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November 8, 2017

VIA ELECTRONIC FILING

M. Lynn Jarvis, Chief Clerk North Carolina Utilities Commission **Dobbs Building** 430 North Salisbury Street Raleigh, North Carolina 27603

> Application of Dominion Energy North Carolina Pursuant to G.S. 62-133.2 and Commission Rule R8-55 Regarding Fuel and Fuel-Related Costs Adjustments for Electric Utilities

Docket No. E-22, Sub 546

Dear Ms. Jarvis:

On October 30, 2017, Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina, filed its public version of the Rebuttal Testimony of John Rosenberger in the above-captioned proceeding. Please accept for filing on behalf of Dominion Energy North Carolina its replacement Rebuttal Testimony of John Rosenberger, public redacted version. Portions of this testimony contain confidential nuclear facility operations information. This information is designated by the Company as confidential and qualifies as "trade secrets" under N.C.G.S. § 66-152(3). Pursuant to N.C.G.S. § 132-1.2, the Company has redacted this confidential information from the public version of this filing and has filed the corresponding confidential pages under seal on October 30, 2017.

Please do not hesitate to contact me should you have any questions. Thank you for your assistance with this matter.

y yours,

/s/Mary Lynne Grigg

MLG:kjg

Enclosure

REBUTTAL TESTIMONY OF JOHN ROSENBERGER ON BEHALF OF TON ENERGY NORTH CAR

DOMINION ENERGY NORTH CAROLINA BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION DOCKET NO. E-22, SUB 546

1	Q.	Please state your name, position of employment, and business address.
2	A.	My name is John Rosenberger, and I am Director – Nuclear Site Engineering
3	•	for Virginia Electric and Power Company d/b/a Dominion Energy North
4		Carolina ("Dominion Energy North Carolina" or the "Company"). My
5		business address is Surry Power Station, 5570 Hog Island Road, Surry,
6		Virginia 23883. A statement of my background and qualifications is attached
7		as Appendix A.
8	Q.	Have you previously submitted testimony in this proceeding?
9	A.	No, I have not.
10	Q.	What is the purpose of your rebuttal testimony in this proceeding?
11	A.	I am responding to the pre-filed Direct Testimony submitted by Public Staff
12		Witness Dustin R. Metz concerning certain outages at North Anna Units 1 and
13		2 and Surry Units 1 and 2, which comprise the Company's nuclear generation
14		fleet.
15	Q.	How is your testimony organized?
16	A.	My testimony is organized as follows:
17		I. E-22, Sub 546 Outage 1 Response (North Anna 2 – July/August 2016)
18	•	II. E-22, Sub 546 Outage 2 Response (Surry 2 – October 2016)

1	III.	E-22, Sub 534 Outage 1 Response (Surry 2 – July 2015)
2	IV.	E-22, Sub 534 Outage 2 Response (Surry 1 – July 2015)

- 3 V. E-22, Sub 534 Outage 3 Response (Surry 1 October/November
- 4 2015)
- 5 VI. E-22, Sub 534 Outage 4 Response (Surry 2 December 2015)
- 6 Q. Before turning to your responses to the specific outages identified by
- 7 Public Staff Witness Metz, do you have any general comments on his
- 8 assessment?
- 9 A. Yes. I have reviewed his testimony and found his assessment troubling. As
- an example, Mr. Metz quotes from the North American Electric Reliability
- 11 Corporation ("NERC") Event Reporting guidance document the categories of
- outages. (Metz at 7:4-18, 8:1-6.) Mr. Metz neglects to identify two of the
- three categories of forced (unplanned) outages and focuses on the extreme
- forced outage of a unit trip even though half of the disputed outages fall
- within the other two categories.
- Furthermore, Mr. Metz mischaracterizes the NERC definition of forced
- (unplanned) outage immediate as bound by severe failure that affects safety
- or design/technical specifications of the plant. This manipulation of a subset
- of possible occurrences that could cause or present the need to trip a unit to
- support a predetermined position is misleading. Other examples will be
- presented as I review the outages in question.
- I further note that Public Staff Witness Metz has selectively applied
- information from Root Case Evaluations ("RCEs") or conversations outside of

	the discovery process to match a predetermined narrative. As discussed by
	Company Witness Branford L. Stanley in his rebuttal testimony, RCEs are not
	written with the intent to assess reasonable and prudent operations, which has
	been communicated to Mr. Metz on numerous occasions. Yet, this document
	is full of conclusions based on contributing causes or enhancements
	discovered during the evaluation process. It is important to note that of the
·	168 outages associated during last year's and this year's test periods, only 11
	were nuclear. This means that less than 7% of the outages to be assessed as
	reasonable and prudent would have the possibility of having a RCE available
	for review, as non-nuclear units are not mandated to perform these
	evaluations. Also, because of Mr. Metz's unfamiliarity with the power plants
	in question and the nature of the RCEs performed by the Company, the Public
•	Staff issued approximately 350 discovery questions associated with the five
	RCEs.
	I. E-22, SUB 546 OUTAGE 1 RESPONSE (NORTH ANNA 2 – JULY/AUGUST 2016)
Q.	Please describe the outage that occurred at North Anna Unit 2 in
	July/August of 2016.
A.	North Anna Unit 2 was taken out of service for an unplanned/forced outage
	between July 30, 2016, and August 3, 2016. Specifically, Company personnel
	observed unidentified leakage of the Reactor Coolant System ("RCS") and
	initiated a process to determine the source of the leak. Once it was
	determined that there was an unisolable through-wall leak in the controlled
	bleed-off piping associated with the Reactor Coolant Pump seal, the Company

1		initiated a unit shutdown. This shutdown was required by the technical
2		Specifications. [BEGIN CONFIDENTIAL]
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10	•	[END CONFIDENTIAL]
ıo		[END CONTIDENTIAL]
11		The Company remedied this situation by placing the unit in a condition to
12		perform the necessary repairs, collecting vibration data associated with the
13		piping, replacing the piping, performing post maintenance testing, and fully
14		restoring the unit to service approximately four days later on August 3, 2016.
15		The outage was performed in a thorough and efficient manner.
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16	Q.	Why was this outage identified by Public Staff Witness Metz?
17	A.	Public Staff Witness Metz observes that installation of a pipefitting in the
8		RCS occurred in the fall of 2014. (Metz at 14:2-3). Public Staff Witness
9		Metz alleges,
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5		CONFIDENTIAL] I believe that all of these errors
6		were within the Company's control and were
7		reasonably avoidable. But for these errors, I do not
8		believe this outage would have occurred."
9		(Metz at 21:15-22:4.)
10	Q.	Do you agree with Public Staff Witness Metz's conclusion?
11	A.	No, I do not. A review of Mr. Metz's testimony reveals why he may have
12		reached such an incorrect conclusion. Specifically, in his attempt to
13		summarize why the North Anna Unit 1 was taken offline, Public Staff Witness
14		Metz incorrectly describes the leaking component, the severity of the leak,
15		and the response to the leak.
16	. Q.	Please explain.
17	A.	On page 12, lines 10-15 of his testimony, Public Staff Witness Metz states,
18		[BEGIN CONFIDENTIAL]
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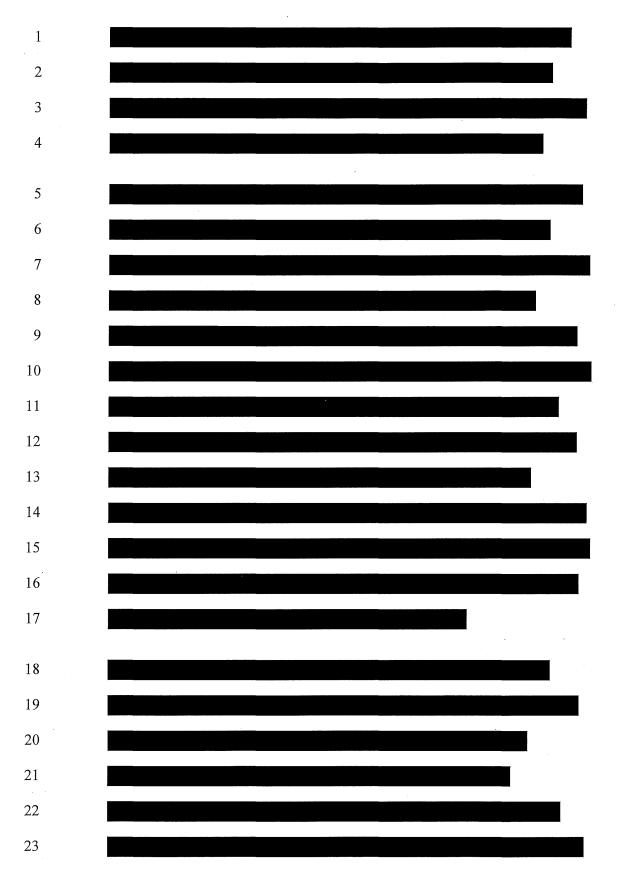
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7		[END
8		CONFIDENTIAL]
9	Q.	Are there any other flaws in Public Staff Witness Metz's analysis and
10		conclusion related to the North Anna Unit 1 outage?
11	A.	Yes. [BEGIN CONFIDENTIAL]
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15		[END CONFIDENTIAL] (Metz at 18:17-
16		19.) This is baseless.
17		[BEGIN CONFIDENTIAL]
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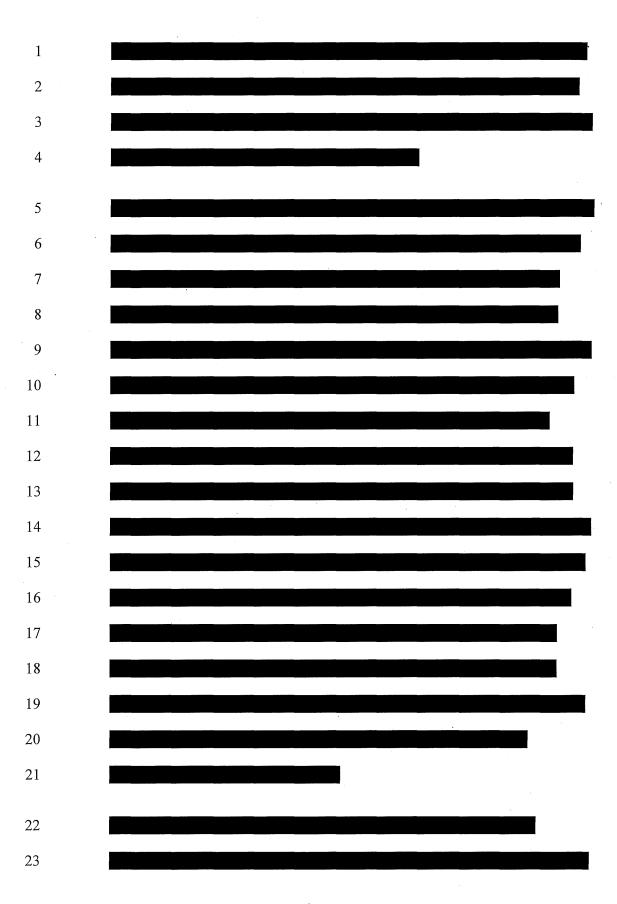
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11		[END
12		CONFIDENTIAL] These actions did not directly cause the outage event and
13		are discovered as part of the evaluation process as actions that would provide
14		a greater depth of corrective actions beyond addressing the root/direct cause.
15	Q.	Was this outage and the Company's management thereof reasonable and
16		prudent?
17	A.	Yes. The leak on the seal return line could not have been anticipated by the
18		Company. [BEGIN CONFIDENTIAL]
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11		[END CONFIDENTIAL]
12 13		II. E-22, SUB 546 OUTAGE 2 RESPONSE (SURRY 2 – OCTOBER 2016)
14	Q.	Please describe the outage that occurred at Surry Unit 2 in October 2016.
15	A.	Surry Unit 2 was taken out of service for an unplanned/forced outage between
16		October 9, 2016, and October 13, 2016. Specifically, on October 9, 2016, the
17		unit automatically tripped due to a generator differential lockout. There were
18		no activities in progress at the time, and grid conditions were stable. [BEGIN
19		CONFIDENTIAL]
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2		[END CONFIDENTIAL]
3		The Company remedied this situation by removing drain plugs and drying all
4		components that experienced water intrusion, extensively inspecting and
5		testing of components exposed to water, replacing gaskets and applying
6		silicon to flange surfaces and fully restoring the unit to service approximately
7		four days later on October 13, 2016. The quick restoration of the unit to
8		service included a thorough evaluation of the components while performing
9		actions to prevent recurrence.
10	Q.	Why was this outage identified by Public Staff Witness Metz?
11	A.	[BEGIN CONFIDENTIAL]
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24		[END
25		CONFIDENTIAL]

1		(Metz at 28:3-9.)
2	Q.	Do you agree with Public Staff Witness Metz's conclusion?
3	A.	No, I do not. By relying solely on the conclusions of the RCE, Public Staff
4		Witness Metz omits a significant detail in his analysis regarding the amount of
5		rainfall experienced at the site. As stated in the explanations of all RCEs, the
6		root cause must be within the control of the licensee with actions to prevent
7		repeat occurrences. Weather is not a controllable factor by the Company; so,
8		rainfall could never be found as a root cause or a contributing cause.
9		[BEGIN CONFIDENTIAL]
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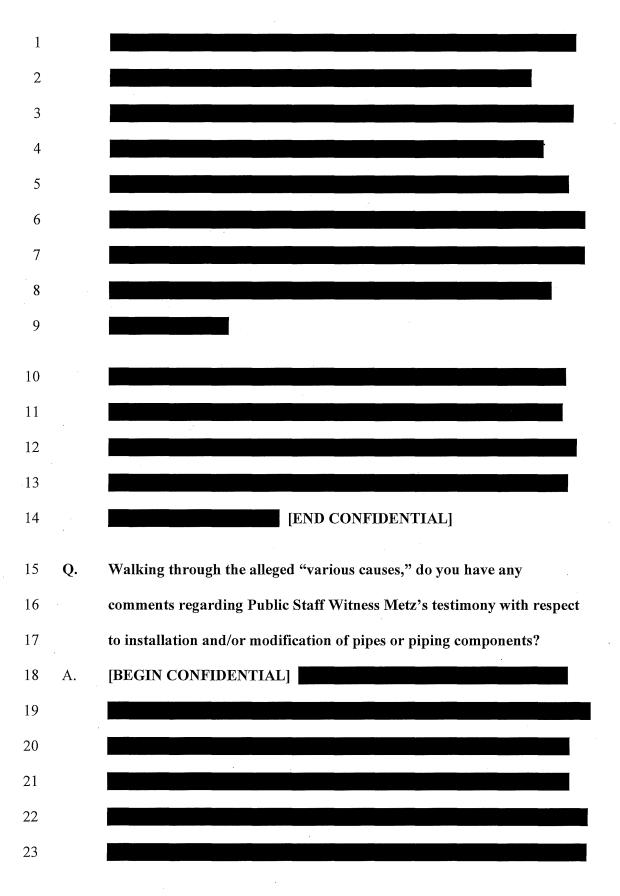


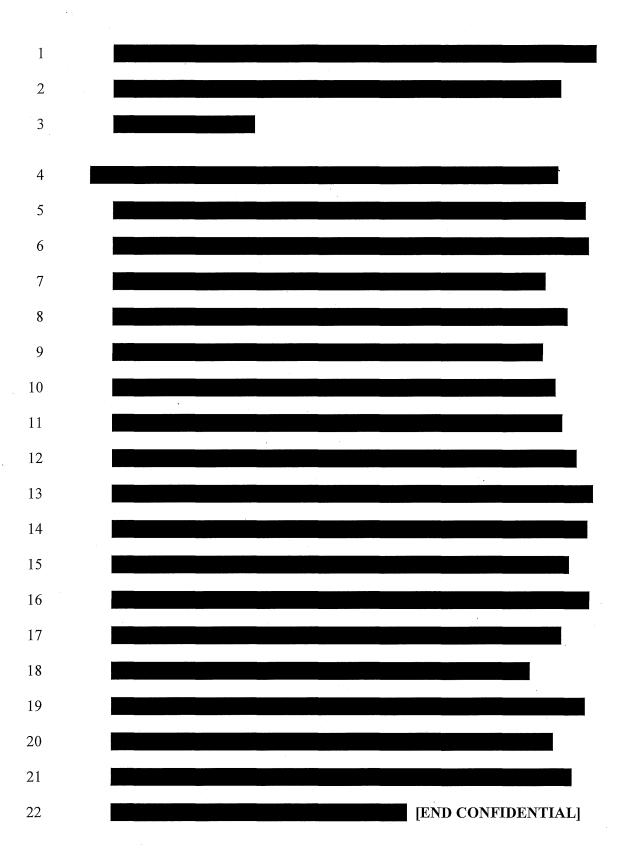
1		[END CONFIDENTIAL] As previously stated, the
2		Nuclear Regulatory Commission mandates that root causes must be developed
3		so that they reach a Company controlled action.
4	Q.	Was this outage and the Company's management thereof reasonable and
5		prudent?
6	A.	Yes. The collection of water within the enclosure could not have been
7		anticipated by the Company. Even though extreme weather cannot factor into
8 ,		the RCE process due to regulatory constraints, the unprecedented amount of
9		rainfall in the area is applicable to the analysis of whether the outage was
10		reasonable and prudent. Some areas surrounding Surry Power Station
11		experienced back-to-back 100-year storms and a few experienced rainfall in
12		amounts that reached 500-year storm levels. Again, Surry experienced 11
13		inches of rain in an 18-day period with over 5 inches coming in the 2 days
14		prior to the outage with wind gusts reaching 41 miles per hour. The Company
15		had no reason to believe that the product from the vendor would not meet the
16		needs of the station. The vendor, which is experienced in providing watertight
17		enclosures, was contracted to provide enclosures within certain specifications.
18		Therefore, it was not possible for the Company to foresee the extreme weather
19		the station experienced, or the fact that the enclosures would not perform their

design function.

1		III. E-22, SUB 534 OUTAGE I RESPONSE (SURRY 2 – JULY 2015)
2	Q.	Please describe the outage that occurred at Surry Unit 2 in July 2015.
3	A.	Surry Unit 2 was taken out of service for an unplanned/forced outage between
4		July 13, 2015, and July 22, 2015. Specifically, on July 13, 2015, the unit was
5		ramped offline due to increased external leakage from a Pressurizer Spray
6		Valve. [BEGIN CONFIDENTIAL]
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10		[END CONFIDENTIAL]
11		The Company remedied this situation by placing the unit in a condition to
12		support leak seal of the valve, successfully leak sealing the body to bonnet
13		area, and fully restoring the unit to service approximately nine days later on
14.		July 22, 2015.
15	Q.	Why was this outage identified by Public Staff Witness Metz?
16	A.	Public Staff Witness Metz discusses this outage event, but does not
17		recommend disallowance of any associated costs.
18		IV. E-22, SUB 534 OUTAGE 2 RESPONSE (SURRY 1 – JULY 2015)
19	Q.	Please describe the outage that occurred at Surry Unit 1 in July 2015.
20	A.	Surry Unit 1 was taken out of service for an unplanned/forced outage between
21		July 11, 2015, and July 22, 2015. Specifically, on May 31, 2015, a newly
22		installed seal showed evidence of degradation and declining differential

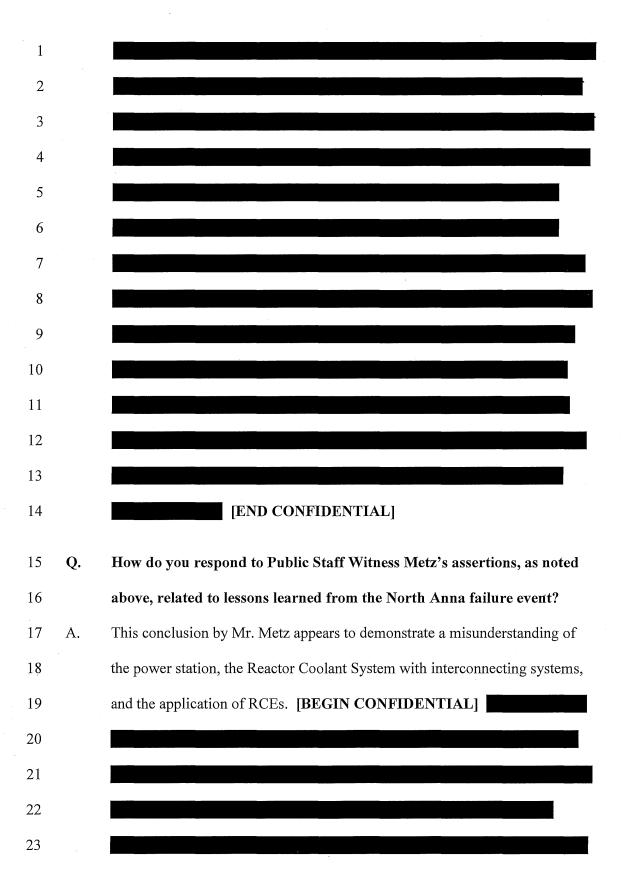
1		pressure across the #1 seal. The decline continued and subsequently the #3
2		seal differential pressure began to decline. On July 11, 2015, the unit was
3		shut down to replace the seal. [BEGIN CONFIDENTIAL]
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5		[END CONFIDENTIAL]
6		The Company remedied this situation by replacing the seal and fully restoring
7		the unit to service approximately 11 days later on July 22, 2015.
8	Q.	Why was this outage identified by Public Staff Witness Metz?
9	A.	Public Staff Witness Metz states,
10		[BEGIN CONFIDENTIAL]
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19		[END CONFIDENTIAL]
20		(Metz at 54:8-14.) [BEGIN CONFIDENTIAL]
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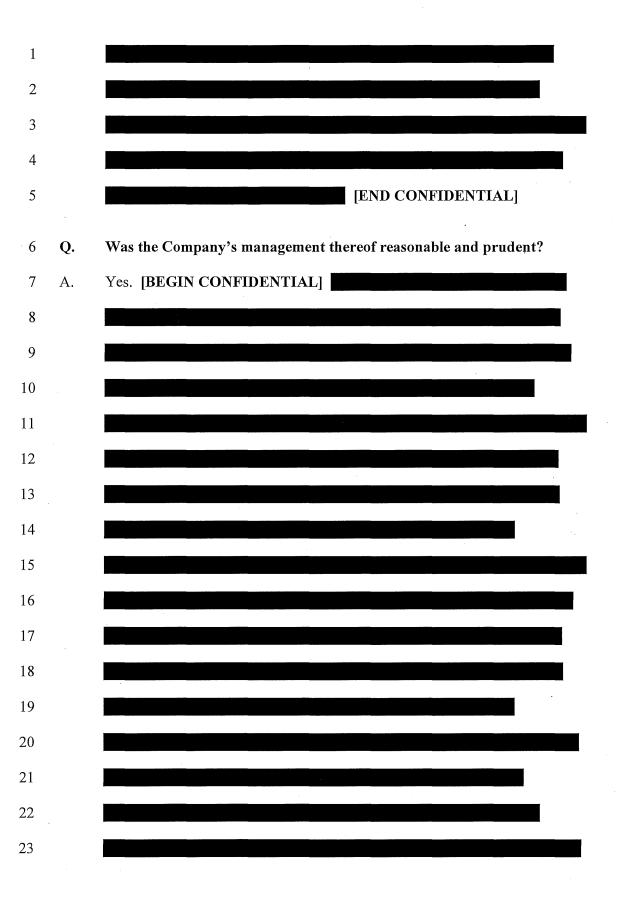




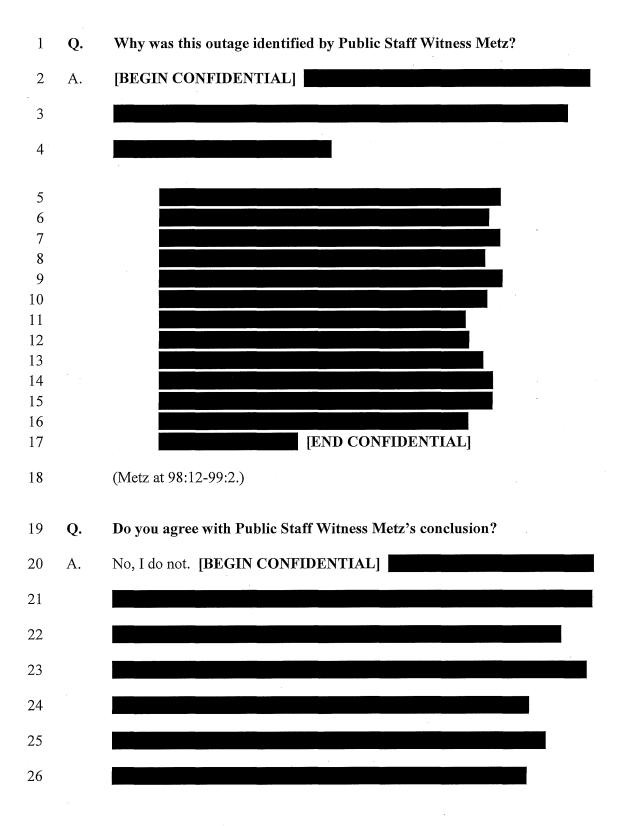
1	Q.	Do you agree with Public Staff Witness Metz's determination that the
2		Company's GMP-M-13 procedure may have prevented the seal
3		degradation from occurring?
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18		[END CONFIDENTIAL]

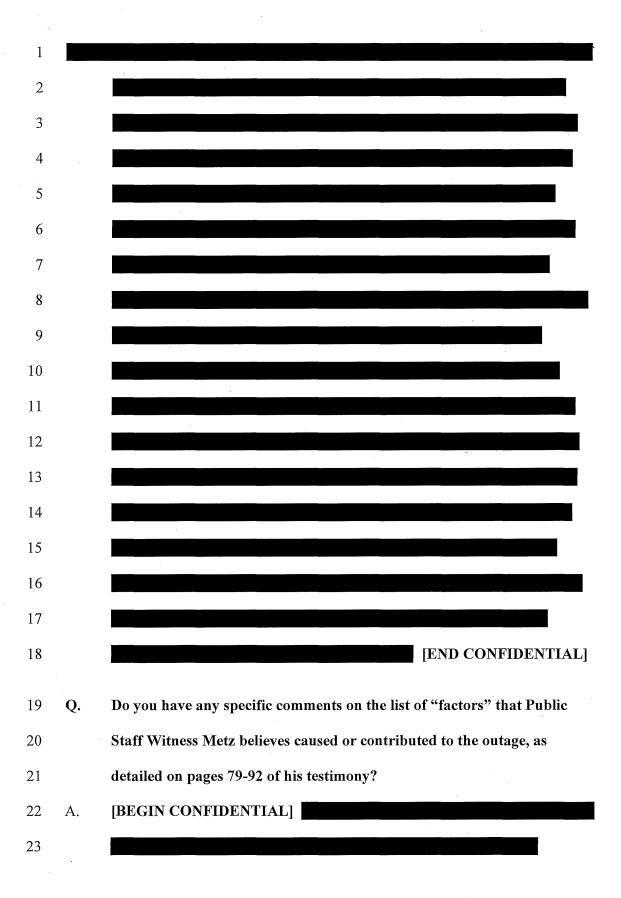
1	Q.	Public Staff Witness Metz identifies a design change that was required
2		for the seal injection water flange for the replacement pump and notes
3		that the 1-micron particle size was not included in the design change
4		package. (Metz at 52:14-18). He later concludes upon his experience tha
5		it would be "out of the norm" for the vendor not to indicate size limits for
6		foreign material. (Metz at 65:14-66:3.) Please respond.
7	A.	[BEGIN CONFIDENTIAL]
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17		[END CONFIDENTIAL]
18	Q.	Do you agree with Public Staff Witness Metz's conclusion that if the
19		dead-leg or low flow areas had been identified the outage may have been
20		prevented? (Metz at 54:8-14.)
21	A.	[BEGIN CONFIDENTIAL]
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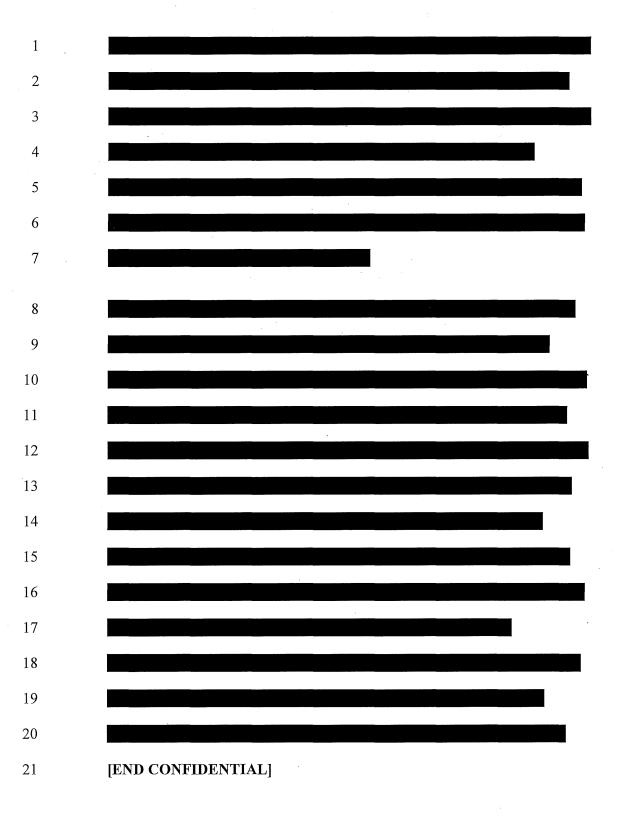




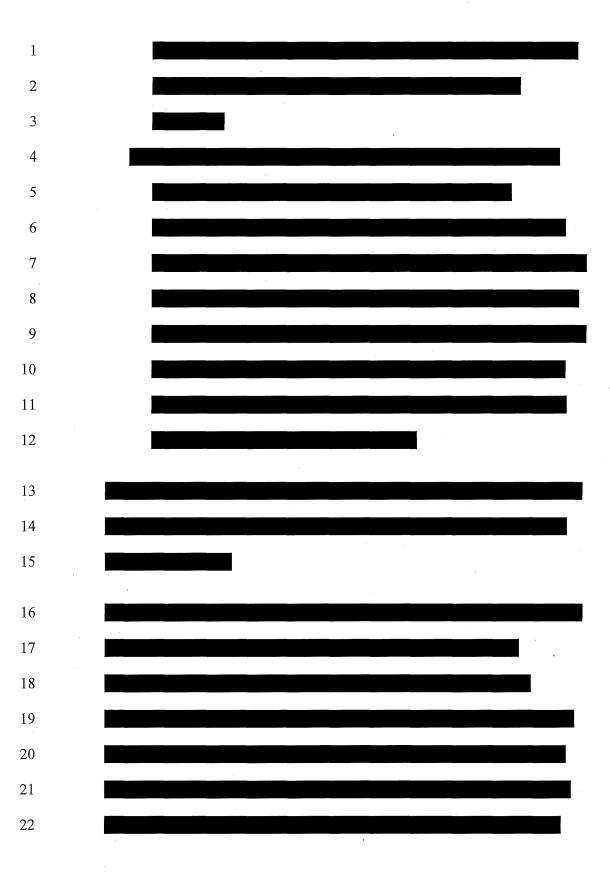
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2		[END CONFIDENTIAL]
3 4		V. E-22, SUB 534 OUTAGE 3 RESPONSE (SURRY 1 – OCTOBER/NOVEMBER 2015)
5	Q.	Please describe the outage that occurred at Surry Unit 1 in
6		October/November 2015.
7	A.	Surry Unit 1 was taken out of service for an unplanned/forced outage between
8		October 13, 2015, and November 18, 2015. Specifically, on October 13,
9		2015, the unit reactor tripped after receiving fault signals from the main
10		generator protection system. [BEGIN CONFIDENTIAL]
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15		[END CONFIDENTIAL]
16		The Company remedied this situation by disassembling the failed
17		components, procuring and refurbishing a new exciter, repairing the main
18		generator shaft, replacing the exciter shaft coupling with a newly
19		manufactured coupling, installing the Unit 2 exciter onto the Unit 1 generator,
20		and fully restoring the unit to service approximately 35 days later on
21		November 18, 2015.

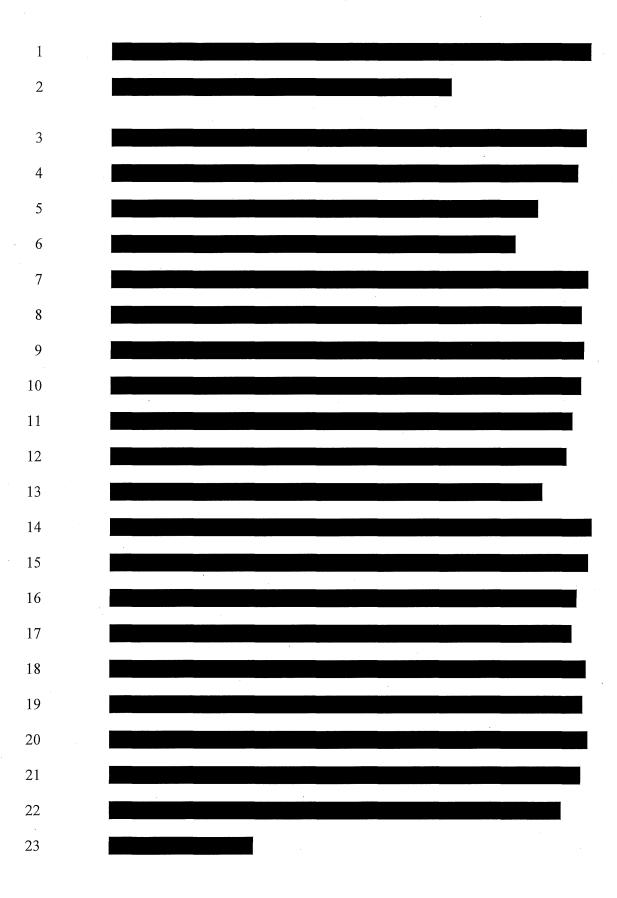






1	Q.	Was the outage and the Company's management thereof reasonable and
2		prudent?
3	A.	Yes. [BEGIN CONFIDENTIAL]
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8		[END CONFIDENTIAL]
9	VI.	E-22, SUB 534 OUTAGE 4 RESPONSE (SURRY 2 – DECEMBER 2015)
10	Q.	Please describe the outage that occurred at Surry Unit 2 in December
11		2015.
12	A.	Surry Unit 2 was taken out of service for an unplanned/forced outage between
13		December 4, 2015, and December 11, 2015. Specifically, the unit entered a
14		planned refueling on October 19, 2015. This planned outage was then
15		extended by approximately eight days because certain components from Surry
16		Unit 2 had been used to expedite restart of Surry Unit 1 from its October 2015
17		forced outage (discussed in Section V of my rebuttal testimony). Surry Unit
18		2's outage was then necessarily extended as the Company procured and
19		reassembled the replacement parts used for Surry Unit 1.
20	Q.	Why was this outage identified by Public Staff Witness Metz?
21	A.	Public Staff Witness Metz states, "While it was prudent to restart Unit 1 as
22		soon as possible, had it not tripped in the first place, Unit 2 would not have
23		incurred the additional approximate 8 days of outage. As a result, it is not

reasonable for North Carolina retail ratepayers to incur the replacement power costs for the additional outage time." (Metz at 99:20-100:4.) Thus, Public Staff Witness Metz has identified costs associated with replacement power for this outage solely as a result of his opinion related to the Surry Unit 1 October 2015 outage.

Q. Do you agree with Public Staff Witness Metz's conclusion?

No, I do not agree. Contrary to Mr. Metz's argument, the purpose of this proceeding is not to determine whether a unit should have tripped or not have. We are here to determine whether the Company's actions were reasonable and prudent leading up to and during the outage. I believe we have proven that our actions associated with the Surry Unit 1 exciter outage were reasonable and prudent. However, in this case, the decision to extend the Surry Unit 2 outage in order to expedite the return to service of one of the other nuclear units should be viewed as a stand-alone case. The fact is that two nuclear units were in an outage and the prudent response is to get each unit returned to service as safely and efficiently as possible. By returning Surry Unit 1 and extending the Unit 2 outage, the Company reduced total outage time by approximately 17.5 days, saving approximately \$474,626 on a North Carolina Jurisdictional basis. The extended duration of the Unit 1 outage at 35 days, plus the additional time on Unit 2, is an example of prudent management.

[BEGIN CONFIDENTIAL]

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9		[END CONFIDENTIAL] These
10		efforts were conducted 24 hours per day, 7 days per week, until the units were
11		restored to service. All of this was managed efficiently for 35 days duration,
12		when at the beginning it was unknown how long it would take to effect the
13		repairs. In my experience, this is an example of prudent management.
14	Q.	Do any of the actions taken by the Company as part of its management of
15		its nuclear fleet indicate that North Anna Units 1 and 2 and Surry Units 1
16		and 2 have been imprudently managed or that outages could have been
17		avoided?
18	Α.	No. As discussed in detail in the rebuttal testimony of Company Witness
19		Stanley, the Company has exhibited exceptional nuclear performance over
20		both the test period and the prior five-year period. Forced outages on nuclear
21		generating units will occasionally occur under even the best of scenarios. The
22		Company's expertise and experience in operating its nuclear units allowed the

- 1 Company to keep the outages discussed herein to the minimum timeframe
- 2 necessary, while also ensuring the safety and reliability of our system.
- 3 Q. Does this conclude your rebuttal testimony?
- 4 A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF JOHN ROSENBERGER

John Rosenberger is currently the Director Nuclear Engineering at Surry Power
Station. Mr. Rosenberger joined Dominion Virginia Power in 1990 as an engineer at
Surry Power Station. His tenure covers positions in Operations, Engineering, and
Maintenance including various management positions within Dominion Energy.
Before assuming his current position in 2015, he rotated as Engineering Manager
through Engineering Programs, Engineering Systems, and Engineering Design at
Surry Power Station. His responsibilities have included participating in the Facilities
Safety Review Committee and the Corrective Action Review Board and he has
extensive experience in the corrective action program including sponsorship of Root
Cause Evaluations.

He earned a degree in electrical engineering from Georgia Institute of Technology in 1990, and obtained a Senior Operator Knowledge Certificate for the position of onshift Shift Technical Advisor. He has also completed the INPO Senior Nuclear Plant Manager Course.