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DEPARTMENT OF
NATURAL RESOURCES

Antidegradation Implementation Procedure and Proposed Revisions

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Antidegradation Background

What is antidegradation and what is its purpose?

When is an antidegradation review required?

Antidegradation Tiers and Review pathways

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What is antidegradation and what is its purpose?

- Framework for protecting and preserving existing water quality
- Purposes
  - Protection of waterbodies and their designated uses
  - Evaluation + selection of treatment technology
  - If lowering water quality, establish social/economic importance of project
  - Establish effluent limits for new and expanded discharges

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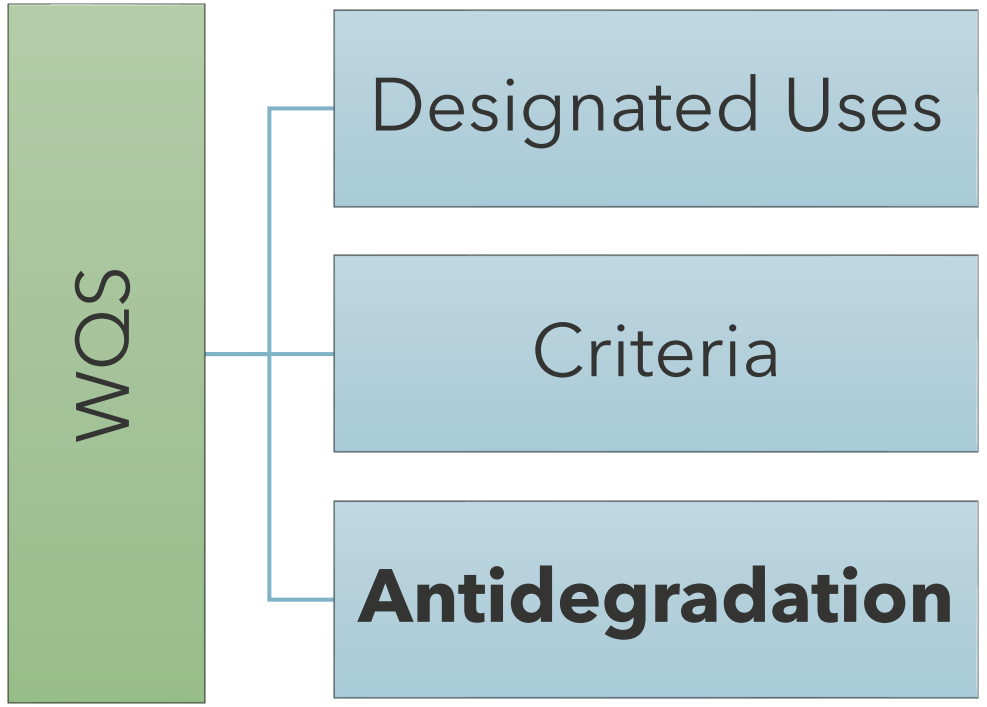
Antidegradation Context – Water Quality Standards

- An antidegradation policy is one of the minimum elements required to be included in a State's Water Quality Standards per 40 CFR 131.12(a)



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Antidegradation - Legislation

- 40 CFR section (§)131.12.
  - The State shall develop and adopt a statewide antidegradation **policy** and **implementation methods…**
- 10 CSR 20-7.031(3)
  - **Policy** provides 3 levels of protection (Tier 1, 2, 3)
  - **Implementation Methods** implemented by reference as the *"Missouri Antidegradation Rule and Implementation Procedure, July 13, 2016."*

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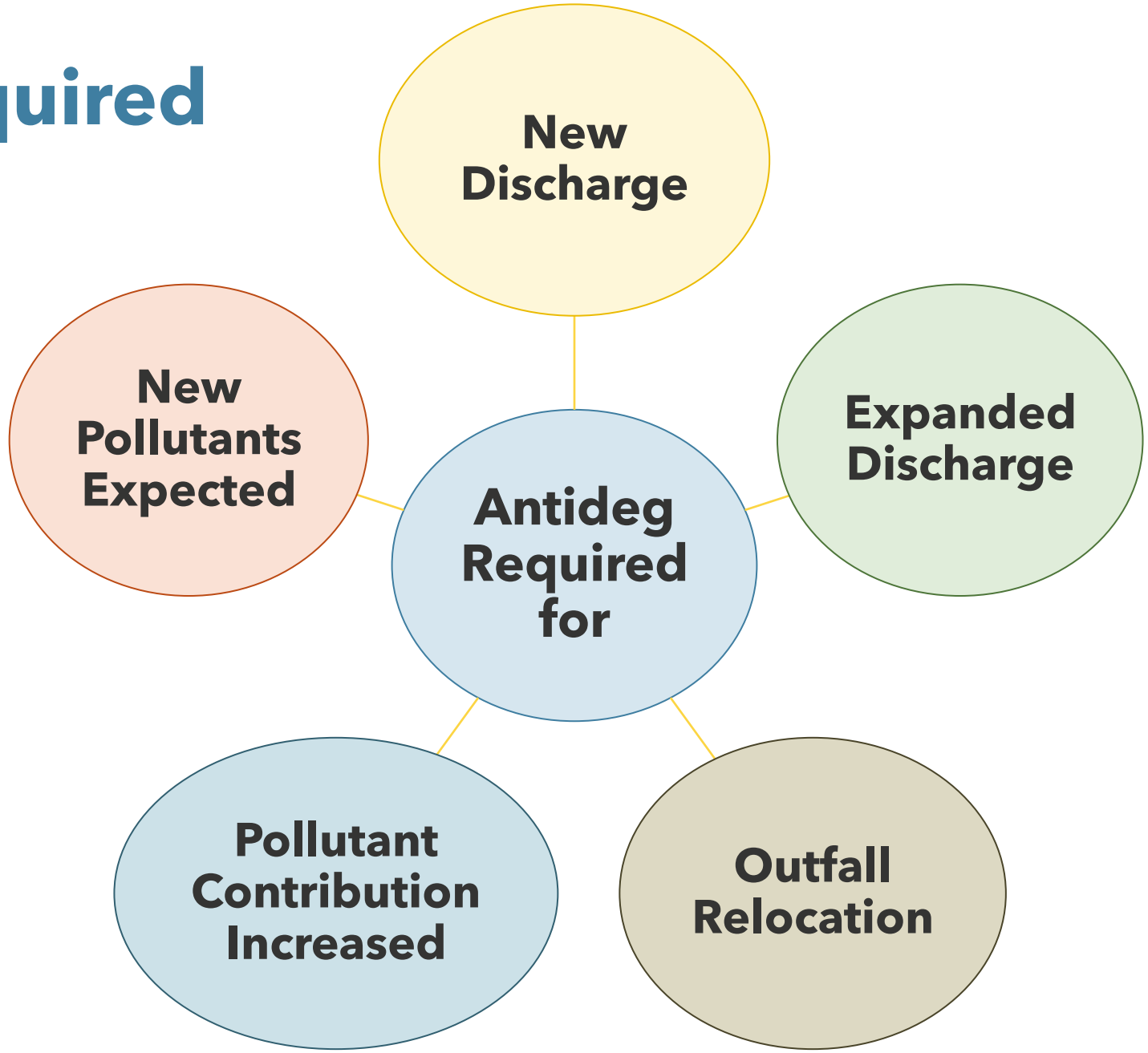
Antideg required when…



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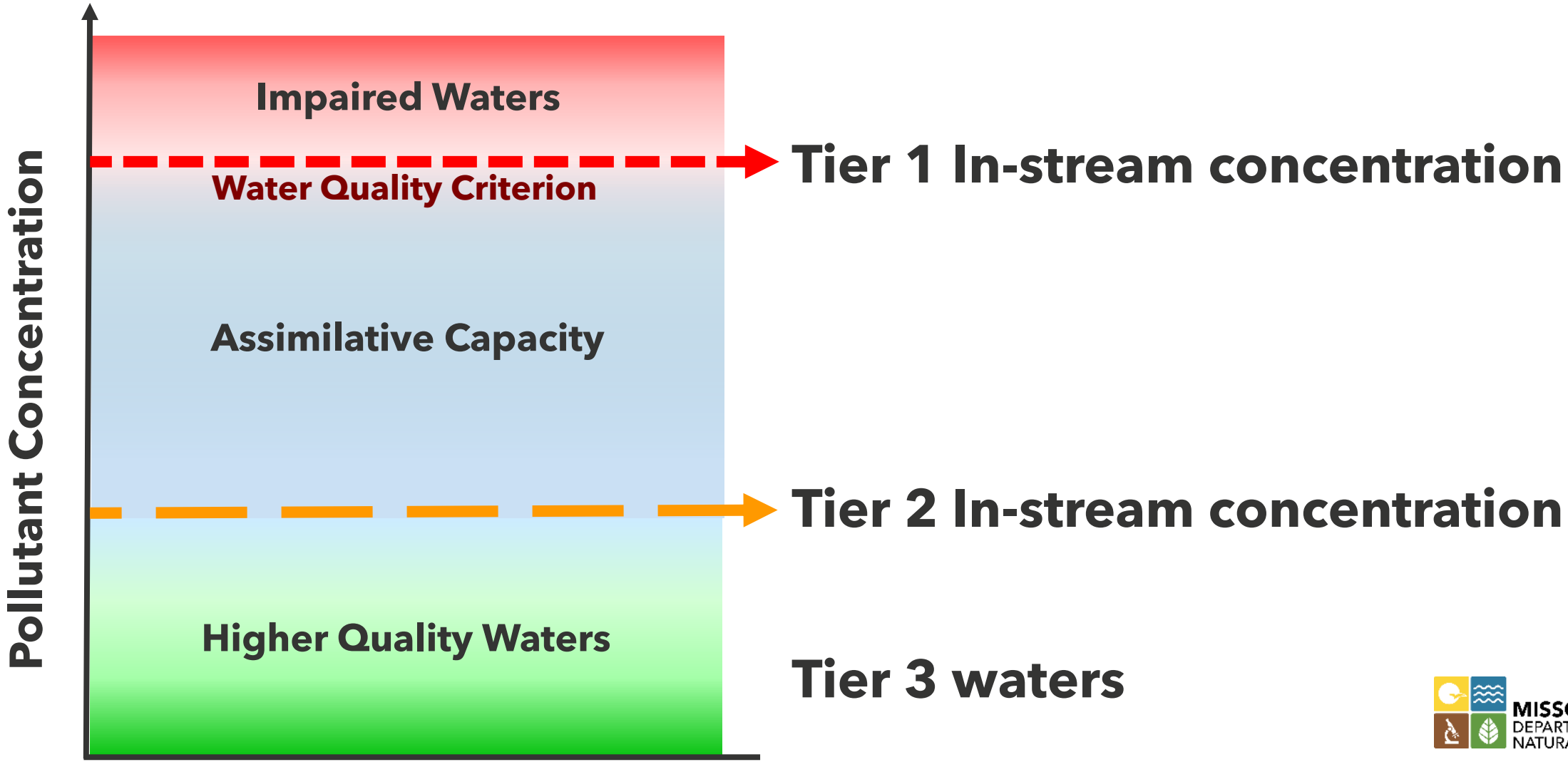
Antidegradation Review Tiers



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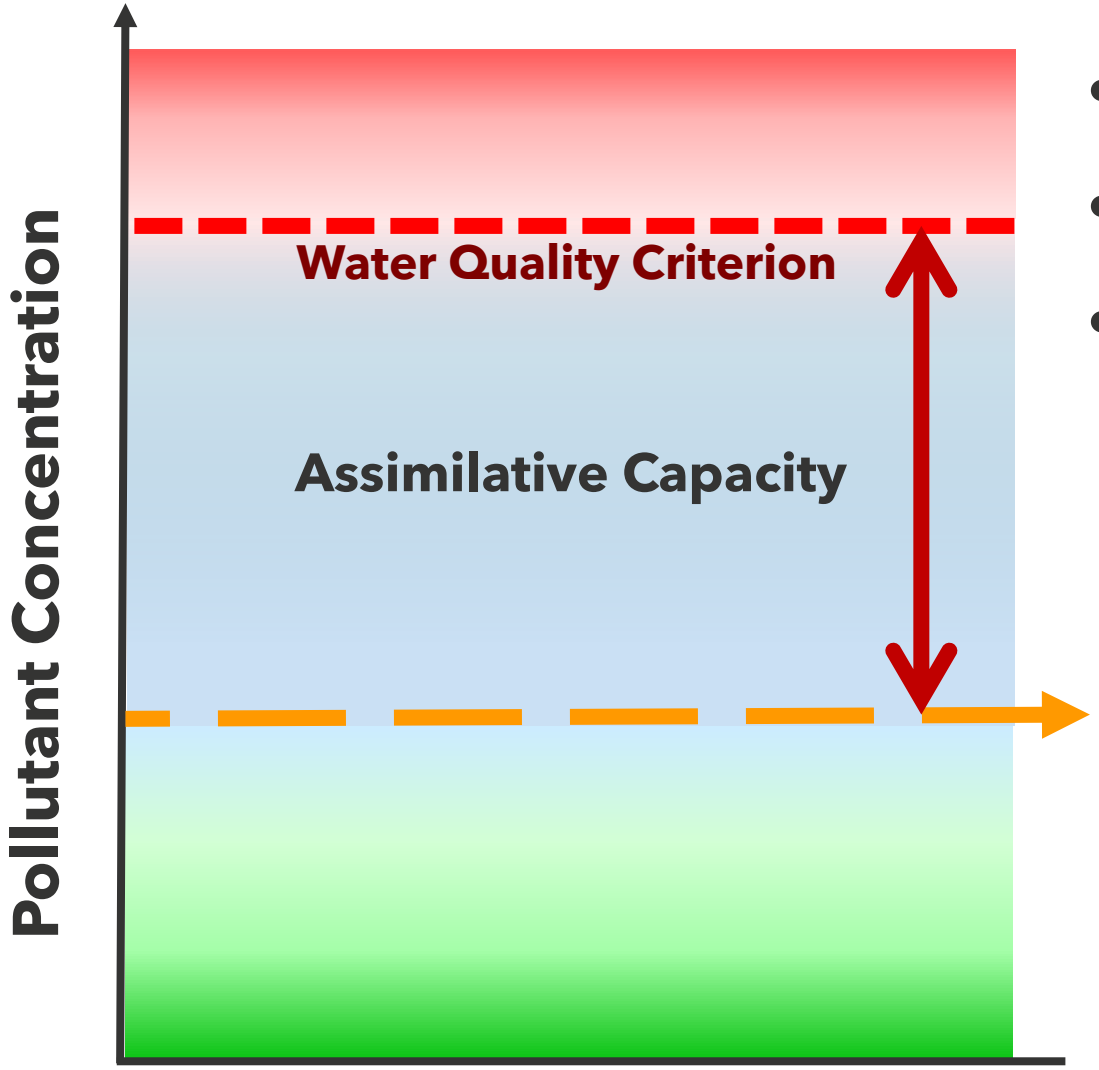
Tier 2: Three Pathways



- Non-degrading
- Minimally degrading
- Limited Lowering of Water Quality
  - Aka Alternatives Analysis or significant degradation review

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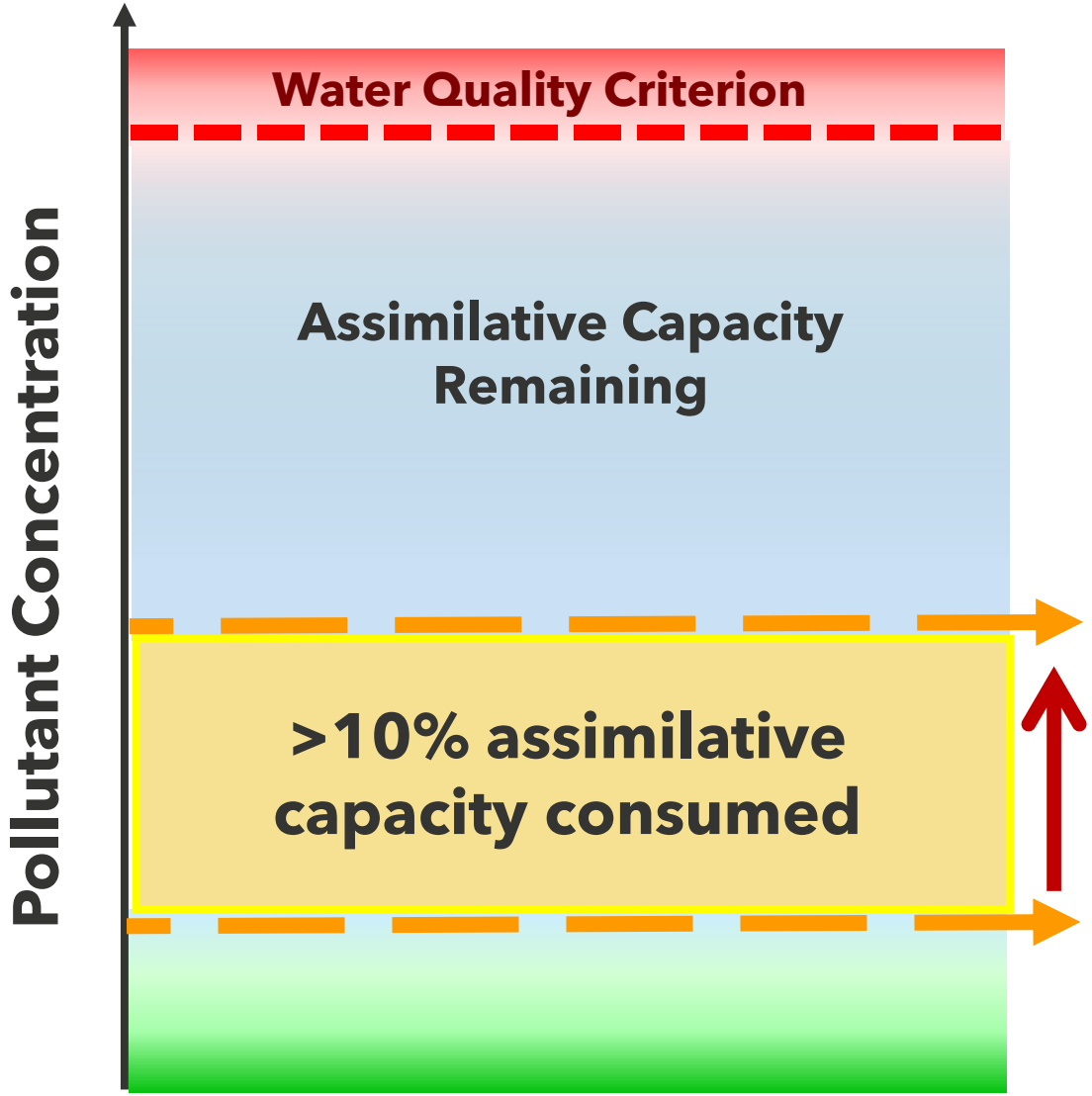
Tier 2: Limited Lowering of Water Quality (Alternatives analysis)



Must demonstrate:

- Necessity of degradation: Alternatives Analysis
- Social and Economic Importance

Future in-stream concentration

OR Assumed >10% assimilative capacity consumed

Existing in-stream concentration

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Antidegradation Background

Limited Lowering of Water Quality (significant degradation)

Alternatives analysis

Practicability

- Good "fit"
- Technically feasible
- Evaluate effectiveness, reliability, & potential environmental impacts

Economic Efficiency

- Cost comparison (Present Worth Framework recommended)
- Less than 120% of base cost of pollution control (rule of thumb)

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Antidegradation Background

Limited Lowering of Water Quality (significant degradation)

Social and Economic Importance (SEI)

Identify affected community and social and economic conditions that characterize the affected community

- Production
- Housing
- Community tax base
- Public health, safety or environmental problem
- Necessary public services
  - (e.g., fire department, school, infrastructure)
- Measures of employment or income
- Additional factors

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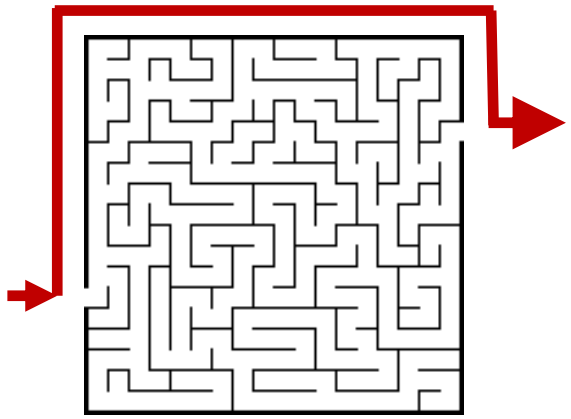
General Antidegradation Review

- Voluntary pathway available for dischargers that are:
  - ✓ Domestic wastewater only
  - ✓ Design flow ≤ 50,000 gpd
  - ✓ Discharge to Tier 2 waterbodies
- This pathway exempts applicants from site-specific:
  - x Alternatives Analysis
  - x Antidegradation Report
- Must be able to meet general antidegradation effluent limits
- Typically processed quicker than site-specific review



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Antidegradation Review Process

- Verify all pollutants of concern (POCs)
- Research and Verify receiving waterbody information
  - Existing water quality, low flow values, 303(d) listing, TMDL
- Review alternatives analysis
  - Review proposed effluent limits and calculations
- Review Social and Economic Importance
- Review Geohydrologic Evaluation and Natural Heritage Review
- Fielding calls and emails from stakeholders/citizens

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Steps to Derive Antidegradation Limits

Determine and compare applicable limits and apply the most stringent of:

a. Limit determined through chosen Antidegradation Review Pathway
b. Water quality-based effluent limits (WQBEL) → 10 CSR 20-7.031
c. Federal technology-based effluent limits (TBEL)
d. State Effluent Regulations → 10 CSR 20-7.015
e. Limits established by a Total Maximum Daily Load (TMDL) or modeling for impaired waterbodies and watersheds
f. Limits determined through best professional judgement (BPJ)
g. Existing operating permit limits → CWA sections 402(o)
h. Other effluent limit established through existing enforceable agreements such as variances to WQS

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Recent Industrial Antidegradation Reviews

- Dry Ice Manufacturer
- Fish Hatchery
- Power Plant
- Natural Gas Plant
- Explosives Manufacturing Facility
- Water Treatment Plant
- Paint Manufacturer
- Landfills
- Data Centers
- Mining Operations

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Antidegradation Timeline

Preliminary WQAR

- Review Period for Applicant (10 day)
- Public notice typically occurs with Operating Permit
- Antideg limits implemented through Operating Permit
- Once finalized: 30 days for applicant appeal

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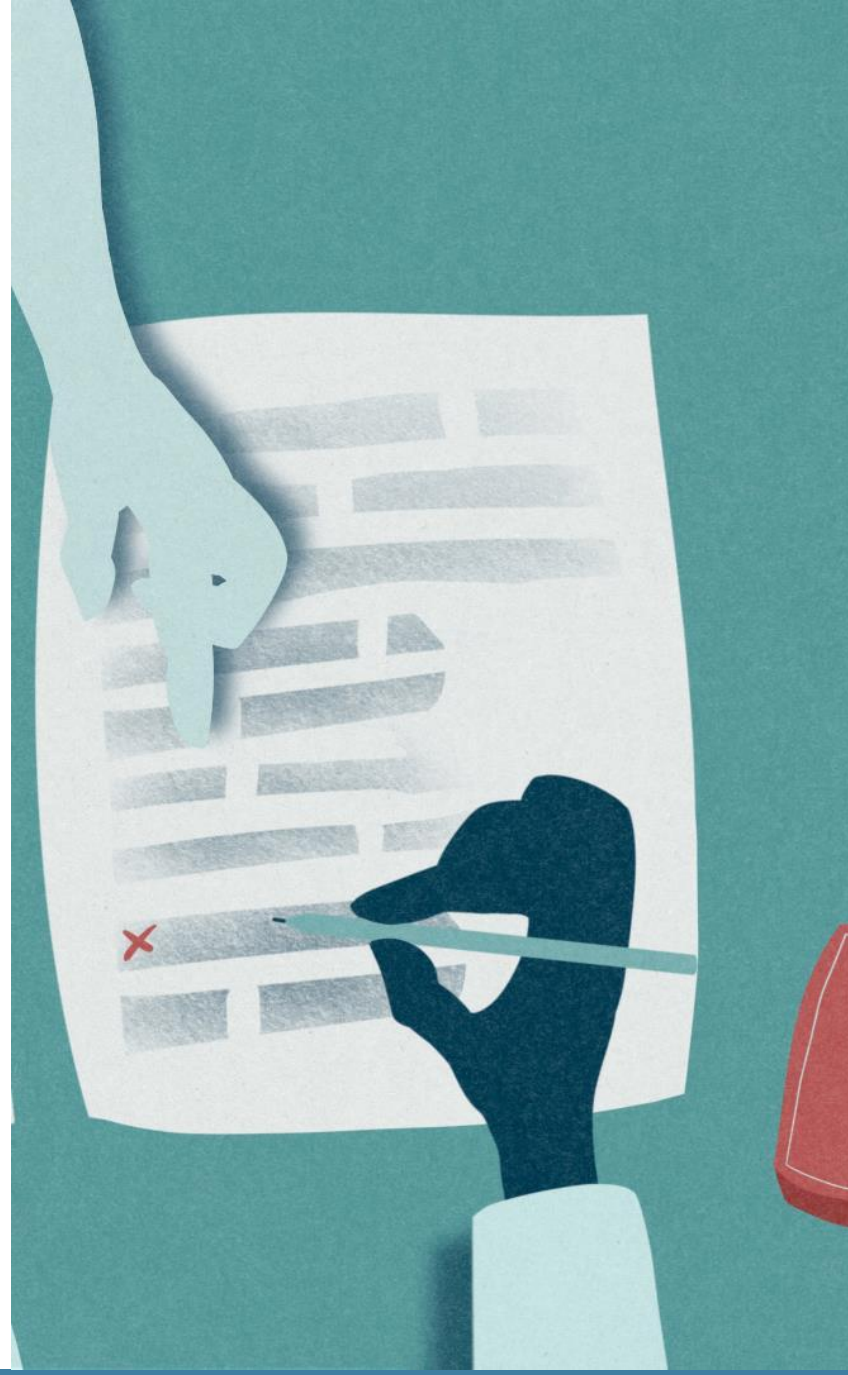
AIP Proposed Revisions

- Main goal to provide clearer information and guidance

- Antidegradation Workgroup: https://dnr.mo.gov/about-us/forums-stakeholder-groups/antidegradation-implementation-procedure



AIM Proposed Revisions

Antidegradation Implementation ~~Procedure~~ **Methods**

- 40 CFR 131.12(a) "The State shall develop and adopt a statewide **antidegradation policy**."
  - 10 CSR 20-7.031 Water Quality Standards
    PURPOSE: This rule identifies uses of waters of the state, criteria to protect those uses, and **defines the antidegradation policy**

- 40 CFR 131.12(b) "The State shall develop **methods** for implementing the antidegradation policy"
  - 10 CSR 20-7.031(3)(D) The three (3) levels of protection provided by the antidegradation policy […] **shall be implemented according to procedures hereby incorporated by reference and known as the "Missouri Antidegradation Rule and Implementation Procedure, July 13, 2016."**

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AIM Proposed Revisions

- Re-arranged sections for readability
- More on what to include in written report
- Better descriptions for applicability and when antideg does *not* apply
- Updated glossary

- Natural Heritage Review
- When a Geohydrologic Evaluation is needed
  - new earthen basins
  - earthen basins undergoing major modifications
  - new or relocating discharges

AIM Proposed Revisions

- Clearly define base case
- Limited Lowering of Water Quality
  - "Significant Degradation" language clarification
- General Antidegradation Review
- Tier 2 Non-Degradation Review
  - Mass based maintenance / pollutant contribution
  - Effluent dominated streams
- How we evaluate Regionalization and Outfall Relocation
  - May consider overall pollutant contribution

AIM Proposed Revisions –
How SWPPPs address Antideg requirements

- Stormwater Pollution Prevention Plan (SWPPP)
  - Alternatives analysis of best management practices to determine the most reasonable and cost-efficient, while ensuring the highest statutory and regulatory requirements are met.
  - Analysis should include practices designed to be
    1. non-degrading,
    2. less degrading, or
    3. degrading water quality.
  - Needs to include why "no discharge" and "no exposure" are not feasible

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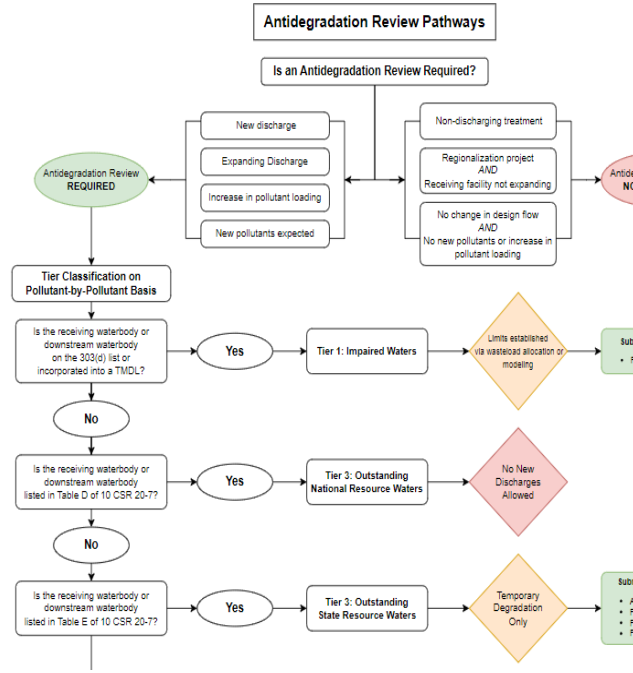
AIM Proposed Revisions

- ONRW Clarification
- When a report must be signed/sealed by PE
- Innovative technology
- New Flow Chart (already on web)
- Typically valid for 2 years
- Revised Appendices Example Calculations
  - (In progress…)



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AIM Proposed Revisions

- More discussion of:
  - Bioaccumulative pollutants
  - Industrial facilities
  - Re-rating a WWTF
  - Effluent limit development
  - Cost determination
  - Mixed tier reviews
  - Social and Economic Importance Evaluation

Considerations for Individual Pollutants – DRAFT Document

- Companion guidance document for AIM
- Bioaccumulative pollutants
- Chemical/Process Additives
  - pH adjustment, coagulants, flocculants, disinfectants, enzymes, surfactants…
  - Case-by-case determination
- Metals
  - Typical treatment methods
  - Limit determination
- Nutrients
- DO Modeling
- Can contact DNR for site-specific WQBEL

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How does your state determine antidegradation review limits?

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TIER 2 ALTERNATIVES ANALYSIS