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Witness: Mark Birk
Sponsoring Party: Union Electric Company
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2011-0028

SURREBUTTAL TESTIMONY

OF

MARK BIRK

ON

BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a Ameren Missouri**

**St. Louis, Missouri
April, 2011**

SURREBUTTAL TESTIMONY

OF

MARK BIRK

CASE NO. ER-2011-0028

1 **Q. Please state your name and business address.**

2 A. My name is Mark Birk. My business address is One Ameren Plaza,
3 1901 Chouteau Avenue, St. Louis, MO 63103.

4 **Q. Are you the same Mark Birk who filed direct and rebuttal testimony in**
5 **this case?**

6 A. Yes, I am.

7 **Q. What is the purpose of your surrebuttal testimony?**

8 A. The purpose of my surrebuttal testimony is to address the rebuttal testimony
9 of Mr. Ryan Kind, who submitted his testimony on behalf of the Office of Public Counsel.
10 Specifically, I will be addressing the issues regarding Ameren Missouri's Taum Sauk Plant.

11 **Q. In his rebuttal testimony Mr. Kind insinuates that Ameren Missouri has**
12 **not taken full responsibility for the effects of the Taum Sauk breach and that the**
13 **incident wasn't fully investigated. Is this correct?**

14 A. No. The Commission opened Case No. ES-2007-0474 on June 19, 2007, to
15 thoroughly review the incident. Numerous documents and investigative reports were
16 reviewed, and key personnel within Ameren testified as to their knowledge of the incident.
17 Based on the evidence adduced at the hearing in that case, the Staff made several
18 recommendations for process improvements at Ameren Missouri, and the Company provided
19 responses to these recommendations, voluntarily agreeing to implement almost all of them.

1 The Commission found that the investigation had served its purposes of providing a means
2 for the Staff to conduct an investigation and submit an incident report, and for Ameren
3 Missouri to provide such information as the Commission required and respond to the incident
4 report, so the investigation docket was closed effective December 6, 2007. Details regarding
5 these recommendations are addressed later in this surrebuttal testimony.

6 **Q. The Taum Sauk Dam breach event that occurred in December 2005 was**
7 **truly a catastrophic event with substantial consequences. In the years since the event,**
8 **what major steps has Ameren Missouri undertaken as a result?**

9 A. As noted above and in Mr. Kind's rebuttal testimony, the Taum Sauk Dam
10 failure was truly a major catastrophe with substantial consequences. Multiple investigations
11 of the incident were undertaken, and reports were issued describing in detail the findings
12 associated with the failure and the events that led up to the breach. In addition to the
13 technical mistakes noted in the reports, there were also programmatic and organizational
14 concerns noted in the reports. From the beginning, Ameren Missouri took full responsibility
15 for the breach and took immediate steps to work with local, state, and federal agencies to
16 ensure appropriate steps were undertaken. As noted by Mr. Kind, Ameren Missouri did
17 indeed pay multi-million dollar fines to the Federal Energy Regulatory Commission
18 ("FERC") and made restitution to the State of Missouri for the damages incurred. Ameren
19 Missouri engineers used the knowledge gained from the breach to design and construct a new
20 robust Roller Compacted Concrete dam that featured industry-leading control and protection
21 systems. In order to improve the overall safety of the dam, several enhancements were
22 incorporated into the new design – these included a new overflow release structure,
23 integrated drainage gallery, and foundation enhancements that utilized the latest knowledge

1 of seismology. The new dam has been designed to withstand earthquakes stronger than the
2 largest earthquake to ever occur in North America – the New Madrid earthquake of the early
3 1800’s. Ameren Missouri also worked very closely with the Missouri Department of Natural
4 Resources to clean up and repair damage to Johnson’s Shut-ins State Park and then design
5 and construct a new park with substantial improvements. The new state park has been fully
6 restored and has been recognized for the many outstanding new features it now has. These
7 include a new visitor’s interpretive center, day-use facilities, equestrian accommodations,
8 and a variety of new cabins, camp sites and other accommodations. Ameren Missouri also
9 fully complied with its settlement with the State of Missouri, which protected customers from
10 bearing the costs of the breach.

11 **Q. You previously described “programmatic and organizational concerns”**
12 **that were findings of the investigatory reports. Can you please describe the actions**
13 **taken by Ameren Missouri as a result of these findings?**

14 A. Yes. Ameren Missouri took a number of steps following recommendations
15 from the various incident reports. We:

- 16 • Established a dam safety group that has the responsibility for, among other
17 things, design review, procedure development, training, and facility
18 inspections. It also has the authority to shut a facility down if it believes the
19 facility is being operated unsafely. This organization is led by Ameren
20 Missouri’s Chief Dam Safety Engineer (“CDSE”). The CDSE is independent
21 of Operations, and has the ability to report concerns directly to the President
22 and CEO of Ameren Missouri.

- 1 • Developed and implemented a quality management system, which provides
2 training on design basis and takes into account procedure development. This
3 system applies to all of Ameren Missouri’s fossil and hydro-electric units.
- 4 • Changed and updated our operating procedures, and issued directives that
5 reiterate that Ameren Missouri’s philosophy is that employees should take a
6 conservative approach and always favor making the safe decision.
- 7 • Ensured that Ameren Missouri Power Operations engineers and employees
8 work and focus on the Ameren Missouri power plants. Further, each facility
9 has on-site supervising engineers to oversee projects at that facility and report
10 to an Ameren Missouri manager.

11 **Q. What is the definition of “enhancement” and how does this apply to the**
12 **2007 Missouri state settlement associated with the rebuild of the Upper Reservoir at the**
13 **Taum Sauk facility?**

14 A. The definition of enhancement from the Merriam-Webster dictionary is
15 “heighten, increase; *especially*: to increase or improve in value, quality, desirability, or
16 attractiveness” and this is applicable to the 2007 Missouri state settlement which provides:

17 AmerenUE acknowledges that it will not attempt to recover from
18 ratepayers in any rate increase any in-kind or monetary payments
19 to the State Parties required by this Consent Judgment or
20 construction costs incurred in the reconstruction of the upper
21 reservoir dam (*expressly excluding, however, “allowed costs,”*
22 *which shall mean only **enhancements**, costs incurred due to*
23 *circumstances or conditions that are currently not reasonably*
24 *foreseeable and costs that would have been incurred absent the*
25 *Occurrence as allowed by law*), and further acknowledges the
26 audit powers of the Missouri Public Service Commission to
27 ensure that no such recovery is pursued. (emphasis added).

1 In this case, Ameren Missouri is currently seeking recovery of items that clearly “improve
2 the value, quality, desirability...” of the Taum Sauk facility.

3 **Q. Why did Ameren Missouri make certain “enhancements” to the Taum
4 Sauk facility during the Upper Reservoir rebuild project?**

5 A. After we determined that it was prudent to rebuild the Taum Sauk Upper
6 Reservoir, we reviewed the entire facility for opportunities to enhance the plant’s ability to
7 provide safe and efficient power production for decades to come. As noted in previous
8 testimony, many features were added to prepare the facility for substantially safer future
9 power production. These enhancements were prudent investments in the facility to ensure
10 the safety, efficiency and availability of the plant in the future. As I noted in my previous
11 testimony, we challenged our engineers during the rebuilding process to look for every
12 opportunity to enhance the facility in a cost conscious manner that would add value and
13 extend its life, as opposed to merely rebuilding it. Since Taum Sauk was returned to service
14 in April, 2010, it has performed exceptionally, and the new features and enhancements are
15 integral to this safe and efficient performance.

16 **Q. You stated in your previous testimony that essentially all of the costs that
17 Ameren Missouri incurred would have been incurred even if the breach had not
18 occurred – mainly due to the FERC’s Potential Failure Modes Analysis (“PFMA”)
19 process. Can you explain the PFMA process further and provide additional details as
20 to how the previous dam’s inadequacies would have been discovered and remediation
21 would have been required?**

22 A. Yes. The FERC has long required detailed dam safety inspections for all of
23 the facilities licensed by them pursuant to the Code of Federal Regulations (“CFR”). In

1 2003, the FERC initiated a new program to be administered as part of the required CFR
2 Part 12 safety inspections. This new initiative was the PFMA. The objective of this new
3 initiative and the entire Part 12 safety inspection was to more fully investigate and analyze
4 any potential failure modes associated with the project. Each of the facilities regulated by the
5 FERC has a prescribed schedule as to when the Part 12 inspections are to take place. The
6 inspections occur every five years. Ameren Missouri was first notified of the new PFMA
7 process through FERC correspondence detailing the next regularly scheduled Part 12
8 inspection at its Osage facility, scheduled for 2006. The Taum Sauk facility was scheduled
9 for the Part 12 inspection and its first PFMA inspection in 2008. Prior to the 2005 breach at
10 Taum Sauk, Ameren Missouri was not aware of the inadequacies in the Upper Reservoir
11 Dam (e.g. substantial “fines” in the rockfill, poor foundation conditions, etc.) which led to
12 the breach.

13 **Q. Mr. Kind indicated in his rebuttal testimony that Ameren Missouri’s**
14 **Integrated Resource Plant (“IRP”) filing in December 2005 did not mention the need to**
15 **upgrade the Taum Sauk facility and that Taum Sauk was expected to remain in service**
16 **through the 20 year planning horizon of the IRP. Why didn’t the 2005 IRP filing**
17 **recognize the need to upgrade the Taum Sauk facility?**

18 A. Since the PFMA process had not yet occurred, we had no knowledge of the
19 inherent problems with the Upper Reservoir, and accordingly did not account for those
20 problems in the IRP. However, we were aware of the detailed and meticulous procedure
21 required by the new PFMA process. This process (prescribed and attended by FERC dam
22 safety engineers) had been performed at many other hydro-electric facilities throughout the
23 country. I am certain that the inadequacies in the old Upper Reservoir would have been

1 discovered through this process. Dr. Paul C. Rizzo, a dam safety engineer with many
2 decades of experience with FERC dam inspections, testifies that this would have been the
3 case in his direct testimony, as well as in his surrebuttal testimony. Through the PFMA
4 process, a group of dam safety experts sort through operating and dam monitoring data,
5 drawings, original construction records and photographs, conduct interviews, and often
6 require field investigations. The detailed process has substantial precedent, and this is the
7 basis for our certainty that the dam's inadequacies would have been discovered. Similar to
8 issues uncovered through this process at other facilities, the dam safety inadequacies at Taum
9 Sauk would have been required to be remediated by the FERC. Because many of the issues
10 noted by Dr. Rizzo were related directly to the dam foundation, it is clear that a rebuild of the
11 Upper Reservoir would have been required.

12 **Q. Has Ameren Missouri complied with the Taum Sauk Settlement with the**
13 **State of Missouri and made prudent decisions in expending funds on the Taum Sauk**
14 **rebuilding projects?**

15 A. Yes – Ameren Missouri was vigilant in its review of the Taum Sauk projects
16 and their associated costs to ensure they were compliant with the State of Missouri
17 Settlement. We were careful to ensure that the newly rebuilt dam and its appurtenant
18 structures were not just rebuilt, but that they would be much more robust and enable the
19 facility to remain a valuable asset serving customers far into the future. We were fortunate to
20 have had insurance policies in place to cover the majority of these costs and are now only
21 requesting recovery of the costs of enhancements or costs that the Company would otherwise
22 have incurred absent the breach, which were not recovered from these insurance proceeds
23 (approximately \$90 million).

1 **Q. Does this conclude your surrebuttal testimony?**

2 **A. Yes, it does.**

