6/7/99

Mtg w/ NEI on Spent Fuel Pool

Meisner:

Please describe internal fire scenario.

Kelly:

Initiations 10^{-1} to 10^{-2}/yr from AEOD data.

Rest of this is human error rates, just like for operating reactors.

Long-time available to recover.

Low probability of not recovering.

$\frac{1}{1000}$ or $\frac{1}{10,000}$

Systems are simple, but do not have redundancy or diversity.

Meisner:

Let's go through the internal fire

Check:

EPRI event freq. for pumps + elec cabinets 8 E-3

Cutting to remove equipment

Manual suppression .05

10% of time fire would be large enough to take stuff out.

Now, need to recover.

Diesel powered fire pumps.

Have a long time to recover.

Accident occurs at 1/yr.

120 hours to boil down to fuel uncovery. (≈ 1 week)

Used 5% probability of not recovering

C/88

Meisner: What do you assume for recovery in Op Rx. If have greater than 24 hours to recover, we assume that you recover.

Kelly: In op Rx., other accidents are dominant.

Meisner: Could identify need for procedural controls and then go on.

Check: 10^{-4} is the lowest number I would use for recovery.

$$\left[10^{-1} \times 10^{-4} = 10^{-5}\right]$$

Check:
- LOCA: 10^{-3} is initiating event freq.
- Check: again 120 hrs to recover
- LOCA could be a valve or gate failure or a siphoning event.

Kelly: what will PRA tell us about potential problems? That was the purpose of our work.

Meisner: You can come up with a different set of numbers if procedures are in place.

Kelly: Yes

Meisner: If you always assume the worst case, you can come out will a higher number

Kelly: We did not do this.
Our full report will be out in Aug 99.
PRA for decomm reactor is not the same as for an op. reactor. Will have different types of concerns. We got expert opinions on human factors error rates.
[What experts did you use?]

Kelly: Foreign reactor lost level drop by 18 feet.

Meisner: We don't want to wait until Aug.

Industry: Why not give us your report now? What is the harm?

NEI: Why spend time finalizing something that may be changed a lot.

Industry: (Art Rone, Oyster Creek) Will can give you better info to wring some conservatism out of this report.

Sue Richards: Tried to do a bounding PRA
We don't have results yet. We have a work in progress.

NEI: Bounding analysis is not how PRA's work best

Kelly: Was a realistic analysis as much as possible.
Most of our analysis is not bounding.

NEI: Should assume procedures and then do the PRA.
7 days to put water in the pool.
Foreign reactor with no oversight.

Check: We do have sensitivities.
This is a work in progress.

NEI: Don't spend so much time studying this.
We can do this much quicker.

Industry: Frequency is larger than rel. freq. for an Op Rx.
Can't have a real dialog until you give us some details. Otherwise, this will be a hollow discussion.

Meisner: Seismic:

Check: 2×10^{-5} initiating event frequency

Meisner: 1353 said seismic was 2×10^{-6}
After applying Livermore curves got 1×10^{-6} ?
You come out in the same place as 1353, even consider Livermore curves.

Stu Richards: Could not have done a risk study in 60 days.
It just cannot be done

Meisner: Need to assume fire cannot happen.
That way we will be forced to actually evaluate risk.

Barrett: Looked at 3 things: frequency, consequences, deterministic evaluation of fire

None of 3 allowed us to dismiss the problem.

{ Can use similar criteria to op Rx.
We have not finished thinking about this.

NEI: If cannot get water back in pool in 7 days, then any addl. requirements will not impact risk.
[Your assumption of 10^{-4} recovery is unreasonable.]

Ray Shadis: Don't approach decommission piecemeal.
Need to evaluate risk of each plant individually.

Peter Atherton: No seismic requirements for seismic design of spent fuel pool that I could find.
One spent fuel pool is leaking.

Oyster Creek: I cannot wait 3 years for a rule. What is the guidance? I need it now.

Stu Richard: We will continue to issue exemptions as we have in the past.

Meisner: Zirc fire preclusion only used for last couple of decommissioning.

NEI: Interim guidance is what we need

Meisner: We need NRC staff to take a position and keep with it. Let's get on with it.

Lunch

Meisner: Mar 99 Comm Mtg =>

- a lot of work already done
- should package it together + send it to Commission in June.
- don't think what you are doing is what comm is looking for.
- shows lack of discipline on staff to take NUREG/CR's and use them.
- staff position changes each time a decommissioning comes in — no consistent staff position
- NUREG-1353 is a good basis

Meisner: Don't make it up as you go; industry needs stability.

Negative things from site visits went into model, none of positive things did.

NRC's PRA is conservative; it is supposed to be best-estimate.

Design + operation of Maine spent fuel pool is in the FSAR; just read it.

Seabrook did a PRA on spent fuel pool; you did not mention it.

You are resisting taking input from industry.

Did poor job on plant visits wrt HEP; HEP this is driving your results.

To have to consider an event that is a week long, that is to lose touch w/ reality.

No way freq. of core damage is the same as an operating reactor.

We request:

1) need to have current work consistent w/ past
2) do not need to reinvent the wheel
3) show us assumptions (now) that are critical to the problem.
4) assume licensee will put water into the pool within a week, as a best estimate
5) assuming can't get water into pool in less than a week is unrealistic.

Meisner: Overall, disagree w/ Smith's position.
We are desiring to provide any info.

Industry: Don't use such conservative numbers for NEP.
(Art) 5% chance that can't get water into spent fuel pool (after 1 week)
Regulatory uncertainty is a big problem.

NEI: We are trying to clarify the requirements.

Stu Richards: End goal is predictability.
" " " to risk inform it
You are disappointed we can't get there faster.
When we started out, I was hopeful to finish in 60 days also.

Meisner: I am frustrated
- Not building on past, using earlier NRC studies.
- Reinventing the wheel.
- Adding on extremely conservative assumptions that made it invalidated.

Stu Richards: You think our approach is half-baked.

Meisner: We should be included in the process.
We need to have a technical team working with your technical team.

NEI (Lynott): We would like interim guidance (SRP, for example)

Stu Richards: Decommissioning has a higher priority than it used to.

Barrett: • Need better info of what you have at the plants
• Need better info on what you plan to have at the plants

Kelly: • 1353 was for op. plants
Op plants have more equipment + capabilities.
• We modeled what was there
• We modeled the procedures
• If no credit, then high probability of operator error.

Meisner: Why are your seismic number so different.

Kelly: We were not satisfied with seismic analyses in 1353.

Meisner: That was relied up to make a decision

Kelly: But 1353 was dealing w/ backfits.
Not dealing w/ backfits here.

Kelly: An exemption is not a backfit.

Kelly: Little credit for operator action.

* 9,999 out of 10,000 the operator is mitigating the accident. *

Got this number from some good experts.

Bagchi: We did not deviate from 1353.
We used 3x SSE.
We used Lawrence Livermore (2×10^{-5})
Multiplied by .05 =>

$$.05 \times 2 \times 10^{-5} = 1 \times 10^{-6}$$

Meisner: You are continually changing methodology.

Before, do your own calc of SHARP code
Now, SHARP code is no good.
We cannot pin the NRC down.

Utilities: Security, insurance, EP is a poor choice of where to spend money.
Staff believes Zr fire is credible
We used Zr fire calc for Oyster Creek. Got 3.5 months for our plant.
Now, staff tells us that SHARP code is no good.

Ray Shaddis: Even if 10^{-6} or 10^{-7}, if you have offsite consequences the public is concerned.

We have reservations in how closely NEI engages NRC in this project, esp. w/o the public being in the mtg.

Had 12 feet of water in the containment at IP in the 1980's.

Sabotage not addressed today.

Agree with industry, "Consistently changing regulatory positions."

Peter Atherton: Where are the results?

Vonna: Done in Aug; we only gave results today.

Atherton: Some areas not addressed, such as, criticality.

Sam Richards: Addressed in our report to be issued.

Atherton: Why no redundancy & EQ?
Why relying on operator action.

NRC: Draft report will address.

Zwolinski: Millstone 1 has recently shut down.

Barrett: 25 years experience in calculating BWR/PWR risk for op rx. Limited experience for spent fuel pool.