

**Missouri Clean Water Commission
Meeting**

October 26, 2020

**Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, MO**



Notice of Open Meeting Missouri Clean Water Commission

The health and safety of all visitors to state office buildings are priority. Due to recent concerns regarding the novel coronavirus, or COVID-19, we encourage remote participation.

To review minutes from previous meetings and learn about agenda items, please refer to the Department website at <https://dnr.mo.gov/env/wpp/cwc/index.html>

AGENDA Department of Natural Resources Lewis and Clark State Office Building 1101 Riverside Drive Jefferson City, Missouri 65102

October 26, 2020
10:00 a.m.

[Join with Webex Events](#)

Enter the event password: CWC
Click "Join Now".

Follow the instructions that appear on your screen to join the teleconference.

-or-

Call-in toll number (US/Canada): 1-650-479-3207
Access code: 133 273 0903

- | | |
|--|----------------|
| A. Call to Order | Ashley McCarty |
|
 | |
| B. Approval of Minutes
(Approval Needed) | Ashley McCarty |
|
 | |
| 1. August 19, 2020, Open Session Minutes | |

Recommended Action: The Department recommends the Commission approve the minutes from the August 19, 2020, open meeting.

C. DNR Reports and Updates
(Information Only)

1. Director's Update Chris Wieberg

D. Public Hearing
(There are no Public Hearings scheduled for this meeting)

E. Recommended for Adoption and Actions to be voted on
(Approval Needed)

1. Ameren-Labadie Energy Center 316(a) Thermal Variance Request Pam Hackler

Recommended Action: The Department recommends the Commission approve the Ameren-Labadie Energy Center 316(a) Thermal Variance Request

2. FFY2021 Clean Water State Revolving Fund Intended Use Plan Hannah Humphrey

Recommended Action: The Department recommends the Commission approve the FFY2021 Clean Water State Revolving Fund Intended Use Plan

3. Small Borrower Loan for the City of Alba Joan Doerhoff

Recommended Action: The Department recommends the Commission approve the allocation of funding in the amount of \$40,023 for a small borrower loan to the city of Alba.

F. New Business
(Information Only)

G. Appeals and Variance Requests

H. Open Comment Session

(Information Only)

This segment of the meeting affords the public an opportunity to comment on any other issues pertinent to the Clean Water Commission.

I. Future Meeting Dates
(Information Only)

January 7, 2021, Lewis and Clark State Office Building
April 8, 2021, Lewis and Clark State Office Building
August 9, 2021, Lewis and Clark State Office Building
October 12, 2021, Lewis and Clark State Office Building

J. Closed Session

This portion of the meeting may be closed if such action is approved by a majority vote of the Clean Water Commission members who constitute a quorum, pursuant to Section 610.021, RSMo.

K. Meeting Adjournment
(Approval Needed)

Ashley McCarty

People requiring special services at the meeting can make arrangements by calling 1-800-361-4827 or 573-751-6721. Hearing- and speech-impaired individuals may contact the department through Relay Missouri, 1-800-735-2966.

For more information contact:

Krista Welschmeyer, Commission Secretary, Missouri Clean Water Commission
Water Protection Program, P.O. Box 176, Jefferson City, MO 65102

Phone: 573-751-6721

Fax: 573-526-1146

E-mail: krista.welschmeyer@dnr.mo.gov

Tab A

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Call to Order

Issue:

The Missouri Clean Water Commission will be called to order.

Recommended Action:

None

Tab B

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Approval of Minutes

Issue:

The Missouri Clean Water Commission will review the minutes from the past Clean Water Commission meetings.

Recommended Action:

The Department recommends that the Missouri Clean Water Commission vote to approve past meeting minutes.

Tab B1



**DRAFT
MINUTES OF THE
MISSOURI CLEAN WATER COMMISSION MEETING
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri**

August 19, 2020

Present via Telephone

Ashley McCarty, Chair, Missouri Clean Water Commission
Patricia Thomas, Vice-Chair, Missouri Clean Water Commission
Neal Bredehoeft, Missouri Clean Water Commission
Stan Coday, Missouri Clean Water Commission
John Reece, Missouri Clean Water Commission
Allen Rowland, Missouri Clean Water Commission
Tim Duggan, Legal Counsel, Missouri Clean Water Commission
Chris Wieberg, Director of Staff, Missouri Clean Water Commission
Krista Welschmeyer, Secretary, Missouri Clean Water Commission

Attending via Webex or Call-In

Michael Abbott, Missouri Department of Natural Resources
Kimberly Bauman, Mississippi Lime
Stacia Bax, Missouri Department of Natural Resources
Van Beydler, Missouri Department of Natural Resources
Jennifer Birger, Missouri American Water
Kurt Boeckmann, Missouri Department of Natural Resources
Bill Boland, EIERA
Amy Branhill, Missouri Department of Economic Development
Ginny Bretzke, Missouri Department of Natural Resources
Robert Brundage, Newman, Comley & Ruth
Tim Canter, University of Missouri
David Casaletto, Ozarks Water Watch
Kurtis Cooper, Missouri Department of Natural Resources
Eric Crawford, Missouri Public Utility Alliance
James Crawshaw, Missouri Department of Natural Resources
Rebecca Cripe, Missouri Department of Natural Resources
Mary Culler, Stream Teams United
Aimee Davenport, Stinson Law Group
Sharon Davenport, Missouri Department of Natural Resources

Jane Davis, Missouri Department of Natural Resources
Lauren Dempsey, General Public
Joan Doerhoff, Missouri Department of Natural Resources
Julianne Epplin, Ameren Missouri
Angela Falls, Missouri Department of Natural Resources
Brant Farris, Missouri Department of Natural Resources
Ed Galbraith, Missouri Department of Natural Resources
Jodi Gerling, Missouri Department of Natural Resources
Peter Goode, Washington University St. Louis
Shane Graupman, Missouri Department of Natural Resources
Chuck Gross, Duckett Creek
Brent Herring, City of Kansas City, MO
Lacey Hirschvogel, Missouri Public Utilities Alliance
John Hoke, Missouri Department of Natural Resources
Tisha Holden, Missouri Department of Natural Resources
Leslie Holloway, Missouri Farm Bureau
Jay Hoskins, St. Louis Metropolitan Sewer District
Ramona Huckstep, Missouri Municipal League
Hannah Humphrey, Missouri Department of Natural Resources
Sherri Irving, City of Kansas City, MO
Michael Kruse, Missouri Department of Natural Resources
Misty Lange, Missouri Department of Natural Resources
Ann Lavaty, US EPA
Traci Lichtenberg, Missouri American Water
Collin Mackey, Missouri Department of Natural Resources
Patsy Mayberry, General Public
James McCleish, Horner & Shifrin
Anna McElfresh, Missouri Department of Natural Resources
Lynn Milberg, Missouri Department of Natural Resources
Judy Morrison, Missouri Department of Natural Resources
Nick Muenks, Geosyntec Consultants
Austin Nieman, St. Louis Metropolitan Sewer District
Michael Ohlemeyer, St. Louis Metropolitan Sewer District
Kent Peetz, City of Jackson, MO
Kevin Perry, Regform
Sara Pringer, Missouri Department of Natural Resources
Brian Quinn, Missouri Department of Natural Resources
Tom Ratermann, Boone County Regional Sewer District
Joel Reschly, Missouri Department of Natural Resources
Laura Rightler, Loch Group
Kristi Savage-Clarke, Missouri Department of Natural Resources
Amy Shields, US EPA
Julie Solari-O'Guinn, Duckett Creek
Jing Tao, City of Kansas City, MO
Melissa Vatterott, Missouri Coalition for the Environment
James VeVerka, Missouri Department of Natural Resources

Phil Walsack, Burns & McDonnell
Sunny Wellesley, US EPA
Steven Whitworth, Ameren Missouri
Sally Zemmer, Missouri Department of Natural Resources
Courtney Zimmerman, Missouri Department of Natural Resources

CALL TO ORDER

Chair McCarty called the meeting of the Missouri Clean Water Commission (CWC) to order on August 19, 2020, at 10:06 a.m.

Approval of Minutes

Approval of the April 2, 2020 Open Session Minutes

Agenda Item B-1

Commissioner Reece made a motion to approve the minutes as presented. Commissioner Rowland seconded the motion. The motion passed with a roll call vote:

Commissioner Bredehoeft: Yes
Commissioner Coday: Yes
Commissioner Reece: Yes
Commissioner Rowland: Yes
Vice Chair Thomas: Yes
Chair McCarty: Yes

DNR Reports and Updates

Director's Update

Agenda Item C-1

Chris Wieberg, Director, Water Protection Program, reported the following to the Commission:

- Permit Backlog is around 220 permits.
- Enforcement Report is included in the packet
- Most WPP team members are working from home. Some jobs require staff to be in the office, but staff are social distancing when in the office. The WPP main line continues to be answered during normal business hours with most staff having their desk phones forwarded to their personal phone. We are conducting all types of inspections as long as team members can maintain social distancing. We are currently on track to meet the majority of inspection commitments for FFY20 with the exception of a handful of pretreatment and MS4 inspections.
- COVID-19 Regulatory Relief and Regulatory Suspension guidelines are still in place.
- In accordance with an Executive Order, the Department temporarily suspended 10 CSR 20-6.300(2)(B); 10 CSR 20-6.300(3)(B)1; and 10 CSR 20-6.300(4)(A)1. These rule

suspensions do not apply to facilities that were not in operation on or before March 18, 2020. The primary issues that these suspensions sought to address was in situations where facilities temporarily exceed regulatory animal number thresholds due to pandemic related delays in meat processing facilities these facilities would not be required to have their permit changed or in some case have small AFO seek to obtain a permit for short term increases. These suspensions are in effect through the end of 2020.

- The Department also temporarily suspended 10 CSR 20-9.030(4)(B) and 10 CSR 20-14.020(4)(B) for wastewater treatment operators and CAFO operators whose certifications expired during the suspension of this rule. These rules require that before a certificate will be renewed, the operator must submit documentation of training sufficient to meeting the minimum hours for the certificate level. Training organizations had cancelled and postponed classes due to social-distancing requirements related to the COVID-19 emergency, and many professionals could not obtain the minimum training hours during the emergency despite their best efforts. The temporary suspension allowed certified operators to renew their certificates without obtaining the minimum amount of renewal training that otherwise would be required so they can continue providing professional services for wastewater and CAFO systems.

The decision to provide a temporary rule suspension supports the greater public health objectives by allowing certified operators to continue to serve their communities. Given the social changes in travel and public gathering, it was reasonable to allow an essential workforce a remedy that supported the greater goals of public health. This suspension is in effect until the end of 2020

- Due to events associated with the pandemic, the Department became aware of challenges associated with dairy production throughout the state in late March and early April. Given the decline in sales of dairy products to schools and the food service industry, milk production in the state was in excess, putting dairy farmers in the difficult position of determining how to properly dispose of raw milk. The Department, in response to this matter, issued guidance on the disposal of raw milk or other dairy products which can be found on our pandemic regulatory relief webpage. The guidance did not supersede any statutory or regulatory requirements.
- On March 24, 2020, the Department issued a statement in an attempt to facilitate continuity of operations for key Missouri industries impacted by a reduced workforce due to COVID-19. The Department recognized that certain environmental-compliance obligations may become difficult as more employees work from home, staffing is reduced, physical distancing measures are implemented for essential personnel remaining in the workplace, consultants working on behalf of regulated entities may experience travel restrictions, and supply chains face potential disruption. The state indicated that affected entities could make requests for relief. The WPP WPCB received 13 requests from regulated entities for regulatory relief as a result of the Covid-19 pandemic. Of those requests, six were granted. Two requests were denied for no direct correlation with COVID-19. Two entities, did not submit specific regulatory relief requests for a permitted facility. One facility submitted a request for relief from late DMR submission, however DNR staff verified the late submission would not create a violation in ICIS or ECHO, thus the issue was resolved. One facility withdrew their request after discussion

with KCRO staff. Additionally EPA took lead on one request related to an EPA Consent Judgment.

- Early in 2020 we held a couple of clean water fee discussions in an effort to gain consensus on a future rule to amend clean water fees or various permits and activities. Given the pandemic, downturn in economy, and the fact that projected shortfalls were out in 2028 we have opted to pause clean water fee discussion for the foreseeable future. We consider resuming discussions at a later date while considering shortfall projections and the time that it takes to get through the process before resuming the effort.
- Attorney's Fee Application arose from complaints previously heard by the Administrative Hearing Commission (AHC) in case numbers 18-0498 and 18-0501. The commission had directed staff to enter into a memorandum of understanding with the AHC to consider the applications and provide the CWC with a recommendation. On June 16, 2020, the MOU was fully executed and the applications were forwarded to the AHC. The AHC has set a hearing for November 6, 2020.
- A virtual public hearing is scheduled for September 1, 2020, at 5:00 pm on a recent request for a 316a variance for temperature at the Ameren Labadie power plant. The variance was placed on public notice and the Department received a request for hearing from the Sierra Club. A decision on the variance is planned for the commission agenda in October, or a special meeting later this year depending on the team's ability to get the information compiled and to the commission members.

Public Hearing

Public Hearing on Draft Fiscal Year 2021 Clean Water State Revolving Fund Intended Use Plan and Priority List

Agenda Item D-1

Hannah Humphrey testified on behalf of the Department on the Clean Water State Revolving Fund (SRF), Intended Use Plan (IUP) and Project Priority List for Fiscal Year 2021. The Department is required to prepare this plan identifying the intended uses of the funds in the SRF and describing how those uses support the goals of the SRF. The EPA must receive this plan prior to awarding the Clean Water SRF capitalization grant. Ms., Humphrey noted listing in the IUP and listing of a project is not a guarantee of funding. Applicants must comply with program requirements to receive funding.

The draft IUP was posted for public notice was on July 30, 2020. The Department expects to make changes to the IUP after all public comments are reviewed. Approximately \$534 million is available for new projects. The target interest rate remains 30% of market, index rate. Loans will continue to have a loan administration fee is 0.5% of the outstanding loan balance assessed on an annual basis. New this year is the express program authorization for extended term loans up to 30 years. Extended term loans will be available at a slightly higher interest rate than a traditional, 20 year loan, with an additional 0.5% interest. This added interest is designed to address the increased risk that extended term loans pose to the program, while maintaining a very low rate.

The Additional Subsidization section on page 6 describes available additional subsidization, or grants that will be available with the approval of the IUP by the Commission in October. The Department will continue to offer our three established CWSRF grants:

- affordability grants offered with loans based on project socio-economic criteria
- a grant that incentivizes regionalization by providing grant funds to sewer extension projects. This IUP commits to providing the following two new grant opportunities.
- continue offering engineering grants, but the Department will change the funding source from SRF administration fee funding to funding from the additional subsidization allocation from our capitalization grant.

Beginning in FY21, the Department is proposing to add two new grant programs with additional subsidization:

- The IUP indicates a plan to offer a Technical Assistance Grant (TAG) that will provide three years of funding to a not-for-profit corporation. The Department will offer the TAG via a Request for Proposals after Commission approval in October, and will score proposals and award the grant to one not-for-profit corporation to provide assistance to small and medium sized publicly owned treatment works.
- This IUP establishes an offer of grant funds for certain high priority water quality work. This Water Quality Incentive Grant funding will offset a portion of a loan when the borrower's project includes an eligible project component. Eligible project components are: flood mitigation infrastructure; upgrades for new permit limits or to meet requirements of Total Maximum Daily Load Wasteload Allocations; plant improvements intended to provide renewable energy generation; streambank stabilization a drinking water supply lake watershed; measures to manage, reduce, treat, or recapture stormwater; green infrastructure; inflow and infiltration rehabilitation; plant improvements serving citizens enrolled in a rate assistance program; and construct sewer extensions to serve customers in a district or city's service area. This new grant is expected to incentivize water quality improvements, provide debt relief to larger communities that have previously not had access to CWSRF grant dollars, and attract more borrowers to the program.

Appendix One starting on Page 10 contains the Project Priority Lists and Financial Tables. The total anticipated Clean Water State Revolving Fund EPA Capitalization grant amount available as of December 31, 2018 was \$80 million. This includes a portion of the FY19 capitalization grant, and an anticipated FY20 capitalization grant of \$44,053,000. \$106.8 million is the amount of previously undisbursed amounts committed to existing projects The Department estimates \$90 million will be committed for projects that are funded or will be funded through October 2020 adoption of the 2021 IUP. \$516 million is available for loans. \$17.9 million is available for grants based additional subsidization spending planned at this time. Details of that planned spending include the following. A total of \$11,530,540 is available as unused additional subsidization funds remaining from several previous years' capitalization grants (FY 16, 17, 18, 19). The FFY 2020 capitalization grant requires that 10 percent (\$4,405,300) be utilized for additional subsidization, and up to an additional 30 percent may be used as additional subsidization. Staff is recommending an additional \$2,000,000 (15 percent of the optional amount be reserved for FFY 2021 based on the need demonstrated by applications received as of CWSRF application deadline, and to meet the needs of other grants planned for award later in the year. This brings the total of available additional subsidization in this IUP to \$17,935,840.

This amount allows the Department to commit grant funds to all eligible applicants with projects on the Fundable Lists in this IUP and reserve \$5,529,041 for Regionalization Incentive Grants, Engineering Report Grants, and Technical Assistance Grants. More information about grant eligibility is included in Appendix 2.

The project lists will likely change between this draft IUP and the final version approved by the Commission based on each project's current schedule and progress since the draft plan was prepared and posted. Within the Project Lists Tables shown on pages 13- 18, the draft plan allocates approximately \$448 million in loans and grants to projects on the Fundable lists and about \$60,343,312 to the Fundable Contingency list. All these projects have a bond instrument in place and have submitted an acceptable facility plan to the Department. The draft plan allocates \$50.5 million to Planning List projects. Staff will assist these communities to move up to a Fundable List during the year. The Fundable List is composed of three groups: 15 projects are on the Small and Non-Metropolitan Areas and Districts Fundable List, 5 projects on the Large Metropolitan Areas & Districts Fundable List and one project is on the Department Initiatives List.

This Intended Use Plan was placed on public notice on July 30, 2020. Public comments will be accepted through August 31, 2020. The final Clean Water SRF intended Use Plan for Fiscal Year 2020 will be presented to the Commission for adoption at its October 26, 2020, meeting.

I would like to express my appreciation to all the staff that have prepared the IUP, especially Sharon Davenport, to all the staff that works daily to successfully administer the State Revolving Fund and to program participants.

Lacey Hirschvogel, Missouri Association of Municipal Utilities (MPUA) stated that MPUA will submit written comments at a later date, but wanted to highlight a few items within the IUP. MPUA appreciates the Department moving forward with the technical assistance and planning grant for nonprofit organizations. She summarized work conducted by MPUA through the pilot grant, and stated MPUA believes the work funded through the grant to be very beneficial to small and medium sized communities. MPUA is engaged with seven communities and assisted these communities with several applications for engineering grants, Rural Sewer Grants and SRF. MPUA is also working on several projects that will provide statewide communities with tools such as asset management. MPUA is also appreciative of the proposed water quality incentive grant opportunity, believes it is a creative initiative indicative of the Department's willingness to put communities first. Also, MPUA supports the proposed water quality incentive grants for Perryville and Centralia, two MPUA members that are working hard to provide quality and affordable service to their residents.

Recommended for Adoption and Actions to be Voted On

New Business

Appeals and Variance Requests

Open Comment Session

Future Meeting Dates

Missouri Clean Water Commission Meetings Agenda Item I

- October 26, 2020, via Webex and call-in only
- January 7, 2021, Lewis and Clark State Office Building
- April 8, 2021, Lewis and Clark State Office Building
- August 9, 2021, Lewis and Clark State Office Building
- October 12, 2021, Lewis and Clark State Office Building

Closed Session

There was no closed session during this Clean Water Commission meeting.

Meeting Adjournment

Chair McCarty adjourned the open meeting at 11:06 a.m.

For more information contact:

Krista Welschmeyer, Commission Secretary, Missouri Clean Water Commission
Water Protection Program, P.O. Box 176, Jefferson City, MO 65102

Phone: 573-751-6721

Fax: 573-526-1146

E-mail: krista.welschmeyer@dnr.mo.gov

Respectfully Submitted,

Chris Wieberg
Director of Staff

Tab C

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

DNR Reports and Updates

Issue:

Routine update to the Commission

Recommended Action:

Information only.

Tab C1

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Director's Update

Issue:

Routine update to the Commission

Recommended Action:

Information only.

Tab D

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Public Hearing

Issue:

This portion of the meeting allows information to be presented to the Commission.

Recommended Action:

Information only.

Tab E

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Recommended for Adoption and Actions to Be Voted On

Issue:

This portion of the meeting allows for the Commission to review and vote on specific actions.

Recommended Action:

It is recommended that the Commission review and vote on the actions presented.

Tab E1

Ameren-Labadie Thermal Variance Request Document Table of Contents

Thermal Variance Briefing Memo	p. 42
Recommendation Memo to CWC	p. 44
Proposed Final Variance to CWC	p. 46
Public Notice Version of Variance	p. 54
Public Hearing Material	
DNR Presentation	p. 62
Ameren Presentation	p. 74
Hearing Transcript	p. 101
DNR Response to Public Comment	p. 236
Ameren Response to Sierra Club Comments	p. 244
Ameren Response to DNR Comments	p. 262

Missouri Clean Water Commission Meeting
Lewis and Clark State Office Building
LaCharrette/Nightingale Creek Conference Rooms
Jefferson City, MO 65101
October 26th, 2020

**Ameren Thermal Variance Request CWC-V-4-20
Labadie Energy Center**

Issue: On April 8, 2020, Ameren submitted a request for a thermal variance from the temperature numeric water quality criteria for the Labadie Energy Center (LEC), Missouri State Operating Permit #MO-0004812. The Department seeks the Clean Water Commission's decision to grant or deny this variance.

Background: A Clean Water Act §316(a) thermal variance is an allowance granted to a discharge to surpass established permit limits based upon the water quality standards for temperature and mixing zone area. Meeting thermal limits can be challenging during summer months or during drought, when the river's temperature and flow regime are insufficient to absorb the plant's thermal effluent, and maintain water temperature criteria in the receiving water body.

The applicant for a thermal variance must demonstrate the applicable thermal discharge effluent limitations are more stringent than necessary, and a proposed effluent limit will assure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in and on the receiving stream.

The applicant must propose specific frequency, duration, flow regime, and other conditions of an allowable exceedance, for incorporation into the permit as alternate limits.

Ameren is seeking a CWA §316(a) thermal variance for LEC from the temperature and mixing criteria of the Missouri River for the protection of aquatic life use. LEC's permit will include water quality-based effluent limits for temperature, based on supporting documentation showing the facility has not caused a change in the balanced and indigenous population of aquatic species in the vicinity.

The Department recommends granting the thermal variance to the facility for the term of the permit with authorization to continue the variance with a modified request for the next four permit cycles. During this term, permit limits will be based on the highest attainable condition of the facility. In this instance, Ameren has indicated the thermal variance only need to be used up to 528 hours (22 days) per year, during extreme years, with an expectation the variance will be used less frequently during non-drought years or years where cooler temperatures occur in the summer. Ameren submitted a model to the Department which changes the units from °F to the Thermal Discharge Parameter (TDP). The TDP limit, established at 0.95, represents 90 °F and a 25% mixing zone volume used. During times when the thermal variance is used, the mixing volume will be no

more than 40% of the total volume of flow of the river, allowing the TDP to be exceeded for 528 hours (22 days) per year.

The proposed variance was placed on 30 day public notice June 19, 2020, with comments accepted through July 27, 2020. The variance documents, any comments received during the public notice, and responses to those comments are attached.

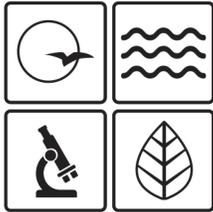
The Department is recommending the Commission approve the variance.

Recommended Action: The Department recommends the Commission grant the Ameren Missouri Labadie Energy Center 316(a) Thermal Variance for temperature and mixing zone as proposed.

Suggested Motion Language: The Department suggests the Commission motion to grant the LEC 316(a) Variance CWC-V-4-20 as proposed.

List of Attachments:

- 1) Department Recommendation on the Variance
- 2) Proposed Final Variance
- 3) Ameren Missouri's Variance Application
- 4) The public noticed version of the Variance
- 5) Written Comments Received
- 6) Public Hearing Information
- 7) Draft Response to all comments



MEMORANDUM

DATE: September 25, 2020

TO: Missouri Clean Water Commissioners, Tim Duggan, Missouri Attorney General's Office

FROM: Chris Wieberg, Director
Water Protection Program

SUBJECT: Recommendation for Ameren-Missouri Labadie Energy Center CWA §316(a)
Thermal Variance CWC-V-4-20

The purpose of this memorandum is to make a recommendation to the commission to grant Clean Water Act §316(a) variance, CWC-V-4-20 to Ameren Missouri (Ameren) for the Labadie Energy Center (LEC). The Missouri Department of Natural Resources received Ameren's 316(a) variance application on April 8, 2020, and is making this recommendation to the Missouri Clean Water Commission as required by Section 644.061 RSMo. The Department's recommendation is that the commission grant the thermal variance, following public notice and public hearing, at its meeting on October 26, 2020.

Pursuant to Section 316(a) of the Clean Water Act and 40 CFR 125, Subpart H, the Department may approve an alternative thermal effluent limit or "thermal variance" when an applicant demonstrates that that the existing thermal effluent limitation is more stringent than necessary and that an alternative effluent limitation will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in the receiving water body.

Ameren is requesting a thermal variance for the LEC, Missouri State Operating Permit No. MO-0004812, outfall #00, for temperature and temperature mixing standards established in 10 CSR 20-7.31(5)(D). Ameren has submitted a request designed to meet the criteria and standards for the determination of alternative effluent limitations under section 316(a) found in 40 CFR 125, Subpart H. The attached public notice provides information in accordance with the applicable state and federal variance requirements in Chapter 644.061, RSMo, and the federal Clean Water Act §316(a).

Ameren proposes an alternative effluent limitation which would meet the Water Quality Standards in 10 CSR 20-7.031(5)(D), and would provide an exception to account for infrequent extreme river conditions and an improvement to the formula to more precisely account for certain discharge temperature ranges. These limitations ensure a zone of passage outside of the

thermal mixing zone of at least 60% of the river during these extreme conditions. The 316(a) variance request provided a study of the impact of the thermal mixing zone on the indigenous population of shellfish, fish, and wildlife in the river. This study finds that the continued operation of the Labadie Energy Center, and the continued discharge of thermally impacted water into the Missouri River will still assure the protection and propagation of the balanced indigenous species within the river. The technology in place reflects the best technology available for minimizing adverse environmental impact.

The Department placed the draft permit on a 30-day public notice starting June 19, 2020 and extended through July 27, 2020. A public hearing was held on September 10, 2020, led by Commissioner Reece. Comments received during the public notice period and the public hearing were provided to the commission with this recommendation, along with a draft of the Department's response to comment. Once the CWC renders a decision on this variance request, the Department will incorporate the decision into the operating permit, which will be public noticed.

The draft Ameren Labadie Energy Center 316a Variance CWC-V-4-20 is attached for your review. If you have any questions, please contact Chris Wieberg by email at chris.wieberg@dnr.mo.gov or by phone at (573) 522-9912. Thank you.

HP/vs

Attachment



Missouri Department of Natural Resources
Labadie Energy Center Thermal Variance CWC-V-4-20
Ameren Missouri – Labadie Energy Center Industrial Wastewater Discharge

The Missouri Department of Natural Resources and the Missouri Clean Water Commission hereby adopt an alternative limit for Missouri State Operating Permit #MO-0004812 as it relates to the water quality standards (WQS) for the Missouri River for temperature and thermal mixing, for the protection of aquatic life use.

Facility:

Ameren Missouri – Labadie Energy Center (LEC)
Permit No.: MO-0004812
County: Franklin
Discharge Type: single-pass condenser cooling wastewater
Treatment Components: None.
Design Flow: 1,428 MGD (outfall #001)

Waterbody:

Missouri River
USGS Basin & Sub-watershed No.: Labadie Creek – Missouri River 10300200-0603
Water Body Identification (WBID) Number and Hydrologic Class: WBID# 1604 (P)
Designated Uses: Protection of aquatic life – warm water habitat, drinking water supply, human health protection, irrigation, livestock and wildlife protection, whole body contact recreation (WBC-B), secondary contact recreation, and all general criteria.

Impairments: This river is on the 303(d) list for *E. coli*. The Department developed a total maximum daily load (TMDL) for chlordane and polychlorinated biphenyls (PCBs) in 2006; however, neither impairment is listed as being caused by this facility.

Factors Precluding Attainment:

This facility's discharge from outfall #001 is subject to the federal effluent limitation and permitting requirements of the Clean Water Act § 301 and 40 C.F.R. Part 122, as well as state requirements set forth in Missouri's Water Quality Standards (WQS) in 10 CSR 20-7.031(5)(D), establishing an effluent limit of 90 degrees Fahrenheit (90 °F) and a thermal mixing zone of no more than 25% of the cross-sectional area or volume of the river.

The facility has indicated it cannot consistently meet the applicable temperature standard of 90 °F due to ambient river temperatures, at certain times of the year, that approach the maximum discharge allowance of 90 °F. This facility is also afforded mixing considerations; therefore, the zone of initial dilution and mixing zone of the river are meant to absorb and disseminate the thermal pollution being discharged from outfall #001. However, Missouri's WQS at 10 CSR 20-7.031(5)(D) also require thermal mixing zones to be limited to 25% of either the river's volume or its cross-sectional area. The facility's zone of thermal influence is greater than 25% of the river's volume at times.

This thermal variance, once incorporated into the permit, would allow the facility to increase the temperature of its discharge to the Missouri River to over 90 °F by allowing a mixing zone size greater than 25% of the stream volume for no more than 528 hours per year when certain conditions are met, as described below. To allow a thermal variance from the applicable WQS, the Department has confirmed items supplied by Ameren demonstrate the river, in the area of the Labadie Energy Center (LEC), has maintained a balanced and indigenous population of shellfish, fish, and wildlife in accordance with Clean Water Act (CWA) § 316(a) (33 U.S.C. § 1326(a)) and 10 CSR 20-7.031(5)(D)1. and 6.

Alternative Effluent Limitation Request:

On April 8, 2020, Ameren submitted a request for a CWA § 316(a) variance from the numeric temperature water quality criteria and mixing zone size for the LEC (See Appendix B, Thermal Variance Request). The requested variance proposed an alternative thermal limit of 0.95 “Thermal Discharge Parameter” (TDP) for most of the year that can be exceeded up to 528 hours per year, and only when the river flow is less than 40,000 cubic feet per second (cfs) or the ambient river temperature is greater than 87 °F, and secondarily, for the thermal zone of influence to never exceed 40% of the river volume based on modeling of the heat interaction between the discharge and the river.

Ameren’s request provided documentation demonstrating the standard thermal effluent limitations are more stringent than necessary to continue to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the Missouri River surrounding the Labadie Energy Center, in accordance with the criteria and standards for the determination of alternative effluent limitations under § 316(a) and 40 C.F.R. § 125.73.

Alternative Limit Requirements:

This thermal variance is the applicable WQS in effect for the purposes of developing a Clean Water Act § 301 National Pollutant Discharge Elimination System (NPDES) permit limit. Based on a thermal plume model, the Thermal Discharge Parameter is being implemented. The TDP of 1 represents a 90 °F limit and 25% mixing area for temperature for LEC’s outfall #001 discharge. The previous permit incorporated a margin of safety of 0.05, thereby making the daily maximum limit (without consideration of a variance) 0.95 TDP. Because the model bases the TDP on both 90 °F and a 25% mixing area, Ameren has identified a need to exceed 0.95 TDP 528 hours per year when the ambient river temperature is greater than 87 °F or the river flow is below 40,000 cfs. When the TDP of 0.95 is exceeded, the variance will be in use, up to 528 hours per year. The variance incorporates a limit of a maximum of 40% of the river volume for mixing. The designated use and associated criteria remain applicable for all other Clean Water Act purposes, and all other uses and associated criteria not specified in this variance remain applicable for all Clean Water Act and Missouri Clean Water Law purposes.

Implementation of this § 316(a) variance will not result in the lowering of existing water quality. This variance establishes an alternative thermal effluent limitation of 40% mixing when the 0.95 TDP is exceeded, which will continue to assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife in and on this section of the Missouri River, in accordance with 40 C.F.R. § 125.70. The variance allows the facility to exceed the TDP of 0.95 for 528 hours per year.

Alternative Limit Conditions:

Public Participation:

Public participation prior to the request for approval by the Missouri Clean Water Commission occurred pursuant to 40 C.F.R. § 124.57 and § 644.061, Revised Statutes of Missouri (RSMo). Missouri State Operating Permit #MO-0021768 will reflect the implementing conditions and requirements of the alternative effluent limits. The permit will go through public notice and comment pursuant to 10 CSR 20-6.020.

Term of Variance and Reevaluation:

The variance and the permit conditions that implement the variance will be subject to renewal terms outlined in the state operating permit. Ameren will be required to request continuation of the variance with each operating permit renewal application. The Department will review all conditions associated with the thermal variance during every permit renewal, which occurs at least every 5 years. This thermal variance includes authorization for the continuation of the variance and thermal parameters for up to four permit cycles, which will be detailed in the permit. If the data or results of the 2020 study submission become invalid, inaccurate, or outdated, or if subsequent testing or monitoring indicates that a more robust study may be required, then Ameren will need to take steps to ensure the Department is aware of these changes or updates needed within the § 316(a) variance or permit conditions; and the Department may request additional data or evaluation for the continuation of the variance. The Department will reevaluate the conditions of the alternative thermal effluent limit upon each permit renewal. The terms and conditions of the variance, as well as all permit disclosures, are subject to permit shield and reporting requirements pursuant to 644.051.16 RSMo.

Other Considerations:

NPDES Permit Limits and Considerations. This thermal variance will be used solely to establish alternative effluent limits for temperature and mixing zone area requirements in Missouri State Operating Permit #MO-0004812. This thermal variance will not be used for any other Clean Water Act or Missouri Clean Water Law purposes. Missouri's WQS at 10 CSR 20-7.031(5)(D)1. and 6. allow for demonstrations to expand the mixing zone and cause increases in ambient river temperatures greater than 90 °F in the standard mixing area.

Endangered or Threatened Species:

Protections for endangered or threatened species and their critical habitat. The Department and Ameren do not anticipate that the granting of this thermal variance will jeopardize threatened or endangered species or result in the destruction or adverse modification of such species' critical habitat. The Missouri Department of Conservation's Natural Heritage Review webpage queries records for species and natural communities of conservation concern. Based on the Natural Heritage Review for the Labadie Energy Center, the following federally or state-listed threatened or endangered species or critical habitats were identified for Franklin County in which the Missouri River would be expected to provide adequate habitat in the area of the Labadie Energy Center:

Flathead Chub (*Platygobio gracilis*); fish; state endangered species
Lake Sturgeon (*Acipenser fulvescens*); fish; state endangered species
Pallid Sturgeon (*Scaphirhynchus albus*); fish; state and federal endangered species
Sheepnose mussel (*Plethobasus cyphus*); mussel; state and federal endangered species

Appendices

Appendix A – Crosswalk Table between Labadie Energy Center Thermal Variance CWC-V-4-20 and 40 C.F.R. Part 125

Appendix B – Thermal Variance Request, April 8, 2020

Appendix A

Crosswalk between LEC Thermal Variance CWC-V-4-20 and 40 C.F.R. Part 125 Subpart H

40 C.F.R. Part 125 Subpart H	
40 C.F.R. § 125.72	
<p>(a) Any initial application for a section 316(a) variance shall include the following early screening information:</p> <p>(1) A description of the alternative effluent limitation requested;</p> <p>(2) A general description of the method by which the discharger proposes to demonstrate that the otherwise applicable thermal discharge effluent limitations are more stringent than necessary;</p> <p>(3) A general description of the type of data, studies, experiments and other information which the discharger intends to submit for the demonstration; and</p> <p>(4) Such data and information as may be available to assist the Director in selecting the appropriate representative important species.</p>	<p>(a) the application included:</p> <p>(1) the facility will be complying with the “Thermal Discharge Parameter” (TDP) as provided by an approved model in lieu of numeric limits in degrees Fahrenheit. The Department has granted the TDP of 0.95; this includes a 0.05 TDP margin of safety. The TDP is a unitless parameter. The variance will provide a larger zone of mixing (greater than 25% of the river’s volume or area) for 528 hours per year based on a computer-generated model’s output values. No upper TDP value is assigned when utilizing the thermal variance, although the mixing percentage will be increased from 25% up to 40% of the river; the limit of 40% will be used during the thermal variance.</p> <p>(2) Ameren has used a model to show the relationship between the thermal discharge component and the river’s flow. Model output has provided the basis of the numeric TDP limits. The biotic sampling has shown the balanced and indigenous population is not adversely affected by the thermal discharge.</p> <p>(3) Ameren has provided the results of an extensive biotic community study and the results of the study concluded the aquatic species were balanced and indigenous in the vicinity of the LEC.</p> <p>(4) Ameren and the Department coordinated to select Representative Important Species (RIS); these species were selected for the justification listed. Channel catfish (recreational species); Emerald shiner (important food chain species); Gizzard shad (important food chain species); Pallid sturgeon (endangered species); Walleye/sauger (recreational and</p>

	temperature sensitive species); White crappie (recreational and temperature sensitive species)
40 C.F.R. § 125.73	
<p>(a) Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.</p>	<p>As demonstrated in the variance submittal, effluent limitations in the Labadie Energy Center permit for temperature in the summer months are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of aquatic species. The Department has reviewed the 316(a) Demonstration Study, submitted by Ameren on April 8, 2020. The study met the requirements of demonstrating the balanced and indigenous populations are present and fecund in the vicinity of the Labadie Energy Center. During the summer, the thermally sensitive fish species tend to migrate from the vicinity of the Labadie Energy Center upstream into cooler waters, therefore are all but absent during the summer months; the expected time when the mixing zone will need to expand under the variance. For the rest of the year, fish species are expected to actively avoid the thermal plume. For life stages unable to swim (larva; fry) the time in contact with the thermal plume is minimal. When river flows are normal (38,000-68,000 cfs), floating organisms pass through the area in 1.5 hours. The 316(a) study comprised of monitoring, through various sampling techniques, different portions of the biotic community, including benthic, macroinvertebrates, phytoplankton, zooplankton, meroplankton, fish, and other vertebrates. Secondly, the thermal confirmation study was meant to assure the computer model numerically represented the discharge's effect on the receiving river. During the last permit term, conditions specified Ameren must sample during periods of low river flow, or high river temperature. On-site thermal sampling of the vicinity of the Labadie Energy Center during these conditions supported the computer modeling of the extent of the thermal plume.</p> <p>Alternative effluent limitations for the discharge is expressed as a Thermal Discharge Parameter, TDP. The facility will be afforded a TDP limit of 0.95 under normal conditions. This is a ratio of heat from the discharge to ambient heat in the river. The thermal variance allows for a mixing zone greater than 25%, which will not exceed 40% of the river's volume at any time. The variance is only granted for 528 hours per year.</p> <ul style="list-style-type: none"> • A TDP of greater than 0.95 will be allowed under conditions when the river flow is less than 40,000 cubic feet per second (cfs) <u>or</u> ambient river temperatures are greater than 87.0 °F; • A TDP of greater than 0.95 will be allowed in no more than 6 percent of the days in any calendar year (i.e., 528 hours); and

	<ul style="list-style-type: none"> • On any day where the TDP is greater than 0.95, the mixing zone must be less than 40% of the volume of the river as calculated by the established equations.
<p>(b) In determining whether or not the protection and propagation of the affected species will be assured, the Director may consider any information contained or referenced in any applicable thermal water quality criteria and thermal water quality information published by the Administrator under section 304(a) of the Act, or any other information he deems relevant.</p>	<p>In the thermal variance request document, Ameren cited numerous other studies of the existing organisms (including endangered species), organismal habitat requirements (including thermal tolerances), and existing river conditions; these documents support the final decision. These studies include: <i>Pallid Sturgeon Population Assessment and Associated Fish Community Monitoring for the Missouri River: Segment 14.</i>, Spatiotemporal patterns and changes in Missouri River fishes. in <i>Historical changes in fish assemblages of large American rivers.</i>; <i>Laboratory vs. Field Thermal Tolerances: A Review and Mechanisms Explaining Thermal Tolerance Plasticity.</i>; and, <i>Predictive Biological Information to Demonstrate the Passage and Maintenance of Representative Important Species. Demonstration Type III, Section 316(a) of Federal Water Pollution Control Act Amendments of 1972, PL 92-500 for Essex Generating Station.</i>, among others. These are enumerated in the References section of the final report.</p>
<p>(c) (1) Existing dischargers may base their demonstration upon the absence of prior appreciable harm in lieu of predictive studies. Any such demonstrations shall show:</p> <p>(i) That no appreciable harm has resulted from the normal component of the discharge (taking into account the interaction of such thermal component with other pollutants and the additive effect of other thermal sources to a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge has been made; or</p> <p>(ii) That despite the occurrence of such previous harm, the desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made.</p>	<p>(i) Ameren has demonstrated no appreciable harm has occurred from the thermal discharge at the Labadie Energy Center. The report details the presence of all trophic levels, the presence of necessary food chain species, the presence of diversity, the continued capability for a self-sustaining population, that heat tolerant species do not dominate the river in the vicinity of the LEC (outside of the allowed thermal mixing area), and, there is no increase of nuisance species due to the thermal discharge. The report also detailed there were no increase or decrease of indigenous species in the LEC vicinity, and there are no decrease in endangered species from the thermal discharge. Habitats were also identified as being maintained in the LEC vicinity, and the zone of passage (inverse of the mixing zone) is being maintained. The report also explains there is no noticeable change in commercial or sport species (upstream vs. downstream), no habitat former alterations, limited duration of any identifiable thermal effects, no sublethal or indirect effects, no presence of critical function zones within thermally exposed areas, and no negative interaction of the thermal discharge with other pollutants. There are no critical function zones (e.g., critical spawning and nursery areas) present within the Thermally Exposed and Downstream zones for any RIS. The predictive assessment also showed there would only be minor episodic exclusions from a small area of habitat within the thermally exposed zone and only under worst-case exposures.</p> <p>(ii) not applicable. The demonstration only needs to include (i) or (ii), and the facility chose (i).</p>

<p>(c)(2) In determining whether or not prior appreciable harm has occurred, the Director shall consider the length of time in which the applicant has been discharging and the nature of the discharge.</p>	<p>(c)(2) The Department has evaluated the historic thermal contribution of the Labadie Energy Center. Over time, the heat discharge has not changed significantly; all four units were installed in the 1970s and no additional units are planned for the LEC. The Department has reason to believe the effects of the Labadie Energy Center thermal discharge have no substantially greater effects in recent years as they have had on the past; and do not expect increased thermal components of future discharges. Air pollution control equipment is expected to be installed but the thermal component of the discharge used for cooling the condensers is not expected to increase.</p>
--	--

See Attachment 1 for
Complete Variance
Application



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

PUBLIC NOTICE

Ameren Variance CWC-V-4-20

Labadie Energy Center

DATE: June 19, 2020

The Missouri Department of Natural Resources hereby places the Ameren Labadie Energy Center Variance CWC-V-4-20 on public notice.

On the basis of preliminary staff review and the application of applicable state and federal regulations, the Missouri Department of Natural Resources, as administrative agent for the Missouri Clean Water Commission, proposes to recommend approval of the Ameren Labadie Energy Center Variance CWC-V-#-20. The proposed recommendation is tentative pending public comment.

Comments should be confined to the issues relating to the proposed action and the effect on water quality.

Those interested in commenting on the proposed variance are invited to submit comments in writing to the Department. Comments should be submitted by email at cleanwaterpermits@dnr.mo.gov or by mail to Attn: Pam Hackler, Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102. **All comments must be received or postmarked no later than July 27, 2020.** This public notice comment period has been extended from July 20, 2020.



Missouri Department of Natural Resources
Labadie Energy Center Thermal Variance CWC-V-4-20
Ameren Missouri – Labadie Energy Center Industrial Wastewater Discharge

The Missouri Department of Natural Resources and the Missouri Clean Water Commission hereby adopt an alternate limit for Missouri State Operating Permit #MO-0004812 as it relates to the water quality standards (WQS) for the Missouri River for temperature and thermal mixing, for the protection of aquatic life use.

Facility:

Ameren Missouri – Labadie Energy Center (LEC)
Permit No.: MO-0004812
County: Franklin
Discharge Type: single-pass condenser cooling wastewater
Treatment Components: None.
Design Flow: 1,428 MGD (outfall #001)

Waterbody:

Missouri River
USGS Basin & Sub-watershed No.: Labadie Creek – Missouri River 10300200-0603
Water Body Identification (WBID) Number and Hydrologic Class: WBID# 1604 (P)
Designated Uses: Protection of aquatic life – warm water habitat, drinking water supply, human health protection, irrigation, livestock and wildlife protection, whole body contact recreation (WBC-B), secondary contact recreation, and all general criteria.
Impairments: This river is on the 303(d) list for *E. coli*. The Department developed a TMDL for chlordane and PCBs in 2006; however, neither impairment is listed as being caused by this facility.

Factors Precluding Attainment:

This facility's discharge from outfall #001 is subject to the federal effluent limitation and permitting requirements of the Clean Water Act § 301 and 40 C.F.R. Part 122, as well as state requirements set forth in Missouri's WQS in 10 CSR 20-7.031(5)(D), establishing a limit of 90 degrees Fahrenheit (90 °F) and a thermal mixing zone of no more than 25% of the cross-sectional area or volume of the river.

The facility has indicated it cannot consistently meet the applicable temperature standard of 90 °F due to ambient river temperatures, at certain times of the year, that approach the maximum discharge allowance of 90 °F. This facility is also afforded mixing considerations; therefore, the zone of initial dilution and mixing zone of the river are meant to absorb and disseminate the thermal pollution being discharged from outfall #001. However, Missouri's WQS at 10 CSR 20-7.031(5)(D) also require thermal mixing zones to be limited to 25% of either the river's volume or its cross-sectional area. The facility's zone of thermal influence is greater than 25% of the river's volume at times.

This thermal variance allows the facility to increase the temperature of the Missouri River to over 90 °F by allowing a mixing zone size greater than 25% of the stream volume. To allow a thermal variance from the applicable WQS, the Department has confirmed items supplied by Ameren demonstrate the river, in the area of the Labadie Energy Center (LEC), has maintained a balanced and indigenous population of shellfish, fish, and wildlife in accordance with Clean Water Act § 316(a) (33 U.S.C. § 1326(a)) and 10 CSR 20-7.031(5)(D)1. and -6.

Alternative Limit Request:

On April 8, 2020, Ameren submitted a request for a CWA § 316(a) variance from the numeric temperature water quality criteria and mixing zone size for the LEC (See Appendix B, Thermal Variance Request). The requested variance proposed an alternate thermal limit of 0.95 "Thermal Discharge Parameter" (TDP) for most of the year that can be exceeded up to 22 days of the year only when the river flow is less than 40,000 cfs or the ambient river

temperature is greater than 87 °F, and secondarily, for the thermal zone of influence to never to exceed 40% of the river volume based on modeling of the heat interaction between the discharge and the river.

Ameren's request provided documentation demonstrating the standard thermal effluent limitations are more stringent than necessary to continue to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the Missouri River surrounding the Labadie Energy Center, in accordance with the criteria and standards for the determination of alternate effluent limitations under § 316(a) and 40 C.F.R. § 125.73.

Alternate Limit Requirements:

This thermal variance is the applicable WQS in effect for the purposes of developing Clean Water Act §301 National Pollutant Discharge Elimination System (NPDES) permit limit. Based on a thermal plume model, the Thermal Discharge Parameter is being implemented. The TDP of 1 represents of 90 °F and 25% mixing area for temperature for LEC's outfall #001 discharge. The previous permit incorporated a margin of safety of 0.05, thereby making the daily maximum limit (without consideration of a variance) of 0.95 TDP. Because the model bases the TDP on both 90 °F and a 25% mixing area, Ameren has also identified a need to exceed 0.95 TDP 22 days per year when the river temperature is greater than 87 °F or the river flow is below 40,000 cfs. When the TDP of 0.95 is exceeded, the variance will be in use. The variance incorporates a limit of a maximum of 40% of the river volume for mixing. The designated use and associated criteria remain applicable for all other Clean Water Act purposes, and all other uses and associated criteria not specified in this variance remain applicable for all Clean Water Act and Missouri Clean Water Law purposes.

Implementation of this § 316(a) variance will not result in the lowering of existing water quality. This variance establishes an alternate thermal effluent limitation of 40% mixing when the 0.95 TDP is exceeded, which will continue to assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife in and on this section of the Missouri River, in accordance with 40 C.F.R. § 125.70. The variance allows the facility to exceed the TDP of 0.95 for 22 days per year.

Alternate Limit Conditions:

Public Participation:

Public participation prior to the request for approval by the Missouri Clean Water Commission will occur pursuant to 40 C.F.R. § 124.57 and § 644.061, Revised Statutes of Missouri (RSMo). Missouri State Operating Permit #MO-0021768 will reflect the implementing conditions and requirements of the alternate effluent limits. The permit will go through public notice and comment pursuant to 10 CSR 20-6.020.

Term of Variance and Reevaluation:

As indicated by Ameren, the approximate end of useful life of the plant is in calendar year 2042. The term of this thermal variance is thereby limited to 22 years; the river conditions (flow or invasive species elements) should not change significantly over the next 22 years. This thermal variance is intended to expire when the plant is being retired. If the data or results of the 2020 study submission become invalid, inaccurate, or outdated, then Ameren will need to take steps to ensure the Department is aware of these changes or updates needed within the § 316(a) variance or permit conditions. The Department will reevaluate the conditions of the alternate limit upon each permit renewal.

Other Considerations:

NPDES Permit Limits and Considerations. This thermal variance will be used solely to establish alternate effluent limits for temperature and mixing zone area requirements in Missouri State Operating Permit #MO-0004812. This thermal variance will not be used for any other Clean Water Act or Missouri Clean Water Law purposes. Missouri's WQS at 10 CSR 20-7.031(5)(D)1. and -6. allow for demonstrations to expand the mixing zone and cause increases in ambient river temperatures greater than 90 °F in the standard mixing area.

Endangered or Threatened Species:

Protections for endangered or threatened species and their critical habitat. The Department and Ameren do not anticipate that the granting of this thermal variance will jeopardize threatened or endangered species or result in the destruction or adverse modification of such species' critical habitat. The Missouri Department of Conservation's Natural Heritage Review webpage queries records for species and natural communities of conservation concern. Based on the Natural Heritage Review for the Labadie Energy Center, the following federally or state-listed threatened or endangered species or critical habitats were identified for Franklin County in which the Missouri River would be expected to provide adequate habitat in the area of the Labadie Energy Center:

- Flathead Chub (*Platygobio gracilis*); fish; state endangered species
- Lake Sturgeon (*Acipenser fulvescens*); fish; state endangered species
- Pallid Sturgeon (*Scaphirhynchus albus*); fish; state and federal endangered species
- Sheepnose mussel (*Plethobasus cyphus*); mussel; state and federal endangered species

Appendices

Appendix A – Crosswalk Table between Labadie Energy Center Thermal Variance CWC-V-4-20 and 40 C.F.R. Part 125

Appendix B – Thermal Variance Request, April 8, 2020

Appendix A

Crosswalk between LEC Thermal Variance CWC-V-4-20 and 40 C.F.R. Part 125 Subpart H

40 C.F.R. Part 125 Subpart H	
40 C.F.R. § 125.72	
<p>(a) Any initial application for a section 316(a) variance shall include the following early screening information:</p> <p>(1) A description of the alternative effluent limitation requested;</p> <p>(2) A general description of the method by which the discharger proposes to demonstrate that the otherwise applicable thermal discharge effluent limitations are more stringent than necessary;</p> <p>(3) A general description of the type of data, studies, experiments and other information which the discharger intends to submit for the demonstration; and</p> <p>(4) Such data and information as may be available to assist the Director in selecting the appropriate representative important species.</p>	<p>(a) the application included:</p> <p>(1) the facility will be complying with the “Thermal Discharge Parameter” (TDP) as provided by an approved model in lieu of numeric limits in degrees Fahrenheit. The Department has granted the TDP of 0.95; this includes a 0.05 TDP margin of safety. The TDP is a unitless parameter. The variance will provide a larger zone of mixing (greater than 25% of the river’s volume or area) for 22 days per year based on a computer-generated model’s output values. No upper TDP value is assigned when utilizing the thermal variance, although the mixing percentage will be increased from 25% up to 40% of the river.</p> <p>(2) Ameren has used a model to show the relationship between the thermal discharge component and the river’s flow. Model output has provided the basis of the numeric TDP limits. The biotic sampling has shown the balanced and indigenous population is not adversely affected by the thermal discharge.</p> <p>(3) Ameren has provided the results of an extensive biotic community study and the results of the study concluded the aquatic species were balanced and indigenous in the vicinity of the LEC.</p> <p>(4) Ameren and the Department coordinated to select Representative Important Species (RIS); these species were selected for the justification listed. Channel catfish (recreational species); Emerald shiner (important food chain species); Gizzard shad (important food chain species); Pallid sturgeon (endangered species); Walleye/sauger (recreational and</p>

	temperature sensitive species); White crappie (recreational and temperature sensitive species)
40 C.F.R. § 125.73	
<p>(a) Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.</p>	<p>As demonstrated in the variance submittal, effluent limitations in the Labadie Energy Center permit for temperature in the summer months are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of aquatic species. The Department has reviewed the 316(a) Demonstration Study, submitted by Ameren on April 8, 2020. The study met the requirements of demonstrating the balanced and indigenous populations are present and fecund in the vicinity of the Labadie Energy Center. During the summer, the thermally sensitive fish species tend to migrate from the vicinity of the Labadie Energy Center upstream into cooler waters, therefore are all but absent during the summer months; the expected time when the mixing zone will need to expand under the variance. For the rest of the year, fish species are expected to actively avoid the thermal plume. For life stages unable to swim (larva; fry) the time in contact with the thermal plume is minimal. When river flows are normal (38,000-68,000 cfs), floating organisms pass through the area in 1.5 hours. The 316(a) study comprised of monitoring, through various sampling techniques, different portions of the biotic community, including benthic, macroinvertebrates, phytoplankton, zooplankton, meroplankton, fish, and other vertebrates. Secondly, the thermal confirmation study was meant to assure the computer model numerically represented the discharge's effect on the receiving river. During the last permit term, conditions specified Ameren must sample during periods of low river flow, or high river temperature. On-site thermal sampling of the vicinity of the Labadie Energy Center during these conditions supported the computer modeling of the extent of the thermal plume.</p> <p>Alternative effluent limitations for the discharge is expressed as a Thermal Discharge Parameter, TDP. The facility will be afforded a TDP limit of 0.95 under normal conditions. This is a ratio of heat from the discharge to ambient heat in the river. The thermal variance allows for a mixing zone greater than 25%, which will not exceed 40% of the river's volume at any time. The variance is only granted for 22 days per year.</p> <ul style="list-style-type: none"> • A TDP of greater than 0.95 will be allowed under conditions when the river flow is less than 40,000 cubic feet per second (cfs) or ambient river temperatures are greater than 87.0 °F; • A TDP of greater than 0.95 will be allowed in no more than 6 percent of the days in any calendar year (i.e., 22 days or 528 hours); and

	<ul style="list-style-type: none"> • On any day where the TDP is greater than 0.95, the mixing zone must be less than 40% of the volume of the river as calculated by the established equations.
<p>(b) In determining whether or not the protection and propagation of the affected species will be assured, the Director may consider any information contained or referenced in any applicable thermal water quality criteria and thermal water quality information published by the Administrator under section 304(a) of the Act, or any other information he deems relevant.</p>	<p>In the thermal variance request document, Ameren cited numerous other studies of the existing organisms (including endangered species), organismal habitat requirements (including thermal tolerances), and existing river conditions; these documents support the final decision. These studies include: <i>Pallid Sturgeon Population Assessment and Associated Fish Community Monitoring for the Missouri River: Segment 14.</i>, <i>Spatiotemporal patterns and changes in Missouri River fishes.</i> in <i>Historical changes in fish assemblages of large American rivers.</i>; <i>Laboratory vs. Field Thermal Tolerances: A Review and Mechanisms Explaining Thermal Tolerance Plasticity.</i>; and, <i>Predictive Biological Information to Demonstrate the Passage and Maintenance of Representative Important Species. Demonstration Type III, Section 316(a) of Federal Water Pollution Control Act Amendments of 1972, PL 92-500 for Essex Generating Station.</i>, among others. These are enumerated in the References section of the final report.</p>
<p>(c) (1) Existing dischargers may base their demonstration upon the absence of prior appreciable harm in lieu of predictive studies. Any such demonstrations shall show:</p> <p>(i) That no appreciable harm has resulted from the normal component of the discharge (taking into account the interaction of such thermal component with other pollutants and the additive effect of other thermal sources to a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge has been made; or</p> <p>(ii) That despite the occurrence of such previous harm, the desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made.</p>	<p>(i) Ameren has demonstrated no appreciable harm has occurred from the thermal discharge at the Labadie Energy Center. The report details the presence of all trophic levels, the presence of necessary food chain species, the presence of diversity, the continued capability for a self-sustaining population, that heat tolerant species do not dominate the river in the vicinity of the LEC (outside of the allowed thermal mixing area), and, there is no increase of nuisance species due to the thermal discharge. The report also detailed there were no increase or decrease of indigenous species in the LEC vicinity, and there are no decrease in endangered species from the thermal discharge. Habitats were also identified as being maintained in the LEC vicinity, and the zone of passage (inverse of the mixing zone) is being maintained. The report also explains there is no noticeable change in commercial or sport species (upstream vs. downstream), no habitat former alterations, limited duration of any identifiable thermal effects, no sublethal or indirect effects, no presence of critical function zones within thermally exposed areas, and no negative interaction of the thermal discharge with other pollutants. There are no critical function zones (e.g., critical spawning and nursery areas) present within the Thermally Exposed and Downstream zones for any RIS. The predictive assessment also showed there would only be minor episodic exclusions from a small area of habitat within the thermally exposed zone and only under worst-case exposures.</p> <p>(ii) not applicable. The demonstration only needs to include (i) or (ii), and the facility chose (i).</p>

<p>(c)(2) In determining whether or not prior appreciable harm has occurred, the Director shall consider the length of time in which the applicant has been discharging and the nature of the discharge.</p>	<p>(c)(2) The Department has evaluated the historic thermal contribution of the Labadie Energy Center. Over time, the heat discharge has not changed significantly; all four units were installed in the 1970s and no additional units are planned for the LEC. The Department has reason to believe the effects of the Labadie Energy Center thermal discharge have no substantially greater effects in recent years as they have had on the past; and do not expect increased thermal components of future discharges. Air pollution control equipment is expected to be installed but the thermal component of the discharge used for cooling the condensers is not expected to increase.</p>
--	--

See Attachment 2 for
Public Comments
Received

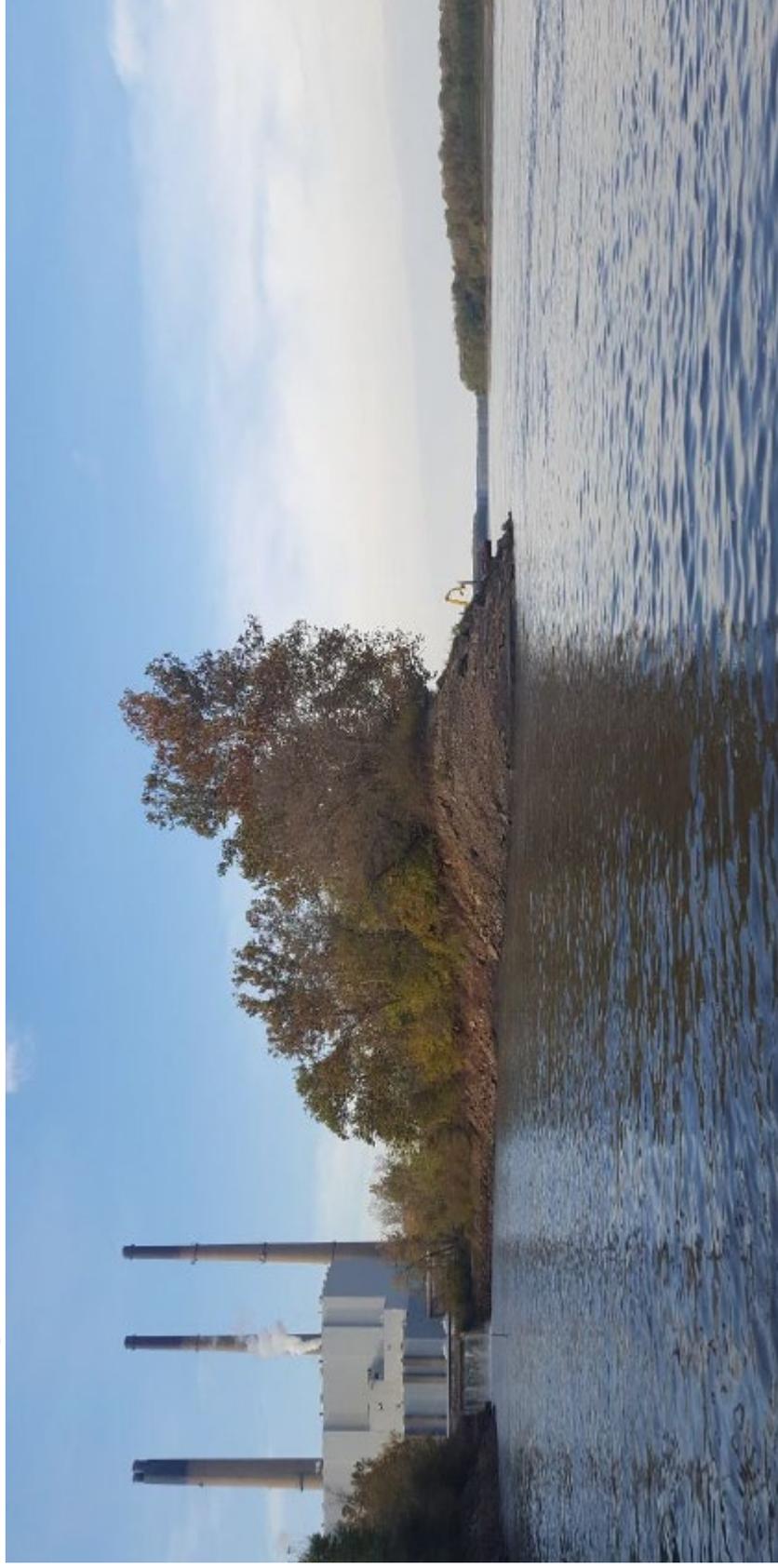


MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Ameren Labadie Thermal Variance

Pam Hackler
Missouri Department of Natural Resources
Environmental Program Specialist
Water Protection Program - Operating Permits

CWA §316(a) – Allowances for Thermal Variances

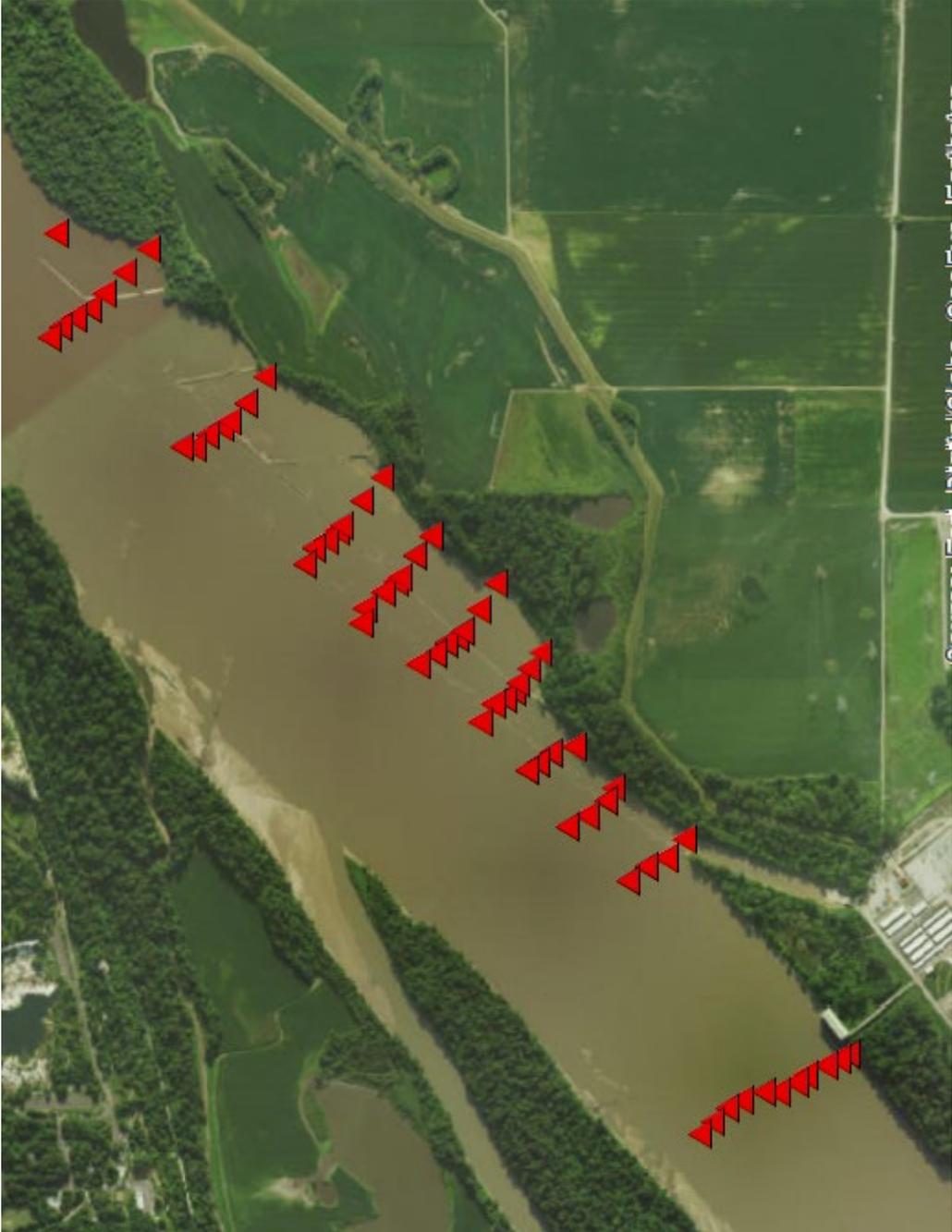


- The Clean Water Act
 - Section 316(a)
 - Codified at 40 CFR 125 Subpart H
 - 125.70 through 125.73

The TDP

- Thermal Discharge Parameter
- Approved for use in May 2017 permit modification
- Better explained by saying the TDP is the size of the mixing zone compared to 25% of the river's volume
 - Hotter river, larger mixing zone, higher TDP value
 - Margin of safety built in to permit limit

On-Site Thermal Model Verification



Missouri's Applicable WQS

- Temperature
 - 10 CSR 20-7.031(5)(D)1.
 - For warm water habitats:
 - Maximum daily temperature of 90 °F
 - Maximum change in temperature ± 5 °F
- Mixing Zone Size
 - 10 CSR 20-7.031(5)(D)6.
 - 25% of the total stream volume
 - 316(a) biological survey allowed to expand mixing zone



Mixing Zone Size - Input Dependents

- River flow
- Facility discharge flow
- Discharge temperature
- River temperature

- 25% of total river volume - below this value most of the time

Water Quality vs. Technology Limits

For BAT requirements, the following section is outlined following the requirements found in 40 CFR 125.3(d)(3):

1. Age of equipment and facilities involved
2. Processes employed
3. Process changes
4. Engineering aspects of the application of various types of control techniques
5. Non-water quality environmental impact including energy requirements
6. Total cost of application of technology in relation to the effluent reduction benefits to be achieved from the technology, and the cost of achieving such effluent reduction.

The Need for the TDP

To calculate the temperature of the stream at the edge of the mixing zone, the facility will use the following equation: Designated as T_{emz} in the equation below, the facility can determine compliance with T_{dev} , T_{cap} , and percent time deviation allowance.

$$T_{\text{emz}} = [((Q_s/4)T_s + Q_e T_e) / ((Q_s/4) + Q_e)]$$

T_{emz} the temperature of the receiving stream at the edge of the thermal mixing zone

$Q_s/4$ the receiving stream flow in cfs divided by 4

Q_e effluent flow in cfs

T_s measured stream temperature

T_e measured temperature of effluent

- The TDP authorizes the same 90 °F requirement
 - Very site specific
 - Not part of the variance

Mixing Zone Size – Compliance Considerations

- Days vs. Hours
- Zones in the Study
 - What part of the river must comply with variance
 - Outside mixing area
 - What part of the river is not required to comply with variance
 - Discharge Canal/Zone
 - Thermally Exposed Zone
- Upstream vs. Downstream

Balanced and Indigenous Population

- BIP definition
 - Synonymous with BIC
- Representative Important Species (RIS)
 - Endangered species
 - Invasive species
- Zone of Passage
- BIP outside thermal zones
- BIP changes in summer

Variance Process

OUTFALL #001 <i>single pass cooling</i>		TABLE A-1 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) as specified. The final effluent limitations shall become effective on Effective Date and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:						
EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: T ▲						
PHYSICAL						
Flow, Effluent (Qe)	MGD	*		*	continuous	24 hr. total
Flow, Effluent (Qe)	cfs	*		*	continuous	instantaneous
Flow, Stream Net (Qs-Qi)	cfs	*		*	continuous	calculation
Temperature, Effluent (Te)	°F	*		*	continuous	measured
Thermal Discharge Parameter (TDP)	value	0.95		*	continuous	calculation
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MONTH 28, 20XX						
LIMIT SET: TV (THERMAL VARIANCE) ◆						
TDP	value	*		*	continuous	calculation
Mixing Zone	%	40		*	continuous	calculation
Time Variance Used	hours	* total ◆		528 ◆	continuous	calculation
MONITORING REPORTS SHALL BE SUBMITTED WHEN THE THERMAL VARIANCE IS USED. A REPORT IS NOT DUE IF THE VARIANCE IS NOT BEING USED. IF THE VARIANCE IS USED, THE REPORT IS DUE ON THE 28 TH DAY OF THE MONTH FOLLOWING THE VARIANCE USE.						

- Clean Water Commission either approves or denies variance
- If approved, implementation in permit

The Labadie Variance – Conclusion

- Summary
 - The variance only allows exceedance of WQS for 528 hours per year (22 days)
 - The discharge has been ongoing for 50 years
 - The variance is only needed during any or all of the following conditions:
 - Drought
 - Low River Flow
 - High River Temperature
- Sunshine Request: DNR.mo.gov



316(a) Variance
Labadie Energy Center

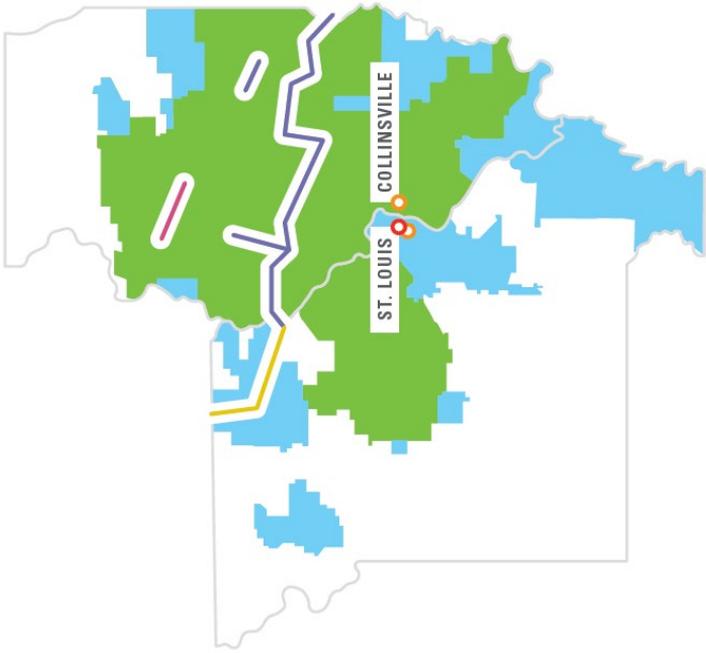
About Ameren

Ameren Corporation is a Fortune 500, fully rate-regulated electric and gas utility company headquartered in St. Louis.

We pride ourselves on operating safely and maintaining financial strength while providing reliable, reasonably priced energy in an environmentally responsible fashion.



Service Territory



- Corporate Headquarters
- Subsidiary Headquarters
- Electric Service Territory
- Electric & Natural Gas Territory
- Transmission Line Projects**
- Mark Twain River
- Spoon River
- Illinois Rivers



This integrated utility owns a mix of energy centers with 10,200 megawatts of electric generation capacity. It is the second largest gas distributor in Missouri.



This delivery-only utility is the second largest distributor of electricity and third largest distributor of natural gas in Illinois.



This subsidiary is dedicated to electric transmission infrastructure investment and expanding Ameren's already robust system of high-voltage lines.

316(a) Variance

Labadie Energy Center – Craig J. Giesmann, P.E., P.M.P.; Ameren Missouri

- MDNR's decision to support the proposed variance under CWA 316(a) is well supported by the technical record – Ameren would like to highlight a few items for the general public.
 - Dry Ash Handling – reduces water withdrawal from Missouri River
 - Ash Ponds Capped and Closed
 - Extensive Biological Studies in the Missouri River

316(a) Variance

Labadie Energy Center – Craig J. Giesmann, P.E., P.M.P.; Ameren Missouri

- Why Do We Need a Variance?
 - Frequency
 - Zone of Passage
- Conducted Specific Studies to Evaluate Thermal Impacts
- Developed a Site-Specific Thermal Model Using State of the Art Software
- Extensive Consultation with Agencies

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



Current Permit Thermal Effluent Limitations

- Improved WQBEL
 - Thermal Discharge Parameter, $TDP \leq 0.95$
 - Incorporates combined effect of:
 - background river temperature and flow
 - facility discharge temperature and flow
 - Discharge compliance with TDP ensures river compliance with WQS **for any and all conditions**
 - River temperature outside 25% MZ will not exceed 90°F or 5°F above background temperature
 - Built in 5% Margin of Safety, i.e., $TDP = 1.0$ ensures compliance
 - + other conservative measures

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



Need for 316(a) Variance

- At times, compliance with TDP = 0.95 is not possible without cessation or severe curtailment of electricity production
 - This occurs during very high background river temperatures and/or very low river flows
 - These are times when electricity is most needed
 - These conditions have occurred less than 1% of the time over the long term; less than 6% of time in one year

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



316(a) Variance History

- Previous Labadie NPDES permits included 316(a) variance effluent limitations before August 2015
 - By definition, 316(a) variance limitations are less stringent than WQBEL
- Current NPDES permit required a biological monitoring program to determine if any 316(a) variance effluent limitations could be allowed
- **Labadie Energy Center 316(a) Final Demonstration**, April 2020

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder

316(a) Variance Demonstration

- *Final Demonstration* supports a 316(a) variance
- For over 40 years, Labadie facility has operated under 316(a) variance effluent limitations that were less stringent than the applicable WQBEL
- 50 years of operation with no appreciable harm to balanced indigenous community (BIC) in the river
- Therefore, compliance with WQBEL is more stringent than necessary to protect BIC
- Continuing a 316(a) variance will assure protection and propagation of BIC

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



316(a) Variance Format

- *Final Demonstration* supports continuing prior 316(a) variance effluent limitations
- Better approach – permit variance limitations that are substantively same as the current improved WQBEL
 - Allow a limited exception during infrequent extreme river conditions consistent with past facility operation
 - **NO CHANGE / RELAXATION IN FACILITY OPERATION**
 - **NO CHANGE IN IMPACT TO BIC**
 - **EXCEEDANCES OF TDP ONLY AT SPECIFIC TIMES; CONSTRAIN HOW OFTEN IT CAN OCCUR**
 - **COMPLIANCE WITH TDP ALL OTHER TIMES**

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



316(a) Variance Format

- Requires compliance with TDP limitation during most conditions
- During specific conditions, allow TDP > 0.95
- Limited to times when:
 - River flow < 40,000 cfs, or
 - Background river temperature > 87°F
- Limited to ≤ 6% of time in any calendar year
- Require MZ ≤ 40% of river flow during specific conditions based on 316(a) Final Demonstration analysis of most critical event
 - Maintains **minimum 60% zone of passage (ZoP) always and everywhere**
 - Minimum 60% ZoP occurs only for limited stretch of river; greater than 60% ZoP everywhere else
 - >75% ZoP all other times

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



Compliance and Reporting

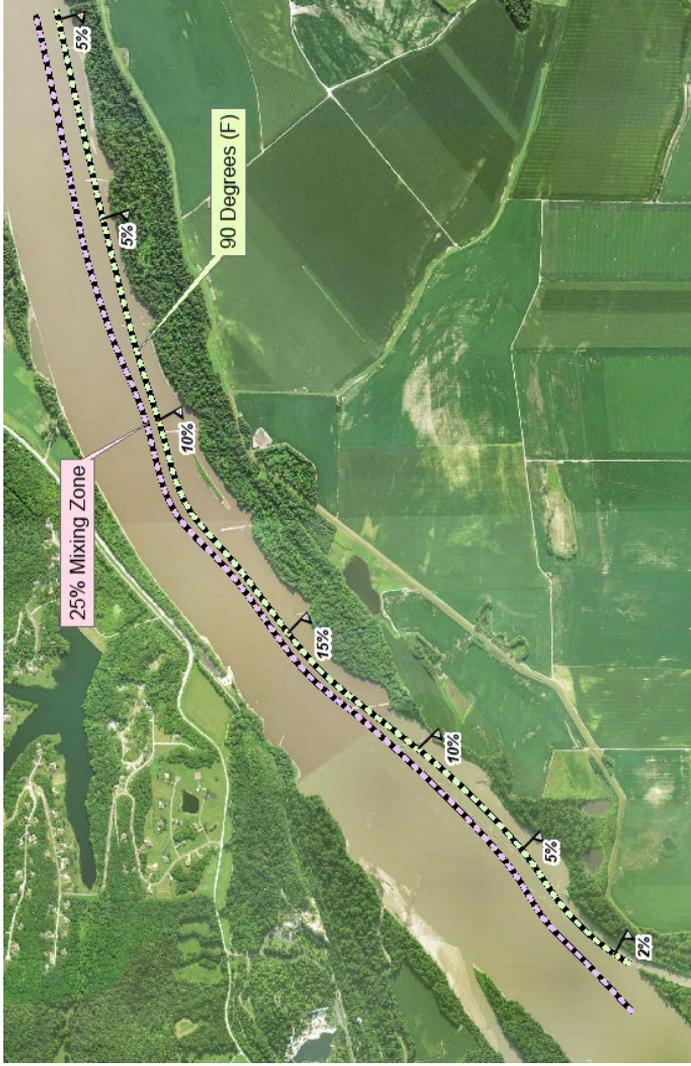
- Two Parts to the Variance Thermal Effluent Limitations:
 - Nearly all of the time (in many years it will be all of the time):
 - The variance effluent limitation is equal to the current WQBEL, i.e., $TDP \leq 0.95$
 - This is a daily limit as specified in the current permit and calculated in accordance with equations specified in the current permit.
 - Therefore, ***no change from the current permit nearly all of the time.***
 - For a maximum of 528 hours in a year (in many years it will not be used):
 - The variance effluent limitation is Mixing Zone $\leq 40\%$ of river flow.
 - This is a daily limit consistent with the current permit effluent limitation, and calculated in accordance with the equation specified in the current permit.
 - Ameren expects to invoke this alternate effluent limitation in 24 hour increments ***limited to a maximum of 528 hours in any individual year (many years no hours).***

316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



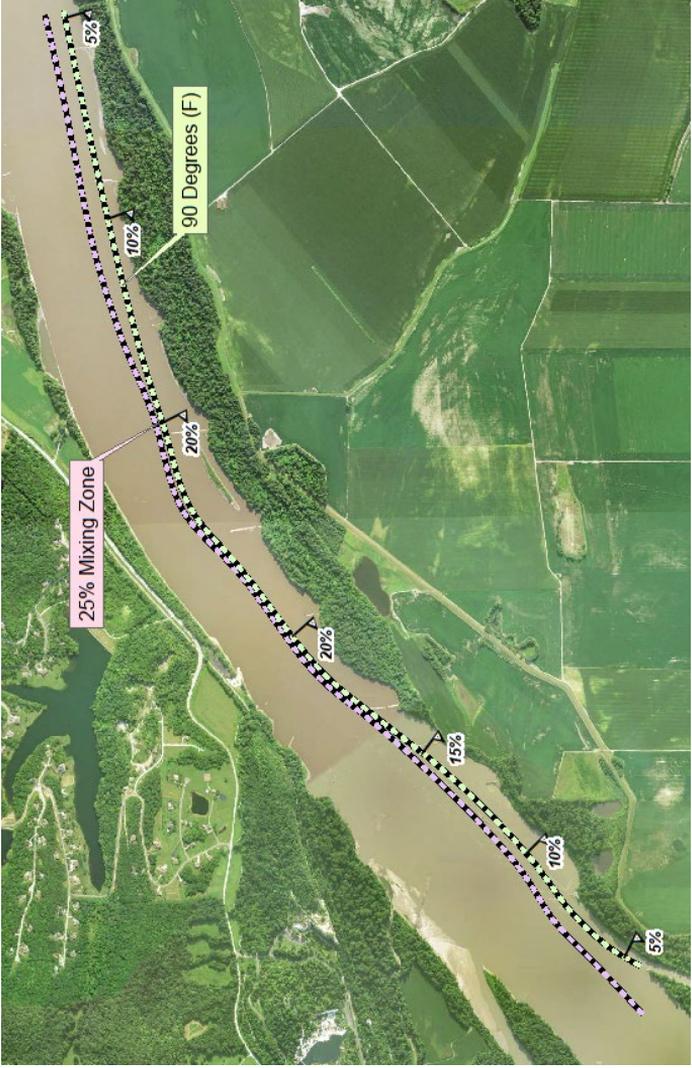
Illustration of Non-Variance Condition



316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder

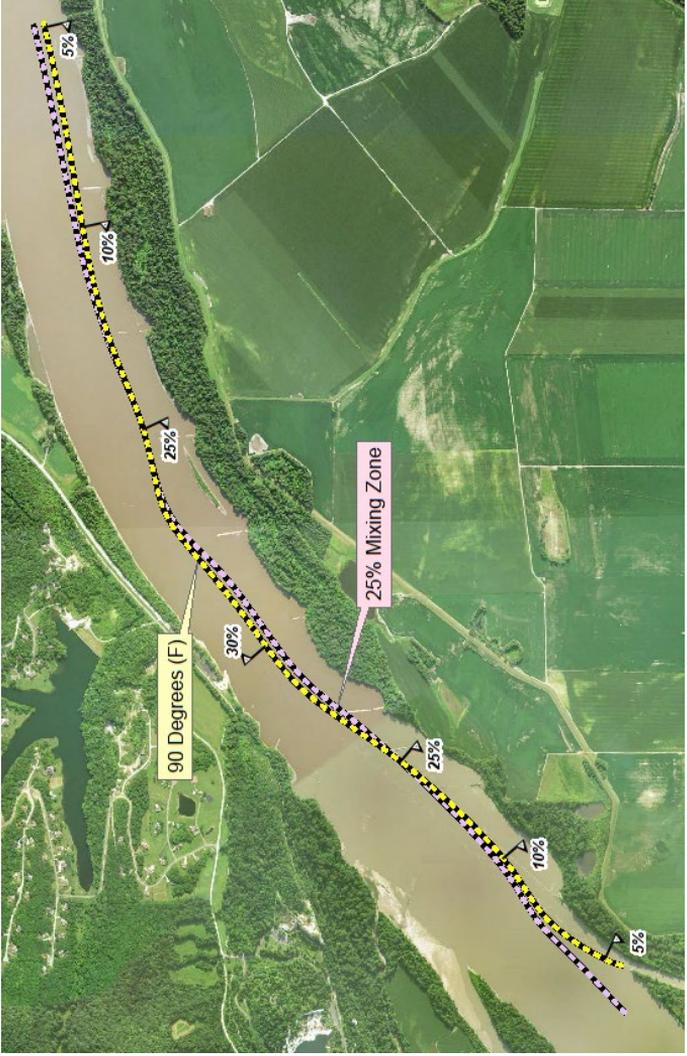
Illustration of Non-Variance Condition



316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder

Illustration of Variance Condition



316(a) Variance

Labadie Energy Center – Ray Ferrara, Ph.D.; Principal, Kleinfelder



316(a) Variance Aspects

- More stringent than allowed in prior permits
 - Prior permits allowed effluent limit < WQBEL at any time and without constraint
- Can only be used under specific extreme conditions
 - It will not be used in many years
- Can not be used more than 6% of the time per year
- Stringent MZ: ZoP \geq 60% always and everywhere
 - 60% ZoP only for limited stretch of river & limited time
 - > 75% ZoP at all other times
- Multiple levels of conservatism built into the calculation of the size of the mixing zone

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



Description of 316(a) Thermal Demonstration

- Thermal Demonstration performed in conjunction with ASA; Wood conducted all field studies and laboratory work
- Consisted of two key elements:
 - Retrospective Assessment—evaluation of “prior appreciable harm”
 - Predictive Assessment—evaluate whether proposed alternative effluent limits will assure the protection and propagation of the “balanced indigenous community” (BIC)

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions

Approved Study Plan and Procedures

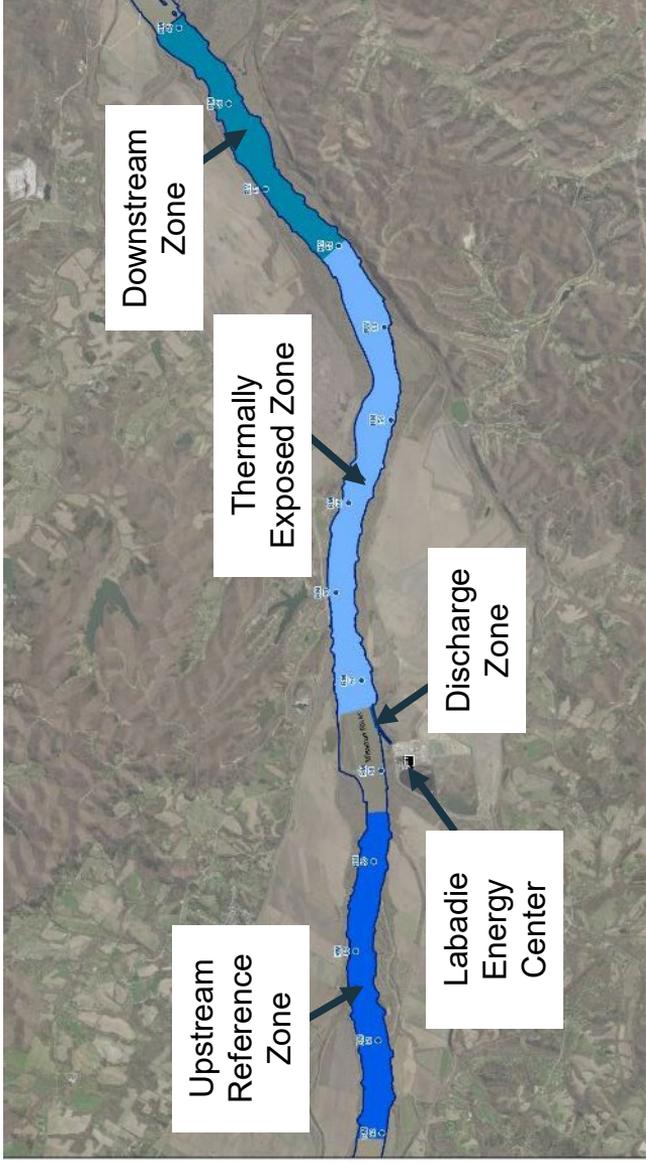
- Approved by MDNR
- Comprehensive in scope:
 - fish and benthic communities
 - range of gear types chosen, variable life stages targeted, benthic and pelagic sampling
- Established Procedures: Standard Operating Procedures, Quality Assurance Project Plan, and Health & Safety Plan
- External Review/Assessment:
 - Dr. Charles Coutant (distinguished research ecologist, Oak Ridge National Laboratory, retired)
 - Examined study plans and results of first year of field studies

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions

2017-2018 Field Studies – Sampling Zones

- Four sampling zones established based on field validated thermal model



316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions

2017-2018 Field Studies – Sampling Techniques

- Habitat characterization—identify comparable habitats among zones
 - Multiple habitats sampled within each zone
- Fish sampling: electrofishing, mini-Missouri trawling, bag seining, hoop nets, and ichthyoplankton tows (eggs/larvae)
- Benthic macroinvertebrate sampling:
 - Artificial substrates (Hester Dendy samplers)
 - Natural substrates (Ponar grabs)
- Total of 19 discrete sampling locations were sampled monthly

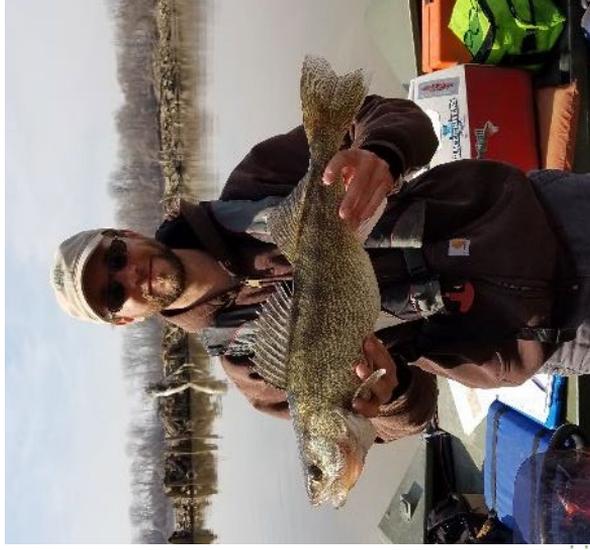
316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



2017-2018 Field Studies – Juvenile and Adult Fish

- Fish were sorted by species, measured for total length (mm), weighed (g), and checked for abnormalities



316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



Wood Ecology Laboratory – Larval Fish and Macroinvertebrates

- Sample processing and taxonomic identifications performed:
 - Utilized high-end polarizing microscopes,
 - Trained taxonomists
 - Taxonomic keys and reference collections
 - Established protocols and methods



Carp sucker/buffalo



Silver carp



Chematospyche sp. *Stenonema femoratum*

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



Predictive Assessment

- Evaluated potential effects on the BIC during thermal variance conditions:
 - Focused on Representative Important Species (RIS)
- Evaluated thermal variance conditions not frequently encountered (two days reflecting the most extreme conditions over 17-year record)
 - worst-case spawning and nursery condition
 - worst-case summer condition
- Assessed impacts based on thermal tolerance data of RIS (e.g., upper incipient lethal temperature, avoidance temperatures)

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



Predictive Assessment – RIS

- Six RIS fish species evaluated:
 - Channel catfish (recreational species)
 - Emerald shiner (important food chain species)
 - Gizzard shad (important food chain species)
 - Pallid sturgeon (endangered species)
 - Walleye/sauger (recreational and temperature sensitive species)
 - White crappie (recreational and temperature sensitive species)

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions

Criteria Used to Evaluate Appreciable Harm

- Eighteen (18) decision criteria from EPA were used for evaluating appreciable harm.
- A weight-of-evidence approach using multiple lines of evidence was used to evaluate the decision criteria and determine whether there has been appreciable harm to the BIC.

316(a) Variance

Labadie Energy Center – Bill Elzinga, MS; Wood Environment & Infrastructure Solutions



Absence of Appreciable Harm

- Evaluated EPA's 18 decision criteria
- Retrospective Assessment:
 - Demonstrated that **no prior appreciable harm** has occurred after nearly 50 years of operation.
- Predictive Assessment:
 - The 316(a) thermal variance **will insure** the protection and propagation of the BIC in the vicinity of Labadie.
 - A large zone of passage is maintained at all times (minimum 60% zone of passage). The Labadie's thermal plume does not represent a barrier to drift of ichthyoplankton to downstream areas.



1 MISSOURI CLEAN WATER COMMISSION
2
3
4
5 Proposed Thermal Variance
6 Missouri State Operating Permit
7 Ameren Labadie Energy Center
8 Missouri State Operating Permit No. MO 0004812.
9
10

11 PUBLIC HEARING

12

13 SEPTEMBER 1, 2020

14 5:00 P.M.

15

16 VIA WEBEX

17

18

19

20

21

22

23

24

25

1	INDEX	
2		
3	PRESENTERS	Page
4	CRAIG GIESMAN of Ameren	9
5	DR. RAY FERRARA.....	13
6	BILL ELZINGA	24
7		
8	PAM HACKLER of DNR	28
9	TARA ROCQUE of Washington University	41
10	PETER GOODE	52
11	TARA ROCQUE - Further Comment	105
12		
13	CALL-IN STATEMENTS	
14	CHRISTINE ALT	60
15	JUDY WALTER	62
16	JIM KARPOWICZ	66
17	JANET DITTRICH	67
18	MARY CULLER	71
19	SCOTT MANSKER	73
20	LLOYD KLINEDINST	77
21	BRETT DUFUR	80
22	SUZANNE JACKSON	82
23		
24		
25		

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

INDEX CONTINUED

PATRICIA SCHUBA 84
ANDY KNOT 88
ABIGAIL LAMBERT 90
AMY BONSALL 91
LENSYR URBANO 96
LEAH CLYBURN 97
LISA ZERBE 102

1 APPEARANCES:

2

3 MR. JOHN REESE

4 Missouri Clean Water Commission

5

6 MS. HEATHER PETERS

7 Water Protection Operating Permit Section

8

9

10

11

12

13

14

15

16 REPORTED BY:

17 Joyce Lawrence

18 CSR-IL, RPR, CCR-MO

19 Alaris Litigation Services

20 15 S. Old State Capitol Plaza

21 Springfield, Illinois 62701

22

23

24

25

1 (Hearing commenced at 5 p.m.)

2 MS. REECE: Good evening. I'm John
3 Reece, member of the Missouri Clean Water
4 Commission.

5 Before I retired in 2011, I worked in
6 water pollutant collection treatment and water
7 pollution control for 48 years. My background and
8 my three years on the Clean Water Commission, I
9 feel, qualified me to moderate and preside over this
10 hearing.

11 Before we get started with the
12 presentations, I would like to read the following
13 for the purpose of this hearing:

14 The Commission will begin the public
15 hearing on the proposed thermal variance for the
16 Missouri State Operating Permit for Ameren Labadie
17 Energy Center, Missouri State Operating Permit No.
18 MO 0004812. The purpose of the public hearing is to
19 provide the Department opportunity to present
20 testimony and to provide both the Department and the
21 public the opportunity to comment on the proposed
22 thermal variance and alternative effluent limits for
23 this facility. The public comment period will end
24 at the conclusion of this hearing.

25 Comments and concerns that are not

1 related to the proposed thermal variance are outside
2 the scope of this action and public hearing. This
3 public hearing is not a forum for debate or
4 resolution of issues.

5 Following the public hearing today, the
6 Commission will review testimony presented, as well
7 as written comments that are submitted, and make a
8 decision on the thermal variance request at its
9 October 26, 2020 meeting. The location of the
10 meeting will be either at the state office building
11 or via Webex and conference call.

12 Please note, if the request for thermal
13 alternative effluent limits is approved by the Clean
14 Water Commission, the alternative effluent limits
15 would not be final until implemented in a valid,
16 legal permit. The draft permit would also include a
17 public participation process, including a public
18 comment period on the entire draft permit.

19 With that said, the agenda of this
20 meeting is as follows: The Commission will first
21 hear testimony from Ameren Missouri, then the
22 Missouri Department of Natural Resources, followed
23 by a presentation from Washington University School
24 of Law. The presenters for those three entities
25 will be Meghan Kolbush and Craig Giesman from

1 Ameren, Pam Hackler from the Missouri Department of
2 Natural Resources, and Tara Rocque from Washington
3 University.

4 The moderator for the presentations and
5 speakers will be Heather Peters with the Water
6 Protection Program's Operating Permit Section. She
7 will explain the guidelines and the process for this
8 public hearing. This hearing will conclude at 8
9 p.m.

10 So with that, I would like to turn the
11 hearing over to Pam.

12 MS. PETERS: Hi. This is Heather Peters.
13 We wanted to let everyone know this hearing is being
14 recorded. You are all currently muted. Please
15 remain muted until it is your turn to speak. The
16 facilitators will then unmute you.

17 Those who have registered with Krista
18 Welschmeyer will be allowed to speak. When offering
19 testimony, we ask that you identify yourself for the
20 record and speak clearly. Respectfully, we ask that
21 only one person speaks at a time. If at any point
22 during the hearing you wish to speak, please email
23 Krista Welschmeyer at kristawelschmeyer@dnr.mo.gov
24 or privately message her in your chat.

25 If time is available, we will add

1 additional speakers.

2 In the interest of time, we ask that you
3 take into consideration -- you take into
4 consideration and reduce repetition of the same
5 comment. If your comment or concern has been
6 shared, we ask that the comment is not repeated.
7 Each comment will be reviewed equally, regardless of
8 the number of times it is received. Each speaker
9 will be limited to four minutes. At the end of the
10 four-minute hearing, you will hear an alarm before
11 you are remuted.

12 The Department asks all individuals
13 participating in this hearing conduct themselves in
14 a respectful and calm matter. Unacceptable behavior
15 including unmuting your line or making a sensitive
16 or inappropriate chat message to the group --
17 unacceptable behavior includes unmuting your line or
18 making offensive or inappropriate chat messages to
19 the group. Anyone that violates the guidelines of
20 this meeting may be removed from the webinar.

21 Please note that, while this meeting is
22 being recorded, the chats may not be preserved. So
23 official comments may not be submitted through the
24 chat.

25 In advance, the Department thanks you for

1 taking the time to participate in our efforts to
2 protect our environment and preserve our water
3 resources. Responsive to the public hearing
4 comments, as well as other comments received during
5 the public notice period, will be taken into
6 consideration by the Clean Water Commission and
7 addressed in writing once a final decision has been
8 made. No responses to comments will be provided
9 this evening.

10 Also, for those of you that are new to
11 our webinar system, if you are having any sort of
12 connection issues, we do recommend turning off your
13 video. Sometimes that will save some data and make
14 it easier to view this webinar.

15 At this point in time, we are going to
16 turn over and start with our first presentation from
17 Ameren Missouri. And with that, I will turn it over
18 to Meghan and Craig.

19 MR. GIESMAN: Well, thanks, Heather.

20 My name is -- as she pointed out, my name
21 is Craig Giesman with Ameren Missouri. I am the
22 senior manager for our environmental services at
23 Ameren.

24 I'm going to do my best here to share my
25 screen. There we go.

1 So Heather, if there is an issue with not
2 being able to see the screen or if there is an audio
3 issue, please let me know, if you would.

4 So just to begin, I just have a few
5 different slides for describing a little bit about
6 Ameren that I'm not planning to speak to. But just
7 to be made part of the presentation and be complete,
8 I wanted to include those.

9 And so again, I'm just going to jot
10 through a couple of these slides real quickly.
11 Again, just a little bit about Ameren before we get
12 started.

13 Okay. So again, we have recently
14 completed several significant projects at Labadie
15 that are beneficial to the Missouri River. Through
16 one of those projects, we converted our ash handling
17 systems to a dry process. And as a result, we have
18 saved millions of gallons of water that's no longer
19 needed in this process. We were also on track to
20 complete the capping enclosure of our ash ponds at
21 Labadie this year and have additionally completed
22 construction of some state-of-the-art wastewater
23 treatment facilities there, as well.

24 Through our Clean Water Act 316(a) and
25 (b) studies, we have conducted an extensive

1 assessment of the biological community within the
2 river and are pleased to report that, after 50 years
3 of operations, there has been no appreciable harm as
4 a result of Labadie's thermal discharge. Those
5 studies were conducted and supported by ASA, Wood
6 Environmental and Dr. Charles Coutant, one of the
7 premier experts in the country on thermal impacts.

8 And in just a few minutes, we have Bill
9 Elzinga, who is part of Wood Environmental, that
10 will describe some of the technical work that went
11 into the Clean Water Act 316(a) Thermal
12 Demonstration Reports.

13 So why do we need a variance?

14 Let's talk a little about the zone of
15 passage first. It's important for the public to
16 know that Labadie almost always operates within the
17 existing 90-degree thermal water quality standard.
18 Only in extreme conditions and, for example, when
19 the ambient or background water coming into the
20 plant starts to approach this 90-degree threshold,
21 would we need to make use of the relief outlined in
22 the proposed variance. Even during stress times,
23 there is a large zone of passage that complies with
24 the water quality standards. Through the use of a
25 sophisticated thermal model, we were able to predict

1 temperatures within the river downstream from
2 Labadie.

3 And again, in just a few minutes, we have
4 also got Dr. Ray Ferrara here that will make a short
5 presentation describing that model and the thermal
6 discharge parameter used in the permit to ensure
7 compliance.

8 In terms of process, I would like to
9 thank the Agency for reviewing the draft submissions
10 of the report. This allowed Missouri Department of
11 Natural Resources to solicit input from other state
12 and federal agencies. We arrived at the aspects of
13 the demonstration reports based on that input and
14 responded to the Agency's questions. Though that
15 process took approximately six months, but
16 ultimately facilitated and streamlined the
17 submission of the final report.

18 So now I have Dr. Ray Ferrara, who I
19 would like to introduce. And, Ray, I'll run the
20 slide show from here; but, if you would like to
21 introduce yourself and go off mute, I will let you
22 take over for the next few slides.

23 DR. FERRARA: If there is any problem
24 with my audio, please let me know.

25 I appreciate the opportunity to speak

1 here and we thank the Department for that
2 opportunity.

3 As some of you may know, I have been
4 working on this project for a number of years now.
5 And to that, we did some very sophisticated data
6 analysis monitoring in the river, as well as
7 sophisticated computer simulation model, and I'll
8 talk a little bit about those things here in my
9 slides with the focus on the variance and why we
10 need it and the format of the variance.

11 And the slide that you see now, of
12 course, the current permit has what -- what we call
13 a very improved water quality base effluent
14 limitation, a WQBEL, and it describes and is limited
15 by a thermal discharge parameter often referred to
16 as the TDP. And the facility is limited to a TDP
17 value of less than 0.95. The unique and beneficial
18 thing of this particular effluent limitation is that
19 it incorporates the combined effect of the
20 background river temperature, the background river
21 flow, the facility discharge temperature and the
22 facility flow. It does that very accurately. So it
23 ensures that if the TDP is met, that the discharge
24 will be in compliance and the river will be in
25 compliance with the water quality standards for any

1 combination of those four parameters.

2 As you may know, the water quality
3 standards require a mixing zone not to exceed 25
4 percent of the river flow. And at the edge of that
5 mixing zone, the temperature in the river shall not
6 exceed 90 degrees Fahrenheit nor be 5 degrees above
7 background.

8 The TDP limit of 0.9 is actually quite a
9 very conservative limit. There are a number of
10 conservative measures that we included in developing
11 that limit. And then on top of that, we added a 5
12 percent margin of safety. So the actual TDP could
13 be 1.0 and the river would still be in compliance
14 with the standards. But the .95 limit provides an
15 additional 5 percent level of safety.

16 Next slide, Craig, please.

17 As Craig mentioned, the facility would
18 like to get a 316(a) variance. And the reason for
19 that is because there are certain situations when we
20 have very high background river temperatures or very
21 low river flows where it would be impossible to meet
22 the TDP of 0.95 without dramatically reducing
23 electricity production or even having to shut the
24 facility down. And in fact, those are the times
25 when electricity is most needed in the region.

1 The kinds of conditions we're talking
2 about occur less than 1 percent of the time. We
3 analyzed historical record and we are able to
4 demonstrate that there -- these are rare situations
5 that occur. In some years, they will occur more
6 often. But in other years, they will not occur at
7 all. But the most we have ever seen them occur is
8 approximately 6 percent of the time in an individual
9 year. But in general, it's less than 1 percent of
10 the time.

11 Next slide, please.

12 Ameren seeking a 316(a) variance in this
13 instance is nothing new. The facility has actually
14 operated under a 316(a) variance for many, many
15 years. And that is a recognition that the water
16 quality base effluent limitation is actually more
17 stringent than necessary to satisfy requirements in
18 the stream. So by definition, the 316(a) variance
19 allows a limit that's less stringent than the water
20 quality base effluent limitation. And in fact, in
21 the current permit, there was a requirement for
22 Ameren to conduct biological monitoring studies to
23 update information on the river and to use that to
24 determine if a 316(a) variance can be allowed in the
25 current permit. That study was completed and you

1 will see the title over there is Labadie Energy
2 Center 316(a) Final Demonstration dated April 2020.

3 Next slide, please.

4 The final demonstration that I just
5 mentioned in the previous slide concluded that it
6 can support a 316(a) variance. In fact, for
7 decades, Labadie, as I have mentioned, has been
8 operating under a 316(a) variance. And during those
9 decades, there has been no appreciable harm to the
10 balanced indigenous community, commonly referred to
11 as the BIC, B-I-C, in the river.

12 This information demonstrates that
13 compliance with a water quality based effluent
14 limitation is actually more stringent than necessary
15 to protect the balanced indigenous community.

16 So the study can conclude, did conclude,
17 that continuing a 316(a) variance will be sufficient
18 and can assure protection and propagation of the
19 balanced indigenous community.

20 Next slide, please.

21 So the demonstration actually supports a
22 continuation of the prior 316(a) variance effluent
23 limitations that were in the Labadie permit. But
24 the Department here in its proposal has actually put
25 forth a better approach based on some of the work

1 that we have completed. The prior limitation was
2 applicable, essentially, all of the time. The
3 better approach that's being proposed here is,
4 basically, to maintain the water quality base
5 effluent limitation, except for limited exceptional
6 infrequent circumstances. There will be no change,
7 no relaxation in how the facility is operated.
8 There will be no change in impact to the balanced
9 indigenous community. Any exceedances of the water
10 quality based limit would be specifically limited
11 and only allowed under certain times and certain
12 conditions. And at all of the times, the water
13 quality based effluent limitation will be satisfied.

14 Next slide, please.

15 So the format of the variance as being
16 proposed requires compliance with the water quality
17 based effluent limitation, the TDP, of 0.95 during
18 almost all conditions. However, during the limited
19 conditions that I discussed, the alternate
20 limitation would be applied. Those conditions occur
21 when the river flow is less than 40,000 CFS or the
22 background river temperature is greater than 87
23 degrees Fahrenheit. As I mentioned, these
24 conditions occur approximately 1 percent of the
25 time. More in some individual years and none in

1 some other years.

2 The way the variance will be structured
3 is to allow this exception to occur up to 6 percent
4 of the time in any individual calendar year. This
5 is to accommodate the historical record, which,
6 again, showed no harm to the balanced indigenous
7 community.

8 When the exception is allowed, the TDP
9 limit would not be effective, but an alternate limit
10 comes into play, which would require that the mixing
11 zone not exceed 40 percent of the river flow. That
12 means that there will always be at least a 60
13 percent zone of passage always and everywhere in the
14 river and, in fact, that -- that amount of zone of
15 passage occurs only for a limited stretch of the
16 river. In other areas of the river, the zone of
17 passage will be 70, 75, maybe 80 percent or more.
18 So there is a limited area where the zone of passage
19 would only be 60 percent and only during these
20 specific constrained times. At all other times, the
21 zone of passage would be greater than 75 percent, as
22 required by the standard water quality standards in
23 Missouri.

24 Next slide, please.

25 So the variance thermal effluent

1 limitations will have two parts. The first part,
2 which will occur nearly all of the time, and as I
3 mentioned, in many years, it will be all of the
4 time. The alternate limitations will not be
5 invoked. The variance effluent limitation will be
6 equal to the current water quality based effluent
7 limitation, which is a TDP less than or equal to
8 0.95. In the current permit, that's a daily limit
9 and it's calculated in accordance with the equation
10 specified in the permit. This is absolutely no
11 change from the current permit and that will occur
12 nearly all of the time. The permit would then allow
13 for a maximum of 528 hours in a year -- that
14 corresponds to the 6 percent I mentioned
15 previously -- for a maximum of 528 hours in a year.
16 The effluent limitation would become the mixing zone
17 must be less than or equal to 40 percent of the
18 river flow. Again, in many years, this will never
19 occur. The TDP of 0.95 will be satisfied all year
20 long. This, again, is a daily limit consistent with
21 the current permit effluent limitation, the TDP
22 limitation, and the equations are currently in the
23 permit for the calculation of the mixing zone.
24 Effectively, because of operational
25 concerns, Ameren will probably invoke this alternate

1 effluent limitation, when it does invoke it in
2 certain years, in 24-hour increments, all limited to
3 a maximum of 528 hours in any individual year.

4 Next slide, please.

5 I've got three slides here that
6 illustrate for you what the temperature profile in
7 the mixing zone looks like in the river. This slide
8 would be for a non-variance condition. As you might
9 know, the discharge canal, which is down and to the
10 left of the slide, the discharge comes out and
11 starts to mix with the river. The mixing is small
12 at first, and it might be on the range of 5 to 10
13 percent, and then it increases as you move down the
14 stream. And in this slide, up to a mixing zone of
15 about 15 percent. And then ultimately, it starts --
16 the mixing zone starts to contract again. So it
17 goes down 10, 5 and 5 percent in this particular
18 slide.

19 In all cases, again, in this slide, the
20 actual mixing zone is less than the permitted mixing
21 zone of 25 percent. So the purple-dashed line is
22 the permitted 25 percent mixing zone and the
23 yellow-dashed line would be the actual mixing zone
24 for a discharge under this situation presented in
25 this particular aerial photo. So this is an

1 illustration of a non-variance condition.

2 Next slide, please.

3 Again, this is another illustration of a
4 non-variance condition, but where the mixing zone --
5 the actual mixing zone becomes a little bit larger.
6 Again, starts out small, maybe 5, 10 percent, and
7 expands up to 20 percent. So it starts to approach
8 the allowable mixing zone of 25 percent. And then
9 again, it contracts down after it reaches its
10 maximum extent.

11 Note that, where its 20 percent is only
12 for a very limited section. It's not for the entire
13 river. Often, the mixing zone is only 5, 10
14 percent, 15 percent or less throughout the river.
15 So I'm talking about mixing zones here reaching the
16 allowable 25 percent. It might only be for a very
17 limited section in the river.

18 Take the next slide, Craig.

19 So this now would illustrate what happens
20 during the variance condition. So again, the plume
21 starts out small, 5, 10 percent, and it continues to
22 expand. And as illustrated in this slide, it
23 expands up to a mixing zone of 30 percent. So it
24 exceeds the standard 25 percent mixing zone; but,
25 under the variance effluent limitations, a mixing

1 zone of 40 percent would be permitted. So this 30
2 percent mixing zone would be in compliance with the
3 316(a) variance limitation.

4 Note again, the portion that is more than
5 25 percent is small. It's not the entire length of
6 the river. It's just a small section of the river.
7 Over much of the river, the zone of passage is 75,
8 80 percent or more. It's only in that limited
9 section where the zone of passage is only 70
10 percent.

11 And the next slide, please.

12 And finally, some -- a wrap up or summary
13 of the variance. This -- this 316(a) variance is
14 actually more stringent than has been allowed in
15 prior permits. It comes with constraints as to when
16 it can be used -- when it can be used. It also
17 comes with a limitation that permits a zone of
18 passage of 60 percent minimum anywhere in the river
19 and a zone of passage, as I just illustrated, will
20 be larger in many parts of the river. It can only
21 be used in certain years and under specific extreme
22 conditions. In many years, we expect a variance
23 will not be used. The normal water quality based
24 effluent limitation will apply.

25 The maximum it can be used is 6 percent

1 in any particular year. And as I mentioned
2 previously, the mixing zone during -- when it is
3 invoked, will still be greater than 6 percent
4 everywhere and much higher through most of the
5 river.

6 This is all based upon the many years of
7 study we have completed and analyzing data,
8 collecting data, the biological data, the computer
9 simulation model, and the number of conservative
10 measures that we built into the exercise.

11 If the TDP of 0.95 is met, you can be
12 assured that the current standards are being met.
13 If the mixing zone of 40 percent is met, you can be
14 assured that there is a zone of passage of 60
15 percent because it is actually probably greater due
16 to the fact of all of the conservative measures that
17 we have built into the calculation of the mixing
18 zone.

19 I think that's my last slide, Craig.

20 MS. GIESMAN: I think you're right. So
21 much appreciated, Ray.

22 We just have a few more slides to go.

23 I'm going to introduce Bill Elzinga.
24 Bill is with Wood Environmental and Infrastructure
25 Solutions. And Bill has got just a few slides to

1 talk a little bit about the field work that he and
2 his team completed in the biological portions of the
3 study.

4 So, Bill, same thing will happen. I will
5 go ahead and advance your slides, if you want to
6 take over on the audio and we'll go through.

7 MR. ELZINGA: Very good. Very good,
8 Craig. Appreciate it. Appreciate the opportunity
9 here this evening. And again, Bill Elzinga here,
10 Senior Associate with Wood and working in
11 conjunction with ASA in support of Ameren in this
12 thermal demonstration study.

13 And as Ray has mentioned, it's -- it's
14 been a number of years and a lot of information
15 collected to bring forward to this -- this
16 particular point.

17 The work that we conducted really did
18 focus on two key elements. And I'll talk about
19 those here this evening.

20 First, the retrospective assessment,
21 which is really a looking back exercise. It's a
22 looking back at prior operations of Labadie to
23 evaluate whether or not there was prior appreciable
24 harm as a result of the thermal effluents from the
25 plant. So that's the retrospective analysis.

1 The predictive analysis was really a
2 looking forward or looking forward under the
3 variance conditions, future variance conditions, to
4 see whether or not those conditions, those alternate
5 effluent limits, would, in fact, assure the
6 protection and propagation of the BIC that we've
7 been talking about.

8 Next slide.

9 The work that we conducted -- Craig.

10 MR. GIESMAN: Yeah, I'm --

11 MR. ELZINGA: There we go.

12 MR. GIESMAN: There we go.

13 MR. ELZINGA: We'll get there. There we
14 go.

15 Okay. The work was conducted in
16 conjunction with an approved study plan and
17 procedures. It was something that was very well
18 directed. The study plan was, in fact, approved by
19 the Missouri DNR. We worked carefully with them to
20 develop that study plan and it was, in fact, very
21 comprehensive in scope. It encompassed fish and
22 benthic invertebrate communities. It utilized a
23 wide range of gears that were aimed at targeting
24 various fish and invertebrate species within the
25 system. It followed published procedures and

1 quality assurance methodologies and health and
2 safety plans to make sure the data were carefully
3 and consistently collected to a high quality.

4 And I think, as Craig pointed out, Dr.
5 Charles Coutant came in and performed a mid --
6 mid-program review after the first year of sampling
7 and he certainly is a distinguished research
8 ecologist in thermal ecology. But he looked at our
9 plans, looked at the work that we were doing, the
10 results that we were producing and -- and,
11 basically, found them to be well-established and
12 well-conducted. So we appreciated that.

13 Next slide.

14 These procedures we're talking about
15 guided the work that was executed as part of the
16 studies over a two-year period, 2017 and '18. And
17 this work was really focused upon different sampling
18 zones that were really established based upon the
19 work that Ray was talking about. All of that
20 hydrothermal modeling work that Ray did allowed us
21 to establish an upstream zone, a discharge zone, the
22 thermally exposed zone, which is sort of that mixing
23 zone area that Ray was talking about, and the
24 downstream zone. So a very carefully designed plan.

25 Next slide, please.

1 And those -- the studies conducted within
2 those different zones use the range of techniques.
3 The first step in the process was really to
4 characterize habitats. And the point of that
5 process was to identify comparable habitats among
6 zones to bring forward consistency of comparison
7 within the zones. So we did that very carefully.
8 We then deployed a range of field data collection
9 techniques for fishes, different -- different
10 techniques to capture different life stages and
11 different species of fish. The same way for benthic
12 invertebrates. A couple different techniques there
13 to capture benthic invertebrates, which are usually
14 insects and invertebrate worms and things like that
15 within the system.

16 In total, 19 different locations were
17 sampled on a monthly basis for two years straight.
18 So a fairly intensive -- not fairly -- very
19 intensive program was executed there.

20 Next slide.

21 MR. GIESMAN: So Bill, I have got a
22 couple notes from the Missouri Department of Natural
23 Resources. They have asked us to stop the
24 presentation at this slide and wrap things up. So
25 I'm going to try to be compliant with time and

1 everybody else's time. So again, we'll have the
2 full presentation available and DNR can make that
3 available.

4 So Heather or Kris, I did see your notes
5 there. So if there is anything else you would like
6 for us to talk about, we can; but, I also respect
7 the fact that you would like us to stop. So --

8 MS. PETERS: Okay. Thank you. And we
9 appreciate that information from Ameren.

10 Our next speaker is going to be Pam
11 Hackler. But before we go to Pam, I just wanted to
12 let our speaker from Washington University School of
13 Law know they will get an extended period for their
14 presentation, as well, so we have equitable time
15 frames.

16 But without further adieu, I will kick it
17 over to our next presenter, Ms. Pam Hackler.

18 MS. HACKLER: Hello. Good evening.
19 Everybody hear me okay?

20 Okay. Great. Good evening and -- good
21 evening and thank you for attending our virtual
22 meeting for the Labadie Energy Center's Thermal
23 Variance. I am Pam Hackler. I have been an
24 operating permit writer for about six years and
25 write most of the power plant permit renewals.

1 The Clean Water Act Section 316(a) allows
2 facilities to exceed thermal water quality criteria
3 when they show the local biological community is not
4 negatively affected by their continuing thermal
5 discharge. Thermal variances are different from
6 other water quality variances under 40 CFR Part 131,
7 as part 131 does not apply to this type of variance.
8 A Clean Water Act Section 316(a) thermal variance is
9 an allowance granted to a discharger to surpass
10 established water quality standards for temperature
11 and mixing zone area. Meeting thermal limits can be
12 challenging during summer months or during drought
13 when the river's temperature and flow regime are
14 insufficient to absorb the plant's thermal effluent
15 and maintain temperature criteria in the receiving
16 water body.

17 On April 8, 2020, Ameren submitted a
18 request for a 316(a) variance for the Labadie Energy
19 Center from the numeric temperature water quality
20 criteria. The Missouri Department of Conservation
21 and the United States Fish and Wildlife Service also
22 reviewed these documents and provided comments to
23 the Department.

24 However, prior to the variance request,
25 the facility submitted a model-based temperature

1 criteria which equates to Missouri's Water Quality
2 Standards for temperature in mixing area.

3 The thermal discharge parameter, or TDP,
4 was developed because the Department does not
5 require a certain formula or metric to be used to
6 determine compliance with thermal water quality
7 standards. The facility developed their own method
8 to show compliance with the 90-degree Fahrenheit
9 maximum temperature at the edge of the thermal
10 mixing zone, change of less than 5 degrees
11 Fahrenheit at the edge of the thermal mixing zone,
12 and maximum use of 25 percent of the river volume
13 for mixing. Additionally, a variance may also use
14 an alternate effluent limit per 40 CFR 125.71(a).

15 It may be easier to think of the TDP as a
16 size of the mixing area, expanding and contracting,
17 dependent on four real-time measurement inputs.
18 When the area of the mixing approaches 25 percent,
19 the TDP value gets higher. Without using the margin
20 of safety, a TDP value of 1 would be 25 percent of
21 the river volume at 90 degrees Fahrenheit. The edge
22 of the mixing zone is, therefore, always -- always
23 assumed to be 90 degrees Fahrenheit when the river
24 is above 87 degrees Fahrenheit.

25 The change in temperature at the edge of

1 the thermal mixing area is limited to 5 degrees
2 Fahrenheit. However, this change is spread across
3 the entire mixing area. Picture a submerged water
4 balloon. The water balloon's interior is the mixing
5 zone and the exterior is the contact with the
6 Missouri River. Imagine how many points of contact
7 there are between the interior and the exterior of
8 the Missouri River. Given the nearly infinite
9 points of contact, the temperature change of 5
10 degrees of Fahrenheit becomes almost immeasurable
11 under the model at any one given point.

12 While the facility's discharge flow rate
13 and temperature increase of the effluent remains
14 fairly constant over time, the river's flow and
15 temperature changes diurnally and seasonally. Under
16 a special condition in the May 2017 modified permit,
17 the Department required the facility to obtain
18 actual measurements of the temperature of the river
19 when the river's flow was low and the river's
20 temperature was high. The facility completed their
21 sixth on-site evaluation in July 2017 and sent the
22 report to the Department in December 2017. All six
23 reports completed from 2003 through 2017 showed the
24 model closely represented the on-site conditions.
25 Regardless, the Department continues to implement

1 the 0.05 TDP margin of safety factor in the permit.

2 10 CSR 20-7.031(5)(D)1: For warm water
3 habitats beyond the mixing zone, and No. 6 in the
4 same section, are applicable to this facility's
5 discharge. Thermal mixing zones shall be limited to
6 25 percent of the cross-sectional area or volume of
7 the river unless biological surveys performed in
8 response to Section 316(a) indicate no significant
9 adverse impact on aquatic life.

10 The state regulations specifically allow
11 for a mixing zone so long as there is no impact on
12 aquatic life. This interpretation means, as long as
13 the water body as a whole can accommodate the mixing
14 zone while still allowing a zone of passage for
15 maintenance of the indigenous population, a mixing
16 area is permissible.

17 The documentation provided in the 316(a)
18 variance application documented a zone of passage
19 that demonstrated aquatic life and their beneficial
20 uses of the water body were not adversely affected
21 by the thermal discharge. Also, there are no
22 codified federal technology-based requirements for
23 thermal discharges.

24 Unlike traditional toxic pollutant
25 mixing, where a standard 7Q10 is calculated to

1 determine static permit limits, the thermal mixing
2 zone size is dependent on real-time measurements.
3 The Labadie facility measures all of these inputs
4 near constantly.

5 On most days, the edge of the mixing zone
6 is less than 25 percent of the river volume.
7 However, the facility -- facility identified certain
8 times of year that the river temperature and the
9 discharge temperature caused the mixing zone to
10 extend beyond the normal 25 percent volume of the
11 river flow.

12 Water quality standards must be compared
13 to technology available to mitigate the thermal
14 discharge. Water quality effluent limits are set by
15 state and approved by the EPA; whereas, technology
16 limits for cooling wastewater discharges have no
17 minimum federal or state mandates. Therefore, when
18 issuing a permit, the state is required to make a
19 site-specific assessment of cooling discharges and
20 compare the technology available to the facility in
21 a six-step process as described in 40 CFR
22 125.3(d) (3) and shown on this slide.

23 To assist the state in determining if a
24 technology-based effluent limitation is appropriate
25 or more limiting than the state's water quality

1 standards, the facility submitted information to the
2 Department regarding the six consideration factors
3 shown on this slide. After reviewing all of the
4 information contained in the reports, the conclusion
5 was made that the current single pass cooling
6 technology was the most appropriate technology for
7 this site. Therefore, the water quality standards
8 are more restrictive than a technology-based limit
9 in this instance.

10 Typically, for facilities with thermal
11 discharges and mixing allowances, the equation shown
12 is used. The equation is highly conservative and
13 over-protects the receiving water body and is not
14 part of Missouri's water quality standards. To use
15 the previously implemented equation, the facility
16 was and continues to acquire real-time measurements
17 of the river's and facility's discharge volume and
18 temperature.

19 The TDP is similarly requiring real-time
20 measurements, but the calculations are based on the
21 site specific model, which the Department has
22 vetted. The model inputs take into account the
23 specific area and shape of the river bed and has the
24 ability to calculate temperatures across a wide
25 range of scenarios. The TDP is less conservative

1 than the equation shown on the screen overall, but a
2 0.05 safety factor was implemented by the Department
3 to assure protection of local populations.

4 Because the Department's equation was so
5 overprotective, compliance with the water quality
6 standard did not equate to compliance with the
7 equation. When the equations were revised, the TDP
8 was shown to equate compliance with the water
9 quality standards better than the generic equation
10 used in other permits.

11 The Department has reviewed public
12 comments and reviewed the compliance method proposed
13 in the permit. A public commenter asserts that
14 hourly measurement is available to the facility,
15 therefore, hourly compliance should be implemented
16 in the permit. I have reviewed the information
17 available at the river gauging station and because
18 Missouri's water quality standards for temperature
19 are stated as shall not exceed, the Department has
20 determined tentatively that averaging of the daily
21 measurements for the day are not protective of the
22 shall not exceed requirement.

23 Because the variance allows for an
24 expansion of the water quality standards mixing area
25 to greater than 25 percent the volume of the river,

1 the facility's sampling plan identified several
2 different areas that they sampled the biological
3 community. The facility's upstream is the
4 comparison that all other areas are subject to. The
5 mixing zone is identified as the discharge canal and
6 the thermally exposed zone. These two areas are not
7 subject to balanced and indigenous population
8 requirements because the mixing areas are exempted
9 from water quality standard requirements in 10 CSR
10 20-7.031(5)(d)1.

11 When 316(a) of the Clean Water Act was
12 enacted in 1972, the U.S. EPA was charged with
13 developing a regulatory structure to achieve what
14 some might say is a vague goal of ecological
15 balance. The definition of a balanced and
16 indigenous population, sometimes referred to as a
17 community, therefore, was left to site specific
18 interpretation and local conditions.

19 Each river and stream have varied
20 communities and each community hinges on a trophic
21 structure unique to itself which also changes
22 seasonally. Unfortunately, introduced carp has made
23 the Missouri River an unbalanced ecosystem and
24 changes due to invasive species show negative
25 changes in the river ecosystem over time. Temporal

1 changes of the river ecosystem, therefore, are not
2 due to the ongoing thermal discharge but are more
3 likely attributable to flourishing invasive species.

4 A representative important species list
5 was originally derived without the initial
6 consultation of the Department. However, upon the
7 Department's request, the list was modified to
8 remove invasive carp species under the premise that
9 an abundant species is not necessarily an important
10 species to either the natural food chain, the
11 natural ecosystem or to the metric used to compare
12 upstream and downstream populations.

13 Demonstrating that the BIP is or will be
14 assured in any receiving water body can be
15 problematic since no operational definition of
16 balance was ever provided by the EPA and no
17 quantitative standard for balance has ever been
18 proposed. Additionally, I would like to add that
19 the EPA has removed all documents from their
20 applicable guidances that were never finalized and
21 older than two years old in a memorandum dated
22 August 6, 2019. Because of this, the Department did
23 not require the facility to include all endangered
24 species in the RIS list.

25 The report also indicates that the

1 thermal discharge hugs the right descending bank and
2 always provides a reasonable zone of passage for
3 aquatic organisms. Under normal conditions, when
4 the river is not warm or flow is not low, the
5 percentage of the volume of the river of the thermal
6 discharge -- the river the thermal discharge
7 occupies is below 25 percent. In the river, in the
8 winter, well below 25 percent. Although the change
9 in temperature increases, but never exceeds 5
10 degrees Fahrenheit.

11 The balanced indigenous population during
12 summer months change, as well. Thermally intolerant
13 species migrate upstream to cooler waters. We see
14 this in the data where intolerant species collection
15 did not occur in the summer and in the scientific
16 references provided by the consultant.

17 Taken as a whole, the results of the
18 assessments demonstrate that no appreciable harm has
19 or will occur to the BIP as a result of the thermal
20 discharge. The gathered information was evaluated
21 with respect to 18 decision criteria identified by
22 the EPA as indicators of appreciable harm. In each
23 instance, the available data and statistical
24 analysis demonstrate the decision criteria were
25 satisfied, indicating that no prior appreciable harm

1 has occurred as a result of the ongoing thermal
2 discharge.

3 The burden of proof is on the permittee to
4 demonstrate eligibility to receive an alternative
5 effluent -- thermal effluent limit under Section
6 316(a). This means the permittee must satisfactorily
7 demonstrate to the permitting authority that a
8 thermal effluent limit necessary to meet the
9 requirements of Clean Water Act Section 301 or 306
10 is more stringent than necessary to assure the
11 propagation and protection of a BIP in and on the
12 body of water into which the discharge is made.

13 The Department has processed all of
14 the information and determined that the thermal
15 discharge is not negatively impacting -- affecting
16 the Missouri River's population of aquatic
17 organisms. The Department will tentatively propose
18 to the Clean Water Commission to accept the variance
19 for this facility unless public comment enlightens
20 the Department to counter-indicative facts. If the
21 Clean Water Commission approves the variance, it is
22 not actually effective and authorized until
23 incorporated into a permit through our permitting
24 process, which includes asking the public for
25 comment per 10 CSR 20-6.010 and implementing the

1 variance in the final operating permit following
2 Missouri Clean Water Law and state and federal
3 regulations.

4 The Labadie Energy Center has been
5 discharging heated wastewater since 1970. The
6 variance allows exceedance of the water quality
7 standards for only 528 hours per year and, according
8 to the study results, the Labadie discharge does not
9 affect the balanced indigenous populations in the
10 Missouri River.

11 The variance only is used when natural
12 conditions warrant the use during drought, low-river
13 volume or high-river temperature. The volume of
14 wastewater discharge will not change as a result of
15 the variance. The discharge volume will not exceed
16 the established designed flow of 1,428 million
17 gallons per day.

18 Due to time constraints, all details of
19 the variance cannot be covered by this presentation
20 but are available by using the Sunshine records
21 request process which can be accessed by visiting
22 dnr.mo.gov and searching for Sunshine.

23 Thank you very much.

24 MS. PETERS: Thank you, Pam.

25 Our next speaker is Washington University

1 School of Law represented by Ms. Tara Rocque. And
2 as we stated, we are extending that time frame for
3 you and your representatives to a time frame equal
4 and equivalent to Ameren university.

5 So without further adieu, Tara, we will
6 turn it over to you.

7 I will tell you that, if you introduce
8 other folks, they will probably need to turn their
9 own mute off unless you give us a moment and tell us
10 who you would like us to unmute. If we have any
11 problems, we'll work through those as they arrive.

12 Tara.

13 MS. ROCQUE: Hi, how are you?

14 My name is Tara Rocque. I am the
15 assistant director of Washington University School
16 of Law's Interdisciplinary Environment Clinic and I
17 am here to speak to you on behalf of the Sierra Club
18 about the proposed thermal variance.

19 Before I get started, about the extra
20 talking time, I made sure my comments were likely to
21 fit within the fifteen minutes, although I did not
22 know you were going to count Peter Good within those
23 minutes. So to the extent that I go over and Peter
24 does not use those, I would like to share that
25 talking time with the public, since they all get --

1 four minutes is a pretty short time to speak your
2 mind. So I would like to share that extra time with
3 whoever else needs it, assuming Peter does not use
4 it all.

5 But moving on to the matter at hand about
6 Ameren's thermal variance. Ameren cools its Labadie
7 plant by taking one billion gallons of water each
8 day from the Missouri River, sucking in and killing
9 fish and other aquatic life in the process,
10 circulating that water through its plant and dumping
11 unmitigated heated water back in the river, this
12 time cooking and killing even more fish and aquatic
13 life.

14 So every day, Ameren takes one billion
15 gallons of our water, our public resource, our
16 river. Ameren doesn't pay for this water. And it
17 makes no effort to protect against or mitigate the
18 harm it's causing. Instead, it just takes. That
19 doesn't sound like a good deal for Missouri's
20 residents and I -- for the life of me, I can't
21 understand why DNR wants to agree to it.

22 The issue here, it really comes down to
23 externalities. Pollution, whether it's the thermal
24 discharge in our water, the toxic seepage from
25 Ameren's unlined coal ash pits -- those same pits

1 Ameren is touting it is going to cap and close,
2 allowing that toxic seepage to continue
3 indefinitely -- or the sulphur dioxide that Ameren
4 is spewing into our air, all of this is a cost of
5 Ameren's business in externality. But it is a cost
6 that Ameren is not paying. We're paying. Ameren
7 expects us to breathe its dirty air. Ameren expects
8 us to drink and swim in its heated, dirty water.
9 Expects us to accept the unreasonable and systematic
10 destruction of our aquatic life. And what do we get
11 in return? We pay for all of these externalities.
12 We pay in the reduction to our health and in the
13 destruction to our environment. All this so that
14 Ameren may continue collecting astronomical profits
15 without accepting responsibility for the
16 externalities of its business model. By allowing
17 Ameren to continue in this form, without
18 improvement, without technological advancement, as a
19 state, we're thwarting progress, we're thwarting
20 progression of cheap, efficient, and abundant clean
21 energy. This, at its essence, is a taxpayer-funded
22 welfare program for an incredibly powerful and
23 wealthy corporation. Meanwhile, Ameren recorded
24 well over three-quarters of a billion dollars in net
25 profit in 2019 alone.

1 And a lot these issues, environment vs.
2 industry, people act like it's a partisan issue. It
3 is not. This is not a liberal/conservative issue.
4 It's a question inherent to the way we want our
5 government and industry to work. Why do regular
6 citizens pay, why does our wildlife pay all so a
7 corporation can continue taking home nearly 1
8 billion dollars in profits every year? Why does
9 Ameren get to take our public resource and give us
10 dead fish in return?

11 The DNR has a duty to protect our natural
12 resources. A duty to ensure that the river and its
13 aquaculture is safe, both for the environment and
14 for our use. This proposed variance does not
15 fulfill that duty and, in fact, is directly contrary
16 to it.

17 The variance, it not only flies in the
18 face of common sense, it also fails to comply with
19 applicable law.

20 Now, in Sierra Club's comment letter, we
21 outlined a number of these violations. A lot of
22 them quite scientific in nature. I'm not a
23 scientist, so I am not going to try to talk about
24 them. I am going to focus more on the legal issues.

25 I would like to call your attention to a

1 few glaring violations in particular. The first is
2 generally under the Clean Water Act. So at the law
3 itself of Clean Water Act, the purposes of the law
4 are four-fold. First, to restore and maintain the
5 chemical, physical, and biological integrity of the
6 nation's waters. Second, to eliminate discharge of
7 pollutants into the navigable waters. Third, to
8 ensure the protection and propagation of fish, shell
9 fish, and wild life. And fourth, to make sure our
10 waters are safe for recreation.

11 So any variance from water quality
12 standards must be carefully considered and be narrow
13 in both scope and duration. This variance doesn't
14 come close to meeting that standard. It is 22 years
15 long. It puts no limit on Ameren's discharge of
16 super-heated water and does nothing to restore the
17 integrity of the river. It is specifically designed
18 to allow Ameren to continue with business as usual,
19 making no improvements to its current operations.

20 Moreover, the Clean Water Act requires
21 that any 316(a) variance -- that's what this is, a
22 316(a) variance -- requires that any such variance
23 demonstrate that the thermal effluent limitations
24 are, and I quote, more stringent than necessary to
25 ensure the protection and propagation of the river's

1 balanced indigenous population. This is a required
2 precondition set forth in the Act itself. No 316(a)
3 variance may be granted without it. Ameren and the
4 variance ignore this requirement. It's not there.
5 They did not make this demonstration. So standing
6 alone, on its face, under the Clean Water Act, the
7 variance does not meet legal standards to apply.

8 Now, I would like to talk about the
9 22-year term. An unheard of length for a nifties
10 variance that also violates applicable regulations.
11 According to EPA, nifties variances are permanent
12 conditions that expire with the permits. And a
13 nifties permit issued by the state must be -- again,
14 this is a quote -- for fixed terms not exceeding
15 five years, end quote. The term of this proposed
16 variance, which must expire with the permit, is not
17 for a fixed term not exceeding five years. As such,
18 it is invalid on its face.

19 Setting aside just the length, a variance
20 cannot be for an indefinite term. It must have
21 definite, precise termination dates. It must have
22 definite, precise renewal and re-evaluation
23 requirements and must ensure that there is public
24 disclosure and participation in this re-evaluation
25 renewal process. The proposed variance does none of

1 these things. First, there is no firm termination
2 date in the proposal. Just a wishy-washy 22-year
3 term tied to no start or end date. The reason for
4 that becomes clear when you look at earlier drafts
5 of the variance, which we obtained via Sunshine Act
6 and you will see that it was originally drafted to
7 be -- this is a quote -- an indefinite or an
8 unlimited variance. Those are the words that were
9 in the earlier draft of the variance. But if you
10 look at the notes, folks didn't want to say it like
11 that. Again, direct quote. They didn't want to say
12 it like that. So they rephrased the term limit so
13 as to mirror the useful life of the Labadie plant.
14 So for all intents and purposes, this is an
15 indefinite variance.

16 In addition, the variance contains no
17 firm renewal or re-evaluation procedure or timeline.
18 Contains no standards or requirements to guide any
19 renewal or re-evaluation process and makes no
20 provision for public involvement in the process or
21 even for public knowledge of the process. So there
22 is no guarantee in here that we, the public, will
23 know whether or not they ever re-evaluated these
24 variances.

25 In fact, despite given this 22-year term,

1 the proposed variance contains no examination or
2 consideration of the long term effect on the river
3 or its balanced indigenous population. Instead, the
4 permit makes the bald, unsupported assumption that
5 there wouldn't be any changes to its river -- to the
6 river or its inhabitants over the next 22 years.
7 That is quite an assumption to make.

8 EPA, itself, called out some of these
9 problems during the review process, stating that
10 Ameren should be required to submit reports to
11 determine the effect of the thermal discharge and to
12 inform the variance re-evaluation and renewal
13 process. But the proposed variance ignores this EPA
14 guidance and requires no such report.

15 Unfortunately, that's not the only time
16 this proposal failed to comply or listen to federal
17 and state guidelines -- excuse me, guidance. EPA
18 disagreed with the form of the variance, which
19 examines river temperatures based on daily averages
20 instead of hourly. So the variance says that Ameren
21 can exceed 22 days a year and doesn't talk about the
22 hours a year that it can exceed the 90-degree
23 thermal limit. EPA found this to be improper and
24 another -- and another quote, EPA found this to be,
25 quote, imprecise and not the norm in other states or

1 in existing MDNR permits, end of quote. And that's
2 including existing MDNR permits with Ameren.

3 Despite this jarring issue that EPA had
4 with it, there were no changes made to the final
5 variance and it is still based in annual averages.

6 The Missouri Department of Conservation
7 challenged Ameren's failure to consult with the
8 appropriate state and federal agencies when
9 developing a list of endangered species for its
10 aquatic studies. MPC raised red flags about
11 Ameren's failure to consider several important
12 species in its study and found that Ameren's
13 examination of the impacts on the endangered pallid
14 sturgeon were deficient. However, Ameren gave short
15 script to MPC's concerns and just moved forward
16 using its flawed study. As a result, the aquatic
17 study that underlies this variance determination
18 does not properly determine its affect on federal
19 endangered species and entirely fails to examine its
20 affect on state endangered species and a number of
21 commercial fish, something that are very important
22 to our state's fishermen.

23 The U.S. Fish and Wildlife Service also
24 took issue with Ameren's aquatic studies, finding
25 them to be ineffective. Fish and Wildlife also

1 stated its belief that the take of pallid sturgeon
2 may be occurring. Meaning that Ameren's cooling
3 system may be killing an endangered species. This
4 is also something that Ameren failed to capture in
5 its study because of its flawed basis.

6 A review of the proposed variance, as
7 well as MDNR documents that we obtained via Sunshine
8 request, show no evidence that Ameren took any of
9 these concerns of the state and federal agencies
10 seriously and we saw no evidence that these concerns
11 were addressed or resolved.

12 In addition to the problems with the --
13 so we have failure to comply with the Clean Water
14 Act, an unlawfully long 22-year term without any
15 firm basis for re-evaluation or reconsideration, and
16 a proposed permit that ignores comments from the
17 federal and state agencies that are designed to
18 oversee these issues. Also, we have a permit that
19 did not have a full and fair public comment period.

20 This is a technically complex variance.
21 650 pages long. Sierra Club requested an extended
22 comment period both due to the variance's
23 complexities and because we are in the middle of a
24 global pandemic. This was an incredibly reasonable
25 request, which MDNR rejected without cause.

1 In addition, the nature of determining
2 compliance with this variance was never put up for
3 public comment. Both MDNR and Ameren have talked to
4 you today about this TDP limit. This TDP limit is a
5 convoluted calculation developed by Ameren. Now the
6 problem is, this formula, which MDNR showed to you
7 today, is nowhere in the variance. Nowhere. So
8 until today, the public was in the dark and unable
9 to comment on its compliance determination. Sharing
10 that -- sharing that equation today in the
11 PowerPoint does not solve the issue. This was never
12 up for public comment. So there was insufficient
13 time for the submission of public comments and
14 significant and substantive portions of this
15 variance were never put up for comment.

16 In conclusion, we have a proposed
17 variance that does not comply with the Clean Water
18 Act, is set for an unlawfully long ill-defined
19 22-year term with no set procedure or requirements
20 for review or renewal. We have a refusal by Ameren
21 to consider and abide by state and federal agency
22 guidelines and a failure to allow for full and fair
23 public comments.

24 On behalf of Sierra Club, I respectfully
25 request that this proposed variance be denied.

1 I would like to turn this over now to
2 Peter Goode, also from our clinic.

3 Take it away Peter.

4 MS. PETERS: And, you guys, I paused the
5 time momentarily. I was just going to let you know
6 you have 9 and a half minutes. That Tara will let
7 you, kind of, post your own time frame for that last
8 9 and a half minutes, however you want to spend
9 that.

10 MR. GOODE: Okay. Thank you.

11 Good evening. My name is Peter Goode.
12 I'm an environmental engineer with the Washington
13 University Interdisciplinary Environmental Clinic.
14 I work with Tara Rocque. The Clinic represents the
15 Sierra Club on issues related to the Labadie Energy
16 Center wastewater permit. I'll be speaking today on
17 specific flaws in the proposed thermal variance.

18 First, to start -- and we've already
19 touched on this briefly and it sounds like the
20 Department may be making modifications to this --
21 but the proposed variance would allow Ameren to
22 exceed the thermal discharge parameter, or TDP, for
23 22 days annually. The form of this -- this form of
24 the variance is flawed because it would allow
25 excursions above the TDP that are not counted

1 towards the 22 days. This flaw potentially puts
2 aquatic life in danger and essentially grants Ameren
3 more exceedance. The form of variance should
4 reflect an hourly average to capture these
5 exceedances that occur over a number of hours but do
6 not result in a daily average TDP greater than 0.95.
7 This is easily calculated since both flow and
8 temperature data from the Labadie river gauge are
9 continuously collected at 15-minute intervals.

10 Second the proposed variance is flawed
11 because it does not demonstrate the origin of the
12 .95 TDP effluent limit or the formula on which the
13 limit is based. The publicly noticed proposed
14 variance contains neither the derivation of the TDP
15 nor the modeling on which it is based, depriving the
16 public of the opportunity to comment on the basis
17 for the effluent limits in the proposed variance.
18 Only a brief reference to the TD -- to TDP's
19 supporting documentation is noticed -- is noted in
20 the public notice. Nowhere in the proposed variance
21 does MDNR explain the derivation of the TDP, its
22 underlying model or even its appropriateness.
23 MDNR -- based on this alone, MDNR should withdraw
24 the proposed variance due to the improper public
25 notice.

1 Third, the TDP obscures the relationship
2 between the river's flow and temperature and the
3 plants effluent flow and discharge temperature. The
4 TDP and associated calculation is technically
5 complex, preventing the public from understanding
6 its terms and limiting permittee accountability.
7 Effluent limits should be directly relatable to the
8 water quality standard. Water quality standard in
9 this case is a maximum value of 90 degrees
10 Fahrenheit that is not to be exceeded. This form of
11 measurement also happens to be one which the public
12 is familiar. Everybody can understand the
13 temperature of water, especially in degrees
14 Fahrenheit. The use of unnecessarily complex TDP
15 calculations serves only to inhibit the public's
16 ability to comprehend it. It is inappropriate for
17 the TDP in lieu of -- utilize the TDP in lieu of the
18 state's water quality standards and it is
19 inappropriate to require unnecessarily complex and
20 confusing calculations to determine whether the
21 Labadie plant's thermal discharge is complying with
22 its limits at the edge of the mixing zone. As such,
23 we object to the form of the effluent limitation in
24 the proposed variance.

25 Fourth, the proposed variance is flawed

1 because Ameren's variance application did not
2 consider the cumulative effects of other impacts
3 from the plant on the aquatic life in the river.
4 Federal regulations at 40 CFR 125.73(a) require that
5 any demonstration in support of a 316(a) variance
6 must also consider cumulative impacts. In other
7 words, other impacts that the plant would have --
8 potentially have on the aquatic life in the river.
9 In its demonstration, Ameren did not include the
10 effects of its own cooling water intake structure
11 which inhibits and entrains aquatic life. Cooling
12 water intake structure is an obvious related and
13 significant impact on the aquatic life in the
14 vicinity of the Labadie plant. This is a
15 significant failure and, because of it, MDNR should
16 withdraw the proposed variance or deny it outright.

17 Finally, DNR's presentation made brief
18 mention of endangered species. Through Sunshine law
19 request, we found that U.S. Fish and Wildlife
20 Service, the agency charged with dealing with
21 endangered species, continues to have concerns with
22 the cooling water system, both its thermal discharge
23 and its intake, and the potential impacts on the
24 pallid sturgeon, by the way, listed in endangered
25 species, which inhabits the lower Missouri River.

1 This concern has not been addressed, as far as we
2 can tell, and the -- because -- because the -- the
3 concern still exists and the proposed variance does
4 nothing to address that concern, we believe that the
5 proposed variance is inappropriate and DNR should
6 either withdraw it or deny it at this time.

7 Thank you. That concludes my
8 statements.

9 MS. PETERS: Tara, you still have about
10 four minutes, if you are want to turn it over to
11 somebody else.

12 MS. ROCQUE: I would like -- honestly,
13 members of the public are only given four minutes to
14 talk, which is really, really short. So to the
15 extent that anyone here -- I mean, you guys are all
16 affected by this river quite a lot and what happens
17 in it. So to the extent anyone else wants extra
18 time, I would like to share it with them because
19 four minutes is pretty short to do that.

20 MS. PETERS: Tara, we still have about
21 three minutes. So how about maybe if they would
22 like to have your three minutes, we could hold it
23 until the end of the meeting. You would let us know
24 who you would like to give that three minutes to
25 because, right now, everyone is muted, and so it's

1 hard for us to figure out how to kind of share that,
2 but we would happy to hold your three minutes --
3 three and a half minutes and give it back at the
4 end, if you would just let me know who you would
5 like for us to give that to at that time. Then we
6 will let them private message you if that will work,
7 if that is acceptable to you.

8 MS. ROCQUE: Sure. Anyone needs my
9 minutes, private message me and I'll -- and I'll
10 private message -- who am I talking to now?

11 MS. PETERS: You can message Krista or
12 Heather.

13 MS. ROCQUE: That works.

14 MS. PETERS: Okay.

15 MS. ROCQUE: Thank you.

16 MS. PETERS: Just want to make sure you
17 have a valid amount of time, but we also realize
18 that with everyone being muted, it makes it a little
19 hard to do that. So just let us know how you would
20 like to do that.

21 So at this point, we will kind of move
22 into our registered speaker point or section of the
23 meeting.

24 First off, thank you to all of our
25 presenters. Thank you for taking the time to do

1 your presentations and share this information with
2 us.

3 For those of you who have been
4 participating, thank you very much for keeping your
5 lines muted. We appreciate that.

6 For the registered speakers, you will
7 each have four minutes to speak. You will hear an
8 alarm at the end of your time just before you are
9 remuted. If you have not registered to speak, but
10 would like to do so, please privately message Krista
11 Welschmeyer immediately and we will try to
12 accommodate your speaker request. We will announce
13 your name and we will unmute your line.

14 To that end, though, we have a number of
15 folks that did the call-in option only without using
16 the Webex feature. So at this time, we are going to
17 unmute all of the call-in users. What we are asking
18 is that you please very slowly identify yourselves
19 by name so that Krista and I can note who each
20 call-in user is. So when it is your time to speak,
21 we can make sure that we unmute your line so you
22 have that opportunity to speak.

23 So those that used the call-in only
24 function, please identify yourselves slowly and give
25 us an opportunity to figure out which line you are

1 so we can unmute you in a moment.

2 You are all unmuted if you did the
3 call-in function, so please just clearly state your
4 name.

5 MR. WIEBEG: Heather, I think we can
6 just move on and mute the call-in users, and if we
7 run into a user that has not spoke, we can unmute
8 them all again and see if we can pick those up.

9 MS. PETERS: We'll do that. We will go
10 through each of our registered speakers. If your
11 line is muted and you don't get an opportunity to
12 speak, again, like Chris said, we will come back to
13 those at the end of the time frame.

14 So our first registered speaker is Peter
15 Goode. You did have a four-minute slot, so we are
16 happy to -- correct, but he already had a registered
17 speaker spot. So if you would like your four
18 minutes, we will go ahead and start that now.

19 MS. ROCQUE: Peter has to run off. He's
20 not -- he's not going to -- to use his four minutes.
21 So --

22 MS. PETERS: Okay. That's fine. Thank
23 you very much.

24 MR. GOODE: Yeah. I've already spoken,
25 so I've made my testimony. Thank you.

1 MS. PETERS: Okay. Thank you.

2 So our next speaker is Ms. Christine
3 Alt.

4 She is with Patricia; is that correct?
5 We have unmuted that line.

6 MS. ALT: Can you hear me?

7 MS. PETERS: Yes, we can and we won't
8 start your time until you are able to speak. So
9 please go ahead.

10 MS. ALT: Thank you.

11 My name is Christine Alt. I live in
12 Labadie. My family has enjoyed being close to the
13 Missouri River and we value its historic, cultural
14 and national significance to our region and also to
15 the United States of America. This river belongs to
16 all Americans, not to Ameren.

17 The Missouri River is a beautiful
18 resource and it is all of our responsibilities,
19 along with DNR, to protect this river, the wildlife
20 both in and out of this river.

21 The current outdated system used by
22 Ameren to heat and cool plant operations using one
23 billion gallons of our water per day is abusive.
24 Ameren should have been required to utilize cooling
25 towers, an enclosed cooling system, a long time ago.

1 DNR should have tested at Labadie and ensured they
2 installed the best available technology, rather than
3 to allow Ameren to continue hot water dumping.

4 This thermal pollution is responsible for
5 killing fish, as water is sucked in to be used by
6 Ameren. Then, the hot water is dumped out into the
7 Missouri River, containing dead fish and sludge.
8 This hot water endangers life forms, including the
9 endanger pallid sturgeon, flathead chub and lake
10 sturgeon. Countless birds and invertebrates that
11 live along the river rely on food sources impacted
12 by the treatment of this water. Ducks and eagles
13 can be seen here also using the river for food
14 sources and are also impacted.

15 As a teacher, I taught students in
16 Augusta, Missouri, on the other side of the river,
17 to encourage them to appreciate the resources along
18 our river. We would frequently enjoy walks along
19 the Katy Trail and our curriculum included units
20 discussing the history of our area along the
21 Missouri River.

22 As a mother, I have also taught my own
23 children on this side of the Missouri River, in
24 Labadie, to appreciate, respect, and be good
25 stewards of our national resources for future

1 generations.

2 The Lewis and Clark Expedition is an
3 important part of our history and they used our high
4 bluffs to overlook the river. Their view didn't
5 include Ameren. But their expedition journals
6 mentioned a whirlpool in the river, known as the
7 Devil's Race Ground, which is now dry land due to a
8 change in the course of the river.

9 Rivers change over time and we must be
10 prepared to be stewards for changes when they are
11 needed to protect this valued resource. I am both
12 disappointed and angry that a private company can
13 abuse this resource for their own profits. DNR must
14 step up with regulations to safeguard our river.
15 This variance must be denied. How could we allow a
16 private company concerned only with their profit
17 margin to determine an allowance for 22 years
18 without any checks on their system. Thank you.

19 MS. PETERS: Thank you.

20 Our next speaker will be Judith Walter.
21 You will be unmuted and you have four minutes.

22 MS. WALTER: Can you hear me?

23 MS. PETERS: Yes.

24 MS. WALTER: Hello. Okay. Thank you.

25 My name is Judy Walter. I reside with

1 my husband Mike at 2461 Happy Sac Road in rural
2 Union, Missouri.

3 I would like to thank the Commission and
4 those in attendance for allowing me this time to be
5 heard on behalf of the nature-loving taxpayers of
6 Missouri who may not even be aware that this hearing
7 is taking place, as I wouldn't have had I not seen
8 it on Facebook. But they would like to have a voice
9 in this matter, if they would have known. I would
10 also like to be a voice for the aquatic life that
11 has been put in harms way, along with their natural
12 habitat that suffers in the name of corporate
13 profit.

14 I am rather new to Missouri and to
15 Franklin County, having moved from Ohio a year ago.
16 I visited Missouri for many years and fell in love
17 with its natural beauty. My husband and I purchased
18 a former fishing cabin on the Bourbeuse River. It
19 has become our retirement home.

20 I have great respect for those who work
21 daily to protect our environment. The taxpayers who
22 put their money and trust into programs with
23 standards and regulations that are monitored
24 diligently, as diligently as the budget affords, and
25 enforce the Department of Natural Resources. We

1 trust them and have high expectations with these
2 responsibilities.

3 Millions of dollars have been spent by
4 Missouri taxpayers to protect the wildlife in and
5 around the lower Missouri River. We are living in
6 an unusual time in history, where uncertainty
7 prevails on a grand scale and the fragility and loss
8 of life is in the daily headlines.

9 We continue to see compromised habitats
10 in waterways with diminished oxygen levels due to
11 the effects of residential and agricultural runoff
12 causing algae blooms and rising temperatures due to
13 climate change. These compromised habitats should
14 tell us that we are not yet living by sustainable
15 standards.

16 With that in mind, Ameren has come to the
17 Commission to ask that the state be yet more lenient
18 with those standards which translate to do more harm
19 to the environment and the wildlife it is intended
20 to sustain. This is clearly evidenced by the smell
21 that comes from the river in that area. It is the
22 smell of death. The death of aquatic life being
23 cooked in what is intended to be their natural
24 habitat. It's the smell of profit over the
25 environment as their decades old methods of dealing

1 with the cooling process. That have far less
2 negative impact on the environment.

3 Ameren is requesting the blessing of the
4 very entity entrusted to protect our natural
5 resources. Permission to do more harm to an already
6 fragile ecosystem and they want that right for the
7 next 22 years. 22 years. So much can happen in
8 that amount of time to change our world and our
9 environment and that's never been so obvious as it
10 is now with the changes we've seen in the last eight
11 months. Many of the changes will be long lasting.
12 To request to lock in today's standards, let alone a
13 variance on this already unsustainable standards for
14 22 years is simply unreasonable and irresponsible.

15 In the words of the Clean Water
16 Commission's own codified language, under conditions
17 of variance, number 1 reads: No variance shall be
18 granted where the effect of a variance will permit
19 the continuance of a condition which may
20 unreasonably cause or contribute to adverse health
21 effects upon humans or fish or other aquatic life or
22 upon game or wildlife.

23 I ask you, how will increasing the volume
24 of the effluent and the temperature of such a body
25 of water by a few degrees not contribute to the very

1 demise of native species and habitats. Thank you.

2 MS. PETERS: Thank you.

3 Our next speaker is Jim Karpowicz. Jim,
4 you will be unmuted at this time and you will have
5 four minutes.

6 MR. KARPOWICZ: Great. Thank you, guys.
7 Thanks a lot for the opportunity to speak to the
8 Commission.

9 I am the river advocate with the Missouri
10 Coalition for the Environment.

11 Just a couple of thoughts. I am not a
12 wild -- a fishery biologist, but I do know a lot of
13 them, hang out with a lot of them, so I talked to
14 them about this subject today. I did some interest
15 readings on the effective temperature on growth
16 conditions survival of juvenile shovelnose sturgeon,
17 which was printed in the American Journal of
18 Fisheries, a peer review journal of some note. It
19 basically states that -- that shovelnose sturgeon,
20 laravel shovelnose sturgeon, will start to die at 24
21 degrees Centigrade. That is 75 degrees Fahrenheit.
22 So essentially the -- what is kind of curiously
23 referred to as the zone of mixing, for sturgeon is a
24 zone of death. And I -- I read in many instances in
25 the DNR's report that that's not to be a worry

1 because fish can simply swim around that. They
2 retreat upstream and they don't get involved. Well,
3 laravel sturgeon don't have the ability to do that.
4 Laravel sturgeon are simply drifting with the
5 current. So for, what is it, 528 hours, that zone
6 of mixing becomes a zone of death. And the fact
7 that the Missouri Department of Conservation and the
8 U.S. Fish and Wildlife both chimed in on this, this
9 feels like it's a clear violation of the Endangered
10 Species Act and it wouldn't be at all surprising if
11 lawsuits and various litigation would result from
12 it.

13 So the Missouri Coalition for the
14 Environment is definitely against the granting of
15 this variance and I hope the Commission considers
16 that testimony.

17 MS. PETERS: Thank you.

18 Our next speaker is Janet Dittrich.

19 Janet, you have four minutes.

20 MS. DITTRICH: Hi. I am a resident of
21 Labadie and I am well aware of the polluted air I
22 breathe from the Ameren power plant. I know the
23 ground water is contaminated with heavy metals from
24 the leaking ash ponds. But today, I'm here to
25 express my concern about the effects of Ameren's

1 thermal discharge, the billions of gallons of water
2 heated up each day and released back into the
3 Missouri River.

4 I'm a biologist by trade. When you take
5 a billion gallons of water from a river and increase
6 the temperature by a presumed 25 degrees, based on
7 some proprietary calculation, then put it back in
8 the river, the natural environmental and ecosystems
9 changes. The public has no idea of the actual
10 volume and heat of the water based on their
11 calculations. A middle school student would let you
12 know that this must have an impact on the fish and
13 the aquatic life of the river. It is either sucked
14 up by the intake location or cooked by the high
15 temperatures and left to rot. Endangered species,
16 such as the pallid sturgeon, flathead chub and the
17 lake surgeons suffer while the invasive Asian carp
18 thrives. Ameren's hot water discharge is changing
19 the ecosystem.

20 Currently, we see the negative effects.
21 The fishing is poor in the area around the plant.
22 The shoreline stinks of rotting death. So people
23 don't go swimming or picnicking anymore. My husband
24 and his friends used to canoe down this stretch of
25 the Missouri River annually, but they don't do this

1 anymore because it's too polluted. Who is going to
2 swim in hot, stinky water.

3 Last week, I was hiking on the Katy Trail
4 across the river from Ameren. We left the trail at
5 Klondike Park to go see the river. When looking out
6 across the river, we could see the current coming
7 towards us. On the shoreline there was an area of
8 water collecting which stunk of rotting debris and
9 decay and no way would I stick my toe in that water.
10 It was not a natural decay smell. Was this due to
11 the thermal pollution Ameren is spewing from its
12 inefficient plant, probably, but we will never know
13 for sure because, currently, Ameren isn't held
14 accountable for its pollution. No studies have been
15 made that I, as an engaged citizen, am aware of.
16 Apparently, the variance Ameren is asking for
17 provides no guarantee or assurances that DNR would
18 step in to monitor the environmental situation now
19 or as it changes over the course of 22 years. It
20 appears Ameren will be regulating itself.

21 So here I am at yet another Missouri
22 Department of Natural Resources hearing where Ameren
23 is once again trying to get away with some exception
24 to the rules, regulations or permits that all other
25 coal-fired utility plants must comply with. Poor

1 Ameren had three-fourths of a billion dollar profit
2 last year. It isn't willing to spend some of their
3 profits on cleaning up some of the pollution they
4 create or preventing it in the first place with the
5 use of best available technologies.

6 In this case, Ameren could convert their
7 cooling system to use the legally required best
8 available technology cooling towers. Cooling towers
9 would prevent the heating of the water and thus the
10 destruction of the ecosystem of the Missouri River.
11 Ameren has somehow skirted this requirement for
12 years and now wants permission to continue its
13 environmentally destructive practices for 22 more
14 years. Basically, until the plant closes.

15 From the DNR website, the conditions of
16 variance, which my fellow friend and
17 environmentalist read, no variance shall be granted
18 where the effect of the variance will permit the
19 continuation of a condition which may unreasonably
20 cause or contribute to adverse health effects upon
21 humans or upon fish or other aquatic life or upon
22 game or other wildlife.

23 Based on the DNR's condition of variance,
24 I'm asking the Missouri DNR to deny Ameren's request
25 for a variance to their permit and to require Ameren

1 to install the best available technology of cooling
2 towers to help remedy the current unhealthy
3 situation they have created.

4 Thank you.

5 MS. PETERS: Thank you.

6 Our next speaker is Mary Culler. Mary
7 Culler, you will be unmuted and you will have four
8 minutes.

9 MS. CULLER: Thank you. My name is Mary
10 Culler and I'm a citizen resident of the state of
11 Missouri and I've been working in river conservation
12 and fisheries biology here in the state of Missouri
13 for many years.

14 And my role in this is -- I communicate
15 frequently with members of the public and they --
16 the Missouri River in this area is becoming an
17 increasingly popular recreational river with
18 paddlers and other people seeking recreation on this
19 stretch of the Missouri River. And so I have some
20 general questions.

21 The first question -- this may not be
22 something that can be answered during this hearing,
23 but question relates to the 22-year variance and
24 whether or not that has been done before by the
25 Department for any other permits, and if this

1 variance is setting a precedent by having a long
2 variance that extends past the permit expiration
3 date.

4 And with that 22-year variance, wondering
5 if Ameren has plans to cease the discharge at that
6 22 years. And if that information is available to
7 the public.

8 And so my main comment is that I know DNR
9 has a website specifically for the Labadie Energy
10 Center. And under the section related to water
11 protection, there's no information about, you know,
12 a ceasing a discharge and maybe what the plans are
13 for the Ameren plant. And I did not see the biotic
14 study for this variance. And I did a Sunshine
15 request for that last Wednesday and have not yet
16 received the biotic study related with this
17 variance. And so I think that is information that
18 could be put on the public web page because there is
19 going to be quite a bit of public interest in trying
20 to understand this pretty complex issue.

21 Thank you.

22 MS. PETERS: Thank you.

23 So that everyone is on the same page,
24 responses to comments will be provided once a final
25 decision is made and a response to comments will be

1 submitted to everyone that has participated both in
2 writing and tonight. So we aren't answering
3 questions, but we will be answering and responding
4 to all of the comments.

5 If a Sunshine law request has been
6 submitted, we will look into that and respond to
7 that, as well.

8 MS. CULLER: Thank you.

9 MS. PETERS: Our next speaker is Scott
10 Mansker.

11 Scott, you will be unmuted and you will
12 have four minutes.

13 MR. MANSKER: I'm the race director for
14 the Missouri River 340, a canoe race from Kansas
15 City to St. Charles. We just completed a few weeks
16 ago our 15th annual running with athletes traveling
17 from 37 states and 3 countries to experience the
18 Missouri River.

19 The challenge, as I have been listening
20 here, I don't think it's as simple as just a hotter
21 Missouri River. You know, Ameren has their study,
22 their biological study, and they can point to it and
23 say they believe there will be no harm to the river.
24 But for sure, the dynamic that I see being harmed is
25 public trust. I mean, we've known for a long time

1 that Ameren was in routine violation of various
2 permits. And not even the questionable
3 self-monitoring methods that are in place could hide
4 what was going on. And now they seek to codify the
5 violations under a variance rather than just fix
6 what should have been fixed and they are capable of
7 fixing many years ago.

8 Now, it's -- for me, it's hard to blame
9 Ameren because Ameren isn't anything. It's not a
10 person; it's a corporation. So, you know,
11 corporations operate, you know, under our system.
12 They just function on, like, blind instinct and they
13 just seek profits and avoid costs. That's what
14 corporations do. Seek profits, avoid costs.

15 The ones that I see that are at fault
16 here, if this is passed, is the regulatory agencies
17 that the public trusts to constrain any kind of poor
18 corporate behavior. You know, we operate in a
19 capitalist system and that can accomplish great
20 things, but we have put in place regulation of that
21 capitalism so that any harms would be minimized.
22 When capitalism is just unrestrained, it will seek
23 profit at the expense of the public. And costs that
24 should be borne by the corporation are instead
25 inflicted on the public. So somebody always pays

1 when these rules are broken. As Tara pointed out,
2 the corporation, by its nature, seeks to avoid
3 paying; and, the public, when alerted to danger,
4 also seeks to avoid paying. When the public pays,
5 it can take the form of climate harms, unhealthy
6 water supplies, respiratory illness, cancer or
7 sometimes it's as simple as game fish that are
8 unsafe to be eaten or a river that is no longer safe
9 to swim in. But somebody always pays. So we depend
10 on regulatory agencies to draw the line and enforce
11 fairness. If a corporation is going to extract from
12 the public good, it must be done in a way that
13 minimizes or eliminates harm to the public. The
14 corporation and its investors don't get to make
15 extra trips to the bank on the back of the public.
16 That's the deal we all signed up for. That's the
17 arrangement that we hope exists through regulation.

18 So here we have Ameren's Labadie coal
19 plant, which has been dragged into the 21st century
20 where renewable energy is now similarly priced if
21 not less expensive than coal fired. And if the true
22 harms of burning coal were added to the equation,
23 coal would be far more expensive than renewable
24 energy. In other states where regulators aren't so
25 tinted, the costs are more reflective of reality and

1 coal plants are disappearing in lieu of less harmful
2 natural gas or wind or solar. Corporations are
3 stepping up and investing in the future of power
4 generation.

5 But here in Missouri, we see regulators
6 contorting by variance to meet the failed
7 performance of the Labadie plant and so by allowing
8 Ameren to save a few short-term bucks today, they
9 know that those bucks are being passed on to you and
10 me. And while we can debate if a hotter Missouri
11 River is going to have lasting harm to wildlife, we
12 cannot debate that allowing Ameren to skirt costs
13 that they should have been paying all along will
14 indeed continue to warp the math that makes coal
15 burning narrowly profitable for a few more years at
16 our expense. Because that's all a corporation
17 really cares about: The near term, the next
18 quarter, the dividend yield. There are smart
19 people, I'm sure, at Ameren who know that this plant
20 is a zombie. But man, if they can milk another
21 decade or two before they move on, that is all that
22 matters. Get me to the next quarterly earnings
23 report or profit statement.

24 So all our hope lies with the regulators.
25 That's the public voice, right there. We hope that

1 they are looking out for us and we have become
2 cynical of them, as well. Because if they are never
3 enforced, if they have never enforced the existing
4 thermal pollution boundaries, why would they start
5 now. It's easier to change the rules. Thank you.

6 MS. PETERS: Thank you.

7 Our next speaker is Rachel Arnold.

8 Rachel, you will have four minutes.

9 I'm sorry. I'm sorry. Let me back up.

10 I got them out of order. I apologize.

11 Our next speaker, I apologize, is Lloyd
12 Klinedinst.

13 Lloyd, you will be unmuted and have four
14 minutes.

15 MR. KLINEDINST: I will send in what I
16 had originally written for reading, but that's seven
17 minutes. Let me improvise and summarize.

18 I think we're working from different sets
19 of facts. And so for one thing, it would be good if
20 there were someplace, as far as a hearing goes, to
21 adjudicate a common set of facts that are mutually
22 agreed upon. And then similarly, a set of
23 principles.

24 I think, in general, I won't go into all
25 of the details that other people that I -- that I

1 know and respect have cited. But in general, it
2 strikes me that the rules and regulations that I
3 hear Ameren and Missouri DNR citing and detailing
4 and bullet-pointing kind of fly in the face of -- of
5 face validity trick to the river.

6 If you look in the background of my
7 website -- of my zoom picture, there are -- there is
8 the diagram and then three pictures of the effluent
9 water. And if you would go down there and stick
10 your hand or foot in the water, you would also have
11 a face validity test that I think would somewhat
12 question all of the rules and regulations that have
13 been cited. It's not unlike I see laws being cited
14 to to prevent justice from being served.

15 So in short, my name is Lloyd Klinedinst.
16 I live in Franklin County. I have children and
17 grandchildren living here. And I believe that the
18 Labadie Energy Center violates the health and
19 well-being of all of the living beings in animal
20 life, both on land, as was cited, and in the air,
21 and in tonight's hearing, particularly the water.

22 I'm arguing against the variance request
23 and for and in defense of the unique river ecosystem
24 that's the Missouri River.

25 My lines of argument, which I'll send in,

1 are economic, environmental, technical and legal. I
2 don't even mention the two issues that others
3 mentioned that are of value, extreme value, historic
4 preservation and tourism.

5 I would like to focus a bit on the
6 economics. The Ameren plant, as already mentioned,
7 sucks in that free one billion gallons of water each
8 day from the Missouri River, taking in earnings of
9 short of a billion dollars a year. And they say
10 they can't afford paying for cooling towers which
11 would reduce the intake of water by as much as 95
12 percent. What kind of corporate welfare is MDNR
13 aiding and abetting by possibly allowing these loose
14 variances? Please require Labadie Energy Center to
15 install the best available technology to minimize
16 endangering the Missouri River quality.

17 Technically, on two fronts, there's the
18 allowance of Ameren to have their own thermal
19 discharge parameter. So they create their own
20 instruments, they do their own reporting and their
21 own interpretation of reports and there's little
22 supervision of that. I think, if anything, as the
23 plant reaches its lifetime expectancy in 22 years,
24 it should be checked more often, not less often.

25 The question -- thank you.

1 MS. PETERS: Thank you.

2 Our next speaker is now Rachel Bartels.

3 Rachel, are you with us on one of our
4 call-in lines?

5 Rachel.

6 Would any of the speakers that we don't
7 gain access to, we will recirculate back at the end
8 and see if any of those are available. But we don't
9 seem to have Rachel on the line, so we will move on
10 to our next registered speaker.

11 Brett Dufur. Brett, you have four
12 minutes.

13 MR. DUFUR: Can you guys hear me okay?

14 MS. PETERS: Yes, we can.

15 MR. DUFUR: Okay. Great.

16 Thank you for letting me speak this
17 evening. My name is Brett Dufur. I am the former
18 mayor of Rocheport, Missouri, which is Missouri
19 River Mile 186.5 up in Boone County. I happen to
20 also be the author of Exploring Lewis and Clark's
21 Missouri, as well as the Katy Trail Guidebook. I
22 have spent the last 25 years promoting the Missouri
23 River Valley to tourists. And the piece that's the
24 most foundational to eco-tourism and rural economic
25 development is the Missouri River. And not just the

1 Missouri River, but a healthy Missouri River. The
2 healthiest Missouri River we can create.

3 I propose that our mission is to
4 preserve, conserve, protect and enhance the Missouri
5 River. I vehemently request that you deny this
6 proposed variance. I believe that what's in the
7 best benefit of rural Missouri is a healthy Missouri
8 River. Not only do we have America's longest rails
9 to trails project literally on the banks of this
10 river, but we also have the longest ultra marathon
11 kayaking race in the world in our own backyard, the
12 MR 340.

13 So anything we can do to make this
14 better, I encourage that. I happen to also be the
15 founder of Mighty Mo Canoe Rental. I have guided
16 more than five thousand people on the Missouri River
17 over of the past 15 years out of Rocheport. That is
18 over five thousand river miles in my own backyard.
19 I guarantee someone like me will never set up in the
20 Labadie region to do that because, again, a healthy
21 Missouri River is foundational to eco-tourism and
22 rural economic development.

23 And I just want us to remember in
24 closing, as Thoreau said: In wildness is the
25 preservation of the world.

1 Thank you.

2 MS. PETERS: Thank you.

3 Our next speaker is Suzanne Jackson.

4 Suzanne, are you with us?

5 MS. JACKSON: Yes, I am.

6 MS. PETERS: Great. Thank you.

7 Suzanne, you will have four minutes.

8 MS. JACKSON: Okay. Thank you for
9 taking -- thank you for having me on.

10 And I am a resident of Missouri. I
11 breathe the air here. I enjoy the river. I don't
12 have a science background or anything like that, but
13 I do -- the other speakers make a lot of sense to
14 me. I -- I think that we know climate change is a
15 problem. We know that putting hot water back into
16 the river is a problem. We know that states go
17 through drought times that are also a problem. The
18 hot water affects fish. And if there's drought,
19 that can shut down the plant, which can affect
20 electricity and it can also affect plant life.

21 I just think that Ameren needs to be a
22 good corporate citizen. And like the other speakers
23 said, corporations are there to make profits for
24 their shareholders. Well, they also need to be good
25 citizens for the area that they serve. And as we

1 know, just like with the virus this year, everything
2 can change in an instant. And letting them abuse
3 the land and the river for the next 22 years is not
4 a good idea and I do think that the DNR is
5 responsible for that. They are there to protect us.
6 And it seems like here in Missouri, it's not. In
7 other areas of the country, they seem to be in the
8 pockets of industry anymore. And we need to get it
9 back to we are going to do what is right for the
10 people and the planet. If we don't, we're not going
11 to be around any longer.

12 So I think that the DNR should vote
13 against this. I think Ameren should either put up a
14 cooling tower, find a way to use reclaimed water for
15 cooling, or else close the plant in favor of clean
16 energy.

17 So that's my take. Thank you.

18 MS. PETERS: Thank you.

19 Our next speaker will be Patricia Schuba.

20 And Patricia, so that you know,
21 Washington University gave you one extra minute of
22 their time. So you have five minutes to speak at
23 this time.

24 Patricia, are you still with us?

25 MS. SCHUBA: Yes.

1 MS. PETERS: There you go. We can hear
2 you now.

3 MS. SCHUBA: Sorry.

4 Good evening. My name is Patricia Schuba
5 and I'm the president of Labadie Environmental
6 Organization, an all-volunteer community
7 organization, a nonprofit, in the state of Missouri
8 since 2009. Our core membership and board of
9 directors all live in the area surrounding the
10 Labadie power plant and use and appreciate the
11 river.

12 I testify today in opposition to DNR
13 approval of Ameren's variance request on behalf of
14 myself, my family, the LEO Board of Directors, and
15 our LEO supporters that use and appreciate the value
16 of our iconic Missouri River. I testify for all of
17 those that currently use the river and the river
18 flood plain for fishing, hunting, canoeing,
19 kayaking, hiking, birding, biking the Katy Trail,
20 and other forms of recreation and tourism that
21 support the local and regional economy. LEO
22 members, like most Missourians, value our natural
23 resources, including the life that is in the
24 Missouri River and supports the surrounding
25 community, including farmland that is enriched by

1 flooding.

2 We have several concerns with the limited
3 research done in advance of the application and the
4 specifics of the variance as written. For
5 simplicity and time efficiency, I will list four of
6 them.

7 No. 1: The variance request is for 22
8 years, the use -- the full useful lifespan of the
9 plant. The public should have input on permit
10 changes every, approximately, five to eight years,
11 at most. Climate change is impacting both the
12 temperature and volume of the water in the river
13 and, if this variance is approved, DNR regulators,
14 scientists and the public will have no opportunity
15 to review and make changes to the variance given
16 changes in the river channel, what lives in the
17 river, and the volume and temperature of the river
18 with rapidly changing climate.

19 No. 2: Ameren has requested to use a
20 proprietary calculation to determine compliance with
21 the variance they are requesting. Based on this
22 alone, DNR must reject Ameren's request for the
23 variance. How can DNR regulate compliance if they
24 cannot verify the method of determining compliance?
25 How can the public and experts comment on the

1 ability of Ameren's calculation to protect what
2 lives in the river and impacts on the ecosystem when
3 they have been unable to study the calculations?

4 No. 3: Discharging hot water that
5 raises the temperature of the river water will
6 endanger fish, aquatic life and plant life in the
7 river. Taxpayers have invested 280 million dollars
8 in the recovery of the endangered pallid sturgeon
9 whose reproduction is highly heat sensitive. There
10 is substantially less fish and aquatic life
11 downstream of the discharge than upstream, which
12 suggests these processes and the discharge of hot
13 water is likely already having an impact. We would
14 like to see more studies and standards that protect
15 our resources.

16 No. 4: Ameren has not been required to
17 measure the river temperatures downstream of the
18 plant adequately. DNR should require a minimum of a
19 year of testing to confirm baseline seasonal
20 temperature changes due to the current large
21 discharges of heated water per day. And mind you, I
22 haven't been able to review the study, but I can't
23 believe that wouldn't have an impact on the river,
24 and maybe it's about where we're testing and how far
25 down the river. The testing results should be made

1 public and published on Ameren's website in a form
2 easy to understand by the public. We should know
3 where the testing is done and the results and
4 comparisons to upstream values.

5 One winter, I was on the river and noted
6 the stench near the plant. It was one of rotting or
7 cooking sediment plants and organic life. As I put
8 my hand in the river, it was hot, hotter than warm
9 water in a bathtub. More like a hot tub. I was
10 shocked because I had no idea that the water being
11 discharged from the plant could be that hot and
12 clearly damaging to life in the river.

13 As a citizen of Missouri and president of
14 a community organization dedicated to protecting the
15 environment and life, I ask that you deny Ameren's
16 variance request and lean in on your mission, as
17 defined by law, deny Ameren's request for a
18 variance; and, finally, require Ameren put on
19 cooling towers as a solution to their inability to
20 be compliant with their current permit. After all,
21 most utilities have put on best available technology
22 as required when utilities do substantial upgrades
23 to their operations. Clearly, Ameren should have
24 had cooling towers decades ago.

25 Thank you very much.

1 MS. PETERS: Andy, are you with us.

2 MR. KNOT: I am. I could not hear you.

3 MS. PETERS: There you go. Thank you.

4 Your four minutes will start now.

5 MR. KNOT: My name is Andy Knot and I
6 just want to say I appreciate this opportunity from
7 the Commission and the DNR to provide comment this
8 evening.

9 I do work for the Sierra Club and you've
10 heard testimony on our behalf earlier from Tara
11 Rocque and Peter Goode. So I'm going to speak as an
12 individual resident of Missouri.

13 I do live in St. Louis County. I work
14 out of our office in Maplewood. And I just want to
15 start by saying that I -- I moved to Missouri seven
16 years ago from Michigan, a Great Lake -- the Great
17 Lake State, to Missouri, which is known for its
18 great rivers. And I found that move -- a potential
19 move at the time very appealing because of
20 Missouri's rich history with its rivers and the
21 diversity of its water resources from, you know, the
22 Ozark rivers, the Current, the Jacks Fork, the
23 Meramec, Eleven Point, all of the springs in
24 Missouri that it's known for, and also for the great
25 rivers of Missouri and the Mississippi.

1 And these great rivers are under assault
2 from industrial pollution. That is epitomized by
3 the Labadie discharge into the Missouri River.

4 I oppose this proposed variance for
5 multiple reasons due to its impact on the Missouri's
6 habitat, including the risk to the endangered pallid
7 sturgeon and other aquatic species.

8 I also oppose the proposed 22-year term
9 of this variance. This, essentially, shuts out the
10 public of any potential future review of the
11 operations of Labadie.

12 Earlier in my career, I worked as a
13 regulator at the Indiana Department of Environmental
14 Management. And I spent the remainder of my career
15 working at agencies or organizations where I have
16 followed or commented on numerous state
17 environmental permits and risks and regulations. In
18 all of that time, the last 35 years, I have never
19 seen a permit condition or a variance with a 22-year
20 term. This is clearly excessive and is an attempt
21 to lock in this harmful variance and lock out
22 further scrutiny for the next 22 years.

23 I urge the commission and DNR to reject
24 this variance request.

25 Thank you again for this opportunity.

1 MS. PETERS: Okay. Before we move on to
2 our next speaker, I will remind everyone, if there
3 is anyone out there that would like to request a
4 slot to speak and has not yet done so, please
5 private message Krista and we will be happy to add
6 your name to the end of our meeting.

7 Our next speaker is Abigail Lambert.

8 Abigail, you will have four minutes.

9 MS. LAMBERT: This is Abigail Lambert and
10 I live in great southern Missouri. Family, friends
11 and I have paddle boated and boated the Missouri
12 River for many years. It's a spectacular river, a
13 natural resource that we all have a responsibility
14 and that we have been imposed on for so many years.

15 In this stretch of the river, we often
16 see large amounts of foamy, smelly water. My
17 husband saw this and we don't like being in that
18 area. But beyond our comfort, we need to protect
19 all of the animal life that the Missouri River
20 supports.

21 We should -- I do think we should (audio
22 failure) any and all technological advancement for
23 cooling and filtering so the fish and organisms are
24 not killed and the river is not impacted at all.

25 Everybody has already said, so maybe I

1 don't need to repeat, but a 22-year permit is just
2 wrong. Seems like technology will only get better
3 and DNR should require that it be used.

4 So I object to the variance and hope the
5 DNR denies this request.

6 Thank you very much.

7 MS. PETERS: Thank you very much.

8 We are moving on to our next speaker.
9 And if anyone is having any issues hearing the
10 speakers or the presenters, can you please just
11 private message us and let us know. We had one
12 comment that someone was having some audio issues,
13 but everyone else seems to be okay. So if you're
14 having problems, please message Krista or I and let
15 us know.

16 Our next speaker is Amy -- I'm sorry.
17 Our next speaker is Sarah Wilkes. She, I believe,
18 is withdrawn, but I do want to double check and make
19 sure that she's not out there and hasn't changed
20 her mind.

21 Sarah.

22 Okay. We'll move on to our next speaker.
23 Our next speaker is Amy Bonsall.

24 Amy, if you're with us, you will have
25 four minutes.

1 MS. BONSTALL: Yeah, I'm here. My name is
2 Amy Bonsall. I am a Franklin County resident. I
3 live at the southern most tip of the Missouri River.
4 My significant other, Rob Matheny, is a bow
5 fisherman. He is not one to zoom or do something
6 like this, but he and I have talked about this
7 issue, which has only recently come to my attention.
8 So I'm not quite as versed as I would like to be.

9 But his experience with Asian carp on the
10 Missouri River and its tributaries is relevant, I
11 think. He's been at it for 20-plus years. He has
12 seen the Asian carp population proliferate to
13 alarming degrees. They breed and feed better in
14 warmer water than our protected species of fish --
15 the pallid sturgeon, flathead chub, lake sturgeon --
16 which prefer cooler temperatures.

17 There is Rob now.

18 Ameren is heating the Missouri River to
19 the tune of a billion warming gallons a day. The
20 Asian carp population growth isn't because of that
21 alone, but no one can tell us for sure. I have not
22 heard or seen anything credible yet for me, as a
23 member of the public, to believe that the discharge
24 coming out of that plant isn't contributing to the
25 proliferation of the species of Asian carp.

1 From a recreational perspective, it has
2 become a frightening experience for me to boat on
3 the river and its tributaries for fear of the Asian
4 carp launching into the air and striking your body.
5 Rob equates it to a 15-pound bowling ball hitting
6 you. And he has had numerous experiences with
7 flying Asian carp injuring him and fishing partners.
8 He has seen them in massive groupings clogging the
9 rivers he fishes. And swimming in such bodies of
10 water is, of course, out of the question.

11 Pam Hackler and I had a nice
12 conversation. Pam, I appreciate all of the time you
13 spent with me to help me understand the gist of the
14 thermal variance from DNR's perspective. The 22
15 days a year Ameren is asking to discharge water at
16 the higher temperature than is otherwise
17 permissible. Ameren says putting in cooling -- and
18 I'm kind of capturing the essence of the
19 conversation, so I'm not necessarily quoting
20 specifically. But my understanding was that Ameren
21 feels the cooling technology would increase power
22 generation, introduce new chemicals into the
23 equation, and would only be needed on those few days
24 when the discharge is too hot. Therefore, the
25 conclusion is not to allow -- is that allowing the

1 discharge is preferable to installing cooling
2 technology, cooling towers. The 22-year permit
3 length was agreed to, apparently, Pam said, based on
4 asking Ameren how long the plant was anticipated to
5 be operational. 22 years. Hence, the length. Pam
6 did say that every five years DNR can review the
7 permit and potentially make changes, but no hearing
8 or public input would be required.

9 Moving along. I seriously question why
10 the cooling technology that has been installed at
11 many other coal fire plants is not something that
12 makes sense here, as well. You don't have to be a
13 PhD to know that our river -- that heating our river
14 is doing damage. Ameren should not be allowed to
15 minimize costs on an old power plant destined for
16 the scrap heap at the expense of our Missouri River.
17 So best available cooling technology would be my
18 number one request.

19 Number 2 would be to deny the variance.
20 Many reasons, both legal and just the whole way that
21 the -- it's being presented. The support for it
22 have been presented that are far beyond my
23 knowledge, but that, to me, sounds quite convincing.
24 The 22-year time frame is alarming now to me to a
25 degree beyond what I knew before. It is -- it is

1 simply too long. There must be a cap on it to allow
2 public input.

3 The Asian carp situation could become
4 even worse. We could have better and broader
5 measures of thermal discharge impact coming into the
6 future and cooling technology could be improved for
7 the future. So as the least good alternative, if
8 this variance has to be approved, it must be with a
9 much tighter set of constraints. DNR should err on
10 the side of caution with a shorter permit period to
11 more actively protect the river, its ecology, and
12 the recreation it supports.

13 However, given all of the excellent
14 concerns I have heard raised this evening by Sierra,
15 by Wash U, by Labadie Environmental Organization, I
16 would strongly urge the Commission to simply start
17 fresh and make sure the public has had thorough and
18 adequate understanding and input into the issue.

19 Thank you.

20 MS. PETERS: Thank you.

21 And I apologize for mispronouncing your
22 name. Tara messaged us and authorized us to give
23 you some of her time at the end. So the time that
24 ran over was actually part of Tara's extra time that
25 they had left over. So thank you for that -- those

1 comments.

2 Our next speaker is Lensyr Urbano. And
3 if I mispronounced that, I apologize, too. You will
4 have four minutes.

5 One moment. There you go. Now you are
6 unmuted and you have four minutes. Thank you.

7 MR. URBANO: Okay. Thank you.

8 I'm -- I have a PhD in geology and
9 geophysics and I live just a couple miles from the
10 power plant in Labadie.

11 And I really would like to just oppose
12 this variance for, again, a lot of the reasons why,
13 you know, people have said before. But the primary
14 things that concern me are the -- well, the first
15 thing, the thermal discharge parameter that Ameren
16 is going to use to determine water discharge limits.
17 It's disturbing that this is -- you know, I can't
18 find what this parameter is, how they come up with
19 this, and it seems to be some sort of proprietary
20 formula. So in terms of transparency and them being
21 allowed to discharge water into the river, this
22 needs to be something that is available to the
23 public.

24 I'm also really concerned about
25 monitoring. Okay. I don't believe there is any

1 monitoring required by the variance or very little,
2 but there shouldn't be any reason why we cannot have
3 long-term monitoring of the river downstream of
4 this -- of the discharge. That should be fairly
5 easy to do. Okay. And the data for that is
6 collective, should be available to the public in
7 open and very available manner.

8 Okay. And then the third thing I want to
9 mention is, I don't notice anything in the
10 information about the variance that has to do with
11 processing the effects of climate change in the
12 future. Where, I mean, 22 years and we're not
13 considering changes that are likely to happen
14 because of changing climate on the Missouri River.
15 That just seems very unreasonable.

16 Yeah. And so those are my primary
17 concerns and it does, again, feed into all of the
18 ecological and other impacts, I think, this
19 discharge from the power plant will have on the
20 river.

21 Thank you.

22 MS. PETERS: Thank you.

23 Our next speaker is Leah Clyburn.

24 Leah, you will have four minutes.

25 MS. CLYBURN: Can you hear me?

1 MS. PETERS: Yes, I can now. Hang on.
2 You're muted again. There you go. Okay.

3 MS. CLYBURN: Thank you.

4 Hello, everyone. My name is Leah
5 Clyburn. I do work at the Sierra Club as a beyond
6 coal organizer. But as you have already heard from
7 our representation with Tara and Peter at the Wash
8 U. Clinic, I'm going to speak on of a St. Louis,
9 Missouri resident.

10 Growing up here in Missouri, you learn to
11 have love for the river. And as an African American
12 woman growing up here for years, only speckles of
13 opportunities have passed with opportunity to
14 actually spend that time along Katy Trail. You go
15 there for school and you're introduced to the many
16 parks and the land and the various fish and turtles
17 and everything you can find there. It's like a
18 secret garden.

19 And then now, you know, moving forward to
20 2020, as a mid-30-year-old woman, being able to now
21 be welcomed there and finding solace by the river in
22 the parks with the wildlife during this time of so
23 much confusion and turmoil, being able to find peace
24 there. This idea of, you know, disregard of our
25 water system and the people and the wildlife that

1 live around and within it is one that is less to be
2 desired.

3 It is time that DNR hold Ameren
4 accountable for its behaviors. We need for you to
5 step up and to protect our land, our river, our
6 futures. 22 years means that my seven -- my
7 nine-year-old nephew will be 31. And in that time
8 span, we've already heard just in the few -- from a
9 few voices already, we have smells and different
10 types of invasive wildlife that make things
11 difficult to do, the things that we grew up doing
12 here in Missouri. To think that my nephew will not
13 be able to experience just a taste of that without
14 referring to the river or our parks as being smelly
15 or distasteful or can't -- might not even be able to
16 even go in by that time and he will be 31. We're
17 talking about a nine-year-old. 22 years is too
18 long.

19 So I -- I believe at the end of -- at the
20 end of all of this, the concern most of all is the
21 limit of -- of public voice and DNR, I'm calling on
22 you to be this representation. Be the leadership
23 that we ask of you to be.

24 So in this time especially that we're in,
25 of so much uncertainty, your job is very clear. And

1 so I -- I stand up here today to just to say no on
2 the variance. No on the 22 years. And -- and an
3 opportune time to really speak with the community of
4 all kinds because everyone is coming to our parks.
5 That's all we got right now. And we're going to our
6 rivers. That's all we have. And if we lose that,
7 then what do we have?

8 So thank you for your time and that is
9 all I have. Thanks.

10 MS. PETERS: Thank you.

11 We'll be moving on to our next speaker
12 momentarily. But, it does look like some of our
13 speakers have wrapped up a little faster than
14 anticipated. So if any of you would like to request
15 some additional time at the end of our meeting, if
16 we have time, please message Krista. We'll look at
17 how many requests we have and we'll determine how we
18 can best handle those. If you have additional
19 comments that you do want to make, again, please
20 message Krista and let her know.

21 Right now, we'll move on to our next
22 registered speaker, which is Meghan Crawford.

23 Meghan, you will have four minutes.

24 Meghan, are you muted?

25 Okay. We'll -- are you with us, Meghan?

1 We will skip Meghan and come back at the
2 end and see if we can get her back.

3 We will move on to our next registered
4 speaker, which is Joyce Davis.

5 Joyce, you will have four minutes.

6 Joyce, are you with us?

7 Okay. We will get back to Joyce in a
8 minute then.

9 Our next speaker is John Imminez.

10 John, are you with us?

11 Okay. We'll move on to our next speaker.

12 Arden Green.

13 Arden Green, are you with us?

14 Okay. Moving on, our next registered
15 speaker or final registered speaker -- I'm sorry,
16 our second-to-last registered speaker is Julie
17 Smith.

18 Julie, are you with us?

19 Our next registered speaker is Lisa
20 Zerbe.

21 Lisa, are you with us?

22 MS. ZERBE: Yes.

23 MS. PETERS: Great. We were beginning to
24 think everyone left us.

25 All right. Lisa, we will kick it over to

1 you and you will have four minutes.

2 MS. ZERBE: Sure. I'll be brief.

3 Lisa Zerbe. 20-year resident of Labadie.

4 Real quick. Missouri DNR has the
5 responsibility and obligation to protect and promote
6 enjoyment of our natural resources. In this case,
7 Missouri River water quality.

8 Anyone who has been on the Missouri River
9 at or downstream from the power plant or even stood
10 on the river bank on neighboring St. Aubin's
11 property has seen the miles long putrid gray and
12 brown foam surface flow originating at the hot water
13 discharge site. It certainly and absolutely
14 detracts from the promotion of the enjoyment of this
15 area of this river.

16 As I understand, closed-cycle cooling
17 tower technology exists that is readily available
18 and economically feasible. I can't help but ask
19 why, with reported three-quarter billion dollar
20 profit per year why wouldn't DNR not want to require
21 Ameren to use this best available technology to more
22 completely promote and protect a higher quality of
23 river enjoyment.

24 I not only object to the variance, I
25 object to the past 40-plus years of thermal

1 discharge. Rather than continuing 22 more years
2 with a variance, I believe it should stop completely
3 now.

4 That's all I have to contribute.

5 MS. PETERS: Thank you, Lisa.

6 So at this time, that completes our list
7 of registered speakers. So at this time, what we
8 are inclined to do is go ahead and give an
9 additional five minutes to each of our presenters.
10 To each --

11 I'm sorry. I'm going to do one last call
12 for each of our missing speakers. I apologize. I
13 will do one last call. Krista has the call-in users
14 unmuted, or working on it.

15 Okay. Our call-in users, we are going to
16 do one last call for the speakers that were
17 registered that hadn't had a chance to speak.

18 Rachel Bartels.

19 Rachel, are you with us?

20 Meghan Crawford.

21 Meghan, are you with us?

22 Joyce Davis.

23 John Imminez.

24 Arden Green.

25 Julie Smith.

1 Okay. What we'll do now is, we will give
2 each of our presenters an additional five minutes.
3 We will give Ameren an additional five minutes;
4 we'll give Washington University School of Law,
5 Tara, an additional five minutes.

6 In that time frame, while they have the
7 floor, if anyone else would like some additional
8 time to add to their statements, please message
9 Krista Welschmeyer. We are here. We want to hear
10 what you all have to say. And if you were cut
11 short, we definitely want to hear the additional
12 thoughts that you have, especially since we have
13 time. We just wanted to make sure that everyone had
14 an opportunity to speak that wanted to.

15 So please, at this time, if you have any
16 interest in speaking, please private message in the
17 chat Krista Welschmeyer. We will be happy to get
18 back to you.

19 But with that, I will kick it over to
20 Ameren, if they are still on the phone. Craig or
21 any of the folks at Ameren -- I'm sorry -- at Ameren
22 Missouri, you have five additional minutes, if you
23 would like that.

24 MR. GIESMAN: Thanks, Heather. I think
25 that we had just a couple more additional slides

1 that we were going to go through. But nonetheless,
2 I think those will be made a part of tonight's
3 meeting, and so we'll just allow us to speak and
4 again make our presentation a part of the meeting,
5 if that works for you.

6 MS. PETERS: With five minutes, if you
7 guys want to go through those final slides, I think
8 that would be fine. You could share that screen and
9 do those, or we could put them in as part of the
10 record for this meeting. Either one.

11 MR. GIESMAN: Yeah. Just go ahead and
12 put them as part of the record of the meeting. I
13 think that makes sense.

14 MS. PETERS: Okay. Great. Well then,
15 thank you very much and I will move over to Tara.

16 You have an additional five minutes, as
17 well, if you would like, and we are opening up also
18 at the end to any additional speakers that want to
19 do that. We just need them to notify us so that we
20 can turn individual speakers on and off rather than
21 folks trying to speak over each other.

22 So, Tara, if you have anything else,
23 we're opening the floor to you, as well.

24 MS. ROCQUE: Sure. What I'm hearing a
25 lot from all of the speakers that have come today,

1 and you can tell by the number of speakers that are
2 here to talk about something as wompie as a thermal
3 variance, that this is something that is very
4 important to the people of Missouri. The people
5 love their rivers. They care about their fish. And
6 they care about their environment. And what we're
7 seeing in this variance does not reflect the care or
8 concerns of the citizens of Missouri. It simply
9 does not.

10 When you look at the endangered
11 pallid sturgeon, the federal government has
12 allocated something along the lines of 280 million
13 dollars of our tax dollars -- 280 million dollars of
14 our money -- to preserve and protect the pallid
15 sturgeon. We know for a fact that this species
16 resides in the lower Missouri River in and around
17 Labadie plant. Yet in the interest of corporate
18 welfare, we are throwing that 280 million dollars
19 out so that Ameren does not have to construct
20 cooling towers. Ameren has 300 and a quarter --
21 excuse me -- three-quarters of a billion dollars of
22 profits every year. That's net profits. After
23 their expenses. And then we're throwing our
24 taxpayer dollars away on top of that.

25 And I just don't understand why DNR is

1 making this decision. Why they are suggesting that
2 they want to put forth this variance. What is the
3 point of being a state full of rivers when they are
4 filled with dead, rotting, chopped up fish. When
5 the river is too hot to swim in. When you have to
6 choose your fishing location based on where Ameren's
7 discharge is.

8 I think it is perfectly reasonable to ask
9 a corporation that is getting -- that is given a
10 stateless monopoly over our energy to pitch in and
11 do its share and make sure that its operations do
12 not unnecessarily destroy our rivers and our
13 wildlife. I think it is the least that we can
14 expect them to do.

15 I have given all of my prepared comments.
16 I don't understand how this is even an issue and I
17 don't understand why our state is choosing to kowtow
18 to Ameren on this.

19 We should protect our rivers, protect our
20 water and protect our wildlife. Thank you.

21 MS. PETERS: Thank you.

22 And thank you all very much. I don't
23 believe we have any -- any additional requests for
24 speakers. So at this point in time, I am going to
25 turn this over -- back over to Mr. Reece to conclude

1 this meeting.

2 MR. REECE: Thank you, Heather.

3 I'm sorry I changed your name to Pam
4 earlier.

5 At this time, this concludes this public
6 hearing for the Ameren Labadie Energy Center.

7 As a reminder, responses to public
8 hearing comments, as well as other's comments
9 received during the public notice period, will be
10 taken into consideration by the Commission and
11 addressed by the Department in writing. Written
12 responses will be provided to all those who
13 submitted written comments. The written comment
14 period has closed.

15 The Clean Water Commission will make a
16 final decision on the request for alternative
17 thermal effluent limits at their regularly scheduled
18 Commission meeting on October 26, 2020. Location of
19 the meeting will either be at the Lewis and Clark
20 State Office Building or via Webex and conference
21 call.

22 The Department will draft an operating
23 permit for the Ameren Missouri Labadie Energy Center
24 incorporating the Commission's decision. The permit
25 will include a public participation process,

1 including a comment period on the draft permit.

2 Again, the Missouri Clean Water
3 Commission and the Missouri Department of Natural
4 Resources thank you for taking the time to
5 participate in our efforts to protect our
6 environment and preserve our water resources.

7 This hearing is now closed.

8 Thank you all very much for your
9 participation and comments.

10 (Hearing concluded at 7:24 p.m.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

CERTIFICATE OF REPORTER

I, JOYCE D. LAWRENCE, the officer before whom the foregoing hearing was taken, do hereby certify that the hearing is a true record of the hearing to the best of my ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this hearing was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Joyce Lawrence



Joyce D. Lawrence

Certified Shorthand Reporter

Registered Professional Reporter
State of Illinois CSR License #84-1716
State of Missouri CCR License #1329

My commission expires:
August 4, 2022

PUBLIC HEARING 9/1/2020

A				
	46:2,6 47:5	49:18,20	21:16	70:6,11,25
abetting 79:13	50:14 51:18	82:19,20	allowance 29:9	72:5,13 73:21
abide 51:21	67:10	afford 79:10	62:17 79:18	74:1,9,9 76:8
Abigail 3:4 90:7	action 6:2 110:8	affords 63:24	allowances	76:12,19 78:3
90:8,9	110:13	African 98:11	34:11	79:6,18 82:21
ability 34:24	actively 95:11	agencies 12:12	allowed 7:18	83:13 85:19
54:16 67:3	actual 14:12	49:8 50:9,17	12:10 15:24	86:16 87:18
86:1 110:6	20:20,23 21:5	74:16 75:10	17:11 18:8	87:23 92:18
able 10:2 11:25	31:18 68:9	89:15	22:14 26:20	93:15,17,20
15:3 60:8	add 7:25 37:18	agency 12:9	94:14 96:21	94:4,14 96:15
86:22 98:20	90:5 104:8	51:21 55:20	allowing 32:14	99:3 102:21
98:23 99:13	added 14:11	Agency's 12:14	43:2,16 63:4	104:3,20,21,21
99:15	75:22	agenda 6:19	76:7,12 79:13	106:19,20
absolutely 19:10	addition 47:16	ago 60:25	93:25	107:18 108:6
102:13	50:12 51:1	63:15 73:16	allows 15:19	108:23
absorb 29:14	additional 8:1	74:7 87:24	29:1 35:23	Ameren's 42:6
abundant 37:9	14:15 100:15	88:16	40:6	42:25 43:5
43:20	100:18 103:9	agree 42:21	Alt 2:13 60:3,6	45:15 49:7,11
abuse 62:13	104:2,3,5,7,11	agreed 77:22	60:10,11	49:12,24 50:2
83:2	104:22,25	94:3	alternate 17:19	55:1 67:25
abusive 60:23	105:16,18	agricultural	18:9 19:4,25	68:18 70:24
accept 39:18	107:23	64:11	25:4 30:14	75:18 84:13
43:9	additionally	ahead 24:5	alternative 5:22	85:22 86:1
acceptable	10:21 30:13	59:18 60:9	6:13,14 39:4	87:1,15,17
57:7	37:18	103:8 105:11	95:7 108:16	107:6
accepting 43:15	address 56:4	aiding 79:13	ambient 11:19	America 60:15
access 80:7	addressed 9:7	aimed 25:23	Ameren 1:7 2:4	America's 81:8
accessed 40:21	50:11 56:1	air 43:4,7 67:21	5:16 6:21 7:1	American 66:17
accommodate	108:11	78:20 82:11	9:17,21,23	98:11
18:5 32:13	adequate 95:18	93:4	10:6,11 15:12	Americans
58:12	adequately	Alaris 4:16	15:22 19:25	60:16
accomplish	86:18	alarm 8:10 58:8	24:11 28:9	amount 18:14
74:19	adieu 28:16	alarming 92:13	29:17 41:4	57:17 65:8
account 34:22	41:5	94:24	42:6,14,16	amounts 90:16
accountability	adjudicate	alerted 75:3	43:1,3,6,6,7,14	Amy 3:5 91:16
54:6	77:21	algae 64:12	43:17,23 44:9	91:23,24 92:2
accountable	advance 8:25	all-volunteer	45:18 46:3	analysis 13:6
69:14 99:4	24:5 85:3	84:6	48:10,20 49:2	24:25 25:1
accurately	advancement	allocated	49:14 50:4,8	38:24
13:22	43:18 90:22	106:12	51:3,5,20	analyzed 15:3
achieve 36:13	adverse 32:9	allow 18:3 19:12	52:21 53:2	analyzing 23:7
acquire 34:16	65:20 70:20	32:10 45:18	55:9 60:16,22	Andy 3:3 88:1,5
act 10:24 11:11	adversely	51:22 52:21	60:24 61:3,6	angry 62:12
29:1,8 36:11	32:20	52:24 61:3	62:5 64:16	animal 78:19
39:9 44:2	advocate 66:9	62:15 93:25	65:3 67:22	90:19
45:2,3,20	aerial 20:25	95:1 105:3	69:4,11,13,16	announce
	affect 40:9	allowable 21:8	69:20,22 70:1	58:12

PUBLIC HEARING 9/1/2020

annual 49:5 73:16	49:8	ASA 11:5 24:11	37:3	backyard 81:11
annually 52:23	appropriaten... 53:22	ash 10:16,20	Aubin's 102:10	81:18
68:25	approval 84:13	42:25 67:24	audio 10:2	balance 36:15
answered 71:22	approved 6:13	Asian 68:17	12:24 24:6	37:16,17
answering 73:2	25:16,18 33:15	92:9,12,20,25	90:21 91:12	balanced 16:10
73:3	85:13 95:8	93:3,7 95:3	August 37:22	16:15,19 17:8
anticipated	approves 39:21	aside 46:19	110:21	18:6 36:7,15
94:4 100:14	approximately	asked 27:23	Augusta 61:16	38:11 40:9
anymore 68:23	12:15 15:8	asking 39:24	author 80:20	46:1 48:3
69:1 83:8	17:24 85:10	58:17 69:16	authority 39:7	bald 48:4
apologize 77:10	April 16:2 29:17	70:24 93:15	authorized	ball 93:5
77:11 95:21	aquaculture	94:4	39:22 95:22	balloon 31:4
96:3 103:12	44:13	asks 8:12	available 7:25	balloon's 31:4
apparently	aquatic 32:9,12	aspects 12:12	28:2,3 33:13	bank 38:1 75:15
69:16 94:3	32:19 38:3	assault 89:1	33:20 35:14	102:10
appealing 88:19	39:16 42:9,12	asserts 35:13	35:17 38:23	banks 81:9
APPEARANC...	43:10 49:10,16	assessment 11:1	40:20 61:2	Bartels 80:2
4:1	49:24 53:2	24:20 33:19	70:5,8 71:1	103:18
appears 69:20	55:3,8,11,13	assessments	72:6 79:15	base 13:13 15:16
applicable 17:2	63:10 64:22	38:18	80:8 87:21	15:20 17:4
32:4 37:20	65:21 68:13	assist 33:23	94:17 96:22	based 12:13
44:19 46:10	70:21 86:6,10	assistant 41:15	97:6,7 102:17	16:13,25 17:10
application	89:7	Associate 24:10	102:21	17:13,17 19:6
32:18 55:1	Arden 101:12,13	associated 54:4	average 53:4,6	22:23 23:6
85:3	103:24	assumed 30:23	averages 48:19	26:18 34:20
applied 17:20	area 18:18	assuming 42:3	49:5	48:19 49:5
apply 22:24	26:23 29:11	assumption	averaging	53:13,15,23
29:7 46:7	30:2,16,18 31:1	48:4,7	35:20	68:6,10 70:23
appreciable 11:3	31:3 32:6,16	assurance 26:1	avoid 74:13,14	85:21 94:3
16:9 24:23	34:23 35:24	assurances	75:2,4	107:6
38:18,22,25	61:20 64:21	69:17	aware 63:6	baseline 86:19
appreciate	68:21 69:7	assure 16:18	67:21 69:15	basically 17:4
12:25 24:8,8	71:16 82:25	25:5 35:3		26:11 66:19
28:9 58:5	84:9 90:18	39:10	B	70:14
61:17,24 84:10	102:15	assured 23:12	b 10:25	basis 27:17
84:15 88:6	areas 18:16	23:14 37:14	B-I-C 16:11	50:5,15 53:16
93:12	36:2,4,6,8	astronomical	back 24:21,22	bathtub 87:9
appreciated	83:7	43:14	42:11 57:3	beautiful 60:17
23:21 26:12	arguing 78:22	athletes 73:16	59:12 68:2,7	beauty 63:17
approach 11:20	argument	attempt 89:20	75:15 77:9	becoming 71:16
16:25 17:3	78:25	attendance	80:7 82:15	bed 34:23
21:7	Arnold 77:7	63:4	83:9 101:1,2,7	beginning
approaches	arrangement	attending 28:21	104:18 107:25	101:23
30:18	75:17	attention 44:25	background 5:7	behalf 41:17
appropriate	arrive 41:11	92:7	11:19 13:20,20	51:24 63:5
33:24 34:6	arrived 12:12	attorney 110:10	14:7,20 17:22	84:13 88:10
		attributable	78:6 82:12	behavior 8:14,17

PUBLIC HEARING 9/1/2020

74:18	biologist 66:12	brown 102:12	74:22	CERTIFICATE
behaviors 99:4	68:4	bucks 76:8,9	capitalist 74:19	110:1
beings 78:19	biology 71:12	budget 63:24	Capitol 4:17	Certified 110:16
belief 50:1	biotic 72:13,16	building 6:10	capping 10:20	certify 110:5
believe 56:4	BIP 37:13 38:19	108:20	capture 27:10	CFR 29:6 30:14
73:23 78:17	39:11	built 23:10,17	27:13 50:4	33:21 55:4
81:6 86:23	birding 84:19	bullet-pointing	53:4	CFS 17:21
91:17 92:23	birds 61:10	78:4	capturing 93:18	chain 37:10
96:25 99:19	bit 10:5,11 13:8	burden 39:3	care 106:5,6,7	challenge 73:19
103:2 107:23	21:5 24:1	burning 75:22	career 89:12,14	challenged
belongs 60:15	72:19 79:5	76:15	carefully 25:19	49:7
beneficial 10:15	blame 74:8	business 43:5	26:2,24 27:7	challenging
13:17 32:19	blessing 65:3	43:16 45:18	45:12	29:12
benefit 81:7	blind 74:12		cares 76:17	chance 103:17
benthic 25:22	blooms 64:12	C	carp 36:22 37:8	change 17:6,8
27:11,13	bluffs 62:4	cabin 63:18	68:17 92:9,12	19:11 30:10,25
best 9:24 61:2	board 84:8,14	calculate 34:24	92:20,25	31:2,9 38:8,12
70:5,7 71:1	boat 93:2	calculated 19:9	93:4,7 95:3	40:14 62:8,9
79:15 81:7	boated 90:11,11	32:25 53:7	case 54:9 70:6	64:13 65:8
87:21 94:17	bodies 93:9	calculation	102:6	77:5 82:14
100:18 102:21	body 29:16	19:23 23:17	cases 20:19	83:2 85:11
110:6	32:13,20	51:5 54:4 68:7	cause 50:25	97:11
better 16:25	34:13 37:14	85:20 86:1	65:20 70:20	changed 91:19
17:3 35:9	39:12 65:24	calculations	caused 33:9	108:3
81:14 91:2	93:4	34:20 54:15	causing 42:18	changes 31:15
92:13 95:4	Bonsall 3:5	54:20 68:11	64:12	36:21,24,25
beyond 32:3	91:23 92:1,2	86:3	caution 95:10	37:1 48:5 49:4
33:10 90:18	Boone 80:19	calendar 18:4	CCR 110:18	62:10 65:10,11
94:22,25	borne 74:24	call 6:11 13:12	CCR-MO 4:16	68:9 69:19
98:5	boundaries	44:25 103:11	cease 72:5	85:10,15,16
BIC 16:11 25:6	77:4	103:13,16	ceasing 72:12	86:20 94:7
biking 84:19	Bourbeuse	108:21	Center 1:7 5:17	97:13
Bill 2:6 11:8	63:18	call-in 2:12	16:2 29:19	changing 68:18
23:23,24,25	bow 92:4	58:15,17,20	40:4 52:16	85:18 97:14
24:4,9 27:21	bowling 93:5	58:23 59:3,6	72:10 78:18	channel 85:16
billion 42:7,14	breathe 43:7	80:4 103:13,15	79:14 108:6	characterize
43:24 44:8	67:22 82:11	called 48:8	108:23	27:4
60:23 68:5	breed 92:13	calling 99:21	Center's 28:22	charged 36:12
70:1 79:7,9	Brett 2:20 80:11	calm 8:14	Centigrade	55:20
92:19 102:19	80:11,17	canal 20:9 36:5	66:21	Charles 11:6
106:21	brief 53:18	cancer 75:6	century 75:19	26:5 73:15
billions 68:1	55:17 102:2	canoe 68:24	certain 14:19	chat 7:24 8:16
biological 11:1	briefly 52:19	73:14 81:15	17:11,11 20:2	8:18,24 104:17
15:22 23:8	bring 24:15	canoeing 84:18	22:21 30:5	chats 8:22
24:2 29:3	27:6	cap 43:1 95:1	33:7	cheap 43:20
32:7 36:2	broader 95:4	capable 74:6	certainly 26:7	check 91:18
45:5 73:22	broken 75:1	capitalism 74:21	102:13	checked 79:24

PUBLIC HEARING 9/1/2020

checks 62:18	87:12,23	59:12 64:16	common 44:18	51:2,9 85:20
chemical 45:5	89:20	92:7 96:18	77:21	85:23,24
chemicals	climate 64:13	101:1 105:25	commonly 16:10	compliant
93:22	75:5 82:14	comes 18:10	communicate	27:25 87:20
children 61:23	85:11,18 97:11	20:10 22:15,17	71:14	complies 11:23
78:16	97:14	42:22 64:21	communities	comply 44:18
chimed 67:8	clinic 41:16 52:2	comfort 90:18	25:22 36:20	48:16 50:13
choose 107:6	52:13,14 98:8	coming 11:19	community 11:1	51:17 69:25
choosing 107:17	clogging 93:8	69:6 92:24	16:10,15,19	complying
chopped 107:4	close 43:1 45:14	95:5 100:4	17:9 18:7 29:3	54:21
Chris 59:12	60:12 83:15	commenced 5:1	36:3,17,20	comprehend
Christine 2:13	closed 108:14	comment 2:11	84:6,25 87:14	54:16
60:2,11	109:7	5:21,23 6:18	100:3	comprehensive
chub 61:9 68:16	closed-cycle	8:5,5,6,7	company 62:12	25:21
92:15	102:16	39:19,25	62:16	compromised
circulating	closely 31:24	44:20 50:19	comparable	64:9,13
42:10	closes 70:14	50:22 51:3,9	27:5	computer 13:7
circumstances	closing 81:24	51:12,15 53:16	compare 33:20	23:8
17:6	Club 41:17 50:21	72:8 85:25	37:11	concern 8:5
cited 78:1,13,13	51:24 52:15	88:7 91:12	compared	56:1,3,4 67:25
78:20	88:9 98:5	108:13 109:1	33:12	96:14 99:20
citing 78:3	Club's 44:20	commented	comparison	concerned
citizen 69:15	Clyburn 3:7	89:16	27:6 36:4	62:16 96:24
71:10 82:22	97:23,25 98:3	commenter	comparisons	concerns 5:25
87:13	98:5	35:13	87:4	19:25 49:15
citizens 44:6	coal 42:25	comments 5:25	complete 10:7	50:9,10 55:21
82:25 106:8	75:18,21,22	6:7 8:23 9:4,4	10:20	85:2 95:14
City 73:15	75:23 76:1,14	9:8 29:22	completed	97:17 106:8
Clark 62:2	94:11 98:6	35:12 41:20	10:14,21 15:25	conclude 7:8
108:19	coal-fired	50:16 51:13,23	17:1 23:7 24:2	16:16,16
Clark's 80:20	69:25	72:24,25 73:4	31:20,23	107:25
clean 1:1 4:4 5:3	Coalition 66:10	96:1 100:19	73:15	concluded 16:5
5:8 6:13 9:6	67:13	107:15 108:8,8	completely	109:10
10:24 11:11	codified 32:22	108:13 109:9	102:22 103:2	concludes 56:7
29:1,8 36:11	65:16	commercial	completes	108:5
39:9,18,21	codify 74:4	49:21	103:6	conclusion 5:24
40:2 43:20	collected 24:15	commission 1:1	complex 50:20	34:4 51:16
45:2,3,20	26:3 53:9	4:4 5:4,8,14	54:5,14,19	93:25
46:6 50:13	collecting 23:8	6:6,14,20 9:6	72:20	condition 20:8
51:17 65:15	43:14 69:8	39:18,21 63:3	complexities	21:1,4,20 31:16
83:15 108:15	collection 5:6	64:17 66:8	50:23	65:19 70:19
109:2	27:8 38:14	67:15 88:7	compliance	70:23 89:19
cleaning 70:3	collective 97:6	89:23 95:16	12:7 13:24,25	conditions 11:18
clear 47:4 67:9	combination	108:10,15,18	14:13 16:13	15:1 17:12,18,19
99:25	14:1	109:3 110:20	17:16 22:2	17:20,24
clearly 7:20	combined 13:19	Commission's	30:6,8 35:5,6	22:22 25:3,3
59:3 64:20	come 45:14	65:16 108:24	35:8,12,15	25:4 31:24

PUBLIC HEARING 9/1/2020

36:18 38:3 40:12 46:12 65:16 66:16 70:15 conduct 8:13 15:22 conducted 10:25 11:5 24:17 25:9,15 27:1 conference 6:11 108:20 confirm 86:19 confusing 54:20 confusion 98:23 conjunction 24:11 25:16 connection 9:12 conservation 29:20 49:6 67:7 71:11 conservative 14:9,10 23:9 23:16 34:12 34:25 conserve 81:4 consider 49:11 51:21 55:2,6 consideration 8:3,4 9:6 34:2 48:2 108:10 considered 45:12 considering 97:13 considers 67:15 consistency 27:6 consistent 19:20 consistently 26:3 constant 31:14 constantly 33:4 constrain 74:17	constrained 18:20 constraints 22:15 40:18 95:9 construct 106:19 construction 10:22 consult 49:7 consultant 38:16 consultation 37:6 contact 31:5,6,9 contained 34:4 containing 61:7 contains 47:16 47:18 48:1 53:14 contaminated 67:23 continuance 65:19 continuation 16:22 70:19 continue 43:2 43:14,17 44:7 45:18 61:3 64:9 70:12 76:14 CONTINUED 3:1 continues 21:21 31:25 34:16 55:21 continuing 16:17 29:4 103:1 continuously 53:9 contorting 76:6 contract 20:16 contracting 30:16 contracts 21:9 contrary 44:15 contribute	65:20,25 70:20 103:4 contributing 92:24 control 5:7 conversation 93:12,19 convert 70:6 converted 10:16 convincing 94:23 convoluted 51:5 cooked 64:23 68:14 cooking 42:12 87:7 cool 60:22 cooler 38:13 92:16 cooling 33:16,19 34:5 50:2 55:10,11,22 60:24,25 65:1 70:7,8,8 71:1 79:10 83:14,15 87:19,24 90:23 93:17 93:21 94:1,2 94:10,17 95:6 102:16 106:20 cools 42:6 core 84:8 corporate 63:12 74:18 79:12 82:22 106:17 corporation 43:23 44:7 74:10,24 75:2 75:11,14 76:16 107:9 corporations 74:11,14 76:2 82:23 correct 59:16 60:4 corresponds 19:14	cost 43:4,5 costs 74:13,14 74:23 75:25 76:12 94:15 counsel 110:7,10 count 41:22 counted 52:25 counter-indic... 39:20 Countless 61:10 countries 73:17 country 11:7 83:7 County 63:15 78:16 80:19 88:13 92:2 couple 10:10 27:12,22 66:11 96:9 104:25 course 13:12 62:8 69:19 93:10 Coutant 11:6 26:5 covered 40:19 Craig 2:4 6:25 9:18,21 14:16 14:17 21:18 23:19 24:8 25:9 26:4 104:20 Crawford 100:22 103:20 create 70:4 79:19 81:2 created 71:3 credible 92:22 criteria 29:2,15 29:20 30:1 38:21,24 cross-sectional 32:6 CSR 32:2 36:9 39:25 110:17 CSR-IL 4:16 Culler 2:17 71:6	71:7,9,10 73:8 cultural 60:13 cumulative 55:2,6 curiously 66:22 current 13:12 15:21,25 19:6 19:8,11,21 23:12 34:5 45:19 60:21 67:5 69:6 71:2 86:20 87:20 88:22 currently 7:14 19:22 68:20 69:13 84:17 curriculum 61:19 cut 104:10 cynical 77:2
D				
D 110:3,15 daily 19:8,20 35:20 48:19 53:6 63:21 64:8 damage 94:14 damaging 87:12 danger 53:2 75:3 dark 51:8 data 9:13 13:5 23:7,8,8 26:2 27:8 38:14,23 53:8 97:5 date 47:2,3 72:3 dated 16:2 37:21 dates 46:21 Davis 101:4 103:22 day 35:21 40:17 42:8,14 60:23 68:2 79:8 86:21 92:19 days 33:5 48:21				

PUBLIC HEARING 9/1/2020

52:23 53:1 93:15,23 dead 44:10 61:7 107:4 deal 42:19 75:16 dealing 55:20 64:25 death 64:22,22 66:24 67:6 68:22 debate 6:3 76:10,12 debris 69:8 decade 76:21 decades 16:7,9 64:25 87:24 decay 69:9,10 December 31:22 decision 6:8 9:7 38:21,24 72:25 107:1 108:16,24 dedicated 87:14 defense 78:23 deficient 49:14 defined 87:17 definite 46:21 46:22 definitely 67:14 104:11 definition 15:18 36:15 37:15 degree 94:25 degrees 14:6,6 17:23 30:10,21 30:23,24 31:1 31:10 38:10 54:9,13 65:25 66:21,21 68:6 92:13 demise 66:1 demonstrate 15:4 38:18,24 39:4,7 45:23 53:11	demonstrated 32:19 demonstrates 16:12 Demonstrating 37:13 demonstration 11:12 12:13 16:2,4,21 24:12 46:5 55:5,9 denied 51:25 62:15 denies 91:5 deny 55:16 56:6 70:24 81:5 87:15,17 94:19 Department 5:19,20 6:22 7:1 8:12,25 12:10 13:1 16:24 27:22 29:20,23 30:4 31:17,22 31:25 34:2,21 35:2,11,19 37:6,22 39:13 39:17,20 49:6 52:20 63:25 67:7 69:22 71:25 89:13 108:11,22 109:3 Department's 35:4 37:7 depend 75:9 dependent 30:17 33:2 deployed 27:8 depriving 53:15 derivation 53:14 53:21 derived 37:5 descending 38:1 describe 11:10	described 33:21 describes 13:14 describing 10:5 12:5 designed 26:24 40:16 45:17 50:17 desired 99:2 despite 47:25 49:3 destined 94:15 destroy 107:12 destruction 43:10,13 70:10 destructive 70:13 detailing 78:3 details 40:18 77:25 determination 49:17 51:9 determine 15:24 30:6 33:1 48:11 49:18 54:20 62:17 85:20 96:16 100:17 determined 35:20 39:14 determining 33:23 51:1 85:24 detracts 102:14 develop 25:20 developed 30:4 30:7 51:5 developing 14:10 36:13 49:9 development 80:25 81:22 Devil's 62:7 diagram 78:8 die 66:20 different 10:5 26:17 27:2,9,9 27:10,11,12,16	29:5 36:2 77:18 99:9 difficult 99:11 diligently 63:24 63:24 diminished 64:10 dioxide 43:3 direct 47:11 directed 25:18 directly 44:15 54:7 director 41:15 73:13 directors 84:9 84:14 dirty 43:7,8 disagreed 48:18 disappearing 76:1 disappointed 62:12 discharge 11:4 12:6 13:15,21 13:23 20:9,10 20:24 26:21 29:5 30:3 31:12 32:5,21 33:9,14 34:17 36:5 37:2 38:1 38:6,6,20 39:2,12,15 40:8,14,15 42:24 45:6,15 48:11 52:22 54:3,21 55:22 68:1,18 72:5 72:12 79:19 86:11,12 89:3 92:23 93:15 93:24 94:1 95:5 96:15,16 96:21 97:4,19 102:13 103:1 107:7 discharged	87:11 discharger 29:9 discharges 32:23 33:16 33:19 34:11 86:21 discharging 40:5 86:4 disclosure 46:24 discussed 17:19 discussing 61:20 disregard 98:24 distasteful 99:15 distinguished 26:7 disturbing 96:17 Dittrich 2:16 67:18,20 diurnally 31:15 diversity 88:21 dividend 76:18 DNR 2:7 25:19 28:2 42:21 44:11 56:5 60:19 61:1 62:13 69:17 70:15,24 72:8 78:3 83:4,12 84:12 85:13 85:22,23 86:18 88:7 89:23 91:3,5 94:6 95:9 99:3,21 102:4 102:20 106:25 DNR's 55:17 66:25 70:23 93:14 dnr.mo.gov 40:22 documentation 32:17 53:19
---	---	---	---	--

PUBLIC HEARING 9/1/2020

documented 32:18	duration 45:13	64:11 65:21	enclosed 60:25	22:5 31:3
documents 29:22 37:19 50:7	duty 44:11,12,15	67:25 68:20	enclosure 10:20	entirely 49:19
doing 26:9 94:14 99:11	dynamic 73:24	70:20 97:11	encompassed 25:21	entities 6:24
dollar 70:1 102:19	E	efficiency 85:5	encourage 61:17 81:14	entity 65:4
dollars 43:24 44:8 64:3 79:9 86:7 106:13,13,13,18 106:21,24	eagles 61:12	efficient 43:20	endanger 61:9 86:6	entrains 55:11
double 91:18	earlier 47:4,9 88:10 89:12 108:4	effluent 5:22 6:13,14 13:13 13:18 15:16,20 16:13,22 17:5 17:13,17 18:25 19:5,6,16,21 20:1 21:25 22:24 25:5 29:14 30:14 31:13 33:14,24 39:5,5,8 45:23 53:12 53:17 54:3,7 54:23 65:24 78:8 108:17	endangered 37:23 49:9,13 49:19,20 50:3 55:18,21,24 67:9 68:15 86:8 89:6 106:10	entrusted 65:4
downstream 12:1 26:24 37:12 86:11,17 97:3 102:9	earnings 76:22 79:8	effluents 24:24	endangering 79:16	environment 9:2 41:16 43:13 44:1,13 63:21 64:19 64:25 65:2,9 66:10 67:14 87:15 106:6 109:6
Dr 2:5 11:6 12:4 12:18,23 26:4	easier 9:14 30:15 77:5	effort 42:17	endangers 61:8	environmental 9:22 11:6,9 23:24 52:12 52:13 68:8 69:18 79:1 84:5 89:13,17 95:15
draft 6:16,18 12:9 47:9 108:22 109:1	easily 53:7	efforts 9:1 109:5	energy 1:7 5:17 16:1 28:22 29:18 40:4 43:21 52:15 72:9 75:20,24 78:18 79:14 83:16 107:10 108:6,23	environmenta... 70:17
drafted 47:6	easy 87:2 97:5	eight 65:10 85:10	enforce 63:25 75:10	environmenta... 70:13
drafts 47:4	eaten 75:8	either 6:10 37:10 56:6 68:13 83:13 105:10 108:19	enforced 77:3,3	EPA 33:15 36:12 37:16,19 38:22 46:11 48:8,13,17,23 48:24 49:3
dragged 75:19	eco-tourism 80:24 81:21	electricity 14:23 14:25 82:20	engaged 69:15	epitomized 89:2
dramatically 14:22	ecological 36:14 97:18	elements 24:18	engineer 52:12	equal 19:6,7,17 41:3
draw 75:10	ecologist 26:8	Eleven 88:23	enhance 81:4	equally 8:7
drifting 67:4	ecology 26:8 95:11	eligibility 39:4	enjoy 61:18 82:11	equate 35:6,8
drink 43:8	economic 79:1 80:24 81:22	eliminate 45:6	enjoyed 60:12	equates 30:1 93:5
drought 29:12 40:12 82:17,18	economically 102:18	eliminates 75:13	enjoyment 102:6,14,23	equation 19:9 34:11,12,15 35:1,4,7,9 51:10 75:22 93:23
dry 10:17 62:7	economics 79:6	else's 28:1	enlightens 39:19	equations 19:22 35:7
Ducks 61:12	economy 84:21	Elzinga 2:6 11:9 23:23 24:7,9 25:11,13	enriched 84:25	equitable 28:14
due 23:15 36:24 37:2 40:18 50:22 53:24 62:7 64:10,12 69:10 86:20 89:5	ecosystem 36:23,25 37:1 37:11 65:6 68:19 70:10 78:23 86:2	email 7:22	ensure 12:6 44:12 45:8,25 46:23	equivalent 41:4
Dufur 2:20 80:11,13,15,17	ecosystems 68:8	employed 110:7 110:11	ensured 61:1	
dumped 61:6	edge 14:4 30:9 30:11,21,25 33:5 54:22	employee 110:10	ensures 13:23	
dumping 42:10 61:3	effect 13:19 48:2,11 65:18 70:18	enacted 36:12	entire 6:18 21:12	
	effective 18:9 39:22 66:15			
	Effectively 19:24			
	effects 55:2,10			

PUBLIC HEARING 9/1/2020

err 95:9	38:9	experiences	33:3,7,7,20	49:8,18 50:9
especially 54:13	excellent 95:13	93:6	34:1,15 35:14	50:17 51:21
99:24 104:12	exception 18:3	experts 11:7	37:23 39:19	55:4 106:11
essence 43:21	18:8 69:23	85:25	facility's 31:12	feed 92:13
93:18	exceptional	expiration 72:2	32:4 34:17	97:17
essentially 17:2	17:5	expire 46:12,16	36:1,3	feel 5:9
53:2 66:22	excessive	expires 110:20	fact 14:24 15:20	feels 67:9 93:21
89:9	89:20	explain 7:7	16:6 18:14	fell 63:16
establish 26:21	excursions	53:21	23:16 25:5,18	fellow 70:16
established	52:25	Exploring	25:20 28:7	Ferrara 2:5 12:4
26:18 29:10	excuse 48:17	80:20	44:15 47:25	12:18,23
40:16	106:21	exposed 26:22	67:6 106:15	field 24:1 27:8
evaluate 24:23	executed 26:15	36:6	factor 32:1 35:2	fifteen 41:21
evaluated	27:19	express 67:25	factors 34:2	figure 57:1
38:20	exempted 36:8	extend 33:10	facts 39:20	58:25
evaluation 31:21	exercise 23:10	extended 28:13	77:19,21	filled 107:4
evening 5:2 9:9	24:21	50:21	Fahrenheit 14:6	filtering 90:23
24:9,19 28:18	existing 11:17	extending 41:2	17:23 30:8,11	final 6:15 9:7
28:20,21 52:11	49:1,2 77:3	extends 72:2	30:21,23,24	12:17 16:2,4
80:17 84:4	exists 56:3	extensive 10:25	31:2,10 38:10	40:1 49:4
88:8 95:14	75:17 102:17	extent 21:10	54:10,14 66:21	72:24 101:15
everybody 28:1	expand 21:22	41:23 56:15,17	failed 48:16	105:7 108:16
28:19 54:12	expanding	exterior 31:5,7	50:4 76:6	finalized 37:20
90:25	30:16	externalities	fails 44:18 49:19	finally 22:12
evidence 50:8	expands 21:7	42:23 43:11,16	failure 49:7,11	55:17 87:18
50:10	21:23	externality 43:5	50:13 51:22	financially 110:11
evidenced	expansion	extra 41:19 42:2	55:15 90:22	find 83:14 96:18
64:20	35:24	56:17 75:15	fair 50:19 51:22	98:17,23
examination	expect 22:22	83:21 95:24	fairly 27:18,18	finding 49:24
48:1 49:13	107:14	extract 75:11	31:14 97:4	98:21
examine 49:19	expectancy	extreme 11:18	fairness 75:11	fine 59:22
examines 48:19	79:23	22:21 79:3	familiar 54:12	105:8
example 11:18	expectations		family 60:12	fire 94:11
exceed 14:3,6	64:1	F	84:14 90:10	fired 75:21
18:11 29:2	expects 43:7,7	face 44:18 46:6	far 56:1 65:1	firm 47:1,17
35:19,22	43:9	46:18 78:4,5	75:23 77:20	50:15
40:15 48:21	expedition 62:2	78:11	86:24 94:22	first 6:20 9:16
48:22 52:22	62:5	Facebook 63:8	farmland 84:25	11:15 19:1
exceedance	expense 74:23	facilitated 12:16	faster 100:13	20:12 24:20
40:6 53:3	76:16 94:16	facilitators 7:16	fault 74:15	26:6 27:3 45:1
exceedances	expenses	facilities 10:23	favor 83:15	45:4 47:1
17:9 53:5	106:23	29:2 34:10	fear 93:3	52:18 57:24
exceeded	expensive	facility 5:23	feasible 102:18	59:14 70:4
54:10	75:21,23	13:16,21,22	feature 58:16	71:21 96:14
exceeding	experience	14:17,24 15:13	federal 12:12	fish 25:21,24
46:14,17	73:17 92:9	17:7 29:25	32:22 33:17	27:11 29:21
exceeds 21:24	93:2 99:13	30:7 31:17,20	40:2 48:16	42:9,12 44:10

PUBLIC HEARING 9/1/2020

45:8,9 49:21 49:23,25 55:19 61:5,7 65:21 67:1,8 68:12 70:21 75:7 82:18 86:6,10 90:23 92:14 98:16 106:5 107:4 fisheries 66:18 71:12 fisherman 92:5 fishermen 49:22 fishery 66:12 fishes 27:9 93:9 fishing 63:18 68:21 84:18 93:7 107:6 fit 41:21 five 46:15,17 81:16,18 83:22 85:10 94:6 103:9 104:2,3 104:5,22 105:6,16 fix 74:5 fixed 46:14,17 74:6 fixing 74:7 flags 49:10 flathead 61:9 68:16 92:15 flaw 53:1 flawed 49:16 50:5 52:24 53:10 54:25 flaws 52:17 flies 44:17 flood 84:18 flooding 85:1 floor 104:7 105:23 flourishing 37:3 flow 13:21,22 14:4 17:21 18:11	19:18 29:13 31:12,14,19 33:11 38:4 40:16 53:7 54:2,3 102:12 flows 14:21 fly 78:4 flying 93:7 foam 102:12 foamy 90:16 focus 13:9 24:18 44:24 79:5 focused 26:17 folks 41:8 47:10 58:15 104:21 105:21 followed 6:22 25:25 89:16 following 5:12 6:5 40:1 follows 6:20 food 37:10 61:11 61:13 foot 78:10 foregoing 110:4 Fork 88:22 form 43:17 48:18 52:23 52:23 53:3 54:10,23 75:5 87:1 format 13:10 17:15 former 63:18 80:17 forms 61:8 84:20 formula 30:5 51:6 53:12 96:20 forth 16:25 46:2 107:2 forum 6:3 forward 24:15 25:2,2 27:6 49:15 98:19 found 26:11	48:23,24 49:12 55:19 88:18 foundational 80:24 81:21 founder 81:15 four 8:9 14:1 30:17 42:1 56:10,13,19 58:7 59:17,20 62:21 66:5 67:19 71:7 73:12 77:8,13 80:11 82:7 85:5 88:4 90:8 91:25 96:4,6 97:24 100:23 101:5 102:1 four-fold 45:4 four-minute 8:10 59:15 fourth 45:9 54:25 fragile 65:6 fragility 64:7 frame 41:2,3 52:7 59:13 94:24 104:6 frames 28:15 Franklin 63:15 78:16 92:2 free 79:7 frequently 61:18 71:15 fresh 95:17 friend 70:16 friends 68:24 90:10 frightening 93:2 fronts 79:17 fulfill 44:15 full 28:2 50:19 51:22 85:8 107:3 function 58:24	59:3 74:12 further 2:11 28:16 41:5 89:22 110:9 future 25:3 61:25 76:3 89:10 95:6,7 97:12 futures 99:6 <hr/> G <hr/> gain 80:7 gallons 10:18 40:17 42:7,15 60:23 68:1,5 79:7 92:19 game 65:22 70:22 75:7 garden 98:18 gas 76:2 gathered 38:20 gauge 53:8 gauging 35:17 gears 25:23 general 15:9 71:20 77:24 78:1 generally 45:2 generation 76:4 93:22 generations 62:1 generic 35:9 geology 96:8 geophysics 96:9 getting 107:9 Giesman 2:4 6:25 9:19,21 23:20 25:10 25:12 27:21 104:24 105:11 gist 93:13 give 41:9 44:9 56:24 57:3,5 58:24 95:22 103:8 104:1,3	104:4 given 31:8,11 47:25 56:13 85:15 95:13 107:9,15 glaring 45:1 global 50:24 go 9:25 12:21 23:22 24:5,6 25:11,12,14 28:11 41:23 59:9,18 60:9 68:23 69:5 77:24 78:9 82:16 84:1 88:3 96:5 98:2,14 99:16 103:8 105:1,7 105:11 goal 36:14 goes 20:17 77:20 going 9:15,24 10:9 23:23 27:25 28:10 41:22 43:1 44:23,24 52:5 58:16 59:20 69:1 72:19 74:4 75:11 76:11 83:9,10 88:11 96:16 98:8 100:5 103:11,15 105:1 107:24 good 5:2 24:7,7 28:18,20,20 41:22 42:19 52:11 61:24 75:12 77:19 82:22,24 83:4 84:4 95:7 Goode 2:10 52:2,10,11 59:15,24 88:11 government 44:5 106:11
---	--	--	---	--

PUBLIC HEARING 9/1/2020

grand 64:7	105:7	28:19 58:7	higher 23:4	
grandchildren	<hr/> H <hr/>	60:6 62:22	30:19 93:16	<hr/> I <hr/>
78:17	habitat 63:12	78:3 80:13	102:22	iconic 84:16
granted 29:9	64:24 89:6	84:1 88:2	highly 34:12	idea 68:9 83:4
46:3 65:18	habitats 27:4,5	97:25 104:9,11	86:9	87:10 98:24
70:17	32:3 64:9,13	heard 63:5	hiking 69:3	identified 33:7
granting 67:14	66:1	88:10 92:22	84:19	36:1,5 38:21
grants 53:2	Hackler 2:7 7:1	95:14 98:6	hinges 36:20	identify 7:19
gray 102:11	28:11,17,18,23	99:8	historic 60:13	27:5 58:18,24
great 28:20	93:11	hearing 1:11 5:1	79:3	ignore 46:4
63:20 66:6	half 52:6,8 57:3	5:10,13,15,18	historical 15:3	ignores 48:13
74:19 80:15	hand 42:5	5:24 6:2,3,5	18:5	50:16
82:6 88:16,16	78:10 87:8	7:8,8,11,13,22	history 61:20	ill-defined 51:18
88:18,24 89:1	handle 100:18	8:10,13 9:3	62:3 64:6	Illinois 4:17
90:10 101:23	handling 10:16	63:6 69:22	88:20	110:17
105:14	hang 66:13 98:1	71:22 77:20	hitting 93:5	illness 75:6
greater 17:22	happen 24:4	78:21 91:9	hold 56:22 57:2	illustrate 20:6
18:21 23:3,15	65:7 80:19	94:7 105:24	99:3	21:19
35:25 53:6	81:14 97:13	108:6,8 109:7	home 44:7	illustrated 21:22
Green 101:12,13	happens 21:19	109:10 110:4,5	63:19	22:19
103:24	54:11 56:16	110:6,9	honestly 56:12	illustration 21:1
grew 99:11	happy 57:2	heat 60:22	hope 67:15	21:3
ground 62:7	59:16 63:1	68:10 86:9	75:17 76:24	Imagine 31:6
67:23	90:5 104:17	heated 40:5	76:25 91:4	immeasurable
group 8:16,19	hard 57:1,19	42:11 43:8	hot 61:3,6,8	31:10
groupings 93:8	74:8	68:2 86:21	68:18 69:2	immediately
growing 98:10	harm 11:3 16:9	Heather 4:5 7:5	82:15,18 86:4	58:11
98:12	18:6 24:24	7:12 9:19 10:1	86:12 87:8,9	Imminenz 101:9
growth 66:15	38:18,22,25	28:4 57:12	87:11 93:24	103:23
92:20	42:18 64:18	59:5 104:24	102:12 107:5	impact 17:8
guarantee	65:5 73:23	108:2	hotter 73:20	32:9,11 55:13
47:22 69:17	75:13 76:11	heating 70:9	76:10 87:8	65:2 68:12
81:19	harmed 73:24	92:18 94:13	hourly 35:14,15	86:13,23 89:5
guidance 48:14	harmful 76:1	heavy 67:23	48:20 53:4	95:5
48:17	89:21	held 69:13	hours 19:13,15	impacted 61:11
guidances	harms 63:11	Hello 28:18	20:3 40:7	61:14 90:24
37:20	74:21 75:5,22	62:24 98:4	48:22 53:5	impacting 39:15
guide 47:18	headlines 64:8	help 71:2 93:13	67:5	85:11
Guidebook	health 26:1	102:18	hugs 38:1	impacts 11:7
80:21	43:12 65:20	hereto 110:11	humans 65:21	49:13 55:2,6,7
guided 26:15	70:20 78:18	Hi 7:12 41:13	70:21	55:23 86:2
81:15	healthiest 81:2	67:20	hunting 84:18	97:18
guidelines 7:7	81:1,7	hide 74:3	husband 63:1,17	implement
8:19 48:17	81:20	high 14:20 26:3	68:23 90:17	31:25
51:22	heap 94:16	31:20 62:3	hydrothermal	implemented
guys 52:4 56:15	hear 6:21 8:10	64:1 68:14	26:20	6:15 34:15
66:6 80:13		high-river 40:13		35:2,15

PUBLIC HEARING 9/1/2020

implementing 39:25	increasing 65:23	Infrastructure 23:24	interior 31:4,7	Jackson 2:21
important 11:15 37:4,9 49:11 49:21 62:3 106:4	increasingly 71:17	infrequent 17:6	interpretation 32:12 36:18 79:21	82:3,5,8
imposed 90:14	incredibly 43:22 50:24	inhabitants 48:6	intervals 53:9	Janet 2:16 67:18 67:19
impossible 14:21	increments 20:2	inhabits 55:25	intolerant 38:12 38:14	jarring 49:3
imprecise 48:25	indefinite 46:20	inherent 44:4	introduce 12:19 12:21 23:23 41:7 93:22	Jim 2:15 66:3,3 job 99:25
improper 48:23 53:24	indefinitely 47:7,15 43:3	inhibit 54:15	introduced 36:22 98:15	John 4:3 5:2 101:9,10 103:23
improved 13:13 95:6	INDEX 2:1 3:1	inhibits 55:11	invalid 46:18	jot 10:9
improvement 43:18	Indiana 89:13	initial 37:5	invasive 36:24 37:3,8 68:17 99:10	journal 66:17,18 journals 62:5
improvements 45:19	indicate 32:8	injuring 93:7	invertebrate 25:22,24 27:14	Joyce 4:15 101:4 101:5,6,7 103:22 110:3 110:15
improvise 77:17	indicates 37:25	input 12:11,13 85:9 94:8 95:2,18	invertebrates 27:12,13 61:10	Judith 62:20
inability 87:19	indicating 38:25	inputs 30:17 33:3 34:22	invested 86:7	Judy 2:14 62:25
inappropriate 8:16,18 54:16 54:19 56:5	indicators 38:22	install 71:1 79:15 94:10	investing 76:3	Julie 101:16,18 103:25
inclined 103:8	indigenous 16:10,15,19 17:9 18:6 32:15 36:7,16 38:11 40:9 46:1 48:3	installed 61:2 94:10	investors 75:14	July 31:21
include 6:16 10:8 37:23 55:9 62:5 108:25	individual 15:8 17:25 18:4 20:3 88:12 105:20	instant 83:2	invoke 19:25 20:1	justice 78:14 juvenile 66:16
included 14:10 61:19	individuals 8:12	instinct 74:12	invoked 19:5 23:3	<hr/> K <hr/>
includes 8:17 39:24	industrial 89:2	instruments 79:20	involved 67:2	Kansas 73:14
including 6:17 8:15 49:2 61:8 84:23,25 89:6 109:1	industry 44:2,5 83:8	instances 66:24	involvement 47:20	Karpowicz 2:15 66:3,6
incorporated 39:23	ineffective 49:25	instant 83:2	irresponsible 65:14	Katy 61:19 69:3 80:21 84:19 98:14
incorporates 13:19	inefficient 69:12	instinct 74:12	issue 10:1,3 42:22 44:2,3 49:3,24 51:11 72:20 92:7 95:18 107:16	kayaking 81:11 84:19
incorporating 108:24	infinite 31:8	instinct 74:12	issued 46:13	keeping 58:4
increase 31:13 68:5 93:21	inflicted 74:25	intake 55:10,12 55:23 68:14 79:11	issues 6:4 9:12 44:1,24 50:18 52:15 79:2 91:9,12	key 24:18
increases 20:13 38:9	inform 48:12	intensive 27:18 27:19	issuing 33:18	kick 28:16 101:25 104:19
	information 15:23 16:12 24:14 28:9 34:1,4 35:16 38:20 39:14 58:1 72:6,11,17 97:10	intends 47:14		killed 90:24
		Interdisciplina... 41:16 52:13		killing 42:8,12 50:3 61:5
		interest 8:2 66:14 72:19 104:16 106:17		kind 52:7 57:1 57:21 66:22 74:17 78:4 79:12 93:18
		interested 110:12	<hr/> J <hr/>	kinds 15:1 100:4
			Jacks 88:22	Klinedinst 2:19

PUBLIC HEARING 9/1/2020

77:12,15 78:15 Klondike 69:5 knew 94:25 Knot 3:3 88:2,5 88:5 know 7:13 10:3 11:16 12:24 13:3 14:2 20:9 28:13 41:22 47:23 52:5 56:23 57:4,19 66:12 67:22 68:12 69:12 72:8,11 73:21 74:10,11,18 76:9,19 78:1 82:14,15,16 83:1,20 87:2 88:21 91:11,15 94:13 96:13,17 98:19,24 100:20 106:15 knowledge 47:21 94:23 known 62:6 63:9 73:25 88:17,24 Kolbush 6:25 kowtow 107:17 Kris 28:4 Krista 7:17,23 57:11 58:10,19 90:5 91:14 100:16,20 103:13 104:9 104:17 kristawelsch... 7:23	53:8 54:21 55:14 60:12 61:1,24 67:21 72:9 75:18 76:7 78:18 79:14 81:20 84:5,10 89:3 89:11 95:15 96:10 102:3 106:17 108:6 108:23 Labadie's 11:4 lake 61:9 68:17 88:16,17 92:15 Lambert 3:4 90:7,9,9 land 62:7 78:20 83:3 98:16 99:5 language 65:16 laravel 66:20 67:3,4 large 11:23 86:20 90:16 larger 21:5 22:20 lasting 65:11 76:11 launching 93:4 law 6:24 28:13 40:2 41:1 44:19 45:2,3 55:18 73:5 87:17 104:4 Law's 41:16 Lawrence 4:15 110:3,15 laws 78:13 lawsuits 67:11 leadership 99:22 Leah 3:7 97:23 97:24 98:4 leaking 67:24 lean 87:16 learn 98:10 left 20:10 36:17	68:15 69:4 95:25 101:24 legal 6:16 44:24 46:7 79:1 94:20 legally 70:7 length 22:5 46:9,19 94:3,5 lenient 64:17 Lensyr 3:6 96:2 LEO 84:14,15,21 Let's 11:14 letter 44:20 letting 80:16 83:2 level 14:15 levels 64:10 Lewis 62:2 80:20 108:19 liberal/conser... 44:3 License 110:17 110:18 lies 76:24 lieu 54:17,17 76:1 life 27:10 32:9 32:12,19 42:9 42:13,20 43:10 45:9 47:13 53:2 55:3,8,11,13 61:8 63:10 64:8,22 65:21 68:13 70:21 78:20 82:20 84:23 86:6,6 86:10 87:7,12 87:15 90:19 lifespan 85:8 lifetime 79:23 limit 14:8,9,11,14 15:19 17:10 18:9,9 19:8,20 30:14 34:8 39:5,8 45:15 47:12 48:23	51:4,4 53:12 53:13 99:21 limitation 13:14 13:18 15:16,20 16:14 17:1,5,13 17:17,20 19:5,7 19:16,21,22 20:1 22:3,17 22:24 33:24 54:23 limitations 16:23 19:1,4 21:25 45:23 limited 8:9 13:14 13:16 17:5,10 17:18 18:15,18 20:2 21:12,17 22:8 31:1 32:5 85:2 limiting 33:25 54:6 limits 5:22 6:13 6:14 25:5 29:11 33:1,14 33:16 53:17 54:7,22 96:16 108:17 line 8:15,17 20:21,23 58:13,21,25 59:11 60:5 75:10 80:9 lines 58:5 78:25 80:4 106:12 Lisa 3:8 101:19 101:21,25 102:3 103:5 list 37:4,7,24 49:9 85:5 103:6 listed 55:24 listen 48:16 listening 73:19 literally 81:9 litigation 4:16 67:11	little 10:5,11 11:14 13:8 21:5 24:1 57:18 79:21 97:1 100:13 live 60:11 61:11 78:16 84:9 88:13 90:10 92:3 96:9 99:1 lives 85:16 86:2 living 64:5,14 78:17,19 Lloyd 2:19 77:11 77:13 78:15 local 29:3 35:3 36:18 84:21 location 6:9 68:14 107:6 108:18 locations 27:16 lock 65:12 89:21,21 long 19:20 32:11 32:12 45:15 48:2 50:14,21 51:18 60:25 65:11 72:1 73:25 94:4 95:1 99:18 102:11 long-term 97:3 longer 10:18 75:8 83:11 longest 81:8,10 look 47:4,10 73:6 78:6 100:12,16 106:10 looked 26:8,9 looking 24:21 24:22 25:2,2 69:5 77:1 looks 20:7 loose 79:13 lose 100:6 loss 64:7 lot 24:14 44:1,21
L				
Labadie 1:7 5:16 10:14,21 11:16 12:2 16:1,7,23 24:22 28:22 29:18 33:3 40:4,8 42:6 47:13 52:15				

PUBLIC HEARING 9/1/2020

56:16 66:7,12 66:13 82:13 96:12 105:25 Louis 88:13 98:8 love 63:16 98:11 106:5 low 14:21 31:19 38:4 low-river 40:12 lower 55:25 64:5 106:16	30:9,12 54:9 mayor 80:18 MDNR 49:1,2 50:7,25 51:3,6 53:21,23,23 55:15 79:12 mean 56:15 73:25 97:12 Meaning 50:2 means 18:12 32:12 39:6 99:6 measure 86:17 measurement 30:17 35:14 54:11 measurements 31:18 33:2 34:16,20 35:21 measures 14:10 23:10,16 33:3 95:5 meet 14:21 39:8 46:7 76:6 meeting 6:9,10 6:20 8:20,21 28:22 29:11 45:14 56:23 57:23 90:6 100:15 105:3,4 105:10,12 108:1,18,19 Meghan 6:25 9:18 100:22 100:23,24,25 101:1 103:20 103:21 member 5:3 92:23 members 56:13 71:15 84:22 membership 84:8 memorandum 37:21 mention 55:18	79:2 97:9 mentioned 14:17 16:5,7 17:23 19:3,14 23:1 24:13 62:6 79:3,6 Meramec 88:23 message 7:24 8:16 57:6,9,10 57:11 58:10 90:5 91:11,14 100:16,20 104:8,16 messaged 95:22 messages 8:18 met 13:23 23:11 23:12,13 metals 67:23 method 30:7 35:12 85:24 methodologies 26:1 methods 64:25 74:3 metric 30:5 37:11 Michigan 88:16 mid 26:5 mid-30-year-... 98:20 mid-program 26:6 middle 50:23 68:11 Mighty 81:15 migrate 38:13 Mike 63:1 Mile 80:19 miles 81:18 96:9 102:11 milk 76:20 million 40:16 86:7 106:12,13 106:18 millions 10:18 64:3	mind 42:2 64:16 86:21 91:20 minimize 79:15 94:15 minimized 74:21 minimizes 75:13 minimum 22:18 33:17 86:18 minute 83:21 101:8 minutes 8:9 11:8 12:3 41:21,23 42:1 52:6,8 56:10,13,19,21 56:22,24 57:2,3,9 58:7 59:18,20 62:21 66:5 67:19 71:8 73:12 77:8,14 77:17 80:12 82:7 83:22 88:4 90:8 91:25 96:4,6 97:24 100:23 101:5 102:1 103:9 104:2,3 104:5,22 105:6,16 mirror 47:13 mispronounced 96:3 mispronounci... 95:21 missing 103:12 mission 81:3 87:16 Mississippi 88:25 Missouri 1:1,6,8 4:4 5:3,16,17 6:21,22 7:1 9:17,21 10:15 12:10 18:23 25:19 27:22	29:20 31:6,8 36:23 39:16 40:2,10 42:8 49:6 55:25 60:13,17 61:7 61:16,21,23 63:2,6,14,16 64:4,5 66:9 67:7,13 68:3 68:25 69:21 70:10,24 71:11 71:12,16,19 73:14,18,21 76:5,10 78:3 78:24 79:8,16 80:18,18,21,22 80:25 81:1,1,2 81:4,7,7,16,21 82:10 83:6 84:7,16,24 87:13 88:12,15 88:17,24,25 89:3 90:10,11 90:19 92:3,10 92:18 94:16 97:14 98:9,10 99:12 102:4,7 102:8 104:22 106:4,8,16 108:23 109:2 109:3 110:18 Missouri's 30:1 34:14 35:18 42:19 88:20 89:5 Missourians 84:22 mitigate 33:13 42:17 mix 20:11 mixing 14:3,5 18:10 19:16,23 20:7,11,14,16 20:20,20,22 20:23 21:4,5 21:8,13,15,23 21:24,25 22:2
M				
main 72:8 maintain 17:4 29:15 45:4 maintenance 32:15 making 8:15,18 45:19 52:20 107:1 man 76:20 Management 89:14 manager 9:22 mandates 33:17 manner 97:7 Mansker 2:18 73:10,13 Maplewood 88:14 marathon 81:10 margin 14:12 30:19 32:1 62:17 Mary 2:17 71:6,6 71:9 massive 93:8 math 76:14 Matheny 92:4 matter 8:14 42:5 63:9 matters 76:22 maximum 19:13 19:15 20:3 21:10 22:25				

PUBLIC HEARING 9/1/2020

23:2,13,17 26:22 29:11 30:2,10,11,13 30:16,18,22 31:1,3,4 32:3,5 32:11,13,15,25 33:1,5,9 34:11 35:24 36:5,8 54:22 66:23 67:6 Mo 1:8 5:18 81:15 model 11:25 12:5 13:7 23:9 31:11,24 34:21 34:22 43:16 53:22 model-based 29:25 modeling 26:20 53:15 moderate 5:9 moderator 7:4 modifications 52:20 modified 31:16 37:7 moment 41:9 59:1 96:5 momentarily 52:5 100:12 money 63:22 106:14 monitor 69:18 monitored 63:23 monitoring 13:6 15:22 96:25 97:1,3 monopoly 107:10 monthly 27:17 months 12:15 29:12 38:12 65:11 mother 61:22 move 20:13	57:21 59:6 76:21 80:9 88:18,19 90:1 91:22 100:21 101:3,11 105:15 moved 49:15 63:15 88:15 moving 42:5 91:8 94:9 98:19 100:11 101:14 MPC 49:10 MPC's 49:15 multiple 89:5 mute 12:21 41:9 59:6 muted 7:14,15 56:25 57:18 58:5 59:11 98:2 100:24 mutually 77:21 <hr/> <p style="text-align:center">N</p> <hr/> name 9:20,20 41:14 52:11 58:13,19 59:4 60:11 62:25 63:12 71:9 78:15 80:17 84:4 88:5 90:6 92:1 95:22 98:4 108:3 narrow 45:12 narrowly 76:15 nation's 45:6 national 60:14 61:25 native 66:1 natural 6:22 7:2 12:11 27:22 37:10,11 40:11 44:11 63:11,17 63:25 64:23 65:4 68:8 69:10,22 76:2 84:22 90:13	102:6 109:3 nature 44:22 51:1 75:2 nature-loving 63:5 navigable 45:7 near 33:4 76:17 87:6 nearly 19:2,12 31:8 44:7 necessarily 37:9 93:19 necessary 15:17 16:14 39:8,10 45:24 need 11:13,21 13:10 41:8 82:24 83:8 90:18 91:1 99:4 105:19 needed 10:19 14:25 62:11 93:23 needs 42:3 57:8 82:21 96:22 negative 36:24 65:2 68:20 negatively 29:4 39:15 neighboring 102:10 neither 53:14 110:7 nephew 99:7,12 net 43:24 106:22 never 19:18 37:20 38:9 51:2,11,15 65:9 69:12 77:2,3 81:19 89:18 new 9:10 15:13 63:14 93:22 nice 93:11 nifties 46:9,11,13 nine-year-old	99:7,17 non-variance 20:8 21:1,4 nonprofit 84:7 norm 48:25 normal 22:23 33:10 38:3 note 6:12 8:21 21:11 22:4 58:19 66:18 noted 53:19 87:5 notes 27:22 28:4 47:10 notice 9:5 53:20,25 97:9 108:9 noticed 53:13 53:19 notify 105:19 number 8:8 13:4 14:9 23:9 24:14 44:21 49:20 53:5 58:14 65:17 94:18,19 106:1 numeric 29:19 numerous 89:16 93:6 <hr/> <p style="text-align:center">O</p> <hr/> object 54:23 91:4 102:24 102:25 obligation 102:5 obscures 54:1 obtain 31:17 obtained 47:5 50:7 obvious 55:12 65:9 occupies 38:7 occur 15:2,5,5,6 15:7 17:20,24 18:3 19:2,11,19 38:15,19 53:5	occurred 39:1 occurring 50:2 occurs 18:15 October 6:9 108:18 offensive 8:18 offering 7:18 office 6:10 88:14 108:20 officer 110:3 official 8:23 Ohio 63:15 okay 10:13 25:15 28:8,19 28:20 52:10 57:14 59:22 60:1 62:24 80:13,15 82:8 90:1 91:13,22 96:7,25 97:5 97:8 98:2 100:25 101:7 101:11,14 103:15 104:1 105:14 old 4:17 37:21 64:25 94:15 older 37:21 on-site 31:21,24 once 9:7 69:23 72:24 ones 74:15 ongoing 37:2 39:1 open 97:7 opening 105:17 105:23 operate 74:11,18 operated 15:14 17:7 operates 11:16 operating 1:6,8 4:6 5:16,17 7:6 16:8 28:24 40:1 108:22 operational 19:24 37:15
--	---	--	---	--

PUBLIC HEARING 9/1/2020

94:5 operations 11:3 24:22 45:19 60:22 87:23 89:11 107:11 opportune 100:3 opportunities 98:13 opportunity 5:19,21 12:25 13:2 24:8 53:16 58:22 58:25 59:11 66:7 85:14 88:6 89:25 98:13 104:14 oppose 89:4,8 96:11 opposition 84:12 option 58:15 order 77:10 organic 87:7 organisms 38:3 39:17 90:23 organization 84:6,7 87:14 95:15 organizations 89:15 organizer 98:6 origin 53:11 originally 37:5 47:6 77:16 originating 102:12 other's 108:8 outcome 110:12 outdated 60:21 outlined 11:21 44:21 outright 55:16 outside 6:1 over-protects 34:13 overall 35:1	overlook 62:4 overprotective 35:5 oversee 50:18 oxygen 64:10 Ozark 88:22 <hr/> P <hr/> p.m 1:14 5:1 7:9 109:10 paddle 90:11 paddlers 71:18 page 2:3 72:18 72:23 pages 50:21 pallid 49:13 50:1 55:24 61:9 68:16 86:8 89:6 92:15 106:11,14 Pam 2:7 7:1,11 28:10,11,17,23 40:24 93:11,12 94:3,5 108:3 pandemic 50:24 parameter 12:6 13:15 30:3 52:22 79:19 96:15,18 parameters 14:1 Park 69:5 parks 98:16,22 99:14 100:4 part 10:7 11:9 19:1 26:15 29:6,7 34:14 62:3 95:24 105:2,4,9,12 participate 9:1 109:5 participated 73:1 participating 8:13 58:4 participation 6:17 46:24	108:25 109:9 particular 13:18 20:17,25 23:1 24:16 45:1 particularly 78:21 parties 110:8,11 partisan 44:2 partners 93:7 parts 19:1 22:20 pass 34:5 passage 11:15 11:23 18:13,15 18:17,18,21 22:7,9,18,19 23:14 32:14,18 38:2 passed 74:16 76:9 98:13 Patricia 3:2 60:4 83:19,20 83:24 84:4 paused 52:4 pay 42:16 43:11 43:12 44:6,6 paying 43:6,6 75:3,4 76:13 79:10 pays 74:25 75:4 75:9 peace 98:23 peer 66:18 people 44:2 68:22 71:18 76:19 77:25 81:16 83:10 96:13 98:25 106:4,4 percent 14:4,12 14:15 15:2,8,9 17:24 18:3,11 18:13,17,19,21 19:14,17 20:13 20:15,17,21,22 21:6,7,8,11,14 21:14,16,21,23 21:24 22:1,2,5	22:8,10,18,25 23:3,13,15 30:12,18,20 32:6 33:6,10 35:25 38:7,8 79:12 percentage 38:5 perfectly 107:8 performance 76:7 performed 26:5 32:7 period 5:23 6:18 9:5 26:16 28:13 50:19 50:22 95:10 108:9,14 109:1 permanent 46:11 permissible 32:16 93:17 permission 65:5 70:12 permit 1:6,8 4:6 5:16,17 6:16,16 6:18 7:6 12:6 13:12 15:21,25 16:23 19:8,10 19:11,12,21,23 28:24,25 31:16 32:1 33:1 33:18 35:13,16 39:23 40:1 46:13,16 48:4 50:16,18 52:16 65:18 70:18 70:25 72:2 85:9 87:20 89:19 91:1 94:2,7 95:10 108:23,24 109:1 permitee 39:3 39:6 54:6 permits 22:15 22:17 35:10	46:12 49:1,2 69:24 71:25 74:2 89:17 permitted 20:20,22 22:1 permitting 39:7 39:23 person 7:21 74:10 perspective 93:1,14 Peter 2:10 41:22 41:23 42:3 52:2,3,11 59:14,19 88:11 98:7 Peters 4:5 7:5 7:12,12 28:8 40:24 52:4 56:9,20 57:11 57:14,16 59:9 59:22 60:1,7 62:19,23 66:2 67:17 71:5 72:22 73:9 77:6 80:1,14 82:2,6 83:18 84:1 88:1,3 90:1 91:7 95:20 97:22 98:1 100:10 101:23 103:5 105:6,14 107:21 PhD 94:13 96:8 phone 104:20 photo 20:25 physical 45:5 pick 59:8 picnicking 68:23 picture 31:3 78:7 pictures 78:8 piece 80:23 pitch 107:10 pits 42:25,25
---	--	--	--	--

PUBLIC HEARING 9/1/2020

place 63:7 70:4 74:3,20	plume 21:20	PowerPoint 51:11	preventing 54:5 70:4	processes 86:12
plain 84:18	pockets 83:8	practices 70:13	previous 16:5	processing 97:11
plan 25:16,18 25:20 26:24 36:1	point 7:21 9:15 24:16 27:4 31:11 57:21,22 73:22 88:23 107:3,24	precedent 72:1	previously 19:15 23:2 34:15	producing 26:10
planet 83:10	pointed 9:20 26:4 75:1	precise 46:21 46:22	priced 75:20	production 14:23
planning 10:6	points 31:6,9	precondition 46:2	primary 96:13 97:16	Professional 110:17
plans 26:2,9 72:5,12	pollutant 5:6	predict 11:25	principles 77:23	profile 20:6
plant 11:20 24:25 28:25 42:7,10 47:13 55:3,7,14 60:22 67:22 68:21 69:12 70:14 72:13 75:19 76:7,19 79:6,23 82:19 82:20 83:15 84:10 85:9 86:6,18 87:6 87:11 92:24 94:4,15 96:10 97:19 102:9 106:17	pollutants 45:7 32:24	predictive 25:1	printed 66:17	profit 43:25 62:16 63:13 64:24 70:1 74:23 76:23 102:20
plant's 29:14 54:21	polluted 67:21 69:1	prefer 92:16	prior 16:22 17:1 22:15 24:22 24:23 29:24 38:25	profitable 76:15
plants 54:3 69:25 76:1 87:7 94:11	pollution 5:7 42:23 61:4 69:11,14 70:3 77:4 89:2	preferable 94:1	private 57:6,9 57:10 62:12,16 90:5 91:11 104:16	profits 43:14 44:8 62:13 70:3 74:13,14 82:23 106:22 106:22
play 18:10	ponds 10:20 67:24	premier 11:7	privately 7:24 58:10	program 27:19 43:22
Plaza 4:17	poor 68:21 69:25 74:17	premise 37:8	probably 19:25 23:15 41:8 69:12	Program's 7:6
please 6:12 7:14 7:22 8:21 10:3 12:24 14:16 15:11 16:3,20 17:14 18:24 20:4 21:2 22:11 26:25 58:10,18,24 59:3 60:9 79:14 90:4 91:10,14 100:16,19 104:8,15,16	popular 71:17	prepared 62:10 107:15	problem 12:23 51:6 82:15,16 82:17	programs 63:22
pleased 11:2	population 32:15 36:7,16 38:11 39:16 46:1 48:3 92:12,20	present 5:19	problematic 37:15	progress 43:19
	populations 35:3 37:12 40:9	presentation 6:23 9:16 10:7 12:5 27:24 28:2,14 40:19 55:17 105:4	problems 41:11 48:9 50:12 91:14	progression 43:20
	portion 22:4	presentations 5:12 7:4 58:1	procedure 47:17 51:19	project 13:4 81:9
	portions 24:2 51:14	presented 6:6 20:24 94:21 94:22	procedures 25:17,25 26:14	projects 10:14 10:16
	possibly 79:13	presenter 28:17	process 6:17 7:7 10:17,19 12:8 12:15 27:3,5 33:21 39:24 40:21 42:9 46:25 47:19 47:20,21 48:9 48:13 65:1 108:25	proliferate 92:12
	post 52:7	presenters 2:3 6:24 57:25 91:10 103:9 104:2	processed 39:13	proliferation 92:25
	potential 55:23 88:18 89:10	preserved 8:22		promote 102:5 102:22
	potentially 53:1 55:8 94:7	preside 5:9		promoting 80:22
	power 28:25 67:22 76:3 84:10 93:21 94:15 96:10 97:19 102:9	president 84:5 87:13		promotion 102:14
	powerful 43:22	presumed 68:6		proof 39:3
		pretty 42:1 56:19 72:20		propagation 16:18 25:6
		prevails 64:7		
		prevent 70:9 78:14		

PUBLIC HEARING 9/1/2020

<p>39:11 45:8,25 properly 49:18 property 102:11 proposal 16:24 47:2 48:16 propose 39:17 81:3 proposed 1:5 5:15,21 6:1 11:22 17:3,16 35:12 37:18 41:18 44:14 46:15,25 48:1 48:13 50:6,16 51:16,25 52:17 52:21 53:10,13 53:17,20,24 54:24,25 55:16 56:3,5 81:6 89:4,8 proprietary 68:7 85:20 96:19 protect 9:2 16:15 42:17 44:11 60:19 62:11 63:21 64:4 65:4 81:4 83:5 86:1,14 90:18 95:11 99:5 102:5,22 106:14 107:19 107:19,20 109:5 protected 92:14 protecting 87:14 protection 4:6 7:6 16:18 25:6 35:3 39:11 45:8,25 72:11 protective 35:21 provide 5:19,20 88:7 provided 9:8 29:22 32:17</p>	<p>37:16 38:16 72:24 108:12 provides 14:14 38:2 69:17 provision 47:20 public 1:11 5:14 5:18,21,23 6:2 6:3,5,17,17 7:8 9:3,5 11:15 35:11,13 39:19 39:24 41:25 42:15 44:9 46:23 47:20 47:21,22 50:19 51:3,8 51:12,13,23 53:16,20,24 54:5,11 56:13 68:9 71:15 72:7,18,19 73:25 74:17 74:23,25 75:3 75:4,12,13,15 76:25 85:9,14 85:25 87:1,2 89:10 92:23 94:8 95:2,17 96:23 97:6 99:21 108:5,7 108:9,25 public's 54:15 publicly 53:13 published 25:25 87:1 purchased 63:17 purple-dashed 20:21 purpose 5:13,18 purposes 45:3 47:14 put 16:24 51:2 51:15 63:11,22 68:7 72:18 74:20 83:13 87:7,18,21 105:9,12 107:2</p>	<p>putrid 102:11 puts 45:15 53:1 putting 82:15 93:17</p> <hr/> <p style="text-align: center;">Q</p> <hr/> <p>qualified 5:9 quality 11:17,24 13:13,25 14:2 15:16,20 16:13 17:4,10,13,16 18:22 19:6 22:23 26:1,3 29:2,6,10,19 30:1,6 33:12 33:14,25 34:7 34:14 35:5,9 35:18,24 36:9 40:6 45:11 54:8,8,18 79:16 102:7 102:22 quantitative 37:17 quarter 76:18 106:20 quarterly 76:22 question 44:4 71:21,23 78:12 79:25 93:10 94:9 questionable 74:2 questions 12:14 71:20 73:3 quick 102:4 quickly 10:10 quite 14:8 44:22 48:7 56:16 72:19 92:8 94:23 quote 45:24 46:14,15 47:7 47:11 48:24 48:25 49:1 quoting 93:19</p>	<p style="text-align: center;">R</p> <hr/> <p>race 62:7 73:13 73:14 81:11 Rachel 77:7,8 80:2,3,5,9 103:18,19 rails 81:8 raised 49:10 95:14 raises 86:5 ran 95:24 range 20:12 25:23 27:2,8 34:25 rapidly 85:18 rare 15:4 rate 31:12 Ray 2:5 12:4,18 12:19 23:21 24:13 26:19 26:20,23 re-evaluated 47:23 re-evaluation 46:22,24 47:17,19 48:12 50:15 reaches 21:9 79:23 reaching 21:15 read 5:12 66:24 70:17 readily 102:17 reading 77:16 readings 66:15 reads 65:17 real 10:10 102:4 real-time 30:17 33:2 34:16,19 reality 75:25 realize 57:17 really 24:17,21 25:1 26:17,18 27:3 42:22 56:14,14 76:17 96:11,24 100:3</p>	<p>reason 14:18 47:3 97:2 reasonable 38:2 50:24 107:8 reasons 89:5 94:20 96:12 receive 39:4 received 8:8 9:4 72:16 108:9 receiving 29:15 34:13 37:14 recirculate 80:7 reclaimed 83:14 recognition 15:15 recommend 9:12 reconsiderati... 50:15 record 7:20 15:3 18:5 105:10,12 110:5 recorded 7:14 8:22 43:23 records 40:20 recovery 86:8 recreation 45:10 71:18 84:20 95:12 recreational 71:17 93:1 red 49:10 reduce 8:4 79:11 reducing 14:22 reduction 43:12 Reece 5:2,3 107:25 108:2 REESE 4:3 reference 53:18 references 38:16 referred 13:15 16:10 36:16</p>
--	--	---	--	--

PUBLIC HEARING 9/1/2020

66:23 referring 99:14 reflect 53:4 106:7 reflective 75:25 refusal 51:20 regarding 34:2 regardless 8:7 31:25 regime 29:13 region 14:25 60:14 81:20 regional 84:21 registered 7:17 57:22 58:6,9 59:10,14,16 80:10 100:22 101:3,14,15,16 101:19 103:7,17 110:17 regular 44:5 regularly 108:17 regulate 85:23 regulating 69:20 regulation 74:20 75:17 regulations 32:10 40:3 46:10 55:4 62:14 63:23 69:24 78:2,12 89:17 regulator 89:13 regulators 75:24 76:5,24 85:13 regulatory 36:13 74:16 75:10 reject 85:22 89:23 rejected 50:25 relatable 54:7 related 6:1 52:15 55:12 72:10,16 110:7	relates 71:23 relationship 54:1 relative 110:10 relaxation 17:7 released 68:2 relevant 92:10 relief 11:21 rely 61:11 remain 7:15 remainder 89:14 remains 31:13 remedy 71:2 remember 81:23 remind 90:2 reminder 108:7 remove 37:8 removed 8:20 37:19 remuted 8:11 58:9 renewable 75:20,23 renewal 46:22 46:25 47:17,19 48:12 51:20 renewals 28:25 Rental 81:15 repeat 91:1 repeated 8:6 repetition 8:4 rephrased 47:12 report 11:2 12:10 12:17 31:22 37:25 48:14 66:25 76:23 reported 4:15 102:19 Reporter 110:1 110:16,17 reporting 79:20 reports 11:12 12:13 31:23 34:4 48:10	79:21 representation 98:7 99:22 representative 37:4 representatives 41:3 represented 31:24 41:1 represents 52:14 reproduction 86:9 request 6:8,12 29:18,24 37:7 40:21 50:8,25 51:25 55:19 58:12 65:12 70:24 72:15 73:5 78:22 81:5 84:13 85:7,22 87:16 87:17 89:24 90:3 91:5 94:18 100:14 108:16 requested 50:21 85:19 requesting 65:3 85:21 requests 100:17 107:23 require 14:3 18:10 30:5 37:23 54:19 55:4 70:25 79:14 86:18 87:18 91:3 102:20 required 18:22 31:17 33:18 46:1 48:10 60:24 70:7 86:16 87:22 94:8 97:1 requirement 15:21 35:22	46:4 70:11 requirements 15:17 32:22 36:8,9 39:9 46:23 47:18 51:19 requires 17:16 45:20,22 48:14 requiring 34:19 research 26:7 85:3 reside 62:25 resident 67:20 71:10 82:10 88:12 92:2 98:9 102:3 residential 64:11 residents 42:20 resides 106:16 resolution 6:4 resolved 50:11 resource 42:15 44:9 60:18 62:11,13 90:13 resources 6:22 7:2 9:3 12:11 27:23 44:12 61:17,25 63:25 65:5 69:22 84:23 86:15 88:21 102:6 109:4,6 respect 28:6 38:21 61:24 63:20 78:1 respectful 8:14 respectfully 7:20 51:24 respiratory 75:6 respond 73:6 responded 12:14 responding 73:3 response 32:8 72:25	responses 9:8 72:24 108:7 108:12 responsibilities 60:18 64:2 responsibility 43:15 90:13 102:5 responsible 61:4 83:5 Responsive 9:3 restore 45:4,16 restrictive 34:8 result 10:17 11:4 24:24 38:19 39:1 40:14 49:16 53:6 67:11 results 26:10 38:17 40:8 86:25 87:3 retired 5:5 retirement 63:19 retreat 67:2 retrospective 24:20,25 return 43:11 44:10 review 6:6 26:6 48:9 50:6 51:20 66:18 85:15 86:22 89:10 94:6 reviewed 8:7 29:22 35:11,12 35:16 reviewing 12:9 34:3 revised 35:7 rich 88:20 right 23:20 38:1 56:25 65:6 76:25 83:9 100:5,21 101:25 RIS 37:24
---	--	--	---	---

PUBLIC HEARING 9/1/2020

<p>rising 64:12 risk 89:6 risks 89:17 river 10:15 11:2 12:1 13:6,20 13:20,24 14:4 14:5,13,20,21 15:23 16:11 17:21,22 18:11 18:14,16,16 19:18 20:7,11 21:13,14,17 22:6,6,7,18,20 23:5 30:12,21 30:23 31:6,8 31:18 32:7 33:6,8,11 34:23 35:17 35:25 36:19 36:23,25 37:1 38:4,5,6,7 40:10 42:8,11 42:16 44:12 45:17 48:2,5,6 48:19 53:8 55:3,8,25 56:16 60:13,15 60:17,19,20 61:7,11,13,16,18 61:21,23 62:4 62:6,8,14 63:18 64:5,21 66:9 68:3,5,8 68:13,25 69:4 69:5,6 70:10 71:11,16,17,19 73:14,18,21,23 75:8 76:11 78:5,23,24 79:8,16 80:19 80:23,25 81:1 81:1,2,5,8,10 81:16,18,21 82:11,16 83:3 84:11,16,17,17 84:24 85:12 85:16,17,17</p>	<p>86:2,5,7,17,23 86:25 87:5,8 87:12 89:3 90:12,12,15,19 90:24 92:3,10 92:18 93:3 94:13,13,16 95:11 96:21 97:3,14,20 98:11,21 99:5 99:14 102:7,8 102:10,15,23 106:16 107:5 river's 29:13 31:14,19,19 34:17 39:16 45:25 54:2 rivers 62:9 88:18,20,22 88:25 89:1 93:9 100:6 106:5 107:3,12 107:19 Road 63:1 Rob 92:4,17 93:5 Rocheport 80:18 81:17 Rocque 2:9,11 7:2 41:1,13,14 52:14 56:12 57:8,13,15 59:19 88:11 105:24 role 71:14 rot 68:15 rotting 68:22 69:8 87:6 107:4 routine 74:1 RPR 4:16 rules 69:24 75:1 77:5 78:2,12 run 12:19 59:7 59:19 running 73:16 runoff 64:11</p>	<p>rural 63:1 80:24 81:7,22 <hr/> S <hr/> S 4:17 Sac 63:1 safe 44:13 45:10 75:8 safeguard 62:14 safety 14:12,15 26:2 30:20 32:1 35:2 sampled 27:17 36:2 sampling 26:6 26:17 36:1 Sarah 91:17,21 satisfactorily 39:6 satisfied 17:13 19:19 38:25 satisfy 15:17 save 9:13 76:8 saved 10:18 saw 50:10 90:17 saying 88:15 says 48:20 93:17 scale 64:7 scenarios 34:25 scheduled 108:17 school 6:23 28:12 41:1,15 68:11 98:15 104:4 Schuba 3:2 83:19,25 84:3 84:4 science 82:12 scientific 38:15 44:22 scientist 44:23 scientists 85:14 scope 6:2 25:21</p>	<p>45:13 Scott 2:18 73:9 73:11 scrap 94:16 screen 9:25 10:2 35:1 105:8 script 49:15 scrutiny 89:22 searching 40:22 seasonal 86:19 seasonally 31:15 36:22 Second 45:6 53:10 second-to-last 101:16 secret 98:18 section 4:6 7:6 21:12,17 22:6 22:9 29:1,8 32:4,8 39:5,9 57:22 72:10 sediment 87:7 see 10:2 13:11 16:1 25:4 28:4 38:13 47:6 59:8 64:9 68:20 69:5,6 72:13 73:24 74:15 76:5 78:13 80:8 86:14 90:16 101:2 seeing 106:7 seek 74:4,13,14 74:22 seeking 15:12 71:18 seeks 75:2,4 seen 15:7 61:13 63:7 65:10 89:19 92:12 92:22 93:8 102:11 seepage 42:24</p>	<p>43:2 self-monitoring 74:3 send 77:15 78:25 senior 9:22 24:10 sense 44:18 82:13 94:12 105:13 sensitive 8:15 86:9 sent 31:21 SEPTEMBER 1:13 seriously 50:10 94:9 serve 82:25 served 78:14 serves 54:15 Service 29:21 49:23 55:20 services 4:16 9:22 set 33:14 46:2 51:18,19 77:21 77:22 81:19 95:9 sets 77:18 setting 46:19 72:1 seven 77:16 88:15 99:6 shape 34:23 share 9:24 41:24 42:2 56:18 57:1 58:1 105:8 107:11 shared 8:6 shareholders 82:24 sharing 51:9,10 shell 45:8 shocked 87:10 shoreline 68:22 69:7</p>
--	--	---	--	---

PUBLIC HEARING 9/1/2020

short 12:4 42:1 49:14 56:14,19 78:15 79:9 104:11	33:19 situation 20:24 69:18 71:3 95:3	solve 51:11 somebody 56:11 74:25 75:9	101:16,19 speakers 7:5 8:1 58:6 59:10 80:6 82:13,22 91:10 100:13 103:7,12,16 105:18,20,25 106:1 107:24	springs 88:23 St 73:15 88:13 98:8 102:10 stages 27:10 stand 100:1 standard 11:17 18:22 21:24 32:25 35:6 36:9 37:17 45:14 54:8,8
short-term 76:8 shorter 95:10 Shorthand 110:16 shovelnose 66:16,19,20 show 12:20 29:3 30:8 36:24 50:8 showed 18:6 31:23 51:6 shown 33:22 34:3,11 35:1,8 shut 14:23 82:19 shuts 89:9 side 61:16,23 95:10 Sierra 41:17 44:20 50:21 51:24 52:15 88:9 95:14 98:5 signed 75:16 significance 60:14 significant 10:14 32:8 51:14 55:13,15 92:4 similarly 34:19 75:20 77:22 simple 73:20 75:7 simplicity 85:5 simply 65:14 67:1,4 95:1,16 106:8 simulation 13:7 23:9 single 34:5 site 34:7,21 36:17 102:13 site-specific	six 12:15 28:24 31:22 34:2 six-step 33:21 sixth 31:21 size 30:16 33:2 skip 101:1 skirt 76:12 skirted 70:11 slide 12:20 13:11 14:16 15:11 16:3 16:5,20 17:14 18:24 20:4,7 20:10,14,18,19 21:2,18,22 22:11 23:19 25:8 26:13,25 27:20,24 33:22 34:3 slides 10:5,10 12:22 13:9 20:5 23:22 23:25 24:5 104:25 105:7 slot 59:15 90:4 slowly 58:18,24 sludge 61:7 small 20:11 21:6 21:21 22:5,6 smart 76:18 smell 64:20,22 64:24 69:10 smells 99:9 smelly 90:16 99:14 Smith 101:17 103:25 solace 98:21 solar 76:2 solicit 12:11 solution 87:19 Solutions 23:25	someplace 77:20 somewhat 78:11 sophisticated 11:25 13:5,7 sorry 77:9,9 84:3 91:16 101:15 103:11 104:21 108:3 sort 9:11 26:22 96:19 sound 42:19 sounds 52:19 94:23 sources 61:11,14 southern 90:10 92:3 span 99:8 speak 7:15,18 7:20,22 10:6 12:25 41:17 42:1 58:7,9,20 58:22 59:12 60:8 66:7 80:16 83:22 88:11 90:4 98:8 100:3 103:17 104:14 105:3,21 speaker 8:8 28:10,12 40:25 57:22 58:12 59:14,17 60:2 62:20 66:3 67:18 71:6 73:9 77:7 77:11 80:2,10 82:3 83:19 90:2,7 91:8,16 91:17,22,23 96:2 97:23 100:11,22 101:4,9,11,15,15	speaking 52:16 104:16 speaks 7:21 special 31:16 species 25:24 27:11 36:24 37:3,4,8,9,10 37:24 38:13,14 49:9,12,19,20 50:3 55:18,21 55:25 66:1 67:10 68:15 89:7 92:14,25 106:15 specific 18:20 22:21 34:21 34:23 36:17 52:17 specifically 17:10 32:10 45:17 72:9 93:20 specifics 85:4 specified 19:10 speckles 98:12 spectacular 90:12 spend 52:8 70:2 98:14 spent 64:3 80:22 89:14 93:13 spewing 43:4 69:11 spoke 59:7 spoken 59:24 spot 59:17 spread 31:2 Springfield 4:17	standards 11:24 13:25 14:3,14 18:22 23:12 29:10 30:2,7 33:12 34:1,7,14 35:9,18,24 40:7 45:12 46:7 47:18 54:18 63:23 64:15,18 65:12 65:13 86:14 standing 46:5 start 9:16 47:3 52:18 59:18 60:8 66:20 77:4 88:4,15 95:16 started 5:11 10:12 41:19 starts 11:20 20:11,15,16 21:6,7,21 state 1:6,8 4:17 5:16,17 6:10 12:11 32:10 33:15,17,18,23 40:2 43:19 46:13 48:17 49:8,20 50:9 50:17 51:21 59:3 64:17 71:10,12 84:7 88:17 89:16 107:3,17 108:20 110:17 110:18 state's 33:25

PUBLIC HEARING 9/1/2020

<p>49:22 54:18 state-of-the-art 10:22 stated 35:19 41:2 50:1 stateless 107:10 statement 76:23 statements 2:12 56:8 104:8 states 29:21 48:25 60:15 66:19 73:17 75:24 82:16 static 33:1 stating 48:9 station 35:17 statistical 38:23 stench 87:6 step 27:3 62:14 69:18 99:5 stepping 76:3 stewards 61:25 62:10 stick 69:9 78:9 stinks 68:22 stinky 69:2 stood 102:9 stop 27:23 28:7 103:2 straight 27:17 stream 15:18 20:14 36:19 streamlined 12:16 stress 11:22 stretch 18:15 68:24 71:19 90:15 strikes 78:2 striking 93:4 stringent 15:17 15:19 16:14 22:14 39:10 45:24 strongly 95:16 structure 36:13</p>	<p>36:21 55:10,12 structured 18:2 student 68:11 students 61:15 studies 10:25 11:5 15:22 26:16 27:1 49:10,24 69:14 86:14 study 15:25 16:16 23:7 24:3,12 25:16 25:18,20 40:8 49:12,16,17 50:5 72:14,16 73:21,22 86:3 86:22 stunk 69:8 surgeon 49:14 50:1 55:24 61:9,10 66:16 66:19,20,23 67:3,4 68:16 86:8 89:7 92:15,15 106:11,15 subject 36:4,7 66:14 submerged 31:3 submission 12:17 51:13 submissions 12:9 submit 48:10 submitted 6:7 8:23 29:17,25 34:1 73:1,6 108:13 substantial 87:22 substantially 86:10 substantive 51:14 sucked 61:5 68:13</p>	<p>sucking 42:8 sucks 79:7 suffer 68:17 suffers 63:12 sufficient 16:17 suggesting 107:1 suggests 86:12 sulphur 43:3 summarize 77:17 summary 22:12 summer 29:12 38:12,15 Sunshine 40:20 40:22 47:5 50:7 55:18 72:14 73:5 super-heated 45:16 supervision 79:22 supplies 75:6 support 16:6 24:11 55:5 84:21 94:21 supported 11:5 supporters 84:15 supporting 53:19 supports 16:21 84:24 90:20 95:12 sure 26:2 41:20 45:9 57:8,16 58:21 69:13 73:24 76:19 91:19 92:21 95:17 102:2 104:13 105:24 107:11 surface 102:12 surgeons 68:17 surpass 29:9 surprising 67:10 surrounding</p>	<p>84:9,24 surveys 32:7 survival 66:16 sustain 64:20 sustainable 64:14 Suzanne 2:21 82:3,4,7 swim 43:8 67:1 69:2 75:9 107:5 swimming 68:23 93:9 system 9:11 25:25 27:15 50:3 55:22 60:21,25 62:18 70:7 74:11,19 98:25 systematic 43:9 systems 10:17</p> <hr/> <p style="text-align: center;">T</p> <hr/> <p>take 8:3,3 12:22 21:18 24:6 34:22 44:9 50:1 52:3 68:4 75:5 83:17 taken 9:5 38:17 108:10 110:4,9 takes 42:14,18 talk 11:14 13:8 24:1,18 28:6 44:23 46:8 48:21 56:14 106:2 talked 51:3 66:13 92:6 talking 15:1 21:15 25:7 26:14,19,23 41:20,25 57:10 99:17 Tara 2:9,11 7:2 41:1,5,12,14 52:6,14 56:9</p>	<p>56:20 75:1 88:10 95:22 98:7 104:5 105:15,22 Tara's 95:24 targeting 25:23 taste 99:13 taught 61:15,22 tax 106:13 taxpayer 106:24 taxpayer-fund... 43:21 taxpayers 63:5 63:21 64:4 86:7 TD 53:18 TDP 13:16,16,23 14:8,12,22 17:17 18:8 19:7 19:19,21 23:11 30:3,15,19,20 32:1 34:19,25 35:7 51:4,4 52:22,25 53:6,12,14,21 54:1,4,14,17,17 TDP's 53:18 teacher 61:15 team 24:2 technical 11:10 79:1 technically 50:20 54:4 79:17 techniques 27:2,9,10,12 technological 43:18 90:22 technologies 70:5 technology 33:13,15,20 34:6,6 61:2 70:8 71:1 79:15 87:21 91:2 93:21 94:2,10</p>
--	---	--	---	--

PUBLIC HEARING 9/1/2020

94:17 95:6 102:17,21 technology-b... 32:22 33:24 34:8 tell 41:7,9 56:2 64:14 92:21 106:1 temperature 13:20,21 14:5 17:22 20:6 29:10,13,15,19 29:25 30:2,9 30:25 31:9,13 31:15,18,20 33:8,9 34:18 35:18 38:9 40:13 53:8 54:2,3,13 65:24 66:15 68:6 85:12,17 86:5,20 93:16 temperatures 12:1 14:20 34:24 48:19 64:12 68:15 86:17 92:16 Temporal 36:25 tentatively 35:20 39:17 term 46:9,15,17 46:20 47:3,12 47:25 48:2 50:14 51:19 76:17 89:8,20 termination 46:21 47:1 terms 12:8 46:14 54:6 96:20 test 78:11 tested 61:1 testify 84:12,16 testimony 5:20 6:6,21 7:19 59:25 67:16	88:10 testing 86:19,24 86:25 87:3 thank 12:9 13:1 28:8,21 40:23 40:24 52:10 56:7 57:15,24 57:25 58:4 59:22,25 60:1 60:10 62:18,19 62:24 63:3 66:1,2,6 67:17 71:4,5,9 72:21 72:22 73:8 77:5,6 79:25 80:1,16 82:1,2 82:6,8,9 83:17 83:18 87:25 88:3 89:25 91:6,7 95:19 95:20,25 96:6,7 97:21 97:22 98:3 100:8,10 103:5 105:15 107:20 107:21,22 108:2 109:4,8 thanks 8:25 9:19 66:7 100:9 104:24 thermal 1:5 5:15 5:22 6:1,8,12 11:4,7,11,17,25 12:5 13:15 18:25 24:12 24:24 26:8 28:22 29:2,4 29:5,8,11,14 30:3,6,9,11 31:1 32:5,21 32:23 33:1,13 34:10 37:2 38:1,5,6,19 39:1,5,8,14 41:18 42:6,23 45:23 48:11 48:23 52:17	52:22 54:21 55:22 61:4 68:1 69:11 77:4 79:18 93:14 95:5 96:15 102:25 106:2 108:17 thermally 26:22 36:6 38:12 thing 13:18 24:4 77:19 96:15 97:8 things 13:8 27:14,24 47:1 74:20 96:14 99:10,11 think 23:19,20 26:4 30:15 59:5 72:17 73:20 77:18 77:24 78:11 79:22 82:14 82:21 83:4,12 83:13 90:21 92:11 97:18 99:12 101:24 104:24 105:2 105:7,13 107:8 107:13 third 45:7 54:1 97:8 Thoreau 81:24 thorough 95:17 thoughts 66:11 104:12 thousand 81:16 81:18 three 5:8 6:24 20:5 56:21,22 56:24 57:2,3 78:8 three-fourths 70:1 three-quarter 102:19 three-quarters 43:24 106:21	threshold 11:20 thrives 68:18 throwing 106:18 106:23 thwarting 43:19 43:19 tied 47:3 tighter 95:9 time 7:21,25 8:2 9:1,15 15:2,8 15:10 17:2,25 18:4 19:2,4,12 27:25 28:1,14 31:14 36:25 40:18 41:2,3 41:20,25 42:1 42:2,12 48:15 51:13 52:5,7 56:6,18 57:5 57:17,25 58:8 58:16,20 59:13 60:8,25 62:9 63:4 64:6 65:8 66:4 73:25 83:22,23 85:5 88:19 89:18 93:12 94:24 95:23 95:23,24 98:14,22 99:3 99:7,16,24 100:3,8,15,16 103:6,7 104:6 104:8,13,15 107:24 108:5 109:4 timeline 47:17 times 8:8 11:22 14:24 17:11,12 18:20,20 33:8 82:17 tinted 75:25 tip 92:3 title 16:1 today 6:5 51:4,7 51:8,10 52:16	66:14 67:24 76:8 84:12 100:1 105:25 today's 65:12 toe 69:9 tonight 73:2 tonight's 78:21 105:2 top 14:11 106:24 total 27:16 touched 52:19 tourism 79:4 84:20 tourists 80:23 touting 43:1 tower 83:14 102:17 towers 60:25 70:8,8 71:2 79:10 87:19 87:24 94:2 106:20 toxic 32:24 42:24 43:2 track 10:19 trade 68:4 traditional 32:24 trail 61:19 69:3 69:4 80:21 84:19 98:14 trails 81:9 translate 64:18 transparency 96:20 traveling 73:16 treatment 5:6 10:23 61:12 tributaries 92:10 93:3 trick 78:5 trips 75:15 trophic 36:20 true 75:21 110:5 trust 63:22 64:1 73:25 trusts 74:17
---	--	---	--	--

PUBLIC HEARING 9/1/2020

try 27:25 44:23 58:11	54:5 93:20 95:18	unsustainable 65:13	valued 62:11 values 87:4	100:2 102:24 103:2 106:3,7 107:2
trying 69:23 72:19 105:21	Unfortunately 36:22 48:15	unusual 64:6	variance 1:5 5:15,22 6:1,8 11:13,22 13:9 13:10 14:18 15:12,14,18,24 16:6,8,17,22 17:15 18:2,25 19:5 21:20,25 22:3,13,13,22 25:3,3 28:23 29:7,8,18,24 30:13 32:18 35:23 39:18 39:21 40:1,6,11 40:15,19 41:18 42:6 44:14,17 45:11,13,21,22 45:22 46:3,4 46:7,10,16,19 46:25 47:5,8 47:9,15,16 48:1,12,13,18 48:20 49:5,17 50:6,20 51:2 51:7,15,17,25 52:17,21,24 53:3,10,14,17 53:20,24 54:24,25 55:1 55:5,16 56:3 56:5 62:15 65:13,17,17,18 67:15 69:16 70:16,17,18,23 70:25 71:23 72:1,2,4,14,17 74:5 76:6 78:22 81:6 84:13 85:4,7 85:13,15,21,23 87:16,18 89:4 89:9,19,21,24 91:4 93:14 94:19 95:8 96:12 97:1,10	variance's 50:22 variances 29:5 29:6 46:11 47:24 79:14 varied 36:19 various 25:24 67:11 74:1 98:16 vehemently 81:5 verify 85:24 versed 92:8 vetted 34:22 vicinity 55:14 video 9:13 view 9:14 62:4 violates 8:19 46:10 78:18 violation 67:9 74:1 violations 44:21 45:1 74:5 virtual 28:21 virus 83:1 visited 63:16 visiting 40:21 voice 63:8,10 76:25 99:21 voices 99:9 volume 30:12 30:21 32:6 33:6,10 34:17 35:25 38:5 40:13,13,15 65:23 68:10 85:12,17 vote 83:12 vs 44:1
tub 87:9	unhealthy 71:2 75:5	update 15:23		
tune 92:19	unheard 46:9	upgrades 87:22		
turmoil 98:23	Union 63:2	upstream 26:21 36:3 37:12 38:13 67:2 86:11 87:4		
turn 7:10,15 9:16 9:17 41:6,8 52:1 56:10 105:20 107:25	unique 13:17 36:21 78:23	Urbano 3:6 96:2,7		
turning 9:12	United 29:21 60:15	urge 89:23 95:16		
turtles 98:16	units 61:19	use 11:21,24 15:23 27:2 30:12,13 34:14 40:12 41:24 42:3 44:14 54:14 59:20 70:5,7 83:14 84:10,15,17 85:8,19 96:16 102:21		
two 19:1 24:18 27:17 36:6 37:21 76:21 79:2,17	university 2:9 6:23 7:3 28:12 40:25 41:4,15 52:13 83:21 104:4	useful 47:13 85:8		
two-year 26:16	unlawfully 50:14 51:18	user 58:20 59:7		
type 29:7	unlimited 47:8	users 58:17 59:6 103:13,15		
types 99:10	unlined 42:25	uses 32:20		
Typically 34:10	unmitigated 42:11	usual 45:18		
<hr/> U <hr/>	unmute 7:16 41:10 58:13,17 58:21 59:1,7	usually 27:13		
U 95:15 98:8	unmuted 59:2 60:5 62:21 66:4 71:7 73:11 77:13 96:6 103:14	utilities 87:21 87:22		
U.S 36:12 49:23 55:19 67:8	unmuting 8:15 8:17	utility 69:25		
ultimately 12:16 20:15	unnecessarily 54:14,19 107:12	utilize 54:17 60:24		
ultra 81:10	unreasonable 43:9 65:14 97:15	utilized 25:22		
unable 51:8 86:3	unreasonably 65:20 70:19	<hr/> V <hr/>		
unacceptable 8:14,17	unrestrained 74:22	vague 36:14		
unbalanced 36:23	unsafe 75:8	valid 6:15 57:17		
uncertainty 64:6 99:25	unsupported 48:4	validity 78:5,11		
underlies 49:17		Valley 80:23		
underlying 53:22		value 13:17 30:19,20 54:9 60:13 79:3,3 84:15,22		
understand 42:21 54:12 72:20 87:2 93:13 102:16 106:25 107:16 107:17				
understanding				
				<hr/> W <hr/>
				walks 61:18 Walter 2:14 62:20,22,24

PUBLIC HEARING 9/1/2020

62:25 want 24:5 44:4 47:10,11 52:8 56:10 57:16 65:6 81:23 88:6,14 91:18 97:8 100:19 102:20 104:9 104:11 105:7,18 107:2 wanted 7:13 10:8 28:11 104:13,14 wants 42:21 56:17 70:12 warm 32:2 38:4 87:8 warmer 92:14 warming 92:19 warp 76:14 warrant 40:12 Wash 95:15 98:7 Washington 2:9 6:23 7:2 28:12 40:25 41:15 52:12 83:21 104:4 wastewater 10:22 33:16 40:5,14 52:16 water 1:1 4:4,6 5:3,6,6,8 6:14 7:5 9:2,6 10:18,24 11:11 11:17,19,24 13:13,25 14:2 15:15,19 16:13 17:4,9,12,16 18:22 19:6 22:23 29:1,2 29:6,8,10,16 29:19 30:1,6 31:3,4 32:2,13 32:20 33:12 33:14,25 34:7 34:13,14 35:5	35:8,18,24 36:9,11 37:14 39:9,12,18,21 40:2,6 42:7,10 42:11,15,16,24 43:8 45:2,3,11 45:16,20 46:6 50:13 51:17 54:8,8,13,18 55:10,12,22 60:23 61:3,5 61:6,8,12 65:15,25 67:23 68:1,5 68:10,18 69:2 69:8,9 70:9 72:10 75:6 78:9,10,21 79:7,11 82:15 82:18 83:14 85:12 86:4,5 86:13,21 87:9 87:10 88:21 90:16 92:14 93:10,15 96:16 96:21 98:25 102:7,12 107:20 108:15 109:2,6 waters 38:13 45:6,7,10 waterways 64:10 way 18:2 27:11 44:4 55:24 63:11 69:9 75:12 83:14 94:20 we'll 24:6 25:13 28:1 41:11 59:9 91:22 100:11 100:16,17,21 100:25 101:11 104:1,4 105:3 we're 15:1 26:14 43:6,19,19 77:18 83:10	86:24 97:12 99:16,24 100:5 105:23 106:6,23 we've 25:6 52:18 65:10 73:25 99:8 wealthy 43:23 web 72:18 Webex 1:16 6:11 58:16 108:20 webinar 8:20 9:11,14 website 70:15 72:9 78:7 87:1 Wednesday 72:15 week 69:3 weeks 73:15 welcomed 98:21 welfare 43:22 79:12 106:18 well-being 78:19 well-conducted 26:12 well-establish... 26:11 Welschmeyer 7:18,23 58:11 104:9,17 went 11:10 whirlpool 62:6 wide 25:23 34:24 WIEBEG 59:5 wild 45:9 66:12 wildlife 29:21 44:6 49:23,25 55:19 60:19 64:4,19 65:22 67:8 70:22 76:11 98:22 98:25 99:10 107:13,20 wildness 81:24	Wilkes 91:17 willing 70:2 wind 76:2 winter 38:8 87:5 wish 7:22 wishy-washy 47:2 withdraw 53:23 55:16 56:6 withdrawn 91:18 woman 98:12 98:20 wompie 106:2 wondering 72:4 Wood 11:5,9 23:24 24:10 words 47:8 55:7 65:15 work 11:10 16:25 24:1,17 25:9 25:15 26:9,15 26:17,19,20 41:11 44:5 52:14 57:6 63:20 88:9,13 98:5 worked 5:5 25:19 89:12 working 13:4 24:10 71:11 77:18 89:15 103:14 works 57:13 105:5 world 65:8 81:11 81:25 worms 27:14 worry 66:25 worse 95:4 wouldn't 48:5 63:7 67:10 86:23 102:20 WQBEL 13:14 wrap 22:12 27:24 wrapped 100:13	write 28:25 writer 28:24 writing 9:7 73:2 108:11 written 6:7 77:16 85:4 108:11,13,13 wrong 91:2 <hr/> X <hr/> Y <hr/> Yeah 25:10 59:24 92:1 97:16 105:11 year 10:21 15:9 18:4 19:13,15 19:19 20:3 23:1 26:6 33:8 40:7 44:8 48:21,22 63:15 70:2 79:9 83:1 86:19 93:15 102:20 106:22 years 5:7,8 11:2 13:4 15:5,6,15 17:25 18:1 19:3 19:18 20:2 22:21,22 23:6 24:14 27:17 28:24 37:21 45:14 46:15,17 48:6 62:17 63:16 65:7,7 65:14 69:19 70:12,14 71:13 72:6 74:7 76:15 79:23 80:22 81:17 83:3 85:8,10 88:16 89:18 89:22 90:12 90:14 92:11 94:5,6 97:12 98:12 99:6,17
---	--	--	--	---

PUBLIC HEARING 9/1/2020

100:2 102:25 103:1 yellow-dashed 20:23 yield 76:18	44:7 65:17 85:7 1,428 40:16 1.0 14:13 10 20:12,17 21:6 21:13,21 32:2 36:9 39:25	22 45:14 48:6 48:21 52:23 53:1 62:17 65:7,7,14 69:19 70:13 72:6 79:23 83:3 85:7 89:22 93:14 94:5 97:12 99:6,17 100:2 103:1 22-year 46:9 47:2,25 50:14 51:19 71:23 72:4 89:8,19 91:1 94:2,24 24 2:6 66:20 24-hour 20:2 2461 63:1 25 14:3 20:21 20:22 21:8,16 21:24 22:5 30:12,18,20 32:6 33:6,10 35:25 38:7,8 68:6 80:22 26 6:9 108:18 28 2:7 280 86:7 106:12 106:13,18	340 73:14 81:12 35 89:18 37 73:17	77 2:19 7Q10 32:25
<hr/> Z <hr/> Zerbe 3:8 101:20,22 102:2,3 zombie 76:20 zone 11:14,23 14:3,5 18:11,13 18:14,16,18,21 19:16,23 20:7 20:14,16,20,21 20:22,23 21:4 21:5,8,13,23 21:24 22:1,2,7 22:9,17,19 23:2,13,14,18 26:21,21,22 26:23,24 29:11 30:10,11 30:22 31:5 32:3,11,14,14 32:18 33:2,5,9 36:5,6 38:2 54:22 66:23 66:24 67:5,6 zones 21:15 26:18 27:2,6,7 32:5 zoom 78:7 92:5	102 3:8 105 2:11 125.3(d)(3) 33:22 125.71(a) 30:14 125.73(a) 55:4 13 2:5 131 29:6,7 1329 110:18 15 4:17 20:15 21:14 81:17 15-minute 53:9 15-pound 93:5 15th 73:16 18 26:16 38:21 186.5 80:19 19 27:16 1970 40:5 1972 36:12	22 45:14 48:6 48:21 52:23 53:1 62:17 65:7,7,14 69:19 70:13 72:6 79:23 83:3 85:7 89:22 93:14 94:5 97:12 99:6,17 100:2 103:1 22-year 46:9 47:2,25 50:14 51:19 71:23 72:4 89:8,19 91:1 94:2,24 24 2:6 66:20 24-hour 20:2 2461 63:1 25 14:3 20:21 20:22 21:8,16 21:24 22:5 30:12,18,20 32:6 33:6,10 35:25 38:7,8 68:6 80:22 26 6:9 108:18 28 2:7 280 86:7 106:12 106:13,18	<hr/> 4 <hr/> 4 86:16 110:21 40 18:11 19:17 22:1 23:13 29:6 30:14 33:21 55:4 40-plus 102:25 40,000 17:21 41 2:9 48 5:7	<hr/> 8 <hr/> 8 7:8 29:17 80 2:20 18:17 22:8 82 2:21 84 3:2 84-1716 110:17 87 17:22 30:24 88 3:3
<hr/> 0 <hr/> 0.05 32:1 35:2 0.9 14:8 0.95 13:17 14:22 17:17 19:8,19 23:11 53:6 0004812 1:8 5:18	<hr/> 2 <hr/> 2 85:19 94:19 20 21:7,11 20-6.010 39:25 20-7.031(5)(d)1 32:2 36:10 20-plus 92:11 20-year 102:3 2003 31:23 2009 84:8 2011 5:5 2017 26:16 31:16,21,22,23 2019 37:22 43:25 2020 1:13 6:9 16:2 29:17 98:20 108:18 2022 110:21 21st 75:19	<hr/> 3 <hr/> 3 73:17 86:4 30 21:23 22:1 300 106:20 301 39:9 306 39:9 31 99:7,16 316(a) 10:24 11:11 14:18 15:12,14,18,24 16:2,6,8,17,22 22:3,13 29:1,8 29:18 32:8,17 36:11 39:6 45:21,22 46:2 55:5	<hr/> 5 <hr/> 5 5:1 14:6,11,15 20:12,17,17 21:6,13,21 30:10 31:1,9 38:9 5:00 1:14 50 11:2 52 2:10 528 19:13,15 20:3 40:7 67:5	<hr/> 9 <hr/> 9 2:4 52:6,8 90 3:4 14:6 30:21,23 54:9 90-degree 11:17 11:20 30:8 48:22 91 3:5 95 14:14 53:12 79:11 96 3:6 97 3:7
<hr/> 1 <hr/> 11:13 15:2,9 17:24 30:20		<hr/> 6 <hr/> 6 15:8 18:3 19:14 22:25 23:3 32:3 37:22 60 2:13 18:12,19 22:18 23:14 62 2:14 62701 4:17 650 50:21 66 2:15 67 2:16	<hr/> 7 <hr/> 7:24 109:10 70 18:17 22:9 71 2:17 73 2:18 75 18:17,21 22:7 66:21	



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

Name
Address
City State Zip

RE: Comments on Ameren Missouri – Labadie Energy Center Thermal Variance Request

Dear Citizen:

Thank you for your comments concerning the proposed thermal variance for the Labadie Energy Center, requested by Ameren Missouri pursuant to Section 316(a) of the Clean Water Act and in accordance with 40 CFR Part 125, Subpart H and 10 CSR 20-7.031(5)(D)6. This letter contains the comments or a summary of comments received during the written comment period and the public hearing, as well as the Missouri Department of Natural Resources' responses to comments received. Please note, the Department does not have responsibility, at this time, to address comments beyond those outlined in Section 316(a) of the Clean Water Act.

[Comment: Concerns were raised that a 22 year variance was illegal or too long. Commenters requested public participation in the variance every 5 years \(or permit cycle\).](#)

Response: The thermal variance is defined in federal regulations as a biological-based alternative effluent limitation, with its own specific requirements and standards. Regulations implementing CWA Section 316(a), codified at 40 CFR Part 125 Subpart H, do not limit the timeframe for which a variance can be effective. Furthermore, as the state water quality standard for temperature specifically allows for an alternative effluent limit and an alternative mixing zone using a § 316(a) based variance, a separate water quality variance under 40 CFR Part 131 is not required. Unlike a water quality variance, a § 316(a) variance, which is an alternative effluent limitation, does not require a change in the regulation and is not self-implementing. A § 316(a) variance is implemented through a permit, which must be renewed at least every five years.

The Department will review all data relevant to the variance during every permit renewal and may revoke the variance at any time if the discharge is not in compliance with the terms provided in permit or if information is available that indicates the impact of the thermal discharge is impacting the river in a manner not addressed in the original bioassessment.

The Department has authority to condition the variance approval to require Ameren to submit additional data during the five-year permit term to assess the impact of the thermal discharge on the waterbody and confirm that the bioassessment remains representative of the river's population. In the



event Ameren fails to submit data or studies as required by the permit subject to CWA § 316(a), then the Department may rescind, revoke, or nullify the variance; the Department may also modify the permit with cause at any time pursuant to 40 CFR 122.62.

[Comment: Commenters raised concerns about the legality of the variance \(specific citations are listed with each response below\).](#)

Response: Commenters cited the statutes and regulations listed below, asserting that granting the variance would be inconsistent with applicable laws. Some of these requirements are addressed within the variance request, variance process, or permitting process. Some of these citations are not applicable to the § 316(a) variance as this is a bioassessment based thermal variance:

- Section 644.061 RSMo states “the Commission may grant individual variances beyond the limitations prescribed in 644.006 to 644.141 ... but no variance shall be granted where the effect of a variance will permit the continuance of a condition which may reasonably cause or contribute to adverse health effects upon humans or upon fish or other aquatic life or upon game or other wildlife, and any variance so granted shall not be so construed as to relieve the person who receives the variance from any liability imposed by other law for the commission or maintenance of a nuisance.” Some commenters appear to have misquoted or misapplied this statutory section in their comments. There is no evidence of the existence of any current conditions that unreasonably cause or contribute to adverse health effects on humans or wildlife, and therefore this variance would not allow for the continuance of such conditions. The bioassessment and full § 316(a) study conducted by Ameren Missouri demonstrates the alternative thermal effluent limitation requested does not cause or contribute to adverse health effects of humans, aquatic life, game, or wildlife (see other comments for further detail).
- Endangered Species Act. The § 316(a) thermal variance requirements do not require consideration specifically of endangered species, but instead refer to the entire indigenous population of shellfish, fish, and wildlife. The comments provided by U.S. Fish and Wildlife Services (USFWS) did not suggest that the thermal variance should be denied, only that additional permit requirements may be necessary for continued use of the variance. The USFWS had sufficient opportunity to object to the approval of the thermal variance but did not. The USFWS will again be given the opportunity to review the proposed permit conditions during permit public notice, and can again comment regarding any part of the permit.
- The Clean Water Act (general references in comments). One of the comments quoted the overall purpose of the Act, specifically invoking the cessation of all pollutant discharge, and stating that that this discharge does not meet the purpose of the Act. The Department’s response is that the Clean Water Act 101(a) national goal to eliminate the discharge of pollutants into the navigable waters by 1985, is not a legal obligation. The Act itself specifically authorizes thermal variances in § 316(a).
- Section 316(a). Comments were received that the thermal variance request did not assure protection and propagation of a balanced, indigenous population. The Department believes that Ameren has demonstrated that the alternative effluent limit will assure such protection and propagation. The Department reviewed Ameren’s study plan and engaged representatives of the USFWS and the Missouri Department of Conservation (MDC), to ensure that the study adequately addressed this requirement. Ameren’s final thermal variance request responded to all of the Department’s required changes, including those provided from other agencies. The

plan was developed and implemented specifically with this statutory requirement as the standard.

- 40 CFR 131.14. Multiple sections of this rule were cited in comments, including limits on the duration of the variance, specified start and end dates to the variance, and requirements associated with this rule. The rule cited by the commenters applies to variances to water quality standards. However, this action is pursuant to Section 316(a) thermal variances, which are alternative permit limits, pursuant to federal regulations 40 CFR 125.70 through 40 CFR 125.73. All comments made citing this regulation are not addressed in detail, because this rule is not applicable.

[Comment: Commenters were concerned that a 22 year variance would not allow for changes in the Missouri River associated with climate change.](#)

Response: As noted above, the thermal variance will be subjected to a modified variance continuation request process, which includes Department review, every 5 years in conjunction with the permit renewal.

[Comment: Concerns were raised with establishing a thermal variance for 22 days per year, as that metric is too general and may not precisely reflect the conditions and thermal exceedances at the site. Commenters requested a more precise measurement and limit on the variance.](#)

Response: The Department concurs with these comments and has modified the thermal variance to require an equivalent hourly limit associated with this thermal variance. The proposal by Ameren was to average the temperature for the entire 24-hour day and then use the thermal variance on a daily basis. However, the Department has determined that hourly measurements are appropriate and feasible by the facility, and therefore provides that the thermal variance shall be measured in hourly increments not to exceed 528 hours in any one calendar year.

[Comment: Concerns were raised that the thermal discharge parameter \(TDP\) was not sufficiently described in the thermal variance document, that the TDP was developed without explanation or transparency, the TDP is not tied to the water quality standard, the public cannot understand the TDP or how the thermal variance is calculated, the TDP obscures the actual relationship between the river and the discharge, and overall concerns regarding permit implementation.](#)

Response: The TDP was developed, publicly discussed, and implemented in two previous permit revisions, records of which are open for public review in accordance with the Missouri Sunshine Law. Please see the following for an explanation of the TDP:

- The February 24, 2016 public notice for modification of the Missouri State Operating Permit MO-0004812 (MSOP), and
- The current MSOP, page 5, and Note 4,
- The current fact sheet for the MSOP, Modification Statement of Basis.

[Comment: Commenters indicated concern over a lack of limits being established on the discharge.](#)

Response: This proposal is strictly limited to the § 316(a) thermal variance request. Once a decision is made on this thermal variance request, the Department will draft a permit renewal and place it on public notice, inviting public participation in accordance with 10 CSR 20-6.020. That permit will include effluent limitations, other narrative limits and conditions, and will establish the operational

limitations, monitoring, and any other requirements or conditions of operation. The thermal variance request relates only to one component of the permit, and therefore, does not reflect all limits and conditions for this facility.

Comment: Concerns were raised the biological report was insufficient to show the indigenous community was balanced or protected; the appropriate representative indicator species (RIS) were not selected, specifically the pallid sturgeon; and the Department did not regard outside agency's concerns.

Response: The thermally exposed zone is considered part of the mixing zone, therefore is excluded from determinations regarding the waterbody's balanced, indigenous population (BIP) of shellfish, fish, and wildlife. The Department's regulations already allow for reduction of water quality within mixing zones, so long as the waterbody as a whole can support all beneficial uses and protect aquatic life. The corridor for aquatic life to avoid the thermally affected areas (the zone of passage) was documented and demonstrated to support aquatic life and beneficial uses and provide an adequate corridor around the mixing zone. 10 CSR 20-7.031(5)(D) specifically establishes the thermal limits effective at the edge of the mixing zone.

The pallid sturgeon is the only federally endangered species potentially occurring in the vicinity of the facility. Peer reviewed studies point to loss of ecosystem integrity and loss of habitat, not thermal discharge, as the cause of pallid sturgeon decline. No sources indicated that thermal discharge from this facility is a cause of pallid sturgeon decline. Further, there are no designated critical habitat areas for pallid sturgeon in the lower Missouri River system, where this facility is located. Furthermore, current regulations and federal guidance do not require consideration of endangered species that *could* be found in the area, but rather require assessment of the existing indigenous population. The Ameren request, as provided, adequately addresses the BIP.

Commenters believed historic draft guidance documents established requirements that Ameren must select endangered species as a RIS. According to an August 6, 2019, EPA memorandum, EPA no longer recognizes draft guidance documents issued by the Office of Water that are older than 2 years old and never finalized by the EPA. Additionally, guidance documents do not have the force or effect of law; therefore, the Department has no requirement to assign an endangered species as a RIS or follow any guidance not believed to be applicable to facility operations.

https://www.epa.gov/sites/production/files/2020-02/documents/ow_policy_for_draft_documents_to_ow_program_directors_signed_002.pdf

Some commenters used comparisons of raw numbers of collected species as a method of determining differences in population, however this would not be considered a defensible methodology. Statistical comparison of populations, which allows for natural variation in collection methods, while still accounting for actual variation within or between the populations, is a more appropriate method for comparison.

Finally, commenters asserted that the BIP was inadequate because other agencies were not consulted, or other agencies found the report lacking. Both the U.S. Fish and Wildlife Service (USFWS) and the Missouri Department of Conservation (MDC) were brought into early evaluations of the draft thermal variance plan and request in February 2020. Ameren re-structured its bioassessment to address concerns raised by these parties. Upon final submittal of the thermal variance request, the Department continued to consult with the USFWS in March through May of this year. The USFWS submitted comments regarding sampling results and the USFWS suggested certain sampling regimes

should be conducted in the future by Ameren in response to CWA § 316(a) and (b). The Department will review the sampling requested during the permit renewal process and will implement any additional requirements the facility must fulfill during permit implementation if the thermal variance is approved.

The final submittal addressed concerns raised by MDC during the preliminary draft review. The Department submitted the final thermal variance documents to MDC but did not receive a response from this agency.

Overall, the Department believes the report sufficiently catalogues that the overall indigenous population in the receiving stream are balanced and has all intention of considering all comments gathered during the public comment period for the permit.

Comment: Concerns were raised that the thermal variance does not consider cumulative impacts of the site. Comments were also received that implied that the intake structure is part of the “cumulative impacts” of the 316(a) variance.

40 CFR 125.73 requires that the “demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.” The Department has determined the application made this demonstration and fulfilled this requirement.

Regarding the intake structure, this is subject to different requirements, CWA Section 316(b and 40 CFR 125 Subpart I. It is not subject the requirements for alternative thermal effluent limits.

Comment: Concerns were raised there was not sufficient time for the public to review the variance documents.

Response: Though not required to do so, the Department voluntarily provided a public comment period and extended the comment period in response to a request. The Department is required to respond to early screenings of applications for a § 316(a) variance in a timely manner, consistent with 40 CFR 125.72, which the Department did.

Comment: Concerns were raised that Ameren was releasing super-heated water to the Missouri River.

Response: The temperature standards in 10 CSR 20-7.031(5)(D) allow dischargers to release heated water into Missouri’s rivers and streams when certain conditions are met. The limitations provided in this regulation also allow for mixing zones within which temperature standards do not apply. The facility proposes to follow these basic effluent limitations for at least 343 days per year. However, the 316(a) variance Ameren is requesting is to allow for these standards to be exceeded for 528 hours, totaling 22 days, per year. The water quality standard allows for thermal discharges to occupy 25% of the volume of the river, which allows for a 75% zone of passage for fish. During periods of use of the proposed thermal variance, the volume of the heated water expands to up to 40%, which leaves 60% of the river for fish passage.

Ameren is not proposing to discharge more water, hotter water, or change operations in any way from past operations, and Ameren does not have the allowance to discharge more than the design flow as listed on the permit for outfall #001, which is 1,428 million gallons per day, which will be continued in the renewal permit.

Comment: Concerns were raised that Ameren should not be able to use the Missouri River [for cooling purposes] and uses a billion gallons of water a day and does not pay for it. Additional comments indicated the facility should be required to install cooling towers and that cooling towers represent the Best Technology Available. Concerns were raised that more stringent standards and technologies should always be required and that more lenient standards result in harm to the environment.

Ameren is registered with the State as a major water user. Any surface or groundwater user with the equipment with the capacity to withdraw or divert 100,000 gallons per day (or 70 gallons per minute) or more combined from all sources from any stream, river, lake, well, spring, or other water source is considered a major water user in Missouri. All major water users are required by law to register water use annually (Section 256.400, RSMo). The Missouri Geological Survey does not require registrants to pay fees for use of waters of the State.

There is no statute or regulation prohibiting Ameren from withdrawing water from the Missouri River to use for cooling purposes, and Ameren returns most of the water used to the Missouri River, except for that which is lost to the atmosphere as evaporation. In Missouri, there are no statutes or regulations that limit how much water may be used. Missouri is a riparian water rights state, which means all landowners generally have a right to a reasonable use of their water resources.

Withdrawals of cooling water are regulated by Clean Water Act § 316(b) and regulations at 40 CFR 122.21(r) and 40 CFR Part 125 Subpart J. They are not considered as part of this 316(a) variance proceeding. However, Ameren has submitted to the Department a best available technology (BAT) assessment with the permit renewal application pursuant to § 316(b). That assessment will be made part of the public review of the permit and the public is invited to comment on it at that time.

Comment: Commenters stated that all the other power plants have already installed cooling towers and can meet all thermal requirements and, as such, Ameren Missouri should install them at the Labadie Energy Center.

Response: § 316(a) recognizes that not all power plants can always meet state and federal thermal limits and establishes a site-specific thermal variance process. Ameren is entitled to utilize this process and the Department is required to evaluate and approve a thermal variance if it meets all regulatory requirements.

Comment: Concerns were raised about the continued use of the Missouri River for swimming, fishing, wildlife, kayaking, and other recreational use that falls within the protected beneficial uses of this river. Concerns were raised about odor and foam associated with the discharge.

Response: This facility and its discharge remain subject to the general water quality criteria in 10 CSR 20-7.031(4), including requirements that waters shall be free from oil, scum, and floating debris, and that waters shall be free from offensive odor. This thermal variance request does not waive any of these general criteria that, if violated, may be subject to compliance and enforcement actions.

The Department considered the beneficial uses of the waterbody, established in 10 CSR 20-7, as they pertain to this thermal variance and alternative effluent limit request. Specifically, the applicable beneficial uses of this waterbody include: warm water habitat, drinking water supply, industrial water supply, irrigation, livestock and wildlife protection, secondary contact recreation, whole body contact (category B), and human health protection.

The Department determined that the granting of this variance will not impair any of the beneficial uses established for this water body.

[Comment: Concerns were submitted on the water intake structures, impingement and entrainment, and other aspects of the water intake process and protection measures.](#)

Response: Intake structures are subject to § 316(b) requirements, which are outside of the purview of this § 316(a) review, but will be considered during permit renewal. The public is invited to comment on these issues during the upcoming comment period on the draft permit.

[Comment: Concerns were raised that the Department and/or Ameren Missouri should be conducting testing and monitoring at, near, or downstream from the Labadie Energy Center.](#)

Response: Department establishes the monitoring parameters in the facility's permit, including, frequency, methods, and other requirements, requires recordkeeping and electronic submittals, conducts records and sampling reviews, and inspects facilities regularly, all to determine a facility's compliance with statutory, regulatory, and permit requirements. The public is invited to comment on the draft permit.

The thermal variance, once incorporated into the permit, will require additional monitoring on an hourly, daily, or monthly basis to assess the effluent and its thermal effect on the river.

The Water Protection Program's Watershed Protection Section continually assesses waters of the State to determine which waters are not meeting water quality standards and ensure protection of the beneficial uses of the waterbody pursuant to CWA § 305.

[Comment: Commenters noted that the variance request, related information, Labadie Energy Center data, and associated documentation were not provided on the Department's webpage.](#)

Response: The Water Protection Program does not make it a practice to utilize the Department's website as a full and complete facility-specific repository of information and data. All of the documentation for the Labadie Energy Center in the Department's possession is available in accordance with the Missouri Sunshine Law.

Comment: Comments were submitted on the historical and cultural significance of the River, climate change, noise, air pollution, coal ash usage, storage and associated groundwater contamination, utility waste landfill, tourism and economic development, business or residential values or related impacts, employment considerations, preferential use of “clean energy” rather than coal, corporate profits and corporate finances, private versus public rights to the river, the general role of regulators for corporations, general plant efficiency, increase in invasive species beyond the scope of the facility or this bioassessment, and general statements about protection of the environment and water resources not specific to this variance, facility, discharge or the scope of this hearing.

Response: The Department acknowledges these concerns; however, these issues do not fall within the scope of this § 316(a) thermal variance request. Many of these issues are outside the jurisdiction of the Department and the Missouri Clean Water Law. Other issues fall within the scope of the permit, rather than this thermal variance request, and may be raised during the Department’s subsequent permitting process.

Conclusion

The Missouri Clean Water Commission and the Department have reviewed Ameren’s request for a § 316(a) thermal variance and alternative effluent limits along with the public comments, with respect to compliance with applicable statutes and regulations. Based upon this review, the Commission has determined **ADD DECISION HERE**. This decision may be subject to judicial review in accordance with § 644.071, RSMo.

Thank you for taking the time to provide your comments. We hope that this letter was valuable in providing answers to your questions, and if you have further questions, please contact Pam Hackler at 573-526-3886, via e-mail at pam.hackler@dnr.mo.gov or by mail at P.O. Box 176, Jefferson City MO 65102-0176.

Sincerely,

Chris Wieberg, Director
Water Protection Program

CW:phk

c: Ameren Missouri
St. Louis Regional Office

Response to Sierra Club's Comments on the Proposed Variance CWC-V-4-20

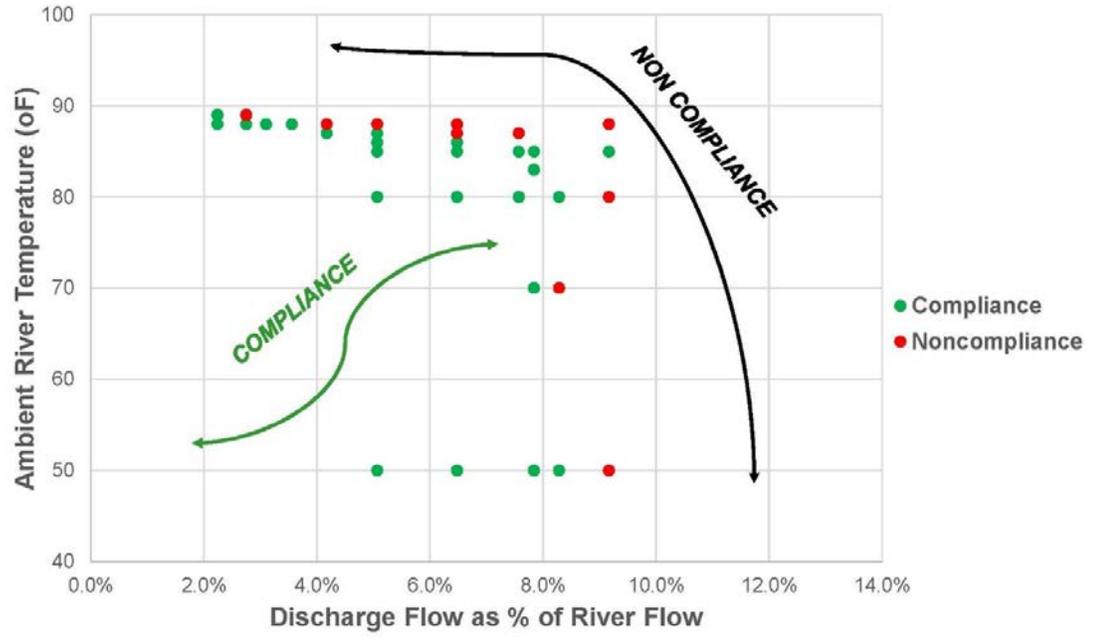
Sierra Club's stated opposition to the proposed thermal variance (Proposed Variance) for Ameren Missouri's Labadie Energy Center (Labadie) fundamentally misconstrues the scope of the proposed alternative effluent limitation and the regulatory requirements under Section 316(a) of the Clean Water Act (CWA) that specifically authorize state agencies to grant such relief. In fact, as further defined below, Sierra Club's letter devotes considerable space objecting to the use of a Thermal Discharge Parameter (TDP) and equations that have been part of the Labadie MSOP (Permit) since a 2017 modification. While Sierra Club appealed the issuance of that permit to the Administrative Hearing Commission (AHC), they specifically declined to challenge the Missouri Department of Natural Resources' ("MDNR") 2017 adoption of the TDP and implementing equations. Sierra Club's opposition is heavy on rhetoric but light on facts as they virtually ignore the robust technical record submitted to MDNR as part of the Final 316(a) Final Demonstration dated April 2020 submitted by Ameren Missouri (Demonstration). Ameren Missouri responds to such comments below.

Background

Missouri's thermal water quality standards (WQS) establish a 90°F maximum temperature, temperature increase/decrease of less than 5°F, and 25% mixing zone for the Missouri River. (10 CSR 20-7.031 (5) (D)) For the Permit, the mechanism for establishing compliance with these WQS is through the application of a numeric TDP derived from four variables: stream flow, stream temperature, effluent flow, and effluent temperature. A USGS gage located just upstream from Labadie's intake provides flow and temperature data sans impact from the facility. As the facility draws water from and then discharges water back into the Missouri River, effluent flow and temperature are recorded. Prior to the TDP, the Permit's thermal equations inaccurately assumed the entire heated discharge completely and uniformly mixed with 25% of the river. Temperature sampling clearly affirms that such an assumption incorrectly reflected the mixing and heat transport which actually occurs within the river.

The TDP approach arose out of a site-specific model reviewed and approved by MDNR that allows for a multi-dimensional depiction of Labadie's thermal effluent on the Missouri River. The model uses state of the art software technology. Modeling runs generate graphs that depict whether Labadie's thermal effluent complies with the WQS at the edge of the mixing zone based on (i) river temperature, (ii) discharge flow as a percentage of overall river flow, and (iii) temperature increase from intake to discharge. The model has been validated with data from six independent events for which temperature was measured throughout the river. These six events cover a range of conditions monitored between years 2003 and 2017, and demonstrate the robust ability of the model to simulate actual conditions in the river. The Permit's TDP effluent limitation was derived from over 100 test simulations, and the most conservative interpretation of those results were used to derive the graphs below that depict the current Permit's compliance equations. As long as the combination of incoming river temperature and the flow ratio are *below* the curves (i.e., down and to the left of the applicable curve), thermal WQS compliance is assured.

Initial Model Simulation Tests Results



While graphs are useful for operational purposes, Permit compliance and reporting is based on a numeric effluent limitation referred to as the TDP, which is calculated from equations much like those used in the prior Permits. Indeed, the TDP is calculated from the same four standard variables (river flow and temperature and effluent flow and temperature) used in all of Labadie's NPDES permits dating back to the 1970s. The current Permit equations are depicted in the graphs above. Its TDP effluent limitation incorporates a 5% safety margin and is set at 0.95. (A TDP value of 1.0 actually represents full compliance with the thermal WQS.) When the calculated TDP is *below* 0.95, compliance with the thermal WQS is assured under all operating scenarios and all river conditions.

The Proposed Variance's alternate effluent limitation would continue to require compliance with a TDP value of 0.95, effectively retaining the 5% margin of safety reflected in the current thermal effluent limitation of the Permit. The alternate effluent limitation of the Proposed Variance, however, would instead apply a 40% mixing zone limitation during certain limited periods. Specifically, a 40% mixing zone limitation would apply up to 22 days of the year and only when the river flow is less than 40,000 cfs or the ambient river temperature is greater than 87 °F. As explained further below, this 40% limitation is expected to apply only approximately 1% of the time.

I. *The Proposed Variance Complies with the CWA.*

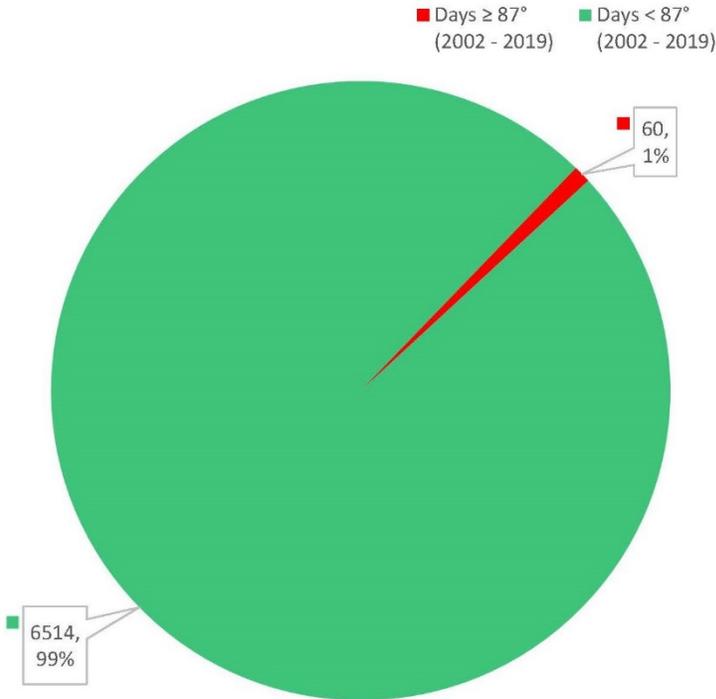
The first section of Sierra Club's letter curiously contends that the Proposed Variance "fails to comply with the [CWA]" without mention of CWA 316(a), the CWA provision at issue with the Proposed Variance. As MDNR knows, CWA 316(a) expressly authorizes the establishment of alternative thermal effluent limitations upon a showing (such as that made in the Proposed Variance) that the existing standard is more stringent than necessary to assure protection and propagation of a balanced, indigenous community (BIC) of shellfish, fish and wildlife in and around the Missouri River near Labadie. Studies provided to MDNR and reviewed by other agencies meet this standard and demonstrate that the ecology of the lower Missouri River has not been harmed by Labadie's thermal discharges, and that a BIC exists and will continue to exist. Sierra Club's argument ignores these ecological studies and asserts without evidence that the facility is "*harming state and federal endangered species, disrupting the river's ecosystem, and making the Missouri River inaccessible to human recreation.*" Nothing could be further from the truth.

Sierra Club also takes the position that variances are to be the exception rather than the rule, and narrowly tailored. Assuming Sierra Club's position to be true,¹ that is exactly how the Proposed Variance is structured. That is, the TDP of alternate effluent limitation would be exceeded only for short periods (1%) following defined triggering events, and never occur for more than 6% of the time in any given year. In fact, in some years, it would never be exceeded. Moreover, the alternate effluent limitation would apply only to the thermal effluent and, importantly, would

¹ CWA 316(a) simply provides that alternative effluent limitations are appropriate whenever the existing standard is more stringent than necessary to assure protection and propagation of a BIC of shellfish, fish and wildlife. The CWA does nothing to suggest how rarely or frequently this 316(a) standard is expected to be met nor does it suggest that an alternate effluent limitation issued under CWA 316(a) should be narrow. Any alternate effluent limit which assures BIC protection is sufficient under this CWA provision.

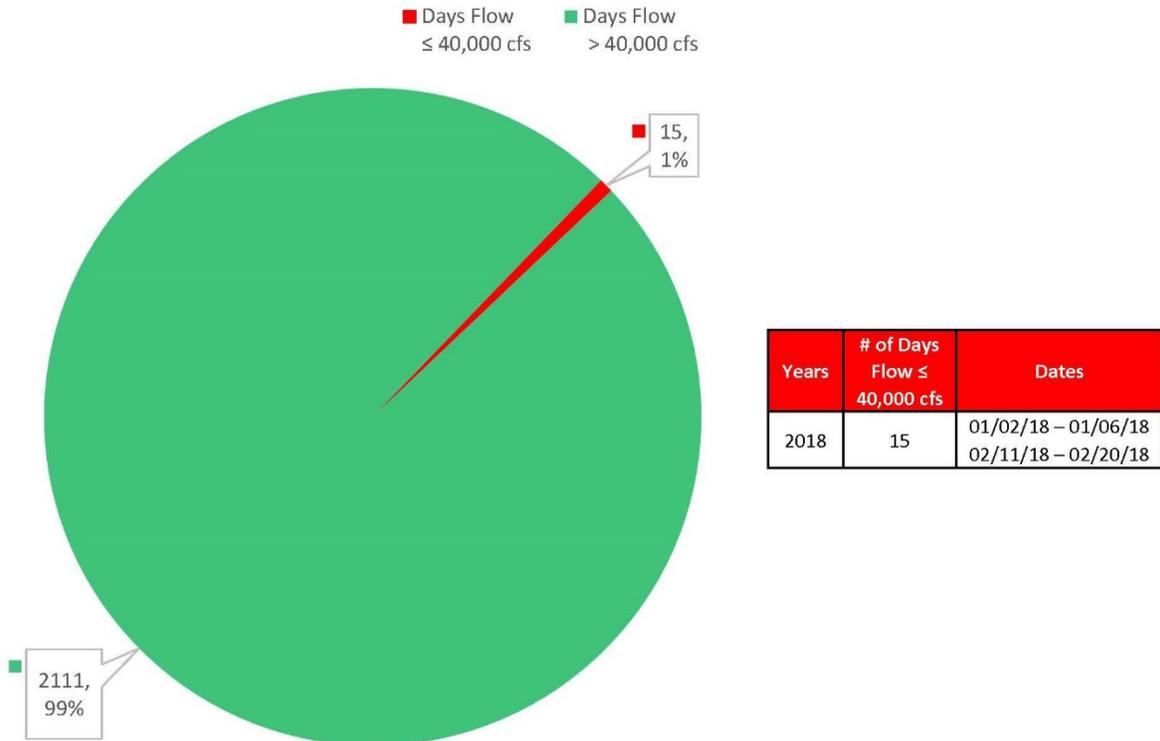
assure that at least 60% of the river flow complies with the thermal WQS in all conditions. Furthermore, the conditions under which discharges would exceed the Permit's TDP are exceptionally narrow. Ambient river temperatures would need to exceed 87°F or river flow would need to be below 40,000 cfs. Historically, such conditions occur infrequently as the graphs below illustrate:

2002 to 2019: Missouri River Temperatures at Labadie Seldom Exceed 87 Degrees



Years	# of Days River Temp ≥ 87°	Dates
2002	6	08/01/02 - 08/06/02
2003	1	08/23/03
2005	8	07/19/05 - 07/26/05
2006	8	07/18/06 - 07/21/06 07/31/06 08/01/06 - 08/03/06
2011	12	07/21/11 - 07/30/11 08/03/11 - 08/04/11
2012	17	07/05/12 - 07/10/12 07/17/12 - 07/20/12 07/22/12 - 07/28/12
2017	8	07/20/17 - 07/27/17

**10/08/2014 to 08/02/2020: Missouri River Flow Rate
at Washington Seldom Below 40,000 cfs**



As the above temperature chart reflects, had the TDP value of 0.95 been in effect during the above eighteen year (18) period, it would have applied 99% of the time while conditions triggering the 40% mixing zone portion of the Proposed Variance would have applied only 1% of the time.

II. The Term of the Proposed Variance Is Lawful.

Sierra Club falsely contends that for fifteen years MDNR allowed the facility to operate without limitation. Labadie's thermal discharge has been subject to NPDES effluent limitations since the beginning of MDNR's regulatory program. And Ameren Missouri has always operated Labadie in full compliance with the thermal limitations of all duly issued permits. To suggest otherwise is simply false. MDNR did not renew Labadie's original variance in 2015 and conditioned any reissuance on the submission of a new CWA 316(a) thermal demonstration.

Sierra Club's characterization of the Proposed Variance as being "unlimited" ignores triggering conditions that inherently and strictly constrains applicability of the expanded thermal mixing zone. The TDP limit is suspended and size of the thermal mixing zone increases from 25% to 40% only when one of two conditions arise: (i) ambient river temperatures exceed 87°F or (ii) river flow drops below 40,000 cfs. As the charts in Section I above reflect, both river temperatures and flow

exceed these triggers infrequently. And the period of this mixing zone increase is limited to 22 days per year. These constraints are, by definition, narrowly tailored in scope and duration. During days on which the increased thermal mixing zone are invoked, 60% or more of the water flow *everywhere* in the river will comply with the thermal WQS. Indeed, even during days on which the variance is invoked, stretches of the river will have 75% or more of the river flow in full compliance with thermal WQS. In other words, the increased thermal mixing zone of the Proposed Variance will apply to a limited area of the river, not the entire width, depth or length. Biological studies confirm the lack of an adverse impact on the aquatic community due to these infrequent events of limited extent and duration.

Given the foregoing, MDNR's approach in recommending approval of the Proposed Variance while requiring reporting and periodic review of associated Permit conditions and study evaluations is appropriate. In enacting CWA 316(a), Congress did not impose a duration term for issued thermal variances nor has EPA in its federal regulations. Sierra Club's comments do not (and cannot) argue otherwise.

Instead of the CWA or regulations, Sierra Club looks to guidance. Putting aside the fact that guidance does not have the effect of a regulatory requirement, neither guidance document identified by Sierra Club supports its argument. Consistent with its NPDES regulations, the EPA NPDES Permit Writer's Manual provides no limitation for variance terms. Rather, it suggests that a variance may be continued upon reapplication- ("Once a variance is granted, the discharger must still reapply for the variance each permit term."). Similarly, a 2008 guidance document relies on an EPA note added to 40 CFR 127.72 which explains that reapplications may be based on the discharger's experience ("At the expiration of the permit, any discharger holding a section 316(a) variance should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience."). These materials indicate a lower bar to continuation of a variance than for an initial grant. This is sound policy. Given the extensive nature of the studies required for an initial grant of a thermal variance, including both retrospective and prospective evaluations, full reassessment of the variance every permit term would be an unnecessary use of agency and permittee resources.

If conditions reflecting the Proposed Variance are added as conditions to the Permit and Ameren Missouri elects to seek renewal of those Permit conditions at the end of the Permit's term, Ameren Missouri intends to submit a renewal application with limited information consistent with the above-referenced authorities. That renewal application would be based on Ameren Missouri's actual experience of Labadie and entail a demonstration that the water quality model used for the alternative effluent limitation accounts for any meaningful changes to the river's thermal profile. Ameren Missouri suggests that MDNR clarify that (a) future renewal applications seeking to continue Permit conditions regarding the Proposed Variance must include water quality modelling verification and any necessary model updates and (b) given that the robust existing biological record, long history of operation and wide zone of passage always maintained in the river compliant with thermal WQS, updated biological studies are not anticipated to be required for consideration of renewal applications.

III. *MDNR Has Appropriately Exercised its Discretion in Determining The Form of the Proposed Variance.*

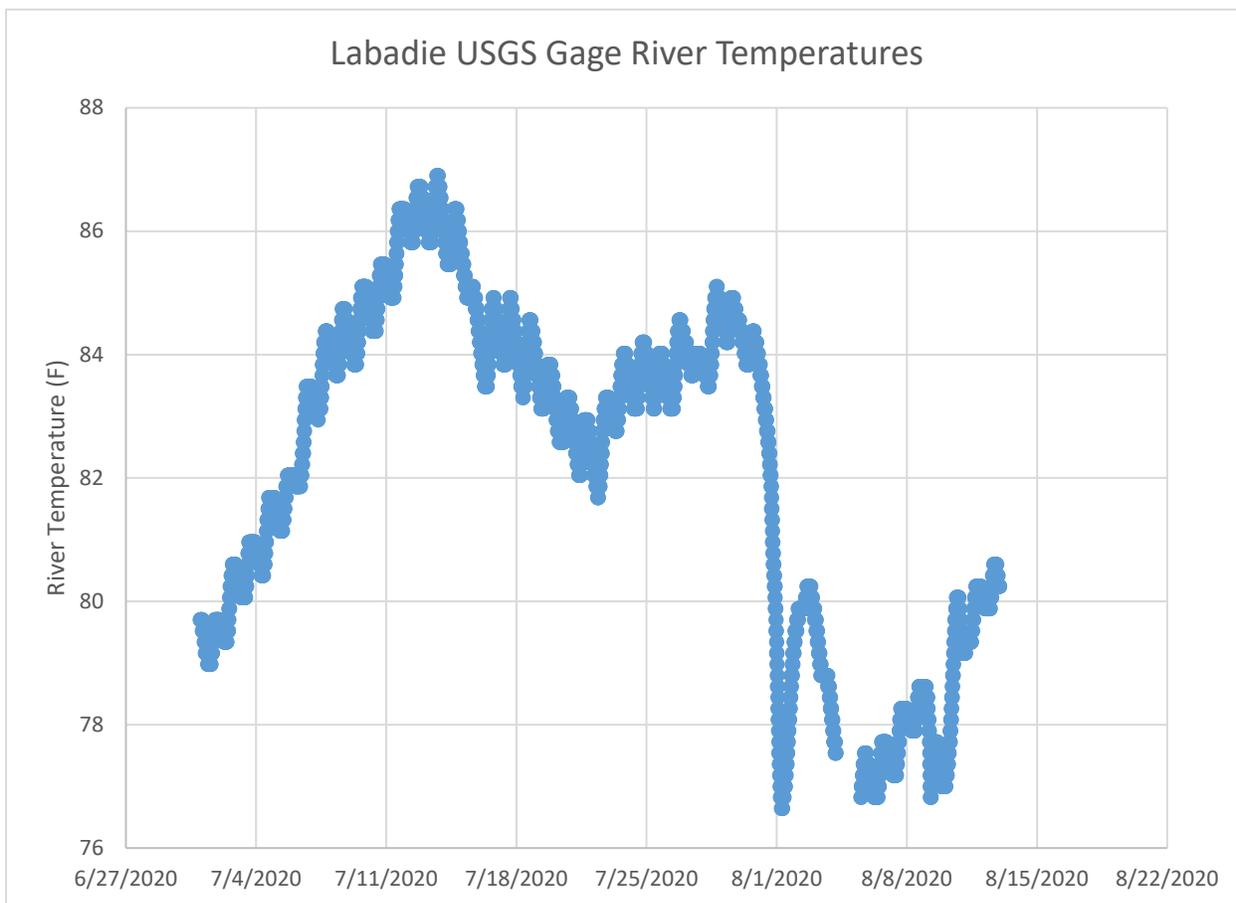
As explained further at Section IV, the 0.95 TPD daily maximum has been established as an appropriate means to demonstrate compliance with the thermal WQS since 2017. In then electing to use the TDP – a WQS-based effluent limitation – the MDNR considered detailed thermal modeling and sampling data and consulted with EPA. Thermal variances such as that proposed by the Proposed Variance are also a well-established means to assess compliance. Sierra Club is thus simply wrong to suggest that the WQS temperature maximum cannot be determined through use of a daily maximum value.

In fact, an alternate effluent limitation under CWA 316(a) inherently assumes that the thermal WQS is “more stringent than necessary.” In truth, an alternate effluent limitation can be any value or approach found to assure protection and propagation of a BIC of shellfish, fish and wildlife. Neither federal nor state regulations require a specific form for the alternate effluent limitation.

Sierra Club asks for an hourly limitation rather than a daily limitation without stating any supporting statutory or regulatory requirement. But the TDP equations were not derived to be applied on an hourly basis and therefore are not applicable on an hourly basis. With respect to the Proposed Variance, Ameren Missouri anticipates that it would invoke the time period in 24-hour (1 day) increments regardless of whether time was expressed as 528 hours or 22 days.

Relying on temperature data from the Hermann River gage, Sierra Club falsely contends that on June 11, 2020, the *"Labadie Plant's thermal discharge likely caused the river to exceed its 90°F limit for those 8 hours."* The Permit requires use of the USGS gage at Labadie for river flow and temperature, not the Hermann gage located 40 nautical miles upstream. The highest hourly average river temperature in July at the Labadie gage was 86.9°F and the calculated TDP (using the requisite values of stream flow, stream temperature, effluent temperature and effluent flow) for that hour was 0.5, well below the Permit's TDP limitation. Even if one used the maximum temperature recorded at Hermann in July (87.44°F), the hourly TDP would still have been 0.65 (thereby demonstrating the importance of using all four of the equation variables and not just cherry picking one variable or a single data point.)

River temperature at Labadie can be highly variable and influenced by such things as storm events within the river basin that result in volumes of "cooler" water entering the Missouri River. Below is a chart depicting recent river temperature variability:



IV. The TDP Effluent Limit Has Been In Effect Since 2017 and Provides Sufficient Information To Determine Compliance.

Sierra Club's comments mistakenly offer three complaints regarding the Proposed Variance's use of the TDP. First, Sierra Club complains that "[T]he TDP and associated calculation is confusing, preventing the public from understanding its terms and limiting permittee accountability." Putting aside the baselessness of such argument,² Sierra Club is precluded from pursuing it here.

As MDNR knows, the thermal effluent limitation of the current Permit uses the same TDP value and equations posited by the Proposed Variance. The derivation of the TDP and a detailed

² MDNR previously accomplished extraordinary measures to ensure sufficient public transparency concerning the TDP and its formulas. Moreover, the TDP is entirely consistent with all NPDES requirements. See, e.g. the 2010 NPDES Permit Writer's Manual at § 6.2.4 specifically contemplating the use of models to set effluent limits and acknowledging that "[m]any permitting authorities have a team of water quality specialists who model point source discharges to provide data required for permit writers to assess the need for and develop QBELs."

explanation of its equations and associated modeling was provided in connection with that Permit and its 2017 modification (2017 Modified Permit). Sierra Club commented to a proposed draft of the 2017 Modified Permit via a letter dated April 10, 2017. That comment letter, using virtually identical text as Sierra Club's current comment letter, complained about the then proposed TDP limitation of 0.95 and its calculations as follows: “*The modified thermal discharge limits are confusing and the new compliance calculation is very complicated, precluding public understanding and accountability.*”

The 2017 Modified Permit was contested by Sierra Club and litigated before the AHC. In the course of that litigation, Sierra Club confirmed it was not challenging the 2017 Modified Permit based on the complexity or confusing nature of the TDP. (See responses to Interrogatories Numbers 71-73 of Exhibit A, appended hereto). In electing to not challenge the TDP in connection with the 2017 Modified Permit, Sierra Club relinquished any ability to later attempt to make the same TDP challenge collaterally. *See, e.g. Pa. DEP v. Peters Twp. Sanitary Auth.*, 767 A.2d 601, 603 (Pa. Commw. Ct.2001) (“The doctrine of administrative finality precludes a collateral attack of an administrative action where the party aggrieved by that action foregoes his statutory appeal remedy.”); *Kusher v. Woloschuk*, 123 A.3d 341, 346-47 (Pa. Commw. Ct. 2015) (“It is undisputed that . . . any challenge to the issuance of DEP's permits to the Woloschuks for completion of the stormwater project would constitute an impermissible collateral attack.”); and *Valley Park Prop, LLC v. Mo. Dep't of Nat. Res.*, 580 S.W.3d 607, 613 (Mo. Ct. App. 2019) (“The aggrieved party must follow the time limits for appeals, as governed by statute . . .”).

Second, Sierra Club complains that MDNR fails to “demonstrate the origin of the 0.95 TDP effluent limit or the formula on which the limit is based.” Such claim is without merit because the MDNR in its public notice of the Proposed Variance includes detailed discussion of all aspects of its proposed alternate effluent limitation both directly and indirectly. With respect to the TDP, the notice makes repeated cross references to the current Permit that, as Sierra Club knows, is publically available and contains detailed explanations of the TDP, its formulas and modeling. That Sierra Club is fully aware of those explanations is made clear by its deep involvement in all versions of the Permit involving the TDP.³

Finally, Sierra Club complains that the Proposed Variance fails to provide the TDP formulas asserting that “*there are no outside sources from which to learn the underlying formulas.*” The TDP equations are contained in the existing Permit⁴ and in the Demonstration materials submitted by Ameren Missouri. Obviously, the same TDP formulas cannot both be missing and too complex and confusing. Moreover, as explained above, the notice provides ample information allowing the public a full understanding of all TDP formulas, all of which are currently in use. The TDP accounts for the combined effect of stream temperature, stream flow, effluent temperature, and effluent flow to ensure compliance with the thermal WQS. The TDP actually does just what Sierra

³ Sierra Club’s comment letter repeatedly references the “public,” suggesting that Sierra Club may view itself as a representative of the public rather than Sierra Club’s members. In truth, the public interest is voiced by relevant public agencies, none of which have opposed the Proposed Variance. *See Michigan v. U.S. Army Corps of Eng’rs*, 667 F.3d 765, 797 (7th Cir. 2011) (“Environmental problems require the balancing of many complicated interests, and agencies are better suited to weigh competing proposals and select among solutions.”).

⁴ See Notes 4 and 5 of Table A-2 of Labadie's current Permit.

Club says it doesn't. Rather than "*obscur[ing] the relationship*" between stream temperature, stream flow, effluent temperature, and effluent flow, the TDP expressly accounts for that relationship.

V. *The Proposed Variance Properly Considered Cumulative Effects of Other Significant Impacts on Affected Species.*

Contrary to Sierra Club's claims, the Demonstration does address the cumulative impact of the thermal discharge with all other significant impacts in accordance with 40 C.F.R. §125.73(a). As part of its assessment, the Demonstration considers nutrients, chemical and bacterial contaminants, and dissolved oxygen concentrations in addition to the thermal discharge itself. (*See* Demonstration pages 7-6 through 7-8). Impacts associated with Labadie's intake structure (CWIS) have also been considered (for example, the Demonstration provides robust evidence that there are no adverse impacts on ichthyoplankton drift from Labadie's discharge) and is even more thoroughly addressed through additional materials submitted to the MDNR in connection with a CWA 316(b) evaluation.⁵ However, while entrainment and impingement are important issues for a CWA 316(b) evaluation, they are not required considerations for a CWA 316(a) analysis.

Moreover, in considering CWA 316(a) cumulative effects, Courts have found that "the best measure of cumulative impact is an *in situ* analysis of the affected area."⁶ In other words, species sampling is the best way to assess cumulative effects in accordance with EPA regulations. That is exactly what the Demonstration uses for its cumulative impacts analysis. Sierra Club is simply wrong to suggest that that analysis is in any way deficient.

Although Sierra Club is aware that entrainment and impingement are proper issues for CWA 316(b) studies, Sierra Club argues those issues here. It claims without basis that impingement data (i.e., nine (9) lake sturgeon and eleven (11) shovelnose sturgeon) collected during Ameren Missouri's 2005-2006 study show that Ameren's intake is threatening the recovery of the pallid sturgeon. But the completed studies show little to no potential for thermal discharge effects on pallid sturgeon and provide no evidence of entrainment and impingement.⁷ And the nine (9) lake sturgeon collected on September 7, 2005 were verified to have been hatchery-reared fish tagged by the Missouri Department of Conservation (MDC) and stocked approximately ten (10) miles upstream from Labadie on September 2, 2005. These just-released hatchery-reared fish represent an anomalous event unlikely to be reflective of actual rates of impingement of lake sturgeon within

⁵ Specifically, the CWIS and its associated impacts are evaluated in the following materials submitted to the MDNR in connection with CWA 316(b) requirements: *Source Water Baseline Biological Characterization Data (40 CFR 122.21 R(4))*; *Chosen Methods of Compliance with the Impingement Mortality Standard (40 CFR 122.21 R(6))*; *Entrainment Performance Studies (40 CFR 122.21 R(7))*; *Entrainment Characterization Study (40 CFR 122.21 R(9))*; *Benefits Valuation Study: Estimates of the Biological and Economic Benefits of Entrainment Reduction Technology Alternatives (40 CFR 122.21 R(11))*. Ameren Missouri understands these materials were considered by the MDNR in its development of the Proposed Variance and incorporates them into this letter by reference.

⁶ *In re Entergy Nuclear Vermont Yankee Discharge Permit 3-1199*, 989 A.2d 563, 576 (2009) (upholding a cumulative effects analysis based on *in situ* sampling.)

⁷ Assumptions about the pallid sturgeon, a species specifically sought by the sampling but not found, should generally not be drawn from other found species.

the established fish community of the Missouri River. Furthermore, river temperatures – and potential thermal impacts – tend to rise in late summer and not during the spring spawning and nursery periods. It is doubtful, given generally higher spring river flows and cooler ambient temperatures, that the increased mixing zone of the Proposed Variance would be triggered during such periods. At all other times, thermal discharges would comply with a TDP reflecting of thermal WQS compliance.

Sierra Club's assumption of species misidentification are also unfounded. The shovelnose sturgeon collected during 2005-2006 were of juvenile or later stage, for which species can be confidently determined. It would be wrong to presume pallid sturgeon impact based on the collected data.

VI. The 316(a) Final Demonstration Complies with Federal Guidance.

In 2017 and 2018, Wood Environment (Wood) and ASA Analysis & Communication's (ASA) conducted additional field and analytical studies which culminated in the April 2020 final submission of a Demonstration containing both a retrospective and prospective analysis of the aquatic community using the CWA 316(a) criteria established by EPA. Those efforts are summarized briefly below.

Retrospective Analysis. Wood and ASA collected data from four sampling zones upstream and downstream of the discharge. The data set was grouped by season and compared to data sets collected by Wood as part of Labadie's CWA 316(b) two-year biological monitoring program. The fish assemblages in all zones were robust and contained many different species. The ultimate result of that analysis, using the eighteen criteria contained in EPA's CWA 316(a) technical guidance, is that Labadie's thermal discharge has not caused appreciable harm to the fish or benthic communities.

Predictive Assessment. Using the site-specific thermal model, ASA then analyzed the potential future impact of continued thermal discharges, including during rare extreme conditions such as those that would trigger the Proposed Variance's expanded thermal mixing zone (< 1% of the time based on historical record). The thermal model contained sampling events that simulate potentially critical periods. The model contained actual river and discharge flows and temperatures from June 22 and July 21, 2006 that (i) reflect the most extreme conditions over the full data record and (ii) coincided with spring spawning and nursery periods. In both cases, the thermal plume hugged the south shoreline and extended only part way across the river. For both the June and July periods, 18-23% of drifting organisms were briefly exposed to temperatures above the thermal WQS within the mixing zone, but such temperatures declined rapidly within 20-30 minutes. These events illustrate that a large zone of passage exists even during conditions triggering the Proposed Variance's expanded mixing zone. As thermal expert Dr. Charles Coutant (described more fully below) noted, "*a large volume of receiving water passes the LEC allowing significant mixing and relatively rapid heat dissipation. This large river flow volume ensures that only a small portion of the river cross section is affected by the thermal plume and the mixed river downstream is warmed an insignificant amount.*" See *Thermal Discharge Effects of Labadie*

Energy Center on Aquatic Ecology of The Lower Missouri River, p 20 (hereinafter "Thermal Discharge Effects").

Wood referred potential pallid sturgeon larva collected during sampling events to a specialized facility in Colorado for taxonomic analysis which did not conclude that such specimen was a pallid sturgeon. All biological data collected as part of CWA 316(a) and (b) sampling events, was tabulated and reported by Wood on sampling sheets. ASA then evaluated Representative Important Species (RIS) species in the Demonstration.

Dr. Charles Coutant, the premier expert on thermal effects on fish in the country, was instrumental in developing the study plan for the Demonstration. Dr. Coutant's experience is legendary, having originated the concept of RIS for predictive 316(a) assessments (Coutant 1977) and co-authored EPA's 316(a) implementation guidelines. Dr. Coutant commented on the study plan before its finalization and submission to MDNR. He visited the lower Missouri River (LMR) including both the upstream and downstream sampling zones, reviewed twelve (12) months of fish data (including ichthyoplankton and some macroinvertebrate data), and analyzed third party studies of the ecological health of the LMR along with studies performed by Ameren Missouri in the mid-1970s as part of the initial variance. Based on his more than fifty (50) years of experience studying thermal effects in rivers and consulting on demonstrations, Dr. Coutant confirmed that the study plan was "*scientifically sound*" and "*well constructed with input from the DNR,*" and that it consisted of components typical of thermal demonstrations including multiple sampling techniques. Furthermore, he confirmed that the study plan was "*being carried out as planned*" as evidenced by the first-year data set provided to Dr. Coutant. Based upon his review and unparalleled experience, Dr. Coutant concluded that (1) the ecology of the LMR is not being harmed by Labadie's existing thermal discharge and (2) it was highly likely that Ameren Missouri's on-going study plan would confirm that the receiving waters near Labadie reflect a "*balanced indigenous population of shellfish, fish and wildlife.*" See Thermal Discharge Effects, pp 1; 10-14; and 20-22.

Part IV of Sierra Club comment letter nonetheless raises a series of unfounded (and often disjointed) claims. Aspects of these claims are addressed below by topic.

RIS Sufficiency. Sierra Club implies that the Proposed Variance is predicated upon an insufficient RIS. Not so. Section 6.2, page 6-11 of the Demonstration details the process used in selecting RIS and noted:

The Guidance Manual (USEPA 1974 and 1977) recognizes that it is impractical to study and assess in great detail every species at a site, and it is therefore necessary to select a smaller group to be representative of the balanced indigenous community. These selected species are designated as RIS. Generally, five to 15 RIS are chosen to represent the community.

According to the Guidance Manual, criteria for selecting RIS include that the species are:

- *Representative, in terms of their biological requirements, of a balanced indigenous community of fish, shellfish, or wildlife;*
- *Commercially or recreationally valuable;*
- *Threatened or endangered;*

- *Critical to the structure and function of the ecosystem (e.g., habitat formers such as submerged aquatic vegetation);*
- *Potentially capable of becoming localized nuisance species; and*
- *Necessary in the food chain for the well-being of species determined above.*

Other considerations for RIS selection include the extent of the species' seasonal occurrence and abundance within the thermal plume, their thermal sensitivity, and the quantity and quality of information available for the assessment, such as data on thermal tolerance. While many or most fish species in the LMOR may be year-round residents within the area, some are more transient, using the area for adult spawning migrations, dispersal of young to habitats more suitable for the species, or refuge from natural environmental conditions (e.g., high flows or non-preferred water temperatures). For fish species, the results of catch data collected during the monthly surveys for the retrospective assessment provide an additional basis for RIS selection.

The implemented RIS reflected in the final Demonstration is unquestionably comprehensive and based on significant input from the MDNR and other necessary agencies.⁸ For example, agency comments lead to the removal of the Asian Carp from the final RIS and thermal effects for bigmouth buffalo were further considered.⁹ Importantly then, the final RIS was developed through dialog with the various regulatory agencies as part of the pre-submission review of the draft Demonstration. Given the ultimate agency approval of the RIS, any lack of initial study plan consultation was obviously of no impact and provides no basis for the denial advocated by Sierra Club.

Pallid Sturgeon. Sierra Club falsely suggests that the CWIS and thermal discharge “injure or kill”¹⁰ larval pallid sturgeon. There is, in fact, no evidence that such is occurring. And drifting pallid sturgeon larvae would not be exposed to potential lethal temperatures during their prime spawning months (April – June) when water temperatures are generally lower.¹¹ Larger individuals (e.g. juvenile and adult) are expected to be able to avoid higher temperatures and unfavorable environmental conditions by swimming to alternate areas of the river (as noted above, at least 60% of the river is always unimpaired by thermal discharges even during rare extreme conditions). As

⁸ Sierra Club does not, and cannot, point to any statutory or regulatory requirement for the MDNR to consult with the MDC, or obtain its concurrence. The MDNR nonetheless did seek the MDC's input and considered it in developing the Proposed Variance.

⁹ Bigmouth buffalo was considered for the RIS as a representative commercial species. The analysis concluded there was a very low potential for thermal impacts to the species.

¹⁰ The potential for a species to be “injured or killed” by the thermal discharge is not an indicator that a BIC is not being maintained. As shown by the Demonstration, the thermal discharge will not endanger the recovery of the pallid sturgeon.

¹¹ This conclusion is supported by the cited USGS study which included the collection of larval sturgeon. There, specimens were collected predominantly during the spring (April – June) period. Summer (especially July) was observed to be devoid of larval sturgeon. This is consistent with the expectation that larval sturgeon are not expected to be present in the vicinity of Labadie during conditions in which discharge temperatures would be expected to be elevated relative to other times of the year. Moreover, potential impacts to drifting larval pallid sturgeon were specifically addressed in the predictive assessment, which concluded that exposure would not be of a long enough duration to result in mortality.

part of the CWA 316(b) process, adjustments to the sampling protocols were made in consultation with the United States Fish and Wildlife Services (USFWS) in 2018 and those protocols applied to sampling events under CWA 316(a). Subsequent genetic sampling by Southern Illinois University of subsequent species did not identify larval pallid sturgeon.

Sierra Club attempts to evade the sampling results that indicate a lack of an adverse impact and claim a threat to pallid sturgeon by citing to a USGS study concerning larval sturgeon generally. That study sampled at a point immediately downstream of an area of the Missouri River suitable for spawning. (Spawning typically occurs at river mouths and side channels. In contrast, Labadie is located on the outside bend of the river in a reach of the river less suitable for spawning.) In addition, none of the samples of the USGS study were pure pallid sturgeon. The larval sturgeon were predominantly collected during spring when ambient river and discharge temperatures are less elevated. With this mind, it is inaccurate to use this study to assert (as Sierra Club does) that it demonstrates that pallid larvae are threatened by the thermal discharge.¹²

Concerns are also raised about sampling gear used for sampling efforts. The range and the extent of the gear used was extensive, aligned with scientific standards, and approved by the study plan.¹³ Some additionally suggested gear (e.g. trammel nets) has, in the experience of the scientists performing the Demonstration, proven to be ineffective in LMR due to excessive debris loading in this area.

Sierra Club next incorrectly asserts that the Demonstration ignores thermal impacts to larval and juvenile pallid sturgeon by pointing to short-term UILT temperature exceedances. Untrue. That there may have been short-term exceedances of safe and UILT temperatures does not necessitate a mortality result. Further, as indicated in the Demonstration, the noted exposure is of very short duration and affects a very small portion of the river. Moreover, studies used to determine UILT values used acclimation to temperatures well below what fish would likely experience in the Missouri River. The UILT and safe temperature thresholds would therefore likely be higher.

The Kappenman and Phelps studies highlighted by Sierra Club in its pallid sturgeon argument concerned shovelnose sturgeon, not pallid sturgeon. Because species have different temperature tolerances it is always preferable to look to species-specific data, turning to data for other species only in its absence. Here, the Demonstration contains ample data concerning the pallid sturgeon, all of which supports the Demonstration's conclusion of no appreciable harm.

State Listed Species. Sierra Club wrongly suggests that the Demonstration's RIS was required to include two state-listed species, the flathead chub and lake surgeon. While the EPA guidance universally used for CWA 316(a) demonstration does requires consideration of "threatened or endangered species," it specifically defines that term to refer to species listed under the federal

¹² Were it somehow true that the study shows that pallid sturgeon larvae drifted by Labadie, the fact that they did so demonstrates a lack of thermal discharge impairment.

¹³ Despite being well aware of MDNR's approval of the study plan at the time of its litigation concerning the Permit, Sierra Club took no action to contest the sufficiency of the study plan.

Endangered Species Act.¹⁴ That Sierra Club attempts to ignore this clear definition and argue that the term somehow also includes state-listed species is, at best, misleading.

In any event, Ameren Missouri's sample collection efforts have been mindful of these species. No flathead chub were collected in any of the efforts in 2015, 2016, 2017 or 2018. The only collection of lake sturgeon occurred in 2005. As discussed in Section V above, those fish were recently stocked at a point immediately upstream.

Appreciable Harm. Sierra Club falsely argues that the Demonstration shows prior appreciable harm due to a decrease in the number of fish collected during the summer in the thermal zone. As the MDNR is aware, the Demonstration identified 18 decision criteria for assessing appreciable harm consistent with EPA guidance. No single data point, nor subset of the decision criteria, can be used to draw an appreciable harm conclusion. Mindful of the need to consider all 18 decision criteria, the Demonstration thoroughly applies each decision criteria and concludes that there has been no prior appreciable harm. Sierra Club's argument disregards those decision criteria and arrives at an incorrect conclusion based on a single data point.¹⁵

Sierra Club further claims that lower summer catches in the thermally exposed zone than in the upstream reference zone demonstrate an "adverse impact to the aquatic community" and that spring and fall data may not have been analyzed. These assertions are both wrong. As explained above, Sierra Club has selectively and improperly chosen a single comparison in which the thermally exposed zone had a lower metric than the upstream reference zone. The inherent variability of biological sampling data precludes drawing conclusions about impact from any single pair of data points. A "Weight of Evidence" analysis was therefore used for the Demonstration. That complete analysis incorporates all of the available data, including all four seasons, and all metrics. The analysis of all four seasons was clearly indicated on Demonstration page 5-14: "Spring and fall sampling similarly did not show a consistent pattern of reduced abundance in either the Thermal or Downstream zones (Full tabular results are presented in Appendix B)." The summer and winter seasons were chosen for presentation because those seasons would be most likely to show an effect of the discharge (avoidance of the discharge in summer and possibly attraction in winter) if there was one.

Sierra Club repeats its error – looking at data points in isolation rather than the overall analysis of the 18 decision criteria – with respect to zone composition for "necessary food chain species" and other species groupings. And in doing so, it misrepresents Demonstration data. Specifically, Sierra Club incorrectly concludes that collection differences among the thermally exposed and downstream zones are attributable to the thermal discharge, citing to Demonstration Figure 5-18 which shows the proportion of the fish community. The figure clearly indicates that the upstream reference zone, the thermally exposed zone, and the downstream zone all had similar composition of the community. That is, sum, the number of game/commercial species, special species, and

¹⁴ See Interagency 316(a) Technical Guidance Manual, page 22 (defining "threatened or endangered species" as "any species . . . determined by the . . . Secretary of the Interior . . . pursuant to the Endangered Species Act of 1972, as amended.).

¹⁵ Moreover, the single observed decrease noted by Sierra Club is not sufficiently substantial to indicate a thermal impact.

forage species were similar among the thermally exposed and downstream zones suggesting no adverse impact.

Weight of Evidence Approach. Sierra Club contends that the Demonstration's weight of evidence somehow indicates degradation in the thermally exposed zone. In so arguing, Sierra Club ignores the fact that this zone corresponds with the regulatory mixing zone where effects such as temperature avoidance might occur, but does not signal harm to the BIC. Moreover, Sierra Club's claim is erroneous because it again seeks to parse and sub-parse data into smaller and smaller pieces which inherently cannot differentiate between real effects from simple sample variations. The composite approach used by the Demonstration allows the entire data set to inform decisions about appreciable harm.

Stated differently, Sierra Club inappropriately argues to cherry-pick isolated data for its conclusions while dismissing the Demonstration's "weight of evidence" approach. The Demonstration's approach, however, follows agency guidance and, by definition, uses multiple lines of evidence to determine if there has been prior appreciable harm. The Demonstration's approach is appropriate because the analysis inherently must consider the community overall. Application of the approach simply does not show appreciable harm since abundance is similar and the proportion represented by each category is similar across all zones.¹⁶ In any event, the observed slight degradation noted by Sierra Club was actually a minor deviation in certain fish density and number. The deviation is not considered to be biologically meaningful because the differences are within accepted error ranges and/or natural variations. Moreover, the variance entails both increases and decreases for various species.

Sierra Club appears to also suggest that the Proposed Variance's expanded mixing zone is seasonal in nature and is "likely to be invoked during the hottest months of the year." Among other problems, that claim overlooks the fact that the Proposed Variance's expanded mixing zone is likely to be very rarely invoked at all. When an infrequent extreme condition arises, such condition would be attributable to river conditions, not temperature.

Macroinvertebrates. Data collected during the macrobenthos sampling, as with the fish data, depicts many ecological attributes of the community. Important attributes potentially indicative of potential harm from thermal discharges were carefully selected for analysis and presentation in the Demonstration. The attributes (and metrics) used for the macrobenthos were composition (# of EPT species, and % EPT of total organisms), density (mean count per unit area), maintenance of normal season cycles (fraction of maximum seasonal density), diversity (four indicators varying in significance of rare taxa), and thermal tolerance (fraction of EPT that were heat intolerant). Although all of the metrics are based on counts of organisms, the particular metrics were selected to reflect different ecological attributes.

Basic summary statistics for the benthic sampling were presented in Tables 5-7, 5-8, and 5-9. The metrics reflecting the attributes were presented in Figures 5-23 - 5-28 and in Appendix Tables B-25 through B-34. Because all metrics for these attributes are inherently subject to sampling variation, differences between zones is not conclusive of either appreciable harm (if in a negative

¹⁶ A slight degradation shows a potential effect, not appreciable harm or adverse effect on the BIC.

Response to Sierra Club's Comments on the Proposed Variance CWC-V-4-20

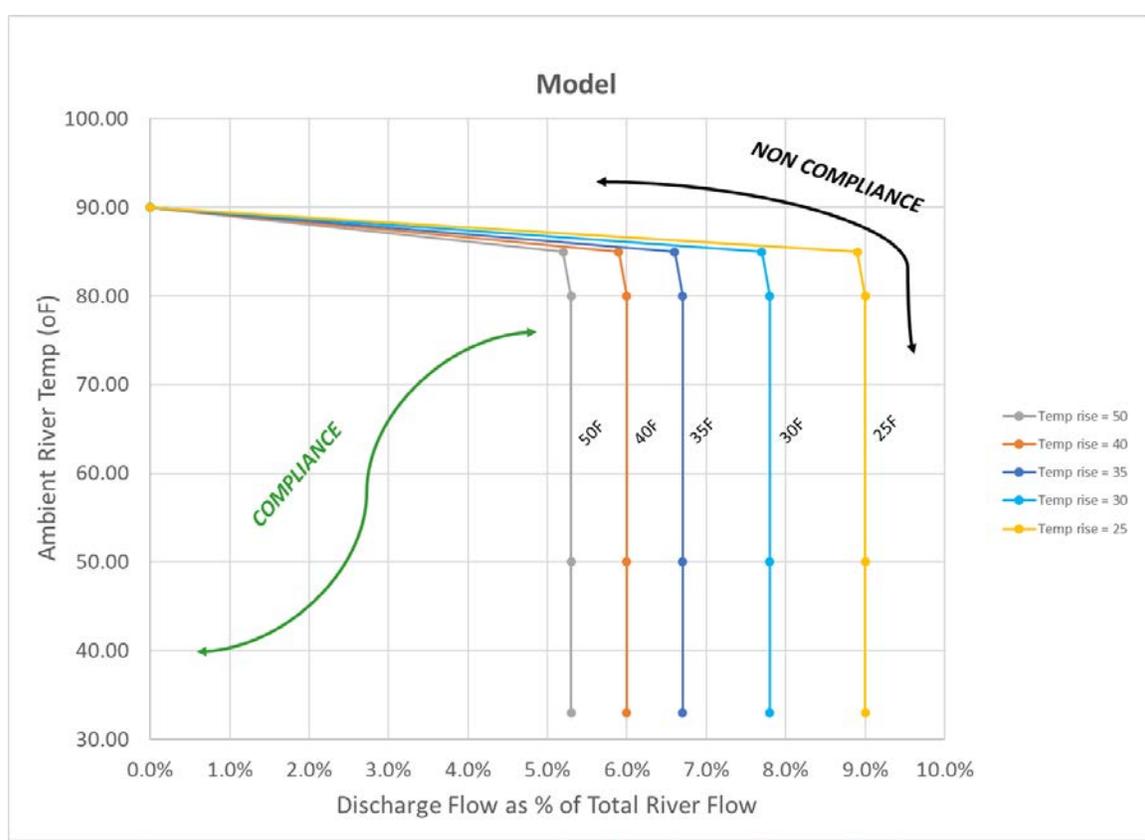
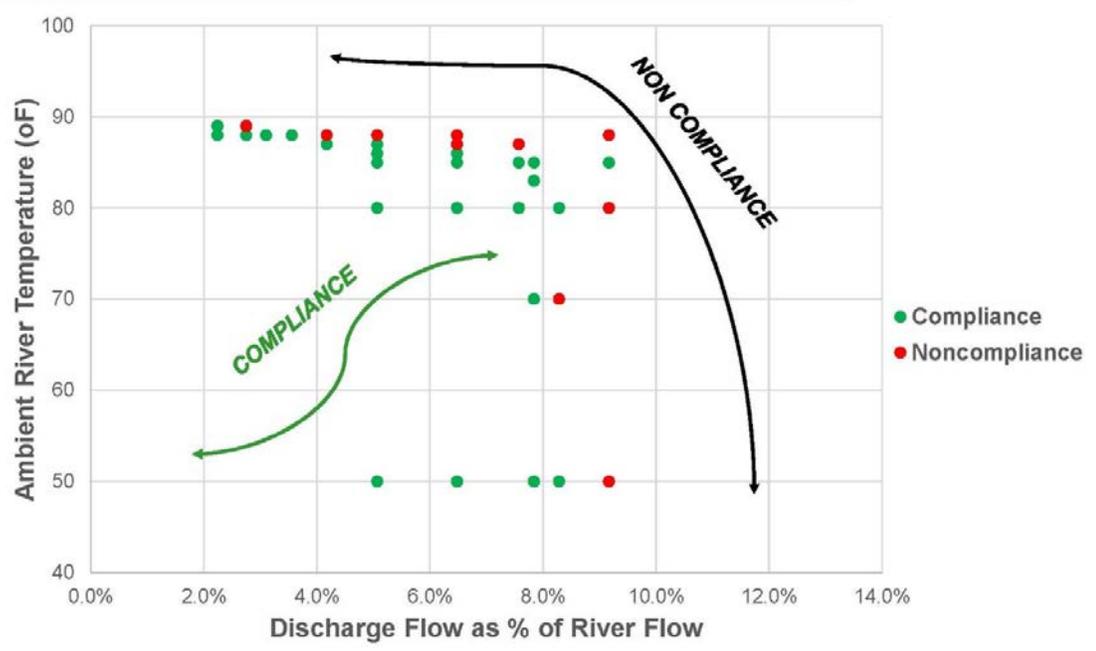
Sierra Club's stated opposition to the proposed thermal variance (Proposed Variance) for Ameren Missouri's Labadie Energy Center (Labadie) fundamentally misconstrues the scope of the proposed alternative effluent limitation and the regulatory requirements under Section 316(a) of the Clean Water Act (CWA) that specifically authorize state agencies to grant such relief. In fact, as further defined below, Sierra Club's letter devotes considerable space objecting to the use of a Thermal Discharge Parameter (TDP) and equations that have been part of the Labadie MSOP (Permit) since a 2017 modification. While Sierra Club appealed the issuance of that permit to the Administrative Hearing Commission (AHC), they specifically declined to challenge the Missouri Department of Natural Resources' ("MDNR") 2017 adoption of the TDP and implementing equations. Sierra Club's opposition is heavy on rhetoric but light on facts as they virtually ignore the robust technical record submitted to MDNR as part of the Final 316(a) Final Demonstration dated April 2020 submitted by Ameren Missouri (Demonstration). Ameren Missouri responds to such comments below.

Background

Missouri's thermal water quality standards (WQS) establish a 90°F maximum temperature, temperature increase/decrease of less than 5°F, and 25% mixing zone for the Missouri River. (10 CSR 20-7.031 (5) (D)) For the Permit, the mechanism for establishing compliance with these WQS is through the application of a numeric TDP derived from four variables: stream flow, stream temperature, effluent flow, and effluent temperature. A USGS gage located just upstream from Labadie's intake provides flow and temperature data sans impact from the facility. As the facility draws water from and then discharges water back into the Missouri River, effluent flow and temperature are recorded. Prior to the TDP, the Permit's thermal equations inaccurately assumed the entire heated discharge completely and uniformly mixed with 25% of the river. Temperature sampling clearly affirms that such an assumption incorrectly reflected the mixing and heat transport which actually occurs within the river.

The TDP approach arose out of a site-specific model reviewed and approved by MDNR that allows for a multi-dimensional depiction of Labadie's thermal effluent on the Missouri River. The model uses state of the art software technology. Modeling runs generate graphs that depict whether Labadie's thermal effluent complies with the WQS at the edge of the mixing zone based on (i) river temperature, (ii) discharge flow as a percentage of overall river flow, and (iii) temperature increase from intake to discharge. The model has been validated with data from six independent events for which temperature was measured throughout the river. These six events cover a range of conditions monitored between years 2003 and 2017, and demonstrate the robust ability of the model to simulate actual conditions in the river. The Permit's TDP effluent limitation was derived from over 100 test simulations, and the most conservative interpretation of those results were used to derive the graphs below that depict the current Permit's compliance equations. As long as the combination of incoming river temperature and the flow ratio are *below* the curves (i.e., down and to the left of the applicable curve), thermal WQS compliance is assured.

Initial Model Simulation Tests Results



While graphs are useful for operational purposes, Permit compliance and reporting is based on a numeric effluent limitation referred to as the TDP, which is calculated from equations much like those used in the prior Permits. Indeed, the TDP is calculated from the same four standard variables (river flow and temperature and effluent flow and temperature) used in all of Labadie's NPDES permits dating back to the 1970s. The current Permit equations are depicted in the graphs above. Its TDP effluent limitation incorporates a 5% safety margin and is set at 0.95. (A TDP value of 1.0 actually represents full compliance with the thermal WQS.) When the calculated TDP is *below* 0.95, compliance with the thermal WQS is assured under all operating scenarios and all river conditions.

The Proposed Variance's alternate effluent limitation would continue to require compliance with a TDP value of 0.95, effectively retaining the 5% margin of safety reflected in the current thermal effluent limitation of the Permit. The alternate effluent limitation of the Proposed Variance, however, would instead apply a 40% mixing zone limitation during certain limited periods. Specifically, a 40% mixing zone limitation would apply up to 22 days of the year and only when the river flow is less than 40,000 cfs or the ambient river temperature is greater than 87 °F. As explained further below, this 40% limitation is expected to apply only approximately 1% of the time.

I. *The Proposed Variance Complies with the CWA.*

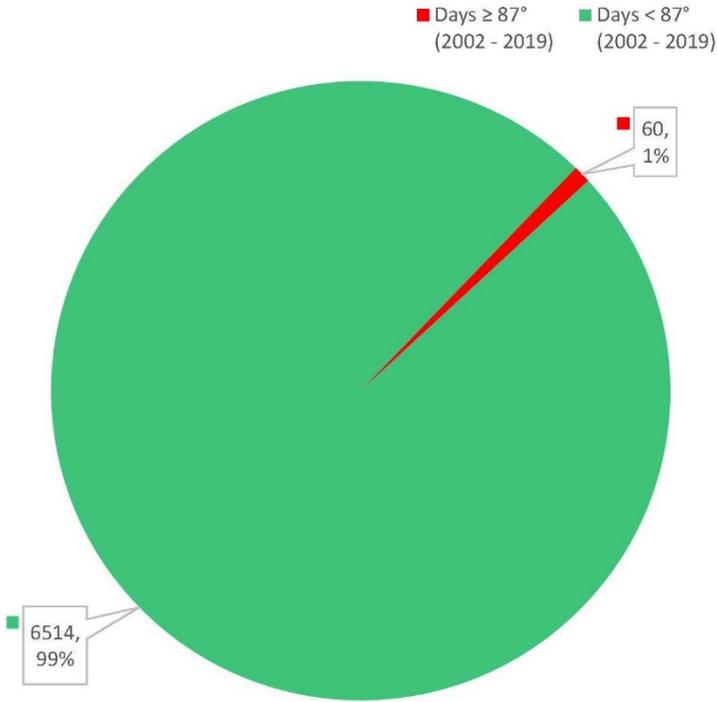
The first section of Sierra Club's letter curiously contends that the Proposed Variance "fails to comply with the [CWA]" without mention of CWA 316(a), the CWA provision at issue with the Proposed Variance. As MDNR knows, CWA 316(a) expressly authorizes the establishment of alternative thermal effluent limitations upon a showing (such as that made in the Proposed Variance) that the existing standard is more stringent than necessary to assure protection and propagation of a balanced, indigenous community (BIC) of shellfish, fish and wildlife in and around the Missouri River near Labadie. Studies provided to MDNR and reviewed by other agencies meet this standard and demonstrate that the ecology of the lower Missouri River has not been harmed by Labadie's thermal discharges, and that a BIC exists and will continue to exist. Sierra Club's argument ignores these ecological studies and asserts without evidence that the facility is "*harming state and federal endangered species, disrupting the river's ecosystem, and making the Missouri River inaccessible to human recreation.*" Nothing could be further from the truth.

Sierra Club also takes the position that variances are to be the exception rather than the rule, and narrowly tailored. Assuming Sierra Club's position to be true,¹ that is exactly how the Proposed Variance is structured. That is, the TDP of alternate effluent limitation would be exceeded only for short periods (1%) following defined triggering events, and never occur for more than 6% of the time in any given year. In fact, in some years, it would never be exceeded. Moreover, the alternate effluent limitation would apply only to the thermal effluent and, importantly, would

¹ CWA 316(a) simply provides that alternative effluent limitations are appropriate whenever the existing standard is more stringent than necessary to assure protection and propagation of a BIC of shellfish, fish and wildlife. The CWA does nothing to suggest how rarely or frequently this 316(a) standard is expected to be met nor does it suggest that an alternate effluent limitation issued under CWA 316(a) should be narrow. Any alternate effluent limit which assures BIC protection is sufficient under this CWA provision.

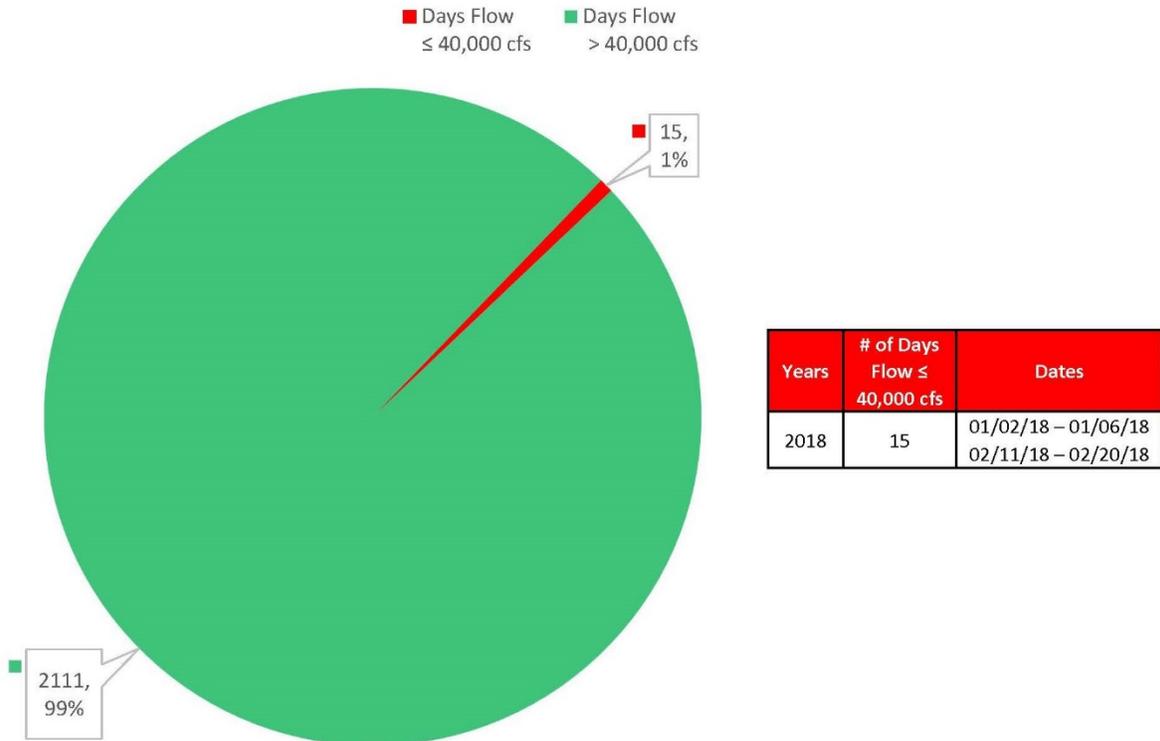
assure that at least 60% of the river flow complies with the thermal WQS in all conditions. Furthermore, the conditions under which discharges would exceed the Permit's TDP are exceptionally narrow. Ambient river temperatures would need to exceed 87°F or river flow would need to be below 40,000 cfs. Historically, such conditions occur infrequently as the graphs below illustrate:

2002 to 2019: Missouri River Temperatures at Labadie Seldom Exceed 87 Degrees



Years	# of Days River Temp ≥ 87°	Dates
2002	6	08/01/02 - 08/06/02
2003	1	08/23/03
2005	8	07/19/05 - 07/26/05
2006	8	07/18/06 - 07/21/06 07/31/06 08/01/06 - 08/03/06
2011	12	07/21/11 - 07/30/11 08/03/11 - 08/04/11
2012	17	07/05/12 - 07/10/12 07/17/12 - 07/20/12 07/22/12 - 07/28/12
2017	8	07/20/17 - 07/27/17

**10/08/2014 to 08/02/2020: Missouri River Flow Rate
at Washington Seldom Below 40,000 cfs**



As the above temperature chart reflects, had the TDP value of 0.95 been in effect during the above eighteen year (18) period, it would have applied 99% of the time while conditions triggering the 40% mixing zone portion of the Proposed Variance would have applied only 1% of the time.

II. The Term of the Proposed Variance Is Lawful.

Sierra Club falsely contends that for fifteen years MDNR allowed the facility to operate without limitation. Labadie's thermal discharge has been subject to NPDES effluent limitations since the beginning of MDNR's regulatory program. And Ameren Missouri has always operated Labadie in full compliance with the thermal limitations of all duly issued permits. To suggest otherwise is simply false. MDNR did not renew Labadie's original variance in 2015 and conditioned any reissuance on the submission of a new CWA 316(a) thermal demonstration.

Sierra Club's characterization of the Proposed Variance as being "unlimited" ignores triggering conditions that inherently and strictly constrains applicability of the expanded thermal mixing zone. The TDP limit is suspended and size of the thermal mixing zone increases from 25% to 40% only when one of two conditions arise: (i) ambient river temperatures exceed 87°F or (ii) river flow drops below 40,000 cfs. As the charts in Section I above reflect, both river temperatures and flow

exceed these triggers infrequently. And the period of this mixing zone increase is limited to 22 days per year. These constraints are, by definition, narrowly tailored in scope and duration. During days on which the increased thermal mixing zone are invoked, 60% or more of the water flow *everywhere* in the river will comply with the thermal WQS. Indeed, even during days on which the variance is invoked, stretches of the river will have 75% or more of the river flow in full compliance with thermal WQS. In other words, the increased thermal mixing zone of the Proposed Variance will apply to a limited area of the river, not the entire width, depth or length. Biological studies confirm the lack of an adverse impact on the aquatic community due to these infrequent events of limited extent and duration.

Given the foregoing, MDNR's approach in recommending approval of the Proposed Variance while requiring reporting and periodic review of associated Permit conditions and study evaluations is appropriate. In enacting CWA 316(a), Congress did not impose a duration term for issued thermal variances nor has EPA in its federal regulations. Sierra Club's comments do not (and cannot) argue otherwise.

Instead of the CWA or regulations, Sierra Club looks to guidance. Putting aside the fact that guidance does not have the effect of a regulatory requirement, neither guidance document identified by Sierra Club supports its argument. Consistent with its NPDES regulations, the EPA NPDES Permit Writer's Manual provides no limitation for variance terms. Rather, it suggests that a variance may be continued upon reapplication- ("Once a variance is granted, the discharger must still reapply for the variance each permit term."). Similarly, a 2008 guidance document relies on an EPA note added to 40 CFR 127.72 which explains that reapplications may be based on the discharger's experience ("At the expiration of the permit, any discharger holding a section 316(a) variance should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience."). These materials indicate a lower bar to continuation of a variance than for an initial grant. This is sound policy. Given the extensive nature of the studies required for an initial grant of a thermal variance, including both retrospective and prospective evaluations, full reassessment of the variance every permit term would be an unnecessary use of agency and permittee resources.

If conditions reflecting the Proposed Variance are added as conditions to the Permit and Ameren Missouri elects to seek renewal of those Permit conditions at the end of the Permit's term, Ameren Missouri intends to submit a renewal application with limited information consistent with the above-referenced authorities. That renewal application would be based on Ameren Missouri's actual experience of Labadie and entail a demonstration that the water quality model used for the alternative effluent limitation accounts for any meaningful changes to the river's thermal profile. Ameren Missouri suggests that MDNR clarify that (a) future renewal applications seeking to continue Permit conditions regarding the Proposed Variance must include water quality modelling verification and any necessary model updates and (b) given that the robust existing biological record, long history of operation and wide zone of passage always maintained in the river compliant with thermal WQS, updated biological studies are not anticipated to be required for consideration of renewal applications.

III. *MDNR Has Appropriately Exercised its Discretion in Determining The Form of the Proposed Variance.*

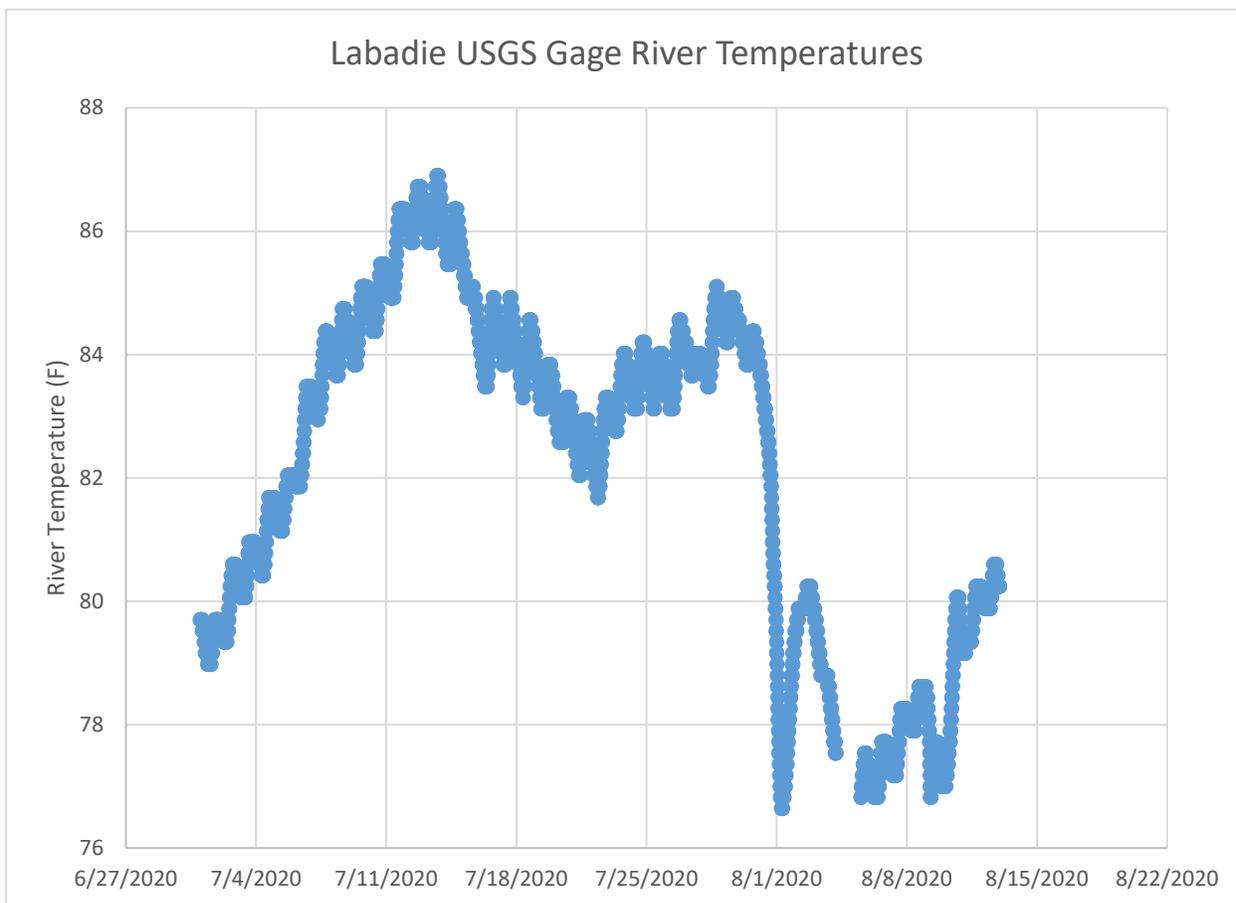
As explained further at Section IV, the 0.95 TPD daily maximum has been established as an appropriate means to demonstrate compliance with the thermal WQS since 2017. In then electing to use the TDP – a WQS-based effluent limitation – the MDNR considered detailed thermal modeling and sampling data and consulted with EPA. Thermal variances such as that proposed by the Proposed Variance are also a well-established means to assess compliance. Sierra Club is thus simply wrong to suggest that the WQS temperature maximum cannot be determined through use of a daily maximum value.

In fact, an alternate effluent limitation under CWA 316(a) inherently assumes that the thermal WQS is “more stringent than necessary.” In truth, an alternate effluent limitation can be any value or approach found to assure protection and propagation of a BIC of shellfish, fish and wildlife. Neither federal nor state regulations require a specific form for the alternate effluent limitation.

Sierra Club asks for an hourly limitation rather than a daily limitation without stating any supporting statutory or regulatory requirement. But the TDP equations were not derived to be applied on an hourly basis and therefore are not applicable on an hourly basis. With respect to the Proposed Variance, Ameren Missouri anticipates that it would invoke the time period in 24-hour (1 day) increments regardless of whether time was expressed as 528 hours or 22 days.

Relying on temperature data from the Hermann River gage, Sierra Club falsely contends that on June 11, 2020, the *"Labadie Plant's thermal discharge likely caused the river to exceed its 90°F limit for those 8 hours."* The Permit requires use of the USGS gage at Labadie for river flow and temperature, not the Hermann gage located 40 nautical miles upstream. The highest hourly average river temperature in July at the Labadie gage was 86.9°F and the calculated TDP (using the requisite values of stream flow, stream temperature, effluent temperature and effluent flow) for that hour was 0.5, well below the Permit's TDP limitation. Even if one used the maximum temperature recorded at Hermann in July (87.44°F), the hourly TDP would still have been 0.65 (thereby demonstrating the importance of using **all** four of the equation variables and not just cherry picking one variable or a single data point.)

River temperature at Labadie can be highly variable and influenced by such things as storm events within the river basin that result in volumes of "cooler" water entering the Missouri River. Below is a chart depicting recent river temperature variability:



IV. The TDP Effluent Limit Has Been In Effect Since 2017 and Provides Sufficient Information To Determine Compliance.

Sierra Club's comments mistakenly offer three complaints regarding the Proposed Variance's use of the TDP. First, Sierra Club complains that "[T]he TDP and associated calculation is confusing, preventing the public from understanding its terms and limiting permittee accountability." Putting aside the baselessness of such argument,² Sierra Club is precluded from pursuing it here.

As MDNR knows, the thermal effluent limitation of the current Permit uses the same TDP value and equations posited by the Proposed Variance. The derivation of the TDP and a detailed

² MDNR previously accomplished extraordinary measures to ensure sufficient public transparency concerning the TDP and its formulas. Moreover, the TDP is entirely consistent with all NPDES requirements. See, e.g. the 2010 NPDES Permit Writer's Manual at § 6.2.4 specifically contemplating the use of models to set effluent limits and acknowledging that "[m]any permitting authorities have a team of water quality specialists who model point source discharges to provide data required for permit writers to assess the need for and develop QBELs."

explanation of its equations and associated modeling was provided in connection with that Permit and its 2017 modification (2017 Modified Permit). Sierra Club commented to a proposed draft of the 2017 Modified Permit via a letter dated April 10, 2017. That comment letter, using virtually identical text as Sierra Club's current comment letter, complained about the then proposed TDP limitation of 0.95 and its calculations as follows: “*The modified thermal discharge limits are confusing and the new compliance calculation is very complicated, precluding public understanding and accountability.*”

The 2017 Modified Permit was contested by Sierra Club and litigated before the AHC. In the course of that litigation, Sierra Club confirmed it was not challenging the 2017 Modified Permit based on the complexity or confusing nature of the TDP. (See responses to Interrogatories Numbers 71-73 of Exhibit A, appended hereto). In electing to not challenge the TDP in connection with the 2017 Modified Permit, Sierra Club relinquished any ability to later attempt to make the same TDP challenge collaterally. *See, e.g. Pa. DEP v. Peters Twp. Sanitary Auth.*, 767 A.2d 601, 603 (Pa. Commw. Ct.2001) (“The doctrine of administrative finality precludes a collateral attack of an administrative action where the party aggrieved by that action foregoes his statutory appeal remedy.”); *Kusher v. Woloschuk*, 123 A.3d 341, 346-47 (Pa. Commw. Ct. 2015) (“It is undisputed that . . . any challenge to the issuance of DEP's permits to the Woloschuks for completion of the stormwater project would constitute an impermissible collateral attack.”); and *Valley Park Prop, LLC v. Mo. Dep't of Nat. Res.*, 580 S.W.3d 607, 613 (Mo. Ct. App. 2019) (“The aggrieved party must follow the time limits for appeals, as governed by statute . . .”).

Second, Sierra Club complains that MDNR fails to “demonstrate the origin of the 0.95 TDP effluent limit or the formula on which the limit is based.” Such claim is without merit because the MDNR in its public notice of the Proposed Variance includes detailed discussion of all aspects of its proposed alternate effluent limitation both directly and indirectly. With respect to the TDP, the notice makes repeated cross references to the current Permit that, as Sierra Club knows, is publically available and contains detailed explanations of the TDP, its formulas and modeling. That Sierra Club is fully aware of those explanations is made clear by its deep involvement in all versions of the Permit involving the TDP.³

Finally, Sierra Club complains that the Proposed Variance fails to provide the TDP formulas asserting that “*there are no outside sources from which to learn the underlying formulas.*” The TDP equations are contained in the existing Permit⁴ and in the Demonstration materials submitted by Ameren Missouri. Obviously, the same TDP formulas cannot both be missing and too complex and confusing. Moreover, as explained above, the notice provides ample information allowing the public a full understanding of all TDP formulas, all of which are currently in use. The TDP accounts for the combined effect of stream temperature, stream flow, effluent temperature, and effluent flow to ensure compliance with the thermal WQS. The TDP actually does just what Sierra

³ Sierra Club’s comment letter repeatedly references the “public,” suggesting that Sierra Club may view itself as a representative of the public rather than Sierra Club’s members. In truth, the public interest is voiced by relevant public agencies, none of which have opposed the Proposed Variance. *See Michigan v. U.S. Army Corps of Eng’rs*, 667 F.3d 765, 797 (7th Cir. 2011) (“Environmental problems require the balancing of many complicated interests, and agencies are better suited to weigh competing proposals and select among solutions.”).

⁴ See Notes 4 and 5 of Table A-2 of Labadie's current Permit.

Club says it doesn't. Rather than "*obscur[ing] the relationship*" between stream temperature, stream flow, effluent temperature, and effluent flow, the TDP expressly accounts for that relationship.

V. *The Proposed Variance Properly Considered Cumulative Effects of Other Significant Impacts on Affected Species.*

Contrary to Sierra Club's claims, the Demonstration does address the cumulative impact of the thermal discharge with all other significant impacts in accordance with 40 C.F.R. §125.73(a). As part of its assessment, the Demonstration considers nutrients, chemical and bacterial contaminants, and dissolved oxygen concentrations in addition to the thermal discharge itself. (*See* Demonstration pages 7-6 through 7-8). Impacts associated with Labadie's intake structure (CWIS) have also been considered (for example, the Demonstration provides robust evidence that there are no adverse impacts on ichthyoplankton drift from Labadie's discharge) and is even more thoroughly addressed through additional materials submitted to the MDNR in connection with a CWA 316(b) evaluation.⁵ However, while entrainment and impingement are important issues for a CWA 316(b) evaluation, they are not required considerations for a CWA 316(a) analysis.

Moreover, in considering CWA 316(a) cumulative effects, Courts have found that "the best measure of cumulative impact is an *in situ* analysis of the affected area."⁶ In other words, species sampling is the best way to assess cumulative effects in accordance with EPA regulations. That is exactly what the Demonstration uses for its cumulative impacts analysis. Sierra Club is simply wrong to suggest that that analysis is in any way deficient.

Although Sierra Club is aware that entrainment and impingement are proper issues for CWA 316(b) studies, Sierra Club argues those issues here. It claims without basis that impingement data (i.e., nine (9) lake sturgeon and eleven (11) shovelnose sturgeon) collected during Ameren Missouri's 2005-2006 study show that Ameren's intake is threatening the recovery of the pallid sturgeon. But the completed studies show little to no potential for thermal discharge effects on pallid sturgeon and provide no evidence of entrainment and impingement.⁷ And the nine (9) lake sturgeon collected on September 7, 2005 were verified to have been hatchery-reared fish tagged by the Missouri Department of Conservation (MDC) and stocked approximately ten (10) miles upstream from Labadie on September 2, 2005. These just-released hatchery-reared fish represent an anomalous event unlikely to be reflective of actual rates of impingement of lake sturgeon within

⁵ Specifically, the CWIS and its associated impacts are evaluated in the following materials submitted to the MDNR in connection with CWA 316(b) requirements: *Source Water Baseline Biological Characterization Data (40 CFR 122.21 R(4))*; *Chosen Methods of Compliance with the Impingement Mortality Standard (40 CFR 122.21 R(6))*; *Entrainment Performance Studies (40 CFR 122.21 R(7))*; *Entrainment Characterization Study (40 CFR 122.21 R(9))*; *Benefits Valuation Study: Estimates of the Biological and Economic Benefits of Entrainment Reduction Technology Alternatives (40 CFR 122.21 R(11))*. Ameren Missouri understands these materials were considered by the MDNR in its development of the Proposed Variance and incorporates them into this letter by reference.

⁶ *In re Entergy Nuclear Vermont Yankee Discharge Permit 3-1199*, 989 A.2d 563, 576 (2009) (upholding a cumulative effects analysis based on *in situ* sampling.)

⁷ Assumptions about the pallid sturgeon, a species specifically sought by the sampling but not found, should generally not be drawn from other found species.

the established fish community of the Missouri River. Furthermore, river temperatures – and potential thermal impacts – tend to rise in late summer and not during the spring spawning and nursery periods. It is doubtful, given generally higher spring river flows and cooler ambient temperatures, that the increased mixing zone of the Proposed Variance would be triggered during such periods. At all other times, thermal discharges would comply with a TDP reflecting of thermal WQS compliance.

Sierra Club's assumption of species misidentification are also unfounded. The shovelnose sturgeon collected during 2005-2006 were of juvenile or later stage, for which species can be confidently determined. It would be wrong to presume pallid sturgeon impact based on the collected data.

VI. The 316(a) Final Demonstration Complies with Federal Guidance.

In 2017 and 2018, Wood Environment (Wood) and ASA Analysis & Communication's (ASA) conducted additional field and analytical studies which culminated in the April 2020 final submission of a Demonstration containing both a retrospective and prospective analysis of the aquatic community using the CWA 316(a) criteria established by EPA. Those efforts are summarized briefly below.

Retrospective Analysis. Wood and ASA collected data from four sampling zones upstream and downstream of the discharge. The data set was grouped by season and compared to data sets collected by Wood as part of Labadie's CWA 316(b) two-year biological monitoring program. The fish assemblages in all zones were robust and contained many different species. The ultimate result of that analysis, using the eighteen criteria contained in EPA's CWA 316(a) technical guidance, is that Labadie's thermal discharge has not caused appreciable harm to the fish or benthic communities.

Predictive Assessment. Using the site-specific thermal model, ASA then analyzed the potential future impact of continued thermal discharges, including during rare extreme conditions such as those that would trigger the Proposed Variance's expanded thermal mixing zone (< 1% of the time based on historical record). The thermal model contained sampling events that simulate potentially critical periods. The model contained actual river and discharge flows and temperatures from June 22 and July 21, 2006 that (i) reflect the most extreme conditions over the full data record and (ii) coincided with spring spawning and nursery periods. In both cases, the thermal plume hugged the south shoreline and extended only part way across the river. For both the June and July periods, 18-23% of drifting organisms were briefly exposed to temperatures above the thermal WQS within the mixing zone, but such temperatures declined rapidly within 20-30 minutes. These events illustrate that a large zone of passage exists even during conditions triggering the Proposed Variance's expanded mixing zone. As thermal expert Dr. Charles Coutant (described more fully below) noted, "*a large volume of receiving water passes the LEC allowing significant mixing and relatively rapid heat dissipation. This large river flow volume ensures that only a small portion of the river cross section is affected by the thermal plume and the mixed river downstream is warmed an insignificant amount.*" See *Thermal Discharge Effects of Labadie*

Energy Center on Aquatic Ecology of The Lower Missouri River, p 20 (hereinafter "Thermal Discharge Effects").

Wood referred potential pallid sturgeon larva collected during sampling events to a specialized facility in Colorado for taxonomic analysis which did not conclude that such specimen was a pallid sturgeon. All biological data collected as part of CWA 316(a) and (b) sampling events, was tabulated and reported by Wood on sampling sheets. ASA then evaluated Representative Important Species (RIS) species in the Demonstration.

Dr. Charles Coutant, the premier expert on thermal effects on fish in the country, was instrumental in developing the study plan for the Demonstration. Dr. Coutant's experience is legendary, having originated the concept of RIS for predictive 316(a) assessments (Coutant 1977) and co-authored EPA's 316(a) implementation guidelines. Dr. Coutant commented on the study plan before its finalization and submission to MDNR. He visited the lower Missouri River (LMR) including both the upstream and downstream sampling zones, reviewed twelve (12) months of fish data (including ichthyoplankton and some macroinvertebrate data), and analyzed third party studies of the ecological health of the LMR along with studies performed by Ameren Missouri in the mid-1970s as part of the initial variance. Based on his more than fifty (50) years of experience studying thermal effects in rivers and consulting on demonstrations, Dr. Coutant confirmed that the study plan was "*scientifically sound*" and "*well constructed with input from the DNR,*" and that it consisted of components typical of thermal demonstrations including multiple sampling techniques. Furthermore, he confirmed that the study plan was "*being carried out as planned*" as evidenced by the first-year data set provided to Dr. Coutant. Based upon his review and unparalleled experience, Dr. Coutant concluded that (1) the ecology of the LMR is not being harmed by Labadie's existing thermal discharge and (2) it was highly likely that Ameren Missouri's on-going study plan would confirm that the receiving waters near Labadie reflect a "*balanced indigenous population of shellfish, fish and wildlife.*" See Thermal Discharge Effects, pp 1; 10-14; and 20-22.

Part IV of Sierra Club comment letter nonetheless raises a series of unfounded (and often disjointed) claims. Aspects of these claims are addressed below by topic.

RIS Sufficiency. Sierra Club implies that the Proposed Variance is predicated upon an insufficient RIS. Not so. Section 6.2, page 6-11 of the Demonstration details the process used in selecting RIS and noted:

The Guidance Manual (USEPA 1974 and 1977) recognizes that it is impractical to study and assess in great detail every species at a site, and it is therefore necessary to select a smaller group to be representative of the balanced indigenous community. These selected species are designated as RIS. Generally, five to 15 RIS are chosen to represent the community.

According to the Guidance Manual, criteria for selecting RIS include that the species are:

- *Representative, in terms of their biological requirements, of a balanced indigenous community of fish, shellfish, or wildlife;*
- *Commercially or recreationally valuable;*
- *Threatened or endangered;*

- *Critical to the structure and function of the ecosystem (e.g., habitat formers such as submerged aquatic vegetation);*
- *Potentially capable of becoming localized nuisance species; and*
- *Necessary in the food chain for the well-being of species determined above.*

Other considerations for RIS selection include the extent of the species' seasonal occurrence and abundance within the thermal plume, their thermal sensitivity, and the quantity and quality of information available for the assessment, such as data on thermal tolerance. While many or most fish species in the LMOR may be year-round residents within the area, some are more transient, using the area for adult spawning migrations, dispersal of young to habitats more suitable for the species, or refuge from natural environmental conditions (e.g., high flows or non-preferred water temperatures). For fish species, the results of catch data collected during the monthly surveys for the retrospective assessment provide an additional basis for RIS selection.

The implemented RIS reflected in the final Demonstration is unquestionably comprehensive and based on significant input from the MDNR and other necessary agencies.⁸ For example, agency comments lead to the removal of the Asian Carp from the final RIS and thermal effects for bigmouth buffalo were further considered.⁹ Importantly then, the final RIS was developed through dialog with the various regulatory agencies as part of the pre-submission review of the draft Demonstration. Given the ultimate agency approval of the RIS, any lack of initial study plan consultation was obviously of no impact and provides no basis for the denial advocated by Sierra Club.

Pallid Sturgeon. Sierra Club falsely suggests that the CWIS and thermal discharge “injure or kill”¹⁰ larval pallid sturgeon. There is, in fact, no evidence that such is occurring. And drifting pallid sturgeon larvae would not be exposed to potential lethal temperatures during their prime spawning months (April – June) when water temperatures are generally lower.¹¹ Larger individuals (e.g. juvenile and adult) are expected to be able to avoid higher temperatures and unfavorable environmental conditions by swimming to alternate areas of the river (as noted above, at least 60% of the river is always unimpaired by thermal discharges even during rare extreme conditions). As

⁸ Sierra Club does not, and cannot, point to any statutory or regulatory requirement for the MDNR to consult with the MDC, or obtain its concurrence. The MDNR nonetheless did seek the MDC’s input and considered it in developing the Proposed Variance.

⁹ Bigmouth buffalo was considered for the RIS as a representative commercial species. The analysis concluded there was a very low potential for thermal impacts to the species.

¹⁰ The potential for a species to be “injured or killed” by the thermal discharge is not an indicator that a BIC is not being maintained. As shown by the Demonstration, the thermal discharge will not endanger the recovery of the pallid sturgeon.

¹¹ This conclusion is supported by the cited USGS study which included the collection of larval sturgeon. There, specimens were collected predominantly during the spring (April – June) period. Summer (especially July) was observed to be devoid of larval sturgeon. This is consistent with the expectation that larval sturgeon are not expected to be present in the vicinity of Labadie during conditions in which discharge temperatures would be expected to be elevated relative to other times of the year. Moreover, potential impacts to drifting larval pallid sturgeon were specifically addressed in the predictive assessment, which concluded that exposure would not be of a long enough duration to result in mortality.

part of the CWA 316(b) process, adjustments to the sampling protocols were made in consultation with the United States Fish and Wildlife Services (USFWS) in 2018 and those protocols applied to sampling events under CWA 316(a). Subsequent genetic sampling by Southern Illinois University of subsequent species did not identify larval pallid sturgeon.

Sierra Club attempts to evade the sampling results that indicate a lack of an adverse impact and claim a threat to pallid sturgeon by citing to a USGS study concerning larval sturgeon generally. That study sampled at a point immediately downstream of an area of the Missouri River suitable for spawning. (Spawning typically occurs at river mouths and side channels. In contrast, Labadie is located on the outside bend of the river in a reach of the river less suitable for spawning.) In addition, none of the samples of the USGS study were pure pallid sturgeon. The larval sturgeon were predominantly collected during spring when ambient river and discharge temperatures are less elevated. With this mind, it is inaccurate to use this study to assert (as Sierra Club does) that it demonstrates that pallid larvae are threatened by the thermal discharge.¹²

Concerns are also raised about sampling gear used for sampling efforts. The range and the extent of the gear used was extensive, aligned with scientific standards, and approved by the study plan.¹³ Some additionally suggested gear (e.g. trammel nets) has, in the experience of the scientists performing the Demonstration, proven to be ineffective in LMR due to excessive debris loading in this area.

Sierra Club next incorrectly asserts that the Demonstration ignores thermal impacts to larval and juvenile pallid sturgeon by pointing to short-term UILT temperature exceedances. Untrue. That there may have been short-term exceedances of safe and UILT temperatures does not necessitate a mortality result. Further, as indicated in the Demonstration, the noted exposure is of very short duration and affects a very small portion of the river. Moreover, studies used to determine UILT values used acclimation to temperatures well below what fish would likely experience in the Missouri River. The UILT and safe temperature thresholds would therefore likely be higher.

The Kappenman and Phelps studies highlighted by Sierra Club in its pallid sturgeon argument concerned shovelnose sturgeon, not pallid sturgeon. Because species have different temperature tolerances it is always preferable to look to species-specific data, turning to data for other species only in its absence. Here, the Demonstration contains ample data concerning the pallid sturgeon, all of which supports the Demonstration's conclusion of no appreciable harm.

State Listed Species. Sierra Club wrongly suggests that the Demonstration's RIS was required to include two state-listed species, the flathead chub and lake surgeon. While the EPA guidance universally used for CWA 316(a) demonstration does requires consideration of "threatened or endangered species," it specifically defines that term to refer to species listed under the federal

¹² Were it somehow true that the study shows that pallid sturgeon larvae drifted by Labadie, the fact that they did so demonstrates a lack of thermal discharge impairment.

¹³ Despite being well aware of MDNR's approval of the study plan at the time of its litigation concerning the Permit, Sierra Club took no action to contest the sufficiency of the study plan.

Endangered Species Act.¹⁴ That Sierra Club attempts to ignore this clear definition and argue that the term somehow also includes state-listed species is, at best, misleading.

In any event, Ameren Missouri's sample collection efforts have been mindful of these species. No flathead chub were collected in any of the efforts in 2015, 2016, 2017 or 2018. The only collection of lake sturgeon occurred in 2005. As discussed in Section V above, those fish were recently stocked at a point immediately upstream.

Appreciable Harm. Sierra Club falsely argues that the Demonstration shows prior appreciable harm due to a decrease in the number of fish collected during the summer in the thermal zone. As the MDNR is aware, the Demonstration identified 18 decision criteria for assessing appreciable harm consistent with EPA guidance. No single data point, nor subset of the decision criteria, can be used to draw an appreciable harm conclusion. Mindful of the need to consider all 18 decision criteria, the Demonstration thoroughly applies each decision criteria and concludes that there has been no prior appreciable harm. Sierra Club's argument disregards those decision criteria and arrives at an incorrect conclusion based on a single data point.¹⁵

Sierra Club further claims that lower summer catches in the thermally exposed zone than in the upstream reference zone demonstrate an "adverse impact to the aquatic community" and that spring and fall data may not have been analyzed. These assertions are both wrong. As explained above, Sierra Club has selectively and improperly chosen a single comparison in which the thermally exposed zone had a lower metric than the upstream reference zone. The inherent variability of biological sampling data precludes drawing conclusions about impact from any single pair of data points. A "Weight of Evidence" analysis was therefore used for the Demonstration. That complete analysis incorporates all of the available data, including all four seasons, and all metrics. The analysis of all four seasons was clearly indicated on Demonstration page 5-14: "Spring and fall sampling similarly did not show a consistent pattern of reduced abundance in either the Thermal or Downstream zones (Full tabular results are presented in Appendix B)." The summer and winter seasons were chosen for presentation because those seasons would be most likely to show an effect of the discharge (avoidance of the discharge in summer and possibly attraction in winter) if there was one.

Sierra Club repeats its error – looking at data points in isolation rather than the overall analysis of the 18 decision criteria – with respect to zone composition for "necessary food chain species" and other species groupings. And in doing so, it misrepresents Demonstration data. Specifically, Sierra Club incorrectly concludes that collection differences among the thermally exposed and downstream zones are attributable to the thermal discharge, citing to Demonstration Figure 5-18 which shows the proportion of the fish community. The figure clearly indicates that the upstream reference zone, the thermally exposed zone, and the downstream zone all had similar composition of the community. That is, sum, the number of game/commercial species, special species, and

¹⁴ See Interagency 316(a) Technical Guidance Manual, page 22 (defining "threatened or endangered species" as "any species . . . determined by the . . . Secretary of the Interior . . . pursuant to the Endangered Species Act of 1972, as amended.).

¹⁵ Moreover, the single observed decrease noted by Sierra Club is not sufficiently substantial to indicate a thermal impact.

forage species were similar among the thermally exposed and downstream zones suggesting no adverse impact.

Weight of Evidence Approach. Sierra Club contends that the Demonstration's weight of evidence somehow indicates degradation in the thermally exposed zone. In so arguing, Sierra Club ignores the fact that this zone corresponds with the regulatory mixing zone where effects such as temperature avoidance might occur, but does not signal harm to the BIC. Moreover, Sierra Club's claim is erroneous because it again seeks to parse and sub-parse data into smaller and smaller pieces which inherently cannot differentiate between real effects from simple sample variations. The composite approach used by the Demonstration allows the entire data set to inform decisions about appreciable harm.

Stated differently, Sierra Club inappropriately argues to cherry-pick isolated data for its conclusions while dismissing the Demonstration's "weight of evidence" approach. The Demonstration's approach, however, follows agency guidance and, by definition, uses multiple lines of evidence to determine if there has been prior appreciable harm. The Demonstration's approach is appropriate because the analysis inherently must consider the community overall. Application of the approach simply does not show appreciable harm since abundance is similar and the proportion represented by each category is similar across all zones.¹⁶ In any event, the observed slight degradation noted by Sierra Club was actually a minor deviation in certain fish density and number. The deviation is not considered to be biologically meaningful because the differences are within accepted error ranges and/or natural variations. Moreover, the variance entails both increases and decreases for various species.

Sierra Club appears to also suggest that the Proposed Variance's expanded mixing zone is seasonal in nature and is "likely to be invoked during the hottest months of the year." Among other problems, that claim overlooks the fact that the Proposed Variance's expanded mixing zone is likely to be very rarely invoked at all. When an infrequent extreme condition arises, such condition would be attributable to river conditions, not temperature.

Macroinvertebrates. Data collected during the macrobenthos sampling, as with the fish data, depicts many ecological attributes of the community. Important attributes potentially indicative of potential harm from thermal discharges were carefully selected for analysis and presentation in the Demonstration. The attributes (and metrics) used for the macrobenthos were composition (# of EPT species, and % EPT of total organisms), density (mean count per unit area), maintenance of normal season cycles (fraction of maximum seasonal density), diversity (four indicators varying in significance of rare taxa), and thermal tolerance (fraction of EPT that were heat intolerant). Although all of the metrics are based on counts of organisms, the particular metrics were selected to reflect different ecological attributes.

Basic summary statistics for the benthic sampling were presented in Tables 5-7, 5-8, and 5-9. The metrics reflecting the attributes were presented in Figures 5-23 - 5-28 and in Appendix Tables B-25 through B-34. Because all metrics for these attributes are inherently subject to sampling variation, differences between zones is not conclusive of either appreciable harm (if in a negative

¹⁶ A slight degradation shows a potential effect, not appreciable harm or adverse effect on the BIC.

direction) nor of enhancement (if in a positive direction). Appreciable harm, if it were to occur, would be seen in multiple metrics across multiple seasons, and gear types, and would be observable in the downstream zone, not just in the thermally exposed zone where the discharge plume is located. Thus the weight-of-evidence analysis in Figure 5-29 was appropriately used to weigh the totality of the information in forming conclusions about appreciable harm.

As they did with the fish data, Sierra Club attempts to selectively pick particular values of certain metrics to inaccurately claim appreciable harm has occurred, while ignoring all the other metrics that are inconsistent with their claim. For instance, Figure 5-23 provides numerical density of macrobenthos in Hester-Dendy and Ponar samples by season. For Hester-Dendy samples, density in the thermally exposed zone was at least as high as in the upstream reference zone in all seasons, and the density in the downstream zone was higher than in the upstream zone in 3 of the 4 seasons. For Ponar sampling, density was higher in the winter, but lower in the other three seasons. Densities in the downstream zone were higher than upstream in 2 seasons and lower in 2 seasons. Figure 5-24, which was incorrectly interpreted by Sierra Club, demonstrates that the upstream, thermally exposed, and downstream zones all undergo similar seasonal cycles of abundance, indicating that normal patterns of reproduction and dispersal are occurring. Figure 5-25, not cited by Sierra Club, depicts seasonal diversity profiles for both sampling gears across the four seasons, and demonstrates no loss of diversity in thermally exposed and downstream zones in comparison to the upstream zone. Figure 5-26, not cited by Sierra Club, indicates similar fractions of major benthic orders across zones for both gear types. Figure 5-27 indicates similar numbers of EPT species and similar fractions EPT across the upstream, thermally exposed, and downstream zones during each season for both gears. Sierra Club ignored the relevant information in the figure and incorrectly focused on the number of EPT organisms collected. Figure 5-28 depicts the fraction of EPT species that are heat intolerant, and although fraction intolerant was lower in the thermally exposed zone than in the upstream zone in spring and summer, it was similar in other seasons, and fraction intolerant in the downstream zone was generally equal to that of the upstream zone.¹⁷

Prior Sampling. Sierra Club claims that a reduction of catches in 20-minute electrofishing data is indicative of harm from the thermal discharge. In doing so, it overlooks the fact that the trend is similar in both the reference zone and thermally exposed zone. The lack of a difference among the zones demonstrates a lack of a nexus to thermal discharges.

VII. MDNR Appropriately Consulted With Resource Agencies Regarding the Final Demonstration.

Sierra Club incorrectly suggests that the Proposed Variance may be issued only if approved by the MDC, USFWS and EPA. Not so. While the MDNR has appropriately consulted with other agencies, no authority requires regulatory **approvals** from the MDC or USFWS here.

Ameren Missouri filed its Section 316(a) variance application on April 8, 2020, after twice submitting draft versions to MDNR in August 2019 and in February 2020. The draft submissions

¹⁷ The last two lines of the in-text table on page 5-49 should have a basis of “Numbers” rather than “Biomass”. Biomass was not used for any macrobenthos metrics.

allowed MDNR to solicit input from EPA, USFWS and MDC. The MDNR provided feedback from resource agencies to Ameren Missouri who responded fully to those comments and, where appropriate, revised materials and submitted an updated draft of the Demonstration in February 2020, followed by the final Demonstration in April 2020.

VIII. Climate Change Issues.

The CWA requires re-evaluation of NPDES permit conditions. Ameren Missouri expects that the MDNR will re-evaluate all Permit conditions relating to the Proposed Variance as part of the NPDES renewal process. As part of that process, the MDNR is likely to assess whether Labadie's site-specific model continues to accurately account for river temperatures, river flow, discharge flow and temperature. Given this regular review and re-evaluation, and the robustness of the model, it is unnecessary to consider climate change¹⁸ in this Demonstration as the submittal did not limit its analysis to historical temperature data.

IX. Ameren Has Demonstrated, and MDNR Has Appropriately Determined, that the Thermal WQS Is More Stringent than Necessary.

Ameren has demonstrated via the Demonstration that the Missouri River has maintained a BIC through the retrospective assessment notwithstanding Labadie's thermal discharges. Sierra Club offers no biological evidence to the contrary. The Demonstration also shows, via a predictive analysis, that continuation of those discharges meet the no appreciable harm criteria set forth by EPA in CWA 316(a) guidance. That is, the Demonstration supports protection of the BIC in the future through the predictive assessment, which shows no expected adverse effects to the BIC at highly conservative temperatures above the thermal WQS.

¹⁸ Further, climate change scenarios that predict higher water temperatures also tend to predict and higher water flows. At Labadie, higher temperature effects will likely be offset by higher flow.

direction) nor of enhancement (if in a positive direction). Appreciable harm, if it were to occur, would be seen in multiple metrics across multiple seasons, and gear types, and would be observable in the downstream zone, not just in the thermally exposed zone where the discharge plume is located. Thus the weight-of-evidence analysis in Figure 5-29 was appropriately used to weigh the totality of the information in forming conclusions about appreciable harm.

As they did with the fish data, Sierra Club attempts to selectively pick particular values of certain metrics to inaccurately claim appreciable harm has occurred, while ignoring all the other metrics that are inconsistent with their claim. For instance, Figure 5-23 provides numerical density of macrobenthos in Hester-Dendy and Ponar samples by season. For Hester-Dendy samples, density in the thermally exposed zone was at least as high as in the upstream reference zone in all seasons, and the density in the downstream zone was higher than in the upstream zone in 3 of the 4 seasons. For Ponar sampling, density was higher in the winter, but lower in the other three seasons. Densities in the downstream zone were higher than upstream in 2 seasons and lower in 2 seasons. Figure 5-24, which was incorrectly interpreted by Sierra Club, demonstrates that the upstream, thermally exposed, and downstream zones all undergo similar seasonal cycles of abundance, indicating that normal patterns of reproduction and dispersal are occurring. Figure 5-25, not cited by Sierra Club, depicts seasonal diversity profiles for both sampling gears across the four seasons, and demonstrates no loss of diversity in thermally exposed and downstream zones in comparison to the upstream zone. Figure 5-26, not cited by Sierra Club, indicates similar fractions of major benthic orders across zones for both gear types. Figure 5-27 indicates similar numbers of EPT species and similar fractions EPT across the upstream, thermally exposed, and downstream zones during each season for both gears. Sierra Club ignored the relevant information in the figure and incorrectly focused on the number of EPT organisms collected. Figure 5-28 depicts the fraction of EPT species that are heat intolerant, and although fraction intolerant was lower in the thermally exposed zone than in the upstream zone in spring and summer, it was similar in other seasons, and fraction intolerant in the downstream zone was generally equal to that of the upstream zone.¹⁷

Prior Sampling. Sierra Club claims that a reduction of catches in 20-minute electrofishing data is indicative of harm from the thermal discharge. In doing so, it overlooks the fact that the trend is similar in both the reference zone and thermally exposed zone. The lack of a difference among the zones demonstrates a lack of a nexus to thermal discharges.

VII. MDNR Appropriately Consulted With Resource Agencies Regarding the Final Demonstration.

Sierra Club incorrectly suggests that the Proposed Variance may be issued only if approved by the MDC, USFWS and EPA. Not so. While the MDNR has appropriately consulted with other agencies, no authority requires regulatory **approvals** from the MDC or USFWS here.

Ameren Missouri filed its Section 316(a) variance application on April 8, 2020, after twice submitting draft versions to MDNR in August 2019 and in February 2020. The draft submissions

¹⁷ The last two lines of the in-text table on page 5-49 should have a basis of “Numbers” rather than “Biomass”. Biomass was not used for any macrobenthos metrics.

allowed MDNR to solicit input from EPA, USFWS and MDC. The MDNR provided feedback from resource agencies to Ameren Missouri who responded fully to those comments and, where appropriate, revised materials and submitted an updated draft of the Demonstration in February 2020, followed by the final Demonstration in April 2020.

VIII. Climate Change Issues.

The CWA requires re-evaluation of NPDES permit conditions. Ameren Missouri expects that the MDNR will re-evaluate all Permit conditions relating to the Proposed Variance as part of the NPDES renewal process. As part of that process, the MDNR is likely to assess whether Labadie's site-specific model continues to accurately account for river temperatures, river flow, discharge flow and temperature. Given this regular review and re-evaluation, and the robustness of the model, it is unnecessary to consider climate change¹⁸ in this Demonstration as the submittal did not limit its analysis to historical temperature data.

IX. Ameren Has Demonstrated, and MDNR Has Appropriately Determined, that the Thermal WQS Is More Stringent than Necessary.

Ameren has demonstrated via the Demonstration that the Missouri River has maintained a BIC through the retrospective assessment notwithstanding Labadie's thermal discharges. Sierra Club offers no biological evidence to the contrary. The Demonstration also shows, via a predictive analysis, that continuation of those discharges meet the no appreciable harm criteria set forth by EPA in CWA 316(a) guidance. That is, the Demonstration supports protection of the BIC in the future through the predictive assessment, which shows no expected adverse effects to the BIC at highly conservative temperatures above the thermal WQS.

¹⁸ Further, climate change scenarios that predict higher water temperatures also tend to predict and higher water flows. At Labadie, higher temperature effects will likely be offset by higher flow.

**BEFORE THE
ADMINISTRATIVE HEARING COMMISSION
STATE OF MISSOURI**

SIERRA CLUB,)	
)	
)	
Petitioner,)	
)	
v.)	Case No. 15-1362 CWC
)	
CAROL S. COMER, in her official capacity)	
as Director of the DEPARTMENT OF)	
NATURAL RESOURCES,)	
)	
Respondent,)	
)	
)	
UNION ELECTRIC COMPANY,)	
d/b/a AMEREN MISSOURI)	
)	
Intervenor.)	
)	
Permit No. MO-0004812)	
)	

**SIERRA CLUB’S RESPONSES TO INTERVENOR AMEREN MISSOURI’S
SECOND SET OF INTERROGATORIES TO PETITIONER**

Pursuant to Missouri Supreme Court Rule 57.01 and 1 C.S.R. 15-3.420, Petitioner Sierra Club objects and responds as follows to Intervenor Ameren Missouri’s Second Set of Interrogatories to Petitioner:

GENERAL OBJECTIONS

By offering these general objections, Sierra Club hereby objects to each specific interrogatory on the following grounds.

1. Sierra Club states that its factual investigation is ongoing. Sierra Club reserves the right to supplement its responses, including objections, or to clarify or amend its responses as

discharge limit, Sierra Club's Fourth Amended Complaint does not challenge the Permit on that basis.

Interrogatory No. 71: If it is Your contention that a member of the general public should be able to understand the Thermal Discharge Parameter of the Modified Permit without reading the Modified Permit Fact Sheet, identify with specificity the factual and legal grounds for Your contention.

RESPONSE:

Sierra Club objects to this interrogatory as overly broad, unduly burdensome, and not reasonably calculated to the lead to the discovery of admissible evidence. While Sierra Club raised in its written comment letter the complexity and confusing nature of the modified Permit's thermal discharge limit, Sierra Club's Fourth Amended Complaint does not challenge the Permit on that basis.

Interrogatory No. 72: If it is Your contention that the complexity of the thermal discharge calculations of the Draft Modified Permit and Modified Permit preclude public understanding of any aspect of the Draft Modified Permit, identify all members of the general public (including, but not limited to, Your members) known to You who read the Draft Modified Permit but lack such understanding. For each individual, identify with specificity (a) the specific aspects of the Draft Modified Permit he or she does not understand; (b) the college or graduate-level schools from which the individual attended or graduated, if any; (c) the dates on which the individual contacted DNR to discuss the Draft Modified Permit and the DNR employee(s) with whom they had dialog

concerning the Draft Modified Permit; and (d) all other persons that individual consulted in an effort to gain a better understanding of the Draft Modified Permit.

RESPONSE:

Sierra Club objects to this interrogatory as overly broad, unduly burdensome, and not reasonably calculated to the lead to the discovery of admissible evidence. While Sierra Club raised in its written comment letter the complexity and confusing nature of the modified Permit's thermal discharge limit, Sierra Club's Fourth Amended Complaint does not challenge the Permit on that basis.

Interrogatory No. 73: If it is Your contention that the complexity of the thermal discharge calculations of the Draft Modified Permit and Modified Permit preclude Your understanding of any aspect of the Draft Modified Permit, identify (a) all aspects of the of Draft Modified Permit You do not understand; (b) the dates on which the You contacted DNR to discuss the Draft Modified Permit and the DNR employee(s) with whom You had dialog concerning the Draft Modified Permit; (c) the specific questions You posed to the DNR about the Draft Modified Permit; and (d) all other persons You consulted in an effort to gain a better understanding of the Draft Modified Permit.

RESPONSE:

Sierra Club objects to this interrogatory as overly broad, unduly burdensome, and not reasonably calculated to the lead to the discovery of admissible evidence. While Sierra Club raised in its written comment letter the complexity and confusing nature of the modified Permit's thermal discharge limit, Sierra Club's Fourth Amended Complaint does not challenge the Permit on that basis.

Interrogatory No. 74: Identify and describe with specificity all sources of information on which You relied in drafting the SC Comments.

RESPONSE:

Sierra Club objects to this interrogatory to the extent it seeks information protected by the work-product doctrine and/or attorney-client privilege. Sierra Club further objects on the ground that this interrogatory is overly broad and unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving its objections, Sierra Club states generally that its attorneys possess knowledge relating to the facts upon which Petitioner bases its claims in this case.

As to Objections:

Dated: August 7, 2017

/s/ Maxine I. Lipeles
Maxine I. Lipeles, Mo. Bar #32529
Director, Interdisciplinary Environmental
Clinic
Washington University School of Law
One Brookings Drive - Campus Box 1120
St. Louis, MO 63130-4899
Phone: 314-935-5837; Fax: 314-935-5171
milipele@wustl.edu

/s/ Thomas Cmar
Thomas Cmar (pro hac vice)
Earthjustice
1101 Lake Street, Suite 405B
Oak Park, IL 60301
Phone: 708-613-5061; Fax: 212-918-1556
tcmar@earthjustice.org

/s/ Lisa K. Perfetto
Lisa K. Perfetto (pro hac vice)
Earthjustice

48 Wall Street, 19th Floor
New York, NY 10005
Phone: 212-845-7388; Fax: 212-918-1556
lperfecto@earthjustice.org

Attorneys for Petitioner Sierra Club

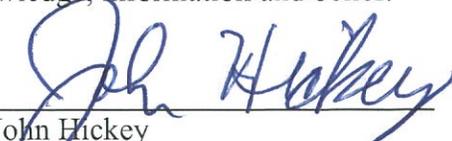
SIGNATURE AND VERIFICATION

STATE OF MISSOURI)

) ss

COUNTY OF ST. LOUIS)

I, John Hickey, state upon my oath that the facts and information contained in these responses are true and accurate to the best of my knowledge, information and belief.



John Hickey

Subscribed and sworn to before me this 7th day of August, ~~2016~~ ²⁰¹⁷.



Notary Public

My Commission Expires: May 12, 2019



1. What is “necessary food chain species” and “informally defined types” in reference to #2 of the Sierra Club’s comments?

- a. The term “necessary food chain species” is directly from EPA’s definition for a balanced indigenous community (BIC) that is referenced in Section 3.3.1 of the Demonstration Study (page 3-3). This term aims at the underlying support for the BIC and the basic understanding that a balanced aquatic community is composed of a full range of species that comprise the food web. For example, a balanced community would be expected to have a complete food chain that includes a full range of species: forage fish, intermediate predatory species, and top predators. As such Section 5.4.1.3 (Community Characteristics) of the demonstration (page 5-27) seeks to determine whether or not the food chain is somehow broken or impaired whereby thermal effluents represent a risk to the food chain.

Sierra Club claims in VI.C.2 that the food chain composition is “significantly” different between upstream and downstream zones. The use of the term “significantly” seems particularly inappropriate as Sierra Club has concluded that the observed differences are somehow meaningfully different and further, that they are attributable to the Labadie thermal discharge. Unfortunately, Sierra Club errs in several key points:

- Sierra Club ignores the inherent variability that is characteristic within biological communities, and the important influences that habitat composition and river flow characteristics (stage and discharge) can have on a resident fish community. Biological systems are in constant flux as a result of changes in river conditions, season, reproductive cycles and intrinsic variability in population dynamics within a given species. Such variability influences overall catch rates in ways that are independent of the variable of interest (i.e., temperature induced stress). To illustrate the point, variability in river discharge and stage exerted an important influence on field conditions over the course of the two-year study that influenced sampling effectiveness. For example, as suggested by Figure 1 below, high water conditions evident during both years (but more so during 2018) precluded sampling by bag seines. This variability in river condition clearly exerted an influence in catch among zones.



Note: Stars indicate months with unfavorable high-water conditions when seining surveys were not completed

Figure 1. Seasonal Variation in Total Catch Collected by Bag Seining during 2017 and 2018 Surveys near Labadie Energy Center

- Sierra Club errs in interpretation of differences in abundances between zones. Sierra Club notes that Figure 5-18 of the Demonstration Study shows a trend in rough fish species from 1,530 in the upstream zone to 1,707 in the thermal zone and 1,743 in the downstream zone. Sierra Club further notes that game/commercial fish abundance varied from 756 in the upstream zone to 695 in the thermal zone, and 692 in the downstream zone. Sierra Club further points to forage fish species, for which abundances ranged from 6,700 in the upstream zone to 4,556 in the thermally exposed zone and 5,475 in the downstream zone. But total catch across gears paints an important picture of variability among zones. As summarized in Table 1 (summarized from Appendix B of the Demonstration Study), similar abundances were observed among electrofishing, trawling and hoop netting gears, thus demonstrating the absence of spatial variability:

Table 1. Number Collected from each Sampling Zone by Method (2017-2018)

Method	Upstream Zone	Thermally Exposed Zone	Downstream Zone
Electrofishing	1,156	1,561	1,994
Mini-Missouri Trawl	2,622	2,650	2,274
Bag seine	5,221	2,766	3,636
Hoop nets	151	127	159
Total	9,150	7,104	8,063

As indicated in the above table, a greater number of specimens were collected from seining in the greater abundances in the upstream zone. A total of 5,221 specimens were collected from the upstream zone, 2,766 specimens from the thermally exposed zone, and 3636 specimens from the downstream zone. While Sierra Club may conclude that the differences among zones in bag seine collections was indicative of

thermal impacts, such a conclusion would be erroneous. In fact, the primary factor driving the larger numbers in the upstream zone was attributable to river conditions (primarily stage) that facilitated sampling of an exposed sandbar resulting in large catches of red shiner during the fall of the year.

Given the inherent variability in sampling conditions, microhabitat and intrinsic population variability within biological species, the variability among groups of food chain species is in fact, relatively minor and actually demonstrates general agreement and consistency in food chain species composition among the zones.

- b. The “informally defined types” references the grouping of species into different categories as shown in Table 5-6. Sierra Club questions the basis of these groupings. The working definition for each classification as provided on page 5-27 represents a reasonable categorization of resident fishes into generally acceptable groupings based upon size, their general role in the food web of the fish community as adults, and their desirability (or lack thereof—i.e., rough fish) as game/pan/commercial fish species or their specialized value or uniqueness (i.e., sturgeon and paddlefish). These classifications are “informally defined types” because 1) all species are forage when small, 2) classifications are somewhat site-specific because fishing practices differ with locality, and 3) no prior classification scheme similar to that of Pearson (2011) for trophic guilds, is available by which to group such species.

2. How many pallid sturgeon are expected to be present in the Missouri River near the LEC; how many eggs, how many larva, how many fry; and at what months of the year.

Figure 6-8 of the Demonstration Study shows theoretical occurrence of pallid sturgeon by life stage based on life history literature coupled with some regional field study data. There is no way to estimate numbers of various life stages present near the LEC. However, since the intensive impingement, entrainment, and 316(a) sampling programs have not collected any, and the description of pallid sturgeon abundance in the LMOR is patchy and rare – one can presume that the numbers would be extremely low.

For adult/juvenile individuals the catch data from the Pallid Sturgeon Population Assessment Project could be referenced. A summary of these data was provided in r(4) Sections 5.1.2 and 5.4.1:

“Only two of 73 pallid sturgeon collected from Segment 14 during recent (2013-2015) PSPAP sampling (including collections made outside of regularly-scheduling sampling activities) were caught within 10 RM of LEC (Figure 5 6). The lower 40 RMs of the segment have historically low catch rates of pallid sturgeon (Herman et al. 2014; Herman and Wrasse 2015, 2016). The vast majority of pallid sturgeon were collected upstream of RM 100 with the highest concentrations located near major tributary confluences with the Osage River at RM 130.2 and the Gasconade River at RM 105.”

In January 2015 USACE did report the first two genetically-confirmed larval pallid sturgeon captured on the lower Missouri River near St. Louis. The two larval sturgeon were discovered as part of a sampling effort by the Missouri Department of Conservation.

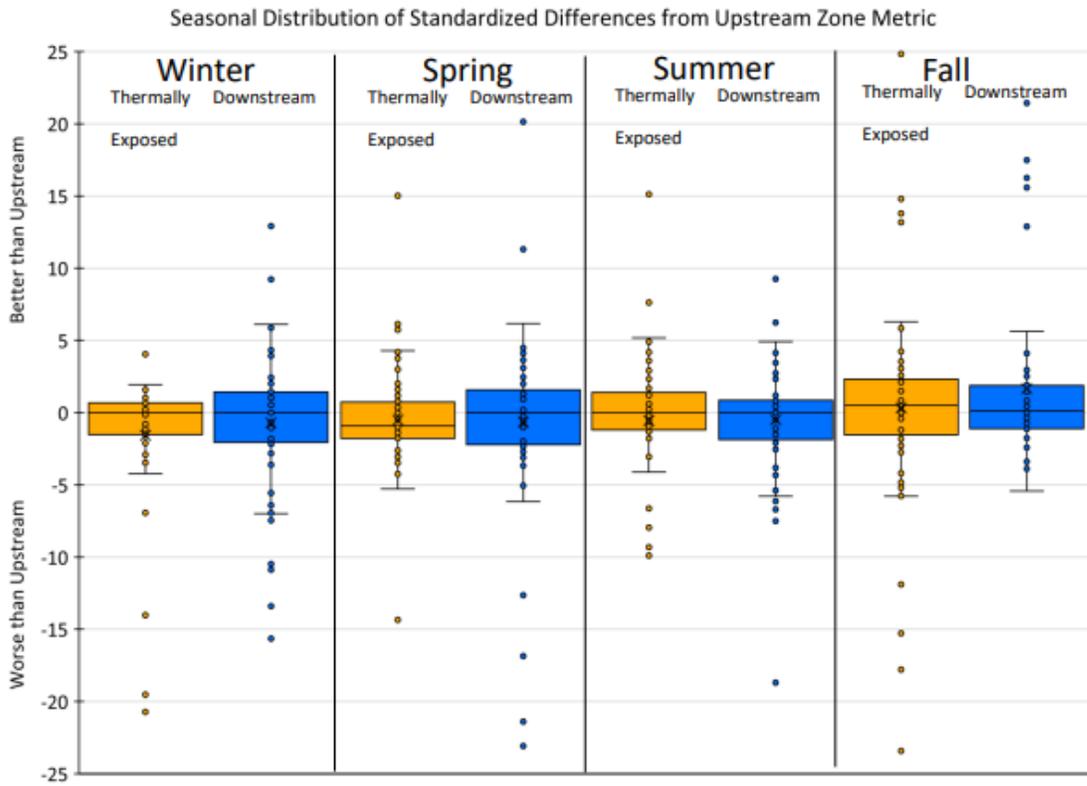
With respect to larval pallid sturgeon, Sierra Club suggests that the study conducted by USGS from 2005-2012 demonstrate the presence of this species in the lower Missouri River, and in the vicinity of LEC. In fact, USGS conducted intense studies at a sampling location near St. Charles (RM 33.3) and collected a total of 338 sturgeon larvae, but genetic testing revealed that none of them were identified as pure pallid sturgeon:

"In total, 338 specimens, 4 collected during preliminary sampling and 334 collected at seven stations, were analyzed for genetic species determination. Two sturgeon were unintentionally allowed to desiccate, rendering genetic analysis impossible. These two samples were not sent for genetic analysis. Results from species determination of Scaphirhynchus spp. specimens indicated that none of the 338 samples were pure pallid sturgeon, and 333 of the 338 samples were shovelnose sturgeon." (USGS 2016)

Notably, while the intensive study conducted by USGS included the collection of larval sturgeon, specimens were predominantly collected during the spring (April-June) period. Summer (especially July) was observed to be devoid of larval sturgeon. As such, larval sturgeon are not expected to be present in the vicinity of LEC during conditions in which discharge temperatures would be expected to be elevated relative to other times of the year.

3. Can you please re-run the statistics used for VI. C. #3 and separate it out by seasons. Please compare the data seasonally; the consultant may define the season, and seasonality should be adjusted based on base river temperatures instead of calendar months.

As explained in Ameren's comment response letter, the argument of Sierra Club's section VI.C.3 is a flawed attempt to view select data points in isolation rather than in the proper context of the overall analysis. The Demonstration Study's composite approach properly allows the entire data set to inform the appreciable harm analysis. We thus caution against efforts to focus on any individual data point. However, in response to your request, our consultant provided the below figure which separates the distributions of standardized differences in Figure 5-22 by season. The figure summarizes the consistency of standardized differences among fish communities between seasons and both the thermally exposed and downstream zones as compared to the upstream zone. As such, these data demonstrate the absence of appreciable harm from the thermal discharge and indicate no particular seasonal differences of results.



Box and whisker plot of seasonal standardized differences for fish. Boxes enclose the 2nd and 3rd quartiles of the distribution. Whiskers show local maximum and minimum. X indicates mean. Points beyond the ends of whiskers are outliers (more than 1.5 times the interquartile range from the 2nd or 3rd quartiles).

Tab E2

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Fiscal Year 2021 Clean Water State Revolving Fund Intended Use Plan

Issue: Fiscal Year 2021 Clean Water State Revolving Fund Intended Use Plan, Priority List, and Priority Point Criteria Recommendation.

Background: The Draft Fiscal Year 2021 Clean Water State Revolving Fund (CWSRF) Intended Use Plan, Priority List, and Priority Point Criteria (IUP) was placed on public notice July 30, 2020. A public hearing was held on August 19, 2020, and the comment period subsequently closed on August 31, 2020.

Comments were received from the Missouri Public Utility Alliance. A copy of the comments and the staff responses are attached.

A copy of the final IUP is attached. A full color version will be available at <http://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm> after it is adopted by the Commission.

Available funds have been allocated, to the extent we received applications, as shown below. After all applications within a given group were satisfied, any remaining funds from a specific group were distributed as necessary to fund other “ready-to-proceed” projects in other categories:

- 40% allocated to Small Metropolitan Areas and Districts – service population less than 75,000;
- 30% allocated to Large Metropolitan Areas and Districts – service population 75,000 or more;
- 15% allocated to address combined sewer overflow projects; and
- 15% allocated to Green Project Reserve and Department initiatives.

In an effort to expedite projects for the timely and expeditious use of funds, progress in submitting required documents and securing of appropriate debt instruments were considered when drafting the project lists. Projects with complete facility plans and debt instruments secured were placed on the fundable lists. As progress is attained, a project may move from one list to another throughout the fiscal year.

The subsidized interest rate offered to our borrowers remains 30% of market rate for a standard 20-year term. Loans also include a loan administration fee of 0.5% of the outstanding loan balance assessed on an annual basis. Extended term loans up to 30 years will be available at the standard subsidized interest rate plus 0.5% percent.

Approximately \$535 million is available for new projects in FY2021. This includes an anticipated FY2020 Clean Water State Revolving Fund EPA capitalization grant in the amount

of \$44,053,000. The Department's 20% match requirement will be met with proceeds from the Environmental Improvement and Energy Resources Authority bond series 2018A. The IUP indicates \$514,260,056 is available for loans and \$20,891,575 is available for grants based additional subsidization spending planned at this time.

This IUP describes the Department's plan for allocation of grant funding. The Department has three established CWSRF-related grant programs: affordability grants offered with loans based on project socio-economic criteria, engineering report grants for small communities, and a grant that incentivizes regionalization by providing grant funds to sewer extension projects. This IUP commits to providing the following two new grant opportunities.

A Technical Assistance Grant (TAG) that will provide three years of funding to a not-for-profit corporation. The Department will offer the TAG via a Request for Proposals, and will award the grant to one not-for-profit corporation to provide assistance to small and medium sized publicly owned treatment works.

Grant funds with loans for certain high priority or difficult-to-finance water quality work, referred to as Water Quality Incentive Grants, or WQIG. Grant funding will offset a portion of a loan when the borrower's project includes an eligible project component. WQIG-eligible project components included in the draft IUP are: flood mitigation infrastructure; upgrades for new permit limits or to meet requirements of Total Maximum Daily Load Wasteload Allocations; plant improvements intended to provide renewable energy generation; streambank stabilization a drinking water supply lake watershed; measures to manage, reduce, treat, or recapture stormwater; green infrastructure; inflow and infiltration rehabilitation; plant improvements serving citizens enrolled in a rate assistance program; and sewer extension to serve customers in a district or city's service area. This new grant is expected to incentivize water quality improvements, provide debt relief to larger communities that have previously not had access to CWSRF grant dollars, and attract more borrowers to the program.

The Department has updated this final IUP, presented for the Commission's approval, since the draft IUP was placed on public notice based the progress of planned projects, emerging program needs and public comments. The following is a summary of project-specific changes subsequent to the draft IUP:

- Five projects were moved from the Planning List to the Fundable List (page 15) because they have met the readiness to proceed criteria:
 - Leeton
 - Moberly (Regional Lift Station)
 - Moberly (Sparks Avenue)
 - Mayview
 - ClarksburgLeeton, Mayview and Clarksburg are also eligible to receive a CWSRF Affordability Grant and have been allocated additional subsidization.
- The Jefferson County Public Sewer District project was moved from the Contingency List to the Fundable List because it has met the readiness to proceed criteria.

- The Greenfield project was moved from the Sources and Uses of Funds table to the Fundable List because it was not expected to have entered into a binding commitment by the date this IUP is presented to the Commission for approval, and the city has reapplied for placement on the FY 2021 IUP. Further, the project amount was updated because the community has secured a Community Development Block Grant for a portion of the project.
- Funding amounts were updated for two projects:
 - The requested amount for the Perryville project (page 15), was increased from \$26,000,000 to \$27,000,000 because of a project cost increase.
 - The MSD St. Louis Sewer District Lower Meramec River System Improvements (Tunnel) project (page 16) was divided into two phases: Phase 1 Tunnel project in the amount of \$63,108,000 and the Phase 2 Tunnel project in the amount of \$119,468,000.
- The MSD Public I/I Reduction Program Phase 5 project was removed from the Fundable List because MSD withdrew its application.
- The Loan and Grant Commitments table (page 11) was updated to reflect funding commitment dates for projects funded since the publication of the draft IUP.
- Financing schedules for many projects on the Fundable Lists have been updated.

The changes above result in an increase of the amount available for loans from \$533,941,281 to \$531,151,631 (page 14, Total Allocation of Available Funds).

The following is a summary of other changes subsequent to the draft IUP:

- Page 3 and 10 – The amount available for CWSRF projects in FY2021 was updated from \$534 million to \$535 million due to changes to the project tables.
- Pages 7 and 24 – An additional eligible project types was added to the Water Quality Incentive Grants table:

Cost for construction of wastewater treatment facility improvements intended to reuse or recycle wastewater, such as recharging basins, aquifer recharging, and conveyance to industrial facilities. Land application projects are excluded.	Up to \$1,000,000, not to exceed 50% of the total funding request
--	--

- Appendix 2, page 22 and Appendix 6, page 39 – A caveat was added notifying applicants that it is important to submit applications early in the project planning process in order to facilitate communication with the Department on each step to ensure the project meets all state and federal funding requirements.
- Appendix 6, Page 39 under heading **Purpose**, another eligible project type was added, “improvements to eliminate wet weather discharges from a peak flow clarifier and/or basins.”

Recommended Action: Staff recommends the adoption of the Fiscal Year 2021 Clean Water State Revolving Fund Intended Use Plan, Priority List, and Priority Point Criteria as submitted.

Suggested Motion: I move that the Clean Water Commission approve the Fiscal Year 2021, Clean Water State Revolving Fund Intended Use Plan, Priority List, and Priority Point Criteria as presented today with an effective date of October 26, 2020.

Attachments:

FY 2021 Clean Water State Revolving Fund Intended Use Plan, Priority List, Priority Point Criteria

Comments from Missouri Public Utility Alliance dated August 27, 2020

Department's response to Missouri Public Utility Alliance dated September 14, 2020

CLEAN WATER

State Revolving Fund

Intended Use Plan and Project Priority List for Fiscal Year 2021

Oct. 1, 2020 through Sept. 30, 2021

Proposed – October 26, 2020



Table of Contents

- Missouri Clean Water State Revolving Fund Program 1**
- Fiscal Year 2021 Clean Water State Revolving Fund Program Goals 2**
- Fiscal Year 2021 Clean Water State Revolving Fund Available Funding..... 3**
- Appendix 1: Project Priority Lists and Financial Tables..... 10**
- Appendix 2: Clean Water State Revolving Fund Loan Application Instructions..... 22**
- Appendix 3: Clean Water State Revolving Fund Program Administration 25**
- Appendix 4: Environmental Protection Agency Requirements and Assurances..... 28**
- Appendix 5: Clean Water State Revolving Fund Priority Points Criteria..... 32**
- Appendix 6: Clean Water State Revolving Fund Engineering Report Grants..... 39**

Cover photo: A custom-built Tunnel Boring Machine, 10 feet in diameter and over 260 feet in length, breaks through at a new Missouri River outfall in St. Joseph. As part of the city’s Blacksnake Creek Stormwater Separation Improvement project, the machine excavated a deep, 6,700 foot tunnel through soil and bedrock while simultaneously installing segmented concrete lining. The structure intercepts and redirects about two million gallons of water from Blacksnake Creek that currently goes to the city’s combined sewer system and sends it to the new outfall. Photo by City of St. Joseph, Missouri.

Missouri Clean Water State Revolving Fund Program

The Missouri Department of Natural Resources administers the Clean Water State Revolving Fund (CWSRF). As a condition of a federal agreement with the U.S. Environmental Protection Agency (EPA), the Department must submit an annual plan for the use of federal funds awarded and a strategy for managing the program in accordance with the Clean Water Act Section 606. This CWSRF Intended Use Plan (IUP) is the annual plan for Federal Fiscal Year (FFY) 2021.

Missouri applies to the EPA annually for a capitalization grant to fund its SRF program. These funds, combined with the required state match and interest earnings, are available to Missouri communities in the form of low-interest loans. As the loans are repaid, the money is reused, or revolved, by the program to provide for future projects.

*Since 1989, the CWSRF has committed over **\$2.9 billion** in below-market rate loans and approximately **\$91 million** in grants to meet Missouri's wastewater infrastructure needs, saving 626 Missouri cities, counties, sewer districts, and others more than **\$1 billion**. Approximately **\$22.5 million** has been obligated to nonpoint source projects through the CWSRF since 1989. Farmers, livestock producers, watershed organizations, cities, rural homeowners, and others have benefited from these loans and grants.*

The CWSRF loan program was established by the 1987 Clean Water Act amendments to provide a renewable financing source for statewide wastewater infrastructure and runoff control while protecting state surface and ground waters. Operation and management of Missouri's CWSRF program is directed by regulations 10 CSR 20-4.040, 10 CSR 20-4.041, and 10 CSR 20-4.050 sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-4.pdf.

The CWSRF is managed by the Department and the Environmental Improvement and Energy Resources Authority (EIERA). The Department, with oversight from the Clean Water Commission, is responsible for programmatic functions, including processing applications, priority scoring, IUP preparation, environmental review and permitting, reporting, and financial assistance disbursement and repayment processing. EIERA issues bonds, manages related tax issues and monitors post-issuance compliance. The Department and EIERA work together to maximize the amount of construction that can be supported by the program, and reserve the right to refinance, assign, pledge, or leverage any loans originated through the CWSRF program.

The Department continually refines the CWSRF program to ensure it offers affordable financing to meet today's high priority water quality improvement needs and provides a stable source of funding for clean water infrastructure projects well into the future. This IUP summarizes the development and management of the CWSRF Project Priority Lists and state assurances required by federal mandates. It also details the proposed distribution of Missouri's anticipated CWSRF capitalization grants, state match funds, the repayments of previously awarded loans and the interest earnings from the repayment account deposits for FFY2021.

Our partners

- The Missouri Water and Wastewater Review Committee is a group of individuals representing three agencies that provide funding to communities for water and wastewater infrastructure improvements. Agencies represented include the Department, the Missouri Department of Economic Development's Community Development Block Grant Program, and the U.S. Department of Agriculture's Rural Development. The committee convenes once a month to review proposals, engineering reports, and make recommendations to apply for funding. This collaborative effort is intended to stretch limited financial assistance dollars to support the greatest number of projects for Missouri communities.
- The Missouri Department of Agriculture oversees a loan program funded by the CWSRF for the construction of animal waste treatment facilities. The Department awards loans funds to the Missouri Agriculture and Small Business Development Authority, which in turn loans the funds to livestock and dairy producers for animal waste treatment facilities. For information on the Animal Waste Treatment System Loan Program, call 573-751-2129.

Fiscal Year 2021 Clean Water State Revolving Fund Program Goals

Each year, the Department evaluates the operations and the financial structures of the CWSRF to gauge program effectiveness and to improve program services and investment returns. The Department develops both long-term and short-term goals to continually improve the program.

Long-term goals:

- Provide assistance to water quality improvement actions that help fulfill the objectives of the Clean Water Act.
- Provide assistance to projects that increase the long-term sustainability of wastewater treatment systems, and incentivize projects that consolidate, interconnect or regionalize wastewater treatment.
- Provide assistance to projects which will help address the issues (e.g. harmful algal blooms) caused by excessive nutrient loading of streams, rivers, and lakes.
- Provide assistance and support for technically appropriate and financially sustainable projects.
- Manage projects and work efficiently with participants to ensure projects proceed toward a binding commitment in a timely manner.
- Maintain the long-term integrity of the revolving fund by applying prudent financial standards to assistance provided to participants.

Short-term goals:

- Utilize additional subsidization incentives and outreach to increase use of the CWSRF projects.
- Plan and implement a programmatic financing structure that offers a reliable funding mechanism for entities with significant capital spending needs.

- Have the CWSRF priority point criteria (Appendix 5) updated and approved by the Missouri Clean Water Commission at least 60 days prior to the application deadline of March 1, 2021.

Fiscal Year 2021 Clean Water State Revolving Fund Available Funding

During FFY2021, the CWSRF program expects to have approximately \$535 million available for new CWSRF projects. This includes carryover monies from previous years, loan repayments, interest earnings on investments of CWSRF resources, federal capitalization grants, and state match. Project Lists are in Appendix 1.

Eligible project types

CWSRF program dollars typically help municipalities build or improve wastewater treatment plants. However, nonpoint source projects may also be funded through the CWSRF. These types of projects include urban runoff, wet weather flow, stormwater, sewer overflows, water reuse and conservation, and alternative treatment projects.

Wastewater projects may include the following:

- New treatment plants
- Treatment plant improvements and upgrades
- Acquisition of an existing wastewater treatment plant
- Treatment plant decommissioning actions associated with plant replacement or regionalization projects
- Sewer line extensions associated with regionalization projects
- Sewer rehabilitation
- Sewer line extensions to existing unsewered properties
- Combined sewer overflow and sanitary sewer overflow corrections
- Projects for reusing or recycling wastewater
- System security, efficiency, and conservation measures

Nonpoint source projects may include the following:

- Measures to manage, reduce, treat, reuse, or recapture stormwater or subsurface drainage water
- Wetland protection and restoration measures
- Decentralized wastewater treatment systems
- Source water protection measures

State regulations describe eligible and ineligible expenses. Examples of eligible costs include engineering costs for planning and design, land if needed for the project, legal costs, and construction costs. A full list is available in 10 CSR 20-4.040 at sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-4.pdf.

Eligible borrowers

- Missouri municipalities, counties, public sewer or water districts, political subdivisions or instrumentalities of the state are eligible for wastewater and nonpoint source project loans.
- Privately-owned and nonprofit facilities may be eligible to apply for nonpoint source loans.

All eligible applicants must demonstrate financial, legal, technical, and managerial capability to enter into a binding financial commitment.

Terms of financial assistance

The CWSRF offers a fixed-rate loan with a standard interest rate that is 30 percent of the market rate. The market interest rate is based on The Bond Buyer 25-Revenue Bond Index, which provides an estimate of the yield on a 30-year revenue bond offered under current market conditions. The rate is comparable to an AAA-rated municipal market rate. Loan proceeds must be expended within 36 months of the loan closing.

The standard loan term is 20 years or the useful life of the project, whichever is less. Terms of up to 30 years, not to exceed the useful life of the project, may be available for applicants experiencing a significant financing challenge. The Department evaluates extended term financing requests on a case-by-case basis. An additional 0.5 percent interest is added to the standard interest rate for a qualifying participant that opts to close a loan with extended term financing. The Department charges an annual fee of 0.5 percent of the outstanding loan balance. The fee is used to administer the CWSRF program and to fund other water quality activities in accordance with federal regulations.

CWSRF additional subsidization in the form of grant funding, typically in conjunction with a loan, may be available for eligible borrowers in accordance with current federal appropriations.

Distribution of funds

The Department allocates available funds first to fundable projects carried over from the previous fiscal year. The Department then allocates a certain percentage of available funding for certain size communities or for high priority project types. Funds set aside for these reserves are based on a percentage of the anticipated available funds, the number of applicants ready to proceed and Department priorities.

The funds are allocated as shown below:

- 40 percent to Small and Non-Metropolitan projects (systems serving fewer than 75,000 people)
- 30 percent to Large Metropolitan Areas and Districts (systems serving 75,000 or more people)
- 15 percent to address Combined Sewer Overflow projects
- 15 percent to Green Project Reserve and Department Initiatives

Any uncommitted funds from a specific group may be distributed to fund projects in other groups that are ready to proceed. Additional information is in Appendix 1.

Project prioritization

The CWSRF Priority Points Criteria are the basis for project ranking and funding allocation. The criteria includes human health protection, compliance with the Clean Water Act, Missouri Water Quality Standards and Antidegradation Policy, and Missouri's Nonpoint Source Management Program. The complete list of each criterion and associated point values is available in Appendix 5.

Intended Use Plan listing process

The Department reviews project applications for CWSRF eligibility and assigns priority points based on the CWSRF Priority Points Criteria to eligible projects. Next, the Department places eligible projects on the CWSRF Project Priority List and ranks projects by priority point score within each funding category.

The CWSRF Project Priority List contains the following categories:

- **Fundable List:** This list includes projects that meet the readiness-to-proceed criteria. Projects that meet readiness-to-proceed criteria are those for which the applicant has submitted a complete facility plan, and documentation that the applicant has an acceptable debt instrument and any necessary funding commitments from other state and/or federal agencies contributing funds to the project. These projects are scheduled for financial assistance during the current fiscal year, and available funds are allocated to listed projects.

The Fundable Projects List includes four types of projects:

- Small and Non-Metropolitan Areas and Districts
 - Large Metropolitan Areas and Districts
 - Combined Sewer Overflow
 - Department Initiatives
- **Fundable Contingency List:** This list includes projects that meet the readiness-to-proceed criteria, however sufficient SRF funding is unavailable, or the project is not expected to need funds in the current fiscal year. These projects may receive assistance if funds become available during the fiscal year.
 - **Contingency List:** This list includes projects that have an approvable facility plan but do not have an acceptable debt instrument in place. The Department works with these communities to assist them in meeting readiness-to-proceed criteria. Once the criteria are met, the project may be moved to the fundable list if funds are available.
 - **Planning List:** This list includes projects for which the Department has received an application but is awaiting an approvable facility plan and/or acceptable debt instrument. The Department works with these communities to assist them in meeting readiness-to-proceed criteria. Once the criteria are met, the project may be moved to the fundable list if funds are available.

Modifications to Project Priority List

After the Missouri Clean Water Commission adopts this IUP's CWSRF Project Priority Lists, it may modify the lists or redistribute the available funds in accordance with 10 CSR 20-4.040.

- **Inadequate allocations:** If federal CWSRF allocations are less than the allocations anticipated, or if previous allocations are reduced, the Department may recommend reducing project commitments.
- **Unanticipated or uncommitted funds:** The availability of unanticipated or uncommitted funds can result in a project moving from the contingency list to the fundable list. The amount of funds allocated to projects on the fundable lists may increase, or projects that have already received assistance may receive increased assistance.
- **Bypass:** The Department may recommend the Commission remove a project on the Fundable Priority List when it is not making timely progress, in order to make the committed funds available to another project that is ready to proceed. The Commission may move projects removed from the Fundable Priority List to the Contingency or Planning Priority Lists. Bypass procedures are outlined in 10 CSR 20-4.040 (29)(C).
- **Project removal:** Projects may be removed from the Project Priority List at the request of the applicant or if the Department finds that the project is ineligible for CWSRF assistance.

Before taking action to modify the Project Priority List, the Department notifies those projects directly affected.

Additional subsidization

The Clean Water Act allows the state to provide additional subsidization in the form of grants, principal forgiveness, or negative interest loans. The Department will determine the amount of capitalization grant to be allocated for additional subsidization each year based on federal appropriation and Missouri's CWSRF program needs. Only political subdivisions (including counties, incorporated cities and towns, regional water or sewer districts) may receive additional subsidization. FFY2021 additional subsidization funding allocations are described in Appendix 1.

- **CWSRF Affordability Grants** for wastewater treatment facility construction are available, in coordination with loans, to small communities who would have difficulty financing wastewater infrastructure improvements without additional subsidization. The Department will obligate affordability grant funds to applicants on the Fundable List in the order established by the Priority Point Criteria (Appendix 5) with the available additional subsidization allocation. Grant eligibility procedures and application instructions are described in Appendix 2.
- **CWSRF Regionalization Incentive Grants** are available to municipalities for development of facility plans for sewer extensions and sewer extension construction projects. The program is intended to incentivize connections that reduce the number of small, struggling facilities through regionalization. The Department evaluates projects through a competitive, annual funding cycle, and offers a funding obligation to applicants with the available additional subsidization allocation. For FFY 2021, the Department will accept applications from October 1, 2020 through December 31, 2020. For FFY 2022 and later, the Department will accept applications submitted by March 1 each year. Applications, eligibility criteria, and instructions are available at <https://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm>.

- CWSRF Water Quality Incentive Grants (WQI)** are available to municipalities receiving a CWSRF loan to incentivize activities that have significant benefits to water quality. Eligible applicants are those that submit an application by the March 1 deadline; meet readiness-to-proceed criteria; and include a qualifying project component. The Department will obligate WQI grant funds to offset loan funding to applicants on the Fundable List in the order established by the total points assigned from Priority Points Section I of the CWSRF Priority Point Criteria (Appendix 5) with available additional subsidization. Qualifying project components and the associated maximum WQI grant amounts are described in the table below.

Water Quality Incentive Grants	
Project component	Available grant funding
Cost for construction of flood mitigation infrastructure, such as holding basins, flood walls and redirection structures, used in conjunction with a flood control plan.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for wastewater treatment plant upgrades needed to comply with new permit limits or to meet the assumptions and requirements of Total Maximum Daily Load Wasteload Allocations for a particular pollutant.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of wastewater treatment plant improvements intended to provide renewable energy generation, such as methane recovery, that reduce plant operating cost.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for streambank stabilization in the watershed of a drinking water supply lake.	Up to \$500,000, not to exceed 50% of the total funding request
Cost for construction of measures to manage, reduce, treat, or recapture stormwater, or to construct green infrastructure in developed or urban areas to address nonpoint source pollution.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of wastewater treatment facility improvements intended to reuse or recycle wastewater, such as recharging basins, aquifer recharging, and conveyance to industrial facilities. Land application projects are excluded.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for wastewater treatment improvements by a municipality serving citizens enrolled in a rate assistance program to facilitate a rate reduction or relief for affected low income residents, with the grant amount not to exceed the portion of the project serving enrolled citizens.	Up to \$2,000,000, not to exceed 50% of the total funding request
Cost for inflow and infiltration rehabilitation projects	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of a sewer extension to serve customers in a district or city's service area that will eliminate a permitted, discharging wastewater treatment facility.	Up to \$500,000, not to exceed 50% of the project cost
Cost for construction to connect homes with failing or poorly functioning onsite wastewater systems to an existing central wastewater treatment system.	Up to \$500,000, not to exceed 50% of the project cost

The grant commitment is valid for two years, with grant funds awarded when the applicant enters into a loan agreement. Failure to make timely progress may result in bypass and the loss of the WQI grant commitment. Each applicant, whether it submits one application or multiple projects, is limited to one WQI grant per IUP cycle in order to equitably distribute grant funds to CWSRF applicants. Applicants with projects eligible for an Affordability Grant may receive that grant as well as a WQI grant for qualifying project costs that exceed \$4,000,000 and are financed with a CWSRF loan that is at least \$2,000,000. Application instructions are described in Appendix 2.

- **Engineering Report Grants** are available for municipalities, counties, public sewer or water districts, political subdivisions, or instrumentalities of the state with a population of fewer than 10,000 for engineering costs to prepare a facility plan. These funds can pay for a facility plan for wastewater treatment and collection system improvements related to new permit requirements and/or inflow and infiltration. Eligible applicants may receive an 80 percent grant with a 20 percent recipient match, while eligible applicants qualifying as disadvantaged may receive a 90 percent grant with a 10 percent recipient match. The maximum grant amount is \$50,000. Eligible applicants can submit an Engineering Report grant application to the Department at any time. Applications are available online at <https://dnr.mo.gov/forms/780-2217-f.pdf>.

Department Initiatives

In FFY 2021, the Department will award additional subsidization in the form of a grant up to \$1,500,000 with a three-year budget period to a qualified nonprofit entity for the purpose of providing assistance to small and medium publicly-owned treatment works. The Department will award this Technical Assistance Grant (TAG) to one nonprofit corporation based on responses to a Request for Proposals. The Request for Proposals will be available after approval of this Intended Use Plan by the Clean Water Commission. Pursuant to Section 603(c)(11)e of the Water Resources Reform and Development Act, the TAG will fund assistance activities associated with planning and obtaining financing for eligible projects, and achieving compliance with the Clean Water Act.

Green Project Reserve

Federal law requires that the Department make a “good faith effort” to use a percentage of the annual CWSRF capitalization grant for projects that address green infrastructure, water or energy efficiency improvements, or other environmentally-innovative activities. See Appendix 4 for additional information.

Department staff will work directly with applicants prior to funding to identify projects with Green Project Reserve components. Additional information is in the CWSRF Loan Application Form and Instructions online at dnr.mo.gov/env/wpp/srf/srf-app_guid.htm.

Program commitments and state assurances

The Department makes a number of program commitments and state assurances related to managing the CWSRF. See Appendix 4 for a list and description of these commitments and assurances.

Application deadline

An entity can submit a CWSRF loan application at any time to the Department. Applications received or postmarked by March 1 will receive priority consideration for funding in the next fiscal year's IUP. See Appendix 2 for more information about applying for funding.

Projects being funded in FFY2021

The list of projects being funded in FFY2021 is ranked by priority in Appendix 1.

Appendix 1: Project Priority Lists and Financial Tables

Estimated Sources and Uses of Funds

During FFY2021, the Clean Water State Revolving Fund (CWSRF) program expects to have approximately \$535 million available for loans and additional subsidization during this fiscal year. The estimate includes carryover monies from previous years, repayments, interest earnings on investments of CWSRF resources, federal capitalization grants, and state match.

Funds are allocated to projects that are on a Fundable List as approved by the Clean Water Commission. The amount of funds made available through this IUP may be revised at any time due to changing economic conditions.

The Department intends to use an amount from the FFY2020 federal capitalization grant equal to 1/5 of one percent of the current valuation of the fund for program administration.

The estimated sources and anticipated uses of funds can be found in the following table. The amounts reflected are as of December 31, 2019.

**Clean Water State Revolving Fund
Estimated Sources and Uses of Funds
FFY 2021 Intended Use Plan**

Estimated Sources as of December 31, 2019		
Anticipated Capitalization Grants for Clean Water State Revolving Fund	\$ 80,375,720	
Cash Balance *	\$ 386,866,829	
Anticipated Loan Repayments and Investment Earnings Net of Bond Payments (1/1/20 - 9/30/22)	\$ 268,314,964	
State Match - FFY 2021 Capitalization Grant **	\$ 2,518,538	
Total Estimated Sources		\$ 738,076,051

Estimated Uses		
Undisbursed Amounts Committed to Existing Projects	\$ 106,831,119	
Anticipated Program Administrative Expenses from Capitalization Grants	\$ 5,000,213	
A2010 Match Bond Debt Service Payments due through 9/30/22	\$ 2,208,912	
Anticipated Direct Loans Closing between 1/1/20 and 9/30/20	\$ 82,270,365	
Anticipated Grants Awarded between 1/1/20 and 9/30/20	\$ 6,613,811	
Anticipated Additional Subsidization Available for FFY 2021 CWSRF IUP Projects	\$ 20,891,575	
Anticipated Loan Funds Available for FFY 2021 CWSRF IUP Projects	\$ 514,260,056	
Total Estimated Uses		\$ 738,076,051

* On October 18, 2018, the Environmental Improvement and Energy Resources Authority issued bond series 2018A in tax exempt revenue bonds, of which \$21,590,000 was for the Clean Water State Revolving Fund. Bond proceeds support approximately three years of state match requirements to the FFY2018, 2019 and 2020 capitalization grants. The bond proceeds were deposited into the Water & Wastewater Loan Revolving Fund for disbursement, and will provide all but \$2,518,538 of state match for the FFY2020 capitalization grant (utilized in this FFY2021 Intended Use Plan).

** A bond sale or a transfer of loan administration fees is expected to provide the remaining \$2,518,538 in state match needed.

Loan and Grant Commitments 1/1/20 through 9/30/20	Loan	Grant	Total
Northeast PSD - Funded 1/30/20	\$ 5,000,000	\$ -	\$ 5,000,000
Weston - Funded 1/31/20	\$ 3,618,000	\$ -	\$ 3,618,000
MPIA - Amended 3/9/20	\$ -	\$ 200,000	\$ 200,000
Troy - Funded 4/15/20	\$ 18,887,000	\$ -	\$ 18,887,000
Moberly - Funded 4/30/20	\$ -	\$ 954,208	\$ 954,208
Van Buren - Funded 4/30/20	\$ -	\$ 981,050	\$ 981,050
Linn - Funded 4/30/20	\$ -	\$ 607,570	\$ 607,570
Winfield - Funded 4/30/20	\$ -	\$ 62,500	\$ 62,500
East Prairie - Funded 4/30/20	\$ -	\$ 62,500	\$ 62,500
Holts Summit - Funded 4/30/20	\$ -	\$ 1,017,918	\$ 1,017,918
Potosi - Funded 4/30/20	\$ -	\$ 363,700	\$ 363,700
Rolla - Funded 5/28/20	\$ 27,240,000	\$ -	\$ 27,240,000
Lathrop - Funded 5/27/20	\$ 3,161,000	\$ -	\$ 3,161,000
Gravois Arm Sewer District - Funded 6/30/20	\$ 1,751,000	\$ 1,751,000	\$ 3,502,000
MSD Deer Creek Pump Station	\$ 22,000,000	\$ -	\$ 22,000,000
Meadville	\$ 613,365	\$ 613,365	\$ 1,226,730
Total Commitments 1/1/20 through 9/30/20	\$ 82,270,365	\$ 6,613,811	\$ 88,884,176

Project Priority Lists

A comprehensive list of FFY2021 applicants is followed by the Project Priority Lists.

Per 10 CSR 20-4.040, applications are valid for a 2-year plan cycle. Applicants that have not received their funding at the end of the 2-year plan cycle may reapply to the program, but a project's position on a fundable, contingency, or planning list may change with each subsequent application. The Department will de-obligate funding from projects that are not making adequate progress within the allotted 2-year plan cycle and reallocate funds to other projects.

Projects carried over from the 2020 IUP remain eligible for FFY2021 and retain the points they received under the criteria in effect at the time they initially applied. The Department carried unfunded projects that filed an original application by November 15, 2018, into the FFY2020 IUP unless the Missouri Clean Water Commission bypassed or removed the project, or the proposed loan recipient has requested to be removed. Carryover status is indicated in the table. Carryover projects in the FFY2021 IUP must reapply by March 1, 2021, in order to compete for funding in the FFY2022 IUP.

For more information on the CWSRF Program, contact the Department's Financial Assistance Center at 573-751-1192 or fac@dnr.mo.gov.

CWSRF Fiscal Year 2021 Project Priority Lists

Carryover	Priority Points	Applicant	Project #	Description/ Needs Category	Service Area Population	IUP Amount Requested	Loan Amount	Additional Subsidization Amount	NPDES #	Est. Financing FY - Quarter
<i>Note: An explanation of the abbreviations and codes appears at the end of the project lists.</i>										
FUNDABLE LIST										
(Debt instrument secured and facility plan submitted; fundable if funds become available)										
TOTAL AVAILABLE FUNDS						\$ 514,260,056	\$ 20,891,575			
Small and Non-Metropolitan Areas and Districts (Service area population of fewer than 75,000 people)										
C	115	Rocky Mount Sewer District - AG	C295838-01	Det, Coll; IV A, IV B	450	\$ 4,296,400	\$ 2,296,400	\$ 2,000,000	MO-1336719	21-4
C	110	Boone County Commission (Bollinger Road Coll System)	C295299-03	Coll; IV A	37	\$ 319,900	\$ 319,900	\$ -	N/A	21-2
C	110	Skidmore - AG	C295841-01	TP Impr, TP Rhab, I/I; I, II, IIIA	276	\$ 1,178,457	\$ 589,229	\$ 589,228	MO-0022969	22-1
C	95	East Lynne - AG	C295695-01	TP Impr; I, II	303	\$ 1,315,310	\$ 657,655	\$ 657,655	MO-0099961	21-4
C	95	Jefferson County Public Sewer District**	C295844-01	Coll; IV A	170	\$ 3,751,075	\$ 343,312	\$ -	MO-0131024	21-2
C	90	Boone County Commission (Phenora North Coll System)	C295299-04	Coll; IV A	102	\$ 372,099	\$ 372,099	\$ -	MO-0137294	21-2
C	90	Boone County RSD (Highfield Acres)	C295375-29	Coll; IV A	200	\$ 414,294	\$ 414,294	\$ -	MO-0053376	21-2
C	90	Miller - AG	C295726-02	TP Impr, Coll, I/I; I, II, IIIA, IIIB	725	\$ 2,108,525	\$ 1,054,263	\$ 1,054,262	MO-0041149	21-1
C	80	Jasper - AG	C295843-01	TP Impr; II	931	\$ 750,000	\$ 375,000	\$ 375,000	MO-0044202	21-3
C	80	Lockwood - AG	C295842-01	TP Impr, Coll, I/I; I, II, IIIA, IIIB	1114	\$ 2,139,310	\$ 1,069,655	\$ 1,069,655	MO-0030473	21-4
	125	Boone County RSD (Richardson Acres/Brown Station) - WQIG 7	C295375-30	Coll; IV A	259	\$ 1,593,908	\$ 1,093,908	\$ 500,000	Multiple	21-3
	125	Moberly (Regional Lift Station)	C295648-03	Coll, PS, FM; IIIB, IV A	13,974	\$ 3,010,405	\$ 3,010,405	\$ -	Multiple	21-3
	120	Perryville - WQIG 2	C295832-01	TP Impr, PS; I,II	8,440	\$ 27,000,000	\$ 26,000,000	\$ 1,000,000	MO-0051144	21-3
	120	Windsor - AG	C295512-01	TP Impr, I/I; I, II, IIIA, IIIB	3,087	\$ 5,000,000	\$ 3,000,000	\$ 2,000,000	MO-0047325 MO-0047317	21-4
	105	Centralia - WQIG 2	C295860-01	Impr, Exp, TP; II, IV A	4,027	\$ 5,320,540	\$ 4,320,540	\$ 1,000,000	MO-0028789	21-4
	100	Urbana - AG	C295834-01	TP Impr, I/I; I, II, IIIA	417	\$ 1,879,478	\$ 939,739	\$ 939,739	MO-0095176	21-4
	95	Greenfield - AG	C295831-01	Coll, Impr, FM; I	1,385	\$ 704,350	\$ 352,175	\$ 352,175	MO-0055603 MO-0055590	21-2

Carryover	Priority Points	Applicant	Project #	Description/ Needs Category	Service Area Population	IUP Amount Requested	Loan Amount	Additional Subsidization Amount	NPDES #	Est. Financing Schedule FY - Quarter
	95	Leeton - AG	C295850-01	TP Impr; Coll Rehab; I, II, IIIB	568	\$ 1,847,560	\$ 923,780	\$ 923,780	MO-0116076	21-4
	95	Moberly (Sparks Avenue)	C295648-02	Coll, PS, FM; IVA	13,974	\$ 703,420	\$ 703,420	\$ -	MO-0117960	21-3
	80	Clarksburg - AG	C295863-01	TP, Coll; II, IIIB	338	\$ 731,560	\$ 365,780	\$ 365,780	MO-0109797	22-2
	80	Mayview - AG	C295849-01	TP Impr; I/I; I, II, IIIA	212	\$ 2,628,000	\$ 1,314,000	\$ 1,314,000	MO-0055131	22-3
	65	Clarksville - AG	C295861-01	TP Impr; II	452	\$ 442,520	\$ 221,260	\$ 221,260	MO-0039632	22-2
Small and Non-Metropolitan Areas and Districts Total						\$ 67,507,111	\$ 49,736,814	\$ 14,362,534		
Less Water Quality Incentive Grants (shown in Department Initiatives)								\$ 2,500,000		
Balance							\$ 122,872,242	\$ 1,300,000		
Large Metropolitan Areas and Districts (Service area population of 75,000 or more people)										
C	185	MSD Lower Meramec River System Improvements (Tunnel) Phase 1	C295072-01	Coll; IVA, V	32,000	\$ 63,108,000	\$ 63,108,000	\$ -	Multiple	21-1
	185	MSD Lower Meramec River System Improvements (Tunnel) Phase 2	C295072-02	Coll; IVA, V	32,000	\$ 119,468,000	\$ 119,468,000	\$ -	Multiple	22-2
C	160	Springfield	C295859-01	I/I; IIIA	173,130	\$ 18,375,000	\$ 18,375,000	\$ -	MO-0049522 MO-0103039	21-2
	210	MSD Public I/I Reduction Program - Phase 6 - WQIG.6	C295023-41	I/I; IIIA	1,300,000	\$ 41,200,000	\$ 40,200,000	\$ 1,000,000	Multiple	21-1
	135	Kansas City	C295840-01	TP Impr; I	631,000	\$ 160,000,000	\$ 100,000,000	\$ -	MO-0024911	21-3
Large Metropolitan Areas and Districts Total						\$ 402,151,000	\$ 341,151,000	\$ 1,000,000		
Less Water Quality Incentive Grants (shown in Department Initiatives)								\$ 1,000,000		
Balance							\$ -	\$ -		
Combined Sewer Overflow										
Combined Sewer Overflow Total						\$ -	\$ -	\$ -		
Balance							\$ -	\$ -		

Carryover	Priority Points	Applicant	Project #	Description/ Needs Category	Service Area	IUP Amount Requested	Loan Amount	Additional Subsidization Amount	NPDES #	Est. Financing Schedule
Department Initiatives										
C	N/A	Missouri Agriculture & Small Business Development	C295212-10	NPS; VIIIB	N/A	\$ 500,000	\$ 500,000	\$ -	N/A	21-4
Department Initiatives Total						\$ 500,000	\$ 500,000	\$ -		
Less Water Quality Incentive Grants (shown in tables above)										
Balance						\$ -	\$ -	\$ 4,229,041		
Total Fundable List Projects						\$ 470,158,111	\$ 391,387,814	\$ 15,362,534		
Balance of Fundable List						\$ -	\$ 122,872,242	\$ 5,529,041		
FUNDABLE CONTINGENCY LIST (Debt instrument secured and facility plan submitted; fundable if funds become available)										
Total Fundable Contingency Projects						\$ -	\$ -	\$ -		
CONTINGENCY LIST (Either debt instrument or facility plan has not been submitted)										
135		Kansas City	C295840-01	TP Impr; I	631,000	Balance of Amount Requested from Large Metropolitan Areas Fundable List. Contingent on additional bond authorization	\$ 60,000,000	\$ -	MO-0024911	21-3
Total Contingency Projects						\$ -	\$ 60,000,000	\$ -		
PLANNING LIST Note: Information will be added to the shaded columns when the project moves to the fundable or contingency list. (Debt instrument and facility plan not yet secured/submitted)										
125	Aurora		C295867-01	TP Impr; II	7,508		\$ 4,016,000		MO-0036757	

Carryover	Priority Points	Applicant	Project #	Description/ Needs Category	Service Area Population	IUP Amount Requested	Loan Amount	Additional Subsidization Amount	NPDES #	Est. Financing Schedule FY - Quarter
CONTINGENCY LIST (Signed Service Agreements meeting minimum requirements not submitted)										
						\$	\$	\$		
				Total RIG Contingency Projects		\$	\$	\$		
AG	Affordability Grant			C	Carried over from the last Intended Use Plan					
	Water Quality Incentive Grants			Coll	Collection					I Secondary Treatment
	1 = flood mitigation			CSO	Combined Sewer Overflow					II Advanced Treatment
	2 = permit limits			Det	Detention					IIIA I/I correction
	3 = streambank stabilization			Exp	Expansion					IIIB Sewer replacement or rehabilitation
	4 = green infrastructure			FM	Force Main					IVA New Collection
	5 = rate assistance			Impr	Improvements					IVB New Interceptors
	6 = Inflow and infiltration rehabilitation			Int	Interceptor					V CSO
	7 = sewer extension to eliminate permitted facilities			I/I	Inflow/Infiltration					VIIB NPS: Animal
	8 = sewer extension to eliminate onsite facilities									VIID NPS: Urban
RIG	Regionalization Grant			NPDES	National Pollution Discharge Elimination System					
TAG	Technical Assistance Grant			NPS	Non Point Source					
ERG	Engineering Report Grant			PS	Pump Station					
				Rehab	Rehabilitation					
				TP	Treatment Plant					

* Applicant has a maximum bonding capacity that the loan amount cannot exceed.

** Ineligible project costs deducted off total project costs.

Notes:

Final eligible costs will be determined based on submittals as the project progresses toward loan closing.

Financing schedule shown is for planning purposes only. Final scheduling will be determined as documents are submitted and approvals obtained.

Carryover projects from the fiscal year 2021 list must reapply to be considered for the fiscal year 2022 list.

Priority points for RIG projects include two numbers separated by a hyphen. The first number is the RIG category, and the second number is the priority point score calculated through the RIG procedure available at <https://dnr.mo.gov/env/wpp/srf/documents/2019-10-31-RegionalizationGrantGuidance.pdf>.

Distribution of Loan Administration Fees

The Department follows EPA's October 20, 2005 guidance on the use of administration fees charged by the state to recipients of CWSRF program assistance. Fees charged by the program are not included as principal in loans. The administration fee may be considered program income, depending upon the source of the loan and the timing of the fee receipt. As shown in the following table, the administration fees collected are considered as:

- program income earned during the capitalization grant period;
- program income earned after the capitalization grant period; or
- non-program income.

During the grant period is defined as the time between the effective date of the grant award and the ending date of the award reflected in the final grant financial report.

Program income earned during the grant period may only be used for eligible CWSRF activities, as defined in the Clean Water Act, and program administration. Program income earned after the grant period, as well as non-program income, may be used for a broad range of water-quality related purposes. The State of Missouri has obtained approval from the EPA to use program income earned after the grant period for water-quality related purposes.

Source And Distribution Of Funds			
Loan Administration Fees¹			
As of Dec. 31, 2019			
Income	Program Income Earned During Grant Period	Program Income Earned After Grant Period	Non-Program Income
Beginning Balance as of 07/01/19	\$100,993	\$16,839,856	\$17,345,149
FY 20 Income (thru 12/31/19)	\$136,390	\$1,206,198	\$1,471,783
FY 20 Interest Earnings (thru 12/31/19)	\$1,747	\$151,131	\$163,121
Subtotal	\$239,130	\$18,197,185	\$18,980,053
Expenditures Thru 12/31/19			
FY 20 Personnel Services	(\$7,299)	(\$955,877)	(\$97,281)
FY 20 Fringe	(\$3,837)	(\$533,950)	(\$52,492)
FY 20 Expenses	(\$43,900)	(\$1,023)	(\$21,719)
FY 20 PSD Expenditures	\$0	(\$750,172)	(\$853,455)
FY 20 DNR Transfers ²	(\$6,451)	(\$179,539)	(\$20,656)
FY 20 ITSD Transfers ^{2 & 3}	(\$5,606)	(\$156,015)	(\$17,949)
FY 20 HB 13 Transfers ²	(\$76)	(\$2,115)	(\$243)
Subtotal	(\$67,169)	(\$2,578,691)	(\$1,063,795)
Income Less Expenditures	\$171,961	\$15,618,494	\$17,916,258
Projected Income			
FY 20 Income (01/01/20 - 06/30/20)	\$209,493	\$1,138,375	\$1,907,666
FY 20 Interest Income (01/01/20 - 06/30/20)	\$0	\$122,797	\$135,208
FY 21 Income (07/01/20 - 06/30/21)	\$435,699	\$2,111,525	\$3,189,729
FY 21 Interest Income (07/01/20 - 06/30/21)	\$1,299	\$184,603	\$313,005
Subtotal	\$646,491	\$3,557,300	\$5,545,608
Projected Expenditures			
FY 20 Personnel Services	(\$70,120)	(\$955,876)	(\$123,752)
FY 20 Fringe	(\$40,052)	(\$549,823)	(\$72,812)
FY 20 Expense & Equipment	(\$167,433)	(\$1,927)	(\$496,281)
FY 20 DNR Transfers ²	(\$33,222)	(\$178,085)	(\$82,432)
FY 20 ITSD Transfers ^{2 & 3}	(\$20,578)	(\$80,009)	(\$50,087)
FY 20 HB 13 Transfers ²	(\$666)	(\$4,576)	(\$1,686)
FY 20 PSD Expenditures	\$0	(\$295,211)	(\$2,998,307)
FY 21 Personal Service, Fringe, Expenses & Indirect	(\$418,691)	(\$4,358,048)	(\$554,432)
FY 21 State Water Plan	\$0	\$0	\$0
FY21 State Match Expenditure	\$0	(\$2,000,000)	(\$517,338)
FY 21 ITSD Costs ³	\$0	\$0	(\$500,000)
FY 21 Board Training & Operator Certification*	\$0	(\$80,000)	
FY 21 Abatement of Water Quality Emergencies*	\$0	\$0	\$0
FY 21 Water Quality & Watershed Initiatives*	\$0	\$0	\$0
FY 21 Rural Sewer Grants*	\$0	(\$713,815)	(\$1,095,941)
FY 21 Fixed Station Ambient Network Contract	\$0	(\$625,926)	(\$484,919)
FY 21 Water Quality Studies*	\$0	(\$40,000)	(\$156,000)
FY 21 Small Community Engineering Assistance Program*	\$0	\$0	\$0
Subtotal	(\$750,762)	(\$9,883,296)	(\$7,133,987)
Total Actual and Projected	\$67,690	\$9,292,498	\$16,327,879

¹ The distribution of loan administration fees to various Department activities is subject to change throughout the Fiscal Year. Actual fund uses will be reported in the Fiscal Year 2021 Clean Water State Revolving Fund Annual Report. FY 2021 projected expenditures may include amounts carried over from prior fiscal years. FY 2021 projected expenditures do not automatically carry over from one year to the next except for those indicated with an *.

² Similar to the inclusion of Indirect Costs in federal grants, this represents the SRF Admin Fees proportionate share of departmental administrative costs.

- DNR transfers reflect the cost of departmental staff and related expenses.
- ITSD transfers reflect the information technology related costs for those staff.
- HB 13 transfers reflect the cost of the related office space.

³ ITSD is the state's Information Technology Services Division.

Appendix 2: Clean Water State Revolving Fund Loan Application Instructions

- Clean Water State Revolving Fund (CWSRF) applications received or postmarked by **March 1, 2021**, that meet readiness-to-proceed criteria, will receive priority for additional subsidization and loan funding for FFY 2022.
- The Department accepts applications throughout the year; project additions may be made to the IUP up to four times per year.

Per 10 CSR 20-4.040, applications are valid for a 2-year plan cycle. Applicants that have not received their funding at the end of the 2-year plan cycle may reapply to the program, but a project's position on a fundable, contingency, or planning list may change with each subsequent application. The Department may also de-obligate funding from projects that are not making adequate progress within the allotted 2-year plan cycle and reallocate funds to other projects.

It is important that any community who wishes to apply for this funding opportunity submit their application early in the project planning process. Early application and communication with the Department on each step are imperative to ensure the project meets all state and federal funding requirements.

How to complete a CWSRF application

1. The application form, instructions and guidance documents are available online at dnr.mo.gov/env/wpp/srf/srf-app_guid.htm. The Department encourages potential applicants to contact the Department for assistance with application submittal. You can reach the Department's Financial Assistance Center at 573-751-1192 or fac@dnr.mo.gov.
2. Applicants should submit the following with their application (along with documentation of any funding commitments from other state and/or federal agencies contributing funds to the project):
 - **A complete facility plan:** Submit a complete facility plan that meets all criteria listed in the Facilities Plan Submittal Checklist, found here: dnr.mo.gov/forms/780-2041-f.pdf. Prior to or concurrent with completion and submittal of a facility plan, the applicant should obtain a water quality/antidegradation review from the Department, if necessary. Submittal of an incomplete facility plan will delay progress and, ultimately, project funding.
 - **An acceptable debt instrument:** Submit documentation of an acceptable debt instrument. Acceptable debt instruments for CWSRF loans are typically revenue or general obligation bonds. The Department will consider other types of debt instruments on a case-by-case basis.

A borrower may submit an application without either a Facility Plan or debt instrument. Such projects do not meet the meet readiness-to-proceed criteria (those for which the applicant has submitted a complete facility plan and documentation of an acceptable debt instrument) and may be placed on either the Contingency or Planning List for a loan only commitment. The Department will work with these applicants to assist them in achieving readiness-to-proceed status.

Professional services

Engineering Services: State statute requires that all engineering reports/facility plans and plans and specifications be signed, sealed, and dated by a Missouri professional engineer. Applicants must procure engineering services in accordance with sections 8.285 through 8.291, RSMo.

Financial Advisor: The Department strongly encourages CWSRF applicants to retain the services of a registered municipal financial advisor. Municipal financial advisors are required to be registered with the Securities Exchange Commission. Additional information is available online at <https://www.sec.gov/info/smallbus/secg/muni-advisor-reg-secg.htm>.

If you have questions or need assistance with a CWSRF application, please contact the Department's Financial Assistance Center at 573-751-1192 or fac@dnr.mo.gov.

Additional subsidization

Additional subsidization in the form of a grant, in conjunction with a loan, may be available to eligible applicants. The following two grants are available in combination with CWSRF loans. Other grants are described on pages 6-8 of this IUP.

- **CWSRF Affordability Grants** for wastewater treatment facility construction are available, in coordination with loans, to small communities who would have difficulty financing wastewater infrastructure improvements without additional subsidization. The Department will obligate affordability grant funds to applicants on the Fundable List in the order established by the Priority Point Criteria (Appendix 5) with available additional subsidization. Grant eligibility is determined based on the procedure available at <https://dnr.mo.gov/env/wpp/srf/docs/cwsrf-grant-eligibility-procedure.pdf>.
- **CWSRF Water Quality Incentive Grants (WQI)** are available to municipalities receiving a CWSRF loan to incentivize activities that have significant benefits to water quality. Eligible applicants are those that submit an application by the March 1 deadline; meet readiness-to-proceed criteria; and include a qualifying project component. The Department will obligate WQI grant funds to offset loan funding to applicants on the Fundable List in the order established by the total points assigned from Priority Points Section I of the CWSRF Priority Point Criteria (Appendix 5) with available additional subsidization. Qualifying project components and the associated maximum WQI grant amounts are described in the table below.

The grant commitment is valid for two years, with grant funds awarded when the applicant enters into a loan agreement. Failure to make timely progress may result in bypass and the loss of the WQI grant commitment. Each applicant, whether it submits one application or multiple projects, is limited to one WQI grant per IUP cycle in order to equitably distribute grant funds to CWSRF applicants. Applicants with projects eligible for an Affordability Grant may receive that grant as well as a WQI grant for qualifying project costs that exceed \$4,000,000 and are financed with a CWSRF loan that is at least \$2,000,000.

Water Quality Incentive Grants	
Project component	Available grant funding
Cost for construction of flood mitigation infrastructure, such as holding basins, flood walls and redirection structures, used in conjunction with a flood control plan.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for wastewater treatment plant upgrades needed to comply with new permit limits or to meet the assumptions and requirements of Total Maximum Daily Load Wasteload Allocations for a particular pollutant.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of wastewater treatment plant improvements intended to provide renewable energy generation, such as methane recovery, that reduce plant operating cost.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for streambank stabilization in the watershed of a drinking water supply lake.	Up to \$500,000, not to exceed 50% of the total funding request
Cost for construction of measures to manage, reduce, treat, or recapture stormwater, or to construct green infrastructure in developed or urban areas to address nonpoint source pollution.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of wastewater treatment facility improvements intended to reuse or recycle wastewater, such as recharging basins, aquifer recharging, and conveyance to industrial facilities. Land application projects are excluded.	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for wastewater treatment improvements by a municipality serving citizens enrolled in a rate assistance program to facilitate a rate reduction or relief for affected low income residents, with the grant amount not to exceed the portion of the project serving enrolled citizens.	Up to \$2,000,000, not to exceed 50% of the total funding request
Cost for inflow and infiltration rehabilitation projects	Up to \$1,000,000, not to exceed 50% of the total funding request
Cost for construction of a sewer extension to serve customers in a district or city's service area that will eliminate a permitted, discharging wastewater treatment facility.	Up to \$500,000, not to exceed 50% of the project cost
Cost for construction to connect homes with failing or poorly functioning onsite wastewater systems to an existing central wastewater treatment system.	Up to \$500,000, not to exceed 50% of the project cost

Appendix 3: Clean Water State Revolving Fund Program Administration

The Department's Water Protection Program is the delegated authority for the administration of federal funds made available to the state under the provisions of the Clean Water Act by EPA. The funds are for financing a variety of eligible projects and are to be used in perpetuity for low-interest loans made from the Clean Water State Revolving Fund (CWSRF).

This IUP describes the proposed use of funds reserved for financial assistance for clean water infrastructure improvements during FFY2021 (Oct. 1, 2020, to Sept. 30, 2021). This IUP shall remain effective until Sept. 30, 2021, or until such time as the FFY2022 IUP becomes effective.

Cash flow model

Missouri uses the cash flow model for the CWSRF.

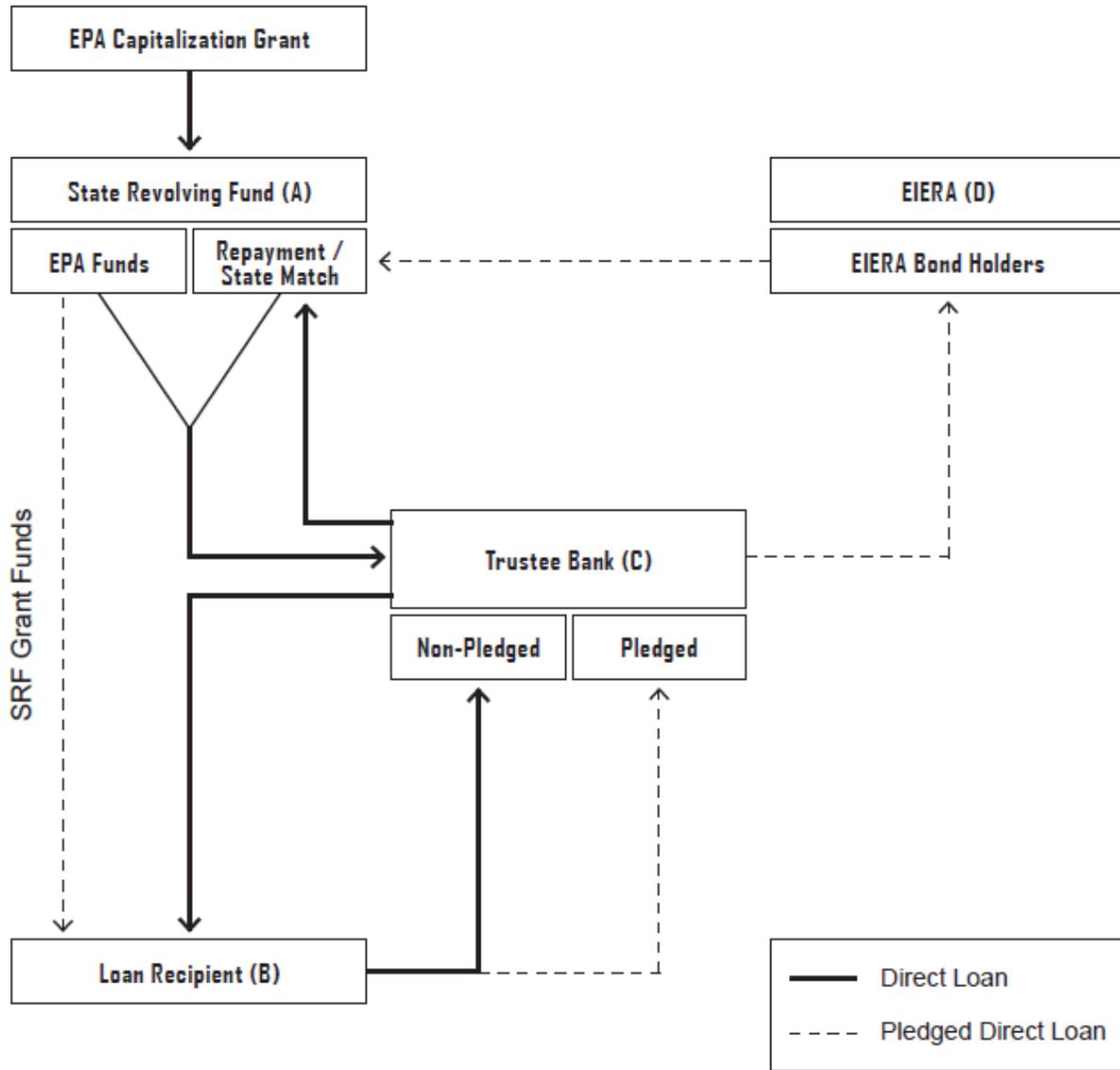
The cash flow model diagram on the following page illustrates the SRF flow of funds. Construction loan repayments must begin within one year after the first operational contract is substantially completed; that is, the facilities are placed into operation. The loan repayment schedules will generally consist of semi-annual interest payments and semi-annual or annual principal payments. The trustee bank holds the periodic participant repayments in separate recipient accounts outside the CWSRF. Interest earnings on these recipient accounts are credited to the communities' debt service account, which reduces the amount of interest to be paid by the communities.

The Department receives annual capitalization grants from EPA. There is a 20 percent state match required to receive the grants. The funds are deposited into the SRF (A) and used in accordance with applicable federal and state program requirements. State match funds are disbursed prior to using Capitalization Grant funds.

Under the cash flow model loan program, the Department purchases the debt obligations of the participants directly. As construction progresses, funds are released from the CWSRF to the recipient (B) through the trustee bank (C) so the construction costs can be paid. Recipients of a grant receive the grant funds directly from the CWSRF program. Upon completion of the project, the loan total is adjusted to reflect the final amount borrowed.

Loan recipients send their loan principal and interest payments to the trustee bank (C). When the CWSRF program needs to replenish the repayment fund, the EIARA (D) exercises its authority to sell bonds, and the direct loans are pledged to retire the EIARA debt. The proceeds of this sale are deposited into the CWSRF repayment account. The principal and interest payments on the EIARA bonds are secured through the pledge of the direct loan principal and interest payments from previous CWSRF program participants. Any surplus principal and interest that is not needed for the EIARA debt service is deposited into the repayment account.

CWSRF Cash Flow Model



Cross-collateralization of funds

The U.S. Department of Veterans Affairs, the U.S. Department of Housing and Urban Development, and the Independent Agencies Appropriations Act, 1999 (Public Law 105-276), authorized limited cross-collateralization between the Drinking Water SRF and the CWSRF. Cross-collateralization allows states to use CWSRF funds as security for bonds issued to finance Drinking Water SRF projects and vice versa. The cross-collateralization of the two funds may enhance the lending capacity of one or both SRFs. State statute 644.122, RSMo. provides the state's legal authority to implement cross-collateralization.

Transfer loan funds between Drinking Water State Revolving Fund and Clean Water State Revolving Fund

Section 302 of the Safe Drinking Water Act Amendments of 1996 authorized the transfer of funds between the Drinking Water State Revolving Fund (DWSRF) and the CWSRF. The rules governing the transfer of funds limit the dollar amount a state can transfer to no more than 33 percent of a DWSRF capitalization grant. As funding is available and as needs arise, the Department can transfer loan funds with the approval of the Missouri Safe Drinking Water Commission, the Missouri Clean Water Commission, and EPA. Transfers between the two funds may enhance the lending capacity of one or both state revolving funds. State statute 644.122, RSMo. provides Missouri's legal authority to implement this transfer of funds.

No transfers are planned for FFY2021.

Current and recent transfers

Fiscal Year	CWSRF	DWSRF
2013	\$ 10,000,000	(\$ 10,000,000)
2013*	\$ 18,500,000	(\$ 18,500,000)
2015	(\$ 5,000,000)	\$ 5,000,000
2016	(\$ 5,000,000)	\$ 5,000,000

*Federal capitalization grant portion

The Department, with prior approval from the Missouri Safe Drinking Water Commission, the Missouri Clean Water Commission, and EPA, as appropriate, reserves the right to make additional transfers in the future.

Repayment fund investment interest earnings to retire state debt

The debt service for the Water Pollution Control Bond series B2002 and A2005 were historically paid through the state's general revenue until the Department obtained an agreement with the EPA in 2007 to repay the series using the CWSRF investment interest earnings. The final payment for these series was made in FFY2019.

The debt service for the Water Pollution Control Bond series A2002 continues to be paid from the CWSRF investment interest earnings. The Department intends to use approximately \$1.1 million for this purpose during FFY2021.

Appendix 4: Environmental Protection Agency Requirements and Assurances

The Department receives a federal capitalization grant annually from the EPA, and is required to provide a 20 percent state match. This appendix contains program commitments to assure the Department manages the CWSRF program in compliance with the capitalization grant agreement.

Additional subsidization

The Clean Water Act allows the state to use SRF funds to provide additional subsidization for eligible projects in the form of grants, principal forgiveness or negative interest loans. The FFY2020 capitalization grant mandates that states use at least 10 percent for additional subsidization, and may use up to 30 percent based on a formula related to the national allocation of funding. The Department is reserving the 10 percent plus an additional \$2,000,000 of the optional amount for these purposes.

The table below shows the amount of the funding currently available for FFY2021 by capitalization grant year.

Capitalization Grant Year	Amount
Federal Fiscal Year 2016 Supplemental	\$119,926
Federal Fiscal Year 2017 Required Amount	\$3,675,400
Federal Fiscal Year 2017 Supplemental	Up to \$2,000,000
Federal Fiscal Year 2018 Required Amount	\$4,449,500
Federal Fiscal Year 2018 Supplemental	Up to \$2,000,000
Federal Fiscal Year 2019 Required Amount	\$4,404,700
Federal Fiscal Year 2019 Supplemental	Up to \$2,000,000
Federal Fiscal Year 2020 Required Amount	\$4,405,300
Federal Fiscal Year 2020 Supplemental	Up to \$4,450,560

The Estimated Sources and Uses of Funds table and Fundable Project Lists in Appendix 1 provide detailed information on projects that may be eligible for this funding.

Green Project Reserve

Federal law requires that the Department make a “good faith effort” to use a percentage of the annual CWSRF capitalization grant for projects that address green infrastructure, water or energy efficiency improvements, or other environmentally-innovative activities. A summary of the required amounts from each capitalization grant appears below.

Federal Fiscal Year	Required Amount
2010	\$ 11,296,600
2011	\$ 8,187,200
2012	\$ 3,917,900
2013	\$ 3,700,900
2014	\$ 3,886,800
2015	\$ 3,866,900
2016	\$ 3,703,900
2017	\$ 3,675,400
2018	\$ 4,449,500
2019	\$ 4,404,700
2020	\$ 4,405,300

The Department has met or exceeded the requirements from green project reserves for FFY's 2010 through 2018.

A table of the Green Project Reserve eligible FFY2021 IUP projects appears below.

Applicant	Project #	Category	Amount
MSD - MSD Public I/I Reduction Program - Phase 6	C295023-41	EE	\$ 41,200,000
MSD - MSD Public I/I Reduction Program - Phase 5	C295023-40	EE	\$ 41,200,000
Springfield	C295859-01	EE	\$18,375,500
EE Energy Efficiency			

Department staff work directly with applicants prior to funding to identify projects or components of projects that address green infrastructure, water or energy efficiency improvements, or other environmentally-innovative activities. The amount of Green Project Reserve-eligible projects may change as applications are received and projects proceed into the design phase.

Additional information regarding Green Project Reserve is available at epa.gov/cwsrf/green-project-reserve-guidance-clean-water-state-revolving-fund-cwsrf.

Administrative costs

The Department intends to use an amount from the FFY2020 federal capitalization grant equal to 1/5 of one percent of the current valuation of the fund for program administration.

Public review and comment

Federal law requires SRF programs to prepare an annual IUP, including Project Priority List and Priority Point Criteria. The IUP describes how the Department intends to use the CWSRF funds to support the overall goals of the CWSRF program. The Department must place the draft IUP on public notice to allow for public review and comment. The Department holds a public hearing during the public comment period to allow interested parties to hear testimony from the Department on the draft plan, and provide the public an opportunity to comment. The Department considers all written and verbal comments presented during the comment period, makes appropriate modifications, and provides a response to all comments. Any applicant aggrieved by his/her standing may appeal to the Clean Water Commission during the public comment process.

Environmental review

Federal law requires SRF programs to subject projects receiving CWSRF funding to undergo a state environmental review process that conforms generally to the National Environmental Policy. The Department's environmental review process, described within regulation 10 CSR 20-4.050, fulfills this requirement. The Department will determine whether an environmental impact statement is necessary during review of the project's engineering report. Most projects are determined to have no significant impact or can meet a categorical exclusion. The Department will accept environmental determinations completed by other state and federal agencies on a case-by-case basis.

Federal project requirements

A number of federal laws and executive orders apply to projects receiving federal financial assistance through the SRF program. Federal requirements that may apply to CWSRF participants include the Davis Bacon Act, American Iron and Steel or AIS, Disadvantaged Business Enterprise, Environmental Review, Cost and Effectiveness, Public Awareness, Fiscal Sustainability Plans, Single Audit, various environmental statutes, the Uniform Relocation and Real Property Acquisition Policies Act, Debarment and Suspension Executive Order 12549, restrictions on lobbying, and others. A complete listing of requirements that apply to SRF projects is available upon request from the Financial Assistance Center.

Binding commitments

The Department intends to enter into binding commitments for a minimum of 120 percent of each EPA grant payment into the CWSRF within 1 year of the receipt of each payment, as required by federal law.

Expenditure of funds

The Department intends to expend all funds in the CWSRF in an expeditious and timely manner, as required by federal law.

Anticipated cash draw ratio (proportionality)

Missouri uses the cash flow model of the CWSRF. The federal capitalization grant is not used as security on the state match bonds. State match funds are disbursed prior to using capitalization grant funds.

For more information

For more information, contact the Department's Financial Assistance Center at 573-751-1192, fac@dnr.mo.gov, or dnr.mo.gov/env/wpp/srf/.

Appendix 5: Clean Water State Revolving Fund Priority Points Criteria

General Information

Clean Water State Revolving Fund (CWSRF) Priority Points Criteria are established to evaluate proposed CWSRF projects for FFY2022. The Priority Points Criteria forms the basis for project ranking and funding allocation.

The Department annually prepares a CWSRF IUP that includes projects expected to qualify for financing within the fiscal year addressed by the plan. Projects are listed so that those addressing the most serious problems are given the highest priority. Each project's priority score is generated from assignment of points based on the Priority Points Criteria. Projects are then ranked in priority order in each funding category. Only those proposed projects identified within the plan's project lists are eligible to receive financial assistance.

The Department will seek public comments annually on the proposed Priority Point Criteria. The Priority Point Criteria will then be approved by the Missouri Clean Water Commission at least 60 days before the annual application deadline.

Assignment of Priority Points

The Department ranks eligible projects for funding based on the protection of water quality and human health. Proposed projects receive points based on how they address pollution abatement, treatment, regionalization or consolidation, nonpoint source pollution reduction, and more.

Projects are ranked by the total number of points received. In the event of a tie, the projects receiving the highest number of points under Disadvantaged Community (section III.B.) will receive the higher ranking. If the projects are still tied, the applicant with the lowest Median Household Income according to the decennial census will receive the higher ranking.

Priority point assignment and listing in the IUP does not guarantee all SRF financial and project eligibility requirements have been met.

I. Priority Points

The Department will calculate cumulative priority points for each potential project based on the following six sections. Sections 4, 5, and 6 apply only to proposed nonpoint source projects. Proposed nonpoint source projects must be consistent with the current *Missouri Nonpoint Source Management Plan* available at dnr.mo.gov/env/swcp/nps/mgmtplan/docs/missouri-nonpoint-source-management-plan-042215-final.pdf.

1. Water Quality

Points will be assigned if the proposed project will maintain, improve, protect, or enhance the overall water quality within the watershed. For the purpose of assigning points under factors A and B below, the receiving water is considered the immediate water course into which the discharge flows. However, in those cases where the immediate receiving water is not classified in Water Quality Standards, 10 CSR 20-7.031, a downstream classified water body

will be considered to be the receiving water if the publicly-owned treatment works (POTW) discharge or nonpoint source area is within two miles of the classified waters found in the Missouri Use Designation Dataset, including 100K Extent-Remaining Lakes and 100K Extent Remaining Streams.

A. Beneficial Uses. Beneficial uses, identified in rule 10 CSR 20-7.031, of the water body receiving discharge from existing POTWs or nonpoint source areas will be improved or point source discharges eliminated by the proposed project. The beneficial use points are calculated by adding the total value from each beneficial use under this part. If the project affects multiple permitted facilities that discharge to different water bodies, the highest beneficial use point total from one of the multiple water bodies will be used.

1. Fifteen points will be assigned for the beneficial use of whole body contact recreation.
2. Fifteen points will be assigned for the beneficial use of drinking water supply.
3. Fifteen points will be assigned for the beneficial use of protection of warm water habitat/human health protection.
4. Ten points will be assigned for the beneficial use of cool water habitat.
5. Ten points will be assigned for the beneficial use identified of cold water habitat.
6. Ten points will be assigned for the beneficial use of protection of secondary contact recreation.
7. Five points will be assigned for each beneficial use identified in rule 10 CSR 20-7.031 and not identified in numbers 1-6 above.

B. Sensitive Waters. Proposed projects that will improve or eliminate existing POTWs or nonpoint source areas that directly discharge to certain sensitive waters identified in rule will be assigned additional priority points.

1. Fifteen points will be assigned for a losing stream as designated by the Missouri Geological Survey, see 10 CSR 20-7.031(1)O.
2. Fifteen points will be assigned for Outstanding National Resource Waters, see 10 CSR 20-7.031(Table D).
3. Fifteen points will be assigned for Outstanding State Resource Water, see 10 CSR 20-7.031(Table E).
4. Ten points will be assigned for lakes, see 10 CSR 20-7.031 (Table G) or for metropolitan no-discharge streams, see 10 CSR 20-7.031(Table F).

C. Targeted Water Bodies. A targeted water body is one in which a Total Maximum Daily Load (TMDL) has been promulgated or is listed on the most recent 303(d) list. The value is limited to a maximum of 15 points total.

1. Fifteen points will be awarded where a TMDL has been promulgated for the receiving water body and the proposed project addresses an identified problem.

2. Ten points will be awarded if the receiving water body is listed on the most recent 303(d) list and the proposed project addresses an identified problem.

D. Targeted Watersheds. A targeted watershed contains at least one point source that has the reasonable potential to cause or contribute to an excursion of the Lake Numeric Nutrient Criteria, and at least one point source with nutrient permit limits or subject to an Environmental Protection Agency-approved TMDL. The value is limited to a maximum of fifteen points total.

1. Fifteen points will be awarded if the watershed drains to a lake where numeric nutrient criteria are applicable and the proposed project results in nutrient reduction.
2. Ten points will be awarded where a TMDL has been approved for the watershed and the proposed project is expected to contribute to the pollutant reduction goals specified in the TMDL.

E. Regionalization or Consolidation. Projects that involve several independent entities forming a partnership to share the responsibilities of providing wastewater treatment may be referred to as regionalization or consolidation projects.

1. Twenty-five points will be assigned if the entity owning the facility being eliminated would be deemed grant eligible by the methodology prescribed by the CWSRF grant eligibility evaluation based on affordability.
2. Fifteen points will be assigned if the proposed project serves more than one community.
3. Ten points will be assigned for each facility being eliminated that has a history of significant noncompliance.
4. Five points will be assigned for each permitted wastewater treatment facility that will be eliminated by the proposed project.

2. Publicly Owned Treatment Works.

Points will be awarded if the proposed project is a POTW project that will address potential or existing water pollution problem(s).

A. Combined/Sanitary Sewer Overflows. Fifteen points will be assigned if the proposed project will eliminate or adequately treat combined or sanitary sewer overflows (CSOs/SSOs). Supporting documentation must be provided with the application for CSOs/SSOs points to be awarded. Supporting documentation may include copies of SSO Database records, city clean up records, or other supporting documentation.

B. Wastewater Treatment Enhancement. The value is derived from selecting the most appropriate description and associated value.

1. Twenty points will be assigned if the proposed project is for the conversion of a discharging wastewater treatment facility to a no-discharge wastewater treatment facility.

2. Fifteen points will be assigned if the proposed project is for the construction of a new wastewater treatment facility, an increase in capacity, or an increase in the level of treatment at an existing wastewater treatment facility.
3. Ten points will be assigned if the project is for the rehabilitation or process improvement of an existing wastewater treatment facility.

C. Failing Onsite Wastewater Disposal System.

1. Ten points will be assigned if the proposed project is primarily to address a documented surface water quality or public health problem attributable to an onsite wastewater disposal systems that has failed, is failing, or is not properly operating. Documentation must be provided by any local, county, or state health or environmental professional.
2. Five points will be assigned if the proposed project is primarily to address an incidental water quality or public health problem attributable to failing or failed onsite wastewater disposal systems.

D. Collection System Enhancement.

1. Fifteen points will be assigned if the proposed project is for collection system rehabilitation to reduce or eliminate inflow or infiltration.
2. Ten points will be assigned if the proposed project is for a new collection system, or the expansion of or an upgrade to an existing collection system.

E. Water Recycling. Twenty points will be assigned if the proposed project is for reusing or recycling wastewater, stormwater, or subsurface drainage water. This includes projects for the reclamation of wastewater effluent to augment a water supply or to provide an industrial water supply.

3. Sustainability.

A. Adequate User Charge. Fifteen points will be assigned if the applicant has maintained an adequate user charge schedule, that fully address all the utility's operational costs, for the existing system's operation and maintenance for the past five years.

B. Disadvantaged Community. Fifteen points will be assigned if the applicant has a population of 3,300 or less based on the most recent decennial census; the median household income is at or below 75 percent of the state average median household income using the latest decennial data as determined by the American Community Survey as conducted by the U.S. Census Bureau or by an income survey overseen by a state or federal agency; and has an average wastewater user charge for 5,000 gallons that is at least 2 percent of the median household income of the applicant.

C. Green Infrastructure. Fifteen points will be assigned if the proposed project incorporates green infrastructure components. Green infrastructure refers to the management of stormwater runoff at the local level through the use of natural systems, or engineered systems that mimic natural systems, to treat polluted runoff.

- D. Inflow and Infiltration Reduction.** Ten points will be assigned if the applicant has maintained an inflow and infiltration reduction program for the past five years.
- E. Conservation.** Ten points will be assigned if the applicant’s proposed project will address the findings of an energy assessment and/or audit of the wastewater utility. These points may also be awarded if the proposed project will address water efficiency and reuse efforts to not only conserve raw water but also reduce the flow (excluding inflow and infiltration) of wastewater to treatment plants.
- F. Board Training.** Ten points will be assigned if the applicant’s governing board has received training related to the management and operation of wastewater infrastructure. Supporting documentation must be provided with the application for board training points to be awarded.
- G. Median Household Income.** Five points will be assigned if the applicant has a median household income at or below 75 percent of the state average median household income using the latest decennial data as determined by the American Community Survey as conducted by the U.S. Census Bureau or by an income survey overseen by a state or federal agency.
- H. Master Water Plan.** Five points will be assigned if the applicant’s project is specifically identified in a master wastewater plan, capital improvement plan or an integrated plan.

4. Untreated/Uncontrolled Runoff

Stormwater runoff from agricultural, suburban, and urban areas such as farms, homes, buildings, roads, or parking lots resulting in flooding of local streams, erosion of stream banks, or increased pollutant transport.

- A. Stormwater Treatment/Management Facility.** Ten points will be assigned if the proposed project is for a structural device designed to receive stormwater runoff, and detain it for a period of time in order to reduce pollutant transport and stream erosion.
- B. Landfills.** Ten points will be assigned if the proposed project is to address water quality issues at a landfill. A landfill is any site where the disposal of non-hazardous wastes and/or sludge occurs or has occurred by placing them in or on the land, compacting, and covering with a layer of soil. Project components may include a capping system, leachate collection system, side slope seepage prevention and control system, or monitoring wells that are needed to prevent water quality degradation.
- C. Best Management Practice (BMP).** Five points will be assigned if the proposed project entails BMP conservation measures that protect water quality and make land areas more productive.

5. Groundwater Pollution.

Projects that prevent contamination of groundwater resources.

- A. Groundwater Uses.** The beneficial uses of the groundwater area being impacted by nonpoint source pollution.

1. Fifteen points will be assigned if the groundwater is a drinking water supply source; or
2. Five points will be assigned if the groundwater is used for industrial purposes, irrigation, and/or livestock/wildlife watering.

B. Failing Onsite Wastewater Disposal System. A failing onsite wastewater treatment system is not treating and dispersing sewage in a safe, sanitary manner.

1. Ten points will be assigned if the proposed project primarily addresses a documented groundwater impact or public health problem attributable to failing or failed onsite wastewater disposal systems. Documentation may be provided by any local, county, or state health or environmental professional.
2. Five points will be assigned if proposed project is primarily to address an incidental groundwater impact or public health problem attributable to failing or failed onsite wastewater disposal systems.

C. Leaking Petroleum Storage Tank. Five points will be assigned if the proposed project addresses groundwater problems caused by leaking petroleum storage tanks.

D. Hazardous Waste Site. Ten points will be assigned if the proposed project addresses groundwater problems caused by a hazardous waste site that is participating in the Department's Voluntary Cleanup Program.

E. Inadequate Landfill Leachate Collection/Treatment. Ten points will be assigned if the proposed project addresses groundwater problems caused by inadequate landfill leachate collection and treatment.

6. Aquatic/Riparian Habitat.

Aquatic/riparian habitat is a vegetated or potentially vegetated ecosystem along a water body through which energy, materials, and water pass thereby providing nutrient recycling and biological diversity. Ten points will be assigned if the primary purpose of the proposed project is to restore aquatic/riparian habitat and/or to prevent aquatic/riparian habitat degradation.

II. Special Priority Points.

The Clean Water Commission (Commission) may assign special priority and override the priority points assigned to a project above and place that project on the planning, fundable, or contingency priority lists in a position decided by the Commission. In order to award special priority, the Commission must determine that unique or unusual needs exist which do not logically fit into the rating system described above. In addition, the Commission may award special priority for projects impacting enterprise zones as authorized under state law.

III. Phased/Segmented Projects.

Projects that are phased or segmented due to limited program funding or project complexity may receive an additional 50 points. Points may be awarded to an applicant for each in a succession of phases. However, such projects should occur directly after each subsequent phase or segment

of the project was completed to be eligible for points. If the project is being phased at the request of the Department due to lack of available funds or due to the applicant exceeding the Department's deadline for reaching a binding commitment, the review for eligibility of points will include an evaluation of the reason for sequencing. If the project is being phased at the request of the applicant, the review for the eligibility of points will include a review of the applicant's master plan or capital improvement plan. The plan should be submitted with the application for the first phase, and must include how subsequent phases will be implemented.

IV. Definitions.

1. Increase capacity.

Increasing the treatment capacity for existing treatment plants, biosolids handling facilities, decentralized treatments systems, and nonpoint source project BMPs with respect to flow or pounds.

2. Increase level of treatment.

Improving the degree of treatment. This refers to any improvement in unit processes or BMPs that improve the effluent quality or decrease the concentration of most water quality variables from runoff or other nonpoint sources. The addition of nutrient removal is considered an improvement in effluent quality.

3. Rehabilitation.

Restoring, replacing, adding, or repairing parts to existing treatment plants, combined or separate sewer systems, biosolids handling facilities, individual on-site systems, and nonpoint source project BMPs with no increase in capacity or level of treatment.

4. Replacement.

An existing facility is considered obsolete and is demolished, and a new facility is constructed on the same site.

5. Process improvement.

Any improvement to a facility that does not increase the capacity, increase the level of treatment, expand the service area, or make a similar change to existing treatment plants, biosolids handling facilities, decentralized treatment systems, and nonpoint source project BMPs.

Appendix 6: Clean Water State Revolving Fund Engineering Report Grants

Applications are accepted throughout the year. The application form and instructions are available online at dnr.mo.gov/forms/780-1951-f.pdf.

Purpose

The purpose of this funding is to assist small communities with engineering costs to plan for wastewater treatment and collection systems improvements related to new permit requirements, inflow and infiltration, and/or improvements to eliminate wet weather discharges from a peak flow clarifier and/or basins. Funding comes from the CWSRF capitalization grant's additional subsidization allocation.

Eligible applicants

The grant is available for municipalities, counties, public sewer or water districts, political subdivisions or instrumentalities of the state that operate a permitted wastewater treatment facility serving a population of less than 10,000.

In order to be eligible, the applicant must: 1) complete and submit an application; 2) have no outstanding fees due to the Department; 3) not already have an engineering report for the same issues; and 4) agree to make a good faith effort to pursue recommendations contained in the approved engineering report.

Selection Process

Applications are prioritized based on a first come first serve basis as well as on the project's environmental impact.

Description

Eligible systems may receive an 80 percent grant with a 20 percent recipient match, not to exceed a maximum grant amount of \$50,000.

Eligible systems that meet the definition of a disadvantaged community may receive up to 100 percent of the costs for engineering report services, not to exceed a maximum grant amount of \$50,000. The Department defines a disadvantaged community as one that has a population of 3,300 or less, whose median household income is at or below 75 percent of the state average, and whose user rates are at or above 2 percent of the median household income.

Grant Timeframe

It is important that any community who wishes to apply for this funding opportunity submit their application early in the project planning process. Early application and communication with the Department on each step are imperative to ensure the project meets all state and federal funding requirements. Engineering report projects that the applicant has already started are not eligible for funding through this program.

Once the grant is awarded, the recipient has eighteen months for the engineering report to be completed and approved by the Department. The Department will hold the final ten percent of the reimbursement costs until the report has been approved by the Department. The complete engineering report must be submitted to the Department for review and approval no later than sixty days prior to the end of the budget period of the award. This ensures adequate time is allowed for a response to comments. No payments may be made to the recipient after the budget period has expired without an amendment to the grant.

Funding provided under this program shall only be used as reimbursement of expenses for services provided during the project's budget period. Therefore, recipients should **wait for notice from Financial Assistance Center to initiate work under this grant** in order to ensure all costs incurred are reimbursable.

Cost Eligibility

Eligible costs are those that are directly incurred in the development of the facility plan. This includes the cost of engineering services, environmental investigations, and other services incurred in preparation of the engineering report. Eligible costs:

- May include other items deemed reasonable, necessary, and allocable to the project, such as an Antidegradation Review, Inflow and Infiltration Study, Pretreatment Program, and/or Soils Report, as a part of the facility plan, if required.
- Must be reasonable and cost effective for facility plans, which make recommendations that will meet the Missouri Clean Water Law requirements.
- Must be within the Department-approved scope of the project.

Ineligible costs include, but are not limited to:

- A facility plan or engineering services completed prior to the award.
- Preparation of the engineering report grant application.
- Ordinary operating expenses of the recipient including salaries and expenses of elected and appointed officials, preparation of routine financial reports and studies, and the state operating permit fees or other such permit fees necessary for the normal operation of the constructed facility.
- Preparation of applications and permits required by federal, state, or local regulations or procedures.
- Preparation of applications for future funding for work following the engineering report.
- Administrative, engineering, and legal activities associated with the establishment of special Departments, agencies, commissions, regions, districts, or other units of government.
- Fines and penalties due to violations of, or failure to comply with, federal, state, or local laws, regulations or procedures.
- Force account labor including engineering.
- Costs outside the scope of the Department-approved project.

This page is left intentionally blank.

This page is left intentionally blank.



Water Protection Program - Financial Assistance Center

P.O. Box 176 • Jefferson City, MO 65102-0176

573-751-1192 • fac@dnr.mo.gov • dnr.mo.gov

August 27, 2020

VIA EMAIL: fac@dnr.mo.gov

Missouri Department of Natural Resources
Water Protection Program, Financial Assistance Center
ATTN: Sharon Davenport
P.O. Box 175
Jefferson City, MO 65102-0176

RE: Intended Use Plan Comments

Dear Ms. Davenport:

The Missouri Public Utility Alliance (MPUA) appreciates the opportunity to comment on the proposed Clean Water State Revolving Fund (CWSRF) Intended Use Plan (IUP) for fiscal year 2021. Notably, MPUA thanks the Department of Natural Resources (Department) and the Missouri Clean Water Commission for making grant funds available to a broader range of Missouri communities that will incentivize water quality projects that may otherwise have remained unfunded or deferred well into the future. While these comments request some modifications to the IUP, this does not temper MPUA's appreciation of the work that has gone into the grant proposals presented in the IUP. Our comments follow:

- 1) **Additional Subsidization** (pages 6-8, 14, 22-23, 27) – MPUA appreciates the Department's willingness to broaden the eligibility categories for grant funding and supports the Department's decision to allocate specific amounts to each grant type (page 14). MPUA supports the Department's categories for the five proposed grant types: affordability, water quality incentives, regionalization incentive, technical assistance, and engineering reports. However, there are identified needs that will go unmet without further modifications.
 - a) Affordability – there are cities serving populations between 10,000 and 20,000 that need to complete major upgrades to their wastewater systems. Some of these cities are already pushing up against the affordability thresholds established by the Department but are ineligible to receive grant funds simply because of the size of population served rather than economic impact considerations.

MPUA requests that the affordability eligibility be increased to municipal systems serving up to 20,000 population. The Department and Commission can utilize the existing

opportunity to reserve and allocate up to an additional \$11 million of grant funds from the 2020 capitalization grant to ensure other eligible applicants receive grant funds.

- b) Water Quality Incentives – MPUA understands there are opportunities for wastewater recycling or reuse beyond agricultural land application. These projects can reduce the demand on municipal water systems by serving industrial water demand or urban irrigation with treated wastewater. Wastewater reuse projects can improve water quality and reduce water demand in portions of the state that are more susceptible to drought impacts. While MPUA understands that it is unlikely such a project would move forward in 2021, it is important for the Department and Commission to show support for such projects so that cities are willing to invest in planning costs.

MPUA requests that such wastewater recycling or reuse projects be eligible for a water quality incentive grant up to \$1 million, not to exceed 50% of the eligible costs.

- c) Funding Allocation – The President and Congress continue to prioritize infrastructure investments by providing significant capitalization grant funding for the CWSRF program and by authorizing states to award up to 40% as additional subsidization. MPUA encourages the Department and the Commission to use the flexibility authorized by Congress to provide higher amounts of grant funds.

MPUA requests that the optional grant funding for the 2020 capitalization grant be increased from \$2 million to \$7 million so that grant monies are available for the purposes in (a) and (b) above.

- d) Engineering Grants – In order to simplify the administration of the grants for both small cities and Department staff, MPUA requests that the Department examine the CWSRF environmental review and federal requirements to determine which will not apply to engineering grants recipients. MPUA believes that the environmental review process and most of the federal project requirements listed on Page 29 can be deemed not applicable to the engineering grants.

To ease the administrative burden on engineering grant recipients, MPUA requests that the Department make its policy such that this type of financial assistance will not be used to meet the Departments equivalency project requirements. Such flexibility is allowed pursuant to 10 CSR 20-4.040(7)(C) and federal regulations.

- e) Integrated Planning Grant – The proposed IUP does not include an integrated planning grant category. Additional subsidization to assist communities with the cost to develop an integrated plan was discussed and endorsed by stakeholders during the January and February stakeholder meetings. Integrated plans are federally recognized long-term plans that allow for the prioritization of wastewater and stormwater infrastructure upgrades based on community specific needs and affordability constraints. The development of integrated plans can lead to additional CWSRF-funded projects and improved water quality.

MPUA understands that it is the intent of the Department to develop an Integrated Planning Grant program over the course of the next year to be included in the federal fiscal year 2022 IUP. MPUA supports the continued development of an integrated planning grant program and looks forward to working with the Department during its development and implementation.

- 2) **Priority Points** (pages 5, 7, 31-37) – MPUA requests that only the priority points under category I & II be used to prioritize additional subsidization for water quality incentive grants. Category III is for phased/segmented projects and adds a sizable amount of priority points (50) to an applicant’s score as compared to the individual water quality scoring which typically range from 5 to 15 points. The purpose for Category III is to help ensure that large projects that are given loan funding in phases will be highly likely to get additional loan funding for future phases to complete large projects. MPUA supports the 50 priority points for loan funding but recommends the phased category add no points for additional subsidization. MPUA does not believe this change will prevent any eligible applicant in the 2021 IUP from receiving grant funds but may be a deciding factor in future years.
- 3) **Application Requirements & Periods** (pages 6-9, 12, 21, 38) – MPUA recommends the Department include text in applicable locations in the IUP that clarifies the various application periods that are contemplated for the different types of assistance. While specific information for each type of assistance can be found in the document, applicants unfamiliar with the CWSRF program are less likely to be able to locate the required information. Based on our review, MPUA understands the application deadlines and processes to be as follows:
 - a) Loan applications (includes affordability and water quality incentive grants) – due March 1 annually for competitive scoring; the Department does accept applications year-round and will process earlier if funds are available (page 9);
 - b) Engineering grants – applications are to be accepted year-round on a first come, first serve basis (page 38);
 - c) Regionalization incentive grants – application period is October 1 to December 31 (page 6); and
 - d) Technical assistance grants – request for proposal process to be administered after the adoption of the IUP in October 2020 (page 8).

MPUA requests that a summary of the various deadlines be included on pages 9 and 21 of the IUP.

- 4) **Support** – MPUA thanks the Department staff for the stakeholder’s meetings held over the past twelve months to establish the regionalization incentive and water quality incentive grant programs.

MPUA supports the Department's proposed funding allocations to the following communities:

- Lockwood - \$1,069,655 loan with a \$1,069,655 affordability grant;
- Perryville - \$25 million loan with a \$1 million water quality incentive grant; and
- Centralia - \$4,320,540 loan with a \$1 million water quality incentive grant.

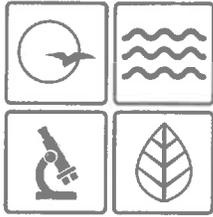
Thank you for your consideration of these comments. If you have questions regarding these comments, please contact me at 573-445-3279 or ecrawford@mpua.org.

Sincerely,



Eric Crawford,
Director – Financial Services and Project Development

cc: Lacey Hirschvogel, MPUA



September 14, 2020

Eric Crawford
Director
Financial Service and Project Development
Missouri Public Utility Alliance
808 I-70 Drive SW
Columbia, MO 65203

RE: Missouri Public Utility Alliance (MPUA) – Clean Water State Revolving Fund
Intended Use Plan Comments, Response to Comments

Dear Eric Crawford:

Thank you for your letter dated August 27, 2020, to the Missouri Department of Natural Resources providing comments on the Clean Water State Revolving Fund (CWSRF) Intended Use Plan (IUP) placed on public notice. Please find specific responses to your comments below.

Comment 1: Additional Subsidization (pages 6-8, 14, 22-23, 27) – MPUA appreciates the Department’s willingness to broaden the eligibility categories for grant funding and supports the Department’s decision to allocate specific amounts to each grant type (page 14). MPUA supports the Department’s categories for the five proposed grant types: affordability, water quality incentives, regionalization incentive, technical assistance, and engineering reports. However, there are identified needs that will go unmet without further modifications.

- a) Affordability – there are cities serving populations between 10,000 and 20,000 that need to complete major upgrades to their wastewater systems. Some of these cities are already pushing up against the affordability thresholds established by the Department but are ineligible to receive grant funds simply because of the size of population served rather than economic impact considerations.

MPUA requests that the affordability eligibility be increased to municipal systems serving up to 20,000 population. The Department and Commission can utilize the existing opportunity to reserve and allocate up to an additional \$11 million of grant funds from the 2020 capitalization grant to ensure other eligible applicants receive grant funds.

- b) Water Quality Incentives – MPUA understands there are opportunities for wastewater recycling or reuse beyond agricultural land application. These projects can reduce the demand on municipal water systems by serving industrial water demand or urban irrigation with treated wastewater. Wastewater reuse projects can improve water quality and reduce water demand in portions of the state that are more susceptible to drought impacts. While MPUA understands that it is unlikely such a project would move forward in 2021, it is



important for the Department and Commission to show support for such projects so that cities are willing to invest in planning costs. MPPUA requests that such wastewater recycling or reuse projects be eligible for a water quality incentive grant up to \$1 million, not to exceed 50 percent of the eligible costs.

- c) Funding Allocation – The President and Congress continue to prioritize infrastructure investments by providing significant capitalization grant funding for the CWSRF program and by authorizing states to award up to 40 percent as additional subsidization. MPPUA encourages the Department and the Commission to use the flexibility authorized by Congress to provide higher amounts of grant funds.

MPPUA requests that the optional grant funding for the 2020 capitalization grant be increased from \$2 million to \$7 million so that grant monies are available for the purposes in (a) and (b) above.

- d) Engineering Grants – In order to simplify the administration of the grants for both small cities and Department staff, MPPUA requests that the Department examine the CWSRF environmental review and federal requirements to determine which will not apply to engineering grants recipients. MPPUA believes that the environmental review process and most of the federal project requirements listed on Page 29 can be deemed not applicable to the engineering grants.

To ease the administrative burden on engineering grant recipients, MPPUA requests that the Department make its policy such that this type of financial assistance will not be used to meet the Department's equivalency project requirements. Such flexibility is allowed pursuant to 10 CSR 20-4.040(7)(C) and federal regulations.

- e) Integrated Planning Grant – The proposed IUP does not include an integrated planning grant category. Additional subsidization to assist communities with the cost to develop an integrated plan was discussed and endorsed by stakeholders during the January and February stakeholder meetings. Integrated plans are federally recognized long-term plans that allow for the prioritization of wastewater and stormwater infrastructure upgrades based on community specific needs and affordability constraints. The development of integrated plans can lead to additional CWSRF-funded projects and improved water quality.

MPPUA understands that it is the intent of the Department to develop an Integrated Planning Grant program over the course of the next year to be included in the federal fiscal year 2022 IUP. MPPUA supports the continued development of an integrated planning grant program and looks forward to working with the Department during its development and implementation.

Response:

- a) Affordability grants – The Department agrees that the possibility of changing the eligibility to encompass communities up to population 20,000 deserves further consideration. As you know, we hosted stakeholder workgroup meetings in January and February 2020 to explore

additional subsidization offerings through the CWSRF. We surveyed municipal stakeholders between those meetings regarding an increase to the affordability population limit. Of the 136 survey respondents, 51 supported increasing the limit to 20,000, 46 did not support increasing the limit to 20,000 and 39 answered “I don’t know”. We consider these survey results inconclusive, and additional feedback and analysis will be necessary to inform any future eligibility change

The CWSRF IUP sets the affordability grant allocation each year, while the parameters of affordability grant eligibility, including population size, are established within the “Guidance for CWSRF Grant Eligibility Based on Affordability.” Changes to grant eligibility must be made through a revision of the guidance and are subject to stakeholder input. We expect to begin stakeholder discussions on a possible change to the guidance in December 2020 or January 2021.

- b) Water quality incentives – The Department agrees that water reuse is an important water quality activity, and has added the following project type to the Water Quality Incentive Grant list, “Cost for construction of wastewater treatment facility improvements intended to reuse or recycle wastewater, such as recharging basins, aquifer recharging, and conveyance to industrial facilities. Land application projects are excluded.” This activity will be eligible for up to \$1,000,000, not to exceed 50 percent of the funding request.
- c) Funding allocation - The additional subsidization allocated by the Department in the Fiscal Year (FY) 2021 draft was \$17,935,840 (page 11) from capitalization grants from Federal Fiscal (FF) 2016, 2017, 2018, and 2019. This represents a backlog of unmet additional subsidization minimum requirements from three fiscal years prior to the current year. After changes to the Loan and Grant Commitments to accommodate affordability grants to projects moving from the planning list to fundable list between the draft and final proposed IUP, the amount of additional subsidization allocated in this IUP is \$20,891,575.

Rather than allocating grant funds speculatively, which will contribute to our federal grant backlog, we intend to carefully allocate additional subsidization each year. This allocation will be based on needs demonstrated by applications for fundable projects eligible for Affordability and Water Quality Incentive grants, along with a reasonable reserve for other types of grants that support program goals. These include engineering report grants and regionalization grants

- d) Engineering grants – Regardless of equivalency status, the Department would have no basis in federal law or regulation to require Environmental Reviews or other costly federal requirements, such as American Iron & Steel and Davis Bacon Act, for a grant

program that provides funding for engineering report preparation. Environmental reviews will not be required for or be an eligible expense through Clean Water Engineering Report grants.

- e) Integrated Planning Grant – The Department does plan to allocate funds for Integrated Management Plans in the FY2022 CWSRF IUP.

Comment 2: Priority Points (pages 5, 7, 31-37) – MPUA requests that only the priority points under Category I and II be used to prioritize additional subsidization for water quality incentive grants. Category III is for phased/segmented projects and adds a sizable amount of priority points (50) to an applicant’s score as compared to the individual water quality scoring which typically range from 5 to 15 points. The purpose for Category III is to help ensure that large projects that are given loan funding in phases will be highly likely to get additional loan funding for future phases to complete large projects. MPUA supports the 50 priority points for loan funding but recommends the phased category add no points for additional subsidization. MPUA does not believe this change will prevent any eligible applicant in the 2021 IUP from receiving grant funds but may be a deciding factor in future years.

Response: The Department agrees that prioritizing Water Quality Incentive Grants should be based on total points assigned from only Section I of the CWSRF Priority Point Criteria contained in Appendix 5, which are based on project characteristics such as need, water quality benefit and affordability. The narrative has been revised to reflect this.

Comment 3: Application Requirements & Periods (pages 6-9, 12, 21, 38) – MPUA recommends the Department include text in applicable locations in the IUP that clarifies the various application periods that are contemplated for the different types of assistance. While specific information for each type of assistance can be found in the document, applicants unfamiliar with the CWSRF program are less likely to be able to locate the required information. Based on our review, MPUA understands the application deadlines and processes to be as follows:

- a) Loan applications (includes affordability and water quality incentive grants) – due March 1 annually for competitive scoring; the Department does accept applications year-round and will process earlier if funds are available (page 9);
- b) Engineering grants – applications are to be accepted year-round on a first come, first serve basis (page 38);
- c) Regionalization incentive grants – application period is October 1 to December 31 (page 6); and

Eric Crawford
September 14, 2020
Page 5

d) Technical assistance grants – request for proposal process to be administered after the adoption of the IUP in October 2020 (page 8).

MPUA requests that a summary of the various deadlines be included on pages 9 and 21 of the IUP.

Response: The Clean Water SRF Intended Use Plan is a technical planning document, and is not intended to be used as a guide for the public to program offerings. The Department is developing information materials describing all funding programs and will utilize these tools to communicate funding details to the public.

Comment 4: Support – MPUA thanks the Department staff for the stakeholder’s meetings held over the past 12 months to establish the regionalization incentive and water quality incentive grant programs.

MPUA supports the Department’s proposed funding allocations to the following communities:

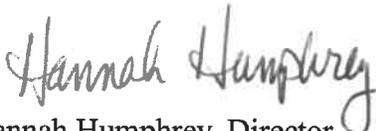
- Lockwood - \$1,069,655 loan with a \$1,069,655 affordability grant;
- Perryville - \$25 million loan with a \$1 million water quality incentive grant; and
- Centralia - \$4,320,540 loan with a \$1 million water quality incentive grant.

Response: Thank you for your comment.

We appreciate you having taken the time to review the IUP and help us improve its quality. If you have any questions regarding the Department’s responses, please feel free to contact me at 573-751-1192 or Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176. Thank you.

Sincerely,

WATER PROTECTION PROGRAM



Hannah Humphrey, Director
Financial Assistance Center

HH/cs

Tab E3

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Small Borrower Loan for the City of Alba

Issue: The City of Alba has requested a Small Borrower Loan in the amount of \$40,023 to address engineering costs incurred after the city's 2016 Clean Water State Revolving Fund (CWSRF) was closed.

Background: The city of Alba, population 710, is located in Jasper County. The community's wastewater treatment system consists of an influent pump station, aeration basin, and ultraviolet disinfection. Effluent discharges to a tributary of Buck Branch.

The Department provided the city with a funding package in February 2016 for improvements to upgrade their wastewater treatment and collection system. Funding consisted of a CWSRF low interest loan of \$1,217,000, a CWSRF grant of \$1,217,000, and Rural Sewer Grant in the amount of \$324,800. After funding through the CWSRF was final, the city's engineer revealed that additional engineering oversight costs associated with the CWSRF project remained outstanding.

The city has submitted an application for a Small Borrower Loan in the amount of \$40,023 to pay the engineering firm for remaining engineering oversight invoices.

Small Borrower Loan funds come from the Rural Water and Sewer Revolving Loan Fund, which consists of repayments of loans originated with historical state Water Pollution Control bonds. Financial Assistance Center staff have confirmed that adequate funds are available for this loan.

The Department administers Small Borrower Loans on behalf of the Clean Water Commission, per 10 CSR 20-4.041. If the Clean Water Commission approves allocation of funds for this project, Financial Assistance Center staff will evaluate the city's proposed user rates to ensure the city has sufficient revenue to pay back the Small Borrower Loan prior to the entering into the loan.

Recommended Action: The Department recommends the Missouri Clean Water Commission approve the allocation of funding in the amount of \$40,023 for a Small Borrower Loan to the City of Alba.

Suggested Motion Language: I move to approve the allocation of funding in the amount of \$40,023 for a Small Borrower Loan for the City of Alba.

Attachment: Copy of the City of Alba's Small Borrower Loan application.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM, FINANCIAL ASSISTANCE CENTER
SMALL BORROWER LOAN APPLICATION

Submit to: P.O. Box 176, Jefferson City, MO 65102-0176
 Attn: Financial Assistance Center

FOR OFFICE USE ONLY	
DATE RECEIVED	
LOAN NUMBER	
PWS ID NUMBER	

This application is for a Small Borrower Loan

APPLICANT INFORMATION					
APPLICANT NAME City of Alba, MO					
MAILING ADDRESS P.O. Box 108, 111 East High Street					
CITY Alba	STATE MO	ZIP CODE + FOUR 65723-0108	COUNTY Jasper		
TELEPHONE NUMBER WITH AREA CODE (417) 525-4463 Ext.			FAX NUMBER WITH AREA CODE (417) 525-6229		
AUTHORIZED REPRESENTATIVE NAME Pansy Schell			AUTHORIZED REPRESENTATIVE TITLE Mayor Protem		
NAME OF PERSON TO CONTACT ABOUT THIS APPLICATION Andrew Novinger, P.E.			TELEPHONE NUMBER WITH AREA CODE (417) 866-2741 Ext.		
CONSULTING ENGINEER Anderson Engineering, Inc.					
CONSULTANT MAILING ADDRESS 3213 S West Bypass					
CITY Springfield	STATE MO	ZIP CODE + FOUR 65807-5913			
CONSULTANT TELEPHONE NUMBER WITH AREA CODE (417) 866-2741 Ext.			CONSULTANT FAX NUMBER WITH AREA CODE (417) 866-2778		
POPULATION (CURRENT CENSUS) 555	POPULATION OF AREA TO BE SERVED 555		FEDERAL TAX ID NUMBER 43-0971934		
STATE SENATE DISTRICT NUMBER(S) FOR PROJECT 32			STATE REPRESENTATIVE DISTRICT NUMBER(S) FOR PROJECT 127		
OTHER FUNDS ANTICIPATED FOR THIS PROJECT					

Is this a water project or a sewer project? Sewer

ESTIMATED PROJECT COST INFORMATION			APPLICANT FINANCIAL INFORMATION		
Cost Estimate Dated: 02/20/2020			Bond Information/Debt Instrument		
Development and Administration	\$		Date of Ballot Approval	04/07/2012	
Engineering (Construction Phase)	\$	40,023	Anticipated Date for Bond Election	04/07/2012	
Engineering Inspection	\$		<input type="checkbox"/> General Obligation Bonds \$		
Construction	\$		<input checked="" type="checkbox"/> Revenue Bonds \$	1,283,000	
Equipment	\$		<input type="checkbox"/> No Bonds Available		
Other Costs specify:	\$				
Contingencies	\$				
Total Project Costs	\$	40,023			
Loan amount requested (Loan is limited to \$100,000)	\$	40,023			

ANTICIPATED FUNDING					
Total Costs	Applicant Contribution	Small Borrower Loan	Other Grants	Other Loan	Bonds
\$ 40,023	\$	\$ 40,023	\$	\$	\$
Percentage of Total Costs	%	100 %	%	%	%

BONDED INDEBTEDNESS OF APPLICANT					
Outstanding Balance of Bonds	Interest Rate	Purpose of Bond	Amortization Period	Payment Due Date	Installment Amount
\$	%				\$
\$	%	REFER TO EXISTING FILE FOR C295709-01)			\$
\$	%				\$
\$	%				\$
General Obligation Bonding Capacity		\$			
FINANCIAL REPORT OF APPLICANT					
Does applicant have an adequate accounting system? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
TAX REVENUES OF APPLICANT (REFER TO EXISTING FILE FOR C295709-01)					
TYPE OF PROPERTY	AGRICULTURAL	COMMERCIAL	INDUSTRIAL	RESIDENTIAL	
Total Assessed Value	\$	\$	\$	\$	
Anticipated Annual Income	\$	\$	\$	\$	
How will the applicant repay the loan? Sewer user charges.					
Median Household Income of project service area (as determined by latest census) \$ 30250					
Projected Monthly User Charge for 5,000 gallons wastewater at completion of this project is \$ 44.00					
Current Monthly User Charge for 5,000 gallons wastewater is \$ 44.00					
Projected Monthly User Charge for 5,000 gallons drinking water at completion of this project is \$					
Current Monthly User Charge for 5,000 gallons drinking water is \$					
PROJECT DESCRIPTION					
(ATTACH ENGINEERING REPORT, IF AVAILABLE)					
<p>CWSRF funded loan for project C295709-01 was closed out prior to final payment to the consulting engineer which primarily included fees for design and administration that had occurred during the course of the project and several months prior to project closing. This has resulted in a hardship to the engineer whom paid their staff for work performed and has carried the due balance. The amounts due were eligible for payment as part of the previous DNR SRF funds and within the project budget. When the loan was closed, there were funds unused and sufficient to pay the remaining engineering invoice. Shortly before the closing of loan, the Department had approved a change order for additional work by the contractor and the engineer extended their services beyond the construction to finish the end of project forms and related work. The purpose of this loan request is to assist the City, which does not have sufficient funds otherwise, to meet its financial obligation to the engineer and pay fees previously approved that were within the project budget. This loan request should not substantially impact users rates as the user rates implemented for the project were based on a loan amount that included the remaining engineering fees that this loan would be used for.</p>					
CERTIFICATION					
The undersigned representative certifies that the information submitted in this application is true and correct to the best of his/her knowledge and that he/she is authorized to sign and submit this application. The applicant agrees, if a loan is awarded on the basis of this application, to comply with all applicable rules and regulations of the Department of Natural Resources and the terms and conditions of the loan agreement. Incomplete applications will be returned.					
SIGNATURE OF AUTHORIZED REPRESENTATIVE			DATE		
<i>Pansy J. Schell</i>			June 30, 2020		
NAME AND OFFICIAL TITLE (TYPE OR PRINT)			TELEPHONE NUMBER WITH AREA CODE		
Pansy Schell, Mayor Pro Tem			(417) 525-4463 Ext.		
PREPARER'S NAME AND SIGNATURE (IF APPLICABLE)					
SIGNATURE OF PREPARER			DATE		
<i>Andrew Novinger</i>			6-30-20		
NAME AND TITLE (PRINT OR TYPE)			TELEPHONE NUMBER WITH AREA CODE		
Andrew Novinger, P.E.			(417) 866-2741 Ext.		

July 1, 2020

Ms. Joan Doerhoff
Missouri Department of Natural Resources
Water Protection Program
Financial Assistance Center
P.O. Box 176
Jefferson City, MO 65102-0176

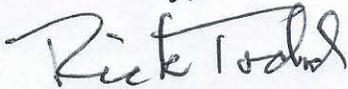
RE: Alba Small Borrower Loan
Project C295709-01

Dear Ms. Doerhoff:

Per the attached application, the City of Alba is requesting a loan under the MDNR Small Borrow Loan Program. As previously discussed, due to unfortunate miscommunication, the above noted project was closed prior to final payment by the City to Anderson Engineering for professional services which had largely occurred over the course of the project. The City wishes to compensate Anderson Engineering but does not have sufficient funds available to pay the invoice as the fees were included in the project budget and were a part of the original loan/grant for the project (note that the project finished under budget).

Please review the attached application and let us know if any additional information is required. We greatly appreciate your assistance in this matter.

Sincerely,



Rick Todd, PE

Tab F

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

New Business

Issue:

Any new business can be presented to the Commission.

Recommended Action:

Information only.

Tab G

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Appeals and Variances

Issue:

This portion of the meeting allows information to be presented to the Commission. The Commission can review and vote on specific actions as necessary.

Recommended Action:

It is recommended that the Commission review and vote on the actions presented.

Tab H

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
LaCharrette/Nightingale Springs Conference Rooms
1101 Riverside Drive
Jefferson City, Missouri 65102

August 19, 2020

Open Comment Session

Issue:

This standing item provides an opportunity for comments on any issue pertinent to the Commission's role and responsibilities. The Commission encourages all interested persons to express their comments and concerns.

General Public

Recommended Action:

Information only.

Tab I

Missouri Clean Water Commission
Department of Natural Resources
Lewis and Clark State Office Building
1101 Riverside Drive
Jefferson City, Missouri 65102

October 26, 2020

Future Meeting Dates

Information:

Missouri Clean Water Commission Meeting dates and locations:

January 7, 2021

Lewis and Clark State Office Building

April 8, 2021

Lewis and Clark State Office Building

August 9, 2021

Lewis and Clark State Office Building

October 12, 2021

Lewis and Clark State Office Building

Recommended Action:

Information only.

