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June 20, 2013

Letter Number: AVC-13-0026

U.S. Nuclear Regulatory Commission
ATTN: Richard A. Rasmussen, Chief
Electrical Vendor Branch
Division of Construction Inspection and Operational Programs
Office of New Reactors
Washington, DC 20555-0001

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Response to Nuclear Regulatory Commission Letter dated May 17, 2013

REFERENCE: Report No. 99901320/2013-201, Dated April 5, 2013

Dear Mr. Rasmussen,

This letter transmits the response to the Nuclear Regulatory Commission Letter dated May 17, 2013 regarding the Scientech response to Report No. 99901320/2013-201, documenting the Nuclear Regulatory Commission inspection, conducted at the Idaho Falls facility of Scientech during the period of March 4-7, 2013.

In the above referenced letter, you requested the following:

1) A listing of all types of relays previously supplied, subsequent to actual qualification testing,
2) Scientech's current basis for establishing similarity to previously qualified devices, and
3) Clarification of what methods will be employed in the future to ensure that design changes have not been made to seismically sensitive components that would adversely affect their seismic performance.

Scientech understands that the Nuclear Regulatory Commission disagrees with the characterization that the augmented testing program was an enhancement to existing practices, as stated in Scientech's response to the NRC, dated May 1, 2013. To address The Commission's concerns, this response provides the list of relays requested above, the engineering bases for establishing similarity to previously qualified devices, and a clear delineation of the methods employed to strengthen our program and provide reasonable assurance that design changes have not been made to seismically sensitive components that would adversely affect their seismic performance.

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1. A listing of all types of relays previously supplied, subsequent to actual qualification testing

Table 1 provides the manufacturer, model, and a brief description of all types of relays supplied by Scientech as part of a safety-related basic component. In each case, the relays were used in the qualification test specimen and in subsequent production assemblies.

Table 1

Manufacturer	Model	Description	Basic Component
Panasonic	DS2E-S-DC12V	Relay, 12V 2pdt	PIDA700, PIDA700-SE
US Relays	121AX 14KDAA	Reed Relay	CONN2000, BLC2000
Panasonic	DS4E-S-DC12V	Relay, 12V 4pdt	PID900, PIDA700 SE, AMS700, PIDA700
Omron	G5V-1-DC24	Relay, 24VDC	AMS825
Omron	G6A-434P-ST-US-DC24	Relay, 24VDC	AMS825
Omron	G6E-134P-ST-US-DC24	Relay, SPDT	AMS825, AMS826, AMS827
NAIS	TF2-12V	Relay, 6.7 mA, 12V	AMS820, PID801
NAIS	JW2SN-DC12V	Relay, DPDT, 12V	DAM900
Fujitsu	RH3V2-UDC12V	Relay, 5A, 12V	NUS-70-X12
Panasonic	S2EB-12V	Relay, 4A, 12V	AMX2000-711
Panasonic	S2EB-24V	Relay, 24 VDC	SDA/DDA2000, LOG2000, DAM/DAM2000
Panasonic	SP4-DC12V	Relay, 12 VDC	MAG1100
TE Connectivity	T84S17D214-12	Relay, 4 pole	PIDA700
Panasonic	TQ2SA-12V	Relay, DPDT	AMS826
Panasonic	SP4-P-DC24V	Relay, 10A, 24VDC, 2PDT	MAG1100
TE Connectivity	T73S5D14-12	Relay, SPDT, 6A, 12V	DAM502
ABB Control	1SVR500020R0000	Time delay relay	VTP500
TE Connectivity	T92S11A22-120	Relay, DPDT	Battery Charger Kit
Panasonic	TQ2SA-L-12V	Relay, 12V	AMS826
IXYS	MRB6A05	Relay	Relay output board repair

2. Scientech's current basis for establishing similarity to previously qualified devices

The qualified device is defined by controlled design drawings, including a parts list. When an order for a production unit is received, in general the same parts are bought as were used in the qualified device.

Scientech has a process established to justify using parts that are similar to those used in the qualification unit. The process reviews the substitution for any possible impact on performance, form, fit, function, environmental qualification, seismic qualification, and EMI/RFI qualification. Such substitutions are made only when there is no significant impact to any of these factors.

Scientech then purchases components by manufacturer and model number. When received, Scientech's basis for establishing acceptability of received components is detailed in NUS-G010EA, *Generic Receipt Inspection Criteria.*

Table 1 - General Receipt Inspection Criteria – requires the receipt inspection to verify:

- The critical dimensions shown on the governing drawing
- The manufacturer and part number match those on the PO
- The quantity matches the quantity on the PO
- The description on the packing slip does not conflict with the description on the PO
- The markings on the component(s) do not conflict with the description on the PO or packing slip
- No obvious signs of damage
- If listed in EDB NUS-G008EA, the item is less than two years old
- No indications of being a suspect or counterfeit item (13 criteria from IN 89-07)

All components are currently inspected to these criteria. In addition, NUS-G010EA includes specific receipt inspection criteria for:

- Fabricated Metal Parts
- Printed Circuit Boards (bare)
- Printed Circuit Boards (stuffed)
- Electronic Assembles
- Threaded Fasteners
- Painted and Silk Screened parts
- Wire Harnesses
- Eyedot Computer parts
- Fabricated Plastic parts
- Bulk Solder
- Ensign Power Supplies
- Larson Metercraft Analog Meters
- Seismically Sensitive Items
- XTR110 Integrated Circuits

as well as guidance on hardness testing and sampling criteria.

Specifically for seismically sensitive items, Table 18 requires that homogeneous lots are formed and representative samples from each lot are seismically tested to criteria established by Design Engineering for that particular component.

The NRC expressed concerns about the seismic suitability of those electro-mechanical relays purchased and used in basic components before implementing seismic testing of a representative sample. To address this concern, Scientech has tested relays in stock and has procured and tested other relays not currently in stock. Although this does not provide proof that the previously bought relays were seismically suitable, the combination of the original seismic test results, the receipt inspection verifying manufacturer and part number, and the successful testing of exemplars in stock or newly purchased appears to constitute reasonable assurance that the previously bought relays were seismically suitable.
The results of the testing are shown below in Table 2.

Table 2

Manufacturer	Model	Test Results
Panasonic	DS2E-S-DC12V	Passed
US Relays	121AX 14KDAA	Passed
Panasonic	DS4E-S-DC12V	Passed
Omron	G5V-1-DC24	Passed
Omron	G6A-434P-ST-US-DC24	Passed
Omron	G6E-134P-ST-US-DC24	Passed
NAIS	TF2-12V	Passed
NAIS	JW2SN-DC12V	Passed
Fujitsu	RH3V2-UDC12V	Passed
Panasonic	S2EB-12V	Passed
Panasonic	S2EB-24V	Passed
Panasonic	SP4-DC12V	Passed
TE Connectivity	T84S17D214-12	Passed
Panasonic	TQ2SA-12V	Passed
Panasonic	SP4-P-DC24V	Passed
TE Connectivity	T73S5D14-12	Passed
ABB Control	1SVR500020R0000	Passed
TE Connectivity	T92S11A22-120	Not Tested - One-time build which included the qualification specimen.
Panasonic	TQ2SA-L-12V	Passed
IXYS	MRB6A05	Passed

3. Clarification of what methods will be employed in the future to ensure that design changes have not been made to seismically sensitive components that would adversely affect their seismic performance.

Regarding unintentional design changes resulting from undocumented changes by a supplier, Scientech's NUS-G010EA now requires that whenever seismically sensitive components are purchased, that a representative sample of the purchased components are selected and seismically tested to confirm proper operation.

Regarding intentional design changes made by Scientech, SOP 3.2, *Design Documents*, Revision 3, Section 6.3.2, addresses the reviews required when changing design documents.

6.3.2 **Review**

6.3.2.1 The Preparer shall prepare a Document Review Record, (DRR) (NF 3.2-3) and shall provide it along with relevant supporting documents to the reviewer. Such supporting documents shall include the Design Input File and the Engineering Change Notice when they exist.

6.3.2.2 Based on the complexity, importance, or scope of the review task, the Project Manager, Project Engineer or other responsible supervisor may transmit verbal or written instructions for the review including the following information, as appropriate:

- Intended use of the document;
- Applicable requirements and references to be considered in the evaluation of technical quality;
- Special instructions needed by reviewer(s), such as information indicating additional review criteria or potential problems requiring consideration; and
- Identification of the scope of each reviewer's review when multiple reviewers are used (i.e., limited to a section, a topic, etc., or unlimited).

6.3.2.3 New documents shall be reviewed by a Level 2 or Level 3 engineer (see SOP 1.1).

6.3.2.4 The reviewer shall be qualified to determine the adequacy, completeness, and correctness of the technical document based on the technologies and disciplines represented in the document, and on the following criteria:

- Reviewers shall have proven competence in the subject matter of the document and shall have been given an adequate understanding of the requirements for and objectives of the technical document. The reviewer shall not have had any role in defining the design inputs or in determining the design method or results.
- Reviewers shall maintain independence from the design process; that is, they shall not have defined the design input requirements or aided in the design work or specified the design results.
- The review may be performed by the originator's manager provided the manager is qualified to perform a credible, objective appraisal and is the only individual in the organization competent to perform the review.
- As applicable, specialists may be used to review such functions as health, safety, licensing, and environmental safeguards.
- The Project Manager, Project Engineer or other responsible supervisor shall obtain certification of technical documents by a registered professional engineer when required by contract or when ASME Code work is involved.
- Attachment A lists the various design documents to be used at I&C, including their purpose, content, and minimum review requirements.

6.3.2.5 The Reviewer shall review the document and either

- verify that the document is adequate, complete, and correct or
- identify and list any comment and/or discrepancy that may require a resolution on the DRR. It is acceptable to list comments on a copy of the document, as long as that copy is attached to the DRR.

6.3.2.6 The following shall be addressed, where applicable:

- Were the design inputs correctly selected and complete?
- Are assumptions necessary to perform the design activity adequately described and reasonable?
- Was an appropriate design method used?
- Were the design inputs correctly incorporated into the design?
- Is the design output reasonable compared to design inputs?
- Are the necessary design input and verification requirements for interfacing organizations specified in the design document or in supporting procedures or instructions?

6.3.2.7 To maintain independence, the reviewer shall not recommend ways to resolve the comments.

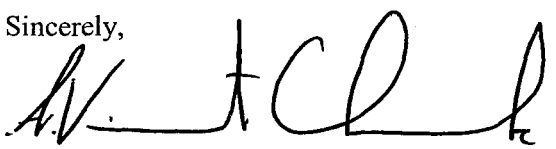
6.3.2.8 Upon completion of the review, the reviewer shall complete and sign the DRR.

6.3.2.9 Additional reviewers shall include all parties who will sign the final design document. The additional reviewers shall review their areas of responsibility and sign the DRR.

Scientech believes that this is sufficient guidance to the engineering staff, who is responsible for determining when an intentional change to the design of a basic assembly requires additional seismic testing to maintain qualification.

Scientech appreciates your concerns, Mr. Rasmussen; and our procedures have been strengthened to preclude a repeat of this issue. Please contact me with any further questions you may have regarding your inspection of our organization.

Sincerely,



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