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June 4, 1985

Mr. John B. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region V Office
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

Dear Mr. Martin:

The most recent issue of Inside NRC includes an article concerning unplanned actuations of engineered safety features (ESF). A copy of this article is attached for your information, in case you haven't seen it. It covers the period January 1, 1984, through June 30, 1984. San Onofre Unit 2 was in commercial operation throughout this period, and Unit 3 entered commercial operation on April 1.

As you can see from the article, Unit 2 far exceeded all other units listed in terms of ESF actuations, and Unit 3 was high in the listing as well. (Note that "common" facility ESF actuations are reported as if they were Unit 2 actuations.) There are a number of reasons for the very high number of ESF actuations at San Onofre, compared to other facilities, but the two principal reasons are alluded to in the article. They are:

- o Setpoints for toxic gas and radiation monitor actuations that are too low. Where this results from requirements established in our Technical Specifications, or other licensing commitments, we have obtained relief in the form of less conservative values.
- o Differing interpretations of reporting requirements, including different views concerning whether "spurious" ESF actuations are reportable.

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Mr. John B. Martin

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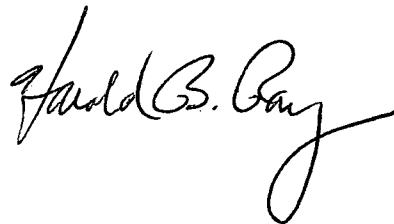
With respect to the second reason above, as discussed in my letter to you dated March 18, 1985, we jointly sponsored with NUS Corporation a symposium/workshop last month dealing with NRC reporting requirements. It was a great success in that it was attended by 106 people representing 46 utilities around the country. The NRC was represented by AEOD and I&E Headquarters personnel, and a significant and useful exchange of views occurred.

Most striking, however, was the wide range of opinions concerning what the NRC requires. I believe this is reflected in the AEOD remarks quoted in the attached article. The symposium was not a forum to resolve the views expressed, but clearly there is a need for this to be done if statistics such as those reported in the attached article are to be used to compare plants.

I believe our reporting practices are consistent with the NRC intent, as described by the AEOD representatives, although there is some further clarification that we may seek in writing. As usual, I feel it is helpful whenever the NRC can join with industry to clarify and develop a consistent interpretation of its requirements. We expect this symposium/workshop may become an annual event, and, if it does, I hope the Regions can be represented directly as well.

If you have any questions or comments, or if you would like additional information on this matter, please let me know.

Sincerely,



Attachment

cc: F. R. Huey

HIGH RATE OF UNPLANNED ESF ACTUATIONS BEING STUDIED FOR SAFETY IMPACT

Engineered safety features (ESFs) were actuated more than 500 times at U.S. nuclear plants in the first six months of 1984, according to an NRC compilation. The number is higher than expected and has the agency questioning whether safety features should be challenged so often. However, the definition of ESFs and the number of actuations vary significantly among plants, and NRC is still trying to figure out how valid comparisons can be made.

ESFs are considered "systems...designed to control and mitigate specific occurrences that might challenge the integrity of the reactor and/or adversely affect plant personnel or the general populace. Generally, these include systems designed to control reactor core reactivity, isolate and cool containment, supply emergency cooling to the reactor fuel, remove residual core heat, assure habitability of the control room under all conditions, control radioactivity releases to the environment, and provide a source of emergency power," according to the compilation, in the semiannual report of NRC's Office for Analysis & Evaluation of Operational Data (AEOD). AEOD noted: "There is no common definition for such systems...the identification of specific ESFs and the measured parameter setpoint are plant-specific. Thus, the validity of plant-to-plant comparisons remains under study."

NRC did not require reporting of ESF actuations (in Licensee Event Reports) until January 1984, so an AEOD study now underway is the first comprehensive look at ESFs. The progress of the study is summarized in the report. The study does not include reactor protection system actuations. The study specifically excluded actuations that were designed to occur as part of operations, including those designed to occur as part of scrams, and concentrated on the 501 unplanned actuations reported in the first six months of 1984. Of the 87 reactors on which reports were being filed in that period, 26 had no actuations and 65 had four or fewer. Actuations ranged from five to 82 at the remaining 22 plants.

Of most safety concern, said AEOD, were the 23 cases at 19 units in which emergency core cooling systems (ECCS)—usually the high-pressure coolant injection (HPCI)—were activated. None of these actuations were needed. In eight cases, a system setpoint was reached either following a reactor scram or during surveillance testing. In the other 15 cases, personnel errors or equipment failures caused false actuations. "The significance of these actuations is under study since the majority occurred while the reactors were at hot, pressurized conditions, and the ECCS involved was a high pressure system such as the HPCI system," AEOD said.

In 143 or 27% of the cases, according to AEOD, actuation occurred because the setpoints for system actuation were in fact reached. But in only 12 of the cases was the emergency system needed, AEOD said: three for power losses, three for toxic gas concentrations, and six for radiation-related spills. In the remaining 131 cases, the systems were activated because setpoints for system actuation were "very close" to background levels. Of those cases, 54 involved actuation of the control room emergency air cleanup system at San Onofre-2 due to indications of toxic gas. Of the other 77 cases, more than half were due to radiation monitors exceeding their setpoints at three plants.

In 365 cases at 60 units, AEOD said the actuations were "invalid and unnecessary....The primary causes for these actuations were equipment faults during normal operation and personnel errors during maintenance or testing....The ESFs most frequently actuated erroneously are associated with containment or control room isolation or ventilation."

The report said the study will look further at the causes, frequencies, and safety implications of ESF actuations, on plant-specific and industry-wide bases. The study also will look at whether ESF actuations are a measure of licensee performance and whether any NRC actions are warranted. The study should be available for peer review shortly, the report said.—Margaret L. Ryan, Washington

Number of Engineered Safety Feature (ESF) Actuations Reported by Commercial
U.S. Nuclear Power Plants January 1, 1984 through June 30, 1984

Unit Name	ESF Actuations	Unit Name	ESF Actuations	Unit Name	ESF Actuations
San Onofre-2	82	Turkey Point-4	3	Rancho Seco-2	1
Sequoyah-1	51	Yankee Rowe	3	Robinson-2	1
WPPSS-2	37	Beaver Valley-1	2	Surry-1	1
Monticello	26	Browns Ferry-2	2	Calvert Cliffs-1	0
D.C. Cook-2	25	Callaway	2	Connecticut Yankee	0
Duane Arnold	25	FitzPatrick	2	Dresden-2	0
Sequoyah-2	21	Indian Point-3	2	Dresden-3	0
La Salle-2	20	La Crosse	2	Farley-1	0
Fort Calhoun	20	Millstone-2	2	Farley-2	0
Grand Gulf-1	19	Nine Mile Point-1	2	Hatch-1	0
La Salle-1	17	Salem-1	2	Humboldt Bay	0
San Onofre-3	14	San Onofre-1	2	Indian Point-2	0
Brunswick-2	10	Susquehanna-2	2	McGuire-2	0
Susquehanna-1	10	Three Mile Island-1	2	Millstone-1	0
Diablo Canyon-1	9	Vermont Yankee	2	North Anna-2	0
McGuire-1	7	Zion-1	2	Oconee-1	0
Brunswick-1	6	Arkansas Nuclear One-1	1	Oconee-2	0
Kewaunee	6	Big Rock Point	1	Oconee-3	0
Maine Yankee	6	Calvert Cliffs-2	1	Peach Bottom-3	0
Palisades	6	Cooper	1	Pilgrim-1	0
Summer-1	6	Davis Besse-1	1	Point Beach-1	0
Arkansas Nuclear One-2	5	Ft. St. Vrain	1	Prairie Island-1	0
Browns Ferry-1	4	Ginna	1	Quad Cities-1	0
Peach Bottom-2	4	Hatch-2	1	Salem-2	0
Browns Ferry-3	3	North Anna-1	1	St. Lucie-1	0
D.C. Cook-1	3	Oyster Creek	1	St. Lucie-2	0
Crystal River-3	3	Point Beach-2	1	Surry-2	0
Trojan	3	Prairie Island-2	1	Three Mile Island-2	0
Turkey Point-3	3	Quad Cities-2	1	Zion-2	0