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9 Twin Orchard Drive  
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December 19, 2010

Mr. Marvin S. Fertel  
President and Chief Executive Officer  
Nuclear Energy Institute  
1776 I Street NW, Suite 400  
Washington, DC 20006-3708

Dear Mr. Marvin S. Fertel:

### Thoughts for the Future

Here are some of my ideas on what the commercial nuclear industry needs or needs to do.

#### 1. "Burn" again, spent lightwater reactor fuel

When I was on a BWR operating shift, our practice was, generally, to use each bundle of nuclear fuel one operating cycle in each of 3 locations, then remove it from further use. The problem wasn't that there was no more fuel in them to "burn": the problem was the accumulation of products of burning (fission). These accumulating products eventually would require faster-acting control rod blades than those we had installed.

I believe that I have read, (but not documented), that the Canadian style heavy water reactors can burn this spent fuel. If they can, it would appear that the over all amount of spent fuel energy can be reduced prior to ultimate disposal.

So, we reduce the amount of energy being thrown away and we would get some electrical generation (or maybe steam) as well.

#### 2. Reprocess and use-again spent lightwater reactor fuel

I am not familiar with the relative advantages of either of apparently 2 ways to reprocess "spent" lightwater reactor fuel. I am aware, however, of the argument that new reactor fuel is cheaper than the reprocessed fuel.

In my opinion this is the wrong focus, even if it is true. I would prefer a comparison of the cost of reprocessing, the value of the resulting generation, and the cost savings from eliminated or reduced storage and ultimate disposal costs.

### 3. Ultimate disposal of Spent Fuel

We need to be able to dispose of spent fuel now.

When this county decided it needed to build an atomic bomb, it didn't decide to go in one way only. As I understand it, 5 different pathways were selected. This logic worked.

How different our put-all-our-eggs-in-one-basket method for spent fuel disposal. This logic has NOT worked.

### 4. An appropriate-sized workforce of appropriate skill levels for intermittent (outage) work assignments

I don't have any ideas here on how to solve or even approach this problem. In my view, it has become more and more difficult for workers to support their families by only (or preferentially) working nuclear plant outages.

### 5. Nuclear combined cycle

Over the past 20 or so years, I believe the gas turbine industry has been able to bring its plant efficiency from around 40% to just under 60% today by going to a combined cycle. Why can't we do the same and jack up that 34% lightwater reactor plant efficiency?

### 6. Replacing old reactors

If we accept the idea that nuclear power deserves to be a part of the United States electrical generation mix, we must also conclude that, someday, existing plants will be too old to run. I feel it is time to determine if the reactor building and its equipment ages faster than the balance of plant equipment. If so, maybe we should design for a steamline manifold that would allow a replacement reactor building (placed next to the existing one) to connect its steam output to the existing balance of plant equipment. (Or, maybe a non-nuclear source of steam would work, too.)

This idea has been used with fossil- fueled boilers, where steam from any boiler could be sent to any turbine-generator.

### 7. Replacing old nuclear plants

Why can't a no-longer-in-service nuclear plant be rebuilt, using existing balance of plant equipment, as a gas turbine plant? I believe this would be similar to what was done in Midland, Michigan (except that the plant there had not been completed.)

#### 8. Floating power plants or parts

An idea of Public Service Electric and Gas in New Jersey, many years ago needs to be looked at again: build at least parts of the plant in a shipyard and float them into place.

#### 9. Paying medium(?) term expenses

In the case of a nuclear power plant being retired from service without a nuclear power plant replacement, I see continuing expenses for guarding and monitoring on site spent fuel casks. My suggestion here is a small gas turbine plant to make a little electricity and make the money to pay these security and monitoring expenses. For plants on accessible bodies of water, don't overlook barge-mounted generating units.

#### 10. Knowledge transfer

Besides the plants getting older, the plant employees are, too. For those nuclear plants expected to run past the retirement of most of their present employees, I believe "knowledge transfer" beyond initial training is an important consideration. Are plants hiring early so that knowledge transfer can occur from employees before they leave the payroll?

#### 11. A lack of replacement parts

One thing about an old plant: it is still there. Not so is an adequate supply of replacement parts. Do individual plants have nuclear industry guidance on when it is no longer advisable to try to repair non-passive, obsolete equipment?

#### 12. An NRC assigned wider responsibility

In my opinion, the U.S. Nuclear Regulatory Commission cannot adequately protect the public (and industry workers) when it is limited to only that equipment classified as "safety-related." Changes in existing federal laws need to be made so that there is single point responsibility assigned to the NRC for all safety-related items, all non-safety related items, and all other "soft" concerns such as site "Command and Control" or ground water contamination.

Additionally, poor plant performance needs to again result in credible punitive action being assigned by the NRC. This means monetary fines, reductions in licensed plant power, and/or plant shutdown orders. It does not mean ADR, (Alternate Dispute Resolution), and does not mean a promise to inspect more: these tactics DO NOT seem to work.

To summarize here, it appears to me that there was a time when we thought we could assure adequate safety to the public if we just focused on safety-related structures,

systems, and components, (ignoring, pretty much, all passive structures, systems, and components.) Those days are past.

### Conclusion

Of the items above, I feel the last one is most urgent.

Thank you,

Thomas Gurdziel