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July 24, 2013

VIA FEDERAL EXPRESS

Jeff Derouen Kentucky Public Service Commission 211 Sower Blvd. P.O. Box 615 Frankfort, KY 40602-0615

> Re: Joint Application of Kenergy Corp. and Big Rivers Electric Corporation for Approval of Contract and for a Declaratory Order

)) Case No. 2013-00221

Dear Mr. Derouen:

Enclosed is one (1) original and ten (10) copies each of Kenergy Corp. and Big Rivers Electric Corporation's Rebuttal Testimony of Gregory J. Starheim and Rebuttal Testimony of Robert W. Berry in the above-referenced matter.

Thank you and please return a file stamped copy in the enclosed, postage paid envelope.

I certify that on this date a copy of these documents has been served on all persons on the attached service list by Federal Express.

Sincerely Edward T. Depp

ETD/lb Enclosures

cc: James M. Miller, Esq. (w/enclosures) J. Chrisopher Hopgood, Esq. (w/enclosures)



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PUBLIC SERVICE COMMISSION

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BIG RIVERS ELECTRIC CORPORATION

JOINT APPLICATION OF KENERGY CORP. AND BIG RIVERS ELECTRIC CORPORATION FOR APPROVAL OF CONTRACTS AND FOR A DECLARATORY ORDER CASE NO. 2013-00221

VERIFICATION

I, Robert W. Berry, verify, state, and affirm that I prepared or supervised the preparation of the Rebuttal Testimony filed with this Verification, and that this Rebuttal Testimony is true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

best W. Series Robert W. Berry

COMMONWEALTH OF KENTUCKY) COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Robert W. Berry on this the $\underline{\partial \beta}$ day of July, 2013.

Notary Public, Ky. State at Large

Notary Public, Ky. State at Large My Commission Expires

> Notary Public, Kentucky State-At-Large My Commission Expires: July 3, 2014 ID 421951

COMMONWEALTH OF KENTUCKY BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

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In the Matter of:

Joint Application of Kenergy Corp. and Big Rivers Electric Corporation for Approval of Contracts and for A Declaratory Order

Case No. 2013-00221

REBUTTAL TESTIMONY

OF

ROBERT W. BERRY CHIEF OPERATING OFFICER

ON BEHALF OF

BIG RIVERS ELECTRIC CORPORATION

FILED:

July 25, 2013

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4		RUDERI W. DERKI
5		
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1 2 3		REBUTTAL TESTIMONY OF ROBERT W. BERRY
4 5	I.	INTRODUCTION
6	1.	
7	Q.	Please state your name.
8	А.	My name is Robert W. Berry. I am employed by Big Rivers Electric
9		Corporation ("Big Rivers"), 201 Third Street, Henderson, Kentucky
10		42420, as its Chief Operating Officer.
11	Q.	Are you the same Robert W. Berry that has filed direct testimony
12		before the Kentucky Public Service Commission (the "Commission") in
13		this proceeding?
14	А.	Yes.
15		
16	II.	OVERVIEW OF TESTIMONY
17		
18	Q.	What is the purpose of your testimony?
19	А.	The purpose of my rebuttal testimony is to respond to the direct
20		testimony filed by witnesses for Kentucky Industrial Utility
21		Customers, Inc. ("KIUC") and Century Aluminum of Kentucky General
22		Partnership ("Century"), and to the comments in lieu of testimony filed
23		by the Attorney General.
24	Q.	Will you please summarize Big Rivers' position in this case?
		Rebuttal Testimony of Robert W. Berry Page 3 of 26

1	А.	Yes. Big Rivers has agreed to participate in the proposed transaction						
2		among Century, Kenergy Corp. ("Kenergy") and Big Rivers (the						
3		"Century Transaction") in the role and on the terms contained in the						
4		documents submitted for approval in this case. It has submitted those						
5		documents to the Commission and to its lender, the United States						
6		Department of Agriculture Rural Utilities Service ("RUS"), to obtain						
7		the approvals required before the Century retail agreement terminates						
8		at the end of the day on August 19, 2013. I believe the Century						
9		Transaction is prudent, and the documents submitted to the						
10		Commission for approval are fair, just and reasonable and should be						
11		approved, along with the alternate service arrangements and the						
12		declaratory order requested.						
13								
14	III.	THE BIG RIVERS RATE CASES ARE NOT DEPENDENT UPON						
15		APPROVAL OF THE CENTURY TRANSACTION DOCUMENTS						
16								
17	Q.	The Attorney General contends on page 11 of his comments, and in						
18		other places in his comments, that Big Rivers bases its entire analysis						
19		of benefits of the Century Transaction "upon and inextricably linked to						
20		the Commission's acceptance of Big Rivers filed position in Case Nos.						
21		2012-00535 [the "Century Rate Case"] and 2013-00199 [the "Alcan						

Rebuttal Testimony of Robert W. Berry Page 4 of 26 Rate Case"]," which we will refer to collectively as the "Rate Cases." Do you agree?

3 Α. No. First, I am not sure I follow the Attorney General's argument. In 4 any event, a principal benefit of approving the Century Transaction is 5 Century not ceasing smelting operations, and in turn, that the 6 negative employment and other economic impacts that would occur if 7 Century did so, will certainly be avoided for the time being. That 8 benefit is not dependent upon the outcome of the rate cases. The same 9 is true of the Attorney General's argument about the fixed costs of the 10 Coleman Station being designated by Midcontinent Independent System Operator Inc. ("MISO") as a must-run unit under a System 11 Support Resource ("SSR") Agreement. Without the Direct Agreement 12 13 proposed as part of the Century Transaction, Big Rivers would be 14 responsible for a significant share of the SSR Agreement costs that 15 would not be reimbursed by Century. And whether or not the Attorney 16 General believes Coleman Station is used and useful after August 20, 17 2013, if MISO designates the units at Coleman Station as SSR, 18 Coleman Station will be required to operate. None of this is dependent 19 upon the outcomes of the Rate Cases. The Attorney General further states on page 9 of his comments that 20 Q.

the Century Transaction "agreements presume that, in order to make

Big Rivers and Kenergy whole, this Commission will approve \$115.4

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Rebuttal Testimony of Robert W. Berry Page 5 of 26

1		million in new revenues to be paid in the form of rate increases by Big					
2		Rivers remaining, captive ratepayers. This direct and significant					
3		impact on ratepayers cannot be ignored." Is this accurate?					
4	А.	No. This statement is inaccurate. There is no presumption or					
5		assumption in the agreements, the application or the testimony of Big					
6		Rivers or Kenergy about any outcome of the Rate Cases. For example,					
7		there are conditions to closing of the Century Transaction, but					
8		satisfactory resolution of the Century Rate Case is not one of them.					
9		This was purposeful on the part of Big Rivers, Kenergy and Century.					
10		No one desired for the approval of the proposed agreements to be					
11		dependent on resolution of the rate cases.					
12		The Attorney General either misunderstands or misrepresents					
13		the impact on the ratepayers of the Century Transaction occurring or					
14		not occurring. As I stated on page 45 of my direct testimony in this					
15		case:					
16 17 18 19 20 21 22 23 24 25		The Century Transaction is not anticipated to have an adverse impact on Big Rivers' rates beyond what would have been experienced if Century had ceased smelting operations. Assuming that the Century Transaction closes, and Century continues smelting operations, Big Rivers has a reasonable level of confidence that Big Rivers and its members will benefit to some degree from receipt of transmission revenues from Century if there is no SSR Agreement, or elimination of severance costs if there is a SSR Agreement.					

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1	Q.	On page 10 of his comments the Attorney General asserts that					
2		"Century will pay no actual transmission costs until capacitor					
3		upgrades are complete." Is this statement correct?					
4	A	No. Century will always pay for transmission just as any other					
5		transmission customer that is not a retail member served under a					
6		bundled rate, and Big Rivers will always collect transmission revenues					
7		through Kenergy. The SSR costs charged to Big Rivers for which					
8		Century is responsible will be reduced by an amount equal to the					
9		transmission revenues collected by Big Rivers for transmission service					
10		to Century. If transmission costs go up, the transmission charge to					
11		Kenergy that is then charged to Century will also go up. This is one of					
12		the distinct differences between the Century Transaction and the very					
13		complicated, multi-party arrangement that the Commission objected to					
14		in the July 14, 1998 order in Case No. 98-267.1					
15	Q.	Is the Attorney General correct when he states on page 10 of his					
16		comments that Century will not be paying for any of the MATS project					
17		additions to Coleman Station?					
18	А.	No. There seems to be confusion on this issue, both here and in the					
19		Century Rate Case. It is not clear to me from reviewing some of the					
20		exchanges in the hearing that everyone understood the time frames in					

¹ In the Matter of: The Application of Big Rivers Electric Corporation for Approval of the 1998 Amendments to Station Two Contracts Between Big Rivers Electric Corporation and the City of Henderson, Kentucky and the Utility Commission of the city of Henderson, Case No. 98-267.

which aspects of this subject were being discussed. So to clarify, Big 1 2 Rivers intends not to complete installation of the MATS equipment at 3 Coleman Station unless the SSR status of Coleman Station extends beyond the initial SSR Agreement term, which will end May 30, 2014. 4 long enough that the MATS equipment will be needed for Big Rivers to 5 6 satisfy its extended obligations resulting from the continuing SSR designation. If the MATS equipment is installed after the end of the 7 8 initial SSR Agreement term, then the capital and operating costs of the 9 MATS equipment will be included in and recovered through any SSR 10 Agreement that is then in effect, and Century's responsibility for those 11 costs will be as stated in the Century Transaction documents. If no 12 SSR Agreement is in place, then Big Rivers intends to idle the facility 13 and postpone incurrence of those capital costs until such time there is 14 a reliability issue or an economic benefit to restarting the plant. Will the termination of the existing Century agreements result in any 15 Q. 16 stranded costs? 17 A. The Attorney General and KIUC discussion of stranded costs is simply 18 an attempt to argue that Coleman Station will not be used and useful 19 following termination of Century's existing retail electric service 20 agreement. That discussion is not necessary or appropriate for this

21 case; it is an issue already raised by those parties in Case No. 2012-

22 00535. Even so, their premise is wrong.

Rebuttal Testimony of Robert W. Berry Page 8 of 26

1		Big Rivers and Kenergy are both regulated by the Commission,					
2		and Kenergy will remain Century's retail electric service provider					
3		under the Century Transaction even after Century's retail electric					
4		service agreement terminates on August 20, 2013. Similarly, Big					
5		Rivers' electric facilities (including Coleman Station) will remain used					
6		and useful to Big Rivers' members after Century's retail electric					
7		service agreement terminates. As explained in detail in Case No.					
8		2012-00535, those facilities are important to transmission system					
9		reliability, and they are important to Big Rivers' mitigation plan.					
10							
11	IV.	THE COMMISSION SHOULD REJECT THE KIUC CONDITIONAL					
12		APPROVAL PROPOSAL					
13							
14	Q.	KIUC witness Mr. Kollen proposes that the Commission issue only					
15		conditional approval of the Century Transaction documents subject to					
16		three conditions. Does Big Rivers view this approach as appropriate?					
17	A.	No. Big Rivers seeks approval of the Century Transaction documents					
18							
10		as it proposed, with Kenergy, in the application. Mr. Kollen's two					
19		as it proposed, with Kenergy, in the application. Mr. Kollen's two audit and reporting requirements accomplish nothing except to impose					
19		audit and reporting requirements accomplish nothing except to impose					

Rebuttal Testimony of Robert W. Berry Page 9 of 26

1		that Movants desire to address the impacts of the Century Kentucky						
2		contract on the rates of all other ratepayers and on generating						
3		resources, the proper venue for those issues is Big Rivers pending rate						
4		case where those issues were raised." We agree with the						
5		Commission's conclusion as to the proper case for addressing these						
6		concerns.						
7	Q.	Mr. Kollen justifies his request for only conditional approval of the						
8		Century Transaction documents on what he characterizes as several						
9		"uncertainties" that could impact the Commission's decision. Are these						
10		purported "uncertainties," listed beginning on page 15 of Mr. Kollen's						
11		testimony, valid reasons for postponing final approval of the Century						
12		Transaction documents?						
13	A.	No, for the following reasons, taking Mr. Kollen's points in sequence:						
14		• If Century does not sign the contracts this entire discussion is						
15		irrelevant.						
16		• The contract documents operate appropriately, whatever						
17		election Century makes regarding its "level and manner of						
18		operation."						
19		• The Base Load number is simply plugged into the contract						
20		framework and is immaterial to the Commission's decision						
21		about whether to approve the Century Transaction documents.						
22		The SSR Agreement is basically a tariff, although some points						
		· · ·						

Rebuttal Testimony of Robert W. Berry Page 10 of 26

1	may be negotiated. The Century Transaction documents
2	contemplate that the SSR Agreement may not be in effect on the
3	effective date of the transaction documents. And the Century
4	Transaction documents will require Century to reimburse
5	Kenergy and Big Rivers for all costs, even if unspecified in those
6	documents, incurred by them in connection with the Century
7	Transaction, in addition to requiring Century to reimburse the
8	costs of Big Rivers and Kenergy specified in those documents.
9	• The SSR Agreement will be between Big Rivers and MISO, not
10	Big Rivers and Century. See my comments to the previous
11	point.
12	• The level of transmission revenues and SSR costs are always
13	subject to change based upon changes in Century's load and
14	other factors. In any event, this bullet point in Mr. Kollen's
15	testimony is addressed entirely to rate impacts. As I previously
16	noted, the Commission has already stated that the Rate Case is
17	the proper forum for addressing the impact of the Century
18	contracts on rates.
19	The overarching point here is that these purported "uncertainties" are
20	either accounted for in the Century Transaction documents, or do not
21	need to be resolved for the Commission to approve or deny the
22	application in this case.

Rebuttal Testimony of Robert W. Berry Page 11 of 26 Q. KIUC states that approval of the Century Transaction documents at
 issue in this case could foreclose an opportunity for the Smelters to
 participate in a proposed "workout" regarding Big Rivers' application
 in Case No. 2012-00535. Do you agree?

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A. No. Putting aside the question of how much of an "opportunity" really exists, more importantly Big Rivers reiterates that suggestions about a "workout" discussion are inappropriate, infeasible, and unacceptable.

8 KIUC is simply repackaging the same arguments that it made 9 at the hearing in Case No. 2012-00535, where it first sprung this 10 proposal on Mr. Bailey, who testified: "[I]f you start to go to your creditors and ask them to forgive part of your debt ... in the end, 11 philosophically it's a problem. Do we renege on our obligations and ask 12 13 others to pick them up? No." (Bailey Hrg. Test. in Case No. 2012-00535, July 1, 2013, Tr. 13:17'42".) "It's both a corporate and a 14 personal philosophy ... to honor your commitments, and we honor ... 15 16 our commitment to them that we will pay that money back, and that's 17 our intent." (Berry Hrg. Test. in Case No. 2012-00535, July 2, 2013, Tr. 14:11'27".) 18 19 In addition, KIUC incorrectly assumes that there is time to

20 pursue this proposal. There is not. To reiterate what I stated in my
21 Direct Testimony:

Century has already sent its notice of termination of the 2009 Retail Agreement, so that contract will terminate effective

> Rebuttal Testimony of Robert W. Berry Page 12 of 26

August 20, 2013. If the Century Transaction is not in place, Big Rivers will not have any basis to provide Electric Services to Kenergy for service to Century Kentucky, even if the Hawesville Smelter is used for some other purpose. As a result, the Hawesville Smelter would be forced to shut down, causing significant negative economic consequences for the region especially Century Kentucky's employees, many of whom are served on a residential basis by electric power generated by Big Rivers.

10 (Berry Direct at p. 47:8-14.)

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Even aside from those transaction-related deadlines, the revenue loss that will befall Big Rivers as a result of Century's contract termination is immediate and significant. Still, KIUC continues to lack appreciation of this fact. KIUC likewise refuses to acknowledge that Big Rivers has already worked with its creditors to refinance its debts and obtain the best possible terms.

17 Big Rivers is aware that representatives of National Rural 18 Utilities Cooperative Finance Corporation ("CFC") watched portions of 19 the hearing in Case No. 2012-00535 and that they continue to watch 20 these proceedings closely. Following that hearing, representatives of 21 CFC informed us that they were reevaluating their support of the 22 revolving credit agreement recently approved by the Commission. On 23 the morning of July 24, 2013, Big Rivers was told that CFC will 24 continue to move forward with the transaction. Big Rivers expects 25 other creditors are also carefully monitoring these proceedings. In 26 addition, at least one potential electric power customer of Big Rivers

> Rebuttal Testimony of Robert W. Berry Page 13 of 26

has suspended discussions with Big Rivers based upon regulatory uncertainty. Despite these unsurprising facts, KIUC continues to endorse the fallacy that intentionally undermining regulatory support for Big Rivers will somehow intimidate Big Rivers' creditors into lending funds necessary to continue operations while simultaneously writing-off millions of dollars in debt. Nothing could be further from the truth.

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8 Big Rivers already faces the possibility of RUS implementing a 9 lockbox, but its management has thus far succeeded in convincing RUS 10 to abstain from that action while Big Rivers implements its mitigation plan. It is but a small leap to see that adverse regulatory activity in 11 12 Case No. 2012-00535 could change those circumstances, and if the 13 lockbox is implemented, Big Rivers' cash balance could materially 14 decrease before any proposed "workout" could even be negotiated. 15 KIUC's proposal is inappropriate, unrealistic, 16 counterproductive, and potentially ruinous for Big Rivers, the 17 Hawesville Smelter, and Western Kentucky. Consequently, the Commission should reject KIUC's proposal that the Commission 18 19 manufacture the regulatory circumstances for a "workout." 20

21 V. <u>KIUC MISSTATES THE PERCENTAGE RATE INCREASE BIG</u> 22 <u>RIVERS SEEKS IN THE RATE CASES</u>

Rebuttal Testimony of Robert W. Berry Page 14 of 26

2 Q. Mr. Kollen states that "This request is the latest in a series of Big 3 Rivers cases pending before the Commission seeking massive rate increases of 72% on the Rural and 110% on the Large Industrial 5 classes" (Kollen 5:5-8) Is this accurate?

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6 Α. No. The "request" in this case is for approval of contractual 7 arrangements, not a rate increase as Mr. Kollen states. I repeat the 8 obvious by referring to the Commission statement in its July 19, 2013 9 order that any rate impacts of these contracts are subjects for the 10 pending rate cases. Although Mr. Kollen's mischaracterization of rate 11 request percentages has nothing to do with the terms of the proposed 12 contracts being reviewed in this case, I have no choice but to respond.

13 Mr. Kollen simply misrepresents the percentage rate increases 14 being sought by Big Rivers in the Rate Cases. Since rate increase 15 percentages are not issues in this case, presumably he is doing this for 16 any emotional effect it may have on the Commission in the Century Rate Case the Commission is currently considering. But this 17 18 particular issue was thoroughly discussed in the Century Rate Case 19 hearing, and Mr. Kollen must know that he is incorrectly stating the 20 amount of the rate increases Big Rivers is seeking.

What Mr. Kollen does is simple. He starts with the actual amount of the rate increases that Big Rivers is seeking. He should

> Rebuttal Testimony of Robert W. Berry Page 15 of 26

1 also end there if his representation is to be correct, but he does not. 2 Next he takes the actual amount of the rate increases that Big Rivers 3 is seeking, and adds the effects of the inevitable, unrelated exhaustion 4 of the Economic Reserve and the Rural Economic Reserve rate credits. 5 He also adds in the effects of the smelter contract surcharge and 6 surcredit extinguishments, which occur automatically when the 7 smelter contracts terminate pursuant to the smelter notices. Depletion 8 of the reserve accounts and termination of the smelter surcharge and 9 surcredit will happen regardless of Big Rivers' general rate case filing. 10 Q. What are the mathematical flaws with Mr. Kollen's calculations? 11 Α. As Mr. Wolfram noted in his rebuttal testimony and cross-examination 12 in Case No. 2012-00535, Mr. Kollen inappropriately includes the 13 effects of the FAC, ES, and Non-FAC Purchased Power Adjustment ("Non-FAC PPA") mechanisms in his calculation. Mr. Kollen also 14 15 improperly includes the elimination of the smelter surcharge and 16 smelter surcredit in his calculation. Finally, Mr. Kollen ignores the 17 offsetting effect of the accelerated use of reserve funds that Big Rivers 18 proposed in Case No. 2013-00199. In fact, Mr. Kollen ignores the effect 19 of the reserve funds altogether (even without the increased offset from 20 the reserves as proposed by Big Rivers). Attributing all of these 21 increases to the base rate adjustments requested by Big Rivers in the

two rate cases is inappropriate and overstates the effect of the request by Big Rivers in those cases.

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3 Q. What are the appropriate quantifications of the rate adjustments 4 requested by Big Rivers in the two rate cases, on a cumulative basis? 5 A. For the appropriate quantifications of the proposed rate adjustments I 6 refer you to the Notice in Tab 6 of the Application in Case No. 2013-7 00199. Tab 6 includes a page entitled Schedule Showing the Amount 8 of Rate Change Requested in Both Dollar Amounts and Percentage 9 Change for Each Customer Classification for which the Proposed Rate 10 *Change will Apply [Net of MRSM and RER]*, a copy of which is 11 attached to this rebuttal testimony as Exhibit RWB Rebuttal 1, which 12 shows that the proposed wholesale base rate increase after both cases, 13 if approved as filed, will be 30.5% for the Rural rate class and 54.0% 14 for the Large Industrial rate class. Even without including the effects of the MRSM and RER, (as listed on the Schedule Showing the Amount 15 16 of Rate Change Requested in Both Dollar Amounts and Percentage 17 Change for Each Customer Classification for which the Proposed Rate Change will Apply [Gross of MRSM and RER] in Tab 6), the wholesale 18 19 increases sought by Big Rivers in the Rate Cases are 62.4% and 44.9% 20 for the Rurals and Large Industrials, respectively. The retail 21 increases, while not included in the exhibit, are lower than these 22 amounts, as Mr. Kollen correctly notes in his footnote 1 on page 5 of

> Rebuttal Testimony of Robert W. Berry Page 17 of 26

1		his testimony. Mr. Kollen's claim that Big Rivers is seeking retail rate
2		increases of 72% on the Rural rate class and 110% on the Large
3		Industrial rate class is wrong.
4		
5	VI.	THE CENTURY DESCRIPTION OF THE CENTURY TRANSACTION
6		DOCUMENTS MUST BE CORRECTED
7		ь.
8	Q.	Mr. Early, in his testimony on behalf of Century, describes several
9		aspects of how he believes the Century Transaction documents
10		function. Do you have any comments on his testimony on those
11		subjects?
12	А.	Yes. I would like to make sure there is no misunderstanding about the
13		meaning of any terms in the Century Transaction documents. First, I
14		would note that use of the word "net" is inappropriate in Mr. Early's
15		testimony on pages 4:01 and 11:18.
16		Mr. Early's definition of "Curtailable Load" on page 4:04 should
17		state that Curtailable Load is the maximum amount of additional Load
18		above the Base Load, rather than below 482 MW, that may be served
19		on a reliable basis as confirmed or approved by MISO assuming the
20		installation of Protective Relays. This is the definition in Section
21		1.1.28 of the Electric Service Agreement.

....

1		Based upon the context in which Mr. Early undertakes to define
2		"Base Load," that definition should be the maximum amount of Load,
3		not to exceed 482 MW, that may be reliably delivered to the Hawesville
4		Node, as confirmed or approved by MISO, in circumstances where Big
5		Rivers has idled the Coleman Generation Station. Base Load was
6		never intended to be variable except under the conditions stated in the
7		proposed contracts, which includes confirmation or approval by MISO.
8		These terms are found in Section 1.1.10 of the Electric Service
9		Agreement.
10	Q.	In detailing the "package of mitigation measures" that Century will
11		employ to protect its electric service from transmission contingencies,
12		Mr. Early mentions capacitors, protective relays, and "potentially other
13		equipment (including dynamic reactive equipment)" Big Rivers
14		and Kenergy have separate agreements with Century addressing
15		capacitors and protective relays. Is there a separate agreement
16		addressing "dynamic reactive equipment"?
17	А.	No. We were unaware that Century was considering installing
18		dynamic reactive equipment until we read Mr. Early's testimony. But
19		if Century decides to install such equipment, additional discussions
20		will be required because dynamic reactive equipment was never
21		discussed during the negotiation of the Century Transaction
22		documents.
8		Rebuttal Testimony of Robert W Berr

Rebuttal Testimony of Robert W. Berry Page 19 of 26

1	Q.	Are there other clarifications you wish to make with respect to Mr.			
2		Early's testimony?			
3	А.	Yes. Where Mr. Early discusses Century's alternatives under the			
4		proposed contracts if the capacitor additions and protective relays are			
5		not in place by August 20, 2013, pages 8 and 9, I would add the			
6		additional alternative of operating at or below the Base Load. I would			
7		also note on page 9:14 that Century pays transmission revenues to			
8		Kenergy, not Big Rivers.			
9					
10	VII.	BIG RIVERS DOES NOT AGREE TO PERFORM LIVE LINE			
11		TRANSMISSION MAINTENANCE AS PROPOSED BY CENTURY			
12					
13	Q.	Mr. Early asks the Commission to find that live line maintenance by			
14		Big Rivers on specified transmission lines is consistent with good			
15		utility practice, and is both necessary and appropriate to allow			
16		Century to operate at load levels that are sufficient to continue full			
17		operation of the Hawesville Smelter. Does Big Rivers want live line			
18		maintenance performed on the specified transmission lines?			
19	A.	No. Big Rivers does not want the live line maintenance that Century			
20		advocates performed on its transmission facilities. That type of			
21		maintenance is not required by the Century Transaction documents.			
22		This subject was first raised by Century on the next-to-last day before			

Rebuttal Testimony of Robert W. Berry Page 20 of 26 the forms of the Century Transaction documents were completed and turned over for filing with the Commission. At that time Century was talking about live line maintenance on one 345 kV transmission line (Coleman to Daviess); a proposal that Big Rivers rejected. We learned for the first time after reviewing Mr. Early's testimony that Century now wants live line maintenance performed on three of Big Rivers' transmission lines.

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8 The negotiations among Century, Kenergy and Big Rivers began 9 on the basis of determining whether Kenergy could provide electric 10 service to Century with energy priced basically at market prices, with 11 other arrangements as necessary to protect Kenergy and Big Rivers 12 from the costs and risks related to that arrangement. Century's 13 payment of the SSR costs was included in the proposed contracts when 14 it became apparent that MISO would likely make Coleman Station 15 must-run for Century to operate at 482 MW.

In late March, near the end of the negotiation of the principal transaction terms, Century raised the concept of incorporating capacitors and protective relays in a plan that Century hoped would allow it to operate its Hawesville smelter at an acceptable level for them without Coleman being designated as a SSR. So that concept was added to the Century Transaction documents. Contrary to Mr. Early's statement on page 11:09 of his testimony, while MISO was

> Rebuttal Testimony of Robert W. Berry Page 21 of 26

receptive to use of protective relays, MISO never commented to the transaction parties one way or the other on the subject of live line maintenance.

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Century may, under the Century Transaction documents, operate at full load with Coleman Station under an SSR Agreement, or operate at the Base Load plus, when permitted, Curtailable Load. This represents the agreements of the parties to the Century Transaction. Big Rivers did not agree and is not willing to agree to have its maintenance decisions on its system made based upon the economic desires of an individual transmission customer. This case is based on Century's desire for Kenergy to acquire the electric services required to serve the Hawesville smelter from the wholesale market. The risks of relying solely on the wholesale market rather than a firm power supply include both the volatility of price and the risk of transmission congestion constraints affecting delivery.

Q. Please explain why Big Rivers does not want live line maintenance
performed on its transmission facilities as proposed by Century.

A. Fundamentally, live line maintenance is more dangerous than
maintenance performed on a transmission line that is out of service.
Big Rivers' number one value is safety and its philosophy is simply:
"Safety is a way of life so no operating condition or urgency of service
can ever justify endangering the health and well-being of anyone."

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1 Whether the live line maintenance is performed by Big Rivers or by a 2 contractor, there is a greater risk to human life. Any injury to a 3 contractor's employee still affects a human life, reflects on Big Rivers and involves Big Rivers directly in the consequences. Even if outside 4 5 contractors were engaged to perform this maintenance, in addition to 6 the obvious human cost, an injury or casualty could result in Big 7 Rivers being embroiled in years of investigations, litigation and claims 8 consuming enormous internal and unreimbursed expenses. Big Rivers' 9 understanding is that most live line maintenance is performed to 10 protect the reliability of a transmission system serving an entire 11 system, not just to protect the profits of a single customer. Century 12 witness Mr. Morrow suggests that the only factors required to determine whether live line maintenance is prudent utility practice are 13 14 whether it is cost-justified and performed by a properly trained and equipped crew. Big Rivers believes that prudent utility practice 15 16 includes consideration of whether the increased risk to human life is 17 justified. In other words, Big Rivers is not willing to put a price on a 18 human life, which is what Century and Mr. Morrow are suggesting 19 when they infer it is acceptable to take additional safety risks for the 20 purposes proposed by Century if it is cost-justified. Q. Does Big Rivers believe that the live line maintenance wanted by

Century would accomplish what Century is seeking?

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Rebuttal Testimony of Robert W. Berry Page 23 of 26

1 Α. If the goal is to avoid any transmission constraints during the term of 2 the Electric Service Agreement that would require Century to operate at or below the Base Load with Coleman idled, I have my doubts. On 3 4 page 9:04-22 of his testimony, Mr. Morrow lists a number of 5 circumstances that could limit use of live line maintenance, but neither 6 he nor Big Rivers know whether any of those factors would limit live line maintenance on the subject transmission lines. On page 10:8-9 of 7 his testimony, Mr. Morrow suggests that live line maintenance is 8 9 frequently used in the industry. There are over 3,200 electric providers in the United States, but in three years Mr. Morrow's 10 11 company has only performed energized projects for 18 participants. In 12 my opinion, 18 utility providers out of 3,200 does not constitute "frequent." Furthermore, on page 19:13, Mr. Morrow admits that 13 14 transmission maintenance is typically performed de-energized. Live line maintenance would only apply to scheduled 15 16 maintenance of the subject transmission lines. It would not limit the

effect of any forced outages of transmission facilities. The Coleman to
Wilson 345 kV line is 16.3 miles in length. The Reid to Daviess County
161 kV line is 22 miles in length. Big Rivers owns only three miles of
the Coleman to Newtonville 161 kV transmission line. The balance of
that transmission line is located in the State of Indiana and is owned
and maintained by Hoosier Energy Rural Electric Cooperative, Inc.,

Rebuttal Testimony of Robert W. Berry Page 24 of 26 not Big Rivers. And all other objections aside, breaker work on the Coleman to Newtonville line cannot be physically performed in any event without taking the line out of service. So the Century demand is that Big Rivers be directed to have all scheduled maintenance on 41.3 miles of its transmission system forever performed by the live line method.

7 Last but not least, Century can continue to operate at its historical load of 482 MW without performing live line maintenance. 8 9 This can be accomplished by operating the Coleman plant under a SSR Agreement, which would also provide additional economic benefits to 10 11 Hancock County and Western Kentucky. The Coleman plant 12 contributes over \$132,000,000 annually to the local economy. This number does not include the school tax, occupational tax or coal 13 14 severance money contributed annually to Hancock County.

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VIII. <u>BIG RIVERS HAS RECEIVED THE ATTACHMENT Y REPORT</u>
 FROM MISO

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19 Q. What is the latest information Big Rivers has received from MISO on
20 the Base Load level for Century?

A. Big Rivers has received the Attachment Y report on Coleman Station
from MISO. A copy of that report, redacted by MISO to conceal or

Rebuttal Testimony of Robert W. Berry Page 25 of 26

- delete critical infrastructure information, is attached to this rebuttal
- 2 testimony as Exhibit RWB Rebuttal 2. In that report, MISO
- 3 establishes the Base Load at 338 MW.
- 4 IX. <u>CONCLUSION</u>
- 5 Q. Do you have any concluding remarks?
- 6 A. Yes. For the reasons stated in the application, our data requests
- 7 responses and rebuttal testimony, I would ask the Commission to enter
- 8 its order granting the relief requested in the application, and denying
- 9 the live line maintenance directive sought by Century.
- 10 Q. Does this conclude your testimony?
- 11 A. Yes.

Table of Contents to Exhibits Rebuttal Testimony of Robert W. Berry Case No. 2013-00221

Exhibit RWB Rebuttal 1 Rate Change Schedule

Exhibit RWB Rebuttal 2 Attachment Y Study Report Draft Dated July 18, 2013 (Redacted to remove critical infrastructure data)

Schedule Showing the Amount of Average Usage and Effect Upon the Average Bill for Customer Classification for which the Proposed Rate Change will Apply [Gross of MRSM & RER]

	100	Average Wholesale Bill at				
			Rates in Case	Rates in Case		
		Rates	No. 2012-00535	No. 2012-00535		Average
		In Effect	As Filed	Updated	Proposed	Usage
	Rate Schedule	Jun 28, 2013	Jan 15, 2013	Jun 24, 2013	Rates	(kWh)
#	1	2	3	4	5	6
}	Rural Delivery Service (RDS)	\$ 4,009,440	\$ 5,059,701	\$ 4,989,036	\$ 6,513.040	769,517,333
2	In an ((Dear) from Calump 2		£ 1.050.360	\$ 979,595	\$ 2,503,599	
3	Incr/(Decr) from Column 2	-	\$ 1,050,260			
4		~	26,2%	24_4%	62.4%	
≅ 6	Incr/(Decr) from Previous Column	-	\$ 1,050,260	(\$ 70,665)	\$ 1,524,004	
7			26.2° o	-1.4%	30.5%	
8						(2)
9						
10	Large Industrial Customer (LIC)	\$ 217,874	\$ 254,271	\$ 250,996	\$ 315,716	49,158,950
11						
12	Incr/(Decr) from Column 2	-	\$ 36,397	\$ 33,122	\$ 97,842	
13			16.7%	15.2%	44.9%	
14						
15	Incr/(Decr) from Previous Column		\$ 36,397	(\$ 3,275)	\$ 64,720	
16		100	16.7%	-1.3%	25.8%	
17						

18 Notes

For the Rural Delivery Service (RDS) the average represents the average wholesale bill for the three members served under the rate, and for the Large Industrial Customer rate (LIC) the average represents the average bill for the twenty industrial customers served under the rate.

20 Column 2 represents the effective rates in Big Rivers' approved tariffs as of June 28, 2013.

21 Column 3 represents the rates filed in Case No. 2012-00535 in the Application dated January 15, 2013.

22 Column 4 represents the rates provided in Case No. 2012-00535 in Rebuttal Testimony dated June 24, 2013.

23 Column 5 represents the rates filed in the Application in this case.

Schedule Showing the Amount of Average Usage and Effect Upon the Average Bill for Customer Classification for which the Proposed Rate Change will Apply [Net of MRSM and RER]

			Average Wholes	ale Bill at		
	Rate Schedule	Rates In Effect Jun 28, 2013	Rates in Case No. 2012-00535 As Filed Jan 15, 2013	Rates in Case No. 2012-00535 Updated Jun 24, 2013	Proposed Rates	Average Usage (kWh)
Ħ	1	2	3	4	5	6
I	Rural Delivery Service (RDS)	\$ 3,138,407	\$ 4,188,668	\$ 4,118,003	\$ 4,095,418	769,517,333
3	Incr/(Decr) from Column 2	-	\$ 1,050,260 33.5%	\$ 979,595 31.2%	\$ 957,010 30.5%	
5	Incr/(Decr) from Previous Column	-	\$ 1,050,260 33.5%	(\$ 70,665) -1 ₂ 7%	(\$ 22,585) -0.5%	
8 9 10	Large Industrial Customer (LIC)	\$ 167,007	\$ 203,403	\$ 200,129	\$ 257,113	49.158.950
12	Incr/(Decr) from Column 2	-	\$ 36,397 21.8%	\$ 33,122 19.8%	\$ 90,107 54.0%	
14 15 16	Incr/(Decr) from Previous Column	-	\$ 36,397 21.8%	(\$ 3,275) -1.6%	\$ 56.984 28.5%	

18 Notes

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For the Rural Delivery Service (RDS) the average represents the average bill for the three members served under the rate, and for the Large Industrial Customer rate (LIC) the average represents the average bill for the twenty industrial customers served under the rate.

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22 Column 4 represents the rates provided in Case No. 2012-00535 in Rebuttal Testimony dated June 24, 2013.

23 Column 5 represents the rates filed in the Application in this case.

24 For column 5, the Large industrial increase reflects the exhaustion of Economic Reserve in July 2014



MISO Coleman Units 1, 2, & 3 Attachment Y -2 Study - Compare Branch Results CONFIDENTIAL CEII - DO NOT RELEASE

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145P/Centoff IREDACT 175P IREDACT		250457 CSFRAK 8 69.		LN	45	67 1	31 3	193 8	#N/A	#N/A	#N/A	#N/A	8	N'A	Violation caused by suspens on
145PContoff [HEDACT 145PContoff [REDACT 175P [REDACT	DACTED CONTINGENCY	ZSOGOS OBKOY HP GB		LN	45	129-0	10 3	286.6	#N/A	#N/A	#N/A	#N/A	#	N'A	Violation caused by suspans on
145PCentoff (REDAC1 145PCentoff (REDAC1 145PCentoff (REDAC1 145PCentoff (REDAC1 145PCentoff (REDAC1 145PCentoff (REDAC1 175P (REDAC1	DAGTED CONTINGENCY	250508 08KOK HP 53		LN	85	697	44 0	107.2	#N/A	#N/A	#N/A	#NA	r.	NIA	Violation caused by suspens on
14SPCentalit (REDACT 14SPCentalit (REDACT 14SPCentalit (REDACT 14SPCentalit (REDACT 14SPCentalit (REDACT 14SPCentalit (REDACT 17SP (REDACT	PACTED CONTINGENCY		C 250796 08RUS AV 69 0 1	LN	45	129 5	10 3	287 9	IN IA	#N/A	#N/A	#N/A	#	N/A	Violation caused by suspension
145P/Qendati [REUA2] 145P/Qendati [REUA2] 145P/Qendati [REDA2] 145P/Qendati [REDA2] 145P/Qendati [REDA2] 155P [REDA2] 175P [REDA2]	DACIEL' CONTINGENCY]		250948 08WVMON E9 0 1	EN	45	66 9	16 0	1486	#N/A	#N/A	#\VA	#N/A	8	NA	Votation caused by suspension
TASPCentali REDACT TASPCentali (#EDACT) TASP (REDACT) TSP (REDACT)	DACTED CONTINGENCY		0 250795 08ROSSVL 89 0 1	LN	44	52 7	31	1:98	#N/A	INUA	#NIA	#N/A	e e e e e e e e e e e e e e e e e e e	NA	Violation caused by suspension
1459/Demoin IntEURCT 1755P (REDACT 1758P (REDACT	JACIED CONTINGENCY]		0 250798 06RUS'AV 69 0 1	LN	44	159.2	96	3413	#N'A	#N/A	#\UA	#NA	8	NA	Viciation caused by suspension
175P [REDACT	DACTED CONTINUENCY]	250795 03ROSSVL E9	.0 250948 08WVMONI 69 0 1	EN.	45	659	17 0	146.5	#N/A	#N/A	#N/A	#N/A			Violation caused by suspens on
175P (REDA21)	JACTEL CONTINGENCY]	250847 081HRN W 69	9.0 991964 THORN TWN 1 00 1	ŤR	69 3	84.1	47 2	120.4	#N/A	#N/A	#\\/A	#N/A	#	NA	Violation caused by suspens on
175P [REDACT	DACTED CONTINGENCY	248435 07NWTVL1 1	5: 253580 10NTvL16 161 1	LN	335	342.6	248.6	102 3	#N/A	#NA	#N/A	#N/A		NA	Vo aton caused by suspension
ITSP (REDACT 17SP (REDACT	DACTED CONTINGENCY]	246435 07MWTVL1 1	51 340552 5COLEMAN 161 1	LN	335	242.6	248.7	102 3	PNIA	AMA	#N/A	#NJA		N'A	Vio ation caused by suspension
175P [REDACT 175P IREDACT 175P [REDACT	DACTED CONTINGENCY)	218435 07 NWTVL1 1	51 253580 10NTVL16 161 1	LN	335	354.5	249.6	105 8	#NIA	#NEA	#MA	#N/A			Vio ation caused by suspension
ITSP IREDACT ITSP IREDACT ITSP IREDACT ITSP IREDACT ITSP IREDACT ITSP IREDACT ITSP IREDACT	DACTED CONTINGENCY)	248435 07NWTVL1 1	51 340552 500LEMAN 161	LN	335	354 5	248.7	105 8	#NIA	#NA	#N/F	#N/A			Violation caused by suspension
17SP [REDADT	DACTED CONTINGENCY]	248435 07NWTVL: 11	51 253580 10NTVL16 161 1	LN	335	497 6	249.6	148.5	#NIA	#N/A	#N/A	#N/A			Vialation caused by suspens on
175P (REDACT) 175P (REDACT) 175P (REDACT) 175P (REDACT)	DACTEL CONTINGENCY)	246435 071WYTVL1 16	51 340552 5COLEMAN 161 *	LN	335	497 7	249.7	148.6	ENIA	#N/A	#N/A	ENIA	£		Violation caused by suspension
175P [REDACT: 175P [REDACT: 175P [REDACT:	ACTED CONTINGENCY)	248642 07MIDWAY 69	0 24886* 07TRY_60 69 0 1	LN	35	358	24.9	102.3	FNIA	IN/A	#N/A	#N/A			Violation caused by suspens on
17SP IREDACT	DACTED CONTINGENCY)	248435 07NWTVL1 18	51 253560 10N FVL 15 151 1	ĻN	335	497 6	248.6	148.5	#N/A	#N/A	#N/A	#N/A			Violation caused by suspens on
ITSP IREDACT	DACTED CONTINGENCY)	246435 07 NWTVI.1 16	51 340552 5COLEMAN 161 1	LN	335	497 7	248.7	148.6	#N/A	#N/A	#WA	IN MA			Violation caused by suspension
ITSP IREDACT	DADTED CONTINGENCY)	248642 07MIDWAY 69	0 24885 07TRY 52 69 0 1	LN	35	358	249	102.3	ENKA	#N/A	INVA	ENIA			Violation caused by suspension
	DADTED CONTINGENCY		51 253580 10NTVL15 161 1	LN	335	4976	248.6	148.5	#N'A	#MA	#33/6	entra			Violation caused by suspension
	ACTED CONTINGENCY		31 340552 5COLEMAN 181 1	LN	335	497 7	249.7	148.5	SN/A	#MA	#NIA	#NIA			Violation caused by suspension
I7SP IREDACT	ACTED CONTINGENCY		0 248861 07TRY 69 69 0 1	LN	35	35.6	245.7	102.3	#N/A	#N/A	#W6	EN'A			Violation caused by suspension Violation caused by suspension
1	ACTEC CONTINGENCY		253511 10NE66 59 0 T2	TR	35 72	336	70.4	102.3	enia enia	#NA #NA	#\46 #\46	#N/A #N/A		N/A N/A	a o ei ou caitsen nà grabeus ou
1	ACTED CONTINGENCY		51 253580 10NTVL16 161 1	LN	335	4976	248.6	148.5	ENHA	en/A	#146 #1446	#PV/A #N2A			the store second by some second
time to the	DACTED CONTINGENCY]						a. 10112		1.1.100			4110411			Vio ation caused by suspens on
(DACTED CONTINGENCY		51 340552 5COLEMAN 161 1 0 248861 07TRY 63 69 0 1	LN	335	497 7	248.7	148.6	PN/A	#N/A	HNA	#N/A			Violation caused by suspension
(inclusion)				611	35	35.8	24.9	102 3	#N/A	#N/A	#\\A	#N/A			Violation caused by auspens on
1	ACCED CONTINEEROY!		9.0 248808 07 WAUKP 59 D	LN	25	275	26 5	109 9	RNA	#N/A	SHIA	#NA			Violation caused by suspens on
	DACTED CONTINGENCY	218607 07D GWOD 6	9.0 248868 07 MAUKP 69.0 1	LN	25	275	26 5	109 9	#N/A	#NA	們訪	#NA			Violation caused by suspens on
	DACTED CONTINGENCY			LN	335	354.5	248.6	105.8	#N/A	#NA	#N/A	#N/A	#	N'A	Violation caused by suspens on
	DACTED CONTINGENCY	246435 07NWTVL1 16	51 253580 10NTVL16 161							11000					
	JACTED CONTINGENCY JACTED CONTINGENCY] JACTED CONTINGENCY]	246435 07 NWTVL1 18 248435 07 NWTVL1 18	5" 340552 SCOLEMAN 161 1	LN	335	354 5	245.7	105 8	#NHA	#N/A	IN/A	#N/A		NA	Violation caused by suspension
175P REDACT	JAC155 CONTINGENCY] JACTEE CONTINGENCY] JACTEE CONTINGENCY] JACTEE CONTINGENCY]	246435 075W/TVL1 16 248435 075W/TVL1 16 248435 075W/TVL1 18									ffNJA ffNJA ffNJA	IINIA IINIA		N:A	Violation caused by suspension Violation caused by auspension

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MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Branch Results CONFIDENTIAL, CEII - DO NOT RELEASE

	1	L mitting Element			Coleman 1 2 8			Coleman 1,	2, & 3 ON	10		Unit Impact	7
rche-l	Contingency Desenation	Frem bus ** ** To bus ** CKT	Type	0.0	Bas		Loading			Loed ng	Wolf-	PTOF OTOF	
175P	REDACTED CONTINGENCY	248642 071/1DVVAY 69.0 248861 07TRY_69 69.0 1		Rabing	Cant MVA Flee			Cent MVA		6	Mylon	(* 5%) (> 3%)	M SO Contracts
7SP	(REDACTED CONTINGENCY)	362186 2WATAUGA HP 69.0 262187 2EUZABET-ITNE9 0 1	1.00	35		249	102 3	#N/A	#N/A	RWA	#NIA	#N/A	V o'al on caused by suspens on
VSPCentoff	REDACTED CONTINGENCY	248907 07DOGWOD 59.0 248808 07MAUKP1 69.0 1	LN	58 4		61 4	107 3	#N/A	#NA	₩¥A	州	\$N'A	Violation caused by suspension
17SPCentoff	REDACTED CONTINGENCY	248807 07DOGWOD 69.0 248808 07MAUKPT 69 0 1	LN	25		27 2	1128	RNIA	#NVA	#N/A	#N/A	enia	Violation caused by suspension
15PCentot	REDACTED CONTINGENCY		LN	25		27 2	1126	#NIA	HNA	#N/A	#N/A	#NIA	Viciation caused by suspension
17SPC molelf	REDACTED CONTINGENCY	352124 2LGVELLTN 69.0 352496 2WATTROAD TNE9.0 1	LN	58 4		612	105.5	#N/A	#NVA	#N/A	#N/A	#N/A	Violation caused by suspansion
1/SPCentoti	REDACTED CONTINUENCY	362124 2LCVELLTN 69.0 362456 2WATTROAD TN69.0 1	LN	58 4		612	102.9	A'IA	#NA	#NYA	#NJA	#N/A	Violation caused by suspension
17SH	PEDACTED CONTINGENCY	362124 2LOVELLTN 69.0 362495 2WATTROAD 1N09.0 1	LN	58.4		612	106 5	#N/A	₩¥A	#N/A	#N/A	#N/A	Violation caused by suspension
175h	IREDACTED CONTINUENCY	347946 4PANA 138 348788 4SCHRAMCY TP 138 1 348067 7RAMSEY 345 348866 4RAMSEY CPPS 138 1	LN	202		39 0	115 2	219.4	35 0	108.6	13		7 Violation made worse by suspens on
75H	REDACTED CONTINGENCY		TR	352		94 5	101 8	3710	95 6	97 1	17		1 Violation caused by suspension
175h	REDACTED CONTINGENCY	346067 7RAMSEY 345 348068 4RAMSEY CIPS '38 1	TR	382		94 C	101 7	3705	956	97 0	17	8 4.018058	7 Violation caused by suspens on
175h	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335		133.5	139 5	IN!A	AMA	#N/A	#N/A	#N/A	Violation caused by suspension
75H	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 1F1 1	LN	335		133 E	129 7	#N/A	#N/A	INVA	#N/A	#N/A	Violation caused by suspension
7SH	[REDACTED CONTINGENCY]	248542 97MIDWAY 69 0 248561 07TRY_69 69 0 1	LN	35		24 E	106.0	#N/A	#N/A	RNA	#N/A	#N/A	Violation caused by suspens on
75H	[REDACTED CONTINGENCY]	324578 2HPDS T8 69 0 324769 2WALKRKU 69 0 1	UN	28		110	103 4	AVIA	#N/A	#N/A	#N/A	#NJA	Violation caused by suspens on
ISH	[REDACTED CONTINGENCY]	324525 2MAR' S 89.0 324625 2MARONKU 69.0 1	LN	28		19 E	101 5	#H#A	#N/A	#N/A	#N/A	PNA	Violation caused by suspension
17SH		362124 2LCVELLTN 69 0 362495 2WATTROAD TN69 0 1	LN	58 4		62 7	105 5	#NIA	#N/A	#N/A	#WA	#NIA	Violation caused by suspension
1758	(REDACTED CONTINGENCY)	325377 SCOLEMAN TAP 161 325078 SPADUCAH PRº 161	LN	245		181 2	102 6	236 0	172.3	96 3	15-	4 3.47629	8 Violation caused by suspension
175H	[REDACTED CONTINGENCY]	340613 5L WING 161 360016 5MARSHALL KY 161 1	LN	223		63 C	106.8	214.2	56 1	96 1	23	9 5.395033	9 Violation caused by suspension
1754	(REDACTED CONTINGENCY)	340518 SLIVING 161 360328 5BARKLEY HP 161 1	LN	223		52 C	126 1	25C Z	79 5	112.2	31	0 6.997742	7 Violation made worse by auspens on
1758	[REDACTED CONTINGENCY]	362124 2LCVELLTN 69.0 362495 2WATTROAD TN65 0 1	£Ν	58 4	617	627	105 6	#N/A	#N/A	#N/A	#N⊮A	#N/A	Vio anon caused by suspension
1750	[REDACTED CONTINGENCY]	362124 ZLCVELLTN 59.0 362496 ZWATTROAD TN69.0 1	LN	58 4		62 7	105 6	#NºA	#N/A	#N/A	#N/A	ANNA	Violation caused by suspension
75H	REDACTED CONTINGENCY]	352124 2LOVELLTN 59.0 352495 2WATTROAD TNS9 0 1	LN	584	= • (5)	62 7	105 6	#N/A	#N/A	fr¥A	#N/A	#NJA	Violation caused by suspension
	(REDACTED CONTINGENCY)	325077 SCOLEMAN TAP 161 325078 SPADUCAH PR 161 1	LN.	245		181 2	101 8	2335	172.3	95 3	15	4 3 47629	5 Violation caused by suspension
17511	[REDACTED CONTINGENCY]	340518 5LIVING 161 350016 5MARSEALL KY 161 1	LN	223		63 (1043	¢₩A	#N/A	INA	₩VA	ANA	Violation caused by suspension
7511	REDACTED CONTINGENCY]	340613 SLIVING 161 360326 SBARKLEY HP 161 1	UN	223		92 6	123 2	243.6	79 5	109 2	31	7.02031	6 Violation made worse by suspension
7SH	[REDACTED CONTINGENCY]	362186 2WATAUGA HP 69.0 362187 2EUZABETHTN69 0 1	LN	584	60.6	616	103 B	#N/A	#N/A	IN/A	e N/A	#N/A	Violation caused by suspension
7SHCanigR	RECACTED CONTINGENCY	346774 7BALDWIN 345 346776 7TURKEY HILL 345 1	LN	S56	1-770	693.4	123 1	1161,5	692 2	121 5	15	5 3.496671	3 V o aton made worse by suspension
175HCentofi	REDACTED CONTINGENCYT	348729 4W MT VERN W 139 346927 7W MT VERNON 345 1	TR	448	465 3	250 7	103 9	4517	249.1	100 8	131	6 3.065977	4 Vio abon made worse by suspension
176HCtental	REDACTED CONTINGENCY	347016 4EFFGHMNW 38 347024 4EFF NGHV 138 1	LN	263	293 2	60 8	1115	279 5	63.2	106 3	13	7 3.092550	8 Violation made worse by suspension
17SHCentoll	REDACTED CONTINGENCY	347016 4EFFGHMNW 138 347024 4EFF NGHM 138 1	LN	263	293 5	60 6	1116	279 7	60 2	106 4	13	8 3.15124	2 Violation made worse by suspension
176MCento#	(REDACTED CONTINGENCY)	347946 4PANA 138 348785 4SCHRAMCY TF 138 1	LN	202	236 0	39.5	1169	226.2	35.8	109 3	15	8 3.566591	4 Violation made worse by suspans on
17SHCentoff	[REDACTED CONTINGENCY]	348730 4MIDWAY E 138 348788 4SCHRAMCY TP 138 1	LN	202	266,3	735	131 8	2510	70 2	124 2	15	3 3,453724	5 Violation made worse by suspension
17SHCentoll	(REDACTED CONTINGENCY)	347946 4PANA 138 346068 4RAMS EY CIPS 138 1	EN	264	265.4	44.5	100 9	251 3	44.8	95 2	15	• 3.408577	9 Violation caused by suspension
1/SHCentoff	REDACTED CONTINGENCY	346067 7RAMSEY 345 346066 4 RAMSEY C PS 136 1	TR	382	390.9	955	102.3	370.2	95 C	96 9	20	7 4 672686	2 Vo abon caused by suspens on
7SHCen:off	[REDACTED CONTINGENCY]	347946 4PANA 138 346068 4RAMSEY C4PS 138 1	UN	264	266.3	44.E	100 9	2512	44 8	95 1	15	3.408577	9 Violation caused by suspension
1°SHCancolt	REDACTED CONTINGENCY	348067 7RAMSEY 345 348068 4RAMSEY C PS 138 1	TR	382	390.4	95.5	1022	369 b	95 C	96 5	20	8 4.695259	6 Violation caused by suspension
17SHCantall	[REDACTED CONTINGENCY]	348774 7BALDWIN 345 348776 7TURKEY HTL 345 1	LN	956	1054,9	693.4	110 3	10399	692.2	108.8	15	0 3.306004	5 Volation made worse by suspension
17SHOentoff	[REDACTEJ CONTINGENCY]	346774 7BALDWIN 345 348775 49ALDWIN 138 1	IR	448	470.3	293 6	105 U	456 3	287 1	101 5	14	0 3.160270	9 Vio at on made worse by suspension
17SHCettroff	[REDACTED CONTINGENCY]	350204 4CAMPRELLH L 138 350205 5CAMPRELLHAL 161 1	TR	224	323 6	25 F	144 5	295 9	22.6	132 1	27 9	9 6 297968	4 Vo at on made worse by suspens on
1SHCenton	(REDACTED CONTINGENCY)	300061 5200NE 161 369493 2800NE 69 0 1	TR	12		92 7	1125	1116	92.6	99 7	14-	4 3 250564	3 Violation caused by suspension
7SHCenint	[REDACTED CONTINGENCY]	324512 2EDDY F RE 0 324693 2PRINCE 69.0 1	LN	64		321	105 0	RNIA	INIA	#N/A	#N/A	#N/A	Vio at on caused by suspension
7SHCENDI	[REDACTED CONTINGENCY]	324512 2EDDY F 69 0 362516 2KY DAM 69 0 1	LN	70		35 8	102 1	#N5A	#N/A	#WA	#N/A	#N/A	V b at on caused by suspension
7SHGentoff	(REDACTED CONTINGENCY)	360103 5PHIPPS 8 NP 161 360705 5JSEV C34 TP 161 3	EN	472.1		3194	1042	478.7	314.4	101 4	13 -		7 Volation made worse by suspension
7SHCerroll	(REDACTED CONTINGENCY)	352124 2LOVELLTN 59.0 382498 2WATTROAD TW69 0 1	LN	58 4		627	105 5	₩NA	#N/A	#N/A	#N/A	#N!A	Vio abon caused by suspension
7SHCantofi	(REDACTED CONTINGENCY)	340619 SLIMING 161 36C016 SMARSHALL KY 161 1	LN	223		59.3	100 5	#N/A	#RIA	#N/A	#N/A	#N/A	Violation caused by suspans on
7SIICanuf	IREDACTED CONTINGENCYT	340618 5LIVING 161 360326 5BARKLEY HP 161 1	LN	223		83 9	1174	230.1	70 6	1032	31		2 Volation made worse by suspens on
7SHCantol	[REDACTED CONTINGENCY]	362124 2LCVELLTN 55.0 362496 2WATTROAD TN69 0 1	LN	584	63 9	627	109 5	#N/A	#ht A	¢₩A	#WA	A SA	Violation caused by suspension
7SHCentafi	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TH69 0 1	LN	58.4		627	105 7	#N/A	#N/A	#N/A	AVA	<i>INVA</i>	Vie at on caused by suspension
7SHCantof	[REDACTED CONTINGENCY]	340618 SLIVING 161 360326 SEARKLEY HP 161 1	LN	223		83 <u>C</u>	1145	223 6	70 5	100 3	31-	7 7.155756	2 Violation made worse by suspension
1 [°] SHCenroft	REDACTED CONTINGENCYT	362124 2LOVELLTN 59.0 362496 2WATTROAD TH09 0 1	LN	58.4	617	627	1057	#N/A	#NEA	#NFA	#N/A	INA	Via siron caused by suspension



MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results CONFIDENTIAL / CEN - DO NOT RELEASE

									-	50					_
	1	Limiting	Element						Coleman 1	. 2, & 3 OFF	Coleman	1.2. & 3 ON		Unit Impact	
Model	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low	Upp						Voff-Von	
014SP	[REDACTED CONTINGENCY]		07NWTVL1	161	207	1207		Limit		Base Volt V		Base Volt		(>0.01)	MISO Comments
014SP	REDACTED CONTINGENCY		07NWTNVL	161		120/					#N/A	#N/A	#N/A	#N/A	Violat on caused by suspens on
014SP	[REDACTED CONTINGENCY]		SCOLEMAN	161	314			11		0 9793 L	#NIA	#N/A	#N/A	#N/A	Violation caused by suspens on
014SP	REDACTED CONTINGENCY		SHANCO	161	314			1 05 1 05		0 9607 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
145P	[REDACTED CONTINGENCY]		5SKILMAN	161	314					0.9669 L	#NIA	₩N/A	#N/A	#N/A	Vielation caused by suspens on
14SP	REDACTED CONTINGENCY	340559		161	314			1 05		0 9798 L	#N/A	#N/A	#N/A	#N/A	V-ofation caused by suspension
14SP	REDACTED CONTINGENCY	340564		161	314			1 05		0 9855 L	#N/A	#N/A	#N/A	#N/A	Volation caused by suspension
14SP	REDACTED CONTINGENCY		5NEWMAN	161	314			1 05		0.97 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	REDACTED CONTINGENCY		5COLEEHV	161	314			1 05		0 9743 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	REDACTED CONTINGENCY		07NWTVL1					1 05		0 9676 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	REDACTED CONTINGENCY		07NWTNVL	161	207	1207		11	0 65 16	0 9693 L	fiNiA	#N/A	#N/A	#N/A	Vio abon caused by suspens on
ASP	REDACTED CONTINGENCY			161	207	1207		11		0 9793 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
IASP	IREDACTED CONTINGENCY		5COLEMAN	161	314	1314		1 05		09607 L	finia.	#N/A	#N/A	#N/A	Vio abon caused by suspens on
4SP	REDACTED CONTINGENCY		5HANCO	161	314	1314	0 92	1 05		0 9669 L	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspension
450	REDACTED CONTINGENCY		55KILMAN	161	314			1 05		0 9798 L	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspension
14SP	REDACIED CONTINGENCY	340559		161	314	1314		1 05		0 9855 L	HNIA	#N/A	#N/A	#N/A	Vio abon caused by suspension
4SP	[REDACTED CONTINGENCY]		7COLEMAN	345	314	1314		1 05		0 9928 L	MNIA	#N/A	#N/A	#N/A	Vio abon caused by suspension
4SP	IREDACTED CONTINGENCY	340564		161	314	1314		1 05		0 97 L	#N/A	#N/A	#N/A	#N/A	Vio at on caused by suspension
ASP	IREDACTED CONTINGENCY		SNEWMAN	161	314	1311	D 92	1 05	0 8958	09743 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspension
4SP			5COLEEHV	161	314	1314		1 05	0 8171	0 9676 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]		07NWTVL1	161	207	1207	09	11	0 8516	0 9693 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
	[REDACTED CONTINGENCY]		07NWTNVL	161	207	1207	09	11	Ð 873	0 9793 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]		5COLEMAN	161	314	1314	0 92	1 05	0 8125	09607 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]	340557	5HANCO	16	314	1314	0 92	1 05	0 8214	0 9669 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0 92	1 05	0 6487	0 9798 L	#NIA	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	REDACTED CONTINGENCY	240559	5DAVIS	161	314	1314	0 92	1 05	0 9081	0 9855 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	REDACTED CONTINGENCY	340563	7COLEMAN	345	314	1314	0 92	1 05	0 8171	0 9928 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
1SP	[REDACTED CONTINGENCY]	340564	SNATAL	161	314	1314	0 92	1 05	0 8235	0 97 L	#N/A	#N/A	#N/A	#N/A	Voaton caused by suspension
4SP	[REDACTED CONTINGENCY]	340565	5VEWMAN	161	314	1314	0 92	1 05	0 8958	0 9743 L	#N/A	#N/A	#N/A	#N/A	V o abon caused by suspension
4SP	[REDACTED CONTINGENCY]	340621 (5COLEEHV	161	314	1314	0 92	105	0.8171	0 9676 L	#N/A	#N/A	#N/A	#N/A	V o abon caused by suspension
4SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0 92	1 05	0 90 29	0 9855 L	#N/A	#N/A	#N/A	#N/A	V o abon caused by suspension
4SP	[REDACTED CONTINGENCY]	340565 5	5NEWMAN	161	314	1314	0 92	1 05	0 8905	0 9743 L	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspens on
4SP	(REDACTED CONTINGENCY)	340559 5	5DAVIS	161	314	1314	0 92	1 05	0 9028	0.9855 t	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
4SP	[REDACTED CONTINGENCY]	340565 5	5NEWMAN	161	314	1314	0.92	1 05	0-8905	0 9743 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
1SP	[REDACTED CONTINGENCY]	340559 5	5DAVIS	161	314	1314	0 92	1 05	0 9028	0 9855 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
1SP	REDACTED CONTINGENCY	340565 5	5NEWMAN	161	314	1314	0 92	1 05	0 8905	0.9743 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
1SP	REDACTED CONTINGENCY	340559 5	5DAVIS	161	314	1314	0 92	1 05	0 9028	0.9855 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
4SP	REDACTED CONTINGENCY	340565 5	5NEWMAN	161	314	1314	0.92	105	0-8905	0 9743 L	FNA	#N/A	#N/A	#N/A	Violation caused by suspension
1SP	[REDACTED CONTINGENCY]	340559 5	5DAVIS	161	314	1314	0 92	1 05	0 9028	0 9855 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	(REDACTED CONTINGENCY)	340565 5	5NEWMAN	161	314	1314	0 92	1 05	0 8905	0 9743 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
4SP	[REDACTED CONTINGENCY]	248431 (07BRISTW	161	207	1207	0.9	11	0.846	1 0033 L	#N/A	#N/A	#N/A	#N/A	V station caused by suspension
4SP	(REDACTED CONTINGENCY)	248435 (07NWTVL1	161	207	1207	0.9	11	0.7325	0 9693 1	#N/A	#N/A	#N/A	#N/A	Valation caused by suspens on
4SP	REDACTED CONTINGENCY		07TRY 161	161	207	1207	09	11	0 7926	0 9907 L	#N/A	#N/A	#N/A	#N/A	Veration caused by suspens on
4\$P	REDACTED CONTINGENCY		D7NWTNVL	161	207	1207	0.9	11	0 7505	0 9793 L	#N/A	#N/A	#N/A	#N/A	V diation caused by suspens on
ISP	REDACTED CONTINGENCY		SCOLEMAN	161	314	1314	0.92	1 05	0.6378	0 9607 L	HN/A	#N/A	#N/A	#N/A	Vielation caused by suspension
ASP	[REDACTED CONTINGENCY]		D7NWTVL1	161	207	1207	0.9	11	0 8516	0 9693 L	#N/A	#N/A	#N/A	#N/A	
4SF	IREDAU IED CONTINGENCY		DINWINUL	161	207	1207	0.9	11	0 873	0 9793 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
4SF	(REDACTED CONTINGENCY)		SCOLEMAN	161	314	1314	0.92	1 05	0 8125	0 9793 L 0 9607 L	BNIA BNIA	HN/A	#N/A		Vielation caused by suspens on
ISP	REDACTED CONTINGENCY	340557 5		161	314	1314	0 92	105	0.8214	0 9669 L	#N/A	#N/A	HN/A	#N/A #N/A	Violation caused by suspension
ASP	[REDACTED CONTINGENCY]		5SKILMAN	161	314	1314	0.92	1 05	0 84 87	0 9798 1	#N/A	#N/A	#N/A		Violation caused by suspension
	· (2)	0.0000		101	914	1214	0.36	100	v a=0/	A 5120 F	1917114	PNIA	mniA	MINA	Violation caused by suspens on



MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results CONFIDENTIAL / CEII - DO NOT RELEASE

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		Limiting Element						Coleman 1	2.4.1 OFF	Coleman 1	2 8 2 00		Unit Impact	7
Rodel	Contingency Description	Bus# Bus Name	ку	Area	7	Low	Upp		-		_		Volf-Von	
014SP	REDACTED CONTINGENCY	340559 5DAVIS	1	1	Zone	Limit	•	• •	Base Volt Viol	Cont Volt			(>0.01)	MISO Comments
14SP	REDACTED CONTINGENCY	340564 5NATAL		-	514 I 3				0 9855 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	[REDACTED CONTINCENCY]	340565 5NEWMAN			14 13				0 97 L	#N/A	#N/A	#N/A	#N/A	Violat on caused by suspens on
14SP	[REDACTED CONTINGENCY]	340505 5NEWWWW			14 13				0.9743 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	REDACTED CONTINGENCY				14 13			0 8172	0 9676 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
14SP	[REDACTED CONTINGENCY]	340566 5MEADE		10	14 13			08775	0.9851 L	#N/A	#N/A	#N/A	#N/A	Vioration caused by suspension
ASP	REDACTED CONTINGENCY	340616 5N HARD			14 13			0 8616	0 9957 L	#N/A	#N/A	#N/A	HNIA	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]	340566 5MEADE			14 13			0 8775	0 9851 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
4SP	[REDACTED CONTINGENCY]	340616 5N.HARD			14 13			0 86 16	0 9957 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	REDACTED CONTINGENCY	340559 5DAVIS			14 13			0 9031	0.9855 L	#N/A	#N/A	#N/A	#N/A	Veration caused by suspension
IASP		340565 5NEWMAN			14 13		1 05	0 8907	0 9743 L	#N/A	#N/A	#N/A	#N/A	Votation caused by suspension
I4SP	[REDACTED CONTINGENCY]	248435 07NWTVL1			07 12	07 09	11	0 8516	0 9693 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4310 (1SP	[REDACTED CONTINGENCY]	248887 07NWTNVL	1	161 2	07 12	0 9	11	0 673	0 9793 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
-	REDACTED CONTINGENCY	340552 5COLÉMAN	1	161 3	14 13	14 0 92	1 05	0 8125	0 9607 L	#N/A	#N/A	#N/A	#N/A	Voration caused by suspension
ASP	[REDACTED CONTINGENCY]	340557 5HANCO	1	161 3	14 13	4 0.92	1 05	0 8214	0 9669 L	#N/A	#N/A	#N/A	#N/A	Vioration caused by suspension
4SP	REDACTED CONTINGENCY	340558 5SKILMAN	1	161 3	14 13	14 0.92	1 05	0 8487	0 9798 L	#N/A	#N/A	#N/A	#N/A	Vio'at on caused by suspens on
4SP	[REDACTED CONTINGENCY]	340559 5DAVIS	1	361 3	14 13	14 0.92	1 05	0 908 1	0 9855 L	#N/A	#N/A	#N/A	#N/A	Vioration caused by suspension
45P	[REDACTED CONTINGENCY]	340563 7COLEMAN	3	345 3	14 13	14 0.92	1 05	08171	0 9928 L	#N/A	#N/A	#N/A	#N/A	Vioration caused by suspension
4SP	[REDACTED CONTINGENCY]	340564 5NATAL	1	161 3	14 13	4 0.92	1 05	0 8235	0 97 L	#N/A	#N/A	#N/A	#N/A	Vioration caused by suspension
4SP	[REDACTED CONTINGENCY]	340565 5VEWMAN	1	161 3	14 13	4 0.92	1 05	0 8958	0 9743 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspens on
4SP	[REDACTED CONTINGENCY]	340621 5COLEEHV	1	161 3	14 13	4 0.92	1 05	0 8171	0 9676 L	#N/A	#N/A	#N/A	#N/A	Voration caused by suspens on
4SP	(REDACTED CONTINGENCY)	324139 5DORCHST	1	161 3	63 3	9 09		0 8832	1.0034 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
4SP	[REDACTED CONTINGENCY]	324149 5 MBODEN	1	161 3	63 3			0 8724	1 0025 L	1 1048	1.003			2 Vio at on caused by suspens on
4SP	[REDACTED CONTINGENCY]	324157 5POCK N	1	161 3	63 3			0 8677	1 0048 L	1 111	1 0053			3 Violation caused by suspension
4SP	[REDACTED CONTINGENCY]	324158 5POCKET			63 3			0 8677	1.0047 1	1 111	1 0052			3 Vio abon caused by suspens on
4SPCentoli	REDACTED CONTINGENCY	324310 4SPENC			63 3			0 8823	0 9699 L	0 8718	0.9699			Pre-exst-ng
75P	REDACTED CONTINGENCY	248435 07NWTVL1			07 12			0 8482	0 9696 L	#N/A	#N/A	μ #N/A	#N/A	
7SP	REDACTED CONTINGENCY	248887 07NWTNVL			07 12			0 8697	0 979 L	#N/A	#N/A	#N/A	#N/A	Wo'ation caused by suspension
7SP	[REDACTED CONTINGENCY]	340552 5COLEMAN			14 13			0 8085	0 9602 L	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspension
7SP	REDACTED CONTINGENCY	340557 5HANCO			14 13			0 8173	0 9662 L	#N/A	#N/A #N/A			Vio abon caused by suspension
7SP	[REDACTED CONTINGENCY]	340558 55KILMAN			14 13							#N/A	#N/A	Vio abon caused by suspension
7SP	[REDACTED CONTINGENCY]	340559 SDAVIS		-	14 13			6 8454 0 9049	0 9791 L	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspension
7SP	REDACTED CONTINGENCY	340564 5NATAL			14 13				0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
7SP	IRÉDACTED CONTINGENCY	340565 5NEWMAN			14 13 14 13		1.05	0 8197	0 9694 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
7SP	[REDACTED CONTINGENCY]	340621 5COLEEHV			14 13 14 13			0 8928	0 973 L	#N/A	#N/A	#N/A	#N/A	Violation causeo by suspension
7SP	[REDACTED CONTINGENCY]	248435 07NWTVL1			14 I.3 07 120			0 8132	0 967 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
7SP	[REDACTED CONTINGENCY]							0 8482	0 9696 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
7SP	IREDACTED CONTINGENCY	248887 07NWTNVL			07 120			0 8697	0 979 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
75P	(REDACTED CONTINGENCY)	340552 SCOLEMAN			14 13			0 8085	0 9682 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
75P	[REDACTED CONTINGENCY]	340557 5HANCO			14 13			0 8173	0 9662 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
75P	[REDACTED CONTINGENCY]	340558 55KILMAN		61 3				0 8454	0 9791 L	#N/A	#N/A	#N/A	#N/A	Volation caused by suspension
75P		340559 5DAVIS		61 3			1 05	0 9049	0 984 L	#N/A	#N/A	#N/A	#N/A	V o aton caused by suspension
75P 75P	[REDACTED CONTINGENCY]	340563 7COLEMAN		45 3				08132	0 9921 L	#N/A	#N/A	#N/A	BNIA	Vio at on caused by suspension
	[REDACTED CONTINGENCY]	340564 5NATAL		-	14 13		1 05	0 8197	0 9694 L	#N/A	#N/A	#N/A	#N/A	Vio at on caused by suspension
/SP	[REDACTED CONTINGENCY]	340565 5NEWMAN			14 13			0 8928	0973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
7SP	REDACTED CONTINGENCY	340621 5COLEEHV		61 3			1 05	08132	0 967 L	#N/A	#N/A	#N/A	#N/A	Vo aton caused by suspension
7SP	[REDACTED CONTINGENCY]	248435 07NWTVL1		61 2	07 120	7 09	11	0 8482	0 9696 L	#N/A	fN/A	#N/A	efN/A	Violation caused by suspension
75P	[REDACTED CONTINGENCY]	253581 10NTVL13		38 2	10 12	0 0 95	1 05	0 9354	0 9903 L	#N/A	#N/A	#N/A	#N/A	V olation caused by suspenieon
7SP	[REDACTED CONTINGENCY]	340552 5COLEMAN		61 3	14 131	4 0.92	1-05	0 8085	0 9602 L	#N/A	#N/A	#N/A	#N/A	V claton caused by suspension
				- 11										
175P 175P	[REDACTED CONTINGENCY] [REDACTED CONTINGENCY]	340557 5HANCO	1	6 3	14 13	4 0 92	1 05	08173	0 9662 L	#N/A	#N/A	#N/A	#N/A	V to at on caused by suspension



MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results CONFIDENTIAL CEII - DO NOT RELEASE

		(*************************************												
		Limiting Bement						Coleman 1	2. & 3 OFF	Coleman 1	2 8 1 ON		Unit	
Model	Caningency Description	Bus# Bus Name	KV	Area	Zone	Low	Upp Limit		Base Volt Viol				Vofl-Von	
017SP	(REDACTED CON IINGENCY)	340559 5DAVIS	161	314	1314	10.000	1 05			Cont Volt	in the second second		(>0.01)	MISO Comments
2017SP	REDACTED CONTINGENCY	340563 7COLEMAN	345	314	1314		1 05	0 8132	0.984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
2017SP	REDACTED CONTINGENCY	340564 5NATAL	161	314	1314		1 05		0 9921 L	#N/A	#N/A	#N/A	∰N/A	Violation caused by suspens on
017SP	REDACTED CONTINGENCY	340565 5NEWMAN	161	314	1314			0 8197	0 9694 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
017SP	(REDACTED CONTINGENCY)	340621 5COLEEHV	161	314	1314	0.00	1 05	0 8928	0 973	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
017SP	REDACTED CONTINGENCY	340559 5DAVIS	161				1 05	08132	0 967 🗆	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
017SP	(REDACTED CONTINGENCY)	340565 5NEWMAN	161	314	1314		1 05	0 8924	0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
017SP	[REDACTED CONTINGENCY]	3/0559 5DAVIS	161	314	1314		1 05	58 G	0.973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
)17SP	[REDACTED CONTINGENCY]	340565 SNEWMAN	161	314 314	1314	1.00	1 05	0 8923	0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
1/SP	IREDACTED CONTINGENCY	253580 10NTVL16	161		1314		1 05	088	0 973 ∟	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
)175P	IREDACTED CONTINGENCY			210	1210		1 05	0 9349	0 9697 L	#N/A	#N/A	#N/A	#\/A	Violation caused by suspension
175P	REDACTED CONTINGENCY	340559 5DAVIS	161	314	1314		1 05	0 8923	0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	REDACTED CONTINGENCY	340565 5NEWMAN	161	314	1314		1 05	0 88	0.973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
175P	[REDACTED CONTINGENCY]	340559 5DAVIS	161	314	1314		1 05	0 8923	0984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
17SP	IREDACTED CONTINGENCY	340565 5NEWMAN	161	314	1314		1 05	0 88	0973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
)17SP		340559 5DAVIS	161	314	1314		1 05	0 8923	0 984 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspens on
17SP		340565 5NEWMAN	161	314	1314		1 05	0 88	0 973 🗆	#N/A	#N/A	#N/A	#N/A	Vio abon caused by suspens on
175P	(REDACTED CONTINGENCY)	248431 07BRISTW	161	207	1207		11	0 8436	1 0012 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
17SP	REDACTED CONTINGENCY	248435 07NWTVL1	161	207	1207	1.55	11	0 7285	0 9696 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspension
17SP	(REDACTED CONTINGENCY)	248865 07TRY161	161	207	1207	09	11	0 7692	0 9896 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspension
	REDACIED CONTINGENCY	248887 07NWTNVL	161	207	1207	09	11	0 7568	0 979 L	#N/A	#N/A	r#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340552 5COLEMAN	161	314	1314	0 92	1 05	0 6327	0 9602 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	REDACTED CONTINGENCY]	248435 07NWTVL1	161	207	1207	09	11	0 8482	0 9696 🗆	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	248887 07NWTNVL	161	207	1207	09	11	0 8697	0 979 🗆	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340552 5COLEMAN	161	314	1314	0 92	1.05	0 8085	0 9602	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	REDACTED CONTINGENCY	340557 5HANCO	161	314	1314	0 92	1 05	0 8174	0 9662 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340558 55KILMAN	161	314	1314	0 92	1 05	0 8455	0 9791 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340559 5DAVIS	161	314	1314	0 92	1 05	0 9049	0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340564 5NATAL	161	314	1314	0 92	1 05	0 8 1 9 8	0 9694 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDAC1ED CONTINGENCY]	340565 5NEWMAN	161	314	1314	0 92	1 05	0 8928	0 973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340621 5COLEEHV	161	314	1314	0 92	1 05	0 8132	0 967 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340565 5MEADE	161	314	1314	0 92	1 05	0 8653	0 9846 L	#N/A	#N/A	#N/A	#N/A	Vo alion caused by suspension
17SP	[REDACTED CONTINGENCY]	340616 5N.HARD	161	314	1314	0 92	1 05	0 8484	0 9956 L	#N/A	#N/A	#N/A	#N/A	V o abon caused by suspension
175P	[REDACTED CONTINGENCY]	253580 10NTVL16	161	210	1210	0 95	1 05	0 9367	0 9697 L	#N/A	#N/A	#N/A	#N/A	Vo abon caused by suspension
17SP	(REDAC FED CONTINGENCY)	253580 10NTVL16	161	210	1210	0 95	1 05	0 9367	0 9697 L	#N/A	#N/A	#N/A	#N/A	Vio ation caused by suspension
175P	(REDACTED CONTINGENCY)	340565 5MEADE	161	314	1314	0 92	1 05	0 8654	0 9846 L	MN/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340616 5N.HARD	161	314	1314	0.92	1 05	0.8484	0 9956 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
17SP	[RÉDACTED CONTINGENCY]	340559 5DAVIS	161	314	1314	0 92	1 05	0 8952	0 984 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340565 5NEWMAN	161	314	1314	0 92	1 05	0 6829	0 973 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
17SP	IREDACTED CONTINGENCY]	248435 07NWTVL1	161	207	1207	0.9	11	0 8482	0 9696 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	(REDACTED CONTINGENCY)	248887 07NWTNVL	161	207	1207	0.9	11	0.8697	0 979 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17512	IREDACTED CONTINGENCY	340552 5COLEMAN	161	314	1314	0 92	1 05	0.8085	0 9602 L	#N/A	#N/A	#N/A	#N/A	
175P	REDACTED CONTINGENCY	340557 5HANCO	161	314	1314	0 92	1 05	0.8000	0 9662 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on Violation caused by suspens on
1/SP	REDAC ED CONTINGENCY	340555 5SKILMAN	161	314	1314	0.92	1 05	0 8454	0 9791 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspens on
17SP	REDACTED CONTINGENCY	340559 5DAVIS	161	314	1314	0.92	1 05	0 9049	0 984 L	#N/A	#N/A	#N/A	#N/A	
17SP	REDACTED CONTINGENCY	340563 7COLEMAN	345	314	1314	0.92	1 05	0 8132	0 9921 L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
17SP	[REDACTED CONTINGENCY]	340564 5NATAL	161	314	1314	0.92	1 05	0.8197	0 9694 L	#N/A	#N/A	#N/A		Velation caused by suspension
17SP	REDACIED CONTINGENCY	340565 SNEWMAN	161	314	1314	0.92	1 05	0.8197	0 9094 L				#N/A	V dation caused by suspens on
17SP	[REDACTED CONTINGENCY]	340621 5COLEEHV	161	314	1314	0.92	1 05	0 8132	0 973 L	#N/A	#N/A	#N/A	#N/A	V dation caused by suspans on
17SP	[REDACTED CONTINGENCY]	360430 5HARRIMAN TN	161	347	1368	0.92	11	0 7649	1 0426 L	#N/A	1.0427.1	#N/A	#N/A	V dation caused by suspension
	t a respectively	accord and intervented by	101	344	1300	03	11	010-9	1 U420 L	0.7822	1.0427 {	-	-0.017	Pre-exsting



MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results CONFIDENTIAL / CEI1 - DO NOT RELEASE

2017SP IREDACTED CONTINGENCY 361146 58LAIR RD TN 161 347 1368 0.9 1.1 0.7638 1.0474 L 0.7812 2017SP IREDACTED CONTINGENCY 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.7638 1.0474 L 0.7812 2017SP IREDACTED CONTINGENCY 361095 58LAIR RD TP 161 347 1368 0.9 1.1 0.6889 1.0474 L 0.7309 2017SP IREDACTED CONTINGENCY 361095 58LAIR RD TP 161 347 1368 0.9 1.1 0.6889 1.0477 L 0.7311 2017SP IREDACTED CONTINGENCY 361146 58LAIR RD TN 161 347 1368 0.9 1.1 0.6885 1.0477 L 0.7307 2017SP IREDACTED CONTINGENCY 361345 58LAIR RD TN 161 347 1368 0.9 1.1 0.6895 1.0477 L 0.7307 2017SP IREDACTED CONTINGENCY 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6979 L <	e Volt Viol 10477 L 10474 L 10427 L 10427 L 10477 L 10474 L 10474 L 10479 L 10427 L 10427 L	-0.017 P -0.017 P -0.042 P 0.042 P 0.042 P	NSO Comments Ire-exsting Ire-exsting Ire-exsting Ire-exsting Ire-exsting Ire-exsting
Model Contingency Description Bus # Bus # Bus Name KV Area Zone Low Upp Limit Cont Voit Base Voit Viol Cont Voit Base Voit Viol Cont Voit Base 2017SP IREDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.7621 1.0477 L 0.7815 2017SP IREDACTED CONTINGENCY] 361099 5BLAIR RD TN 161 347 1368 0.9 1.1 0.7638 1.0477 L 0.7812 2017SP IREDACTED CONTINGENCY] 36030 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6888 1.0477 L 0.7812 2017SP IREDACTED CONTINGENCY] 361146 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6889 1.0477 L 0.7309 2017SP IREDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1.1 0.6885 1.0474 L 0.7309 2017SP IREDACTED CONTINGENCY]	e Volt Viol 10477 L 10474 L 10427 L 10427 L 10477 L 10474 L 10474 L 10479 L 10427 L 10427 L	Voff-Von >0.01) W -0.017 P -0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.043 P	re-exsting re-exsting re-exsting re-exsting re-exsting
2017SP IREDACTED CONTINGENCYI 361099 5BLAIR RD TP 161 347 1368 0.9 1 0.7641 10477 L 0.7815 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1 0.7641 10477 L 0.7815 2017SP [REDACTED CONTINGENCY] 36146 5BLAIR RD TN 161 347 1368 0.9 1 0.7638 10477 L 0.7812 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1 0.6888 10474 L 0.7309 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1 0.6889 10477 L 0.7311 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1 0.6885 1.0474 L 0.7311 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1 0.6895 1.0474 L <th>10477 L 10474 L 10427 L 10477 L 10477 L 10474 L 10479 L 10427 L 10479 L 10477 L</th> <th>-0.017 P -0.017 P -0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.043 P</th> <th>re-exsting re-exsting re-exsting re-exsting re-exsting</th>	10477 L 10474 L 10427 L 10477 L 10477 L 10474 L 10479 L 10427 L 10479 L 10477 L	-0.017 P -0.017 P -0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.043 P	re-exsting re-exsting re-exsting re-exsting re-exsting
2017SP [REDACTED CONTINGENCY] 361146 58LAIR RD TN 161 347 1368 0.9 1.1 0.7638 1.0474 L 0.7812 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.7638 1.0474 L 0.7309 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6888 1.0426 L 0.7309 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6889 1.0477 L 0.7311 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1.1 0.6885 1.0474 L 0.7337 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1.1 0.689 1.0474 L 0.7331 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1.1 0.699 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 360592 5ROA	10474 L 10427 L 10477 L 10474 L 10474 L 10479 L 10427 L 10479 L 10477 L	-0.017 P -0.042 P 0.042 P 0.042 P 0.042 P 0.042 P 0.033 P	re-exstang ne exstang na exstang ne-exstang
2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1 0.4035 1.0474 0.7309 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR R0 IP 161 347 1368 0.9 1 0.6888 1.0474 0.7309 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR R0 IP 161 347 1368 0.9 1 0.6888 1.0474 0.7309 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR R0 TN 161 347 1368 0.9 1 0.6888 1.0474 0.7307 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1 0.6889 1.0474 0.7312 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1 0.699 1.0474 0.7312 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1 0.6991 0.4745 L	1.0427 L 1.0477 L 1.0474 L 1.0479 L 1.0427 L 1.0427 L 1.0477 L	-0.042 P 0.042 P 0.042 P 0.042 P 0.033 P	re exsting re-exsting re-exsting
2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD FP 161 347 1368 0.9 1 0.6889 1.0477 L 0.7311 2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1 0.6889 1.0477 L 0.7311 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1 0.6889 1.0477 L 0.7312 2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1368 0.9 1.1 0.6893 1.0477 L 0.7312 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6991 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 360692 5ROANE 867 161 347 1368 0.9 1.1 0.6981 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6981	1.0477 L 1.0474 L 1.0479 L 1.0427 L 1.0427 L 1.0479 L 1.0477 L	0 042 P 0 042 P 0 042 P 0 042 P	re-exsting
2017SP [REDACTED CONTINGENCY] 361146 5BLAIR RD TN 161 347 1368 0.9 1 0.685 1.0474 L 0.7307 2017SP [REDACTED CONTINGENCY] 361383 SW OAK RIDGT 161 347 1368 0.9 1.1 0.685 1.0474 L 0.7307 2017SP [REDACTED CONTINGENCY] 361383 SW OAK RIDGT 161 347 1368 0.9 1.1 0.685 1.0474 L 0.7312 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6979 1.6426 L 0.7309 2017SP [REDACTED CONTINGENCY] 360692 5ROANE 867 161 347 1368 0.9 1.1 0.6981 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 361099 SBLAIR RD TP 161 347 1368 0.9 1.1 0.6981 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 361099 SBLAIR RD TP 161 347 1368 0.9 1.1 0.6981 <td< td=""><td>1 0474 L 1 0479 L 1 0427 L 1 0479 L 1 0477 L</td><td>0 042 P 0 042 P 0 033 P</td><td>re-exslag</td></td<>	1 0474 L 1 0479 L 1 0427 L 1 0479 L 1 0477 L	0 042 P 0 042 P 0 033 P	re-exslag
2017SP [REDACTED CONTINGENCY] 361383 5W OAK RIDGT 161 347 1366 0 1 0.669 1.0479 0.7312 2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 1.1 0.6979 1.0426 0.7332 2017SP [REDACTED CONTINGENCY] 360692 5ROANE 8#2 161 347 1368 0.9 1.1 0.6979 1.0426 0.7332 2017SP [REDACTED CONTINGENCY] 360692 5ROANE 8#2 161 347 1368 0.9 1.1 0.6981 1.0479 0.7312 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6981 1.0479 0.7312 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6981 1.0477 0.7311	1 0479 L 1 0427 L 1 0479 L 1 0477 L	0 042 P 0 033 P	100 C C C C C C C C C C C C C C C C C C
2017SP [REDACTED CONTINGENCY] 360430 5HARRIMAN TN 161 347 1368 0.9 11 0.6379 1.426 L 0.7309 2017SP [REDACTED CONTINGENCY] 360692 5ROANE B#2 161 347 1368 0.9 11 0.6979 1 0.426 L 0.7309 2017SP [REDACTED CONTINGENCY] 360692 5ROANE B#2 161 347 1368 0.9 11 0.6981 1.0479 L 0.7312 2017SP [REDACTED CONTINGENCY] 361099 5BLAIR RD TP 161 347 1368 0.9 11 0.6981 1.0477 L 0.7311 2017SP [REDACTED CONTINGENCY] 20145P 161 347 1368 0.9 11 0.6981 1.0477 L 0.7311	1.0427 L 1.0479 L 1.0477 L	0.033 P	retexsting
2017SP (REDACTED CONTINGENCY) 360692 5ROANE 8#2 161 347 1368 0.9 1.1 0.6981 1.0479 L 0.7312 2017SP (REDACTED CONTINGENCY) 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6981 1.0479 L 0.7312 2017SP (REDACTED CONTINGENCY) 361099 5BLAIR RD TP 161 347 1368 0.9 1.1 0.6981 1.0477 L 0.7311 2017SP IREDACTED CONTINGENCY) 201464 FBUILD RD TP 161 347 1368 0.9 1.1 0.6981 1.0477 L 0.7311	1 0479 L 1 0477 L		-
2017SP [REDACTED CONTINGENCY] 361099 SBLAIR RD TP 161 347 1368 0.9 11 06961 10477 L 07311 4 2017SP IREDACTED CONTINGENCY] 2017SP 161 347 1368 0.9 11 06961 10477 L 07311 4	1 0477 L	0.033 P	
2017SP IREDACTED CONTINGENCY) SECOND STATES OF STATES OF STATES			
			re-exsting
(2017SP IREDACTED (CONTINCENCY) CLOSE CONTINUES CONTINUE	1 0474 L		relexating
2017SPCentof IREDACTED CONTRACEMENT 201312 01312 01312 01312	1 0479 L		re exsting
	1-0426 L		re exsting
2017SPDactor REDacted contractory 26142 50 ADD The 101 and 03 TT 0751 T0471 L 00704	1 0477 L 1 0474 L		re-exst ng
			re-exsting
	1 0479 L 1 0426 L		re-exst ng
2017CPControl (REDACTED CONTINUES/CV)	10426 L 10477 L		re exsting
2017CPCantol (REDACIED CONTRACTORY)	1.0477 L		re exst ng
	1.0474 L 1.0426 L		re-exsting
2017SPC-antoff REDACTED CONTINCENCY	1 0426 L 1 0477 L		re-exsting
2017CRCanted IREDACTED CONTINUESION	1 0477 L		re exsting
	1.0474 L		relexsling
2017CD/CANAGE INCONCENTING ON THIS CONTRACTION CONTRACTICONTRACTICON CONTRACTICON CONTRAC	10479 L 10104 L		re-exsting
	N/A #N/A		re-exsting
			io at on caused by suspens on
	N/A #N/A N/A #N/A		iolation caused by suspension
	N/A #N/A		iofation caused by suspension
	N/A #N/A		iolation caused by suspension
	N/A #N/A		iolation caused by suspens on
	NIA #NIA		iolation caused by suspens on
	N/A #N/A		iolation caused by susponsion
	N/A #N/A		iolation caused by suspension
	N/A #N/A		olation caused by suspens on
	N/A #N/A		o ation caused by suspens on
	N/A #N/A		o alion caused by suspension of at on caused by suspension
	1.0424 L		re-exsting
	1.0424 L		re-exsting
	1 0472 L	-0.024 Pr	
	10424 L	0 023 Pr	-
	1.0474 L	0.023 Pr	
0.04.2014 (Alberta Contraction Contraction)	1 0472 L		re-exsting
) 9682 L		re-exsting
	1 0423 L		e-exstag
	1-0474 L		re exsting
	104711	-0 024 Pr	
	1 0476 L		re-exsting
	0423 L		re-exsting
	0474 L	0 023 Pr	-
	0474 L	0.024 Pr	
		3.01411	

ALS AND		Transfe F Lovel	TCTTC	BCITC.			- company and strike		and the second se	a len	Prashif	Pastshift	Retine	ACIENT	ALC: NO		U. Telisio
9112	LD CENTURY	1000.0	331.9	367.0	-35.1	L:219435 07:00TVL1	141 340552 SCOLARON	161 1 -		-	111.0	334.1	335.0	0.17395	0.64514	-	0.3630
									(REDACTED)	115			-				
									(REDACTED)								
									(REDWITED)								
				L					(REDACTED)		-		<u> </u>			1	
													<u> </u>				
			331.9	367.0	-35.1	L:246435 07/0/TVL1	161 340552 SCOLEISAN	161 1			111.0	336.7	315.0	0.57396	0.64514	-	0.368
				L					REDACTED	116.							-
		L		L					(REFACTED)		1						
				L					(REDATTED)								
													1				
			331.5	\$57.0	-35,1	1:216435 07H0/TVL1	151 540552 5COLEMAN	161 1			111.0	326.7	335.0	9,67398	0.64514	-	0.768
		L		L					(REDALTED)	25.1			1				
									(RECASTED)	1							
		L	543.8	630.5	-96.6	1:340552 (COLEMAN	101 340621 SCOLEENV	101 2		-	45.9	234.5	315.0	0.52386	-0.52255		-0.330
									[REPACTED]	241	1						
									(REDACTED)		1						
													<u> </u>				
			543.9	630.6	-=6.9	LIGHOSSE STOLEHAN	191 342021 SCOLEDHV	161 2			42.4	235.0	325.0	0.52512	-6.522=9		-0.329
									(BEDACTED)	110			-				
									(REDACTED)								

Table 2b: 20175H FCITC(Century Load is modeled as 10MW initial vaule)

and and a state of the		Transfer Transfer					Harris Contraction and the second			1	Contrast.	-			Ene m		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
WIL	LD CENTURY	1000.0	041.5	5.E.	-8Z.2	LIZIBASE CONVENDE	161 340552 SCOLERON	161 1	to Material and a second above and of a second single parent? Since a for the second state of the		72.0				0.63341		0.23601
									[RECACTED]	2511							
	_	1		L					(RECAUTED)				· · ·				
				ļ													
	_		491.3	719.6	-234.8	L:340551 SPE10	161 343539 50WV15	101 1			172.4	235.4	9.260	0.33275	0.22198	-	0.1068
			Ļ			ļ			(REDACTED)	2591							
		<u> </u>	ļ	+	L				(REDATTED)								
			l	+													
			612.0	750.6	-20.8	L:246435_07)057V13	161 343552 SCOLERAN	141 2			72.7	934.7	335.0	0.395%3	0.38343	-	0.2369
			—						[REDATTED]	115+							
		+	<u> </u>						(KECACTED)								
		+															
		+	\$12.0	750.0	-66.9	L:248435 0706TVL1	161 340552 SCOLENN	161 1			72.7	224.7	335.0	0.35583	0.36943	-	0.23695
		+		+					(REDACTED)	25.00							
				<u> </u>					(PECACITED)							1	
		+	<i></i>	-						-				L			
		+	544.0	\$55.6	-311.0	1:340557 5820400	161 340559 SUAVIS	161 1			79.0	265.6	265.0	0.34207	-0.22198	-	-0.10687
		+				+			(RELACTED)	25.91							
		1		1	I	L			(REDACTED)						1	i 1	1

Table 2c: 2014SP Stressed FCITC (Century Load is modeled as 10MW as initial value)

		Tarrel	SCITC.				1	in the		and the second		Prashif Rile Cafe	Pastmitte		ALL TOT	DC TOF	LODE	STRIP.
AUE	LD CENTURY	1000.0	201.2	5.6.7	-41.2	Lizianty otimityLt	141 340552 5	SCOLEHAN	161 1			123.2	334.6	335.0	0.63752	0.44547	-	0.36846
										[REDACTED]	1261	1						
										REDACTEDI								
										(REDACTED)								
										(REDACTED)								
			307.5	348.7	-41.2	L:246435 07000VL1	161 340552 5	COLEISAN	162 1			121.2	532.0	315.0	0.69752	0.64547	-	01,1684
										(REFACTED)	2607							
						1				(REIACTED)								
			307.5	348.7	-41.2	L1240435 0700TVL1	141.540552.5	NCOLEHAN	161 1			123.2	334.6	.335.0	0.10752	9164547	-	0.2684
										(SEDACTED)	1146							
										(REDAUTED)								
										(REDACTED)								
												1						
			542.7	630.3	-83.G	11340552 SCOLEMAN	161 340621 S	SCOLEERV	101 2			19.9	334.ú	335.5	0.52468	-0.52289	-	-0.3302
										(REUACTED)	2423							
										(SEDACTED)								
						I												
			541.7	6,10.0	-68.9	LISTOSSE SCOLEHAN	161 340601 5	COLSERV	161 2 .			49.4	334.1	335.0	0.52554	-0.52289	-	-0.3302
			L							(RECASTED)	1102	1						
										(KEDACTED)								

Table 2d: 20145P Stressed FCITC under Double Outage Condition(Century Load is modeled as 10MW as initial value)

	Prior-outa;	ge imj	pact	

· · · · · · · · · ·				E año			Linkson intersteel				Contraction of the second	a manada	min	(any series	1001100	Link	-
HI L	LD CENTURY	1003.0	122.2	121.2	0.3	L:249435 070WTVL1	161 340552 CCGLEH	FAN 161 1			252.5	334.5	335.0	0.57494	0.82005	-	0.3684
		1							INEDACTED	504					1		
		1							(REDACTED)								
		1							(REDACTED)								
						1											
			183.2	172.1	11-1	1:248495 07;8fTVL1	141 340552 SCOLEM	PAN 161 1			263.6	205.0	335.0	C.38952	0.45046	-	0.746
		1							(REEWCTED)	\$33	1						
									(REDACTED)				1	1	1		
		1							(REDACTED)				1				
		1	197.1	187.3	5.5	L:244435 0700TVL1	161 540552 SCOLEM	289 161 1			255.0	235.4	335.0	0.40555	0.46281	-	9.268
									[REDACTED]	161							
									(REDARTED)								
									(REDAUTED)								
							•							1	1		
		1	177.7	202.0	-26.3	L:340551 SPETD	161 340559 SPAVIS	141 1			\$32.3	335.3	335.0	0.57635	0.03200	1-	0.104
									(REDWOTER)						1		
									(REDADTED)					1			
									(RESPOTED)							[]	
	1	1											1				
		1	SotC in	277.2	-217.2	11340557 SHAHTO	141 340519 SOAVIS	161 1							-0.09200	-	-0.104-
									(REDACTED)				1				
								-	(REDARTER)		1	1			1		
						1			(REDACTED)								

Table Ze: PSS/e Verfication on 2014SP Stressed Case on the outage of BERC_B3

						A CONTRACTOR OF THE OWNER OF THE		717	-tor	Current ()
Coleman	318	306.9	105.5	324.527	1 1142.097196	335	1.019	164.059	1201.354	
Newtonsville	318	310.1	87.5	322.208	1142.909792	335	1.011	162.771	1201.354	
Coleman	338	315.3	96	333.419	1181.507757	335			1201.354	
Newtonsville	338	322,8	76.7	331.787	1182.736096	335		_	1201.354	
Coleman	348	325,5	91.3	338.06	1201.521295	335			1201.354	
Newtonsville	348	329.1	71.2	336,713	1202.689634	335			1201.354	

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