality Waters (HQW)** applies to all ~~other~~ waters of the State for protection of baseline water quality that is better than the water quality criteria ~~and non-significant degradation would not lower quality~~. ~~However, a~~An activity that proposes significant lowering of water quality would require a demonstration that the lowering of water quality is necessary and Tier 1 protection is ensured. Tier 2 is the default protection for all waters, with the exception those waters that have already been determined to be Tier 1 or Tier 3 waters.

EPA: *Recommend that the state clarify their language around the use of a PBP approach or a WBW approach for identifying high quality waters. By adding the term "waters" here to the state's definition of Tier 1 and Tier 2 protection categories, that state seems to imply that certain waters will be identified as Tier 1 waters or Tier 2 waters, implying the use of a WBW approach, rather than the PBP approach that the state indicates it intends to use. For clarity, it may help to title these as "Existing Use Protection" and "High Quality Protection" rather than using the word "waters" as some parameters can be Tier 1 and some can be Tier 2 within the same water body. In reference to the last sentence, EPA recommends that ADEQ provide details on where the public can find what tier a water has been designated as.*

Tier 3: **Outstanding Resource Waters (ORW)** applies to waterbodies listed as an Outstanding Resource Water (ERW, ESW, and NSW) in APC&EC Rule No. 2. Tier 3 review is required for those waters encompassed by APC&EC Rule 2.203 and 40 CFR § 131.12(a)(3).

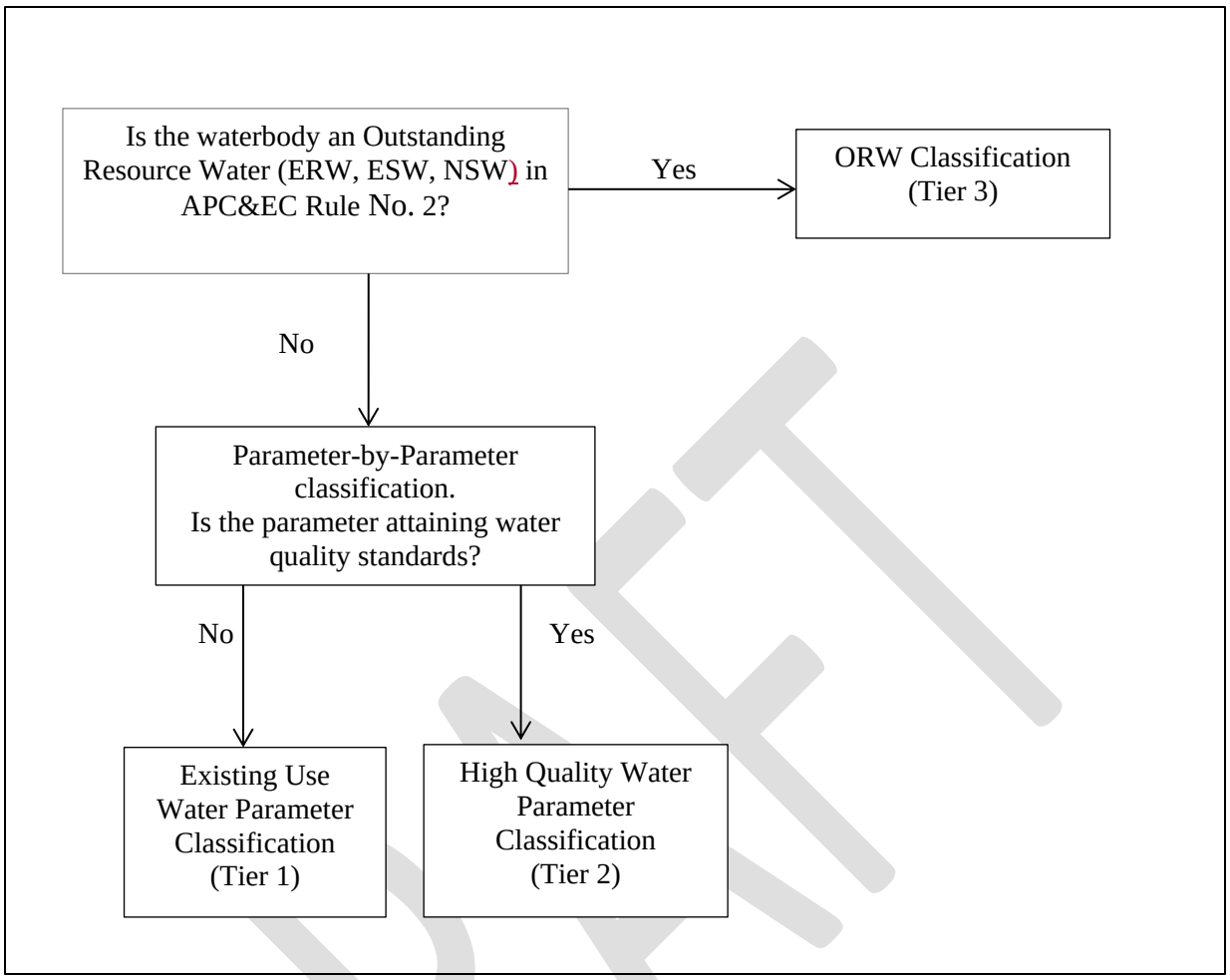


Figure 1, Antidegradation Waterbody Tier Determination Diagram.

According to APC&EC Rule 2.204, in those cases where potential water quality impairment associated with a thermal discharge is involved, the Antidegradation Policy and implementing method shall be consistent with Section 316 of the CWA, 33 U.S.C. § 1326. Impairment of water quality from non-thermal pollutants is still subject to the antidegradation evaluation described in this document.

4. TIER PROTECTION LEVELS AND ANTIDEGRADATION EVALUATION

The level of protection identified below determines the type of antidegradation review required when new or expanded discharges are proposed and for other Clean Water Act purposes, including 401 certification. Because the Tier 1 and Tier 2 reviews are conducted on a parameter-by-parameter basis, a water may be considered Tier 1 with regards to some parameters and Tier 2 with regard to other parameters.

EPA: *This sentence appears to limit the application of antidegradation protection to the context of new or expanded discharges. However, antidegradation protections apply for all CWA purposes, including 401 certification.*

A) Tier 1- Existing Use Waters (EUW) Evaluation

Review of Tier 1 waters will be for all parameters of waters that are not attaining water quality criteria. It will also include canals/ditches, storm water control structures, and structures purposefully created for effluent conveyance with an existing use attained on or after November 28, 1975, whether or not they are included in the water quality standards. For Tier 1 waters, the Antidegradation Policy is implemented through the state's NPDES Permit Issuance Process, including applicable major modifications (See Section 5). New or expanding activities are not allowed to discharge pollutants that may cause or contribute to impairment of a designated or existing use, violation of water quality criteria, or ~~further contribute~~increase pollutant loading to a § 303(d) listed water.

Tier 1 review allows activities to occur according to ~~relevant~~applicable water quality standards without social and economic analyses. Other statutory, regulatory, or policy (CPP) requirements for the development of appropriate effluent limits and other permit requirements are still applicable.

EPA: *Per our earlier comment, the CWA requires Tier 1 protection for all waters of the U.S., but states can choose to protect other waters outside of WOTUS. EPA recommends that ADEQ clarify its definition of "waters of the state" above and then here simply specify that review of Tier 1 waters will be for all waters of the state. Alternately, EPA recommends providing clarification as to how this category of waters differs from WOTUS.*

B) Tier 2- High Quality Waters (HQW) Evaluation

Review of Tier 2 waters will be for all ~~other surface~~ waters of the State, such as 1) intermittent streams, 2) springs/seeps, 3) perennial streams, 4) lakes and reservoirs, and 5) wetlands. By definition, at the high quality water protection level, baseline water quality (BWQ) is better than the minimum water quality criteria ~~WQS~~ for one or more water quality parameters. Tier 2 waters attain water quality criteria for a pollutant of concern. A significant increase (> 10% of total assimilative capacity) in cumulative pollutant loading, which includes all existing discharges and activities, shall require demonstration that the lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are located. The demonstration shall include the following items~~justified by a socio-economic analysis that includes the following items~~:

EPA: *The language is confusing here since it was previously used to discuss setting BWQ. EPA has recommended alternative language to clarify that Tier 2 reviews include an alternatives analysis in addition to a socio-economic analysis. Tier 2 reviews are specific to all waters of the state except Tier 3 waters, since the state has chosen a parameter-by-parameter approach for identifying high quality waters. Every water of the U.S. or state must be evaluated for each parameter, as described. If the state has a separate process for identifying Tier 1 waters, that is not clear.*

1) Lowering water quality is necessary~~justifiable~~ to accommodate important economic or social development in the area where the water is located;

2) The highest statutory and regulatory requirements for all new and existing point sources are achieved;
3) All cost-effective and reasonable best management practices (BMPs) for nonpoint source control are considered. See Section 9 for additional discussion; and
4) Tier 1 protection is ensured.

EPA: *In 1), EPA recommends using the word "necessary," because it implies the need to complete an alternatives analysis and also indicates that there are no other practicable options to the lowering of water quality, consistent with 40 CFR 131.12. The use of the word "justifies" does not imply the necessity to lower water quality, and therefore the use of this term here could potentially be interpreted to be inconsistent with 40 CFR 131.12. In addition, for 2), EPA recommends including a section that describes how this will be done in Section 8 or creating its own section right after section 8, since this is part of the Tier 2 review.*

Decisions regarding significant lowering of water quality of Tier 2 protection levels will only be made after steps 1-4 are completed and after the intergovernmental coordination and public participation provisions have been satisfied.

EPA: *Recommend that language referencing public participation provisions specifically reference either 40 CFR 25 or Arkansas's Continuing Planning Process document (2000) which itself references Part 25.*

C) Tier 3 Outstanding Resource Waters (ORW) Evaluation

ORWs are in APC&EC Rule No. 2 for their outstanding natural or cultural resource value. ORW waters are designated as ERW, ESW, or NSW (APC&EC 2015, Appendix A, D). An ORW is Tier 3, regardless of baseline water quality for each parameter. A Tier 3 waterbody's assimilative capacity is to be maintained in order to protect their outstanding natural or cultural value ~~existing uses~~. Proposed new or expanding activities may proceed, but with no net increase of parameter load. Activities that result in temporary lowering of water quality are eligible for review.

5. ASSIGNING TIER PROTECTION ~~REVIEWS~~

A) Tier 1 ~~Review~~Protection

~~Tier 1 review is assigned on a parameter-by-parameter basis when the receiving water is listed as impaired for a POC on the most recently approved Arkansas 303(d) List.~~ Prior to allowing any new or expanded discharge of a ~~that~~ parameter, the Division and/or applicant will conduct a Tier 1 review and demonstrate that the discharge would not violate the water quality criterion for that parameter or the existing uses of that water body. Parameters in the receiving water that are listed as impaired on the most recently approved Arkansas 303(d) list will only receive Tier 1 protection.

EPA: *EPA recommends deleting the first sentence to clarify that since the CWA requires all waters of the U.S. to receive Tier 1 protection, Tier 1 reviews should be done all the time for all parameters. Usually this will entail making sure that permit limits are written so that standards are met, but it could involve more if there is an existing use on a water body that is not included in the standards. EPA also recommends adding "or the existing uses of that waterbody" because*

a waterbody's designated uses may not include all existing uses. Nevertheless, when a lowering of water quality is approved in a Tier 2 review, the state needs to make sure that the lowering will not result in any violation of an existing use.

B) Tier 2 Protection~~Review~~

Tier 2 protection ~~review~~ is assigned on a parameter-by-parameter basis. A Tier 2 ~~This is the default~~ review is conducted for all parameters of a ~~that applies to all~~ proposed discharge~~s~~ to waters of the State, unless one of the following conditions applies:

- The water is an ORW to which Tier 3 protection applies,
- The discharge for a specific parameter is considered insignificant in accordance with the criteria explained in Section 8.B.4 of this document, or
- The receiving water is listed as impaired for a POC on the Arkansas 303(d) List, which requires a Tier 1 review for that POC.

C) Tier 3 Protection~~Review~~

Tier 3 protection~~review~~ is assigned on a waterbody-by-waterbody basis to all waters designated as ORWs in APC&EC Rule No. 2. ~~All ORWs are presumed to have no significant levels of pollutants under normal circumstances.~~ Any degradation of water quality is prohibited in these waters unless the discharge only results in temporary degradation.

EPA: *Under federal regulation, any water can be assigned ONRW status regardless of water quality, since factors such as ecological or recreational significance are characteristics the state wish to protect. Unless AR intends to limit designation of ORWs to only waters with no 'significant' levels of pollutants, EPA recommends these edits.*

6. REVISING TIER PROTECTION~~REVIEW~~ LEVELS

The tier protection~~review~~ for a water may change if it is added to or removed from the list of ORWs in APC&EC Rule No. 2. The tier of protection ~~review~~ for a pollutant may change if an impairment for that pollutant is added to or removed from the Arkansas 303(d) List.

7. ACTIVITIES ELIGIBLE FOR ANTIDEGRADATION REVIEW

New or expanding wastewater discharges: Compliance with the Antidegradation Policy shall be required~~conducted~~ for all new or expanding wastewater discharges into Arkansas surface waters that require a permit. Expanding wastewater discharge is defined as increased mass of pollutants with corresponding change in ~~either~~one or more of: design flow, facility equipment, or significant change in operations.

Renewals: NPDES permit renewals will not be subject to review procedures, provided there are no proposed changes to the facility's effluent which would result in significant increases of pollutant loadings. However, if impairments in the waterbody are detected from routine monitoring, then changes in permit limits may be required to address subsequent downstream impairments.

Thermal Discharge: Rule 2.204 of the Arkansas Antidegradation Policy is relevant when water quality impairment is associated with a thermal discharge. The Antidegradation Policy and implementation method shall be consistent with Section 316 of the CWA. Rule 2.502 states: Heat shall not be added to any waterbody in excess of the amount that will elevate the natural temperature, outside the mixing zone, by more than 5°F (2.8°C) based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) in streams, lakes or reservoirs.

General Permits: In an effort to expedite permit timeliness, antidegradation requirements will be incrementally addressed for all general permits during the renewal process on or before the second renewal of each general permit following approval of this antidegradation implementation procedure. However, activities covered by general permits may still be subject to an antidegradation review if during the application (Notice of Intent) period the activity is determined to likely cause significant degradation.

EPA: *With regard to the requirement to address general permits on or before the second renewal, antidegradation requirements, like other CWA requirements, apply to all waters of the U.S. at all times. The CWA does not provide a mechanism to waive general permit compliance with antidegradation requirements. EPA would like to work with ADEQ to better understand this issue and explore potential options to address the state's concerns.*

Discharges to Sensitive Waters: Discharges that may threaten the most sensitive designated or existing use of a water will be subject to antidegradation review.

EPA: *Recommend that the state clarify if this is referring to ecologically sensitive waters. If so, no degradation may be allowed in these waters as they receive Tier 3 protection, and EPA recommends revising this statement to reflect that no degradation will be allowed in these waters.*

Significant Lowering of Water Quality: Discharges that may result in significant lowering of water quality in a high quality water will be subject to a Tier 2 antidegradation review.

General Antidegradation Reviews: the Division may develop a general anti-degradation review for small domestic dischargers (generally less than or equal to 50,000 gallons per day) into Tier 2 waters.

EPA: *This language appears to refer to a categorical alternative analysis. Although such an analysis may be possible, it could not be done as part of an overall general antidegradation analysis as each receiving water may have very different characteristics. EPA would like to discuss this further with the state to better understand what is being proposed, as it appears to be a novel idea that no other state has previously implemented.*

8. ANTIDEGRADATION REVIEW PROCEDURE

Applicant coordination with DEQ should happen before the NPDES application process to ensure that the environmental consequences of any activity that might affect water quality are fully assessed. A state construction permit will not be issued for a new or expanding facility until the final permitting decision is made regarding antidegradation.

EPA: *Recommend editing this sentence to clarify that no state permit for a new or expanding activity of any type requiring Tier 2 review will be issued before that an antidegradation review has been completed. EPA also recommends edits that reflect the need to review for Tier 1 and Tier 3 protection.*

A) The review will generally take the following steps as outlined in the permit application instructions:

Step 1. a) The applicant may request a determination of preliminary effluent limits for those water quality pollutants believed to be present in the proposed activity;
b) The applicant may submit an application without determination of preliminary effluent limits;
c) The applicant may submit an analysis of no degradation to water quality (including non-discharging options and regionalization, at a minimum);
d) The applicant may submit an analysis showing only temporary lowering of water quality; or
e) The applicant may submit an analysis showing non-significant lowering of water quality.

Step 2. The preliminary determination of effluent limits will include, if applicable, a finding that the proposed activity or increase in discharge will cause significant lowering of water quality. The preliminary limits determination, if provided by DEQ, is considered the baseline for alternatives analysis of less degrading options.

Step 3. Upon significant degradation determination, the applicant shall provide antidegradation review documents, including an alternatives analysis and socioeconomic demonstration.

Step 4. Upon receipt of antidegradation review documents with an administratively complete permit application, the Division will promptly ~~cause to be~~ publish~~ed~~ a Public Notice acknowledging the receipt of the antidegradation review included with the Public Notice of the administratively complete permit application. The Division will begin technical review.

Step 5. Upon completion of the technical review, DEQ will cause to be published, for a thirty-day comment period, the draft permit decision, antidegradation review, and Water Quality Management Plan (WQMP).

Step 6. The Director will evaluate the public interest and may call a public hearing on the draft permit, the antidegradation documents, and WQMP.

Step 7. Following the public hearing and receipt of public comments, the Director will make a final permitting decision. The decision will include the response to any comments, final permit, final supporting documents (including antidegradation documents), and final WQMP.

Step 8. Any person with standing may appeal the Director's decision in accordance with Rule No. 8.

B) Basis of Antidegradation Review Procedure

This portion of the chapter outlines the procedure for determining whether or not degradation is necessary to accommodate important economic and social development ~~justified~~ in waters of the State from regulated discharges/activities. The antidegradation review procedure is based on the following items. See Section 15 below for the Antidegradation Decision Diagram.

EPA: *Consistent with prior comments, EPA recommends replacing the term "justified" with more specific wording mirroring the federal regulatory requirement.*

1) **Level of Protection**

Determination of Tier 1, 2, or 3 status can be found in Section 3.

2) **Baseline Water Quality (BWQ) of the Receiving Water**

BWQ is defined in Section 1. The BWQ shall be representative of the water quality at or immediately upstream from a new activity or representative of the receiving steam at or below an existing activity, as applicable. Once established, BWQ is a fixed quantity expressed as a concentration. For waters receiving pollutants from a point source (where full design capacity has not been reached), the BWQ shall include the levels of pollutants already permitted to be discharged at maximum design flow. If there is insufficient data to determine the BWQ at the applicable location of the proposed activity, the applicant can either collect the additional data required to determine BWQ or assume significant degradation without determining BWQ.

3) **Total Assimilative Capacity**

Total Assimilative Capacity is defined in Section 1. The total assimilative capacity of a waterbody describes the amount of a pollutant that can be added to that waterbody without causing a violation of water quality criteria or impairing a beneficial use. Tier 1 waterbodies are maintaining existing uses and water quality standards, which assumes no assimilative capacity. Tier 3 waters' total assimilative capacity is to be maintained in order to protect existing uses. Tier 2 waters' total assimilative capacity is finite and is protected by evaluating and setting permit limits at critical stream

conditions, at discharge design flow conditions, in consideration of background water quality conditions, and in accordance with procedures established in Rule 2 and the CPP. Occasionally, ~~competing~~ multiple activities exist in close proximity, and the potential pollutant loads for all ~~competing~~ activities shall be evaluated together.

EPA: *How does ADEQ see "total assimilative capacity" as different from "assimilative capacity?" More specifically, EPA recommends replacing the third sentence in this paragraph with the following clarification: "For parameters within a water body that have been assigned Tier 1 protection, no assimilative capacity is available and existing uses and water quality standards will be maintained and protected." Per previous comment, EPA also recommends that ADEQ revise this language to clarify that Tier 3 protection protects more than existing uses. Please clarify the purpose of specifying that the assimilative capacity is finite in tier 2 waters.*

In order to determine the remaining assimilative capacity of a waterbody for a significant degradation analysis, the total assimilative capacity must be determined for each water quality parameter each time a new or expanded facility/activity is considered. The total assimilative capacity for dissolved oxygen is indirectly evaluated through water quality modeling of oxygen-demanding pollutants. Each waterbody has a unique available capacity for each water quality parameter that is derived from Baseline Water Quality (BWQ). BWQ must take into consideration all pollutant contributions from natural sources, permitted point sources (100% of allocation), and nonpoint sources at its time of determination. The total available assimilative capacity is the difference between the water quality criteria and the baseline water quality.

Example of a conservative constituent:

water quality criteria - baseline water quality = total assimilative capacity
10 mg/L - 3 mg/L = 7 mg/L

10 mg/L= water quality criteria;
3 mg/L= baseline water quality;
7 mg/L= total assimilative capacity [*includes contribution from natural, permitted point sources, and nonpoint sources*].

4) **Degradation Determination**

Some increase in pollutant loading is allowed for parameters ~~for waterbodies~~ categorized as Tier 2 ~~for the parameter in question~~. DEQ or the applicant shall first determine whether or not the proposed new or expanded discharge/activity will result in significant lowering of water quality.

Documentation

Documentation to support a significant or non-significant lowering of water quality determination may include, but not be limited to, the percent change of the pollutant concentration, loading calculations, or percent reduction of assimilative capacity. For bioaccumulative parameters and other parameters that may impact aquatic biota, a Tier 2 review may still be required even if the discharge is determined to be non-significant. ~~However, if a non-significant determination is calculated but potential for bioaccumulation or impacts to aquatic biota may be present, then an~~

~~antidegradation review may be required.~~ If significant degradation is assumed then this shall be a documented selection of the applicant.

EPA: *Given the language, it is unclear if this is suggesting that some type of mass-balance model will be used to determine whether the degradation will be significant or if this is referring to a situation where a discharger could decide to assume degradation is significant and proceed with a Tier 2 review. Regarding the last sentence, rather than "assumed," would "predicted" be more appropriate?*

Consumption of *less than* or equal to 10% of the assimilative capacity
The applicant may demonstrate the discharge consumes less than 10% of the assimilative capacity through the use of existing water quality data. Unless there is a potential for bioaccumulation or impacts to aquatic biota, no alternatives analysis or socioeconomic impact review is required. This analysis must be done on a cumulative basis and must incorporate all degradation from all activities that have occurred in this water body since the determination of the BWQ. In the cases where there is potential for bioaccumulation or impacts to aquatic biota may be present, an antidegradation review may be required

Consumption of *greater than* the 10% of the assimilative capacity
A permit applicant may proceed without calculation of total assimilative capacity if it is assumed that significant degradation will occur. The applicant may proceed with submitting an alternatives analysis and social-economic impact analysis (Section 8.B.5).

Consumption of Dissolved Oxygen Sag
Consumption of the total assimilative capacity for oxygen-demanding pollutants is calculated based on the dissolved oxygen sag in the water quality model.

EPA: *Please specify what water quality model is referred to here.*

5) Alternatives Analysis and Economic and Social Development Analysis

Antidegradation review under Tier 2 for significant lowering of water quality requires documentation that the proposed activity and treatment alternatives and social-economic impacts have been evaluated and considered. The applicant may utilize documents such as "*Guidelines for Preparing Economic Analyses"* EPA, Revised March 2016, or others, for guidance in completing the report.

a) Alternatives Analysis

An applicant proposing any new or expanded discharge or activity that would significantly lower water quality is required to prepare an evaluation of alternatives. The purpose of this evaluation is to determine practicable alternative(s) that would prevent or limit the degradation associated with the proposed activity. Alternatives are compared to practicability, available technology, and affordability to the controls required for protecting existing uses and achieving highest statutory and regulatory requirements.

The analysis should include a description of each alternative in terms of technical, economic, and social feasibility. Alternatives to be considered should include but are not limited to:

EPA: *Please specify what is meant by the term "social feasibility."*

i) Product or raw material substitution;
ii) Improved operation and maintenance of existing treatment;
iii) Installation of biological/physical/chemical treatment process that provide higher level of treatment;
iv) Water conservation measures; and
v) Other alternatives.

If experimental or unproven methods are proposed, DEQ may request information on previous applications of the method, effectiveness, transferability (if applicable), costs and other information as appropriate. Applications containing proposals for new or experimental methods will be required to append information regarding likely performance results. Such applications may be approved at Director's discretion with the condition that if the proposed technology does not meet project pollutant control targets, the applicant must adopt conventional or other pollution control measures that meet state antidegradation requirements. DEQ may require that the applicant analyze additional alternatives if an appropriate range of alternatives were not evaluated. DEQ staff and the applicant should meet to discuss these and other issues early in the process. The applicant should also document any alternatives that were determined to be impracticable and provide a basis for the conclusion. If practicable alternatives are identified, the lowering of water quality in a high quality water will only be authorized if one of those alternatives is selected for implementation.

b) Social Development Analysis

Social-economic, environmental, or public health issues may be considered when lowering water quality. This analysis is not necessary if a non-degrading or non-significant degrading alternative is chosen. Factors to be considered in making a determination include but may not be limited to:

i) Employment (e.g. increasing production and jobs, maintaining, or avoiding reduction in employment, permanent or short-term);
ii) Improved community tax base;
iii) Abatement of an environmental or public health problem;
iv) Providing a social benefit to the community;
v) Increasing or improving housing; and
vi) Providing necessary public services (e.g., fire department, school, infrastructure).

EPA: *Recommend that ADEQ provide additional detail to specify who is responsible for conducting the social development analysis and, at what point in the review process it will be conducted.*

c) Economic Analysis

Alternatives that are deemed practicable must undergo a present worth cost comparison. An analysis of pollution control costs, or economic efficiency, is appropriate when the applicant desires to optimize the balance between water quality benefits and project costs. General cost categories that should be considered include capital cost, annual operating cost, customer costs, and debt service.

In order to develop a standardized framework for projecting, evaluating, and comparing costs associated with various pollution control alternatives, applicants should use a 20-year life cycle present worth framework for reporting cost information. However, applicants may propose alternate economic demonstrations if appropriate. Alternative direct cost comparisons may be presented if the present worth calculation is complicated by the amount of difference in the effective design longevity of the alternatives examined.

The Division has developed a worksheet for guidance in calculating costs. The worksheet or an alternative cost analysis should be completed and submitted with the antidegradation review.

EPA: *Can ADEQ provide the worksheet it has developed for EPA review?*

Base cost is considered the minimum cost to achieve water quality standards. As a non-binding guideline, alternatives costing less than 120 percent of the base cost are presumed to be considered economically efficient. This economic efficiency guideline presumes that the reduction of pollutant loads below the minimum level of pollution control has an environmental benefit which warrants the increased expenditure.

Following the evaluation of alternatives, the applicant must provide a basis for selecting the most practicable alternative. The most practicable alternative is one that is determined to be the least degrading, most economically efficient, and most socially beneficial alternative or otherwise defined by 40 CFR 131.3 (n).

EPA: *Recommend that ADEQ develop a range of practicable alternatives and then use the difference in cost from base cost to select an alternative for implementation. With regard to the second paragraph, EPA recommends moving this into the "Alternatives Analysis" section. All alternatives that are evaluated should be practicable – the alternatives analysis is the step of the Tier 2 review that shows that degradation is "necessary; the socioeconomic analysis is a separate piece that shows that the allowable degradation is "important." All of the characteristics may not line up in one option. Thus, EPA recommends that ADEQ provide additional information here regarding how alternatives will be prioritized.*

9. IMPLEMENTATION OF CONTROLS FOR NONPOINT POLLUTION SOURCES

EPA's regulatory interpretation of 40 CFR§131.12(a)(2) is that federal Antidegradation Policy does not require DEQ to establish BMPs for nonpoint source pollution control where regulatory programs requiring BMPs do not exist. The CWA leaves it to the states to determine what, if any,

controls on nonpoint sources are needed to provide for attainment of state WQS. States may adopt regulatory or voluntary programs to address nonpoint sources of pollution. Where a state has adopted a regulatory program for nonpoint source pollution control, the state must assure that such controls are properly implemented before authorization is granted to justify lowering of water quality.

EPA: *With regard to allowing lowering of water quality in a high-quality waters, EPA recommends the state lay out the steps for assuring the highest statutory and regulatory requirements for point sources are achieved and also assuring that the lowering that is being authorized will not impair existing uses as required by 40 CFR 131.12(a)(2).*

DEQ and the Arkansas Department of Agriculture provide cooperative oversight of nonpoint pollution sources and waters that are impaired by nonpoint sources. Nutrient Management Plans for permits/activities are one of the avenues used for addressing nonpoint pollution from liquid animal waste in nutrient surplus areas. The Arkansas Department of Agriculture requires waste management plans for non-liquid systems. The controlling agencies assure compliance through regulatory programs applicable to such activities. Activities (e.g. agriculture, silviculture) resulting in a new or expanded amount of pollutants entering waters solely from nonpoint sources are not subject to an antidegradation review prior to these activities commencing.

EPA: *With regard to controlling agencies, please explain how ADEQ will assure compliance before authorizing lowering of water quality.*

10. PUBLIC REVIEW

Prior to approval and issuance of a permit or certification for a proposed activity that will cause significant degradation of water quality, public notice is provided in accordance with the APC&EC Rule No. 8.

11. INTERGOVERNMENTAL COORDINATION AND REVIEW

Intergovernmental coordination is required prior to approving any activity that would cause lowering of water quality to surface waters protected at the Tier 2 level. This requirement seeks to ensure that relevant public entities at the local, state, and federal levels are aware of any proposal to lower water quality and are provided with an opportunity to comment on the proposal.

The intergovernmental coordination and review process may occur in tandem and at minimum in accordance 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 under the procedure outlined by APC&EC Rule 8.

12. FINAL ACTION

At the completion of the public review and input process, any comments received will be reviewed and considered to determine if changes should be made to the proposed activity. Significant changes may require an update to the antidegradation review document for the project and may be

subject to an additional public notice. Final permit or certification decisions includes the antidegradation review decision and 208 Plan update.

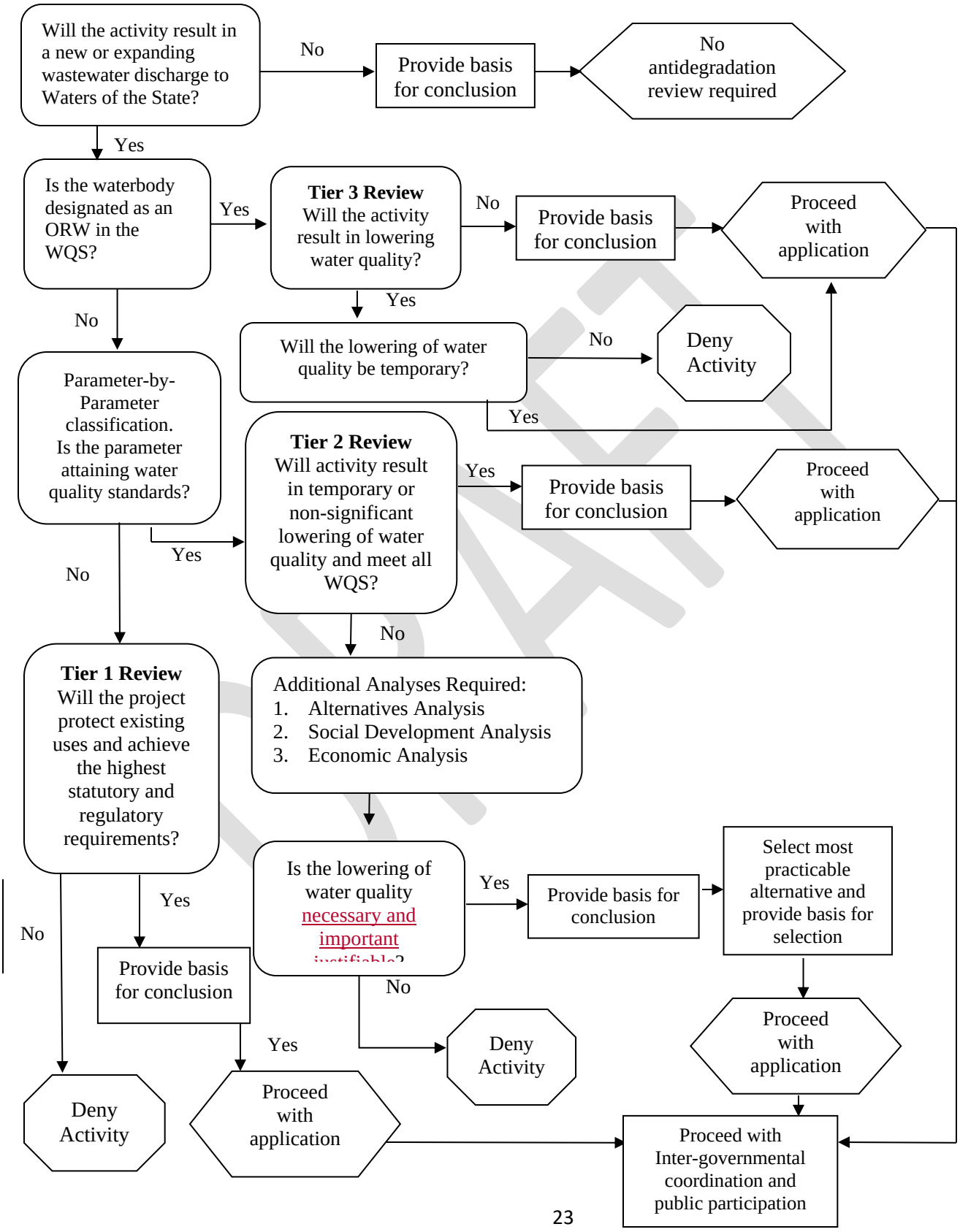
13. APPEALS

Antidegradation review decisions of the Division may be appealed within 30 days of the issuance of the decision and in accordance with the procedures outlined by APC&EC Rule 8. After any modification of the decision is made that is based on the Director's discretion, public review, or intergovernmental review, a second public notice may be required.

14. EFFECTIVE DATE

The effective date of this guidance is {STARTING DATE}.

15. ANTIDEGRADATION DECISION DIAGRAM



***EPA**: EPA recommends revising the "most practicable" language in the diagram in accordance with revisions made to earlier sections in response to EPA's earlier comments.*