

STEVIE PHILLIPS LAW | PL LC

1253 MARKET ST., STE. 100
CHATTANOOGA, TN 37402
STEVIE@STEVIEPHILLIPSLAW.COM
(423) 645-7734

July 8, 2020

NRC Document Control Center
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

VIA U.S. MAIL

RE: William "Bill" Sprinkle, Response to Apparent Violation, IA-20-018

Dear United States Nuclear Regulatory Commission:

As you may know, I represent Bill Sprinkle, former Manager of Plant Shift Operations at TVA's Watts Bar Nuclear Plant. Mr. Sprinkle's Response to Apparent Violation, IA-20-018, is enclosed. Mr. Sprinkle is accused of violating the NRC's rule prohibiting deliberate misconduct, 10 C.F.R. 50.5,¹ by processing a revision to Step 5.2.1[8] of TVA General Operating Instruction 1-GO-1, "Unit Startup from Cold Shutdown to Hot Standby," as "minor/editorial" knowing, allegedly, that it did not meet the criteria for "minor/editorial."

The NRC has set a high bar for allegations of deliberate misconduct. When promulgating 10 C.F.R. 50.5 in 1991, the Commission explicitly stated that the deliberate misconduct rule applies only to individuals with the "intent to act in a wrongful manner."² The Commission also made clear that the deliberate misconduct rule "does not apply in cases of negligence, honest mistake, or ignorance,"³ or in cases where people may have made mistakes while acting in "good faith."⁴ The Commission further wrote that 50.5 does not include acts done in careless disregard for requirements; rather, 50.5 is a "narrower" rule that applies only to deliberate misconduct.⁵ Indeed, the Commission wrote that, under the deliberate misconduct rule, "the range of actions that would subject an individual to action by the Commission does not differ significantly from the range of actions that might subject the individual to criminal prosecution."⁶

¹ 10 C.F.R. 50.5(a)(1) prohibits an employee of a licensee from engaging in "deliberate misconduct that causes or would have caused, if not detected, a licensee or applicant to be in violation of any rule, regulation, or order, or any term, condition, or limitation of any license issued by the Commission." Deliberate misconduct is "an intentional act or omission that the person knows: (1) Would cause a licensee or applicant to be in violation of any rule, regulation, or order, or any term, condition, or limitation, of any license issued by the Commission; or (2) Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, applicant, contractor, or subcontractor." 10 C.F.R. 50.5(c).

² 56 Fed. Reg. at 40,679.

³ 56 Fed. Reg. at 40,675.

⁴ 56 Fed. Reg. at 40,681.

⁵ 56 Fed. Reg. at 40,675.

⁶ 56 Fed. Reg. at 40,675.

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Given this narrow set of circumstances in which the Commission intended the "deliberate misconduct" rule to apply, the standard for deliberate conduct is exceedingly difficult to meet. Accordingly, the "deliberate misconduct" rule should be reserved for cases that can be established by clear and convincing evidence that someone contemplated an action, knew it would cause a violation, and did it anyway. As Mr. Sprinkle's letter demonstrates, his actions do not come close to meeting this standard because he lacked the "knowledge" that he "would" cause a violation, as required for liability under Rule 50.5. As Mr. Sprinkle readily admits, he simply made a mistake.

Mr. Sprinkle's willingness to take responsibility for his mistake is characteristic of his personal and professional integrity. Mr. Sprinkle did not retain me until January 2018, well after fully cooperating in at least five interviews related to this investigation.⁷ We have gotten to know each other well over the past two and a half years. Mr. Sprinkle is a modest man with a strong work ethic and a reputation for honesty. He takes a great deal of pride in having been a TVA manager who his colleagues could rely on to do the right thing and who would take ownership of his mistakes as well as the mistakes of his team. Not surprisingly, it is deeply upsetting to him to be accused of deliberate misconduct after a long and dedicated career.

In closing, I recognize that this case required a lengthy and fact-intensive investigation by the NRC and other entities. I appreciate the NRC Office of Enforcement staff and Senior Attorney Marcia Simon for their timely responses to calls and emails as we attempted to determine how COVID-19 would impact the NRC's regulatory process.

Thank you for your careful consideration of Mr. Sprinkle's response. Please do not hesitate to contact me directly if you have questions or require additional information.

Sincerely,



STEVIE PHILLIPS LAW, PLLC

Enclosure

CC: Kenneth G. O'Brien, Director
Division of Reactor Safety
United States Nuclear Regulatory Commission, Region III
2243 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352
kenneth.obrien@nrc.gov

⁷ Mr. Sprinkle retained me upon receiving a subpoena to testify before a federal grand jury. Subsequently, the United States Attorney's Office for the Eastern District of Tennessee informed me via letter that Mr. Sprinkle was merely a witness and not a defendant or putative defendant in their criminal investigation. They also decided not to call Mr. Sprinkle to testify as a witness before the grand jury.

VIA U.S. MAIL AND ELECTRONIC MAIL

July 8, 2020

NRC Document Control Center
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SENT VIA U.S. MAIL

RE: Response to Apparent Violation, IA-20-018

Dear United States Nuclear Regulatory Commission:

I am writing in response to Apparent Violation ("AV"), IA-20-018, alleging a violation of the NRC's rule prohibiting deliberate misconduct, 10 C.F.R. 50.5. Specifically, I am being accused of processing a change to Step 5.2.1[8] of TVA General Operating Instruction 1-GO-1, "Unit Startup from Cold Shutdown to Hot Standby," as "minor/editorial" knowing, allegedly, that it did not meet the criteria for "minor/editorial."

By way of background, I have been retired since September 2017. I currently live in Idaho with my wife of thirty-four years. I do not intend to return to the nuclear industry. In my eight and a half years in the United States Navy and twenty-seven years in civilian nuclear power, I have never been the subject of an individual NRC apparent violation. After serving in the Navy, I worked at Arkansas Nuclear One for fifteen years. I spent the last twelve-plus years of my career at TVA. On November 9, 2015, I had been serving as Manager of Nuclear Plant Shift Operations for approximately two years on shift and five years off shift. Although I was a qualified Shift Manager, I was not proficient at the time and therefore not functioning as the on-shift Shift Manager but rather in a support role in the OCC. My duties were more like those of an Operations Support Superintendent.

During my thirty-five-year career, I interacted with the NRC many times. I have tremendous regard for the important and difficult function of the NRC in enforcing procedural compliance and thereby ensuring public safety. I believe openness and transparency are crucial to the work of the NRC. To that end, I fully cooperated in no less than five investigative interviews between December 2015 and March 2017 with the NRC, TVA-OIG, and U.S. Attorney's Office for the Eastern District of Tennessee related to events that occurred at Watts Bar Nuclear Plant (WBN) in November 2015. I never asked to have an attorney present for any of these interviews because I had nothing to hide and did not want to do anything to impede the investigative process. I was unaware that I might have violated a procedure myself or that I was being considered a potential target for sanctions. But I knew for certain—as I know now—that I have never intentionally violated a procedure.

I do not dispute—with the benefit of hindsight—that I was mistaken to classify the procedure change as "minor/editorial." I have reviewed the applicable procedures cited in AV No. 2. I now agree with the NRC's determination that the November 9, 2015 change to Step

5.2.1[8] of TVA General Operating Instruction 1-GO-1, "Unit Startup from Cold Shutdown to Hot Standby," did not meet the criteria for a "minor/editorial" change because it altered the procedure's "technical content or sequence of procedural steps" by permitting the operators to draw a bubble at less than 135°F. See 3.2.11 of TVA Procedure NPG-SPP-01.2.1, "Administration of Site Technical Procedures" (Rev. 0002)

I did not, however, deliberately violate procedure. I am absolutely certain that I honestly believed, at the time, that the change was "minor/editorial" and processed it as such in good faith. I have never processed a procedure change as "minor/editorial" knowing that it did not meet the criteria or deliberately violated procedure in any other way. I simply made a mistake.

It is difficult for me to remember the exact circumstances surrounding the change to Step 5.1.2[8], because November 9, 2015 was almost five years ago, and this was one of hundreds—if not thousands—of procedure changes that I was involved with during my time at TVA. To the best of my memory, this is what I recall.

Regarding my analysis, I seem to recall determining that the temperature limit of 135°F was an arbitrary number that provided no specific protection for equipment/system limits. Nor did 135°F prevent a violation of technical specifications, since we were required to perform 1-SI-68-44, "RCS, and pressurizer temperature surveillance." The purpose of 1-SI-68-44 is to provide detailed steps to verify that the Reactor Coolant System (RCS) temperature/pressure and pressurizer temperature are in compliance with Technical Specifications during heatup, cooldown, and in-service leak and hydrostatic testing. I do not recall identifying a reason why 135°F was important in maintaining the limits in the SI-bounded system operating parameters.

Thus, I likely concluded that whatever the temperature was when we began to draw a bubble, if we stayed within the limits of the SI, we would not violate technical specifications or the system design parameters of the pressurizer and RCS. Therefore, the intent of Step 5.2.1[8] was not changed by the procedure revision. Before and after the revision, we were required to maintain RCS temperature/pressure and pressurizer temperature in compliance with Technical Specifications and design limits.

In retrospect, I suspect the mistake I made was in basing my decision to classify the change as "minor/editorial" solely on the above analysis and my conclusion that the change did not change the intent of the procedure. I would then have failed to adequately consider whether the change, nonetheless, altered the procedure's "technical content or sequence of procedural steps." Having looked back at TVA's then-applicable procedure regarding "minor/editorial" changes, NPG-SPP-01.2.1 Rev. 0002, I realize that intent was not the only criteria.

I do not remember, today, exactly what led to this procedure change or what I thought the result of the procedure change would be. I have reviewed the TVA-OIG report of my March 29, 2017 interview. I know that, during that interview, I truthfully conveyed to the best of my memory what occurred on November 9, 2015. But I gave that interview almost a year and a half after the procedure change. Not surprisingly, the report states that I was initially unable to recall the procedure change, and it is apparent from the report that I had difficulty remembering many of the details surrounding the change even after being prompted.

Frankly, even if I had a crystal clear recollection of this procedure change at the time of my March 29, 2017 interview, I cannot assume that TVA-OIG's reports accurately and completely convey everything I said. Although I cannot be sure without the recordings or transcripts of my interviews, I feel that my statements were generally more nuanced and less conclusory than they appear in the TVA-OIG reports. Consequently, I can only assume my rationale for processing the change is what is expressed in the March 29, 2017 TVA-OIG report; but I cannot say today that the TVA-OIG report is an accurate reflection of what I said on March 29, 2017 or what I thought on November 9, 2015.

Regarding the allegation in AV No. 2 that I "admitted that the purpose of the procedure change was to stay on schedule," I assume the NRC is referencing the TVA-OIG report of my March 29, 2017 interview. I think it is an oversimplification to say that I, "admitted that the purpose of the procedure change was to stay on schedule." In any event, part of my job on November 9, 2015, was to address procedure issues that impacted the operations department's performance. I am unaware of any rule that would have prohibited me from making procedure changes to allow operators to stay on a schedule as long as I followed TVA's procedures. More importantly, why the procedure change was initiated and why it was processed as "minor/editorial" are separate issues. Even if staying on schedule was a factor in the procedure change itself, it does not logically follow that it also motivated the decision to process the procedure change as "minor/editorial."

I take full responsibility for my mistake. As procedure writer Scott Warrington's supervisor at the time and the Independent Quality Reviewer (IQR), I take full responsibility for how this procedure change was processed.

I no longer recall my communication to Mr. Warrington on November 9, 2015, about the procedure change. It was my practice, however, to provide minimal information to the procedure writers regarding why a procedure change was requested, because I wanted to ensure that the procedure writer gave me his or her independent assessment. I also have no recollection of discussing with Mr. Warrington whether or why the procedure change should be classified as "minor/editorial." I believe that I would not have told Mr. Warrington about my basis for concluding the procedure change was "minor/editorial," assuming I had reached that conclusion by the time I requested that he process the change. Typically, I would only discuss the reasoning for treating a change as "minor/editorial" (or not) if I had a disagreement with the procedure writer's classification.

Regardless of why Mr. Warrington classified the procedure change as "minor/editorial," it was my responsibility to catch and correct that mistake. Having worked with Mr. Warrington for many years, I always found him to be a diligent and reliable procedure writer and a person of unquestioned integrity. I am surprised that both of us made the mistake of interpreting this procedure change to be "minor/editorial," but I cannot believe that Mr. Warrington would have deliberately misclassified the procedure any more than I can believe that of myself. Even if Mr. Warrington was not the honest person I know him to be, there is simply no reason why a procedure writer would ever feel motivated to deliberately misclassify a procedure change as "minor/editorial."

If anyone should be reprimanded for misclassifying the procedure change, it is me. I should have corrected the mistake as the reviewer of the procedure change.¹ In my opinion, punishing Mr. Warrington for such an innocent mistake would be both unfair to him and damaging to all procedure writers in the industry who strive to do their best but sometimes make mistakes.

In my opinion, processing the revision to Step 5.2.1[8] as "minor/editorial" was a relatively insignificant mistake. I do not want to minimize the critical importance of procedural compliance in operating a nuclear power plant, particularly adherence to the requirements for revising procedures in TVA Procedure NPG-SPP-01.2.1, "Administration of Site Technical Procedures." The procedure change requirements reflect decades of experience and learning in the nuclear industry and are absolutely necessary to maintaining safe plant operations. That said, I understand that the significance of a procedural violation is a factor the NRC considers, so I want to address this issue.

First, in assessing the significance of my mistake, it is helpful to review TVA Sequoyah Nuclear Plant's corresponding procedure for drawing a bubble in the pressurizer, which is enclosed. (Ex. 1, TVA General Operating Instruction 0-GO-1, "Unit Startup from Cold Shutdown to Hot Standby," Step 5.4 (Rev. 0078) (effective 08-24-15)) I often reviewed Sequoyah's corresponding procedures when assessing procedure changes at WBN. I might have reviewed Sequoyah's procedure for drawing a bubble in the pressurizer on November 9, 2015, but I do not remember for sure. I have reviewed it since, though, and, as you can see, it did not contain an arbitrary temperature limit like the 135°F in WBN's procedure. Rather, Sequoyah's procedure merely required staying within the technical specification's required temperature and pressure limits. If I reviewed Sequoyah's procedure on November 9, 2015, it would have bolstered my opinion that 135°F was an arbitrary number and that what was needed was staying within the technical specifications' required limits for the pressurizer and RCS.

Second, this procedure change occurred nearly five years ago. The procedure has no doubt been used repeatedly since then. If the NRC believed that misclassifying the change had caused any material impact on plant or personnel safety, I hope that the agency would have done more than wait five years to accuse me of deliberate misconduct. I can only assume that the NRC has concluded, like me, that there was no long-term impact or negative consequence from my mistaken classification of the procedure change as "minor/editorial."

I did not stand to benefit from this procedure change, and I did not benefit from this procedure change. To be clear, I adhered to procedure at TVA as a matter of principle. I took the responsibilities of my license, particularly a commitment to "safety first" very seriously. I understand, however, that you have not worked alongside me and do not know me personally, so I feel compelled to address this issue. On November 9, 2015, I had no career aspirations tied to pleasing senior management. I had already met my financial goals for retirement and was not

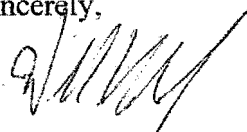
¹ I believe that I was the "sponsor" of this procedure change. To my knowledge, there was no prohibition on my serving as both the sponsor of the procedure change and the IQR. The NRC has not pointed to any specific prohibition, so I cannot assess the substance of this allegation. But I again deny absolutely that I deliberately violated a TVA procedure when serving as both sponsor and IQR. If that was a procedural violation, I was unaware of it.

seeking a promotion or a pay raise, nor was I in fear for my job. I had actually come very close to retiring in the summer of 2015 but ultimately made the personal decision, after a series of discussions with my wife, to stay on until I turned 55.

I am available and willing to assist with corrective steps. With regard to corrective action, if there is helpful information I can provide to the NRC or TVA, I will gladly provide it. Likewise, if there are initiatives to address procedural non-compliance or safety culture at WBN, I will gladly volunteer my time in assisting with those initiatives. If I could go back—with the benefit of hindsight—I would process this revision differently. The lesson learned, for me, is that when processing procedure changes, they need to be reviewed for whether they alter the procedure's technical content or sequence of procedural steps as well as whether they change the intent of the procedure. In retrospect, I was not as thorough as I should have been. Had I carefully applied all of the criteria for "minor/editorial," changes, I probably would have determined that the criteria were not met.

Thank you for the opportunity to respond to the allegations in AV No. 2. I hope you believe I would never have deliberately misclassified a procedure change, regardless of schedule pressure or any other reason.

Sincerely,



William "Bill" Sprinkle

Enclosure

CC: Kenneth G. O'Brien, Director
Division of Reactor Safety
United States Nuclear Regulatory Commission, Region III
2243 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352
kenneth.obrien@nrc.gov

SENT VIA U.S. MAIL AND ELECTRONIC MAIL



Sequoyah Nuclear Plant

Unit 1 & 2

General Operating Instructions

0-GO-1

UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY

Revision 0078

Quality Related

Level of Use: Continuous Use

Effective Date: 08-24-2015

Responsible Organization: OPS, Operations

Prepared By: Cheryl D. Hale

Approved By: Paul Parashak

Current Revision Description

Added steps to sections 5.3 and 5.5 for isolation of RVLIS bellows for RCS Sweeps and Vents. (CR 1024096) Revised step sequence in section 5.6 for increasing RCS temperature and pressure. (CR 1024634) Added WCC SRO to Attachment 2 for breach permit status. (CR 1025962) Corrected substeps in Section 5.5.1 for RCS depressurization. (CR 1024572)

EXHIBIT

1

tabbies

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer

NOTES

- 1) Pressurizer enclosure temperature should be maintained as cool as possible, but greater than 70°F, and less than 110°F. Enclosure temperature should be monitored or trended using ICS point T1001A.
- 2) Lower compartment coolers A and B have the greatest influence on the pressurizer enclosure temperature. Rapid enclosure temperature changes should be avoided.

[1] IF RCS/Pressurizer are **NOT** water solid, **THEN**

GO TO Section 5.3 to establish solid water conditions and ☐

RETURN to step 5.4[2]. ☐

[2] **ENSURE** Lower Compartment cooling units are in service in accordance with 0-SO-30-5. _____

[3] IF 0-SI-SXX-068-127.0 is **NOT** in progress, **THEN**

PERFORM applicable sections of 0-SI-SXX-068-127.0, *RCS and Pressurizer Temperature and Pressure Limits*. ☐

[4] **MAINTAIN** RCS pressure and temperature within the acceptable region of RCS Pressure/Temperature Limits Curve **USING** TI-28 Fig. 4. ☐

NOTE

0-SI-OPS-000-004.0 must be performed **PRIOR TO** RCS or S/G pressure exceeding 200 psig to ensure compliance with **[CTS]** TRM 3.7.2 **[ITS]** TRM TRV 8.7.1.1.

[5] IF either the RCS or steam generator secondary side pressure is expected to exceed 200 psig, **THEN**

PERFORM 0-SI-OPS-000-004.0 on an hourly basis to verify temperatures greater than 70°F (**[CTS]** TR 4.7.2) (**[ITS]** TRM TRV 8.7.1.1).

UNTIL RCS and S/G pressures are less than 200 psig

OR an RCP is placed in service. ☐

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Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

[6] **ENSURE** the following:

DESCRIPTION	HANDSWITCH	HS POSITION	VALVE POSITION	INITIALS
PZR PORV	HS-68-340AA	P-AUTO	CLOSED	_____
PZR PORV	HS-68-334A	P-AUTO	CLOSED	_____

[7] **INDEPENDENTLY VERIFY** the following:

DESCRIPTION	HANDSWITCH	HS POSITION	VALVE POSITION	INITIALS
PZR PORV	HS-68-340AA	P-AUTO	CLOSED	_____ IV
PZR PORV	HS-68-334A	P-AUTO	CLOSED	_____ IV

NOTES

- 1) If performance of 1,2-SI-OPS-074-128.0 is required, maximum pressure for drawing bubble is limited to 150 psig to coincide with allowed pressure for 1, 2-SI-OPS-074-128.0, *RHR Discharge Piping Vent*.
- 2) Due to elevation differences, wide range RCS pressure indications read approximately 25 psig higher than corresponding saturation pressure in pressurizer.
- 3) A bubble was successfully drawn at 48 psig during U1R18, which allowed RVLIS backfill and cals in parallel with drawing bubble.

[8] **DETERMINE** pressure band to draw bubble (**NOT** to exceed max pressure of 150 psig if performance of 1,2-SI-OPS-074-128.0 is required) **AND** corresponding saturation temperature:

	WR Pressure	P. sat (WR Pressure-25 psi)	Saturation Temperature	INITIALS	IV
Maximum	_____ psig	_____ psig	_____ °F	_____	_____ IV
Minimum	_____ psig	_____ psig	_____ °F	_____	_____ IV

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

[9] **ADJUST** RCS pressure to previously determined pressure band by performing following:

[9.1] **MONITOR** RCS pressure using any of the following:

EQUIPMENT	INDICATION NUMBER	✓
EXO SENSOR	XR-94-101 or 102	<input type="checkbox"/>
Plant Computer	P0499A	<input type="checkbox"/>
RCS PZR Press-Cold Cal	PI-68-342A	<input type="checkbox"/>
RCS Hot Leg Press Wide Range	PI-68-66A	<input type="checkbox"/>
	PI-68-62	<input type="checkbox"/>
	PI-68-69	<input type="checkbox"/>
	PR-68-69	<input type="checkbox"/>

[9.2] **ADJUST [HIC-62-81A]** Letdown Pressure Controller in **MANUAL** to determined RCS pressure. ☐

[10] **WHEN** RCS pressure is greater than 100 psig,
THEN

[10.1] **ENSURE [FCV-62-9]**, RCP #1 Seal Leakoff **OPEN** using **[HS-62-9A]**. _____

[10.2] **ENSURE [FCV-62-22]**, RCP #2 Seal Leakoff **OPEN** using **[HS-62-22A]**. _____

[10.3] **ENSURE [FCV-62-35]**, RCP #3 Seal Leakoff **OPEN** using **[HS-62-35A]**. _____

[10.4] **ENSURE [FCV-62-48]**, RCP #4 Seal Leakoff **OPEN** using **[HS-62-48A]**. _____

[10.5] **ENSURE [FCV-62-63]**, seal return isolation valve **OPEN** using **[HS-62-63A]**. _____

[10.6] **ENSURE [FCV-62-61]**, seal return isolation valve **OPEN** using **[HS-62-61A]**. _____

[10.7] **INDEPENDENTLY VERIFY [FCV-62-9]**, RCP #1 Seal Leakoff **OPEN**. _____

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Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

- [10.8] **INDEPENDENTLY VERIFY [FCV-62-22], RCP #2 Seal Leakoff OPEN.**

IV

- [10.9] **INDEPENDENTLY VERIFY [FCV-62-35], RCP #3 Seal Leakoff OPEN.**

IV

- [10.10] **INDEPENDENTLY VERIFY [FCV-62-48], RCP #4 Seal Leakoff OPEN.**

IV

- [10.11] **INDEPENDENTLY VERIFY [FCV-62-63], seal return isolation valve is OPEN.**

IV

- [10.12] **INDEPENDENTLY VERIFY [FCV-62-61], seal return isolation valve is OPEN.**

IV

- [11] **MONITOR** the following parameters as RCS pressure is rising:

- Letdown Heat Exchanger Outlet pressure **[PI-62-81]** ☐
- Letdown Heat Exchanger Outlet flow **[FI-62-82]** ☐

- [12] **ADJUST [HIC-62-81A]** to maintain letdown less than 120 gpm during pressure rise. ☐

- [13] **WHEN** RCS pressure is within predetermined band, **THEN** **ADJUST [HIC-62-81A]** and **[HIC-62-93A]** as necessary to maintain RCS pressure. ☐

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Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

CAUTION

Aligning charging flow through Aux Spray line may result in a small drop in charging flow. RCS pressure should be closely monitored if pressurizer is water solid.

NOTE

Step 5.4[14] may be marked N/A with Chemistry approval, if sufficient hydrazine has been added to the pressurizer. Step may be performed out of sequence (earlier or later), as determined by Chemistry.

[14] IF hydrazine injection to the pressurizer is required, THEN
ALIGN Auxiliary Spray as follows:

[14.1] CLOSE **[FCV-68-340D]** and **[FCV-68-340B]**, Normal
Sprays to prevent backflow through spray lines. ☐

[14.2] IF performing on Unit 1, THEN

REPLACE control power fuses for 1-FCV-62-84:

UNIT	BOARD	LOCATION	FUSE UNID	INITIALS
1	125V Vital Battery Board I	Ckt. C-3	0-FU2-250-KEC3-D	<u>1st</u> <u>CV</u>

[14.3] IF performing on Unit 2, THEN

REPLACE control power fuses for 2-FCV-62-84:

UNIT	BOARD	LOCATION	FUSE UNID	INITIALS
2	125V Vital Battery Board III	Ckt. C-3	0-FU2-250-KGC3-F	<u>1st</u> <u>CV</u>

[14.4] OPEN **[FCV-62-84]**, Auxiliary Spray Supply valve to
admit water to pressurizer. ☐

[14.5] ENSURE **[FCV-62-85]** and **[FCV-62-86]** Alternate and
Normal Charging are CLOSED. ☐

[14.6] ADJUST **[HIC-62-81A]** and /or **[HIC-62-93A]**, as
necessary to maintain stable RCS pressure. ☐

SQN Unit 1 & 2	UNIT STARTUP FROM COLD SHUTDOWN TO HOT STANDBY	0-GO-1 Rev. 0078 Page 42 of 165
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Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

[14.7] **ADD** hydrazine to pressurizer **USING** 0-SO-62-8
Reactor Coolant Chemical Addition and Control. ☐

[14.8] **OPEN** one of the following: (N/A valve not used)

VALVE	FUNCTION	OPEN <input checked="" type="checkbox"/>
FCV-62-86	Normal Charging	<input type="checkbox"/>
FCV-62-85	Alternate Charging	<input type="checkbox"/>

[14.9] **CLOSE** **[FCV-62-84]**, Auxiliary Spray Supply valve. ☐

[14.10] **IF** performing on Unit 1, **THEN**

REMOVE control power fuses for 1-FCV-62-84:

UNIT	BOARD	LOCATION	FUSE UNID	INITIALS
1	125V Vital Battery Board I	Ckt. C-3	0-FU2-250-KEC3-D	<u>1st</u> <u>CV</u>

[14.11] **IF** performing on Unit 2, **THEN**

REMOVE control power fuses for 2-FCV-62-84:

UNIT	BOARD	LOCATION	FUSE UNID	INITIALS
2	125V Vital Battery Board III	Ckt. C-3	0-FU2-250-KGC3-F	<u>1st</u> <u>CV</u>

[14.12] **ADJUST** **[HIC-62-81A]** and/or **[HIC-62-93A]**
as necessary to maintain stable RCS pressure. ☐

[15] **OBTAIN** confirmation from Chemistry that RCS chemistry is
within allowable limits for pzs heatup to greater than 180°F. ☐

[16] **PLACE** Aux Spray in service as necessary
USING 1-SO-62-1, Sect. 8.8, or 2-SO-62-1, Section 8.7;
Operation of Auxiliary Spray. ☐

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

CAUTIONS

- 1) **[CTS]** Pzr heatup rate of 100°F in one hour shall NOT be exceeded (TRM 3.4.9.2). Extreme care should be taken if all PRZ heaters are energized.

[ITS] Pzr heatup rate of 100°F in one hour shall NOT be exceeded (TRM 8.4.2). Extreme care should be taken if all PRZ heaters are energized.
- 2) The RTD above the pressurizer surge line will detect liquid in-surges and out-surges, which shows up as an indication of a rapid temperature change. Due to pressurizer surge line stratification events, heatup and cooldown rates should be monitored during all evolutions. **[C.12]**

NOTE

Convection currents within the pressurizer are established when pressurizer heaters are energized. Initial heatup may require all pressurizer heaters to be temporarily energized.

[17] INITIATE pzr heatup to predetermined saturation temperature by performing the following:

[17.1] PLACE Pressurizer Pressure Controller **[PIC-68-340A]** in **MANUAL** and drive output needle to closed position. ☐

[17.2] ENERGIZE pressurizer heaters as required. ☐

[18] CONTROL pressurizer heatup rate by cycling pzr heaters as necessary. ☐

NOTES

- 1) Computer points require a prefix 0, 1, or 2 be placed in front of the point number, for example, 2T0482A.
- 2) **[TI-68-318]** pressurizer surge line (ICS pt. T0482A), **[TI-68-319]** pressurizer liquid space (ICS pt. T0480A), and **[TI-68-324]** pressurizer vapor space (ICS pt. T0481A) may be trended to provide temperature change indication during filling, cooling, and heatup operations. Liquid space and surge line temperature should be approximately equal when a liquid out flow is present.

[19] MONITOR the following during the heatup:

- PZR liquid space temperature **[TI-68-319]** (T0480A) ☐

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

- PZR vapor space temperature **[TI-68-324]** (T0481A) ☐
- PZR surge line temperature **[TI-68-318]** (T0482A) ☐

NOTES

- 1) Pressurizer level indicators **[LI-68-339A]**, **[LI-68-335A]**, **[LI-68-320]**, or **[LI-68-321]** may be used for verifying pressurizer level.
- 2) When letdown flow is greater than charging flow and RCS pressure is either stable or slowly rising, a steam bubble is forming in the pressurizer.

[20] WHEN pressurizer temperature is approximately saturation temperature, **THEN**

RAISE letdown flow above charging to start reducing pressurizer level to approximately 85% hot cal. ☐

OR

LOWER charging flow to be less than letdown to start reducing pressurizer level to approximately 85% hot cal. ☐

[21] IF Auxiliary Spray is in service, **THEN**

REMOVE Auxiliary Spray from service using 1-SO-62-1, Section 8.8, or 2-SO-62-1, Section 8.7, *Operation of Auxiliary Spray*. ☐

NOTES

- 1) Water in the bonnet of the PORV will significantly slow the valve stroke time.
- 2) AR-M5-A Window E2 "Pressurizer Power Relief Line Temp High" may annunciate during performance of the following step.

[22] ENSURE PCV-68-334 and PCV-68-340 pilot chambers do NOT contain water by performing the following:

[22.1] CYCLE [PCV-68-334], Pressurizer PORV OPEN AND CLOSED UNTIL CLOSE stroke time is less than or equal to 2 seconds using **[HS-68-334A]**.

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

[22.2] **CYCLE [PCV-68-340A]**, Pressurizer PORV OPEN and CLOSED using **[HS-68-340AA]** UNTIL CLOSE stroke time is less than or equal to 2 seconds.

[22.3] **ENSURE** the following:

DESCRIPTION	HANDSWITCH	HS POSITION	VALVE POSITION	INITIALS
PZR PORV	HS-68-340AA	P-AUTO	CLOSED	_____
PZR PORV	HS-68-334A	P-AUTO	CLOSED	_____

[22.4] **INDEPENDENTLY VERIFY** the following:

DESCRIPTION	HANDSWITCH	HS POSITION	VALVE POSITION	INITIALS
PZR PORV	HS-68-340AA	P-AUTO	CLOSED	_____ IV
PZR PORV	HS-68-334A	P-AUTO	CLOSED	_____ IV

[23] **ADJUST [HIC-62-81A]** and **[HIC-62-83A]** to maintain letdown flow and pressure as desired. ☐

[24] **INITIATE** pressurizer level reduction to approximately 40% to 60%. ☐

[25] **IF** 1, 2-SI-OPS-074-128.0, *RHR Discharge Piping Vent* to be performed, **THEN**

ENSURE 1, 2-SI-OPS-074-128.0 complete prior to exceeding 150 psig.

NOTE

PORV stroke time testing is required to be performed at least once per 18 months in Mode 3, 4, or 5 with a steam bubble in the pressurizer. The following step may be performed later if required based upon outage schedule.

[26] **ENSURE** 0-SI-SXV-068-201.0, *PORV stroke time testing* completed for PORV operability.

Unit _____

Date _____

5.4 Drawing a bubble in the pressurizer (continued)

[27] **IF** the unit is to be maintained at this plateau, **THEN**

CONTROL RCS temperature to less than 160°F
and pressure at the predetermined band. ☐

[28] **IF** LETDOWN PRESSURE HIGH alarm
(M6-C window B-4) was previously disabled (Step 5.3[6]),
THEN

ENABLE affected SER point (U-1: 2162, U-2: 1266) in
accordance with OPDP-4, *Annunciator Disablement*. ☐

NOTE

If bubble needs to be collapsed, RCP needs to be started in Section 5.6 prior to returning to 0-GO-7.

[29] **IF** ready to start an RCP, **THEN**

GO TO Section 5.6.

End of Section