

RAS 14380

U.S. NUCLEAR REGULATORY COMMISSION

In the Matter of AMERGEN Energy Co. LLC

Docket No. 50-0219-LR Official Exhibit No. CITIZENS EXH 62

OFFERED by: Applicant/Licensee Intervenor  
 NRC Staff \_\_\_\_\_ Other \_\_\_\_\_

IDENTIFIED on 9/20/07 Witness/Panel N/A

Action Taken: ADMITTED REJECTED WITHDRAWN

Reporter/Clerk DW

Exhibit 62

Transcript excerpt from:

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Nuclear Regulatory Commission

Advisory Committee on Reactor Safeguards

485th Meeting held on September 6, 2001

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DR. WALLIS: So you have some sort of acceptance criterion which says that the uncertainty has to be within some limits or something, or you just guess?

MR. ULSES: Well, actually, let me jump in here. Basically, what that statement is intended to mean is that if you look at the review of the kinetics package in its entirety, including both the test problem that -- called the GE validation against experimental data on all of the other work that we did, basically the bottom line conclusion was that the effect of any of the -- well, I am just thinking how best to put this.

That was really intended to discuss the fact that as Ralph said, we did have some -- well, some malingering differences in the prediction of power for the sample problem.

However, the effect of those differences on the bottom line answer for AO transients, which is the effect on changes in the minimum critical power ratio, was effectively nil, and actual what I mean by nil, was that it was basically almost impossible to see the effect.

But that's the relevant output of all of these transients. We do all this stuff with all these big codes, and we get one number out of it.

DR. WALLIS: What number did you get for uncertainty?

MR. LANDRY: Well, this is just looking at this transient.

MR. ULSES: Right. This is how it is applied in actual licensing of the plants. I mean, that's what they use to set the operating limits of the plant.

DR. WALLIS: I see. Well, the criteria for accepting this code are that there is reasonable models over physics, and that is part of it. But the other part of it is that when you make a prediction, you can also predict the uncertainty.

Now, that is the requirement for the best estimate code isn't it? Now, what the staff does with that I think is still up in the air. The use of the code may be able to do all the things with CSAI and predict all these uncertainties.

But I don't think the staff has really thought through what it is going to do with these uncertainties when it gets them, and that's where I think we have also mentioned in our letters that, yes, our codes are doing all these things that we have asked them to do, and you need a measure of the predictions, and the answer, and the causes of all the answers and all of that.

But what are you going to do when you have got that? I mean, there has still got to be some relationship with these uncertainties to margins and acceptance criteria, and so on.

I am not sure that the staff really has thought that through. Do you have any comments on that?

**MR. LANDRY:** At this point, we would just have to say we are continuing to study that, and we are trying to define.

**DR. WALLIS:** Well, that's typical. I mean, you see, there must be a criterion, some acceptance criterion, when they want to uprate the power to some point where it is meeting some boundary.

Then how big the uncertainties are in the code are very important to know, and whether you may step over that boundary or not. So it seems to me that maybe the acceptabilities then are going to depend upon the use.

Yes, they have got a good code, and they have an assessment of uncertainty, and then look at something like power uprate, and start using this code, and then you can figure out perhaps how big the uncertainty or what is the effect of the uncertainty on your decision about whether or not they should be allowed to uprate power.

**MR. CARUSO:** Dr. Wallis, this is Ralph Caruso from the staff. We do actually have some criterion in this area for AOOs. For example, we set a safety limit minimum critical power ratios to ensure that 99.9 percent of the rods don't undergo boiling transition.

I think that your question is what does reasonable assurance mean, and I think that the ACRS has had this discussion with the Commission in the past about what reasonable assurance means, and I don't think there has ever been any definition that everyone has agreed to.

This is an eternal question that we try to deal with, and it comes out of judgment to a large extent at this point. When we can quantify it, for example, and say setting safety limit MICPRs, we try to do that.

We are trying to do our regulation in a more risk-informed manner, and that is another attempt to do it in a more quantifiable way. But right now these are the words that the law requires us to use to make a finding.

So those are, unfortunately, the words that we use and they are not well defined.

**DR. WALLIS:** But the law requires you to make a finding with 95 percent confidence.

**MR. CARUSO:** No, the law requires us to make a reasonable assurance finding.

**DR. WALLIS:** If your criterion is 95 percent confidence, then the fact that they have evaluated these uncertainties enables you to make that assessment.

**MR. CARUSO:** We could say that a 95 percent confidence does define reasonable assurance, but --

DR. WALLIS: That is the thing that I think is not being worked out yet. I mean, you have got the tools to do it, but if someone comes around like tomorrow and says reasonable assurance is 99 percent, then you have still got the tools to do it, but where you come out on allowing some change in the plant may be different.

MR. CARUSO: I really hate to pass the buck on this, but I do believe that this has been the subject of some extensive discussions with the Commission about the definition of reasonable assurance, and I don't believe that anyone has come up with an acceptable definition for all the parties involved.

DR. WALLIS: So maybe my --

MR. CARUSO: This is a little bit beyond my pay grade as they say.

DR. WALLIS: -- saying that you have got a good tool is, but the staff isn't quite sure how to use it, is a true statement.

MR. CARUSO: I can't explain why. I don't want to get into philosophy on this particular issue.

DR. WALLIS: It is not philosophy. It is really very real.

DR. KRESS: Yes, and in a number of our letters, we have commented that the staff needs to get more into formal decision criteria, and this is exactly what we mean by formal decision criteria. How do you use these uncertainties to make our decision.

And you would come up with some sort of a technical definition of reasonable assurance that way, and we said that in a number of letters. And I think it could be repeated over and over. I think it is needed.

DR. WALLIS: And the reasonable assurance probably should be risk-informed. If it is not important to risk, then you can do it with less assurance perhaps.

MR. CARUSO: And there is a lot of effort going on in that area for a formal decision.

DR. KRESS: And that would be part of the formal decision process.

DR. WALLIS: That is part of a broader picture. So, maybe we should move on.

DR. KRESS: But I don't think that is these guys' job. They just have to be sure that the code can -- well, I agree with you that if there is reasonable assurance that it does the uncertainty correct, then they have got a basis for saying its okay for this.

MR. CARUSO: As a lower level engineer, I would be thrilled if someone could define the term for me, but I have not seen it defined yet.

MR. LANDRY: Okay. Moving on to experience . . .

Official Transcript of Proceedings, Nuclear Regulatory Commission - Advisory Committee on Reactor Safeguards, <http://www.nrc.gov/reading-rm/doc-collections/acrs/tr/fullcommittee/2001/ac010906.html> (last visited Sept. 13, 2007) (transcript excerpt from the 485th Meeting held on September 6, 2001).