Iowa Antidegradation Implementation Procedure

Iowa Department of Natural Resources
Water Resources Section

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Glossary

Alternatives Analysis: An evaluation of reasonable alternatives to regulated activities that might degrade water quality, including less-degrading alternatives, nondegrading alternatives, and no-discharge alternatives, such as treatment process changes, relocated discharge facilities, land application, reuse, and subsurface discharges.

Antidegradation: A regulatory policy and implementation procedure to protect existing uses of surface waters and to specify how IDNR 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 amount of contaminant load that can be discharged to a specific water body without exceeding the numeric water quality criteria associated with a pollutant of concern (POC). Assimilative capacity is used to define the ability of a water body to assimilate a discharged substance without impairing beneficial uses.

Beneficial Uses: All existing and designated uses on or in surface waters of the state.

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

Designated Use: A beneficial use assigned to a water of the state as shown in the Water Quality Standards – (IAC 567 – 61.3(1)).

Existing Use: Those beneficial uses actually attained in a surface water on or after November 28, 1975, whether or not the uses are designated in the water quality standards.

Existing Water Quality: A characterization of selected pollutants of concern in a 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 IDNR to reflect changes in water quality.

Less-Degrading Alternative: A reasonable alternative to a proposed discharge or change to an existing discharge that would result in fewer detrimental changes to water quality than an alternative that protects existing uses.

Minimum Level of Pollution Control: Controls required to protect existing uses and to achieve all statutory and regulatory requirements for the waters under evaluation.

"Necessary": No reasonable alternative(s) exist to prevent degradation.

Non-Degrading Alternative: A reasonable alternative to a proposed or existing discharge that would not result in degradation of water quality as characterized by the existing water quality assessment.

Outstanding Iowa Water: A surface water that IDNR has classified as an outstanding state resource water in the water quality standards. An Outstanding Iowa Water receives Tier 2 ½ protection.

Outstanding National Resource Water: A surface water that IDNR has classified as an outstanding national resource water in the water quality standards. An Outstanding National Resource Water receives Tier 3 protection.

Pollutant of Concern: Pollutants of concern for antidegradation reviews include those pollutants which are reasonably expected to be present in the discharge and may reasonably expected to affect the beneficial uses.

Regulated activity: includes any activity that requires a permit or a water quality certification pursuant to the following federal laws: 1) CWA § 402 NPDES permits, 2) CWA § 404 dredge and fill permits, 3) any activity requiring a CWA § 401 certification.

Social and Economic Importance (SEI): The social and economic benefits to the community that will occur from any activity resulting in a new or expanded discharge.

Temporary and Limited Degradation: Degradation that is not permanent. The effects can be regarded as temporary and limited following a review of all of the following factors, if applicable:

a) length of time during which water quality will be lowered
b) percent change in ambient conditions
c) pollutants affected
d) likelihood for long term water quality benefits to the water body
e) degree to which achieving the applicable Water Quality Standards during the proposed activity will be at risk
f) potential for any long term influences on existing uses

Tier 1 Review: Policies and procedures that prohibit degradation which results in the loss or impairment of a beneficial use or violation of water quality criteria and that prohibit degradation of existing water quality where pollutants of concern are at or violating applicable water quality standards. Tier 1 protection applies to all surface waters regardless of existing water quality as the minimum protection level.

Tier 2 Review: Policies and procedures that prohibit degradation of a surface water unless a review of reasonable alternatives and social and economic considerations justifies a lowering of water quality or the lowering of water quality is temporary and limited. Tier 2 protection level applies to all designated waters where existing water quality is better than applicable water quality standards as determined on a pollutant-by-pollutant basis.

Tier 2 ½ Review: Policies and procedures that prohibit any lowering of water quality in unique waters as identified in the water quality standards unless the lowering is temporary and limited or serve to maintain or enhance the value, quality, or use of the Outstanding Iowa Water, as determined by the Director of IDNR on a case-by-case basis.

Tier 3 Review: Policies and procedures that prohibit any lowering of water quality in unique waters as identified in the water quality standards unless it is temporary and limited, as determined by the Director of IDNR on a case-by-case basis. Any proposed activity that would result in a permanent new or expanded direct source of pollutants is prohibited.

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.

ANTIDEGRADATION IMPLEMENTATION PROCEDURE

1 Purpose and Overview

These procedures are intended to provide guidance to persons who are responsible for the regulated activities that may degrade water quality in Iowa. **Regulated activities** include any activity that requires a permit or a water quality certification pursuant to federal law.

The following are the implementation procedures for Iowa's antidegradation rule found at 567 Iowa Administrative Code Chapter 61.2(2) and federal antidegradation policy at Title 40 Code of Federal Regulations (CFR) Section §131.12. The Iowa Department of Natural Resources (department) is required by 40 CFR §131.12(a) to develop and adopt a statewide antidegradation policy and to identify procedures for implementing that policy. Implementation includes:

- identifying the antidegradation review levels (i.e., the "tiers") that apply to a surface water;
- determining existing water quality;
- assessing and determining water quality degradation;
- identifying and assessing less-degrading or non-degrading alternatives;
- determining the importance of economic or social development to justify degradation of waters; and
- establishing intergovernmental coordination and public participation processes.

1.1 Summary of Applicable Laws and Regulations on Antidegradation

Iowa Code (Sections 455B.171 – 455B.183) establishes requirements for the protection and management of surface water quality. The Environmental Protection Commission, through the assistance of the department, promulgates administrative regulations on water quality. Iowa's Water Quality Standards (WQS) are written into regulation at 567 IAC Chapter 61 – Water Quality Standards. The specific portion of the regulation prescribing the policy on antidegradation is 567 IAC Chapter 61.2(2).

The antidegradation rule is one of three required regulatory elements of the WQS. The other two elements include beneficial uses, and water quality criteria (narrative and numeric). All of these review elements must be administered as a whole. All surface waters of the state are subject to antidegradation provisions.

The designated uses and the applicable water quality criteria can be found in 567 IAC Chapter 61. All waters of the state are subject to general criteria contained in 567 IAC Chapter 61.3(2). All waters listed in the Surface Water Classification have beneficial uses and are subject to the specific (i.e., numeric) water quality criteria contained in 567 IAC Chapter 61.3(3) – Table 1, 2, 3a, 3b, 3c and the Bacteria Criteria Table.

Beneficial uses may vary in a water body and may change at various locations. Most waters have more than one beneficial use. Where more than one use exists, or has been designated for a water, the use with the most stringent water quality requirements must be maintained and protected.

An antidegradation review shall be performed for the entire segment (or multiple segments) of water that could be degraded by a new or expanded discharge. The review may extend into more

than one designated segment depending on the pollutant load within the discharge and the distance to and assimilative capacity of waters downgradient of the discharge point. The review must extend downgradient as far as degradation could occur regardless of the classification status of the receiving waters. If the potential degradation is confined within a single segment, the review may be limited to only the portion of the segment to be affected.

Waters listed in appendix C & D of this document are considered outstanding and warrant special protection. These waters include the state's Outstanding Iowa Waters and the Outstanding National Resource Waters . The degradation of water quality in Outstanding Iowa Waters and Outstanding National Resource Waters is prohibited except under specific circumstance described in Section 1.2.

All waters of the state are protected under at least one of four tiers of the antidegradation rule. Subsection 1.2 of this document describes these tiers and explains how the protection levels are assigned to each water. How the tier protection level may be revised is explained in Subsection 1.3 of this document.

1.2 Assigning Tier Protection Levels

The following four levels (or tiers) protect water quality from degradation in all waters of the state on a pollutant-by-pollutant basis. Under this approach, surface water quality might degrade for one or more pollutants of concern but be unaffected by other pollutants. The tiers are specified in rule at 567 IAC Chapter 61.2. as follows:

> **61.2 Antidegradation policy.** It is the policy of the state of Iowa that:
> *a. Tier 1 protection.* Existing surface water uses and the level of water quality necessary to protect the existing uses will be maintained and protected.
> *b. Tier 2 protection.* Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the department finds, after full satisfaction of the intergovernmental coordination and public participation provisions, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the department shall assure water quality adequate to protect existing uses fully. Further, the department shall assure the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control before allowing any lowering of water quality.
> *c. Tier 2 ½ protection – Outstanding Iowa waters*. Where high quality waters constitute an outstanding state resource, such as waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.
> *d. Tier 3 protection – Outstanding national resource waters*. Where high quality waters constitute an outstanding national resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. Any proposed activity that would result in a permanent new or expanded direct source of pollutants in an Outstanding National Resource Water is prohibited.
> e. The four levels of protection provided by the antidegradation policy in subsections (a) through (d) of this section shall be implemented according to procedures hereby incorporated by reference and known as the "Iowa Antidegradation Implementation Procedure," effective (insert effective date). This document may be obtained on the Department's Web site at http://www.iowadnr.com/water/standards/index.html.

The protections created by those sections of the rule, in combination with the policies and procedures outlined in this document, can be comprehensively summarized as follows:

Tier 1:
Applies to all surface waters as a minimum level of protection and requires that the level of water quality necessary for existing uses be maintained and protected. Tier 1 requires that the Water Quality Standards be achieved. Tier 1 review shall prohibit degradation that may cause or contribute to the impairment of a beneficial use or violation of water quality criteria. Tier 1 protection applies to all surface waters, regardless of the existing water quality.

Assigning Tier 1 Review
Prior to allowing any new or expanded discharges of a pollutant, the department and applicant must conduct a Tier 1 review and demonstrate that the discharge would not violate the water quality criterion for that pollutant. Those pollutants that are documented as already being at or violating Water Quality Standards will receive only a Tier 1 review.

Tier 2:
Tier 2 protection applies on a pollutant-by-pollutant basis to all designated waters. Tier 2 protection does not apply to general use segments because those segments are defined as being unable to support a viable aquatic community during low flow and do not maintain pooled conditions during periods of no flow. General use segments cannot have water quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water because these segments lack the water quantity sufficeient to support these uses. Tier 2 review shall prohibit the degradation of water quality of a surface water unless a review of reasonable alternatives and social and economic considerations justifies the degradation in accordance with the procedures presented in this document.

Assigning Tier 2 Review
A Tier 2 review shall be conducted on all designated waters of the state for new and expanding discharges, unless one of the following conditions apply:

- the water is an OIW or ONRW to which Tier 2 ½ & Tier 3 protection applies or,
- water quality is worse than the applicable water quality criteria for the pollutants of concern.

Tier 2 ½:
Policies and procedures that prohibit any degradation of water quality of the Outstanding Iowa Waters (OIWs) as identified in Appendix C. Temporary and limited degradation of water receiving Tier 2 ½ protection may be allowed by the department on a case-by-case basis as explained in Subsection 1.2 & 2.4 of this document.

Assigning Tier 2 ½ Review
Degradation of water quality in Outstanding Iowa Waters is prohibited except from short-term effects of temporary degradation as defined. This prohibition applies to new sources and expansion of existing sources in which treatment levels are maintained. Proposed expansions that would also upgrade treatment levels such that existing loading levels will be maintained or reduced may be authorized. Decisions regarding whether to allow new or expanded sources will be made on a case-by-case basis using appropriate techniques and best professional judgment of department staff.

However, an exception may be made for permanent new or expanded sources that, overall, serve to maintain or enhance the value, quality, or use of the OIW. Prior to allowing exceptions, the

department shall work with the project applicant to identify the least degrading alternative. For example, a new or expanded source of wastewater treatment facility effluent associated with a visitor center may be authorized where reasonable non-degrading or less degrading treatment alternatives to allowing a new or expanded source are not available. The department shall utilize the procedures included in Section 3 to evaluate alternatives. Exceptions will be granted on a case-by-case basis only where uses will be fully protected and effects on existing water quality will be minimal.

Tier 3:
Policies and procedures that prohibit any degradation of water quality of Outstanding National Resource Waters (ONRWs) as identified in Appendix D. Temporary and limited degradation of water receiving Tier 3 protection may be allowed by the department on a case-by-case basis as explained in Section 1.2 & 2.4 of this document. Any proposed activity that would result in a permanent new or expanded direct source of pollutants in an ONRW is prohibited.

Assigning Tier 3 Review
Degradation of water quality in Outstanding National Resource Waters is prohibited except from short-term effects of temporary degradation as defined. Any proposed activity that would result in permanent new or expanded direct source of pollutants to any segment which has been classified as ONRW is prohibited. This prohibition applies to new sources, and expansion of existing sources in which treatment levels are maintained.

Temporary Lowering of Water Quality for Tier 2 ½ and Tier 3
Factors that may be considered in judging whether OIW & ONRW quality may be temporarily lowered include:

- Percent change in ambient conditions predicted at the appropriate critical conditions;
- Percent change in loading (i.e. the new or expanded loading compared to total existing loading to the segment);
- Percent reduction in assimilative capacity;
- Nature, persistence, and potential effects of the parameter;
- Potential for cumulative effects, and;
- Degree of confidence in the various components of any modeling technique utilized (e.g. degree of confidence associated with the predicted effluent variability)

Pollutant-by-Pollutant Basis
The level of protection identified above determines the type of antidegradation review required when new or expanded discharges are proposed. Because the Tier 1 and 2 reviews are conducted on a pollutant-by-pollutant basis, this document refers to these reviews as a review of a "pollutant" as opposed to a review of the overall quality of a "water body."

For example, where a perennial surface water is impaired for one or more pollutants, and where existing water quality for other parameters 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, only Tier 1 protection for the pollutants at or violating water quality standards and both Tier 1 and Tier 2 protection for pollutants that are better than water quality standards. Tier 2 ½ & Tier 3 protection will be afforded for all pollutants of concern in Outstanding Iowa Waters (OIW) and Outstanding National Resource Waters (ONRW). *Where waters have not been listed as impaired*

or as an OIW and ONRW, the presumed antidegradation protection level is Tier 2 for all pollutants of concern.

Because Tier 1 and 2 reviews are conducted on a pollutant-by-pollutant basis as opposed to on a water body-by-water body approach, the allowance for degradation of water quality through a discharge of a pollutant depends on the existing level of that pollutant within the receiving water (i.e., the existing water quality), and the probability of promptly restoring the quality where pollutants levels are elevated. The pollutants of concern may be discharged to the water body if:

1) the discharge would not cause or contribute to a violation of the WQS or the loss or impairment of a beneficial use;

2) all other conditions of the state permitting requirements are met (i.e., technology-based requirements are met); and

3) the permit is issued reflecting the highest statutory and regulatory requirements. Subsection 2.1 of this document lists other examples of discharges not requiring a Tier 2 review based on the temporary degradation that results during those discharges.

In the absence of information on existing water quality, waters shall automatically receive Tier 2 review prior to receiving any additional pollutants of concern that might result in a degradation of the water quality. An exception is made for OIWs and ONRWs that shall always be given Tier 2 ½ & Tier 3 protection.

1.3 Revising Tier Review Levels

The default tier review will change from Tier 2 ½ or Tier 3 to Tier 2 if the water is no longer categorized through rule making as an OIW or ONRW. The change in a review level of an OIW or ONRW will require an opportunity for public review as outlined in Section 6 of this document.

Any person may nominate a surface water to be afforded Tier 2 ½ or 3 level of protection by filing a nomination with the department. The department considers nominations during the triennial review of surface water quality standards. The nominating party has the burden of establishing the basis for classifying a surface water as an OIW or ONRW. The nomination shall include a map and description of the surface water; a statement in support of the nomination, including specific reference to the applicable criteria for unique water classification; supporting evidence that the applicable criteria are met; and available, relevant water quality data for establishing existing water quality. The department may classify a surface water as an OIW or ONRW based on one or more of the following criteria:

- The surface water is a perennial water and is in a free-flowing condition;
- Location of the surface water (e.g. on federal lands such as national parks or national wildlife refuges);
- The ecological value of the surface water (e.g. biologically diverse);
- The surface water has pristine water quality;
- The surface water is of exceptional recreational or ecological significance because of its unique attributes;
- The surface water supports threatened or endangered species or provides critical habitat for a threatened or endangered species;

- The surface water is highly aesthetic; has archeological, cultural, or scientific importance; or provides a special educational opportunity; and/or
- Any other factors the Department considers relevant as demonstrating the surface water's outstanding value as a resource.

The department will consider the following factors when making a decision whether to classify a nominated surface water as OIW or ONRW:

- Whether there is the ability to manage the OIW or ONRW and its watershed to maintain and protect existing water quality;
- The social and economic impact of Tier 2 ½ or 3 antidegradation protection;
- Public comments in support or opposition to the OIW or ONRW classification;
- The timing of the OIW or ONRW nomination relative to the triennial review of surface water quality standards;
- The consistency of an OIW or ONRW classification with applicable water quality management plans; and
- Whether the nominated surface water is located within a national or state park, national monument, national recreation area, wilderness area, riparian conservation area, wildlife management area, area of critical environmental concern, or has another special use.

The Department shall hold at least one public meeting in the local area of a nominated OIW or ONRW to solicit public comment. The nomination and all other information or input collected during the nomination and consideration process will be made part of the public record.

2 Iowa's Antidegradation Implementation Procedure

This portion of the document outlines the procedure for determining whether or not degradation is allowed in surface waters of the state from regulated activities. The antidegradation review procedure is based on:

- the level of protection (i.e., Tier 1, 2, 2 ½, or 3) assigned to the pollutants of concern within the water receiving the discharge,
- the type of receiving water,
- existing water quality of the receiving water,
- the necessity of degradation, and
- the social and economic importance of the proposed discharge.

All new or expanded regulated discharges are subject to antidegradation review requirements. Regulated activities include any activity that requires a permit or a water quality certification pursuant to federal law.

Tier 2 antidegradation reviews are required when proposed new or expanded discharges will degrade water quality. In addition to reviewing the necessity for a discharge and the social and economic importance of the discharging activity, the department and applicants must ensure that proposed discharges fully protect beneficial uses, and achieve the highest statutory and regulatory requirements (such as application of appropriate federal effluent limitation guidelines for certain industries, secondary treatment standards for domestic wastewater and appropriate water quality based effluent limitations, where appropriate). The department must also assure that activities within the watershed are implementing cost-effective, reasonable best management practices to control nonpoint source pollution. Determinations issued under these provisions must be made in accordance with the public notification process described in Section 4 of this document. A decision diagram of the antidegradation review process is provided as **Appendix A** of this document.

2.1 Relationship of Antidegradation to Beneficial Uses and Classifications

This antidegradation implementation procedure applies to all surface waters of the state regardless of use designations or water classification. Regardless of the level of review assigned, an antidegradation review must not result in the impairment of an existing or designated beneficial use.

Outstanding National Resource Waters and Outstanding Iowa Waters are antidegradation categories consistent with the implementation of the antidegradation policy in Chapter 61. These categories are separate and independent of designated and existing uses provisions as stated in the Code of Federal Regulations.

2.2 Determining the Appropriateness of Degradation

To determine the required scope of an antidegradation review, the department shall first determine whether or not the proposed new or expanded discharge will result in degradation for a pollutant of concern. Pollutants of concern for antidegradation reviews include those pollutants which are reasonably expected to be present in the discharge and may be reasonably expected to affect the beneficial uses. The permit applicant does not have to determine the assimilative capacity of the receiving water and, consequently, can proceed directly into defining the "necessity" (i.e., performing the alternatives analysis) of the discharge under Section 3 of this

document assuming (instead of demonstrating) that the proposed discharge will result in degradation for each of the pollutants of concern.

Antidegradation applies to any permitting action regarding a regulated discharge of a new or increased amount of a pollutant of concern.

A regulated activity shall not be considered to result in degradation, if:

- The proposed activity would not result in a permanent net increase in mass loading or ambient water quality concentration for a pollutant of concern after mixing; or
- The activity is occurring within the design capacity of the treatment plant as specified in the existing construction permit; or
- The activity will result in only temporary and limited degradation of water quality as defined in section 2.4; or
- A permit for an existing facility does not propose less stringent permit limits or increased treatment plant design capacity; or
- Additional treatment is added to an existing discharge and the facility retains their current permit limits and design capacity; or
- Treatment is added to a previously unpermitted discharge resulting in improvements to the receiving water, such as an unsewered community; or
- Combined sewer overflow (CSO) control projects resulting in a net decrease in the CSO-related pollutant loadings to surface waters shall be excluded from review requirements when these loadings are included in department-approved plans (e.g., Nine Minimum Controls, Long-Term Control Plan) in accordance with national guidance or policies; or
- The department concludes that the proposed activity will not cause degradation based upon the specifics of any watershed-based trading that has been agreed to by the project applicant. NOTE: Because Iowa does not currently have a watershed-based trading program in place, the applicant might experience some permitting delays in pursuing this exemption unless the department is given significant advanced notice of the applicant's proposal; or
- The activity is a thermal discharge that has been approved through a Clean Water Act 316(a) demonstration.
- The activity is a residual chlorine discharge that meets water quality criteria after mixing.

If a determination is made that degradation will occur, or it is assumed, the department will determine from information provided by the discharger, obtained from the public, or available to the department from its own sources, whether or not the degradation is necessary to allow important economical and social development in the geographical areas in which the waters are located (See Section 3 of this document).

2.3 Determining Existing Water Quality

Existing water quality determinations will primarily relate to Tier 2 ½ and Tier 3 reviews to determine the percent change in ambient conditions that may result from potential degradation. Also, the applicant can choose to determine existing water quality to determine if only Tier 1 review is necessary, however the department encourages the applicant to proceed directly into defining the "necessity" (i.e., performing the alternatives analysis) of the discharge under Section 3 of this document assuming (instead of demonstrating) that the proposed discharge will result in any degradation for each of the pollutants of concern.

Any applicant considering a new or expanded discharge to an OIW shall coordinate any planning effort to determine the existing water quality with the department. The department will provide the necessary guidelines and steps for an appropriate, scientifically defensible determination.

Existing water quality either:

- provides confirmation that the water quality for a pollutant of concern is at or violating the Water Quality Standard and therefore justifies a Tier 1 review, or

- serves as the yardstick by which available assimilative capacity is measured for the pollutants of concern to receive a Tier 2 review.

In general, existing water quality will be based upon existing assessments conducted under the current department monitoring and assessment programs. Existing water quality assessments will seek to gather information only on the pollutants reasonably expected to be in discharges.

The preferred approach for assessing existing water quality is to use previously collected data where available or presume default background levels. Where adequate data are not available, the second preferred approach is to collect water quality data. The third preferred approach for assessing existing water quality is to use appropriate reference data where it can be shown that the reference data is likely to reflect conditions in the water body in question. Sometimes more than one approach may be needed to characterize existing water quality for all pollutants of concern.

The department can advise the applicant on what approaches may be most appropriate to establish the existing water quality. If a data collection effort is chosen, the department can advise the applicant on what data are needed and can provide guidance on how to collect and report the needed information to the department.

2.4 Temporary and Limited Degradation

Activities resulting in temporary and limited degradation will be given a Tier 1 review. The department will determine if degradation from a discharge qualifies as temporary and limited following a review of information provided by the applicant. The information provided by the applicant must include:

a) length of time during which water quality will be lowered,
b) percent change in ambient conditions,
c) parameters affected,
d) likelihood for long-term water quality benefits to the segment (e.g., as may result from dredging of contaminated sediments),
e) degree to which achieving the applicable Water Quality Standards during the proposed activity may be at risk, and

f) potential for any residual long-term influences on existing uses.

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3 Pollution Control Alternatives to Degradation

An applicant proposing any new or expanded discharge that would degrade water quality is required to prepare an evaluation of alternatives to the proposed discharge. The purpose of this evaluation is to determine whether or not the proposed discharge is *"necessary," that is, no reasonable alternative(s) exist to prevent degradation.* These alternatives are compared (in terms of practicability, economic efficiency and affordability) to the controls required to protect existing uses and to achieve the highest statutory and regulatory requirements (i.e., the more stringent between the water quality-based effluent limits to protect an existing use and the applicable technology-based effluent limits).

Following the analysis of pollution control alternatives, the alternative that is the most practicable, economically efficient, and affordable should be considered the preferred pollution control alternative. If this alternative results in degradation, the applicant must then document the social and economic importance (SEI) of the discharge according to the guidelines in Section 3.3 of this document.

3.1 Identifying Non-Degrading and Less-Degrading Pollution Control Measures

For any proposed discharge, there may be a number of pollution control measures that prevent or minimize water quality degradation. For discharges likely to cause degradation, applicants must provide an analysis of non-degrading and less-degrading alternatives to the minimum level of pollution control. The minimum level of pollution control is the control required to protect existing uses and to achieve the highest statutory and regulatory requirements.

The applicant shall evaluate a range of non-degrading or less-degrading pollution control alternatives with the intent of identifying reliable, demonstrated processes or practices that can be reasonably expected to achieve greater pollution reduction. The following alternatives are examples that may be considered depending upon applicability:

- Land application
- Subsurface irrigation
- Waste transport
- Groundwater recharge
- Improvements in the collection system
- Recycling or reuse (i.e., closed loop system)
- Discharge to a regional wastewater collection and treatment system
- Improved operation and maintenance of existing treatment system
- Alternative discharge locations
- Installation of biological/physical/chemical treatment processes that provide higher levels of treatment
- Seasonal or controlled discharges to avoid critical water quality periods

If experimental or unproven methods are proposed, the department 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 the discretion of the department 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.

The department may require that the applicant analyze additional alternatives if an appropriate range of alternatives were not evaluated. The department staff and the applicant should meet to discuss these and other issues early in the process. The applicant shall also document any less-degrading alternatives that were determined to be unreasonable and provide a basis for the conclusion.

3.2 Evaluating and Selecting Alternatives

Following the evaluation of possible alternatives, the applicant must provide a basis for selecting the most reasonable alternative. A reasonable alternative is one that is practicable, economically efficient, and affordable.

Practicability

The practicability of alternatives is considered by evaluating the effectiveness, reliability, and potential impacts on the overall natural environment (i.e., land, air, water and energy use) resulting from implementation of the alternatives. Non-degrading and less-degrading alternatives shall be considered practicable unless an evaluation to the contrary is provided. The following are examples of the factors that may be evaluated during this process:

1) Effectiveness and Reliability

• Certainty of achieving technology-based requirements and water quality criteria to protect existing uses
• Technical feasibility of alternatives (e.g., no-discharge of large discharges within dense urban areas)
• System or technology reliability, potential for upsets/accidents
• Nature of pollutants discharged
• Discharge timing and duration
• Need for low-flow augmentation
• Dilution ratio for pollutants discharged

2) Potential Environmental Impacts

• Sensitivity of stream uses
• Sensitivity of groundwater uses in the area
• Effect on endangered species
• Potential to generate secondary water quality impacts (storm water, hydrology)
• Secondary pollutants created by products of treatment

Review of these factors might be on a qualitative or quantitative basis, as appropriate. Other secondary environmental impacts should also be considered, such as the potential impact of alternatives on odor, noise, energy consumption, air emissions, solid waste and sludge generation. Other practicability 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.

Economic Efficiency

Alternatives that are deemed practicable must undergo a direct cost comparison and alternatives that impose a cost that is disproportionate to the possible environmental gain may be eliminated as impracticable. 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 costs
- Annual operating and maintenance costs (including cost escalation)
- Other costs (one-time costs, savings, opportunity cost, salvage value)

Opportunity costs may be considered in the estimate of overall cost, as appropriate. For example, lost opportunity costs for lots in a proposed subdivision that would be used for land application rather than housing, or losses related to process changes that results in missed production runs are legitimate and may be considered if adequately documented.

In order to develop a standardized framework for projecting, evaluating, and comparing costs associated with various pollution control alternatives, applicants should use a 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 lives of the alternatives examined. The following calculation may be used to determine present worth:

$$P = C + O + [A * P/A, d, n)] – S$$

Where:
P = Present worth
C = Capital cost
O = Other costs (expressed as present worth)
A = Average annual operating cost (alternatively a gradient factor may be applied to account for cost escalation)
d = Discount rate
n = Useful life
S = Salvage value of facilities and land (expressed as net worth)
(P/A, d, n) = Equal series present worth factor = $[(1 + d)n – 1] / [1 + d)n]$

The cost of each alternative is then compared to the base cost of pollution control. The base cost of pollution control is the cost of the controls required to protect existing uses and to achieve the highest statutory and regulatory requirements, i.e., the more stringent of water quality based effluent limits for existing use protection or technology-based effluent limits.

As a *non-binding guideline,* alternatives less than 115 percent of the base cost of pollution control measures are presumed to be economically efficient. Alternatives greater than 115 percent of the base costs should also be considered if implementation of the alternative would produce a substantial improvement in the resulting discharge. Conditions that might warrant consideration of alternatives of greater cost (above 115 percent) are the effectiveness, reliability, and environmental factors identified above.

Applicants performing the direct cost comparison approach should evaluate the economic efficiency of the treatment options for each of the primary pollutants of concern related to the

proposed discharge. For example, the primary pollutants of concern for domestic wastewater discharges include biochemical oxygen demand (influencing in-stream dissolved oxygen concentration), ammonia, bacteria, and other pollutants for which a wasteload allocation can be reasonably determined. An applicant may need to evaluate the costs associated with one pollutant of concern if additional treatment process alternatives do not effect treatment for other pollutants of concern. An applicant can bypass the cost comparison step by choosing to implement the least degrading alternative for each pollutant of concern.

This quantitative water quality analysis is not needed when the receiving water quality is not a significant factor for a specific alternative (e.g., in-stream dissolved oxygen concentrations in relation to a no-discharge alternative). Since all alternatives analyses use qualitative and quantitative assessments of water quality benefits and treatment costs and feasibility, best professional judgment is of the utmost importance when evaluating alternatives.

Affordability

Following an analysis of practicability and economic efficiency, the affordability of the least degrading alternative may be assessed at the applicant's discretion. This assessment may be used to determine if the alternative is too expensive to reasonably implement. This approach results in the selection of the least degrading alternative, while maintaining affordability to the public or private entity. *Alternatives identified as most practicable and economically efficient are considered affordable if the applicant does not supply an affordability analysis*.

The determination of affordability for public and private entities is an emerging issue nationally. As such, federal guidance has not yet been finalized. Until such time, the applicant should use the U.S. Environmental Protection Agency's water quality standards handbook – "*Interim Economic Guidance for Water Quality Standards*," EPA-823-B-95-002 (1995). This guidance document presents one set of public and private sector approaches which consider the absolute value of the alternative rather than through cost comparisons. This interim guidance is not binding and may be replaced or supplemented with other methods of analysis, if sufficiently justified.

If the applicant determines that the most efficient alternative is affordable, then it is the preferred alternative. If the most efficient alternative is not affordable, then the affordability of the next most efficient alternative should be evaluated until an alternative is chosen that is practical, economically efficient and affordable.

3.3 Determining Social and Economic Importance of the Preferred Alternative

If the preferred alternative identified will result in degradation to the receiving waters, then the applicant must demonstrate that the preferred alternative (or "project") will allow important economic and social development. **Social and Economic Importance** is defined as the social and economic benefits to the community that will occur from any activity resulting in a new or expanded discharge. The applicant should use the following three steps to demonstrate the SEI:

- Identify the affected community
- Identify relevant factors that characterize the social and economic conditions of the affected community
- Describe the important social and economic development associated with the project

1. Identify the affected community:
The affected community is considered as the community in the geographical area in which the waters are located. The affected community should include those living near the site of the proposed project as well as those in the community that are expected to directly or indirectly benefit from the project.

2. Identify relevant factors that characterize the social and economic conditions of the affected community:
In order to describe the economic and social development associated with the proposed project, the applicant will first need to determine the social and economic factors that best characterize the affected community. Examples of social and economic factors include:

- Rate of employment
- Personal or household income
- Poverty level
- Population trends
- Increasing production
- Housing starts, median values, etc.
- Ccommunity tax base
- Available public services (e.g., fire department, school, infrastructure)
- Current or potential public health, safety or environmental problems

The social and economic measures identified above do not constitute a comprehensive list. Each situation and community is different and will require an analysis of unique social and economic factors. The applicant is encouraged to consider analyzing additional factors that characterize the specific community under consideration.

3. Describe the important social and economic development associated with the project:
Following the identification of appropriate social and economic measures, the applicant must describe the expected change in these factors that is associated with the project. The purpose of this step is to demonstrate whether or not important social and economic development will result from the project. The applicant should first describe the existing condition of the affected community. This base condition should then be compared to the predicted change (benefit or loss) in social and economic condition after the discharge is allowed. The area's use or dependence upon the water resource affected by the proposed discharge must be included in the analysis. In doing so, the applicant shall evaluate any associated environmental related benefits or costs, such as:

- Promoting/impacting fishing, recreation, tourism or other economic benefits for the community
- Reserving assimilative capacity for future industry and development

Upon the consideration of all relevant factors, the project constitutes important social and economic development if the applicant demonstrates that the project will lead to overall beneficial changes in the factors presented (i.e., increased jobs, employment, housing or other appropriate factors balanced against the benefits associated with maintaining a higher level of water quality). This determination will be made on a case-by-case basis using information provided with the application and/or obtained from the public.

When information available to the department is not sufficient to make a determination regarding the social and economic benefits or environmental impacts associated with the proposed activity, the department may request that the applicant submit additional information.

If the department determines, after appropriate discussions with the discharger, that either the SEI of the proposed project has not been demonstrated the department shall deny the proposed activity. This decision is part of the Administrative Record of Decisions regarding antidegradation.

3.4 Summary of the Alternatives Analysis and Social and Economic Importance Process

The preceding discussion describes the approach that shall be followed by the applicant for determining whether or not less- or non-degrading alternatives to the proposed discharge will be required to prevent degradation of Iowa surface waters. The following steps summarize the alternatives analysis process and other relevant actions during antidegradation reviews for Tier 2 protection levels:

- If it is determined that 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 analyze cost information for base pollution control measures associated with the proposed discharge, alternative pollution control measures that would result in no degradation, and for other less or non-degrading alternatives as appropriate.

- The applicant shall evaluate the proposed discharge, the less and non-degrading alternatives, and the practicability, economic efficiency and affordability associated with each option or mix of options.

- The applicant shall identify the least degrading alternative – or mix of alternatives – that is practicable, economically efficient, and affordable as described in this section. This will be the preferred option.

- If the preferred option (i.e., pollution control alternative or mix of alternatives) will not result in degradation of the receiving water segment, permitting of the discharge may proceed.

- If the preferred option (i.e., pollution control alternative or mix of alternatives) will result in degradation of the receiving water, the applicant will be required to conduct an analysis of economic and social benefits.

4 Public and Interagency Participation in Antidegradation Reviews

Public participation is a component of the antidegradation review process. Public notice of antidegradation review findings, solicitations of public comment and maintenance of antidegradation review documents as part of the public record help ensure that interested parties can be engaged and involved throughout the review process. In addition, intergovernmental coordination and review is required prior to any action that allows degradation of water quality in a surface water afforded a Tier 2 review.

This section outlines the public participation *and* the intergovernmental coordination and review requirements. The processes for both must follow existing state rules regarding public notice, response to comments and maintenance of records.

4.1 Public Notification Requirements

The applicant will provide public notice and opportunity for public comment on the alternatives analysis and the social and economic importance review.

Before the alternatives analysis is finalized, a public notice should be issued by the applicant. The public notice will include a notice of availability of:

- determination of projected impacts on existing water quality;
- findings and determinations from the alternatives analysis,
- the conclusions of any social and economic evaluation of the proposed activity, where necessary; and
- a description of the surface water that is subject to the antidegradation review.

The public notice must be provided through the appropriate legal advertisement in a qualified newspaper with the largest circulation for the county where the discharge will occur. The notice will identify the action being considered, list all beneficial uses identified for the surface water and call for comments from the public regarding the proposed discharge.

4.2 Intergovernmental Coordination and Review

Intergovernmental coordination is required prior to approving a regulated activity that would degrade a surface water. This requirement seeks to ensure that all relevant public entities at the local, state and federal levels are aware of any proposal to degrade 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 finalizing the alternatives analysis and social and economic importance review 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.

Agencies will have access to summary information on the proposed activity, the receiving water segment, the existing water quality of the receiving water segment, the pollutants of concern, the tier category, estimated amount of degradation to the receiving waters, the treatment alternatives reviewed and the social and economic importance of the proposed activity.

4.3 Public Participation and Interagency Contacts

Public participation and interagency coordination will follow IAC 567-64.5(2), which pertains to public notice requirements for NPDES Permits. IAC 567-64.5(2)a(1) through (3) and IAC 567-64.5(4) require that a copy of the public of the availability of the draft permit (which contains the antidegradation review) be sent to interested and potentially interested persons and other government agencies, including:

- the NPDES permit applicant or permittee;
- EPA Region VII;
- U.S. Fish & Wildlife Service;
- the regional Iowa DNR Field Office;
- any applicable industrial contributor to the privately owned treatment works;
- the county department of environmental health or comparable department in the county to which the facility discharges;
- Any other state whose waters may be affected by the issuance of the permit; and
- Any interested person or organization upon request.

5 Antidegradation Review Decisions

Once the intergovernmental coordination and public notice requirements outlined above are satisfied, the applicant shall submit the alternatives analysis, the social and economic importance review, and the results of the public comment and intergovernmental review process to the department.

Regulated activities that may result in degradation of waters can only be approved after the department makes all of the following findings:

- The level of water quality necessary to protect applicable beneficial uses is fully maintained. Water quality shall not be degraded to a level that does not comply with the applicable Water Quality Standards (WQS).
- The highest statutory and regulatory requirements for new and existing point sources are achieved.
- All cost-effective and reasonable BMPs for nonpoint source pollution control are implemented.
- Allowing degradation of water quality is necessary and accommodates important economic or social development in the area where the surface water is located.

The department shall then make a final determination concerning the proposed activity. If the antidegradation review is accepted, implementation of the preferred alternative will be required in the permit. When information submitted to the department is not sufficient to approve the proposed activity, the department may request additional information.

All determinations, including determinations to deny the activity shall be documented by the department and made part of the Administrative Record of Decisions. *Review documents, including existing water quality assessments, determination of degradation, analysis of public comments, alternatives analyses, demonstration of social and economic importance and any other decisions or findings, will be made available to the public.*

The department's final decision on a permit may be appealed pursuant to IAC Chapter 561-7, as adopted by reference at 567 IAC 7.1.

To the extent Iowa's statutes allow, any information submitted pursuant to the "Iowa Antidegradation Implementation Procedure" or other rules of the Environmental Protection Commission that contains confidential business information shall be kept confidential by the commission and employees and agents of the department if a timely request for confidentiality is made pursuant to IAC Chapter 561-2, as adopted by reference at 567 IAC 2.1, by the person submitting the information and such request is approved by the Department.

6 Permit Considerations

Because the permit effluent limits have a significant impact on the treatment processes, it is important that the department be notified early as to the nature of the discharge, the discharge location and effluent characteristics. Developing permit effluent limits requires collection of a considerable amount of information on the receiving water, the applicant's discharge and other activities in the drainage area. Early notification will ensure that the information collection process begins well before the applicant needs a permit to conduct planning activities, design facilities or proceed with project construction. In cases where the applicant intends to collect water quality data in preparation for an antidegradation review, the department recommends that the applicant meet with the department in a pre-application conference at least one year prior to the expected date of permit issuance.

Early notification and consultation between the applicant and the department will help ensure that the permitting process proceeds efficiently. Regulated activities that may temporarily degrade waters protected at the Tier 2 ½ & 3 level must comply with the antidegradation requirements applicable to that review level (i.e., provide proof that the degradation is only temporary and limited) before a permit will be granted. *Any discharge to an Outstanding National Resource Water or Outstanding State Resource Water will require a site-specific permit or individual §401 certification to ensure that impacts will be temporary and limited and that the public can participate in the decision.*

6.1 General Permits

A number of discharges to surface waters are authorized under general NPDES permits issued by department. These include storm water runoff from municipalities, industrial activities covered by the storm water program, mining and processing facilities, private on-site WW treatment systems and construction sites one acre or larger.

Except as described below, regulated discharges authorized by general permits are not required to undergo a Tier 2 antidegradation review as part of the Notice of Intent process. However, new and reissued general permits must be evaluated to consider the potential for degradation as a result of the permitted discharges.

All NPDES general permits require that permit conditions be met, including the general requirement that permitted discharges must ensure that water quality standards are not violated and best management practices contained in the permit are implemented. Compliance with the terms of the general permits issued by the department is required to maintain authorization to discharge under the general permit. Discharges covered by a general permit that cannot comply with general permit conditions or antidegradation requirements will be required to seek coverage under an individual permit. The following sections describe the general antidegradation implementation provisions for various types of activities covered by general permits.

Overview of the Antidegradation Review Procedure for General Permits

Antidegradation reviews for discharges authorized by general permits will occur for the entire class of general permittees when the general permit is issued. Antidegradation reviews will focus on pollutants of concern that may contribute to a water quality impairment.

Regulated discharges authorized by general NPDES permits may be subject to a full antidegradation review if the Director determines that cumulative degradation resulting from

multiple discharges within a watershed, degradation from a single discharge over time, or other individual circumstances warrant a full antidegradation review at the time the general permit is issued.

Certain general permit programs are now being implemented, such as storm water from construction activities. Information regarding the existence, effectiveness, or costs of control practices for controlling flows, reducing pollution, and meeting the water quality and antidegradation requirements of these programs is emerging. For permittees covered under general permits, the antidegradation requirements of this section can be considered met for permits and programs that have a formal process to select, develop, adopt, and refine control practices (i.e., design, installation, and maintenance) for protecting water quality. This adaptive management process must ensure that information is developed and used to revise permit or program requirements.

6.2 Site-Specific Permits

Following the effective date of this document, all applications for new or expanded wastewater permits, except for permits issued to non-discharging facilities, shall undergo an antidegradation review if degradation is likely in the receiving water or downstream waters. In these cases, site-specific permit effluent limits will be based upon applicable effluent guidelines, the characteristics of the discharge and the cumulative effects and the alternatives analysis. In addition, the permit effluent limits must ensure that beneficial uses are maintained and protected in the receiving waters and downstream waters.

Applicants seeking site-specific permit coverage may be required to provide or collect existing water quality information on any pollutants of concern reasonably expected to be in the discharge, if that information is not already available. Data collection requirements may depend on the nature of the proposed discharge and the pollutants reasonably expected in the discharge.

6.3 §401 Certifications

Section 404 of the Clean Water Act regulates the placement of dredged or fill material into the "waters of the United States," including small streams and wetlands adjacent or connected to "waters of the United States." The U.S. Army Corps of Engineers (Corps) administers the §404 permit program dealing with these activities (e.g., wetland fills, in-stream sand/gravel work, etc.) in cooperation with the EPA and in consultation with other public agencies.

In order to ensure that antidegradation and other water quality protection requirements are considered, reviewed and met in a comprehensive and efficient manner, these requirements will be addressed and implemented through the permitting and §401 water quality certification processes. Under this approach, applicants who fulfill the terms and conditions of applicable §404 permits and the terms and conditions of the corresponding §401 water quality certification will have fulfilled the antidegradation requirements. Additional antidegradation considerations may be incorporated into §404 permits and the corresponding §401 certifications at the time of permit issuance.

For minor activities covered under §404 general permits (e.g., road culvert installation, utility line activities, bank stabilization, etc.), 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) are applied and maintained. Applicants desiring to fulfill antidegradation review

requirements under this approach will be responsible for ensuring that permit requirements and relevant water quality certification conditions are met.

Iowa manages its §401 water quality certification program to ensure that the placement of dredged or fill material into surface waters do not create any unmitigated water quality impairments or significant degradation of surface waters. Under the BMP-based approach adopted by Iowa, regulated activities for which mitigation has been certified by the state pursuant to §401 of the Clean Water Act will not be required to undergo a separate Tier 2 review in accordance with this document.

Those activities conducted in compliance with Section 404(f) of the Clean Water Act as interpreted by the Environmental Protection Agency and United States Army Corps of Engineers will be deemed to be in compliance with this State's antidegradation policy.

6.4 Activities Covered by NPDES Storm Water Permits

Urban areas with populations greater than 100,000 based on the 1990 census (Phase I MS4 communities) were required to apply for an individual NPDES storm water permit. Many urban areas with populations less than 100,000 determined from 2000 census data are considered Phase II MS4 communities. Storm water discharges from Phase II MS4s are authorized by individual storm water permits. However, neither Phase I or Phase II MS4s authorized under individual storm water permits are required to meet the same antidegradation requirements that apply to other individual NPDES permits outlined above.

Antidegradation reviews for individual NPDES storm water permits will be based on an adaptive management approach. This approach may include routine monitoring of storm water quality at representative outfalls to adequately characterize storm water discharges. The MS4 will then evaluate, through effectiveness monitoring, whether storm water quality is being maintained, improving, or degrading and whether BMPs identified in the MS4’s storm water pollution prevention plan are effective at controlling the discharge of pollutants. Future antidegradation review of individual NPDES storm water permits will consist of an analysis of the effectiveness of the BMPs and compliance with the requirements of the storm water permit.

7 Monitoring, Assessment, & TMDL Considerations

7.1 Data Collection and Evaluation

Data gathered during the department's regular monitoring and assessment efforts shall be evaluated in accordance with the level of tier review designated to the waters. Data gathered on a water being given a Tier 1 review shall be assessed for compliance with the narrative and numeric Water Quality Standards (WQS). Waters receiving Tier 2 ½ or 3 review shall be assessed against the existing water quality data or other appropriate reference stream data. Waters receiving Tier 2 review shall be assessed against existing water quality data or other appropriate stream data unless degradation has been authorized since the existing water quality data was collected. Assessments on waters that have undergone authorized degradation shall be assessed against the level of water quality that was predicted and documented in the Administrative Record of Decisions regarding antidegradation when the degradation was authorized. Such assessments shall be made on the same pollutant-by-pollutant basis, as authorized by the antidegradation review.

7.2 Applicability to §305(b) Report and §303(d) List

Section 305(b) of the Clean Water Act requires each state to prepare and submit to 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 the Water Quality Standards are being met. From this review, waters that do not meet WQS are identified. These waters are known as impaired waters. Those impaired waters that are impaired by a discrete pollutant or chemical condition, do not yet have sufficient water quality protection measures in place, and do not yet have an approved TMDL are used to form the §303(d) list. Identification of a surface water as impaired may be based on a violation of a numeric or narrative WQS.

To coordinate antidegradation reviews with the §305(b) and §303(d) listing process, the department will implement the following procedures:

• Tier 1 Protection (applicable to all waters):

No further degradation of existing water quality for a pollutant of concern is allowed in a surface water where the existing water quality for the pollutant of concern does not meet the applicable WQS. Impaired waters are identified on Iowa's §303(d) List and targeted for future Total Maximum Daily Load (TMDL) development.

• Tier 2 Protection:

If performed properly, Tier 2 reviews will not result in degradation sufficient to cause designated use impairment. If a §305(b) water quality assessment shows that significant degradation of a surface water is occurring, and that the Water Quality Standards might be violated over time, the department may conduct a special study of the extent and source(s) of degradation to determine the cause for the trend and identify appropriate antidegradation actions to reverse any preventable trends.

The plan may include providing technical and other assistance to address probable sources of degradation and implement appropriate management practices. Other possible options include awarding priority points for grant or other funding programs targeted at water quality protection,

amending permits or water quality certification conditions and working with stakeholders to support actions needed to protect and restore water quality.

• Tier 2 ½ & 3 Protection:

No degradation, except for temporary degradation, is allowed in the unique waters afforded Tier 2 ½* & 3 protection. If a §305(b) assessment shows that long-term degradation (i.e., not temporary degradation) of an Outstanding National Resource Water or Outstanding Iowa Water is occurring, the department may conduct a special study of the extent and source(s) of degradation to determine likely trends and explore possible antidegradation actions needed to reverse the trend, similar to what was described for ensuring Tier 2 protection.

*Tier 2 ½ has an exemption to allow for new or increased discharges where it serves to enhance the resource.

7.3 Applicability to Total Maximum Daily Loads

The department is required to develop Total Maximum Daily Loads (TMDLs) for the restoration of impaired waters. When developing these TMDLs, the department shall allocate pollution loads in accordance with the level of tier review designated to the pollutant of concern. TMDLs developed for Tier 1 protection shall be designed to achieve compliance with the water quality criteria (WQC). TMDLs on waters receiving Tier 3 protection shall be designed to meet appropriate reference stream quality. TMDLs on pollutants of concern receiving Tier 2 review shall be designed to meet the water's existing water quality data or other appropriate stream quality unless degradation has been authorized since the existing water quality data were collected. TMDLs on waters that have undergone authorized degradation shall be developed for the level of water quality that was predicted and documented in the Administrative Record of Decisions regarding antidegradation when the degradation was authorized. Such TMDLs shall be made on the same pollutant-by-pollutant basis, as authorized by the antidegradation review.

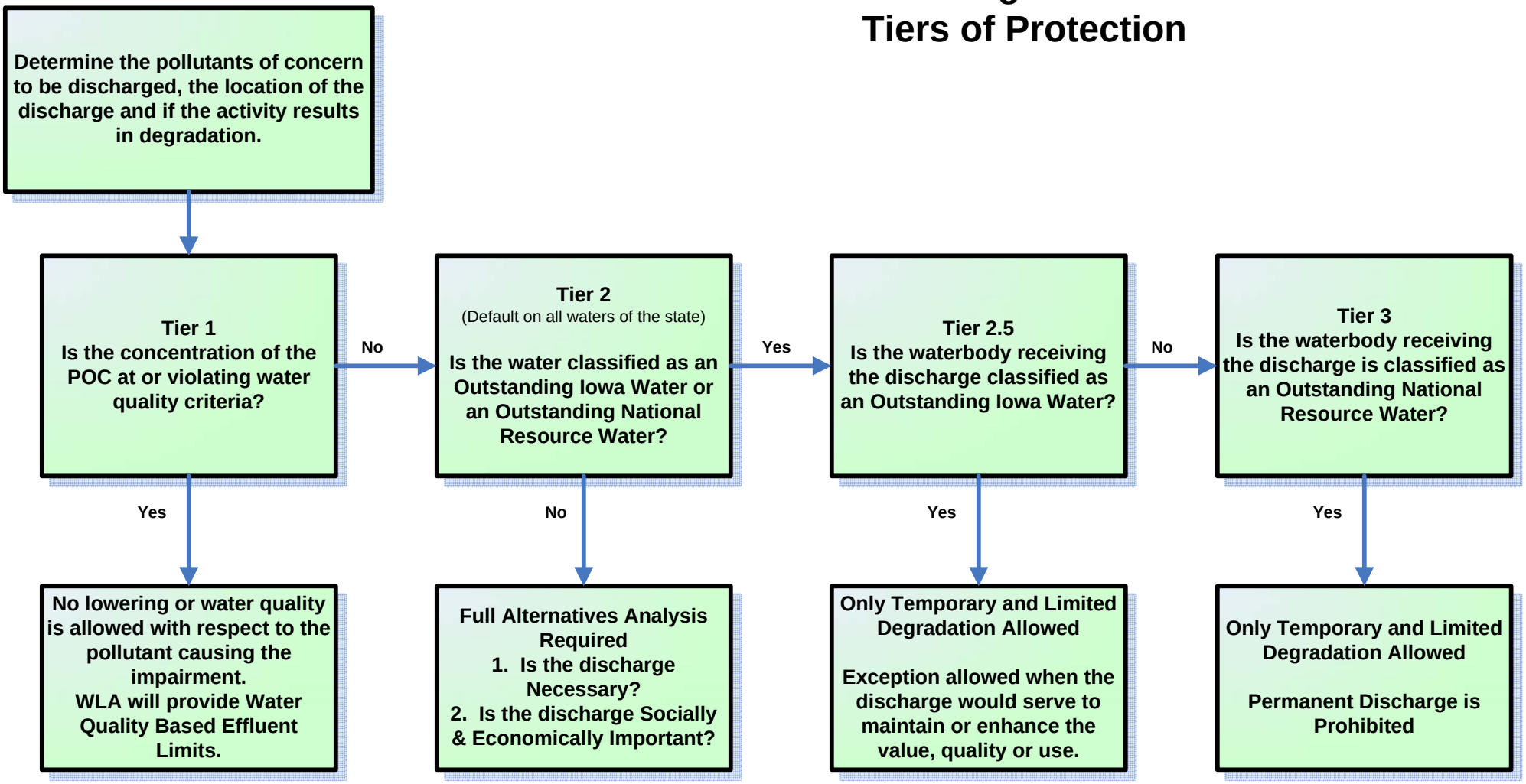
8 Implementation of Controls for Nonpoint Pollution Sources

Anti-degradation review applies only to activities that requires a permit or a water quality certification pursuant to federal law (CWA § 402 NPDES permits, CWA § 404 dredge and fill permits, and any activity requiring a CWA § 401 certification). Nonpoint discharges do not currently require a permit pursuant to these federal provision or Iowa law. States may adopt regulatory programs to address nonpoint sources of pollution. Unless Iowa imposes a regulatory framework upon nonpoint sources of water pollution there is no mechanism available for the imposition of antidegradation review in regard to these discharges and such review can not occur.

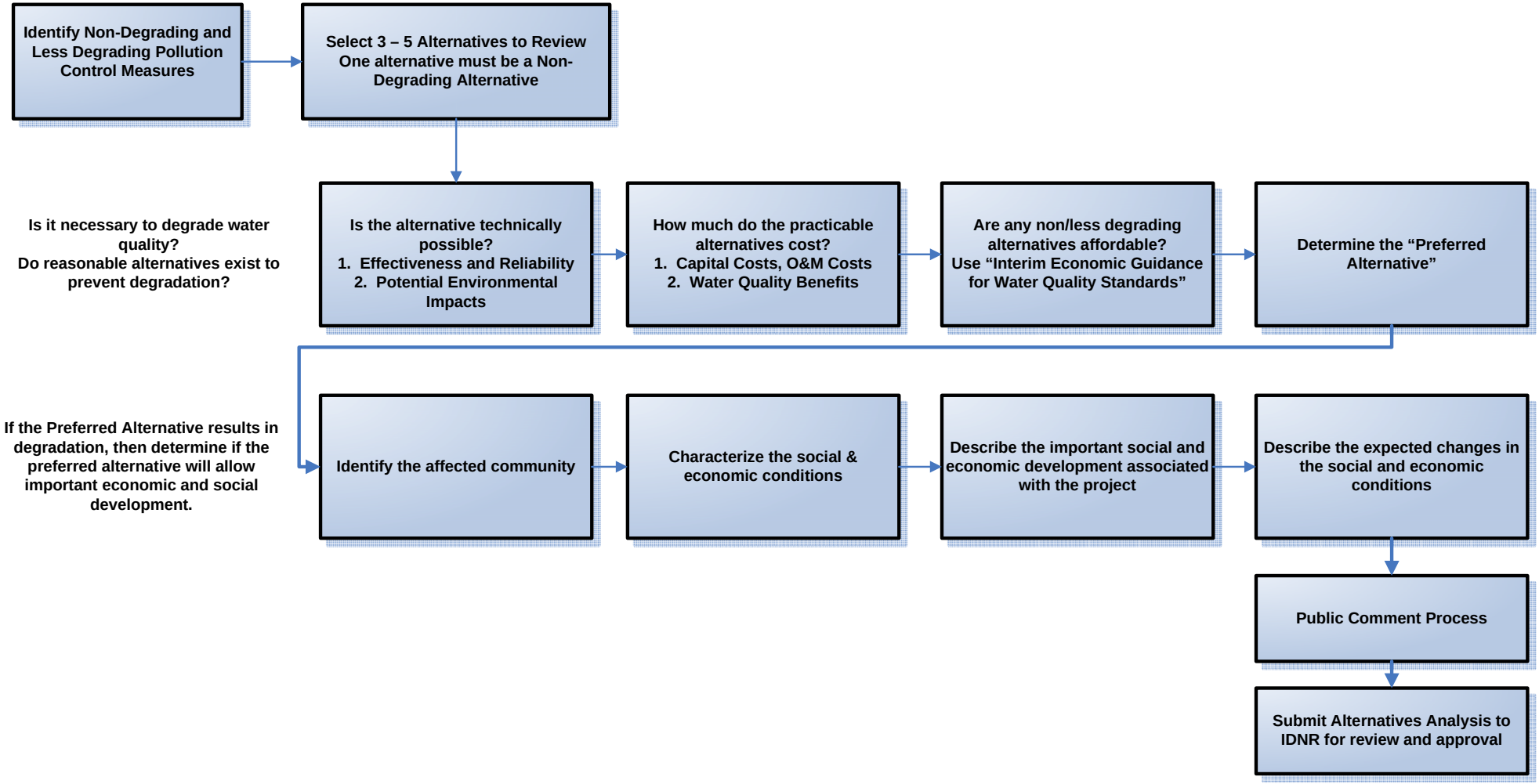
When applying Tier 2 review to a proposed regulated activity the department shall assure the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control before allowing any lowering of water quality. To the extent that existing programs establish best management practice requirements for entities contributing to nonpoint pollution those requirements establish the maximum regulatory requirements that can be required pursuant to rule 61.2“b” and 40 CFR 131.12(a)(2). In many cases the Department lacks the authority to require entities that contribute to nonpoint pollution to implement all cost-effective and reasonable best management practices. In either situation, additional best management practices or regulatory requirements must be imposed through modification of statutes or rules outside of the antidegradation review.

Appendix A Antidegradation Review Flow Charts

Antidegradation Tiers of Protection



Alternatives Analysis



Appendix B – Outstanding Iowa Waters

Outstanding Iowa Waters

STREAMS	DESCRIPTION	Length or Size (Miles or Acres)
Baron Spring	Mouth (S2, T91N, R6W, Clayton Co.) to spring source (S4, T91N, R6W, Clayton Co.)	1.99
Bear Creek	Confluence with N. Bear Cr. (S25, T100N, R7W, Winneshiek Co.) to spring source (Mestad Spring) (S29, T100N, R7W, Winneshiek Co.)	4.97
Bear Creek	Mouth (S8, T92N, R7W, Fayette Co.) to W. line of S6, T92N, R7W, Fayette Co.	3.94
Brush Creek	N. line of S23, T85N, R3E, Jackson Co. to N. line of S1, T85N, R3E, Jackson Co.	5.82
Buck Creek	Mouth (S29, T93N, R2W, Clayton Co.) to W. line of S9, T93N, R3W, Clayton Co.	13.26
Clear Creek	Mouth (Allamakee Co.) to W. line of Section 25, T99N, R4W, Allamakee Co.	3.79
Coon Creek	Mouth (Winneshiek Co.) to rd. crossing in S13, T98N, R7W, Winneshiek Co.	3.22
Ensign Creek (aka Ensign Hollow)	Mouth (S28, T92N, R6W, Clayton Co.) to spring source (S29, T92N, R6W, Clayton Co.)	1.05
Fountain Spring Creek (aka Odell Br.)	Mouth (SE1/4, S10, T90N, R4W, Delaware Co.) to W. line of NW1/4, S16, T90N, R4W, Delaware Co.	2.82
French Creek	Mouth (Allamakee Co.) to E. line of Section 23, T99N, R5W, Allamakee Co.	5.58
Grannis Creek	Mouth (S30, T95N, R7W, Fayette Co.) to W. line of S36, T93N, R8W, Fayette Co.	3.56
Little Mill Creek	Mouth (Jackson Co.) to W. line of S29, T86N, R4E, Jackson Co.	6.74
Little Paint Creek	Mouth to N. line of Section 30, T97N, R3W	1.92
Little Turkey River	Clayton-Delaware Co. line to S. line of S11, T90N, R3W, Delaware Co.	3.25
Middle Fork Little Maquoketa River	W. line of S31, T90N, R1E, Dubuque Co. to N. line of S33, T90N, R1W, Dubuque Co.	4.94
Mill Creek (aka Big Mill Creek)	Confluence with Little Mill Cr. to confluence with Unnamed Cr. (S1, T86N, R3E, Jackson Co.)	8.04
Mink Creek	Mouth (S30, T93N, R6W, Clayton Co.) to W. line of S15, T93N, R7W, Fayette Co.	5.94
Nichols Creek (aka Bigalk Cr.)	Mouth (S18, T100N, R10W, Winneshiek Co.) to W. line of S23, T100N, R11W, Howard Co.	4.18
North Bear Creek	Mouth (S25, T100N, R7W, Winneshiek Co.) to Iowa-Minnesota state line	6.39
North Cedar Creek	Mouth (S8, T94N, R3W, Clayton Co.) to W. line of S24, T94N, R4W, Clayton Co.	4.62
Patterson Creek	Mouth (Allamakee Co.) to E. line of S3, T98N, R6W, Allamakee Co.	4.85
Ram Hollow	Mouth (S11, T90N, R3W, Clayton Co.) to spring source (S10, T90N, R3W, Delaware Co.)	0.66
Silver Creek	Mouth (S4, T99N, R5W, Allamakee Co.) to S. line of S31, T99N, R5W, Allamakee Co.	8.31
Smith Creek (aka Trout River)	Mouth (S21, T98N, R7W, Winneshiek Co.) to S. line of S33, T98N, R7W, Winneshiek Co.	3.42
Sny Magill Creek	Mouth (S23, T94N, R3W, Clayton Co.) to W. line of S6, T94N, R3W, Clayton Co.)	7.57
Storybook Hollow	Mouth (S7, T86N, R4E, Jackson Co.) to S. line of S12, T86N, R3E, Jackson Co	1.37
Turtle Creek	Mouth (Mitchell Co.) to E. line of S7, T99, R17W, Mitchell Co.	3.45
Twin Springs Creek	Mouth (S17, T98N, R8W, Winneshiek Co.) to springs in Twin Springs Park (S20, T98N, R8W, Winneshiek Co.)	0.61
Unnamed Creek	Mouth (S1, T86N, R3E, Jackson Co.) to W. line of S1, T86N, R3E, Jackson Co.	0.73
Unnamed Creek (aka Cold Water Cr.)	Mouth (S32, T100N, R9W, Winneshiek Co.) to N. line of Section 31, T100N, R9W, Winneshiek Co.)	2.46
Unnamed Creek (aka Glovers Cr.)	Mouth (S22, T94N, R8W, Fayette Co.) to W. line of S15, T94N, R8W, Fayette Co.	1.43
Unnamed Creek (aka S. Fk. Big Mill)	Mouth (S8, T86N, R4E, Jackson Co.) to W. line of S17, T86N, R4E, Jackson Co.	0.97

Wapsipinicon River	**Confluence with UT in McIntire (S34, T100N, R15W Mitchell Co.) to N. line of (S20, T100N, R15W, Mitchell Co.)**	**5.24**
Waterloo Creek	**Mouth (S35, T100N, R6W, Allamakee Co.) to Iowa-Minnesota state line**	**9.39**
Wexford Creek	**Mouth (S5, T97N, R2W, Allamakee Co.) to W. line of S25, T98N, R3W, Allamakee Co.**	**4.42**
Grand Total		**150.90**

LAKES	**Description (Section, Township, Range)**	**Size (Acres)**
Big Spirit Lake SGMA	**S33, T100N, R36W**	**5684**
East Okoboji Lake SGMA	**S29, T99N, R36W**	**1835**
Lower Gar Lake SGMA	**S32, T99N, R36W**	**251**
Minnewashta Lake SGMA	**S29, T99N, R36W**	**122**
Upper Gar Lake SGMA	**S29, T99N, R36W**	**36**
West Okoboji Lake SGMA	**S20, T99N, R36W**	**3,847**
Dalton Lake	**S34, T84N, R5E**	**2**

Appendix C – Outstanding National Resource Waters

Outstanding National Resource Waters		