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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EF-2024-0021

DIRECT TESTIMONY

OF

MARK C. BIRK

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
November 21, 2023

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DIRECT TESTIMONY

OF

MARK C. BIRK

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I. INTRODUCTION

Q. Please state your name and business address.

A. Mark C. Birk, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. By whom are you employed and what is your position?

A. I am the President of Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or the "Company").

Q. Please describe your educational background and employment experience.

A. I received my Bachelor of Science degree in Electrical Engineering from the University of Missouri-Rolla in 1986 and my Master of Science in Electrical Engineering from the same institution in 1991. In 2009, I also received a Master of Business Administration from Washington University in St. Louis. I am a licensed professional engineer in the State of Missouri. I began my employment with Union Electric Company in 1986 as an assistant engineer in the nuclear function. In 1989, I transferred to Union Electric's Meramec Energy Center as an electrical engineer. In 1996, I transferred to the Energy Supply Operations Group and became a Power Supply Supervisor. I became Manager of Energy Supply Operations in the spring of 2000. I became General Manager of Energy Delivery Technical Services in the fall of 2001 and Vice President of that department in 2002. I became Vice President of Ameren Energy, Inc., Ameren

Corporation's short-term trading affiliate, in the fall of 2003 and assumed the position with Ameren Missouri as Vice President of Power Operations in September of 2004. In 2012, I was promoted to Senior Vice President of Corporate Planning and Business Risk Management, and in 2015, I became Senior Vice President of Corporate Safety, Planning, and Operations Oversight. In 2017 I became Sr. Vice President, Customer and Power Operations, and I assumed my current position in December of 2021.

Q. We will be focusing on decisions made by Ameren Missouri in the 2005 to 2010 timeframe, when you were Vice President of Power Operations. Can you describe your duties and responsibilities in that position at that time?

A. Yes. As Vice President of Power Operations, I was responsible for the safe, efficient, and reliable operation of the Company's non-nuclear electricity generating plants—including its four coal-fired plants, the Rush Island, Meramec, Sioux, and Labadie Stations. These responsibilities included environmental compliance for these facilities and the implementation of projects for the generating units at these facilities. My direct reports included the plant managers at the Rush Island, Meramec, Sioux, and Labadie Stations.

II. EXECUTIVE SUMMARY

Q. Please summarize your testimony.

A. The retirement of Rush Island is the culmination of a series of prudent and reasonable decisions made by the Company over many years. Every decision we have made on Rush Island incorporated the information reasonably available at the time and was guided by three principles: 1) to ensure system reliability; 2) to comply with the law; and 3) to serve the best interests of our customers.

In order to ensure system reliability, Ameren Missouri performs routine maintenance on all its generating assets, including its coal-fired electric generating units at

Meramec, Sioux, Labadie, and Rush Island. This includes replacing components as they wear, to prevent forced outages or derates that would limit future availability. This has happened multiple times on all of our coal fired units over multiple years across the Ameren Missouri system. Such component replacements typically occur during regularly-scheduled turbine outages. Just like work previously performed at Labadie, Sioux and Meramec, Ameren Missouri replaced some boiler components on Rush Island Unit 1 in 2007 and on Rush Island Unit 2 in 2010 (the aforementioned "Rush Island Projects"). The Rush Island Projects were no different from those completed numerous times by every other utility in the industry.

And also like every other utility in the industry, Ameren Missouri understood that performing such work (replacing existing boiler components with similar components) on existing units would not transform them into "new sources" that require a "New Source Review" ("NSR" for short) preconstruction permit. NSR is a program established under the federal Clean Air Act ("CAA") and administered by the states that requires permitting for the creation of new emissions capacity, either through the construction of new sources or the modification of existing sources. We are not aware of any utility in the country that sought NSR permits for projects like those Ameren Missouri did at Rush Island and elsewhere. Ameren Missouri's understanding that these projects did not require NSR permitting was also shared with the Missouri Department of Natural Resources ("MDNR"). New Source Review in Missouri is a state program enforceable by state regulations approved by the United States Environmental Protection Agency ("EPA") for implementation in Missouri as consistent with the CAA. Ameren Missouri worked closely with MDNR in its administration of these and other permitting requirements, and therefore

had a common understanding of what would and what would not trigger NSR permitting requirements. Ameren Missouri's environmental experts examined the Rush Island Projects, applied that common understanding held by all utilities in Missouri and MDNR, and concluded that NSR permits were not required.

After the fact, EPA brought claims against Ameren Missouri alleging that the Rush Island Projects in fact triggered the NSR requirements in the Missouri regulations. With this case, the Obama Administration reactivated EPA's "NSR enforcement initiative" against coal-fired electric utilities, following a pause in the Bush Administration. That initiative, first started in 1999, attempted to achieve nationwide emission reductions by using a new interpretation of NSR that results in universal liability by assuming that ***all*** repairs on existing units produce an emissions increase. EPA's new enforcement interpretation of NSR never went through notice and comment rulemaking, and not even EPA itself uses this enforcement interpretation in making permitting decisions. In fact, EPA itself abandoned these enforcement interpretations in the years leading up to the Rush Island Projects and disclaimed any intent to bring such claims. The utility industry recognized EPA's enforcement initiative as unlawful, illegitimate, and unfair. It therefore fought EPA's NSR enforcement initiative in court, resulting in more wins than losses for the utility industry.

After the Bush Administration ended, EPA did another about-face and started pursuing NSR claims using the enforcement theories that EPA had previously abandoned. Ameren Missouri contested EPA's allegations of non-compliance in court, just like many across the utility industry. Unfortunately, the results for Ameren Missouri differed from the majority of the similarly-situated utilities that had done the same sort of projects and

made the same decision to contest EPA's new enforcement interpretations. At the end of the day, the District Court disagreed with us on the law—finding the Company liable and ordering Rush Island to get a scrubber to reduce sulfur dioxide ("SO_2") emissions. But the District Court never suggested that we failed to act in good faith or that we had no legitimate basis for our understanding of the legal requirements.

By the time the District Court's order to scrub Rush Island became final, circumstances had made the continued operation of coal-fired plants extremely challenging. EPA's proposals to regulate carbon emissions from existing coal-fired power plants creates serious risks to the continued viability of these assets—risks that would make investing hundreds of millions of dollars in a scrubber in such assets imprudent. Faced with these realities, the only prudent option was to shut down Rush Island instead of adding scrubbers. The District Court approved this decision on September 30, 2023.

At each step along the way, we made reasonable decisions that we believed were in compliance with the law and in the best interests of our customers—up to and including the Rush Island retirement decision. The District Court said we were wrong on the law—that NSR permits were in fact required when the projects were untaken many years before. We accept that decision, but it does not mean that Ameren Missouri was unreasonable in reading the law as we did (and as MDNR and EPA itself did) or that we were unreasonable in proceeding without permits (just like every other utility in Missouri and across the country) or in challenging EPA's claims in court (as many other utilities have done successfully). Given the facts and circumstances as they existed at the time, no rational utility would have done anything differently with respect to Rush Island. Having made prudent decisions, the securitization of the cost of retirement for Rush Island is appropriate.

III. COMPANY WITNESSES

Q. Who are the Company's other direct case witnesses?

A. In addition to me, the Company is supporting its financing order petition with Direct Testimony from nine witnesses, as follows:

- Steven C. Whitworth. Mr. Whitworth was the head of the Air Quality Group in Ameren Services Company's Environmental Services Department ("ESD"), and later the Director of ESD, leading up to and during the planned outages when the Company completed the Rush Island Projects. He retired from the Company after almost 42 years of service in 2022. Mr. Whitworth's Direct Testimony addresses the decision-making process respecting when permits are, or are not, required prior to proceeding with a project or set of projects. His direct testimony also addresses the Company's knowledge and understanding of the provisions of the federal Clean Air Act, the EPA's NSR regulations issued thereunder, and the applicable Missouri State Implementation Plan ("SIP") at the time the decisions related to Rush Island were made.
- Jeffrey R. Holmstead. Mr. Holmstead is a former EPA Assistant Administrator in the air program office and currently an environmental attorney, whose direct testimony concerns the regulatory framework for NSR permitting in Missouri at the time of the projects and the broader context in which electric utilities were making environmental compliance decisions in the relevant time period. His direct testimony outlines why, under that framework, Ameren Missouri acted reasonably when it concluded that no permits were required for its projects at Rush Island completed during planned outages at Rush Island in 2007 and 2010 (the "Rush Island Projects").

- Karl R. Moor. Mr. Moor is a retiree from EPA, where he served as Deputy Assistant Administrator in the air program office. Before that, he worked for years at Southern Company as a Senior Vice President and attorney. Specifically, Mr. Moor was the Vice President and Assistant General Counsel for Public Policy for Southern Company at the time that Ameren Missouri was making its relevant environmental compliance decisions. While Company witness Holmstead provides perspective from the standpoint of an environmental regulator, Mr. Moor provides Direct Testimony demonstrating that based on what the industry (including Ameren Missouri) knew or should have known at the time concerning the NSR program, it was clearly reasonable for Ameren Missouri not to have sought permits.
- Matt Michels. Mr. Michels is the Company's Director of Corporate Analysis. His direct testimony demonstrates that the Company's decision to retire Rush Island was prudent and in the best interest of our customers.
- John J. Reed. Mr. Reed is the President and Chief Executive Officer of Concentric Energy Advisors and a regulatory policy and economic expert. His direct testimony will discuss the appropriate regulatory standards to apply to the Company's decisions, both relating to its decision not to seek NSR permits for the Rush Island Projects, and its decision to retire that plant instead of installing expensive pollution control equipment.
- Mitchell Lansford. Mr. Lansford is the Company's Director of Regulatory Accounting, whose direct testimony will develop the securitized utility tariff costs. Mr. Lansford's Direct Testimony will also demonstrate the advantage of financing these costs via securitization versus under the traditional method of financing and recovering such

costs. Mr. Lansford's Direct Testimony also addresses the proper handling of accumulated deferred income taxes relating to Rush Island.

- Steve Wills. Mr. Wills is the Company's Director of Regulatory Affairs. His direct testimony uses the securitized utility tariff costs developed by Mr. Lansford to develop an appropriate allocation of those costs to each customer class via the implementation of a securitized utility tariff charge, as contemplated by the securitization statute. Mr. Wills also addresses the proposed tariff that underlies that charge.
- Jim Williams. Mr. Williams is the Company's Senior Director, Operations Excellence Support and will discuss basic facts about the Rush Island Energy Center, its current operational status and plans for retirement, and the activities and costs to be incurred in completing its safe closure and decommissioning.
- Katrina Niehaus. Ms. Niehaus is a Managing Director for Goldman Sachs and provides an overview of the proposed securitization transaction, discusses key structural elements of the proposed bonds, and addresses the primary rating agency criteria for such bonds to obtain the highest possible rating, allowing them to carry the lowest possible interest rate.

IV. AMEREN MISSOURI'S ENVIRONMENTAL COMPLIANCE DECISIONS

Q. I want to begin our discussion of Rush Island in the mid-2000's, when you were Vice President of Power Operations. You stated earlier that as Vice President of Power Operations for Ameren Missouri, from 2004 to 2011, your duties included environmental compliance at the Ameren Missouri plants. What exactly did that entail?

A. To put it simply, as the senior officer in charge of Power Operations, it was my responsibility to ensure that the Company had processes, procedures, and adequate resources in place to ensure that the plants complied with state and federal environmental requirements covering all media: air, water, and solid waste. With respect to air, and as required by our operating permits, plant managers (after consulting with subject matter experts) certified compliance on required permitting submittals regarding day-to-day operations and emissions. My role was making sure Ameren Missouri was properly planning at an engineering and operating level for a range of compliance matters including ever-changing federal rulemaking requirements. All of these compliance efforts drew upon subject matter experts within Ameren Services Company, including ESD and the Legal Department. These departments and others within Ameren Services Company supported both Ameren Missouri and its affiliates in Illinois.

A. <u>The Role of ESD in Environmental Compliance</u>

Q. What role did ESD have in environmental compliance for the Ameren Missouri plants?

A. ESD's job was to maintain familiarity with the applicable regulatory and permitting requirements, and to utilize its collective expertise with those requirements to ensure environmental compliance in the plants and to guide project planners through a host of regulatory requirements. Because ESD supported both Ameren Missouri and its unregulated affiliates operating in Illinois, ESD had expertise in the regulatory requirements in the separate

jurisdictions and applied them accordingly. Company witness Steve Whitworth addresses the specifics of ESD's role and its knowledge and expertise in this area in his direct testimony.

In addition to understanding the applicable regulatory requirements, Mr. Whitworth also explains how ESD employees had the job of interfacing with the environmental regulators, including MDNR, which was the lead agency for implementation of the CAA (including NSR) in Missouri.

Finally, ESD had the lead in preparing applications for any required environmental permits. Similarly, ESD had the job of determining what, if any, permits were required for environmental compliance. ESD did so with respect to the Rush Island Projects, as Mr. Whitworth testifies.

B. <u>Maintenance of Ameren Missouri Plants.</u>

Q. You testified earlier that your job duties included projects at Ameren Missouri plants. Can you describe that more specifically?

A. Yes. My organization, Power Operations, was responsible for the design, construction management, and implementation of all plant-related projects at Ameren Missouri's non-nuclear power plants.

Q. Before getting into the Rush Island Projects specifically, can you describe in general how Ameren Missouri maintained these plants?

A. Yes, this is a topic on which I have previously provided testimony to the Commission, both in 2006 (in File No. ER-2007-0002) and in 2009 (in File No. ER-2010-0036).

A coal-fired electric generating unit consists of thousands of individual components. One of the main components on a unit is the boiler, where coal is pulverized into a fine powder and burned, in order to heat water contained within many miles of metal tubes, thereby producing the steam that drives a turbine and generator. Coal combustion within the boiler

produces temperatures that reach 3,000°F and corrosive flue gases blowing abrasive entrained fly ash that wear on the metal tubes that comprise most of the surface area of the boiler. Those metal tubes carry water and/or steam at pressures that reach nearly 3,000 psi, equivalent to an ocean depth of more than a mile. The harsh conditions inside an operating boiler constantly wear on the boiler tubes, and these components will inevitably fail and must be replaced. The harsh conditions inside an operating boiler also mean that repairing or replacing boiler tubes—indeed, most maintenance, repair or component replacement activities on an electric generating unit—can occur only when the unit is offline. Historical analysis has shown that boiler component failures and planned turbine outages are leading causes of lost generation for coal fired units. It is preferable to perform maintenance activities during a planned outage that can be scheduled, compared to a forced outage arising from some failure or malfunction. The Company therefore takes a proactive approach, using the available data to identify and address issues before they become significant problems.

Over the years, Ameren Missouri made substantial investments in its generating facilities to improve their reliability and protect their availability for the benefit of our customers. As I explained to the Commission in my direct testimony provided in File No. ER-2007-0002, Ameren Missouri spent over $1.7 billion between January 1, 2002 and March 31, 2006 on generating infrastructure, including investments in its existing coal-fired and hydroelectric plants. On October 18, 2006, I provided the Commission's Staff with more information on these expenditures, consisting of an itemized list of projects performed on Ameren Missouri's coal-fired facilities between July 1, 2000 and June 30, 2006 above a threshold of $500,000. See Schedule MCB-D1. As I will discuss below, this list included numerous examples of projects

just like the Rush Island Projects. NSR permits were not obtained for any of those non-Rush Island projects, many of which took place before the 2007 and 2010 Rush Island Projects.

Q. Were there any changes over time in how Ameren Missouri maintained its units?

A. The only significant change was one of timing. Ameren Missouri schedules a planned turbine outage for each coal-fired unit on a regular basis, during which the unit comes offline for several weeks, and Ameren Missouri performs a thorough inspection and any needed maintenance activities. Over the years, the interval between the planned turbine outages for the units at Labadie and Rush Island has increased: from approximately every two years to every four years, to every six years—the current outage interval.[1] The approximately six-year interval between planned turbine outages for Labadie and Rush Island was established in the mid-2000s, and to my knowledge is one of longest in the utility industry which directly benefits customers due to reduced overall planned outage time, higher average availability over the 6 year period supporting reliability and additional off-system sales revenue which flows back to customers.

The 2007 outage at Rush Island Unit 1 and the 2010 outage at Rush Island Unit 2 marked the first time each unit entered into a six-year cycle between planned turbine outages. The philosophy behind going to the six-year cycle was to maximize economic generation over time by reducing the time periods when the plants would be out of service (producing margins that ultimately benefitted customers in the form of lower rates), while addressing plant components in need of maintenance or replacement as needed.

Because the planned turbine outage is the ideal window in which to perform component replacement, and the intervals between such outages are now so long for the Labadie and Rush

[1] Due to differences in design, the Sioux units have remained on a three-year outage schedule.

Island units, many unrelated maintenance or replacement activities will occur during the same unit outage. The maintenance or replacement activities are no different than those performed in years past, when they occurred during separate planned outages that had been scheduled approximately every two years.

It is also important to understand that we are very deliberate in choosing the optimal time to schedule this work. For example, we avoid such work in the summer or the winter, when having a major coal unit down could increase costs and system reliability risks for our customers. For the same reason, we seek to avoid having more than one major coal unit off for maintenance at the same time. Similarly, we do not schedule a major coal unit outage when Callaway is being refueled. These practices are in keeping with doing everything we can to run and maintain our units in a way that is most beneficial to our customers.

Q. What types of maintenance, repair or replacement activities typically occur during a planned turbine outage for a coal-fired electric generating unit?

A. Because coal-fired electric generating units consist of thousands of components, and any one of them can cause a unit to go offline, outage work could involve almost anything connected to the unit that has or will impact reliability or availability.

For the boiler on a coal-fired unit, typical maintenance activities occurring at a planned turbine outage will include replacement of various boiler tube assemblies. Such assemblies may have different names based upon their position in the boiler and their function in the steam cycle (e.g., economizer, waterwalls, superheater, reheater), but essentially, they are all metal tubes whose purpose is to transfer heat from combustion to the water or steam flowing within each tube, producing the steam necessary to drive the turbines. Replacement of different boiler tube assemblies, as the tubes wear and begin to leak, occurs several times over the life of a unit.

Other common maintenance activities that occur on boilers while a unit is in outage will involve the replacement of equipment that convey the elements of combustion (air and coal) into the combustion zone, or convey the water into the boiler tubes that comprise the majority of the boiler. Auxiliary equipment such as coal mills, air preheaters, fans, feedwater heaters, and boiler feed pumps are all examples of the sorts of equipment on a boiler that one expects to replace after a certain number of duty cycles or hours under load.

Q. You noted earlier that you had provided Staff DR responses in File No. ER-2007-0002 (Schedule MCB-D1) with information on other projects from roughly 2000 to 2006 replacing the same components which EPA claimed triggered a permit requirement at Rush Island. Does that response identify all such projects?

A. No. Attached to my direct testimony as Schedule MCB-D2 is a table going back to roughly 20 years prior to when the Rush Island Projects were completed, showing that Ameren Missouri and its Illinois affiliates routinely performed the same projects as the Rush Island Projects and did so without the need for NSR permits.

Q. Can you describe the nature, scope and purpose of the Rush Island Projects?

A. Yes. As we approached the 2005 timeframe, Rush Island had been in operation for nearly 30 years. While at that time the plant continued to have good availability, some of its key components—which are constantly exposed to the harsh conditions of a steam plant's boiler—were approaching the end of their lives. This meant that the risk of more frequent outages, that would prevent the plant from serving customers, was continuing to increase simply due to the age and condition of the components. Our experience in both Illinois and Missouri indicated that tube leaks and unit derates could become more frequent due to pluggage issues

arising from burning Powder River Basin coal, which Rush Island had burned exclusively since 1995 as a means to significantly reduce fuel costs for customers and cut emissions from the plant. Boiler pluggage restricts airflow through the boiler. This affects both the efficiency of the heat transfer in the boiler and results in less oxygen available for combustion, thus restricting maximum generating capability on (i.e., derating) the unit. In short, the plant was beginning to experience performance issues, which would have worsened to customers' detriment if not addressed. Ameren Missouri therefore proceeded to replace the components at issue, to ensure that the units would remain in good working order.

At Rush Island Unit 1, Ameren Missouri replaced different boiler tube assemblies (economizer, reheater, and lower slope waterwall panels) and the air preheater components, and performed additional work on the unit, during an outage that lasted from February to May 2007. At Rush Island Unit 2, Ameren Missouri replaced similar boiler tube assemblies (economizer and reheater) and the air preheater components, and performed additional work on the unit, during an outage that lasted from January to April, 2010. These projects were fundamentally the same as those Ameren Missouri and its affiliates had routinely performed for decades.

Q. What exactly do you mean when you say the Rush Island Projects were part of the process of keeping the units in good working order?

A. Ameren Missouri has an obligation to maintain its generating units in good working order, so we can meet the reliability demands of our customers and sell excess energy into the MISO market to help offset costs for customers. As such, Ameren Missouri keeps track of the availability of its generating assets, and reports on the same to the Public Service Commission. Before the Rush Island Projects took place, each unit achieved top quartile annual availability. In my experience and based upon benchmarking, that is considered good for coal-

fired electric generating units. This is a testament to the good working order of both the Rush Island units.

Q. If the units were in good working order, then why was the work done?

A. For the same reasons that applied to the many similar projects done at other units before the Company completed the Rush Island Projects. As I described above, Ameren Missouri has a proactive maintenance philosophy to keep unit availability as high as practically possible for the benefit of customers. Data suggested that outages and derates could be expected to increase on each unit if these components were not replaced. At this point in time, each Rush Island unit was on a nominal six-year outage cycle (i.e., conducting an extended planned outage only once every six years). Because most maintenance, repair and replacement activities on coal-fired units require the unit to be offline, and each unit has an opportunity to conduct work like this only once every six years, Ameren Missouri decided to replace the identified components in the scheduled planned outages to avoid the expected forced outages and derates that otherwise would have occurred until the next six-year outage would be taken. In addition to the specific components at issue, Ameren Missouri also conducted work during these outages that increased the efficiency of the units (e.g., replacement of the low-pressure turbine components, as I describe below).

Q. Did Staff or anyone else to your knowledge question the need for the projects?

A. No. As discussed earlier, I answered data requests in the Company's 2006 rate review in which I provided details on the planned outages at Rush Island that I described above. In those responses (including specific outage schedules outlined in the response to Data Request No. 264), I had indicated that Rush Island Unit 1 would undergo a planned outage in 2007, and

specifically listed the projects that would be performed. Similarly, I indicated that Unit 2 would undergo a planned outage in 2009, also listing the projects that were in fact performed in 2010 after the outage was rescheduled from 2009 to 2010. Once the projects were completed and went into service, they were then included in plant in service in subsequent rate reviews. No party questioned the need for them or their prudence. The completion of those projects has enabled Rush Island to continue its reliable, efficient operations for the benefit of our customers ever since.

Q. You testified earlier that projects like those at Rush Island were routinely done. What is your basis for that testimony?

A. As discussed earlier, before undertaking the work at Rush Island, we had performed similar component replacements multiple times across the other Ameren Missouri plants (detailed in Schedule MCB-D2). We replaced economizers, reheaters, and waterwalls multiple times at Labadie, Meramec, and Sioux. We had replaced air preheater components multiple times at the same plants, and at Rush Island as well. Similar equipment replacement occurred frequently within the Ameren Missouri system.

In addition, we were very familiar with coal units owned and operated by Ameren Missouri's Illinois generation affiliates, Ameren Energy Generating Company and Ameren Energy Resources. And due to our familiarity with that history, we knew that the same component replacement projects as those to be completed at Rush Island had also been completed at several of these Illinois units, also without the need for obtaining NSR permits.

We were also aware that other utilities regularly performed similar component replacement projects, as witnesses Whitworth, Holmstead, and Moor explain in greater detail. This understanding was developed through our interactions with other utilities, some of which

are described by Messrs. Whitworth, Holmstead, and Moor. This understanding was also reinforced by our interactions with the boiler vendors and installation contractors we engaged for the Rush Island Projects. These contractors touted their extensive experience with similar maintenance activities across the industry. The very existence of this boiler maintenance industry—with multiple contractors whose business is focused on boiler component replacement—supported our understanding that the activities at Rush Island were routine within the utility industry. In addition, our engineers regularly interfaced with other utilities in Missouri and came to learn of their maintenance practices.

We were well aware that the work proposed for Rush Island was routinely done throughout the utility industry and without the need for NSR permits. If NSR permits were not required for these other projects, there was no reason to believe they were required for the Rush Island Projects.

Q. If Ameren Missouri concluded that the Rush Island Projects did not trigger NSR permitting, then why did it evaluate the possible retrofit of scrubbers on Rush Island in 2007-2010?

A. Ameren Missouri evaluated the potential retrofit of scrubbers on all of its plants during this time period, as a direct result of ***other*** CAA programs for which EPA was promulgating rules. The question of whether these other proposed EPA rules would require we scrub Rush Island or other Ameren Missouri units had nothing to do with whether the routine projects completed at Rush Island and our other plants, without obtaining NSR permits, somehow triggered NSR.

Q. Did Ameren Missouri ever re-visit its pre-project determinations that the Rush Island Projects did not trigger NSR?

A. Yes. Ameren Missouri revisited the potential application of NSR in 2007 (after the Rush Island Unit 1 projects), in the context of its ongoing environmental compliance planning process. Ameren Missouri then revisited the potential application of NSR in 2008, following the receipt of an inquiry from EPA under Section 114 of the CAA, concerning a large number of maintenance, repair and replacement projects. And Ameren Missouri revisited the potential application of NSR again in 2010, after receipt of the Notice of Violation ("NOV") issued by EPA that January.

Q. What was the result of those subsequent evaluations?

A. Ameren Missouri remained firm in its conclusion that the Rush Island Projects did not trigger NSR. As a result, Ameren Missouri's Environmental Compliance Plan continued to focus on the new rules EPA was promulgating: CAIR, the Cross-State Air Pollution Rule ("CSAPR"), the Clean Air Mercury Rule ("CAMR") and the Mercury and Air Toxics Standards ("MATS") Rule.

Q. Why didn't Ameren Missouri's conclusions regarding NSR applicability change in 2010, after it received EPA's NOV?

A. As Mr. Whitworth explains, we understood that under the Missouri SIP, a project would have to increase a unit's potential emissions in order to trigger NSR permitting requirements. None of Ameren Missouri's projects ever did that, and EPA did not contend otherwise.

Although EPA made allegations in its NOV that several projects were NSR violations, it did not explain how or why it believed that any of the projects increased emissions. EPA

refused to share its position on emissions increase with Ameren Missouri, and Ameren Missouri was not able to learn how EPA purported to calculate emissions until years later during expert discovery in the litigation. EPA did share enough for Ameren Missouri to understand that its allegations of emissions increase were not based on potential emissions, but on changes in actual annual emissions. But when ESD performed a calculation of actual annual emissions after receipt of the NOV, it concluded that the projects would not cause an increase in actual annual emissions and thus would not trigger NSR even if such requirements had applied under the Missouri SIP.

Finally, as Mr. Whitworth and Mr. Moor explain, EPA's NSR enforcement initiative resulted in more losses for EPA than wins. We therefore remained firm in our conclusion that NSR did not apply to the Rush Island Projects, even after receipt of EPA's NOV.

V. THE NSR LITIGATION

Q. How did the litigation proceed after receipt of the initial NOV?

A. EPA kept flip-flopping on what was or was not an NSR violation. In its first NOV, issued on January 26, 2010, EPA identified approximately 40 projects alleged to violate the Clean Air Act at the Labadie, Sioux, Meramec, and Rush Island Energy Centers. That NOV included the 2007 Rush Island Projects, but not the Rush Island Unit 2 Projects. On October 14, 2010, EPA issued an amended NOV that added the economizer replacement and the reheater replacement at Rush Island Unit 2, completed earlier that year.

When EPA filed suit in January 2011, it dropped most of its claims alleged in the prior NOVs. Instead, EPA filed suit on only two projects: superheater tube replacements at Rush Island Unit 1 and Rush Island Unit 2 in 2001 and 2003, respectively. In other words, it did not file suit over the 2007 Rush Island Projects despite having identified them in prior NOVs.

Just four months later, EPA issued a Second Amended NOV, which included the 2010 air preheater project on Rush Island Unit 2 ***and*** the low-pressure turbine project on Rush Island Unit 2 in 2010.

On June 28, 2011, EPA filed an amended complaint to add the 2007 component replacements on Unit 1 and the 2010 component replacements on Unit 2.

On October 30, 2013, EPA filed yet another amended complaint, dropping the claims with which it had initiated the case: the 2001 and the 2003 superheater tube replacements. This left only the economizer, reheater, and lower slope tube replacements and the air preheater project on Unit 1, and the economizer and reheater tube replacements and the air preheater project on Unit 2 (i.e., the "Rush Island Projects") which later went to trial. Notably, EPA did not pursue claims over any of the turbine projects at Rush Island that it had previously alleged in its series of NOVs to have triggered NSR.

From our perspective, there is no apparent difference among the various projects EPA raised and dropped. EPA's difficulty in settling on the projects and claims it wanted to pursue undermines any contention that Ameren Missouri should have acted differently when it evaluated the Rush Island Projects for NSR applicability.

Q. What was the result of the NSR litigation?

A. The litigation has lasted years and is still ongoing. Over the course of that litigation, EPA dropped most of its allegations as well as all of its claims for civil penalties. After years of discovery and a 13-day trial, in January 2017 the District Court concluded that the Company should have obtained NSR permits and in September 2019 ordered the Company to install scrubbers at Rush Island to reduce its SO_2 emissions. The District Court also ordered the installation of dry-sorbent injection equipment at the Labadie Energy Center, not because of

any claim that there were CAA violations involving Labadie, but as a "remedy" for the claimed violations at Rush Island.

The District Court then stayed most aspects of its 2019 decision, pending appeal to the Eighth Circuit. In September 2021, the Eighth Circuit affirmed the District Court's decision as to Rush Island but reversed it as to the ordered actions at Labadie. The Company sought rehearing of the Eighth Circuit's decision (as did the EPA as to that part of the decision reversing the District Court respecting the order regarding Labadie). The Eighth Circuit denied rehearing, exhausting Ameren Missouri's right to appeal.

Given the outcome of the litigation, Ameren Missouri assessed whether it should comply with the District Court's ruling (i.e., install scrubbers at Rush Island) or take some other action, such as retire the plant. As with all of its decisions, Ameren Missouri's focus was on what course of action would be more beneficial for its customers. As discussed in the Direct Testimony of witness Michels, the Company's analysis of the question concluded that installing scrubbers was not in customers' best interest, leading to Ameren Missouri's December 2021 decision to retire Rush Island following completion of the necessary transmission upgrades to ensure transmission system reliability.[2]

[2] After making the determination that retirement of the plant rather than installing expensive pollution control equipment was in our customers' best interest, the Company requested a modification of the District Court's order to allow retirement of the plant in lieu of installing such equipment. The District Court granted this request on September 30, 2023, ordering that the plant retire by October 15, 2024.

Q. Mr. Birk, your testimony suggests that to this day, you feel strongly that Ameren Missouri made reasonable, prudent decisions back in that 2005 – 2010 timeframe and that, consequently, it should not have suffered an adverse judgment in EPA's NSR lawsuit. Is that your point of view?

A. Absolutely, but at the end of the day the District Court ended up interpreting the law differently than how we understood it to be, how the industry understood it to be, and how the permitting authority in Missouri (MDNR) understood it to be. All this is explained by Company witnesses Whitworth, Holmstead, and Moor in their Direct Testimonies. And, as witnesses Whitworth and Moor recount in detail—the District Court's conclusion was also different than other courts had interpreted the law ***at that time***. From my perspective—and I think the Commission's prudence standard backs this perspective up—that's the only question: did we act reasonably based on what we knew or reasonably should have known ***at that time***.[3] I have no doubt that we did. Did that reasonable belief ultimately lead to an NSR violation? The answer is yes, insofar as the federal courts are the ultimate arbiters of that determination. While I don't like that outcome, I accept it as a fact. But being told you were mistaken a decade or more after the decision was made does not mean that the decision you made was unreasonable based on what you knew or should have known when you made it.

[3] The focus of the relevant inquiry is discussed in detail by Company witness John Reed.

Q. In the Company's last rate review, File No. ER-2022-0337, Staff at least strongly suggested that the District Court disagreed with your perspective, with Staff quoting a statement in one of the District Court's orders where the District Court stated, "that Ameren's failure to obtain PSD permits was not reasonable." That does seem to be at odds with your viewpoint. Why isn't it?

A. I am an engineer and not a lawyer, so I am not able to parse 10 words out of hundreds of pages of orders the District Court issued and then give an opinion on what those 10 words do or do not mean. I will note that Company witness Holmstead directly addresses this issue in his direct testimony and from my non-legal expert perspective, what he said makes sense to me. I believe it will also make sense to the Commission, which in this case is the body charged with deciding whether the retirement of the plant is prudent.

Q. So, you are not re-litigating the NSR case?

A. No, I am not re-litigating that case—nor is the Company re-litigating that case. Having worked in the utility space for over 30 years, including involvement in many cases at the Commission during that time, one thing I do understand is that the Commission does not judge our decisions using hindsight. And I further understand that the Commission does not judge them such that we were required to have perfect foresight about the future when we are called upon to make decisions necessary to run a utility and provide service to our customers. As I said before, we lost the case; I don't like that outcome, but I accept it. Once we lost the case, we would have harmed our customers if we added scrubbers to a nearly 50-year-old coal plant at a cost of hundreds of millions of dollars in an environment where new and more stringent environmental regulations of coal plants continue to be proposed and which could further impact the plant's life, so we prudently decided not to do so because that decision is in

our customers' best interest. As I have discussed and as Mr. Whitworth elaborates, the Company did not predict that the District Court would take a completely different view of the permit requirements than we had taken, that MDNR had taken, and many other utilities and other courts had taken. And as our expert witnesses Holmstead and Moor explain, the Company's position was reasonable. The subsequent decision by the District Court, rejecting the position of MDNR, the position of the utility industry as a whole, and the majority view of other courts does not mean that the Company was imprudent 15 or so years ago. Does the District Court decision mean we turned out to be mistaken? Unfortunately, it does. But that is not the question because the prudence standard, as I understand it, prevents the Commission from punishing Ameren Missouri on the basis of hindsight. The question, as I understand it, is whether Ameren Missouri acted reasonably given the facts that were known and reasonably knowable at the time. I firmly believe that we acted reasonably here.

Q. Why?

A. At every step of the way, the Company considered the information known to us and was diligent in keeping abreast of information that we reasonably should have known. And armed with that information, the Company made decisions designed to (1) ensure system reliability; (2) comply with the law; and (3) serve the best interests of our customers along the way. With respect to Rush Island specifically, those decisions incorporated the experience of Ameren Missouri's experts in its Environmental Services Department, the experience of the utility industry and industry experts in NSR compliance issues, the applicable Missouri law, and input from both MDNR and EPA on the legal requirements. On the basis of this expertise and information, it was reasonable for Ameren Missouri to perform the Rush Island Projects without applying for NSR permits, because that was consistent with our understanding of what would

maintain reliability, comply with the law, and serve the best interest of our customers. Likewise, it was also reasonable for Ameren Missouri to decide to retire Rush Island as a result of the District Court's decision, because that was the only way to ensure system reliability, comply with the law (as declared by the District Court), and serve customers' best interests.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Petition of Union Electric Company d/b/a Ameren Missouri for a Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds for Energy Transition Costs related to Rush Island Energy Center.	)))))))	EF-2024-0021

AFFIDAVIT OF MARK C. BIRK

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Mark Birk, being first duly sworn on his oath, states:

My name is Mark C. Birk, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Direct Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

Mark C. Birk

Sworn to me this 20th day of November, 2023.

AmerenUE's Response to
MPSC Staff Data Request
AmerenUE's Tariff Filing to Increase Rates for Electric Service
Provided to Customers in the Company's Missouri Service Area

Requested From: John Cassidy

Data Request No. MPSC 0264

Please provide the planned outages for all AmerenUE generating units for each year covering 2007 through 2011. Please identify each unit and the timeframe for each unit.

Response:

See the attached information.

Prepared By: Mark Birk
Title: Vice President Power Operations
Date: September 26, 2006

Schedule MCB-D1

AmerenUE's Response to
MPSC Staff Data Request
AmerenUE's Tariff Filing to Increase Rates for Electric Service
Provided to Customers in the Company's Missouri Service Area

Requested From: John Cassidy

Data Request No. MPSC 0264

Please provide the planned outages for all AmerenUE generating units for each year covering 2007 through 2011. Please identify each unit and the timeframe for each unit.

Response:

Callaway Plant: *Planned Outages 2007 through 2011*

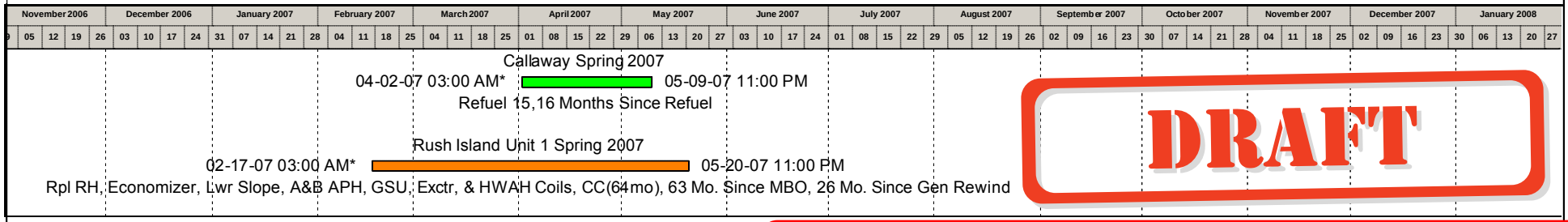
Refuel #	Duration (in days)	Dates of Outage
Refuel 15	37	April 2 – May 9, 2007
Refuel 16	33	October 11 – November 13, 2008
Refuel 17	37	March 27 – May 3, 2010
Refuel 18	33	October 8 – November 10, 2011

Prepared By David T. Fitzgerald
Title: Manager; PS&O
Date: September 29, 2006

2007 Ameren Power Plants Major Outage Schedule - AUE

Date: 10-16-06
J.R. Patrick

PER CODE OF CONDUCT THIS DOUCMENT FOR USE BY AUE AND AMS PERSONNEL



Callaway Meramec Sioux Taum Sauk
Labadie Rush Island Keokuk

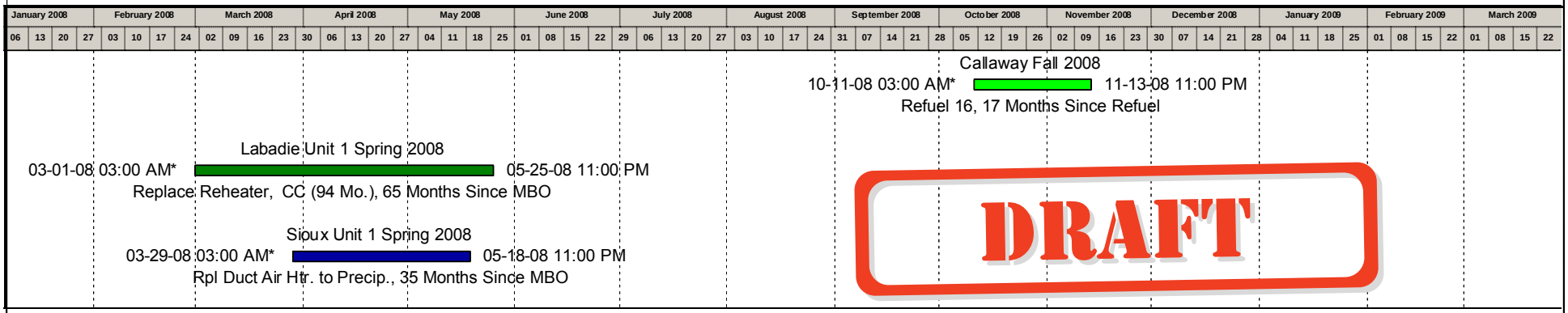
HIGHLY CONFIDENTIAL

Schedule MCB-D1

2008 Ameren Power Plants Major Outage Schedule - AUE

Date: 10-16-06
J.R. Patrick

PER CODE OF CONDUCT THIS DOUCMENT FOR USE BY AUE AND AMS PERSONNEL



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Callaway
Meramec
Sioux
Taum Sauk
Labadie
Rush Island
Keokuk

HIGHLY CONFIDENTIAL

Schedule MCB-D1

2009 Ameren Power Plants Major Outage Schedule - AUE

Date: 10-16-06
J.R. Patrick

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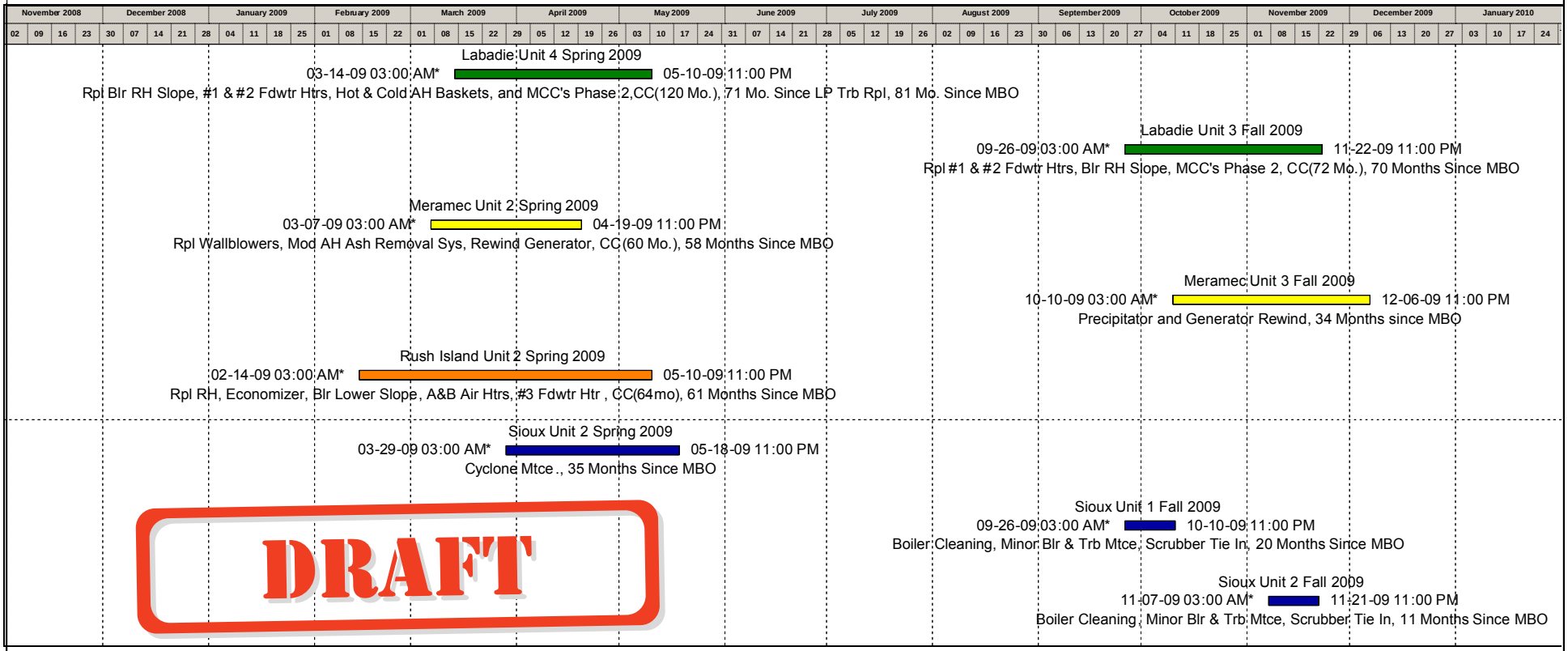

Callaway Meramec Sioux Taum Sauk
Labadie Rush Island Keokuk

HIGHLY CONFIDENTIAL

Schedule MCB-D1

2010 Ameren Power Plants Major Outage Schedule - AUE

Date: 10-16-06
J.R. Patrick

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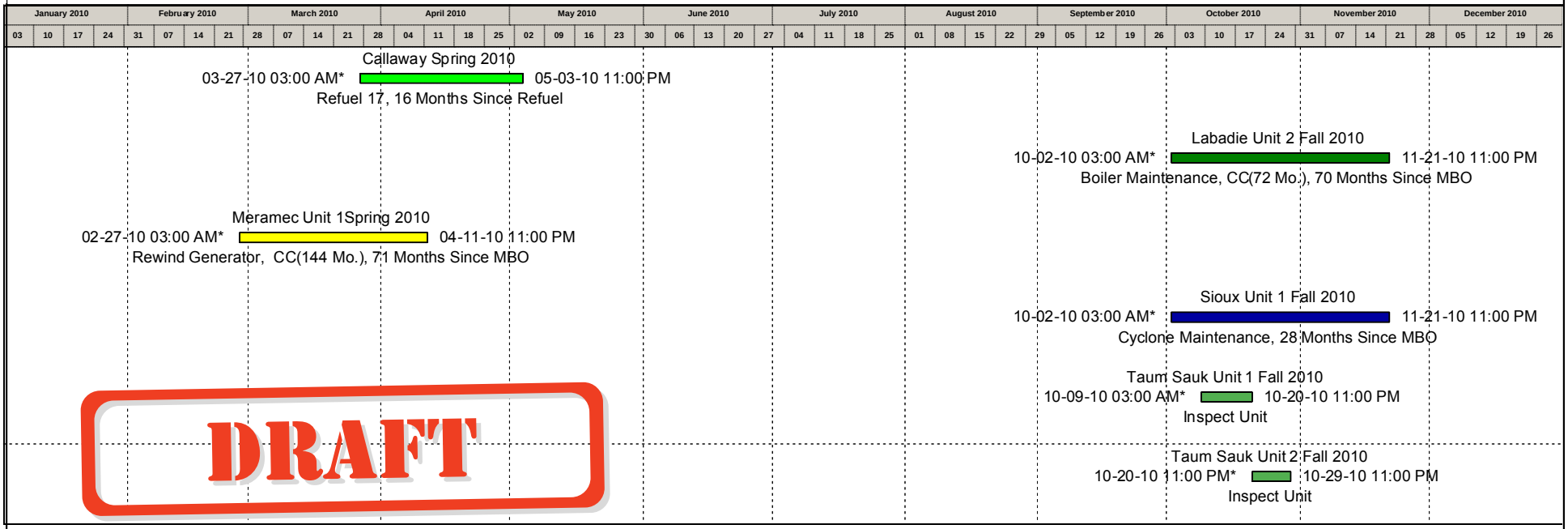

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Callaway Meramec Sioux Taum Sauk
Labadie Rush Island Keokuk

HIGHLY CONFIDENTIAL

Schedule MCB-D1

2011 Ameren Power Plants Major Outage Schedule - AUE

Date: 10-16-06
J.R. Patrick

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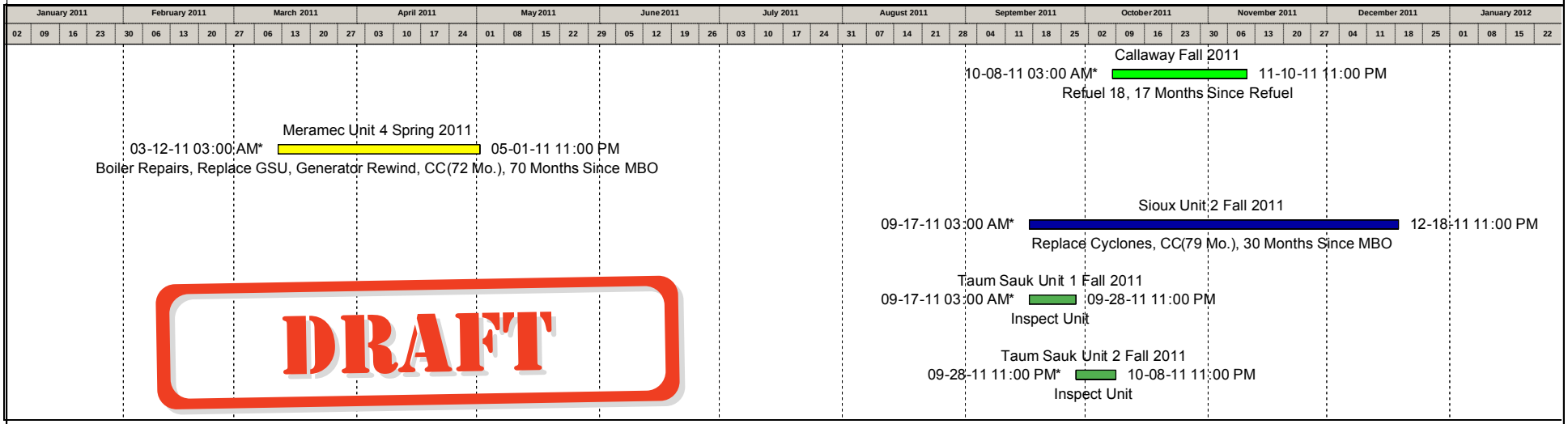

Callaway Meramec Sioux Taum Sauk
Labadie Rush Island Keokuk

HIGHLY CONFIDENTIAL

Schedule MCB-D1

AmerenUE's Response to
MPSC Staff Data Request
MPSC Case No. ER-2007-0002
AmerenUE's Tariff Filing to Increase Rates for Electric Service
Provided to Customers in the Company's Missouri Service Area

Requested From: John Cassidy

Data Request No. 0142:

Please refer to Staff Data Request No. 141 in the current rate case.

1. By generating unit, for Meramec, Rush Island, Labadie, Sioux and Callaway, please list and describe all major maintenance items completed during July 1, 2000 through June 30, 2006 that reduced AmerenUE generating unit's outages (length or frequency for all types of outages: planned, unplanned, derates, etc…) in any way on an ongoing basis. Also indicate when the maintenance was completed.

2. By generating unit, for Meramec, Rush Island, Labadie, Sioux and Callaway, please list and describe all capital improvements completed during July 1, 2000 through June 30, 2006 that reduced AmerenUE generating unit's outages (length or frequency for all types of outages: planned, unplanned, derates, etc..) in any way on an ongoing basis. Also indicate when the capital improvements were completed.

3. For each generating unit at Meramec, Rush Island, Labadie, Sioux and Callaway are there any situations that currently exist that are increasing a generating unit's outages (length and frequency for all types of outages) in any way on an ongoing basis? If yes, please list and describe the impact. Also explain when and how AmerenUE plans to address any such situations.

Response:

Attached to this response is a listing of all major maintenance items (which I have defined as those costing $500,000 or more) and capital improvements during the requested time period, with indications of when the projects were completed. It is not possible to provide lists of each such item that "reduced AmerenUE generating unit outages" because we continuously monitor ongoing operations and maintenance and try to maintain or replace components that we feel would lead to degraded equivalent availability. The subject units are decades old (average unit age of AmerenUE's fossil units is 37 years) and they require a certain level of ongoing capital and maintenance investment just to keep them operating reliably. We would hope and expect that some capital and maintenance expenditure projects do reduce forced (unplanned)

outages or lengthen cycles between planned outages, but whether that occurs depends upon a variety of factors, including what other aging plant components may fail, the operating characteristics and dispatch requirements of the unit and the types of fuels are burned in the unit. A project (such as HP/IP turbine replacement) may have a tendency to contribute to lengthened planned outage cycles in one area but typically once this area is addressed other areas (such as ash pits) become the limiting factor. We will only know, over time, whether various projects reduce outage frequency or duration as we continue to identify and address issues that arise from lengthening the cycle. Also attached to this response is a listing of currently existing conditions that could lead to increased de-rates or unit unavailability in the near future.

Prepared By: Mark C. Birk
Title: Vice President, Power Operations
Date: October 18, 2006

Major Project Spend by Plant and by Year

Cost Category	Bus. Div.		Project	Unit	Year of last spend
CWP - Const Wor	50 - MERAMEC PLAN	10262	10262 - MERAMEC 4 TURBINE CONTROLS	4	2001
		10645	10645 - MERAMEC-DRY ASH HANDLING U1-U4	Common	2002
		10775	10775 - MER RAILCAR UNLOADING,BARGE LOADING	Common	2002
		10802	10802 - MER U1&2 BOILER FURNACE SETTING REP	Common	2001
		10825	10825 - MER U1&2 PRIMARY SUPERHEATERS REPL	Common	2001
		10896	10896 - MER U1&2 PRECIPITATORS & DUCTS REPL	Common	2001
		10989	10989 - MER U2 AIR HEATER REPL	2	2001
		11152	11152 - MER U1 BOILER ECONOMIZER REPL	1	2004
		11421	11421 - MERAMEC UNIT 4 COAL MILL UPGRADES	4	2002
		11427	11427 - MERAMEC UNIT 3 CONTROLS UPGRADES	3	2006
		11464	11464 - MERAMEC UNIT 3 COAL MILL UPGRADES	3	2003
		11505	11505 - MER U1&2 SECONDARY SUPERHEATER REPL	Common	2004
		11508	11508 - MER U4 DEMOLISH ORIGINAL ESP&DUCTS	4	2002
		11588	11588 - PURCHASE NEW DOZER	Common	2002
		11619	11619 - MER U1 LOW NOX BURNER RETROFIT	1	2004
		11620	11620 - MER U2 LOW NOX BURNER RETROFIT	2	2004
		11626	11626 - MERAMEC-RECONSTRUCT ASH POND 498	Common	2002
		11645	11645 - MER U1 COLD END AIR HEATER REPL	1	2004
		11855	11855 - MERAMEC 3 WALLBLOWER REPLACEMENT	3	2003
		11968	11968 - MERAMEC UNIT #4 CONDENSER RETUBE	4	2002
		11989	11989 - MER U4 #1&2 FEEDWATER HEATERS REPL	4	2002
		12397	12397 - MERAMEC 4 ECONOMIZER REPLACEMENT	4	2005
		12524	12524 - MER U3 GSU XFMR REPL	3	2003
		12705	12705 - MER U1&2 4160V BREAKER REPL	Common	2004
		12814	12814 - MER 4A&B ESP DEMO & NEW DUCT INSTAL	4	2005
		12893	12893 - MERAMEC - 1&2 DCS IMPROVEMENTS	Common	2004
		13174	13174 - MERAMEC U4 REPL PRECIP PLATES&WIRES	4	2005
		13206	13206 - MER PLANT PERIMETER SECURITY IMPROV	Common	2002
		13410	13410 - MER U2 ECONOMIZER SIDEWALLS REPL	2	2004
		13421	13421 - MER U4 HP & LP TURBINE RETROFIT	4	2005
		13421	13421 - MER U4 HP & LP TURBINE RETROFIT	4	2004
		13609	13609 - MERAMEC COAL RECLAIM EXPANSION	Common	2004
		13764	13764 - MER U1&2 ECONOMIZER SOOTBLOWER ADDI	Common	2004
		13772	13772 - MER U4 AIR PREHEATER REBASKETING	4	2005
		13843	13843 - MER TURB GENERATOR FIRE PROTECTION	Common	2004
		14024	14024 - MER U1&2 SAFETY VALVE CAPACITY INCR	Common	2004
		14722	14722 - MER U4 BACKPASS & BOTTOM ASH SYS UP	4	2005
		14762	14762 - MERAMEC 3 LOW NOX BURNERS W OFA	3	2006
		14818	14818 - MER U1&2 ADD LTSH SOOTBLOWERS	Common	2004
		15129	15129 - MER U4 HOT PA FANS REPL	4	2004
	53 - SIOUX PLANT	0A072	0A072 - CRITICAL MOTORS, UEC POWER PLANTS	Common	2004
		10054	10054 - SIOUX UNIT 1 ECONOMIZER REPLACEMENT	1	2003
		10318	10318 - SX U1 ECONOMIZER ASH HANDLING SYST	1	2001
		10320	10320 - SX U2 ECONOMIZER ASH HANDLING SYST	2	2001
		10467	10467 - SX DIESEL GENERATORS & EMERG BUS	Common	2004
		10841	10841 - SX U1 CYCLONE LIGHTER PKG REPL	1	2001
		10972	10972 - SX U2 TURB CONTROL UPGR	2	2002
		10973	10973 - SX U1 TURB CONTROL UPGR	1	2001
		11035	11035 - SIOUX - BARGE UNLOADING SYSTEM	Common	2002
		11143	11143 - SX U1 5B & 6A FEEDWATER HEATER REPL	1	2001
		11418	11418 - SX U1&2 UPPER LEVEL WATER LANCE ADD	Common	2001
		11419	11419 - SX U1 BACKPASS SOOTBLOWER CONV&ADD	1	2001
		11493	11493 - SX U2 3RD SECTION SSH & OUTLET HDRS	2	2004
		11524	11524 - SX U2 CYCLONE LIGHTER PACKAGE REPL	2	2002
		11528	11528 - SX U1 SSH OUTLET HEADERS REPL	1	2003
		11531	11531 - SIOUX UNIT 1 OVERFIRE AIR SYSTEM	1	2001
		11610	11610 - SIOUX U2 FD FAN ROTOR REPLACEMENTS	2	2002
		11940	11940 - SX U1 HP/IP TURB REPL	1	2005
		11941	11941 - SX U2 HP/IP TURB REPL	2	2004
		12824	12824 - SIOUX - RAIL LOOP IMPROVEMENTS	Common	2002
		12895	12895 - SX U2 DCS CONSOLE REPL	2	2004
		12896	12896 - SX U1 DCS CONSOLE REPL	1	2005
		12989	12989 - SX COAL CRUSHER HOUSE DUST COLLECT	Common	2002
		13208	13208 - SX PLANT PERIMETER SECURITY IMPROV	Common	2003
		13259	13259 - SX U1&2 TURB GENERATOR FIRE PROTECT	Common	2002
		13430	13430 - SIOUX U2 ECO PILOT	2	2002
		13497	13497 - SX U1&2 CHAR HOPPER ASH REMOVAL SYS	Common	2004
		13636	13636 - SIOUX GSU TRANSFORMER REPLACEMENT	Common	2004
		13646	13646 - SIOUX UNIT 2 HP GENERATOR REWIND	2	2003
		14039	14039 - SIOUX 2 LOWER LOOP IMPROVEMENT	2	2004

		14041	14041 - SIOUX 1 LOWER LOOP IMPROVEMENT	1	2005
		14429	14429 - SIOUX 1 GSU TRANSFORMER REPLACEMENT	1	2005
		14483	14483 - SIOUX U2 OFA MODIFICATIONS	2	2006
		14580	14580 - SIOUX UNIT 1 LP GENERATOR REWIND	1	2005
		14740	14740 - SX U1 1ST PANEL OF CONVECTION PASS	1	2005
		15443	15443 - SIOUX U1 & U2 WET FLUE GAS DESULFUR	Common	2006
		16147	16147 - SIOUX U2 NORTH MSV#2 REPLACEMENT	2	2006
		16305	16305 - SIOUX U1 RRI SNCR	1	2006
		17840	17840 - SIOUX U2 RRI SNCR	2	2006
	58 - LABADIE PLANT	10783	10783 - LABADIE 2 HP/IP TURBINE REPLACEMENT	2	2001
		10803	10803 - LABADIE 1 HP/IP TURBINE REPLACEMENT	1	2002
		10865	10865 - LABADIE GRAVITY FILTER REPLACEMENTS	Common	2001
		10901	10901 - LBD U1-4 BACKPASS SOOTBLOWER ADDITI	Common	2001
		11047	11047 - LABADIE UNIT 2 - REPLACE ECONOMIZER	2	2001
		11084	11084 - LBD DANCE FLOOR TRUSS SYS,U2 PLATFO	2	2001
		11099	11099 - LBD U2 #3 IP FEEDWATER HEATER REPL	3	2001
		11144	11144 - LABADIE UNIT 2-CONDENSER RETUBING	2	2001
		11167	11167 - LBD U2 HPBFP TURB CONTROLS UPGR	2	2001
		11290	11290 - LBD COAL RECEIV CONTROLS UPGR	Common	2004
		11415	11415 - LBD U2 WATER CANNON ADDITIONS	2	2001
		11465	11465 - LBD U3 ECONOMIZER REPL	3	2003
		11466	11466 - LBD U4 BOILER MTCE WORK PLATFORM	4	2002
		11473	11473 - LBD U4 ECONOMIZER REPL	4	2002
		11534	11534 - LBD 2A&B AIR PREHEATER ROTOR REPL	2	2001
		11644	11644 - LBD U1 GSU XFMR REPL	1	2003
		11820	11820 - LABADIE U4-HP/IP TURBINE RETROFIT	4	2003
		11894	11894 - LBD ELEVATED OUTAGE ASSEMBLY ROOM	Common	2001
		11916	11916 - LBD U1 ECONOMIZER REPL	1	2002
		11917	11917 - LBD U1 WATER CANNON ADDITIONS	1	2002
		11918	11918 - LBD U4 WATER CANNON ADDITIONS	4	2002
		11919	11919 - LBD U3 WATER CANNON ADDITIONS	3	2003
		11987	11987 - LABADIE UNIT 4 CONDENSER RETUBING	4	2002
		11995	11995 - LBD U2 #1 HP HEATER REPL	2	2004
		12330	12330 - LBD TURB GENERATOR FIRE PROTECTION	Common	2001
		12527	12527 - LBD 4A&B AIR PREHEATER REPL	4	2002
		12528	12528 - LBD 3A&B AIR PREHEATER REPL	3	2003
		12529	12529 - LBD 1A&B AIR PREHEATER ROTOR REPL	1	2002
		12687	12687 - LBD U3 HP/IP TURBINE RETROFIT	3	2003
		12720	12720 - LABADIE UNIT 4 MCC REPLACEMENT	Common	2002
		12726	12726 - LBD U1 MCC REPL PHASE 1	1	2002
		12977	12977 - LBD U3 MCC UPGR PHASE 1	3	2003
		12978	12978 - LBD U2 MCC REPL PHASE 1	2	2004
		13241	13241 - LBD U1-4 FIRE PROT. BLR.TERM.RM.	Common	2003
		13302	13302 - LBD U3 LP TURB RETROFIT REPL	3	2003
		13303	13303 - LBD U4 LP TURB RETROFIT REPL	4	2003
		13553	13553 - LBD U4 LOWER SLOPE REPL	4	2003
		13622	13622 - LABADIE UNIT 2 GENERATOR REWIND	2	2004
		13625	13625 - LABADIE UNIT 1 GENERATOR REWIND	1	2003
		13851	13851 - LABADIE - FIRE WATER SUPPLY	Common	2004
		14058	14058 - LBD U4 CONDENSER CLEANING SYSTEM	4	2003
		14454	14454 - LBD U2 FURNACE NOSE REPL	2	2004
		14769	14769 - LBD - U2 APH Cold End Basket Rpl	2	2004
		15282	15282 - LBD U1,2&4 WATER CANNON PUMP REPL	Common	2004
		15527	15527 - LBD INTAKE DEBRIS CLEANING SYSTEM	Common	2006
		15548	15548 - LABADIE ASH BENEFICIAL USEWEST FACI	Common	2005
		15568	15568 - LBD U2 BOILER CLEAN IMPRV LOW.HYDRO	2	2005
		16140	16140 - LBD-2005 COAL MILL HEE REPLACEMENTS	Common	2005
		19153	19153 - UEC SMARTSIGNAL INSTALLATION AT UEC	Common	2005
		19397	19397 - Pak Mix	Common	2006
	63 - RUSH ISLAND P	10682	10682 - RUSH ISLAND UNIT 1 CONTROLS UPGRADE	1	2002
		10787	10787 - RI U1 HPIP TURB REPL	1	2002
		10804	10804 - RI U2 HPIP TURB REPL	2	2004
		10854	10854 - RUSH ISLAND UNIT 2 CONTROLS UPGRADE	2	2004
		10895	10895 - RUSH ISLAND BARGE UNLOADER	Common	2002
		11112	11112 - RI U1 SUPERHEAT REAR PENDANT REPL	1	2001
		11129	11129 - RI CONDENSER RETUBING STUDY,EVAL	Common	2002
		11504	11504 - RUSH ISLAND - NEW ADMIN BLDG	Common	2001
		11506	11506 - RI U1 REHEATER REPL	1	2006
		11650	11650 - RI U1 FURNACE WORK PLATFORM INSTALL	1	2002
		11966	11966 - RI U2 CONDENSER TUBE REPL	2	2002
		12015	12015 - RI CONDEN. STORAGE TANK & DEMIN UPG	Common	2002
		12344	12344 - RI U1 ID FAN REPL	1	2001
		12345	12345 - RI U2 ID FAN REPL	2	2002

		12391	12391 - RI U1&2 TURB GENERATOR FIRE PROTECT	Common	2002
		12729	12729 - RI - INTAKE STRUCTURE ENCLOSURE	Common	2003
		12773	12773 - RI DRY FLYASH COLLECTION SYSTEM	Common	2006
		12794	12794 - RUSH ISLAND UNIT 2 GENERATOR REWIND	2	2002
		12831	12831 - RUSH ISLAND RAIL LOOP IMPROVEMENTS	Common	2002
		12947	12947 - RI U2 SUPERHEAT REAR PENDANT REPL	2	2004
		12976	12976 - RUSH ISLAND UNIT 1 GENERATOR REWIND	1	2005
		13207	13207 - RI PLANT PERIMETER SECURITY IMPROV	Common	2003
		13213	13213 - RI SPARE TURB ROTOR PROCUREMENT	Common	2003
		13372	13372 - RI U1 GSU XFMR REPL	1	2004
		13374	13374 - RI U2 GSU XFMR REPL	2	2003
		13376	13376 - RI U1 GEN EXCITATION REPL	1	2005
		13558	13558 - RI SILO FILL FLOOR,WASHDOWN,DUSTSEA	Common	2003
		13576	13576 - RI U2 GEN EXCITATION REPL	2	2004
		14045	14045 - RI U1 HWAH SYSTEM RETROFIT	1	2006
		14218	14218 - RUSH ISLAND U2 HWAH SYSTEM RETROFIT	2	2004
		14746	14746 - RI U1 AIR PREHEATER REPL	1	2005
		16456	16456 - RUSH BARGE UNLOADER SYSTEM IMPRV.	Common	2006
O&M - Oper&Mai	50 - MERAMEC PLAN	0P057	0P057 - MER-COMMON ROUTINE EXPENSES - STEAM	Common	2002
		0P372	0P372 - MER OFFSITE ASH STRUCT FILL PRJTS	Common	2001
		0P574	0P574 - MER U1&2 CONVERT SOOTBLOWERS IK1-10	Common	2004
		0P609	0P609 - MER-UNIT 3 OUTAGE CONTRACT MTCE	3	2003
		0P610	0P610 - MER-UNIT 4 OUTAGE CONTRACT MTCE	4	2005
		0P622	0P622 - ROUTINE - STEAM ELECT. & OTHER FACI	Common	2001
		0P828	0P828 - MER-UNIT 1 PRECIPITATOR MTCE	1	2001
		0P829	0P829 - MER-UNIT 2 PRECIPITATOR MTCE	2	2001
		0P834	0P834 - MER-U4 GOVERNOR VALVE SEAT RPR	4	2003
		0PM1B	0PM1B - MER-UNIT 1 BOILER OVERHAUL (GCMS)	1	2004
		0PM1T	0PM1T - MER-U1 TRB GEN OVHL	1	2004
		0PM2B	0PM2B - MER-UNIT 2 BOILER OVERHAUL (GCMS)	2	2004
		0PM3B	0PM3B - MER-UNIT 3 BOILER OVERHAUL (GCMS)	3	2005
		0PM3T	0PM3T - MER-U3 TRB GEN OVHL	3	2003
		0PM4B	0PM4B - MER-UNIT 4 BOILER OVERHAUL (GCMS)	4	2005
		0PM4T	0PM4T - MER-U4 TRB GEN OVHL	4	2005
		10802	10802 - MER U1&2 BOILER FURNACE SETTING REP	Common	2001
		12814	12814 - MER 4A&B ESP DEMO & NEW DUCT INSTAL	4	2005
		13174	13174 - MERAMEC U4 REPL PRECIP PLATES&WIRES	4	2005
	53 - SIOUX PLANT	0P606	0P606 - SIOUX UNIT 1 OUTAGE CONTRACT MTCE.	1	2005
		0P607	0P607 - SIOUX UNIT 2 OUTAGE CONTRACT MTCE.	2	2006
		0PS1B	0PS1B - SX-UNIT OVERHAUL - SIOUX BOILER #1	1	2005
		0PS1T	0PS1T - SX-U1 TRB GEN OVHL	1	2005
		0PS2B	0PS2B - SX-UNIT OVERHAUL - SIOUX BOILER #2	2	2006
		0PS2T	0PS2T - SX-U2 TRB GEN OVHL	2	2006
		10054	10054 - SIOUX UNIT 1 ECONOMIZER REPLACEMENT	1	2001
	58 - LABADIE PLANT	0P191	0P191 - LBD-UNIT 4 RH CIRCUIT REPLACEMENTS	4	2002
		0P415	0P415 - LBD - LABADIE FIRE RESTORATION PNTG	Common	2001
		0P565	0P565 - LABADIE 4 GENERATOR FIELD RECOVERY	4	2003
		0P602	0P602 - LBD-U1 MBO Contract Mtc	1	2002
		0P603	0P603 - LBD-U2 MBO Contract Mtc	2	2001
		0P605	0P605 - LBD-U4 MBO Contract Mtc	4	2002
		0P611	0P611 - LBD-R-BOILER CLEANING	Common	2003
		0P612	0P612 - LBD-R-TRAIN UNLOAD	Common	2004
		0PL1B	0PL1B - LBD-U1 MBO Mtc Cost	1	2002
		0PL1T	0PL1T - LBD-U1 TRB GEN OVHL	1	2002
		0PL2B	0PL2B - LBD-U2 MBO Mtc Cost	2	2004
		0PL2T	0PL2T - LBD-U2 TRB GEN OVHL	2	2004
		0PL3B	0PL3B - LBD-U3 MBO Mtc Cost	3	2003
		0PL3T	0PL3T - LBD-U3 TRB GEN OVHL	3	2003
		0PL4B	0PL4B - LBD-U4 MBO Mtc Cost	4	2002
		0PL4T	0PL4T - LBD-U4 TRB GEN OVHL	4	2002
		11047	11047 - LABADIE UNIT 2 - REPLACE ECONOMIZER	2	2001
		13302	13302 - LBD U3 LP TURB RETROFIT REPL	3	2003
	63 - RUSH ISLAND P	0P145	0P145 - RI-REPLACE RRECIP DISCHARGE RAPPERS	Common	2002
		0P335	0P335 - RI -U2 GEN STATOR COIL RPRS	2	2001
		0P600	0P600 - RUSH ISLAND UNIT 1 OUTAGE CONTRACT	1	2002
		0P601	0P601 - RUSH ISLAND UNIT 2 OUTAGE CONTRACT	2	2004
		0PR1B	0PR1B - RI-UINT OVERHAUL - RUSH ISLAND BOIL	1	2004
		0PR2B	0PR2B - RI-UNIT OVERHAUL - RUSH ISLAND BOIL	2	2004
		0PR2T	0PR2T - RI-U2 TRB GEN OVHL	2	2003
		12976	12976 - RUSH ISLAND UNIT 1 GENERATOR REWIND	1	2004

Increasing or Noteworthy Sources of Unavailability

Plant	Unit	Description of Outage Source
Labadie	1	First superheater and first reheater tube leaks
Labadie	2	Air heater fouling
Labadie	2	Furnace wall tube leaks
Labadie	3	Furnace wall tube leaks
Labadie	3	Condenser Tube Fouling
Labadie	3	Generator cooling system problems
Labadie	4	Nothing notable
Meramec	1	Opacity Derates
Meramec	2	First superheater and first reheater tube leaks
Meramec	3	Air Heater Problems
Meramec	4	Furnace wall first reheater and economizer tube leaks
Meramec	4	Feedwater pump drive control problems
Rush Island	1	First reheater tube leaks
Rush Island	1	Earth movement
Rush Island	2	Economizer fouling
Rush Island	2	Slag fall damage to boiler tubes
Sioux	1	Air Heater Problems
Sioux	1	Cyclone tube leaks
Sioux	2	Furnace wall tube leaks

based on GADS information

How Addressed	When
Major boiler outage including boiler assessment and boiler cleaning. Also, includes replacing reheater tubes and installing weld overlaid tube shields.	In budget forecast - 2008 tentative)
Replacement of cold end air heater baskets during major outage.	In budget forecast - 2010 tentative
Major boiler outage including boiler assessment and boiler cleaning. Also, includes replacing water wall tubes around corner burner compartments and around old wall blower openings. Also, includes replacement of water cooled doors.	In budget forecast - 2010 tentative
Major boiler outage including boiler assessment and boiler cleaning. Also, includes replacing water wall tubes around corner burner compartments and around old wall blower openings. Also, includes replacement of water cooled doors.	In budget forecast - 2009 tentative
Steam side condenser maintenance	In budget forecast - 2009 tentative
Isophase bus duct cooling modifications	In budget forecast - 2007 tentative
NA	NA
Extensive precipitator maintenance scheduled for next major outage.	In budget forecast - 2009 tentative
Major boiler overhaul outage	In budget forecast - 2009 tentative
Replacement of middle bank of air heater baskets.	In budget forecast - 2010 tentative
Major boiler outage.	In budget forecast - 2011 tentative
Upgrade boiler feed pump controls.	In budget forecast - 2011 tentative
Air Heater Replacement	In budget forecast - 2007 tentative
Ongoing adjustments and repairs	Included in ongoing budget routines.
Replacement of economizer during major boiler outage.	In budget forecast - 2010 tentative
Major Boiler Outage including lower slope replacement.	In budget forecast - 2010 tentative
Retube cold section air heater	In budget forecast - project spends in 2007 and 2010 tentative
Replace cyclones.	In budget forecast - 2009=>2010 tentative
Furnace wall replacements during major boiler outage	In budget forecast - 2011 tentative

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Project	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Economizer												Sioux 2	Labadie 2 Sioux 1	Labadie 1 Labadie 4	Labadie 3	Meramec 1	Meramec 4		Rush Island 1			Rush Island 2
Lower Slope/Boiler Floor				Labadie 2	Labadie 1 Labadie 3		Sioux 2	Sioux 1							Labadie 4				Rush Island 1			Rush Island 2
Reheater		Labadie 4	Labadie 3			Sioux 1	Sioux 2	Labadie 2			Meramec 3								Rush Island 1	Labadie 1		Rush Island 2
Air Preheater								Meramec 4 Labadie 4 (HE Only)	Labadie 3 (CE Only)		Meramec 3 Sioux 2		Meramec 2 Rush Island 1	Labadie 1 Labadie 4	Labadie 3 Rush Island 2	Meramec 1 (CE Only) Labadie 2 (CE Only)	Meramec 4		Rush Island 1			Rush Island 2
Superheater						Sioux 1		Meramec 4			Meramec 3	Meramec 1 Meramec 2	Rush Island 1		Rush Island 2	Sioux 2 Meramec 1 Meramec 2	Meramec 4					
Cyclones																						
Waterwalls	Rush Island 1 Rush Island 2					Sioux 1		Meramec 4								Labadie 2						

AER

Project	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Economizer																		Newton 1	Newton 2			
Lower Slope/Boiler Floor									Coffeen 1													
Reheater									Coffeen 1									Newton 1	Newton 2	Coffeen 2		
Air Preheater																						
Superheater									Coffeen 1		Coffeen 2							Newton 1	Newton 2	Coffeen 2		
Cyclones																				Coffeen 2		
Waterwalls																						

Schedule MCB-D2