Attachment 2

Procedure to Audit Separation of Class 1E Electric Equipment and Circuits

Prepared for:

South Carolina Electric and Gas Company

V. C. Summer Nuclear Station Unit 1

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Table of Contents

Attachments

V. C. Summer

Procedure to Audit Separation of Class 1E

Electrical Equipment and Circuits

1.0 Introduction

This document outlines the inspection/audit procedures and methods and lists the selected Class 1E equipment and Class 1E and associated circuits to be audited for conformance with the project separation and identification criteria and FSAR commitments. This procedure and program is in response to the USNRC letter to the South Carolina Electric and Gas Company.

2.0 Scope

This audit procedure includes a 5% sample of installed equipment and circuits and verifies the following:

2.1 Separation and identification (marking) of Class 1E equipment - switchgear, motor control centers, distribution panels, inverters and chargers, motors, valve operators and instruments.

2.2 Separation and identification of redundant field run Class 1E and associated circuits.

2.3 Separation of redundant controls, indicators and wiring in panels and control boards.

3.0 Audit Criteria

The audit shall verify the conformance of the selected equipment and circuits with the separation and identification requirements of the following FSAR commitments and criteria made part of this document:

3.0 Audit Criteria (Cont'd.)

a. Attachment 1 - FSAR Sections 8.3.1.4, 8.3.1.5, Appendix 3A, Reg. Guide 1.75, Table 8.3-4, and Sections 7.1.2.2 and 7.1.2.3.

b. Attachment 2 - Electrical Installation Spec SP-222-044461-000, Rev. 10, Sections 1.24, 1.26 and 1.38.

c. Attachment 3 - GAI Drawing D-224-521, Rev. 5.

d. Attachment 4 - Construction Guideline S-200-926, Rev. 2

e. Attachment 5 - Project Design Criteria Section 4, Rev. dated 12-22-75 (For Information Only).

4.0 Circuits and Equipment Selection and Audit

4.1 Random Sampling

4.1.1 Selection of Class 1E equipment and Class 1E and associated circuits for audit is by means of random sampling. The sampling level is 5%. The selected sample is obtained by utilizing random number tables to achieve a sample selected in such a way that each element has equal probability of being included in the sample. Random samples are free from sampling bias and have a theoretical basis which allows quantitative evaluation of their quality. The random numbers satisfy a uniform distribution over a given interval. The random number tables were generated by computer algorithm to provide tables for the desired population sizes.

4.1.2 Attachment 6 describes the random sampling method. Computer program printed random sample tables for population sizes of 1000 and 10,000 are used to select the circuits and equipment for audit.

4.2 Class 1E and Associated Field Run Circuits

4.2.1 Attachment 7 lists the circuits selected by random sample for audit.

4.2.2 If a circuit cannot be audited due to accessibility or other problems, it shall be recorded as such on the "Audit Report" (Attachment 10) and the next random circuit shall be selected from the "Alternate" column of Attachment 7.

4.2.3 In auditing the circuits the following items shall be checked for conformance with the criteria of Section 3.0:

a. Separation of its raceway.

b. Circuit Separation

c. Color coding, i.e., in accordance with channel/train designation.

d. Cable color coding same as raceway color coding and "From" and "To" equipment color coding/train designation.

e. Identification marking

4.2.4 Each audited circuit shall be "walked down" starting at the "From" point to the "To" point. Separation of its raceway shall be verified as well as verifying circuit identification and separation where it enters and leaves a tray, conduit, room, or equipment. Also verify separation at any points of intersection with other raceways.

4.3 Class 1E Equipment

4.3.1 For the selected class 1E equipment identified in Attachment 8 (switchgear, control centers, panels, valve operators, instruments, etc.) verify that the separation and identification requirements of Section 3.0 have been met.

4.3.2 Where equipment cannot be audited due to accessibility or other problems, it shall be recorded as such on the "Audit Report" and another piece of equipment shall be selected for audit from the "Alternate" column.

4.4 Class 1E Control Boards and Panels

4.4.1 Attachment 9 lists the control boards, panels and wiring to be audited. Verify that separation and identification requirements of the Section 3.0 documents for this equipment have been met.

4.4.2 For each of the panels and boards audit the 5% sample of class 1E indicators, controls and internal wiring indicated in Attachment 9.

5.0 Data Recording and Discrepancies

5.1 An Audit Report, Attachment 10, shall be completed for each item audited.

5.2 The auditor shall either indicate conformance with the Section 3.0 criteria or provide a description of the discrepancy or potential discrepancy.

5.3 Whenever a case arises in which there is a question as to whether separation has been satisfied, the Audit Report shall indicate as such and shall be submitted to the Task Leader for determination if separation has been satisfied or a discrepancy exists.

5.4 Where a discrepancy is identified, the Inspection Report shall be submitted to GAI engineering for evaluation/dispositioning. A copy shall be retained by the audit team for record purposes and follow-up.

Attachment 3

Discrepancy Code

A - Separation Problem: Insufficient distance/barriers between redundant channels.

B - Wrong Circuit/Equipment identification or color coding.

C - No. I.D. tag on end of circuit or "From-To" equipment.

D - No color coding (In cases where circuit was being audited, circuit had no other discrepancy except "From" or To" equipment was not color coded).

Notes

1. Discrepancy or discrepancies found which one or more had been identified and documented for correction by site in the referenced document prior to this audit.

2. Discrepancy or discrepancies found justified by noted document.

3. Not audited due to access problems, construction incomplete, or circuit invalid, etc., alternate selected.

4. Additional field information required to complete engineering evaluation, i.e., engineering confirmation needed of discrepancy noted in parentheses ( ).

5. Circuit being audited had no discrepancy, however, other separation problems existed in internal wiring of "From" or "To" equipment.

6. Common separation problem; that is, common cable tray has conduit of another safeguard channel passing above it with less than five (5) feet separation. This discrepancy had been documented prior to audit by NCN 923.

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I. Circuits	SS-W-26A	A	1292	None	-	
	AH-C-563A	A	339	None	-	
	SI-C-61A	A	1278	-	-	Note 3
	VU-L-1A	A	1609	Yes	D	
	MI-R-22A	A	859	Yes	B,D	
	NI-A-132A	A	832	Yes	C,D	
	ES-M-97A	A	705	Yes	D	
	AH-J-1034A	A	305	None	-	
	AH-K-241A	A	101	None	-	
	SI-C-103A	A	1320	Yes	D	
	AH-J-255A	A	134	None	-	
	VU-L-32A	A	1736	Yes	D	
	CC-J-12A	A	364	(Yes)	(A)	Note 4
	FW-W-305A	A	933	Yes	D	
	ES-W-13A	A	457	None	-	
	CS-C-122A	A	162	None	-	
	EF-W-124A	A	407	Yes	C,D	
	CS-W-311A	A	724	None	-	
	CC-W-12A	A	200	(Yes)	(A)	Note 4
	SP-C-23A	A	1329	Yes	D	
	RC-U-41A	A	1137	Yes	A	
	SP-U-1A	A	1457	Yes	D	
	HR-W-3A	A	936	None	-	
	SW-L-11A	A	1849	Yes	D	
	EF-W-126A	A	490	Yes	C,D	
	FW-W-235A	A	888	Yes	C	
	SI-C-187A	A	1323	Yes	D	
	RC-W-103A	A	1225	None	-	
	AH-J-969A	A	10	None	-	
	SW-M-32A	A	1809	Yes	D	
	MS-U-45A	A	988	-	-	Note 3
	NI-A-137A	A	1043	None	-	
	BD-W-43A	A	64	Yes	D	
	SI-C-241A	A	1324	Yes	D	
	SS-W-48A	A	1252	Yes	D	
	EM-C-82A	A	616	-	-	Note 3
	MS-W-189A	A	867	-	-	Note 3
	DG-E-25A	A	600	Yes	A,D	
	SS-W-23A	A	1166	None	-	
	SS-W-2A	A	1250	None	-	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I.Circuits (Cont'd.)	MS-W-251A	A	869	None	-	
	FW-W-267A	A	1101	-	-	Note 4
	IA-W-24A	A	814	Yes	C	
	SP-C-4A	A	1204	Yes	D	
	VU-J-33A	A	1733	Yes	D	
	MS-W-152A	A	1116	Yes	C	
	MS-W-200A	A	951	-	-	Note 3
	SP-M-14A	A	1374	None	-	
	VU-J-113A	A	1608	Yes	D	
	WP-W-5A	A	1864	Yes	D	
	SI-W-95A	A	1287	None	-	
	HR-J-3A	A	1060	None	-	
	VL-C-41A	A	1561	Yes	D	
	HR-L-3A	A	810	None	-	
	SI-J-41A	A	1285	(Yes)	(A)	Notes 4, 5
	FW-W-243A	A	1098	None	-	
	AH-J-1011A	A	137	None	-	
	DG-M-36A	A	647	-	-	Note 3
	VL-C-3A	A	1728	Yes	D	
	AH-W-65A	A	186	Yes	C	
	CS-W-192A	A	638	None	-	
	WP-W-38A	A	1865	Yes	D	
	SS-W-84A	A	1337	None	-	
	RH-C-22A	A	1477	Yes	D	
	SP-C-65A	A	1373	-	-	Note 3
	AH-C-70A	A	337	None	-	
	ES-W-15A	A	540	None	-	
	CC-C-133A	A	361	None	-	
	AH-C-800A	A	258	None	-	
	SW-J-61A	A	1681	Yes	D	
	ND-W-3A	A	872	Yes	D	
	SI-C-133A	A	1196	None	-	
	ES-M-322A	A	539	None	-	
	EF-W-115A	A	573	None	-	
	EF-U-51A	A	569	(Yes)	(A)	Note 4
	RH-C-84A	A	1228	None	-	
	VU-L-21A	A	1526	Yes	D	
	FW-D-2A	A	587	Yes	-	
	WP-W-37A	A	1823	Yes	D	
	SI-C-3A	A	1485	None	-	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I.Circuits (Cont'd.)	AH-J-1039A	A	139	None	-	
	DG-J-23A	A	565	None	-	
	CC-C-66A	A	150	None	-	
	EF-W-69A	A	446	Yes	D	
	VU-J-136A	A	1567	Yes	A,D	Note 4
	SW-M-35A	A	1558	Yes	D	
	AH-C-90A	A	4	None	-	
	FW-D-2A	A	586	None	-	
	IA-W-25A	A	856	Yes	D	
	IA-W-5A	A	981	Yes	D	
	MS-W-177A	A	1117	Yes	D	
	EF-U-5A	A	484	Yes	D	
	AH-J-977A	A	178	None	-	
	MS-W-201A	A	994	Yes	A,D	
	EF-M-14A	A	651	Yes	A,D	Note 1 - NCN 923
	EF-W-247A	A	889	None	-	
	ET-C-1A	A	415	Yes	D	
	SG-J-22A	A	1400	None	-	
	CS-J-65A	A	421	None	-	
	ED-E-27A	A	607	Yes	D	
	AH-J-970A	A		None	-	
	SS-W-31B	B	1292	None	-	
	SG-J-24B	B	942	Yes	D	
	AH-C-568B	B	339	None	-	
	SP-C-53B	B	1373	None	-	
	HR-J-12B	B	419	None	-	
	AH-C-91B	B	337	None	-	
	SG-V-14B	B	859	None	-	
	MS-W-135B	B	832	None	-	
	AH-J-1049B	B	305	None	-	
	AH-L-104B	B	101	None	-	
	AH-J-275B	B	134	Yes	B,C,D	
	VU-J-64B	B	1149	None	-	
	DG-M-51B	B	451	None	-	
	EF-W-17B	B	457	Yes	D	
	CI-U-4B	B	157	None	-	
	CS-C-94B	B	162	(Yes)	(A)	Note 4; Note 6
	FS-C-3B	B	724	None	-	
	SI-C-273B	B	1452	Yes	A,D	Note 6

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I.Circuits (Cont'd.)	CR-E-4B	B	200	None	-	
	SI-C-173B	B	1324	Yes	D	
	DG-J-48B	B	616	None	-	
	SS-W-13B	B	1166	Yes	D	
	SS-W-15B	B	1250	-	-	Note 3
	MS-C-13B	B	869	None	-	
	VU-L-28B	B	1278	Yes	D	
	CC-C-44B	B	64	None	-	
	SI-C-231B	B	1116	Yes	D	
	EV-K-5B	B		-	-	Note 3
	SP-C-93B	B	1374	None	-	
	RH-C-45B	B	1101	Yes	A	Note 1, NCN 923, Note 6
	SG-D-13B	B	814	Yes	D	
	SI-W-100B	B	1287	(Yes)	(A) D	Note 4
	RH-C-63B	B	1060	Yes	A	Note 6
	RH-C-111B	B	810	None	-	
	CC-J-4B	B	361	Yes	A	Note 1 - NCN 923
	AH-C-781B	B	258	None	-	
	SI-D-16B	B	1285	(Yes)	(A) D	Note 4
	WP-W-15B	B	1196	Yes	C	
	ES-L-463B	B	550	Yes	D	
	EF-M-22B	B	539	None	-	
	DG-J-24B	B	573	Yes	D	
	VL-C-45B	B	1228	Yes	D	
	SS-W-113B	B	1337	Yes	A,D	Note 1, NCN 923, Note 6
	EF-W-104B	B	587	Yes	A	Note 6
	RH-C-41B	B	933	Yes	A	
	VU-J-141B	B	1485	Yes	(A) D	Note 6
	SS-W-12B	B	1124	Yes	A	
	AH-J-1511B	B	139	None	-	
	EF-U-53B	B	540	Yes	(A) D	Note 4, Note 6
	SI-C-141B	B	1323	Yes	(A) D	Note 4, Note 6
	SP-C-73B	B	1164	None	-	
	CC-C-151B	B	150	Yes	A	Note 6
	DG-C-22B	B	446	Yes	D	
	SI-W-101B	B	1329	Yes	D	
	SI-W-122B	B	1204	Yes	(A) D	Note 4, Note 6
	SW-J-37B	B	1137	None	-	
	MS-W-163B	B	872	None	-	
	SP-C-71B	B	1457	Yes	A,D	Note 1, NCN 923, Note 6
	RC-W-14B	B	1098	Yes	D	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Results Type	Remarks
I.Circuits (Cont'd.)	RH-C-114B	B	936	Yes	A	Note 6
	HR-J-65B	B	778	Yes	C	
	EF-W-92B	B	544	Yes	A	Note 6
	CR-R-2B	B	283	(Yes)	(A) (D)	Note 4, Note 6
	AH-C-91B	B	337	None	-	
	DG-J-43B	B	490	None	-	
	AH-J-1033B	B	137	None	-	
	SG-D-32B	B	981	Yes	D	
	SG-D-15B	B	888	None	-	
	VU-L-26B	B	1194	Yes	D	
	SI-D-3B	B	1117	Yes	D	
	CS-W-236B	B	569	None	-	
	AH-W-76R	B	186	-	-	Note 3
	AH-C-114B	B	4	None	-	
	AH-J-648B	B	10	Yes	D	
	AH-J-1576B	B	140	None	-	
	ES-W-28B	B	638	Yes	D	
	SS-W-151B	B	1424	Yes	A	Note 1 - NCN 923
	HR-W-13B	B	988	Yes	C	
	AH-J-986B	B	51	Yes	B	
	CR-D-7B	B	324	None	-	
	EF-W-93B	B	586	None	-	
	SG-D-38B	B	856	Yes	D	
	EF-W-107B	B	713	Yes	D	
	VU-J-75B	B	1400	Yes	C	
	HR-C-14B	B	607	None	-	
	FW-W-286B	B	563	Yes	D	
	FW-W-293B	B	438	Yes	A	
	SW-M-54C	C	88	Yes	A	
	VU-L-52C	C	30	Yes	D	
	CS-C-261C	C	14	None	-	
	ED-E-29C	C	3	None	-	
	CS-C-263C	C	38	None	-	
	SW-C-53C	C	87	None	-	
	NI-A-379D	D	11	Yes	B,D	
	NI-A-94D	D	179	Yes	B	Discrepancy of "From" Equip. Only
	NI-A-172D	D	180	Yes	A,B,C,.	
	RC-U-75D	D	122	Yes	A,C	
	RC-U-65D	D	144	-	-	Note 3

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I.Circuits (Cont'd.)	XI-V-3D	D	167	Yes	D	
	RC-U-81D	D	14	Yes	A,C	
	RC-U-66D	D	165	None	-	
	SG-V-17E	E	11	Yes	A	Note 4
	CS-U-4E	E	38	None	-	
	MS-U-91E	E	59	Yes	A,C	
	NI-A-402E	E	117	Yes	D	
	SG-V-18E	E	30	(Yes)	(A)	Note 4
	SG-V-17E	E	14	(Yes)	(A)	Note 4
	NI-A-410E	E	82	Yes	D	
	TB-D-19J	J	11	Yes	A,D	
	NI-A-12J	J	14	(Yes)	(A)	Note 4
	NI-A-21J	J	3			
	NI-A-61K	K	11	None	-	
	SG-R-13K	K	3	Yes	(A)	
	TB-D-13L	L	11	None	-	
	NI-A-42L	L	14	None	-	
	NI-A-51L	L	3	None	-	
	TB-D-18M	M	3	None	-	
	SG-R-20M	M	20	(Yes)	(A)	Note 4
	SW-W-153XA	XA	1292	Yes	D	
	AH-J-780XA	XA	339	Yes	C	
	RC-U-128XA	XA	859	Yes	A	
	MI-W-226XA	XA	832	Yes	D	
	AH-J-1487XA	XA	305	Yes	C	
	AH-J-1462XA	XA	101	Yes	A	
	AH-J-765XA	XA	134	Yes	C	
	CS-U-36XA	XA	451	(Yes)	(A)	Note 4
	CS-W-73XA	XA	457	Yes	D	
	CC-U-133XA	XA	162	Yes	D	
	MB-J-71XA	XA	407	None	-	
	LD-K-17XA	XA	724	Yes	C	
	SW-U-83XA	XA	1452	None	-	
	CC-C-163XA	XA	200	None	-	
	SW-C-195XA	XA	1324	None	-	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I.Circuits (Cont'd.)	VL-J-17XA	XA	1252	Yes	D	
	CS-W-22XA	XA	616	None	-	
	MI-W-66XA	XA	867	None	-	
	LD-K-3XA	XA	600	Yes	D	
	SW-W-1XA	XA	1166	Yes	D	
	SW-W-65XA	XA	1250	Yes	D	
	MI-W-89XA	XA	868	Yes	D	
	SI-J-25XA	XA	1116	Yes	D	
	MI-W-92XA	XA	951	None	-	
	HR-J-121XA	XA	597	Yes	A,D	
	CC-N-41XA	XA	364	-	-	Note 3
	VL-J-11XA	XA	1374	Yes	D	
	SW-N-54XA	XA	1287	None	-	
	RC-J-252XA	XA	1060	Yes	A	Note 1, DN57102
	AH-J-787XA	XA	258	None	-	
	SI-C-31XA	XA	1196	Yes	C	
	ES-M-312XA	XA	550	None	-	
	RM-Q-42XA	XA	1111	Yes	B	
	CS-W-206XA	XA	539	Yes	C	
	CS-U-41XA	XA	573	None	-	
	RC-E-4XA	XA	933	None	-	
	MI-W-345XA	XA	1000	None	-	
	ED-J-4XA	XA	587	Yes	D	
	SW-C-162XA	XA	1323	-	-	Note 3
	SW-U-5XA	XA	1124	Yes	D	
	AH-J-1136XA	XA	139	None	-	
	SW-N-51XA	XA	1164	Yes	D	
	AS-W-1XA	XA	150	Yes	A	Note 1, NCN 923
	LD-U-2XA	XA	446	Yes	C,D	
	SW-U-26XA	XA	1329	(Yes)	(A)	Notes 4 & 5
	SW-M-1XA	XA	1285	Yes	D	
	VL-J-35XA	XA	1457	Yes	D	
	RC-J-61XA	XA	1098	None	-	
	MD-W-2XA	XA	778	Yes	D	
	DG-N-3XA	XA	544	-	-	Note 3
	CC-U-2XA	XA	283	(Yes)	(A)	Note 4
	MB-J-122XA	XA	490	None	-	
	AH-J-793XA	XA	137	Yes	C	
	LD-N-17XA	XA	647	None	-	
	RM-Q-93XA	XA	1194	(Yes)	(A)	Note 4
	AH-J-732XA	XA	337	None	-	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Results Type	Remarks
I.Circuits (Cont'd.)	AH-I-124XA	XA	186	None	-	
	AH-C-45XA	XA	4	None	-	
	AH-J-724XA	XA	10	None	-	
	HR-J-122XA	XA	638	None	-	
	CS-W-221XA	XA	540	Yes	C,D	
	MI-W-34XA	XA	988	None	-	
	AH-J-725XA	XA	51	None	-	
	CC-U-4XA	XA	324	(Yes)	(A)	Note 4
	RC-J-272XA	XA	856	Yes	A	
	RC-W-124XA	XA	1149	Yes	D	
	AH-L-272XA	XA	64	None	-	
	SW-W-83XA	XA	1373	None	-	
	SI-C-33XA	XA	1278	None	-	
	CS-W-227XA	XA	419	Yes	C	
	RC-J-222XA	XA	814	Yes	C	
	SW-N-6XA	XA	1204	Yes	D	
	RC-U-122XA	XA	981	Yes	A,D	
	LD-N-3XA	XA	484	Yes	C,D	
	AH-J-1177XA	XA	140	Yes	D	
	ED-J-5XA	XA	628	Yes	D	
	AH-J-802XA	XA	178	None	-	
	MI-W-171XA	XA	994	Yes	D	
	ES-L-226XA	XA	713	None	-	
	MI-W-203XA	XA	872	Yes	D	
	MB-J-42XA	XA	569	Yes	A,D	
	AA-E-7XA	XA	42	None	-	
	RW-U-4XB	XB	942	(Yes)	(A)	Note 4
	AH-J-867XB	XB	339	None	-	
	RM-Q-136XB	XB	859	Yes	C	
	MI-W-471XB	XB	832	Yes	A	
	DG-U-13XB	XB	705	Yes	D	
	AH-J-1571XB	XB	305	None	-	
	AH-J-1485XB	XB	101	None	-	
	MI-W-456XB	XB	872	Yes	A	Note 1 - NCN 923
	AH-J-818XB	XB	134	None	-	
	MI-R-87XB	XB	451	Yes	A,D	
	DG-J-85XB	XB	457	None	-	
	CE-U-5XB	XB	162	Yes	D	
	MD-N-15XB	XB	407	None	-	
	LD-K-90XB	XB	724	Yes	A	Note 6

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
I. Circuits (Cont'd.)	CC-N-14XB	XB	200	Yes	D	
	AA-E-8XB	XB	42	None	-	
	SW-U-34XB	XB	1117	(Yes)	(A)	Note 4
	MI-W-292XB	XB	867	Yes	A	
	LD-K-76XB	XB	600	Yes	A	
	MI-W-543XB	XB	1000	Yes	A,C	Note 6
	AH-J-796XB	XB	337	None	-	
	MI-W-318XB	XB	869	None	-	
	MI-W-320XB	XB	951	None	-	
	IA-N-10XB	XB	597	Yes	A	
	SI-J-28XB	XB	1374	Yes	D	
	LD-K-64XB	XB	569	Yes	C,D	
	RM-Q-32XB	XB	1060	Yes	A	Note 1 - NCN 923
	AH-J-878XB	XB	258	Yes	B,C	
	SW-W-91XB	XB	1196	None	-	
	ES-W-34XB	XB	550	-	-	Note 3
	SP-U-6XB	XB	1111	None	-	
	DG-J-94XB	XB	539	None	-	
	MI-R-81XB	XB	573	Yes	A,D	
	EI-J-6XB	XB	587	None	-	
	VL-J-153XB	XB	1124	Yes	D	
	AH-J-1289XB	XB	139	Yes	D	
	VU-J-162XB	XB	1164	Yes	C	
	MB-J-114XB	XB	446	Yes	B,D	
	EF-W-44XB	XB	586	None	-	
	LD-U-12XB	XB	484	None	-	
	RM-Q-4XB	XB	936	Yes	A	Note 1 - NCN 923
	RM-Q-166XB	XB	778	Yes	A	
	EF-N-13XB	XB	544	Yes	D	
	CC-U-14XB	XB	283	(Yes)	(D)	Notes 4
	MI-J-23XB	XB	490	Yes	D	
	AH-J-1060XB	XB	137	None	-	
	RC-J-132XB	XB	888	Yes	A,C	
	LD-N-103XB	XB	647	Yes	B,D	
	SW-W-8XB	XB	1194	None	-	
	SW-C-14XB	XB	1225	Yes	D	
	AH-N-26XB	XB	186	None	-	
	AH-J-797XB	XB	10	None	-	
	IA-N-11XB	XB	638	Yes	C,D	
	SW-W-135XB	XB	1424	None	-	
	MI-W-183XB	XB	988	Yes	A,D	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Results Type	Remarks
I.Circuits (Cont'd.)	AH-J-798XB	XB	51	None	-	
	CC-U-15XB	XB	324	Yes	A	
	RM-Q-54XB	XB	856	(Yes)	(A)	Note 4, Note 1 - NCN 923
	MI-W-592XB	XB	1043	None	-	
	DG-M-47XB	XB	540	None	-	
	VU-J-165XB	XB	1278	Yes	(A) D	Note 4, Note 6
	RM-Q-47XB	XB	1101	None	-	
	DG-U-17XB	XB	419	None	-	
	RM-Q-26XB	XB	814	-	-	Note 3
	HR-J-39XB	XB	565	None	-	
	RC-U-258XB	XB	810	None	-	
	SI-U-21XB	XB	1337	None	-	
	CC-N-18XB	XB	364	Yes	A	Note 6
	AH-J-1415XB	XB	140	Yes	D	
	EF-W-45XB	XB	628	Yes	A	Note 1 - NCN 923
	AH-J-1139XB	XB	178	Yes	D	
	MI-W-462XB	XB	994	Yes	C	
	DG-M-45XB	XB	458	Yes	D	
	SW-C-24XC	XC	14	None	-	
	SW-J-53XC	XC	7	-	-	Note 3
	SW-C-25XC	XC	16	Yes	A	
	ED-J-6XC	XC	1	Yes	B,D	
	RC-U-163XD	XD	11	Yes	C	
	MI-R-67XD	XD	127	None	-	
	MI-R-60XD	XD	59	Yes	A	NCN 731E
	MI-R-68XD	XD	144	None	-	
	CS-U-61XD	XD	104	None	-	
	CS-U-77XD	XD	38	None	-	
	CS-&-58XD	XD	87	Yes	A	
	CS-U-64XD	XD	3	Yes	C,D	
	CS-U-73XD	XD	122	(Yes)	(A)	Note 4
	MI-R-97XE	XE	87	(Yes)	(A)	Note 4
	RH-R-15XE	XE	67	Yes	(A) C, D	Note 4
	MI-R-95XE	XE	59	(Yes)	(A)	Note 4
	MS-U-104XE	XE	104	Yes	A	
	MI-R-107XE	XE	88	None	-	
	MI-R-91XE	XE	3	Yes	(A) D	Note 4
	RC-U-151XE	XE	38	Yes	A	Note 1 - NCN 923

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results		Remarks
				Discrepancy	Type	
II.Equipment Instrumentation	FT-477	B	11	Yes	D	
	TE-430	Yellow	67	Yes	D	
	TE-432A	B	59	Yes	D	
	FT-496	Yellow	14	Yes	D	
	PT-476	Yellow	3	Yes	D	
	IFT7273B-CC	B	38	Yes	D	
Limit Switches	XVT2869C-MS	A	11	Yes	D	
	XDP0024B	B	67	Yes	D	
	XDP0089B	B	59	Yes	C	
	XVG503C-BD	A	14	Yes	D	
	XVM2801C-MS	A	3	Yes	D	
	XVT2843C-MS	A	38	Yes	D	
Pumps	XPP0038A	A	11	Yes	C,D	
	XPP0039B	B	14	Yes	D	
	XPP001C	-	3	None	-	
Valves	XVB9525A	B	11	Yes	D	
	XVM2801A	A	67	Yes	C	
	1-8886	B	179	Yes	D	
	XVG6067	B	59	Yes	A,D	
	1-8871	A	195	Yes	D	
	1-7126	A	211	Yes	D	
	1-8961	B	194	Yes	C,D	
	1-8102A	B	144	Yes	C,D	
	XVM9?98A		104	Yes	D	
	XVB9526B	B	14	Yes	D	
	1-8104		151	Yes	D	
Dampers	XDP0012A	A	11	Yes	B,D	
	XDP00.8B	A	14	Yes	D	
	XDP0234B	A	38	Yes	D	
Misc. HVAC	XFN0081A	A	-	Yes	D	
	XFN0076	B	14	Yes	D	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
II.Equipment (Cont'd.)						
Electrical Equipment	XPN7011	A	11	(Yes)	(A)	Note 4
	XET4002		87	Yes	D	
	XRP0011	A	67	Yes	D	
	XE52001B	B	104	None	-	
	XIT5902	A	14	Yes	D	
	XPN7003	B	3	(Yes)	(A)	Note 4
	XMC1DB2Z	B	38	None	-	
III.Control Brds, Panels and Wiring						
Relay Panels	XPN5265	-	-	-	A	NCN 731E, Note 4
	XPN7217B	B	-	Yes	D	
HVAC Board	TI-9965	1	11	None	-	
	SS-HR23	B	67	None	-	
	SS-AH142	B	59	None	-	
	FI-9951A	1	14	None	-	
HVAC Board Wiring	A01L/LCB4-8/C10F16T71	A	11	Yes	D	
	SSVU30/SSV 32-C10F14T78	B	67	Yes	D	
	SSVL06/SSVL 09-C10F14T77	B	59	Yes	D	
	A01F/LCB5-3-C10F16T70	A	14	None	-	
	CSVU05/C10F 16T72	A	38	None	-	
	T19961/ C10F16T71	1	87	None	-	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
Main Control Board	PI-7042	3	11	none	--	
	SS-SW30/SS-SW34	XA	67	none	--	
	LI-488	3	296	none	--	
	TI-401	1	179	none	--	
	CS-CR01A	A/B/1/3	415	none	--	
	SS-SI13/SS-SI14	A	598	none	--	
	FIS-113	2	618	none	--	
	FK-3321	1	331	--	--	note 3
	SS-MS32/SS-MS33	A	431	--	--	note 3
	TI-376	2	613	none	--	
	SS-C29/SS-C24	A	59	none	--	
	LI-1964	3	532	none	--	
	SS-CS54/SS-CS55	A	664	none	--	
	SS-RC62/SS-RC63	4	195	none	--	
	SS-RC04	XA	211	none	--	
	SS-SW28	B	515	none	--	
	PK-444A	4	194	none	--	
	FI-7449	1	543	none	--	
	SS-SW21	B	503	none	--	
	CS-AH279	B	144	none	--	
	SS-FW61/SS-FW65	A	350	none	--	
	PI-154A/FI-124A	3	631	none	--	
	LR-106	1/4	627	none	--	
	PR-950	2/1	104	none	--	
	PI-4402	1	14	none	--	
	SW-SW22	C	51	none	--	
	SS-SP09/SS-SP11	A	151	none	--	
	FR-478	2/1	306	none	--	
	SS-AS51	B	407	none	--	
	S41	A	728	none	--	
	CS-E J9	A	712	none	--	
	S52	A	732	none	--	
	TI-4467	1	469	none	--	
	CS-RC09	XB	205	none	--	
	FI-436	3	192	none	--	
	SS-SS12/SS-SS13	B	127	none	--	
	CS-CC04	B	38	none	--	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
	PI-7367/FI-7368	1	87	none	--	
	TI-410/TI-420	4	180	none	--	
	LR-498	4	301	none	--	
	TR-412	1	201	none	--	
Main Control Board Wiring	PI-7042/ C01F05T32 -5191	3	11	none	--	
	SS-SW30/ SS-SW34/ C02F08 to 4525	XA	67	none	--	
	LI-488/ C12F15T20 -5184	3	296	yes	A,D	Note 1, NCN 731E
	TI-401/ C09F12T08 -5180	1	179	yes	D	
	CS-CR01A/ C14F14T12 -4540, CS-CR01A/ C14F13T21 -4553, CS -CR01A/ C14F10T07- 5178, CS-CR01A/ C14F05T32 -5191	A/B/1/3	.415	yes	D	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(111. Control Boards, Panels & Wiring Cont.)	SS-SI13/ SS-SI14/ C07F14T10-4537	A	598	yes	A	Note 1, NCN 731E
	FIS-113/ C08F14T12 -4540, FIS-113/ C08F10T07 -5179	2	618	none	--	
	FK3321/C12F12 T08-5180	1	331	none	--	
	SS-MS32/ SS-MS33/ C14F18T15 -4544	A	413	--	--	note 3
	TI-376/ C08F10T07 -5179	2	613	none	--	
	SS-C29/ SS-C24/ C01F06T01 -4522	A	59	yes	D	
	LI-1964/ C06F05T32 -5191	3	532	yes	D	
	SS-CS54/ SS-CS55/ C08F14T11-4539	A	664	yes	D	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(III. Control Boards, Panels & Wiring Cont.)	SS-RC62/ SS-RC63/ C09F13T22-5186	4	195	yes	D	
	SS-RC04/ C09F17T18 -4548	XA	211	none	--	
	SS-SW28/ C02F07T30 -4568	B	515	none	--	
	PK-444A/ C09F13T22 -5186	4	194	(yes)	(A)	note 4, note 1 NCN 731E
	FI-7449/ C07F10T07 -5178	1	543	yes	A	note 1, NCN 731E, RCI 0126
	SS-SW21/ C02F07T30 -4568	B	503	none	--	
	CS-AH279/ C03F07T29 -4565	B	144	yes	D	
	SS-FW61/ SS-FW65/ C12F16T14 -4542	A	350	yes	D	
	PI-154A/ FI-124A/ C08F11T24 -5187	3	631	yes	(A) D	Note 4, Note 1, NCN 731E

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(III. Control Boards, Panels & Wiring Cont.)	LR-106/ C08F16T13 -5181	1	627	yes	D	
	LR-106/ C08F13T22 -5186	4	627	yes	D	
	PR-950/ C04F10T07 -5179	2	104	yes	D	
	PR-950/ C04F06T01 -5183	1	104	yes	D	
	PI-4402/ C02F06T01 -5183	1	14	none	--	
	SW-SW22/ C02F06T02 -4524	C	51	yes	C	
	SS-SP09/ SS-SP11/ C05F10T06 -4532	A	151	none	--	
	FR-478/ C12F16T13 -5182	2	306	none	--	
	FR-478/ C12F16T13 -5181	1	306	none	--	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(III. Control Boards, Panel & Wiring Cont.)	SS-AS51/ C13F07T28 -4563	B	407	none	--	
	S41/ C17F18T16 -4606	A	728	none	--	
	CS-ES09/ C17F18T16 -4606	A	712	none	--	
	S52/ C17F18T16 -4606	A	732	none	--	
	TI-4467/ C02F10T07 -5178	1	469	yes	D	
	CS-RC09/ C09F13T22 -4554	XB	205	yes	D	
	FI-436/ C09F11T24 -5187	3	192	none	--	
	SS12/SS13/ C04F07T29 -4565	B	127	none	--	
	CS-CC04/ C01F05T32 -4570	B	38	none	--	
	PI-7367/ FI-7368/ C05F10T07 -5178	1	87	none	--	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(III. Control Board, Panel & Wiring Cont.)	TI410/TI420/ C09F15T20 -5185	4	180	(yes)	(A,D)	note 4, Note 1, NCN731E
	LR-498/ C12F13T22 -5186	4	301	yes	C	
	TR-412/ C09F12T08 -5180	1	201	yes	B,C	
	FI-475/ FI-476/ C12F15T20 -5185	4	282	(yes)	(A)	note 4, Note 1, NCN 731E
	CS-AH278/ C03F08T04 -4528	XA	122	none	--	
	SI-408/ C10F13T22 -5181	4	237	none	--	
Main Control Board Sub-Panels	FU-SW65	A	11	none	--	
	7092CX	B	67	none	--	
	FU-TB03	B	296	none	--	
	CR01-C	A	179	none	--	
	FU-11	B	331	none	--	
	FU-15	A	360	none	--	
	FU-SWB	XB	59	none	--	
	FU-CS04B	B	195	none	--	
	XRC53	B	211	none	--	
	FU-WP52	B	194	none	--	
	FU-CS55	A	144	none	--	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Type	Remarks
(Main Control Board Sub-Panels Cont.)	LD04X	XB/B	350	none	--	
	FU-CS87	A	104	none	--	
	FU-SW54	A	14	none	--	
	FU-CS82	A	151	none	--	
	FU-CS94	A	306	none	--	
	FU-FW81B	B	205	none	--	
	FU-HR25	A	3	none	--	
	FU-RC03B	B	192	none	--	
	FU-CS101	B	127	none	--	
	FU-HR30	B	38	none	--	
	FU-CS83A	A	87	none	--	
Main Control Board Sub-Panels Wiring	FU-SW65/ C02F08T03 -4526	A	11	yes	D	
	7092CX/ C01F05T32 -4570	B	67	yes	(A) D	note 4, Note 1, NCN731E
	FU-TB03/ C15F17T17 -4607	B	296	yes	D	
	CR01-C/ C07F14T15 -4537	A	179	yes	D	
	FU-16/ C17F17T17 -4547	B	331	none	--	
	FU-9/ C17F18T16 -4606	A	360	none	--	

ATTACHMENT 3

Category	Tag Number	Channel	Sample Number	Results Discrepancy	Results Type	Remarks
(III. Control Boards, Panels & Wiring Cont.)	FU-SWB/ C03F07T30 -4568	XB	59	none	--	
	FU-CS101/ C08F13T23 -4555	B	195	none	--	
	FU-CS94/ C09F14T12 -4540	A	306	none	--	
	FU-FW81B/ C12F13T21 -4553	B	205	none	--	

Attachment 4

Summary of Discrepancy Types

Category	Sample Size	A[1]	B	C	D	Total Discrepancies[2]	Samples w/Discrepancies
Circuits							
		9	1	7	41	58	51
Channel A	101	22[1]	2	5	32	61	49
B	87	1	0	0	1	2	2
C	6	3	3	3	3	12	6
D	8	4	0	1	2	7	6
E	7	2	0	0	1	3	2
J	3	1	0	0	0	1	1
K	2	0	0	0	0	0	0
L	3	1	0	0	0	1	1
M	2	13	0	12	29	54	49
XA	82	21[1]	2	8	21	52	42
XB	73	1	1	0	1	3	2
XC	4	3	0	2	1	6	5
XD	9	6	0	1	2	9	6
XE	7						
Equipment							
Instrumentation	6	-	-	-	6	6	6
Limit Switches	6	-	-	1	5	6	6
Pumps	3	-	-	1	2	3	2
Valves	11	1	-	3	10	14	11
Dampers	3	-	1	-	3	4	3
Misc. HVAC	2	-	-	-	2	2	2
Electrical	7	2	-	-	3	5	5
Control Boards, Panels and Wiring							
Relay Panels	2	1	-	-	1	2	1
HVAC Boards Modules	4	-	-	-	-	0	0
HVAC Board Wiring	6	-	-	-	3	3	3
Main Control Brd Modules	41	-	-	-	-	0	0
Main Control Brd Wiring	47	7	1	3	17	28	24
Main Control Brd Sub-Panels Modules	22	-	-	-	-	0	0
Main Control Brd Sub-Panels Wiring	10	1	-	-	4	5	4

(Attachment 4 Notes)

(1) Twenty-one (21) "A" category discrepancies are caused by a common separation problem. Of the twenty-one (21), sixteen (16) were safeguard channel B and five (5) were channel XB.

(2) Some category items audited had more than one type of discrepancy, therefore, total discrepancies by type is not equal to total number of audit items with discrepancies.