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December 11, 1981

Mr. Nunzio J. Palladino, Chairman
Nuclear Regulatory Commission
Washington, D. C.

Dear Mr. Nunzio:

This letter is in response to the latest NRC report of its Investigative findings at the Zimmer plant.

This report by its volume and excess of drivel snows two elements prevailed.

1. Where you are unable to be convincing with fact, confuse this with drivel.
2. Bigger is better! So make it so long and boring nobody reads it thru.

For a nation that can put a man on the moon with the extreme complexities involved, we seem nearly unable to build a nuclear plant to simply boil water in a safe and reliable manner. The fact that so many unresolved safety questions arise is the FOREMOST problem we should attempt to resolve first.

Change is the way of all life. Proven needs dictate change. Overall many of the problems at Zimmer are not unique, but typical. Therefore the solution must start in the overall control area.

The principal objective of this letter is to be constructively critical.

Nearly 50 years ago I started out as a Machinist apprentice. This was a formal 4 year program which included 4 hours of class room study, on our own time, per week. Our Instructor was a retired Machine Design Engineer. One of his first stories involved the proven need for change. He explained that in World War One many parts made in one area of the country would not go together with mating parts made in another area of the country due entirely to minor differences in STANDARDS in use. The corrective action was the setting up of the Bureau of Standards to have one set of Measuring Standards nationwide. This "change" solved the problem.

I was very closely involved with another Major change that occurred at the start of World War Two. The tremendous increased need for Machinists was "solved" by increasing use of "Machine Operators" with a minimum of training and experience. This created the need for "Set Up Men" and for Inspectors to check the work produced by the "Operators". What was lost was the old fashioned "pride of workmanship" which gave us quality of product. Inspection in itself was not enough. It was entirely contingent on the skill knowledge and effort of the individual inspector. In order to more effectively control the inspection activity setups were started which are the forerunners of QC as we know it today.

The Air Force and Aircraft industry were in the forefront of development of QC development as a "tool" to insure quality and safety. The cost of a QC program was justified on the basis if it prevented one accident involving hundreds of lives, its cost was justified. Using this cost justification, wouldn't it seem reasonable that we should have a Super" QC program for Nuclear work where a single accident could involve hundreds of thousands of lives? The possible risk could be 1,000 times greater!

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I feel sure you will agree that the American aircraft industry in its entirety has compiled a tremendous record for dependability, reliability and most important of all nearly perfect safety. QC is the single most important factor in this achievement. How then in a relatively high technology industry where stength versus weight is such a critical factor can we be so successful with QC and we cannot build a nuclear plant to boil water where strength , weight is not a factor, and we try to use QC and the end results are so dissimilar?

Once we ask this question and start to look it is relatively easy to find concrete reasons for completely opposite end results. Starting at the very beginning, I have found that only in plants where the utmost in quality of product was demanded from the very top people in management did this penetrate down to every employee. In every instance where this was not a top priority with the people on top, quality problems was the direct result. Quality starts at the top and will go down. It will never start at the bottom and go up. It is that simple. Utilities in particular, and those with all their construction experience in coal or oil fired plants built in a conventional manner cannot see the need or reason for QC in nuclear plants. Where they don't believe in the need they then only go thru sufficient motions in the direction of QC to be considered as complying with the Licensing agreement.

The old saying of "Well begun is half done," is very applicable in this situation. Where or when we start off poorly we usually end up poorly. Then when we progress from this bad initial attitude to a minimum QC effort we get the end results we are now finding.

Basically QC is relatively simple. It is a planned program of Inspection activity to uncover deficiencies that are undesirable. On a simple part for example every dimension to be checked is called out. Deficiencies are shown as Minor, Major and Critical, determined by the tolerances called out on the print. Any part with a deficiency is set aside until prescribed disposition has been made. This is the meat and potatoes area of QC. Good, proper and prompt disposition. On aircraft parts disposition of Major and Critical defects requires unanimous approval of the following people. Air Force representative, Product Engineering representative QC representative, Production representative and in some cases a customer representative.

It can easily be determined that at Zimmer Inspection was at best hap-hazard. In the area of disposition of deficiencies and errors it approached total chaos! There is a simple explanation for this end result. Everyone knew and felt that the plant was over designed in respect to safety and with two and three backups, so that any time a little "problem" arose they could very easily and safely "take" a little of this redundance and make a "FIX." Soon this becomes a way of life and becomes an accepted practice. The critical part not recognised is that even the workers see this as a practice and they too start making their own "fixes". We then have no idea of the extent or complexity of their "fixes." I am sure many of the "fixes" are entirely satisfactory. The serious problem is we will never know until it is too late. Note! In the last report in the area concerned with cable loading of trays appears a statement saying in effect that the space loading limitations are "conservative" so overloading them becomes acceptable. This is an example of a major decision based entirely on an opinion. I hope you understand that this is criticism of lack of control that creates this attitude.

There are many things I can not understand, For example in 1975 a Mr. Griffin then the Manager of QC for Kaiser Engineers reported his concern for the utilities failure to set up a proper QC program. The subsequent NRC investigation stated that his concern was not substantiated.

Then when a person takes the time to review the periodic plant Inspections made by the NRC two things are very evident continuously.

1. Constant repetition of simple bad safety practices in general.
2. Strong evidence of lack of an adequate QC program.

This then makes a person wonder who in the NRC took the time or effort to read this mans reports? Visit after visit his findings were nearly monotonously similar. They painted a clear picture of complete lack of control.

Now it is proposed to reinspect various items. Many, many items can not be reinspected. On many items you have one opportunity to check them. On many others such as complex assemblies complete disassembly would be necessary.

We then have the problem of evaluating in a proper manner all of the "fixes". Enclosed is an affidavit detailing "fixes" only in the one area of Cable Trays which I took the time to look into. I am sure this same condition exists in many other areas also.

You then have the overall problem of credibility once a progress report must be issued. Only competent and independent people preferably with a background in Aircraft QC programs could even attempt to do what is proposed. Anything less is not only a sham but a complete waste of time and money. The utilty does not believe in QC any more today than they ever did. Your own people have repeatedly proven their own incompetence. The only sensible choice remains as independent competent people who will tell it to you as it is. I trust and hope this is what you really wish to find out.

The lessons learned in respect to determining "causes" can be invaluable in preventing their reocurrence elsewhere.

Respectfully,

Edwin P. Hofstadter

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