



DEPARTMENT OF CHEMISTRY
NUCLEAR REACTOR FACILITY
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U.S. Nuclear Regulatory Commission,
Region V,
1450 Maria Lane, Suite 210,
Walnut Creek, CA 94596
Attention: D.F. Kirsch, Chief, Reactor Safety Branch

December 18th, 1989

Docket: 55-326

Licensee response to NRC request dated November 28th, 1989

Gentlemen:

The following is submitted in response to the referenced request, the subject of which was "Examination Report".

1. Deficiencies noted during this examination:

There are two specific deficiencies noted in the written report from the examiner. One or two other items were discussed orally but did not appear in the report.

(a) Use of lower ranges of the linear channel.

This will be fully investigated as part of our routine annual maintenance which is currently underway.

I intend that this be resolved so that the lower ranges can again be used during start-ups.

(b) Mode switch electrical transients.

When switching between STEADY STATE and AUTOMATIC mode, the mode switch has occasionally introduced electrical transients that have resulted in reactor scrams over the last 20 years. This switch is crucially making and breaking a large number of contacts in a "make before break" style. The wafer switch only does this with a certain degree of reliability no matter how perfect is its condition. Considering the very large number of cycles used with this switch, its reliability is generally very good. It does seem to respond better with a firm rather than a nervous hand, which is not surprising in view of the above strict "make before break" requirements. This feature does seem to result in a greater percentage of occurrences with inexperienced operators. In the past, we have had some success with both cleaning, and replacing, this switch, in terms of reducing the frequency of electrical transient introduction. We have never reduced the frequency per year to zero.

In recent months, this switch has not shown any problem in the hands of experienced operators, hence my comments to the examiner at the time.

This switch will be cleaned and examined as part of our annual console maintenance being conducted at this time.

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2. General Comments:

There is no doubt that facilities such as ours have only a limited budget for routine and non-routine maintenance and other activities (see National Academy of Sciences report on Research Reactor Facilities). As a result, for some years, we have had to prioritize maintenance activities to emphasize those items most closely associated with direct safety issues. For a TRIGA reactor, operating at 250 kilowatts, this means that personnel health physics matters have a higher priority. Reactor items, while a nuisance to operators and operations, can, in general, not be classified as having any direct impact on the hazard level - the TRIGA has just too much intrinsic safety. As a reminder, even if all the engineered safety systems fail, this reactor will continue to be perfectly safe! This may be difficult for those associated with other types of facility to believe, or accept, but it happens to be true.

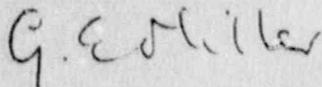
The above comments should not be taken to represent a cavalier attitude on my part, merely a statement to establish the relative degree of concern that should be demonstrated.

ALL maintenance deficiencies will be addressed. Attendance to known deficiencies will be accomplished during the present maintenance cycle and operations will not be resumed until these have been "cured" or at least properly addressed with foreseeable resolution in the future.

Suspension of operations for a period is obviously of concern to customers and may drive potential customers to seek resources elsewhere, however it may be the only way to assure your office that we are not improperly operating the facility. This does not, of course, preclude new issues from arising in the next year.

Since there is no chance that a new control system will be possible for this facility (the cost is totally prohibitive), we will have to manage with 1950-1960's technologies, and the problems (or advantages) that those have. The only reasonable alternative may be closure and decommissioning. It would be sad if a desire to achieve a level of perfection of operating reliability at what is otherwise a usable and perfectly safe facility were to drive us more rapidly to closure.

Sincerely,



George E. Miller
Reactor Supervisor

cc: Reactor Operations Committee members