

Introduction

The Outline on the following pages is guidance on the general contents of an antidegradation review report. The report outline is based on the requirement of the Missouri Antidegradation Rule and Implementation Procedure and completed Antidegradation reviews. Depending on what the pollutants of concern are, your type of facility, the proposed activity, and its receiving stream(s), not all sections of the report outline will be applicable. In some instances, a review will negate the need for a demonstration, and some demonstrations will negate the need for a review. Also, your report may have a combination of demonstrations and reviews for different pollutants of concern.

The outline provided on the following pages does not prevent the Department from requesting more information and/or clarification. There is no requirement to follow the outline below, it is provided to be a service to the public, wastewater treatment plants, and their engineers/consultants.

A pre-submittal meeting is still recommended. The forms that are listed below provide a summary of the information that should be present in the Antidegradation Report. There are six (6) different forms that may be required to be filled out. Some projects will only need to fill out the WQRA form and one attachment form, while other projects may fill out several of the forms. Attachments A through D forms require the Permittee's (owner's) signature and the Continuing Authority signature, if applicable. If a consultant prepares the report, their signature must be on the form, also.

[WQRA- Water Quality Review Assistance/ Antidegradation Review Request, Form--MO 780-1893](#)

Required for all projects

[Attachment A- Tier 2 - Significant Degradation, Form--MO 780-2021](#)

For projects which will result in a new discharge or an increase in pollutant loading and do not qualify for the other cases below.

[Attachment B- Tier 2 - Minimal Degradation, Form--MO 780-2022](#)

For projects where there is an increase in design flow, but permitted pollutant loading (pounds per day) will be maintained or reduced (insignificant degradation) OR projects that will consume less than 10% of the assimilative capacity of the receiving stream (minimal degradation) for each pollutant of concern.

[Attachment C- Temporary Degradation, Form--MO 780-2023](#)

Temporary Degradation is allowed on a case by case basis and generally refers to a time frame of a few weeks or months, not years.

[Attachment D- Tier 1 Review, Form--MO 780-2024](#)

For projects where existing water quality is already at, near, or violating water quality standards or a TMDL applies.

[No Degradation Evaluation - Conclusion of Antidegradation Review, Form--MO 780-2026](#)

A form is not usually required for no degradation projects, unless specifically requested. No degradation projects are those projects that will NOT result in a new point source discharge or an increase in permitted design flow for a point source discharge AND will NOT result in any increase in pollutant loading (pounds per day), with an exception for only adding chlorination.

Please continue to visit the antidegradation website, as we continue to update and provide more resources, <http://www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm>.

Detailed guidance is also available at: <http://dnr.mo.gov/env/wpp/permits/antideg-guidance.htm>.

I. REPORT CONTENTS (ALL REVIEW TYPES)	AIP , Form Cross References , and Regulation, Guidance, and Other References
A. Introduction	10 CSR 20-7.031(3)
1. Description of Facility and Receiving Stream	WQRA Form
B. List of Pollutants of Concern (POCs)	AIP Sec. I Part B (pgs. 11-14) Attach. A#8, Attach. B#11, Attach. C#3, Attach. D#7.
C. Proposed Demonstration or Review with Objective Statement	See Section II of this table
D. Tier Levels for POCs	AIP Sec. I Part B Subsec.1 (pg. 11-14)
1. Table with list of POC and Tier	Attach. A#8, Attach. B#11, Attach. C#3, Attach. D#7.
E. Existing Water Quality, if applicable	AIP Sec. II Part A Subsect. 1 (pg. 16) Attach. A#7, Attach. B#9, Attach. D#7.
1. Table of Background Concentrations	AIP Sec. II Part A Subsect. 1 (c) (pg. 21)
2. Sources and description	USGS Water Quality Data DNR Water Quality Data Search
F. Water Quality History of Facility and Receiving Stream	AIP Sec. II Part A Subsect. 1 (pg. 16-22) WQRA Form 10 CSR 20-7.031 , Table G and Table H
1. Violations or Enforcement Actions	WQRA Form
2. Pretreatment program, if applicable	WQRA Form instructions #5 10 CSR 20-6.100
3. Losing or Gaining Stream	10CSR 20-7.031(1)(N) and (13) , Table J
4. Applicability to 305 (b) or 303 (d) list or TMDL	AIP Sec. IV Part B and Sec. V (pg. 38-39) 303 (d) or 305(b) list , 10 CSR 20-7.050
G. Facility Low Flow Design and Receiving Water Body Low Flow Characteristics	WQRA Form instructions #4 10CSR 20-7.031 (1)(O)
1. Tables and Derivation Demonstration for Water body for 7Q10, 1Q10, 30Q10, 30Q5	WQRA Form instructions #4 USGS Surface Water Data
2. Wet Weather Considerations	Attach. A#6, Attach. B#6, Attach. D#6. 40 CFR 122.41(m)(4)
H. Dissolved Oxygen Analysis of Proposed Discharge	WQRA Form instructions #2 DO Modeling & BOD Effluent Limit Development Guidance Streeter Phelps Guidance Available on Request or Qual2K/Qual2E (Q2K/Q2E)
1. Facilities may be exempt from DO Modeling if they proposed effluent limits for BOD of 10 mg/L average monthly and 15 mg/L average weekly	DO Modeling & BOD Effluent Limit Development Guidance (pg. 4)
2. Not Required for Insignificant Degradation	
I. Derivations and Discussion of Proposed Limits	AIP Sec. II Part C (pg. 28)or Sec. III (pg. 34-37)
1. Each POC should be discussed	
2. Water Quality-based Effluent Limits, if applicable	
3. Table of Proposed Effluent Limits for Facility	Attach. A#8, Attach. B#11, Attach. D#7.
J. Geohydrological Evaluation	WQRA Form instructions #9 10 CSR 20-6.030(2)

	Request Form for Geohydrologic Evaluation
K. Heritage Review showing the discussion from Missouri Department of Conservation	WQRA Form instructions #8 Missouri Natural Heritage Review Website
L. Summary/Conclusion of Demonstration or Review	
M. References	
II. DEMONSTRATIONS AND REVIEWS (AS APPLICABLE)	Attachments A through D
A. Tier 1 Review	AIP Sec. I Part B Subsect. 1 (pg. 13) AIP Appendix 2 (pg. 41) Attach. D
1. Discussion of Objectives of Review	
2. Demonstration of no further degradation of existing water quality	Attach. D#7
a. Table (s) and Discussion of Reduction or Maintenance of Loading	Attach. D#7
b. Table (s) and Discussion of Method for Attainment of Beneficial Uses with Water Quality based Effluent Limits	Attach. D#7
B. Insignificant Degradation Review	AIP Sec. II Part A (pg. 15-16)
1. Demonstration of Mass Loading Reduction or Maintenance for Each POC within Segment	Instructional Guidance for WQAR: Appendix E, Example #3
a. Discussion of Approach for POCs	
b. Table of Current and Proposed Load and Concentrations and Net Change in Loading.	Attach. B#10
c. Demonstrate that next segment will not be degraded, if applicable.	Attach. B#10
C. Minimal Degradation Review	AIP Sec. II Part A (pg. 15-16) Guidance for WQAR Assistance Section 4.3.4
1. Demonstration of < 10% of Facility Assimilative Capacity (FAC) for Each POC	AIP Sec. II Part A Subsect. 3 (pg. 22-23) AIP Appendix 3
a. Discussion of Approach for POCs	
b. Table Summary of POCS with FAC Calculations	Attach. B#10
c. Segment Assimilative Capacity (SAC), if applicable	Attach. B#10
D. Tier 2 Significant Degradation Review	AIP Sec. I Part B Subsect. 2 (pg. 14) AIP Sec. II (pg. 15) Attach. A
1. Alternatives Analysis evaluates a range of options that can be reasonably expected to achieve equal to or greater pollution reduction than Missouri Water Quality Standards. Note: Alternatives are considered practicable until an evaluation to the contrary is provided	Attach. A#10
a. Non-degrading Alternatives	AIP Sec. II Part B Subsect. 1 (pg. 24) Attach. A#9
b. Less Degrading Alternatives	AIP Sec. II Part B Subsect. 1 (pg. 24) Attach. A#9

c. Degrading Alternatives	AIP Sec. II Part B Subsect. 2 (pg. 24-28) Attach. A#9
d. Table Summary Comparison of Alternatives	AIP Sec. II Part B Subsect. 2 (pg. 24-28) Attach. A#9
2. Practicability	AIP Sec. II Part B Subsect. 2(a) (pg. 25) Attach. A#10
a. Effectiveness and Reliability of the treatment options and any environmental factors.	Attach. A#10
3. Economic Efficiency for Practicable Alternatives	AIP Sec. II Part B Subsect. 2(b) (pg. 25-27) Attach. A#10
a. Graphics showing optimization of water quality benefits with project costs	AIP Sec. II Part B Subsect. 2(b) (pg. 25-27)
b. Identify the base case (lowest cost option that meets Water Quality Standards) among the set of treatment options.	Attach. A#9/10
c. We recommend the present worth framework for reporting cost information.	AIP Sec. II Part B Subsec.2(b) (pg. 26); Attach. A#10 EPA's Interim Economic Guidance
4. Affordability, if needed	AIP Sec. II Part B Subsect. 2(c) (pg. 27-28) Attach. A#10 EPA's Interim Economic Guidance
5. Socio-Economic Evaluation	AIP Sec. II Part E (pg. 29-31) Attach. A#11
a. Discuss the long-term benefit to the affected community over the design life.	AIP Sec. II Part E (pg. 29) Attach. A#11
b. Social and Economic Benefits section provide subheadings composed of these factors.	AIP Sec. II Part E (pg. 29-30) Attach. A#11 10 CSR 20-7.031(3)(B)
III. ADDITIONAL TABLES (AS APPLICABLE)	
A. Current Tier Level Analysis	AIP Appendix 2
B. Summary Sheets of Economic Efficiency Analysis	AIP Sec. II Part B Subsect. 2(b) (pg. 25-27) Attach. A#10 EPA's Interim Economic Guidance
C. Summary Sheets of Proposed Limits	Attach. A#8, Attach. B#11, Attach. D#7.
D. Additional Calculations for Existing Water Quality, FAC or SAC	AIP Sec. II Part A Subsect. 3 (pg. 22-23) AIP Appendix 3 Attach. B#10
IV. FIGURES (AS APPLICABLE)	
A. Map of Outfall Locations	WQRA Form instructions #1 DNR Interactive Map Viewer
B. Dissolved Oxygen vs. Distance from Outfall Plot	Streeter Phelps Guidance Available on Request or Qual2K/Qual2E (Q2K/Q2E)
V. APPENDICES (AS APPLICABLE)	
A. Raw Water Quality Data and Low Flow Data	
B. Raw and Summarized Discharge Monitoring Data	
C. Time of Travel Determinations	WQRA Form instructions #3

D. Water Quality-based Effluent Limit Calculations for Ammonia	Total Ammonia Nitrogen Criteria Implementation Guidance Policy
E. Reasonable Potential Analysis (RPA) calculations, if needed	40 CFR Part 122.44(d)(1)(i) Guidance for WQAR Part 4a and Part 4b Instructional Guidance for WQAR App. A
F. FAC Calculations, if applicable	AIP Sec. II Part A Subsect. 3 (pg. 22-23) AIP Appendix 3 Attach. B#10
G. Present Worth Analysis of Alternatives	AIP Sec. II Part B Subsect. 2(b) (pg. 25-26) Attach. A#10 EPA's Interim Economic Guidance
H. Manufacturer's Equipment Summary	
I. If desired, Pre and/or Post-Submittal Meeting Minutes	