Exhibit No.:	
Issue:	Technical Due Diligence and Environmental Site Assessment
Witness:	Christopher J. Klausner, PE
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Evergy Missouri West
Case No.:	EA-2023-0291
Date Testimony Prepared:	November 8, 2023

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EA-2023-0291

DIRECT TESTIMONY

OF

CHRISTOPHER J. KLAUSNER, PE

ON BEHALF OF

EVERGY MISSOURI WEST

November 2023

DIRECT TESTIMONY

OF

CHRISTOPHER J. KLAUSNER, PE

CASE NO. EA-2023-0291

Q: Please state your name and business address.

A: My name is Christopher J. Klausner and my business address is 11401 Lamar Avenue, Overland Park, KS 66211.

Q: By whom are you employed and in what capacity?

A: I am employed by Black & Veatch Management Consulting, LLC and serve as Associate Vice President and Senior Managing Director. I lead the Global Advisory Transactions Practice.

Q: Who are you testifying for?

A: I am testifying on behalf of Evergy Missouri West ("EMW" or "Company").

Q: Please describe your educational background and employment history.

A: I graduated from the University of Kansas with a Bachelor of Science degree in Mechanical Engineering in 1991. Following my graduation, I began employment with Bibb & Associates, a local Kansas City-based engineering and consulting firm. I later joined Black & Veatch in March 1993 initially working on power plant system engineering assignments for various thermal power plants including combined cycle power plants, and transitioning to consulting projects in 1995. In 2001, I earned my MBA from the University of Kansas with a concentration in finance. I have been a registered professional engineer in the State of Kansas since 1995.

Q: Please describe Black & Veatch.

A: Black & Veatch Holding Company including its subsidiaries (hereafter "Black & Veatch") is a leading management consulting, engineering, procurement, and construction company that specializes in infrastructure development in the fields of power, oil & gas, water, and telecommunications. Since its founding it 1915, Black & Veatch has expanded to include over 10,000 professionals working out of more than 120 offices worldwide. Black & Veatch includes various wholly owned subsidiaries, including Black & Veatch Management Consulting, LLC, which brings together more than 170 professionals that include experienced industry executives, engineers, consultants, senior analysts, and technology experts.

Q: What are your responsibilities at Black & Veatch?

A: At Black & Veatch I lead the Global Advisory Transactions ("Transactions") practice which is a service offering within Black & Veatch Management Consulting, LLC. I am responsible for providing technical advisory services and direction for clients in the areas of technology, environment, overall plant design and performance, project contracts, financial pro forma modeling, construction methods and schedules, and project capital costs. I also manage engineering studies such as need for power applications, integrated resource plans, power supply studies, and power plant valuations. Our Transactions team has completed hundreds of technical assessments in the last several years including thousands of MWs of combined cycle and combustion turbine-based power plants and projects.

Q: Have you previously filed testimony before the Missouri Public Service Commission?

A: No, but I have provided testimony in proceedings before the Florida Public Service Commission.

Q: What is the purpose of your direct testimony?

A: The purpose of my direct testimony is to present the Dogwood Technical Due Diligence and Phase I Environmental Site Assessment ("ESA") reports prepared by Black & Veatch. Copies of these reports are included with my testimony as confidential schedules.

- **Confidential Schedule CK-1:** "Dogwood Technical Due Diligence Report."
- **Confidential Schedule CK-2:** "Phase I Environmental Site Assessment"

Q: Please describe your specific role as it applies to the work performed by Black & Veatch at Dogwood.

A: I was the Project Director and provided oversight for the professionals that were responsible for the Technical Due Diligence Report and Phase I ESA. In addition, I participated in a site visit to Dogwood during the course of the project, reviewed selected documentation provided for the review, and participated in various management discussions and question/answer sessions with plant management and other representatives of Dogwood.

Q: Describe your experience in providing similar technical assessments on behalf of investors for similar facilities.

A: As stated above, I lead the Global Advisory Transactions Practice for Black & Veatch. Each year, the group of professionals under my supervision typically completes more than two hundred technical reviews of infrastructure related assets and projects similar to those performed at Dogwood, of which many are combustion turbine-based. The Transactions team has experience with all three major original equipment manufacturers ("OEMs") including General Electric, Mitsubishi Heavy Industry, and Siemens. The Transactions team has prior experience with the Siemens SGT6-5000FD2 combustion turbines utilized at Dogwood, and prior experience providing technical due diligence of Dogwood in 2011.

I. Dogwood Technical Due Diligence Report

Q: Please provide an overview of Black & Veatch's scope of work for the Dogwood Technical Due Diligence report.

A: Black & Veatch was retained by Evergy to provide an independent technical assessment in view of the potential purchase of an interest in Dogwood. The Technical Due Diligence Report included the following areas of review:

- Project Design: A summary review of the general facility design including identification of the manufacturers and key features for major equipment at the plant including any retrofits or changes since commercial operation began.

- Historical Performance: A review of available historical performance data including heat rate, summer and winter capacity, availability, and planned and forced outages.
- Key Commercial Agreements: A review of the technical and commercial provisions of major contracts. Note that this review did not provide any legal advice related to contract provisions or language.
- Operations and Maintenance: A review of the O&M plans and historical and forecasted costs including major capital expenditures and major maintenance costs.
- Environmental and Permitting: A summary level, general environmental compliance assessment including a review of the environmental permit conditions and requirements related to air emissions, water effluents, and noise.
- Financial Review: A review considering the technical performance, O&M, capital expenditure, and major maintenance assumptions included in Evergy's financial model for Dogwood.

Q: Please discuss Black & Veatch's findings regarding the project design at Dogwood.

A: Black & Veatch's review of the overall Project Design at Dogwood concluded that the technologies in place are from established original equipment manufacturers with decades of successful operation. The overall Project Design appears to be reasonable and typical of those seen in similar facilities in the power generation

industry. Dogwood was found to have been maintained and operated in a manner consistent with Black & Veatch's experience at similar combined cycle power plants. Further details on the review of the Project Design at Dogwood can be found in Section 2.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's findings regarding Dogwood's historical performance.

A: Black & Veatch's review of the historical performance at Dogwood included an analysis of its annual net generation, equivalent availability factor ("EAF"), equivalent forced outage rate ("EFOR"), equivalent forced outage rate on demand ("EFORd"), net capacity factor ("NCF"), average heat rate, and starting reliability. As applicable, these Dogwood specific values were compared against industry benchmark median values from a selection of combined cycle power plants of a similar size and vintage as Dogwood. Black & Veatch found that the EFORd at Dogwood was somewhat higher than the industry average, but plant staff indicated that emergent work during planned outages had historically been classified as forced outage time and that may have affected the calculation of EFORd at Dogwood. The five-year average EAF at Dogwood was found to be somewhat lower than the comparable industry average. However, Black & Veatch notes that in 2020 and 2021 each combustion turbine underwent a major inspection, rotor replacement and upgrade that resulted in performance improvements and life extension. Black & Veatch found that overall, Dogwood appears to be managing planned and forced outage events in an appropriate manner. Additional information

on the historical performance of Dogwood can be found in Section 3.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's findings regarding the key commercial agreements at Dogwood.

A: Black & Veatch concluded that the key commercial agreements between Dogwood and other relevant parties contain the services required to meet the operational requirements of the facility. Additionally, those key commercial agreements were found to be consistent with good industry practices and are comparable to agreements for similar power plants. Details on each of the agreements reviewed by Black & Veatch can be found in Sections 4.0 and 8.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's findings regarding the operations and maintenance ("O&M") structure and activities at Dogwood.

A: North American Energy Services Corporation ("NAES") has provided O&M services for Dogwood since 2007. O&M work is carried out by NAES personnel and is supplemented by contractor support for major maintenance. NAES is well qualified and experienced to serve as the asset management and O&M manager for Dogwood given their experience with similar power plants. Black & Veatch found the Dogwood staff to be knowledgeable and experienced and had effectively and consistently performed day-to-day O&M activities in line with good industry practice. More information about Black & Veatch's review of O&M structure and activities for Dogwood is found in Section 5.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's findings regarding environmental permitting at Dogwood.

A: Black & Veatch performed a review of environmental compliance and environmental programs in place at Dogwood. That review found that Dogwood has maintained all appropriate environmental permits and appears to be up to date with required compliance reporting. Based on the information it reviewed, Black & Veatch did not identify any major environmental compliance issues that would threaten the continued regulatory compliance and operation at Dogwood. Details on the specific programs reviewed are included in Section 6.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's findings regarding the financial assumptions at Dogwood.

A: Black & Veatch reviewed the technical, non-fuel O&M, fixed O&M, and maintenance capital cost assumptions used in Evergy's financial model for Dogwood. The input assumptions used by Evergy appear to be reasonable following the recommended adjustments noted by Black & Veatch. A summary of the inputs reviewed and the adjustments recommended can be found in Section 7.0 of Confidential Schedule CK-1.

Q: Please discuss Black & Veatch's estimate of the remaining useful life at Dogwood.

A: Many factors influence the overall useful life of a power plant. Industry experience has shown that, if properly operated and maintained, combined cycle power plants can be expected to have total useful lives of 45 years or more. This holds true for

Dogwood and Black & Veatch estimates that it has a remaining useful life of 24 or more years. This estimate is based on the assumption that Dogwood continues to be operated and maintained in accordance with good industry practices, that required renewals and replacements will be made in a timely manner, required major maintenance will be completed as forecasted, and the plant's equipment will not be operated in a manner to cause it to exceed the equipment manufacturer's recommendations. More information about the Black & Veatch estimate for the remaining useful life at Dogwood is found in Section 7.5 of Confidential Schedule CK-1.

Q: Have any recent upgrades to Dogwood changed its operational characteristics?

A: Yes. The combustion turbines at Dogwood were upgraded in 2020 and 2021 resulting in increased generating capacity. The generator step-up transformers and switchyard equipment were found to be appropriately sized to accommodate full power output from the generators and a Capacity Review performed by NAES concluded that the upgraded Dogwood combustion turbines would not be significantly limited by the generators or associated equipment. To better utilize the increased capacity following the combustion turbine upgrades, an application to update the Generator Interconnection Agreement to increase the maximum interconnection limit was submitted to the Southwest Power Pool ("SPP") in July 2020. The application for this increase was still in progress at the time of our report; however, the existing interconnection agreement allows generation up to 643 MW in summer and 675 MW in winter.

Q: What did Black & Veatch conclude concerning Dogwood's functional status?

A: The Black & Veatch's review of the recent performance history, selected monthly operating reports, test data, and other information at Dogwood has shown that the facility should be considered fully functional. Since Dogwood came online and entered commercial operation in 2002, it has successfully completed many startups and shutdowns while logging thousands of megawatt-hours of net generation as required by market conditions over its 20 plus years of operation. Dogwood conducted an SPP capability test in June 2021 demonstrating the facility's net summer generation capacity. These test results are periodically updated as required by SPP. The facility is capable of operating in 1x1, 2x1, and part load conditions up to full load as long as permit conditions are maintained (generally above 40% gas turbine load). All major plant components including the combustion turbines, heat recovery steam generators, steam turbine, and generators were found to be functional and operated and maintained in accordance with good industry practices.

II. Dogwood Phase I Environmental Site Assessment

Q: What was the scope of the Phase I Environmental Site Assessment ("ESA") performed by Black & Veatch?

A: Black & Veatch was retained by Evergy to provide an independent environmental assessment of Dogwood. The Phase I ESA included a review of previous ESAs, a records review, interviews with site personnel, site reconnaissance, the evaluation of the information collected, and the preparation of a formal report. A copy of the Dogwood Phase I ESA is provided as a part of this testimony as Confidential

Schedule CK-2. As is typical for a Phase I ESA, no sampling or testing of air, soil, groundwater, surface water, or building materials was performed.

Q: Are there standards for performing the Phase I ESA?

A: Yes. Black & Veatch performed the Phase I ESA for Dogwood in accordance with the requirements of ASTM E1527-21, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."

Q: What is the purpose of a Phase I ESA?

A: A Phase I ESA is intended to identify, to the extent feasible, the presence of Recognized Environmental Conditions ("RECs") with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") and petroleum products. A REC is defined by ASTM as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to a release to the environment; under conditions indicative of a release to the environment; or conditions that pose a material threat of a future release to the environment. De minimis conditions are not RECs. This Phase I ESA is intended to permit Evergy to satisfy one of the requirements to qualify for the innocent landowner limitations on CERCLA liability: that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC 9601(35)(B).

Q: What were the findings for the Phase I ESA?

A: Black & Veatch found no data gaps, no evidence of RECs, controlled RECs, or historical RECs in connection with Dogwood. The complete results of the Phase I ESA are included in this testimony as Confidential Schedule CK-2.

Q: **Please summarize your testimony.**

A: Black & Veatch's independent technical and environmental reviews of Dogwood did not identify any significant issues. Dogwood is a combined cycle power plant of a typical and proven design and has been operated and maintained in a manner consistent with good industry practices. The staff at Dogwood appeared to be knowledgeable and experienced. In addition, no evidence of recognized environmental conditions were found during the Phase I Environmental Site Assessment.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Permission and Approval of a Certificate of Public Convenience	))))	Case No. EA-2023-0291

AFFIDAVIT OF CHRISTOPHER J. KLAUSNER

STATE OF KANSAS **)**
) ss
COUNTY OF JOHNSON **)**

Christopher J. Klausner, being first duly sworn on his oath, states:

1. My name is Christopher J. Klausner. I work in Overland Park, Kansas, and I am employed by Black & Veatch Management Consulting, LLC as Associate Vice President and Senior Managing Director for Global Advisory Transactions Practice.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri West consisting of twelve (12) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Chris Klausner
Christopher J. Klausner

Subscribed and sworn before me this 6th day of November 2023.

Shelly L. Campbell
Notary Public

My commission expires: 2-16-2024

SCHEDULES CK-1 & CK-2
ARE CONFIDENTIAL IN THEIR ENTIRETY

THEY CONTAIN INFORMATION NOT AVAILABLE TO THE PUBLIC.

ORIGINALS FILED UNDER SEAL