



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

September 28, 1987

MEMORANDUM FOR: Ellis W. Merschoff, Chief  
Vendor Inspection Branch  
Division of Reactor Inspection and Safeguards

THROUGH: James C. Stone, Chief  
Program Development and Reactive  
Inspection Section  
Vendor Inspection Branch  
Division of Reactor Inspection and Safeguards

FROM: Joseph J. Petrosino  
Program Development and Reactive  
Inspection Section  
Vendor Inspection Branch  
Division of Reactor Inspection and Safeguards

SUBJECT: MEETING MINUTES OF AN AUGUST 11, 1987 AMERACE  
CORPORATION/NRC MEETING

Representatives from the Amerace Corporation of New Jersey were invited and gave the NRC Staff a presentation of the differences between its Agastat nuclear grade (E-Series) and commercial grade electrical relays. The meeting was conducted in the third floor conference room in the West Tower of East West Towers.

The Amerace Corporation (TAC) started its presentation by giving a history of its electrical relay product development from its initial application of military, space and commercial users to the present day models and users. Following, TAC discussed the differences between its general purpose control and 7000 series relays and discussed the differences in design changes, in-process testing, and the differences in its functional testing between nuclear and commercial grade relays.

TAC initially started its electrical pneumatic relay production in approximately 1950 with its 2400 series that was replaced in 1971 by its 7000 series commercial grade relay. The 7000 series is similar in appearance, form, fit, and function to the 2400 series except for the timing delay adjusting dial. The time delay adjusting dial is larger on the 7000 than its 2400 series predecessor.

Nuclear- The 7000 series commercial grade relays replaced the 2400 series in 1971 and are still being produced. The nuclear grade E7000 series was not introduced until January 1980, and TAC states that out of the three different

8709300137 870928  
PDR DRG NRRB PDR

electrical pneumatic devices, only the E7000 series is designed, manufactured, and tested in accordance with 10 CFR Part 21, Appendix B to 10 CFR Part 50, and ANSI N45.2. Additionally, only the E7000 series relay is tested and analyzed to meet the requirement of IEEE 323, 344, and ANSI C37.98. Development of the E7000 series started in approximately 1975 with the establishment of different drawings, design control, traceability methods, and manufacturing and testing control practices. In summary the nuclear E7000 series has imposed the following controls as a minimum:

1. Final Functionability tests throughout the entire operating parameters;
2. Design, manufacture and testing are performed only at TAC Union, New Jersey Facility;
3. 100% product in process inspections;
4. Design change control; and
5. 10 year projected qualified life.

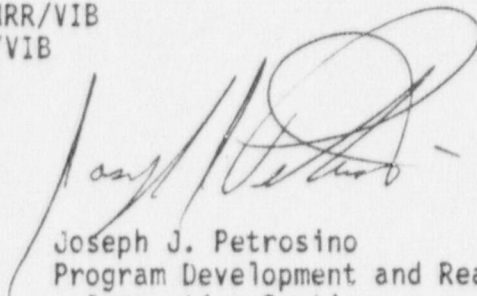
Commercial grade- The 7000 series Agastat relays are identical to the E7000 series in physical appearance, form, fit and function. Commercial grade 7000 relays may be manufactured at Amerace Facilities in Mexico, Beligum, Canada or Union, New Jersey. Some of the differences noted between the commercial and nuclear grade relays are as follows:

1. No design change or configuration controls are required;
2. Functionability product testing is neither as comprehensive nor documented as the comparable E7000 tests;
3. Internal component substitutions are not documented or controlled;
4. The commercial grade relays can be manufactured at any of the Agastat fabrication facilities, as noted above;
5. No projected qualified life in excess of 2 years is made by the Amerace Corporation; and
6. Undocumented field modification of the relays is allowed by the distributors as they deem necessary.

Control Relays- Both Agastat commercial and nuclear grade general purpose and timing control relays are manufactured at Grafton, Wisconsin. The previously discussed control methods are also applicable to TAC control relays.

Meeting Attendees:

Joseph Ferguson, Director, Quality Assurance, Amerace Corporation  
Ed Leszczak, Product Engineer, Amerace Corporation  
Jack Ramsey, Nuclear Engineer, NRR/DOEA/OGCB  
Joseph Petrosino, VIB, NRR/VIB  
Thomas Cheug, Station Engineer, OSP/TVA/EB  
Robert Pierson, Branch Chief, OSP/TVA/PSB  
George Hubbard, Plant System Engineer, DSP/TVA/PSB  
Jim Stone, VIB, NRR/VIB  
Ed Baker, VIB Rector Engineer, NRR/VIB  
Ellis Merschoff, VIB Chief, NRR/VIB



Joseph J. Petrosino  
Program Development and Reactive  
Inspection Section  
Vendor Inspection Branch  
Division of Reactor Inspection and Safeguards



Meeting Attendees:

Joseph Ferguson, Director, Quality Assurance, Amerace Corporation  
 Ed Leszczak, Product Engineer, Amerace Corporation  
 Jack Ramsey, Nuclear Engineer, NRR/DOEA/OGCB  
 Joseph Petrosino, VIB, NRR/VIB  
 Thomas Cheug, Station Engineer, OSP/TVA/EB  
 Robert Pierson, Branch Chief, OSP/TVA/PSB  
 George Hubbard, Plant System Engineer, DSP/TVA/PSB  
 Jim Stone, VIB, NRR/VIB  
 Ed Baker, VIB Rector Engineer, NRR/VIB  
 Ellis Merschoff, VIB Chief, NRR/VIB

151  
 Joseph J. Petrosino  
 Program Development and Reactive  
 Inspection Section  
 Vendor Inspection Branch  
 Division of Reactor Inspection and Safeguards

DISTRIBUTION

~~DRIS~~ Code IE:09 //

VIB Reading

DRIS Reading

BGrimes

JPartlow

JStone

JPetrosino

OFC	: VIB; DRIS	: SC/VIB; DRIS	:	:	:	:	:
NAME	: JPetrosino: jh	: JStone	:	:	:	:	:
DATE	: 9/21/87	: 9/25/87	:	:	:	:	:

Meeting Attendees:

Joseph Ferguson, Director, Quality Assurance, Amerace Corporation  
 Ed Leszczak, Product Engineer, Amerace Corporation  
 Jack Ramsey, Nuclear Engineer, NRR/DOEA/OGCB  
 Joseph Petrosino, VIB, NRR/VIB  
 Thomas Cheug, Station Engineer, OSP/TVA/EB  
 Robert Pierson, Branch Chief, OSP/TVA/PSB  
 George Hubbard, Plant System Engineer, DSP/TVA/PSB  
 Jim Stone, VIB, NRR/VIB  
 Ed Baker, VIB Reactor Engineer, NRR/VIB  
 Ellis Merschoff, VIB Chief, NRR/VIB

151

Joseph J. Petrosino  
 Program Development and Reactive  
 Inspection Section  
 Vendor Inspection Branch  
 Division of Reactor Inspection and Safeguards

DISTRIBUTION

RIDS Code IE:09

VIB Reading

DRIS Reading

BGrimes

JPartlow

JStone

JPetrosino

OFC	:VIB;DRIS	:SC/VIB:DRIS	:	:	:	:	:
NAME	:JPetrosino:jh	:JStone	:	:	:	:	:
DATE	:9/21/87	:9/23/87	:	:	:	:	: