MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WATER QUALITY REVIEW ASSISTANCE/ ANTIDEGRADATION REVIEW REQUEST

PRE-CONSTRUCTION REVIEW FOR PROTECTION OF BENEFICIAL USES AND DEVELOPING EFFLUENT LIMITS

For Office Use Only	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

TYPE OF PROJECT ☐ Grant ☐ SRF Loan ☐ All Other Projects

REQUESTER	TELEPHONE NUMBER WITH AREA CODE
PERMITTEE / FACILITY NAME	MSOP NUMBER (IF APPLICABLE)
COUNTY	SIC / NAICS CODE

REASON FOR REQUEST

☐ New Discharge (See Instruction #9) ☐ Upgrade (No expansion) (See AIP) ☐ Expansion ☐ QAPP or Study Review

DESCRIPTION OF PROPOSED ACTIVITY

FACILITY INFORMATION

METHOD OF BACTERIA COMPLIANCE

☐ Chlorine Disinfection ☐ Ultraviolet Disinfection ☐ Ozone ☐ Not Applicable

WATER QUALITY ISSUES*

*Water quality issues include: effluent limit compliance issues, notices of violation, water body beneficial uses not attained or supported, etc.

OUTFALL	LOCATION (UTM OR LAT/LONG OR LEGAL DESCRIPTION)	MAPPED[1] (CHECK)	RECEIVING WATER BODY[2]
		☐	
		☐	
		☐	

[1] Please attach topographic map (See: www.dnr.mo.gov/internetmapviewer/) with outfall locations clearly marked. For additional outfalls, attach a separate form.

[2] Please see general instructions for discharges to streams.

OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*

* Describe predominating character of effluent. Example: Domestic Wastewater, Municipal Wastewater, Industrial Wastewater, Storm water, Mining Leachate, etc.

** If expansion, indicate new design flow.

See General Instructions. Additional information may be needed to complete your request. Your request may be returned if items are missing. The water quality review assistance is a process to determine effluent limits for new facilities or existing facilities seeking to increase loading into the receiving stream.

SIGNATURE	DATE
PRINT NAME	EMAIL ADDRESS
	TELEPHONE NUMBER WITH AREA CODE

Applicant supplied (check all that apply):

- ☐ Fee. See Instructions
- ☐ Attachment A – Significant Degradation
- ☐ Attachment B – Minimal Degradation
- ☐ Attachment C – Temporary degradation
- ☐ Attachment D – Tier 1 Review
- ☐ No Degradation Evaluation
- ☐ Heritage Review Determination. See Instruction #8.
- ☐ Geohydrologic Evaluation. See Instruction #9.
- ☐ Tier Analysis for minimal degradation (see Page 3, Tier 2 Reviews).
- ☐ Quality Assurance Project Plan.
- ☐ Time of travel study (see Instruction #3) or model (see Instruction #2).

Submit request to:
Missouri Department of Natural Resources,
Water Protection Program,
ATTN: WPCB Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176
Telephone: 573-751-1300
Fax: 573-522-9920

GENERAL INSTRUCTIONS

Fees. This form must be submitted with the appropriate application fee: For an anti-degradation review for a new wastewater treatment plant if the design flow is less than 100,000 gallons per day the fee is $500; for an anti-degradation review for a new wastewater treatment plant if the design flow is equal to or more than 100,000 gallons per day the fee is $1000; for an anti-degradation review for which the existing wastewater treatment train is being retained as part of an upgrade or for a water quality review analysis the fee is $250.

1. Please attach maps clearly showing the location of each outfall. A U.S. Geological Survey topographic map is available at www.dnr.mo.gov/internetmapviewer/. Additional water quality information is available at www.dnr.mo.gov/env/wpp/wpp-map-gallery.htm.

2. **Discharges to all gaining streams**: Applicant must submit dissolved oxygen analysis (using Missouri Department of Natural Resources approved models such as Streeter Phelps (www.ecy.wa.gov/programs/eap/pwspread/pwspread.html, use PWSPREAD.XLS and the dosag2 sheet only) or Qual2K/Qual2E (Q2K/Q2E) stream water quality study (www.epa.gov/athens/wwqtsc/index.html) indicating the proposed BOD_5 effluent limitations are protective of Missouri's water quality standard for dissolved oxygen. DO modeling and BOD effluent limit development guidance can be found at www.dnr.mo.gov/env/wpp/permits/DO_Modeling_Administrative_Guidance_Dec_09.pdf. The department may provide more specific procedures upon request. **Note:** If Q2K/Q2E is used, wasteload allocation for ammonia must be assumed. All Q2K/Q2E studies must have department-approved Quality Assurance Project Plans

3. **Discharges to unclassified gaining stream**: Applicant may provide the time of travel to the confluence with the classified stream segment for modeling pollutant decay (See *Total Ammonia Nitrogen Criteria Implementation Guidance Policy* at www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm). Otherwise, the applicant may determine limits based on no decay of discharge pollutants. The department uses a Manning's N method for time of travel determination (see *Technical Addendum #3* at www.dnr.mo.gov/env/wpp/permits/antideg-guidance.htm). Please include items requested in the Technical Addendum and a map, schematic or description of flow segments with your calculations. A worksheet with instructions is available at the above web link.

4. For all discharges, the chronic water quality criteria point of compliance is the classified stream or the confluence with the classified stream. No mixing is allowed for streams with seven-day Q10 low flow less than 0.1 cfs (10 CSR 20-7.031(A)4.B.(I)), while mixing is allowed for streams with seven-day Q10 low flow greater than 0.1 cfs (10 CSR 20-7.031(A) 4.B.(II)) and (III).

5. For industrial facilities, a list of all chemicals, compounds, elements, etc. found in the discharge must be submitted with the request. Proprietary names of chemicals are not sufficient, as these chemicals may contain several pollutants for which the department must evaluate separate effluent limits. A pre-construction review meeting is highly recommended.

6. Do not submit water quality review assistance requests for renewals. All water quality based effluent limits will be determined during the renewal process.

7. 10 CSR 20-7.015(8)(A)3 allows alternative limitations (i.e., lagoon or trickling filters) if a water quality impact study is conducted. This impact study should indicate that equivalents to secondary treatment for lagoons or trickling filters are protective of Missouri Water Quality standards for dissolved oxygen and ammonia.

8. Applicant must check for rare and endangered aquatic species that may be affected by the discharge at http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm. Send information to provided address or select the Heritage Review Link. Register and supply requested information.

9. Additional requirements for new facilities:

   A. Division of Geology and Land Survey Geohydrologic Evaluations must be submitted with the request.

   B. Coordinates of outfalls in UTMs and in the public land survey system must be provided.

   C. Please submit a letter with project timeframe.

Note: Lack of response for additional informational within a reasonable timeframe will result in return of request.

ANTIDEGRADATION INSTRUCTIONS:

For more detailed instructions, the applicant should refer to *Missouri's Antidegradation Rule and Implementation Procedure* (AIP), which is available at www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm. All **waters of the state** (except groundwater) are subject to the AIP. All applicants must submit a determination of assigned tiers of protection to water quality for all **waters of the state** on a pollutant-by-pollutant basis. The applicant should consult AIP, Section 1.B. for the process of assigning tier protection levels. Both Tier 1 and 2 reviews are conducted on a pollutant-by-pollutant basis. Outstanding national and state water resources listed on Table D and E in the Water Quality Standards at 10 CSR 20-7.031 automatically are assigned Tier 3 reviews that are conducted on a water body-by-water body basis.

As an overview, AIP requires the new or expanded discharge either:

1. Demonstrate that the loading is below the allowed facility assimilative capacity and segment assimilative capacity.
2. Demonstrate that loading will be maintained or decreased.
3. Demonstrate degradation or assume degradation with alternative analysis and Social and Economic Importance (SEI) evaluation.

For minimally degrading activities as defined in AIP, no alternative analysis or socio-economic importance demonstration is required. If the activity is degrading or assumed to be degrading, then in order to complete the Administrative Record of Decision the applicant must submit both:

1. An alternative analysis that demonstrates non-degrading and minimally degrading discharging options are either impracticable, non-cost efficient, or unaffordable.
2. An evaluation of SEI of the proposed degrading discharging activity for social and economic development of the community. Applicants must summarize the review using the attached summary sheets (See below).

Tier 1 Reviews: Pollutants of concern (POC) that qualify for Tier 1 reviews may be discharged in accordance with Water Quality Standards without performing the alternative analysis or SEI demonstration. However, for a POC with Tier 1 designation, the applicant must provide existing receiving water quality data[1], or an appropriate water quality model[1], or department Section 303(d) listings (facilities with water bodies having 305(b) listed POCs should contact the department). Appendix 2 of the AIP demonstrates the statistical process (90 percentile value is significantly more than 95 percent of the Water Quality Standards for the POC) that applicants must use to designate POC as Tier 1 (below, at or near Water Quality Standard), if POC is not department Section 303(d) listed for that water body. Finally, for Tier 1 POCs, the total maximum daily load process must be followed to maintain or improve water quality. The applicant must demonstrate the discharge will not violate the water quality criterion for that pollutant (see Attachment D). For a list of activities that are considered not to result in significant degradation, see AIP, Section II.A.

Tier 2 Reviews: By default, and in the absence of existing water quality data, all **waters of the state** must have a Tier 2 review before an application for a permit to discharge is filed. If an applicant is assuming some or all POCs cause degradation, alternative analysis and SEI demonstration is required. Worksheets for evaluating alternative to discharge (see AIP, Section II.B) and SEI to the community (See AIP, Section II.E), as provided in 10 CSR 20-7.031, must be provided for review (see Attachment A). For POCs with Tier 2 designation, applicant must provide the basis for determination by providing existing water quality[1] or an appropriate water quality model[1]. The applicant must consider the current existing water quality value in the administrative record from previous sampling events (see AIP, Water Quality Assessment Procedures). If degradation is minimal or temporary, no alternative analysis and socio-economic demonstration is required (Tier 2 review is not required) but applicant must provide basis for minimal determination. Degradation is considered minimal if the proposed new or expanded loading is less than 10 percent of the facility assimilative capacity and the cumulative degradation is less than 10 percent of the segment assimilative capacity as a result of all discharges combined. Minimal degradation as defined by AIP must be supported by summary worksheet in Attachment B for facility assimilative capacity or segment assimilative capacity demonstrating assimilative capacity of POC. A tier analysis must be provided with the review to ensure all pollutants have the Tier 2 designation.

Tier 3 Reviews: Tier 3 water bodies shall receive no degradation of water quality. If hydrologic connection to Tier 3 water bodies has been or is demonstrated, then the applicant must demonstrate that water quality in the Tier 3 segment will not be lowered. Applicants in watersheds with significant losing segments should contact the department's Division of Geology and Land Survey for a geohydrological evaluation and available dye tracings information. Temporary degradation of water receiving with Tier 3 protection may be allowed by the department on a case-by-case basis as explained in Section II.A of AIP document. Applicant must provide information stated below for evaluation of temporary degradation (see Attachment C).

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[1] Quality Assurance Project Plan, or QAPP, must be provided to the department's Water Protection Program for review in advance (i.e., at least six months) of the proposed data collection activity and before submittal of the Antidegradation Review. A pre-applicant conference is highly recommended. **Important:** Applicant must follow the U.S. Environmental Protection Agency's requirements for Quality Assurance Project Plan document, available at www.epa.gov/QUALITY/qs-docs/r5-final.pdf. **Additional information needed with the EWQ data includes**: 1) Date existing water quality data was provided by the Watershed Protection Section, 2) Approval date by the Watershed Protection Section of the QAPP, project sampling plan, and data collected by all appropriate POCs.

ANTIDEGRADATION INSTRUCTIONS: (CONTINUED)

Applicants choosing to use new wastewater technology that is considered, "unproven technology" in their Tier 2 Reviews with alternative analysis must comply with the requirements set forth in the *New Technology Definitions and Requirements fact sheet* found at: www.dnr.mo.gov/pubs/pub2453.htm.

Temporary degradation is defined in the Antidegradation Implementation Procedure on pages 8 and 23. If degradation is temporary, describe the nature of the temporary impact by providing:

1. Length of time during which water quality will be lowered (time frame is typically less than a year).
2. Percent change in ambient conditions.
3. Parameters affected.
4. Likelihood for long-term water quality benefits to the segment.
5 Degree to which achieving the applicable water quality standards during the proposed activity may be at risk.
6. Potential for any residual long-term influences on existing uses.

Summary Documentation for Public Notice: Please attach the entire antidegradation review report. In addition, the department requests antidegradation review summaries for public notice of the major findings for each analysis. Please do not use the phrase "See Report" to complete these forms. Attached to this request form are outlines of the requested information:

Attachment A – Form used for pollutants of concern that are Tier 2 with significant degradation. Significant degradation requires an alternative analysis, preferred alternative outline, social and economic importance of discharge, and if necessary, facility and segment assimilative capacity.

Attachment B – Form used for pollutants of concern that are Tier 2 with minimal degradation or maintenance or reduction of loading demonstrations. For reduction or maintenance of loading demonstrations, submit a summary table showing the levels of each pollutant of concern before and after the proposed discharge in the receiving water and then complete Attachment B for the first downstream classified water body segment. Minimal degradation requires a summary of facility and segment assimilative capacity. ***Tier determination analysis must be submitted with this review.***

Attachment C – Submit this form if the discharge will result in temporary degradation. Temporary degradation requires description of the nature of the impact and Tier 1 Review.

Attachment D – Form used for pollutants of concern that are Tier 1. Tier 1 Review requires determination of Tier 1 and may require facility assimilative capacity and segment assimilative capacity for discharge water body or downstream water body segment.

No Degradation Evaluation – **Conclusion of Antidegradation Review** – Submit this form with the appropriate Construction Permit Application if the project is determined to be non-degrading. Do not submit water quality review assistance request to the central office as no antidegradation review is required. Note: During consultation with Water Protection Staff under the "Other" option of no degradation, a Water Quality Review Assistance Request may be required.

Outstanding National Resource Waters – Outstanding National Resource Waters and Outstanding State Resource Water are listed in Tables D and E of 10 CSR 20-7.031. If the discharge's proposed receiving water body is an Outstanding National Resource Water, an Outstanding State Resource Water, or drainage thereto, per Section I.B.3 of the AIP, "any degradation of water quality is prohibited in these waters unless the discharge only results in temporary degradation." Therefore, if degradation is significant or minimal, the Antidegradation Review will be denied.