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OF NUCLEAR POWER PLANTS

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PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Tuesday, April 3, 1990

The Commission met in open session, pursuant to notice, at 2:00 p.m., Kenneth M. Carr, Chairman, presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission
THOMAS M. ROBERTS, Commissioner
KENNETH C. ROGERS, Commissioner
JAMES R. CURTISS, Commissioner
FORREST J. REMICK, Commissioner

STAFF SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

WILLIAM C. PARLER, General Counsel

JAMES TAYLOR, Executive Director for Operations

DOCTOR THOMAS MURLEY, Director, NRR

FRANK GILLESPIE, PMAS/NRR

MARTIN VIRGILIO, PISB/NRR

DARREL NASH, PTSB/NRR

P-R-O-C-E-E-D-I-N-G-S

2:00 p.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

The purpose of today's meeting is for the NRC staff to brief the Commission on the increasing use of economic incentives by public utility commissions. These incentive programs are based on various performance criteria applied to nuclear power plants licensed by NRC.

The Commission is concerned that the potential financial impact of such programs could result in plant operating decisions that may not be primarily based on protecting public health and safety. Accordingly, at the February 15th, 1990 Commission meeting, the staff was requested to provide this separate briefing on the subject of economic incentive programs.

I understand that copies of the staff's presentation slides and the staff paper on this subject, SECY-90-046, are available at the entrance to the meeting room.

Do my fellow Commissioners have any opening comments?

If not, Mr. Taylor, please proceed.

MR. TAYLOR: Good afternoon.

With me at the table today, starting on my far left, is Darrel Nash, from NRR; and of course, Tom Murley, the Director of NRR; to my right, Frank Gillespie and Marty Virgilio, from NRR.

Before we proceed in the briefing, I think it is important for me to say that -- and as was noted in the paper that was provided -- that although at this time the staff cannot make a direct link where a utility performance incentive plan has caused a deteriorating safety performance, the staff certainly acknowledges there is a potential for this to occur. And as we proceed through today and look at these plans, I think that we certainly have that in our mind.

With that, I'll turn to Frank Gillespie, who will proceed with the briefing.

MR. GILLESPIE: (Slide) If I could have the first slide, what I'd like to do is to add some historical context which was basically missing from the paper, but had a lot of relevance to the conclusions drawn in the paper. And let me go back to 1983, when we first looked at this question.

In 1983, a chart very similar to slide one that's showing was generated in an NRC report. And

one of the things in the report, the top box, was environment.

In the environment, it recognized the economic factors in the regulation by PUCs as very important. But it recognized all of those elements on the left side of that page as very interrelated, not only incentives but the actual setting of rates themselves.

And the effect on those rates was very, very interrelated with what is called a context. And a context is basically the history and size of the organization, how much are the available funds.

Organization governance, the philosophy of the corporate level, all the way down through the organization.

And also, organizational design, which is more the traditional organization at the plant level itself. But within organizational design, that first one looked at the funds provided to the organization to carry out its job.

In that same report in 1983, it tried to make a link between the available funds to an organization and the available funds for operation and maintenance of a nuclear power station. And it came to the conclusion that making that link from

available information was extremely difficult. And, in fact, in on case they found over an 80 percent difference between what was reported to Moodys for financial purposes and what was reported to DOE in an energy survey they were doing. The difference was hundreds of millions of dollars. Very difficult to relate directly what someone is getting from a rate structure to what they're putting into their operation and maintenance budget.

Other things in that context that were found to fit as an integral were is the utility generally contracting services out or are they doing them themselves? How much are they putting into expense? How much are they putting into capital? It basically made for a very muddy picture on the left-hand side of that diagram.

On the right-hand side of that diagram is our traditional program and in the middle are the types of things which, in the context of the work that was done in '83 and to date, are the types of things we make conclusions about. Safety indicators, in this case, were inspection report, were SALP, were the performance indicators at the time just starting to get developed, were that integral set. And that integral set and the evaluation of those things has

grown into senior management meetings and the decisions that come out of those and the short-term being every six months and in the longer term SALP itself which takes to integrate those and makes decisions or tries to make decisions and inferences on the overall safety operation of a facility.

That's a symptom and we look at symptoms and we're continuing to upgrade our process to look at those symptoms on which we make our decisions.

On the other side, and in the paper we didn't explain the integral on that left side, are all of these management elements that also impact the amount of funds available. Now, we do have concerns and we raised in several instances and Marty's going to go through those. When there is a step decrease or the penalty is so severe and so rapid, we think we need to look at it.

But as we said in the paper, this influence through an organization which is generally set up to be technically competent and responsive and has been getting significant regulatory oversight, we believe we would see any outcome of the symptoms. That was a general finding in '83. We've done a similar report in '84 and right now research has an exploratory program going on trying to investigate the bottom

four blocks on that diagram.

They have tended -- we are not right now investigating the economic portion of it. They're trying to get a handle on what is management, what are management influences, how do we identify that and outside the traditional block diagram kind of thing. And the arrow on environment indicates that those things in the environment, the PUC interface, the FERC interface, the political interface, tax structure, everything that costs money, that's in economics, can have an effect on the intermediate outcome certainly, but we have not been able to draw a cause and effect relationship. But it also affects all of these management functions and the thought process that goes into them. It has to affect the corporate strategy. How has that leadership gone done through the organization?

So, we have focused on symptoms. The other side is precursors, would we be able to identify based on economics alone? We think not and that's where some of our conclusions in the paper came from. Economics combined with management philosophy, management leadership, the increase in things like maintenance backlog, the integral, some of the other things, we're investigating that. Very, very

difficult and soft and mushy area to get into which is why it's very, very exploratory in nature and that's continuing forward.

That's -- in a nutshell, I guess it's -- if I could give you a quote out of the earlier study, "If greater environmental," and environmental in this case meant economic, "volatility is coupled with fewer external resources and more dependence upon outside organization, nuclear utilities will find it more difficult to promote quality innovation, compliance and efficiency in employee maintenance, thus threatening safety."

So, since 1983, the staff has recognized there's a connection. It's the cause and effect relationship of the connection we've been having a very difficult time trying to get our arms around and it's still exploratory in nature even today.

So, with that, we are doing this report, we have been doing it on about an annual basis. So we, in fact, ourselves are trying to keep an eye on it.

So, let me turn it over to Marty. He's going to go through the details of the report itself.

COMMISSIONER REMICK: Before that, I apologize. You're a very articulate person, I know, but I'm not sure what you just told us. Are you

basically saying it's tough to determine what the effects are of safety, of something like PUC action, there are many things that enter into -- is that what you're telling us?

MR. GILLESPIE: Yes. The cause and effect strictly between PUC action and a safety outcome has to go through a whole channel of management chains and decisions. If we truly believe, and we said this in the paper, if we believe in the integrity of the people operating the nuclear power plant, then their decision should be appropriate to the level of resources given. That's a very difficult quality to measure and that's where the difficulty comes in.

COMMISSIONER ROGERS: Well, I think there's another difficulty and that is that you're looking to pin something down after it's happened and we're looking to see that something doesn't happen in the first place.

MR. GILLESPIE: Yes.

COMMISSIONER ROGERS: You know, one is an analysis of can you see anything so far, and if you haven't seen anything so far, there's the question then whether you conclude anything about the future. I think that's really where the question is going to have to lie. But admittedly, reading your materials,

and I want you to go on and listen to what you have to say, but because you haven't seen anything doesn't say there isn't a significant potential for something happening.

MR. GILLESPIE: What I'm saying is we agree the potential is there. The significance and the independence of that potential is something we don't have a very good handle on right now.

COMMISSIONER ROGERS: Well, I think the problem is that once it becomes so easy to measure, that you can measure it easily and convince everybody of it, maybe it's too late.

MR. GILLESPIE: Marty?

CHAIRMAN CARR: Let's proceed.

MR. VIRGILIO: Very good.

(Slide) Can I have the next slide, please?

Economic performance incentive programs are mechanisms used by PUCs to measure efficiencies and financially reward or penalize the utility. Today there are 73 nuclear power plants, 27 utilities and 18 states involved in such programs. The NRC staff has been following increasing involvement of PUCs for several years, as Frank pointed out. We've published two NUREGs to date on performance incentive programs. The first being NUREG-1256 in December of 1987 and

the second being NUREG/CR-5509 in December of 1989.

(Slide) Next slide, please.

On the next slide, I've shown a number of different types of incentive programs that are currently in effect. As you can see, the performance incentive programs vary considerably. PUCs use different performance measures to assess the amount of reward or penalty, such as heat rate, capacity factor and availability. Penalties and rewards are typically adjustments to replacement fuel costs, percent of return on common equity or operating revenues.

(Slide) On the next slide, what I've shown in a conceptual performance incentive program, conceptual but similar to many of the ones we've seen. Most of the programs include a formula for determining the size of the reward or penalty, some include a dead band where neither reward or penalties accrue, and some include provisions for a detailed review by the PUC if performance falls below a certain threshold.

(Slide) On the next slide I've shown one program that's highlighted in our report for Arkansas Power and Light Company. This is a program that provides no dead band at all. Originally designed to

insulate ratepayers from replacement power costs resulting from unplanned outages, the company essentially keeps fuel savings attributed to operation above the target here shown as 72 percent.

During refueling, all replacement power costs are passed onto the consumers. Originally it's designed for the first 30 days of any outage during a 78 week operating cycle. AP&L was penalized 100 percent of replacement power costs below once the capacity factor fell below that target threshold. And then subsequent days they were penalized ten percent of replacement power cost. That program was then recently adjusted. So now, only the first 30 days during the 78 week cycle are subject to the 90 percent replacement power penalty and then subsequent to that it's a ten percent of replacement power costs.

(Slide) On the next slide, I've shown another slightly unique program. This is what the utility and the PUC refers to as performance based pricing plan, currently applied for Diablo Canyon Units 1 and 2. Utility profits in this plan are a function of plant performance based on a price per kilowatt established by the PUC.

(Slide) On the next slide, I've sort of highlighted the Pilgrim plant. Here, as a result of a settlement agreement proposed by Massachusetts States Attorney General to proceedings before the PUC involving replacement power expenses incurred between April '86 and December '88 during the Pilgrim outage, a formula was developed to determine revenues, adjustments over a 12 month period. A base amount is adjusted by considering capacity factor, SALP scores and a comparison of performance indicators to other facilities.

In this particular plant, capacity factors below 60 percent incur a penalty and above 76 percent incur a reward. As you can see, SALP is adjusted and performance indicators also provide an adjustment factor.

In our analysis, which was done in response to a Commission request, the staff provided in our analysis in a paper, SECY-90-046, dated February 13th, 1990. The paper provided an evaluation of the plans that could result in financial stress on regulated utilities. Most of these plans included targets for capacity factors with no cap on poor performance penalties. Impacts were calculated for a few of the indicators used by the financial community

and utilities in decision making and assessing the attractiveness of investments. We looked at return on common equity, net cash flow and interest coverage and calculated impacts.

(Slide) And the next slide is the first example for the impacts we calculated. We looked at Palisades. Let me say that the three examples that we'll look at in the next three slides all show the spectrum of results from our analysis. Palisades we found to be a low impact program.

In this case, the PUC does a case by case annual review and a special review of the operating history if the capacity factors fall below 60 percent.

We looked at performance with no penalties and that was 1988 performance. We looked at penalties with recent capacity factors. In that case we looked at 65 percent. That essentially was the first half of 1989 that we looked at and we looked at historical capacity factors which at this facility have been running about 40 percent.

The maximum penalty was a postulated one year shutdown, looking at their plan and the way their replacement fuel cost disallowances are run if they were to be shut down for a full year.

As you can see, they could sustain a substantial penalty of about 100 -- well, here we show $120 million and maintain an acceptable rate of return on common equity and an acceptable interest coverage. Again, based on our analysis, we felt that this was a low impact program.

(Slide) In the second example, we looked at what we considered a medium or moderate impact program. Here we looked at Oyster Creek and TMI. The plan that's currently imposed here is based on a target capacity factor of 70 percent plus or minus ten percent for all plants regulated by the PUC. This includes Salem, Hope Creek, Peach Bottom, Oyster Creek and TMI-1.

Again, at recent capacity factors, we looked at the first half of 1989 where Oyster Creek was running about 21 percent capacity factor and TMI-1 had 100 percent. Historical capacity factors for Oyster Creek were 51 percent in this analysis and for TMI 41 percent. Again, for maximum penalty, we looked at a one year shutdown and looked at the replacement fuel costs as part of that penalty. Again we saw that a substantial penalty could be imposed. Here they would be on the order of $140 million and it would have significant impacts on

return on common equity. Interest coverage was impacted but remained acceptable and we saw a 40 percent reduction in net cash flow.

(Slide) The third example, we considered this to be an example of a high impact program where Nine Mile Point Units 1 and 2 fuel recovery costs are absorbed or passed through to the consumers based on variations from annual and monthly targets and fuel cost. Additionally, the utility must absorb 20 percent of the revenues shortfalls if targets for sales are not met. Here again, for recent capacity factor we looked at the first two quarters of '89 with Unit 1 at zero percent and Unit 2 at 46 percent. For historical capacity factors, we looked at Unit 1 being 56 percent and Unit 2 being 40 percent.

In this case, a substantial penalty of $220 million could be imposed. What would happen is a marginally acceptable return on common equity and interest covered would be driven to unacceptable levels and a 40 percent net cash flow would also result.

(Slide) If we went back and tried to summarize or categorize from our paper, which didn't do this but provided essentially the facts, you would see that licensees who would experience a high impact

if the maximum penalties were imposed include Niagara Mohawk, Cleveland Electric and Boston Edison. And licensees who would experience moderate impacts if the maximum penalties were applied included Public Service Electric and Gas, Baltimore Gas and Electric and Jersey Central Power and Light Company.

(Slide) In summary, there are cases where financial impact of PUC programs could be large and there is a potential for safety impacts. However, thus far, the staff has not seen this influence on reactor safety. Licensees are obliged to comply with NRC regulations and license conditions regardless of the incentive programs that exist. Through a variety of mechanisms, the staff has and will continue to monitor safety performance. We believe the existing programs are sufficient for that objective.

I've outlined here some of the programs that we're using. I've also outlined the fact that we are continuing our periodic update of PUC incentive programs and on occasion we have done more indepth analysis of licensees experiencing financial stress.

That concludes the prepared portion of the presentation.

MR. TAYLOR: The only thought that I would

add would be that the staff does -- being conscious of the potential here, the staff and I remain concerned. As an example, although not specifically related to the economic performance criteria, we have in our regulatory impact survey noted that SALP scores can be misused and misapplied.

It occurs to me, and there's at least one case, Boston Edison, in which SALP scores were entered into a PUC action, that it does concern me that I've at least heard informally of cases where SALP scores may be used to decide bonuses within utility plants, that this type of activity does not necessarily enhance our concept of keeping the issue like SALP focused on safety performance and not use it for economic activity, be they bonuses or rate setting or any other way. It may be a type of policy statement in which we've contemplated and used the SALP and we mention that in staff activities associated with regulatory impact survey. This may indeed be an area, if the staff were able to draft up something, where a Commission policy might be appropriate.

That concludes -- Tom, do you have anything to add to that?

CHAIRMAN CARR: Any questions?

Commissioner Remick?

COMMISSIONER REMICK: I understand what you're saying. You have no direct indication at the moment, but it seems to me one of the very difficult things would be able to determine many plants have a number of upgrades that they're either required to do or they'd prefer to do. It just seems logical to me that if you have a penalty, and we're talking here $140, $180 million, that that certainly could impede the speed with which you would implement those upgrades on which you'll be mandated. It seems to me it would be awfully hard to determine just the exact cause of that delay unless they specifically tied it to PUC incentives or lack of incentives or penalties and so forth.

So, it seems to me that there can be effects like that that are awfully hard perhaps for us to determine. But we could be seeing those effects right now if we had a way of analyzing them.

MR. GILLESPIE: Yes, we could. And it goes to basically the total amount of funds available to the utility, the basic rate setting itself. I will caution that we used for an example in this the maximum penalties. In most cases, the maximum penalty doesn't get put in place until there's

consultation with the PUC. So, the maximum penalties were not an automatic function. We didn't have a case, I don't believe, in the study where the maximum penalty was, in fact, imposed.

So, the PUCs in themselves have shown some restraint, but we agree that there's an effect. The effect goes through a filter that gets to the operating and maintenance budget that that plant manager has to deal with. So, we agree there's an effect. It's understanding the measure of that effect because most of these utilities, and the analysis shows it, these utilities are much bigger than a nuclear plant.

When we're doing this kind of analysis for measuring the effect against the total utility resources, the net cash flow from the utility and its ability to cope with that penalty, and small utilities will be impacted significantly more than larger utilities as far as what might influence their decisions and what might cause them to have to delay major fixes and modifications to a plant.

DOCTOR MURLEY: Frank, could I add a point?

MR. GILLESPIE: Yes.

DOCTOR MURLEY: It seems to me there's two issues here that we're mixing up.

Were you implying, Commissioner, that they might not have enough money to implement mandated equipment that our regulations --

COMMISSIONER REMICK: Or delay it over what they otherwise might have done.

DOCTOR MURLEY: Yes. Now, that -- I'd like to ask Darrel to -- but my understanding is that most cases if it's required by NRC regulations, it is allowed to be put in the rate base.

Do you want to comment on that?

MR. NASH: Yes, that was our general understanding. When we implemented the financial qualifications rule that has been in place since 1984, before doing that we did a survey of state utility commissions and verified that if a cost was necessary for a safety reason that the utility commissions looked on that as an obligation to cover that cost. So that -- if they believe that it's mandated or necessary for safety reasons, then that cost will be allowed in the rate base.

MR. PARLER: That certainly is the-- excuse me, sir.

COMMISSIONER REMICK: No, go ahead.

MR. PARLER: -- foundation on which this Commission acted when it adopted the financial

qualifications rule change several years ago. Words to that effect appear in the statement of considerations and indeed we've applied that theory in contested cases, even recently when efforts were made to have the Commission revisit the financial qualification issue. The presumption is that the PUCs will make enough money available at least to assure that the safety requirements are complied with. If they don't, presumably the plant-- regulatory action would have to be taken.

DOCTOR MURLEY: But these incentives that we're talking about in here are based on capacity factor performance and they were generally meant to exclude any safety requirements that we --

COMMISSIONER REMICK: No, I understand what you're saying on the true requirements mandated, but let's step off a little bit and let's say expectations or encouragement. Might look at improving maintenance, improving training, tremendous investments and so forth, aren't really mandated but they're expected or we indicate that we'd like to see things in those areas. It seems to me that that could influence the rate that people would be able to do that. Am I correct?

MR. TAYLOR: Well, I -- without mentioning

specific utilities, I know that talking to utility management of a plant that was on our problem plant list that had many, many features to fix, including some of the areas that you talked about, that part of the way that that was achieved was to look across that utility and go into rather large cost control efforts just to support that type of corrective action and the bottom word from the utility president was that the investment in that plant was so important to the health of the utility that the rest of the utility, the distribution and fossil plants were engaged in rather strong cost control measures as they upgraded that problem plant.

We see that on occasion when O&M costs are increasing at utilities that understand they have training problems and other problems. One of the things they note, not that we keep specific track of it, is their O&M costs are higher.

COMMISSIONER REMICK: But am I correct, Jim, you're referring to a problem plant where they had to do something and so it was very obvious --

MR. TAYLOR: It was pretty clear that they a lot of work to do and a lot of money --

COMMISSIONER REMICK: How about those that maybe aren't a problem plant but should make

enhancements and might do enhancements if they had the proper cash flow and so forth? This certainly has to enter into that decision.

MR. TAYLOR: We had a visit from a utility in the past few weeks whose O&M costs are going up and they are putting in improvements and they're a small utility. The reasons they're doing it is looking at the long-term investment. They're also looking at the fact that they're hopeful for a license extension and extend the life of the plant. So this combination of factors have said that the type of work they're doing now is important.

COMMISSIONER REMICK: I'm glad to hear that and I certainly am not suggesting by my question to think that people would not put proper money into safety, but I know at the same time it's one pot of money and many demands.

MR. TAYLOR: Right, there are many demands.

COMMISSIONER REMICK: That's right.

CHAIRMAN CARR: Aren't the PUCs by law in a public utility regulated area, aren't they required to give them a fair rate of return on investment if they're a regulated utility?

COMMISSIONER ROBERTS: Yes, but the argument becomes the rate of return, what's return

and are these so-called things done in the name of safety, are they justified? That's the omission.

Now, the specific utility you're speaking of, did they do that with confidence that that would go into their rate base?

MR. TAYLOR: You mean the problem plant?

COMMISSIONER ROBERTS: No, after that you mentioned a smaller utility.

MR. TAYLOR: No, they felt like they were going to get that coverage from the PUC for improvements they had in mind. This utility was just in in the past few weeks talking about it.

CHAIRMAN CARR: Well, they go to court over those all the time.

COMMISSIONER ROBERTS: And they also add these prudency hearings that last forever and cost a lot of money. Sure, your basic statement is accurate, but people of good will can argue about what goes into the rate base.

CHAIRMAN CARR: Well, I think that's what he was saying, that the public utilities commissions so far have not levied the maximum penalties.

MR. GILLESPIE: Maximum penalties. So there has been some restraint shown. They have the fair rate of return to consider. They also have to

consider the obligation that anything that's mandated by safety has to be in there.

COMMISSIONER ROBERTS: But again, that's arguable.

MR. GILLESPIE: That gets to be arguable. Yes, that's arguable between the PUC and the utility --

COMMISSIONER ROBERTS: Exactly.

MR. GILLESPIE: -- when it's above and beyond our requirements.

CHAIRMAN CARR: Commissioner Roberts?

COMMISSIONER ROBERTS: Well, I don't have any questions. It's disturbing to me that PUCs would use some of our methods of evaluation for safety purposes and use them for an economic lever. But I don't see how we have any control over that at all.

CHAIRMAN CARR: No, I think one of the things I'd like to see the utilities do if they're going to do this kind of thing is also have an incentive for safety. Recognize that if the plant is proceeding toward safety, that also has its value in a grading criteria, but so far I haven't seen any real indication of that. But if they're going to use the rest of our scores, they might as well use that one too.

COMMISSIONER ROBERTS: Yes, but that's the argument that's incumbent upon them to make to their PUC. You know, just in very general terms --

CHAIRMAN CARR: We may have to make that argument on the safety side.

Commissioner Rogers?

COMMISSIONER ROBERTS: I think you get into some questions about what our duties and responsibilities are.

CHAIRMAN CARR: That's safety --

MR. PARLER: That's right, but that is a point that could be emphasized in the kind of a policy statement that I think that Jim referred to. That could be an element in that, emphasizing the good and try to point out as specifically as we can the bad. Certainly, when there is a clear conflict between the economic regulators, which we don't have any jurisdiction over, and the safety regulation in which we have almost exclusive jurisdiction over, then

that -- when there is a clear conflict, those battles can be fought.

MR. TAYLOR: That's why I raised the potential for a policy because this is a very difficult area, as you've heard, to put your arms

around.

Commissioner Rogers, you made the point by the time know there's a problem, it may be late in the game to do a great deal about it. So, it may be the type of thing -- it's difficult to write a regulation about it, but it may be the type of thing a statement of position from the Commission properly worded and worked on may be a basis of letting PUCs across the country know the expectations of safety, how difficult it sometimes is with all the elements that work in a plant to provide that, how important that has to be.

CHAIRMAN CARR: Has this come up in your NARUC meetings?

COMMISSIONER ROGERS: I brought it up.

CHAIRMAN CARR: What kind of reception do you get?

COMMISSIONER ROGERS: Well, people are listening to our concerns. I wouldn't say it's been a dialogue in the sense that it's two way, but I think there's been an interested and listening to at least the concerns that I've expressed at the NARUC meetings with respect to various kinds of economic incentives as they might affect safety.

Let me say a few words here. I've been

concerned about this potential for some time. I've seen PUC people come through my office on a few occasions when I talked to them about some of these safety impacts of economic regulation and it sounded to me as if they'd never thought about the safety issue at all, never thought about it.

COMMISSIONER ROBERTS: That's not encouraging.

COMMISSIONER ROGERS: It was a new idea, that there might be a potential for a safety issue.

Now, I think there's more attention being paid to this now, but certainly I'd say two years ago I was shocked to find this a new idea in the minds of some utility commissioners who talked to me.

CHAIRMAN CARR: Well, isn't it fair to say that this is not something that's just particular to the nuclear plants, it's also on their coal-fired plants, their oil-fired plants and their hydro plants. I'm sure they haven't worried about the impact of safety on those. As I understand it, these things are standard across the production of electricity across the board. So, it's just kind of recently they've applied it to nuclear.

COMMISSIONER ROGERS: Yes. Well, I think that -- the question was what are the utility

commissioners thinking about with respect to this sort of thing that I've met with at NARUC and I think that they are interested in the safety aspects. I think they are concerned. I don't know that they have any common way of assessing what might be a reasonable incentive plan and what might be an unreasonable incentive plan.

My own view is that an incentive plan is not necessarily a bad thing from safety point of view at all. It depends very much on how it's constructed and where the built-in disincentives for safety are have to be looked at very carefully. I don't see that we should particularly have a position about whether a utility that is not delivering what it's supposed to to its customers is penalized by a PUC. I don't have any concern about that in itself. It's a question of whether there is a formula constructed in some way to implement that, that might possibly produce a safety disincentive.

So, it's the detailed nature of the plan that I'm concerned about. I'm very concerned about, for instance, any steps in step-wise penalty situations such that operating for one day more will save you a few million dollars and one day less will cost you several million dollars, just like that. It

seems to me that that's a very bad kind of formula. But a smooth transition downward, I don't have any problem with at all. But it's -- the thing that I'm worried about is when somebody says, "You know, if we ran this plant one more day, we wouldn't be hit with that penalty." I don't really think that the somebody that I'm concerned about is the CEO. My guess is the CEO would say, "That's tough. We're just going to have to bite it."

I'm worried about the impact inside the organization of somebody who really thinks that they're doing the best thing for the company by patching something up for one more day or something and maybe doesn't even tell anybody about it. They may be even not in a managerial position. I don't know. But I think that we know that it's the behavior of people in these plants that makes them safe or unsafe when all is said and done and it's the whole group, it's everybody that's involved.

It's certainly something -- we talk about safety culture, we talk about a commitment to safety throughout the organization and everything that's implied by that and anything that creates any incentive for anyone in the organization to make a decision of some sort that's negative to safety ought

to be of concern to us. I'm concerned with any kind of a formula that allows for that without consciously making that decision, just because nobody thought about it.

So, I think that one has to be very vigilant on these recipes. They're not all automatic disincentives to safety by any means and I don't oppose them. Just the very nature of them, what they're trying to accomplish, I don't have a position on. I think that they may be a very good idea in some ways.

What I'm very concerned about are a misconstructed formula of some sort that somehow offers the potential for someone in the organization to decide that if we ran this thing for another day or another week we'd be home free on something. And that decision may not even be something that is made at a high level. You know, "We'll do the boss a favor. We won't tell him about it."

So, we all know that organizations have those problems within. Every organization has that kind of a problem within. "We'll do the boss a favor. We won't tell him he's got a problem," and that's where the real problems begin. That's what we tell our licensees, "Tell us about your problem if

you've got one. Don't try to fix it and then tell us that you failed to fix it." So, it's subtleties of this sort that I think are very important and that gives me considerable concern.

I think the Arkansas formula starts to come pretty close to what I would say an example of a very bad formula. The disincentive here is to a short outage. There should be, in my view, no disincentive to a short outage whatsoever. If there's something that needs to be fixed, shut that plant down and fix it and then get it back up again. Don't create a disincentive up to 30 days. Look at the slopes of those curves, you know. The longer than 30 day outage, well, the penalty falls off slowly, but it's still falling very sharply as you go into that 30 day outage. I'd say that would be an even worse formula if it just took a step down and went flat there at that point. It apparently avoids that disaster, but I'd say that's an example of a bad formula, in my view, because there should be no disincentive to shut down, correct something and get back up again and plants can do it. They do it all the time.

So, I think it's the detailed nature of the formula that's being applied and that's why I'm concerned when we -- if we appear to be taking a

position that these things are so far okay and they don't seem to be posing a problem. I think the potential for a problem is there. Every -- I didn't think every state that's got a nuclear plant has a program of -- capacity factor program, do they, or do they?

MR. GILLESPIE: That's correct, there are some that don't.

COMMISSIONER ROGERS: Some that don't. I think that it's very important to look at all of them and I know that you are doing that. But I'd like to head off or turn around bad formulas and get people to take a look at them again and see whether -- they might be able to accomplish exactly the same thing in terms of protecting the customer and the customer's interest without sacrificing the customer's safety inadvertently.

So, I think that this, in my view, needs some more study. I'm concerned about what appears to me to be coming out as an NRC position that we don't really see a problem, and I'm concerned about the potential there very much.

I'd like to come back to this, on your slide 2, where you are -- you say you're maintaining contact with PUCs and affected utilities. How do you

do that? How are you carrying that out, that contact?

MR. GILLESPIE: With the PUCs and the utilities?

COMMISSIONER ROGERS: With PUCs, yes.

MR. GILLESPIE: Call them up.

COMMISSIONER ROGERS: Pardon?

MR. GILLESPIE: Call them up.

COMMISSIONER ROGERS: How often do you do that?

MR. GILLESPIE: We call on the inspected ones --

MR. NASH: It's not a routine thing. We try to maintain contact with most of them less than once a year, but then it's the formal surveys where we get down every one year or 18 months, something like that.

But when we first became aware of these performance incentives, I guess in the early '80s, we were much more concerned about how they were developing, because they were developing on a more rapid pace. And we've felt, I guess, in the past years since then that there weren't a lot of changes in them and we didn't feel like it was quite so necessary to keep a, you know, real time contact on

these matters.

COMMISSIONER ROGERS: Well, I wonder if, for instance, it would be possible for us to at least think about what might be benign aspects of an incentive plan and what might be troublesome aspects of an incentive plan and communicate that to the PUCs, rather than communicate to them that so far we don't see a problem. I don't know. I'm uncomfortable here, because I do think that we're --

CHAIRMAN CARR: A policy statement may be in order.

COMMISSIONER ROGERS: Yes. I think that we know that it's --

CHAIRMAN CARR: It would be better if we communicate it than the staff communicates it.

COMMISSIONER ROGERS: Yes. But I think we may need some guidance there as to what we see as potential pitfalls in one of these and why.

DOCTOR MURLEY: I might add that we have, Commissioner, twice that I know of communicated with PUCs in this area. Chairman Zech did in the New York State issue where they wanted to use SALPs for bonuses and penalties and things. And then I don't remember the exact case, but my predecessor, Harold Denton, wrote a letter to California, as I recall --

MR. NASH: Yes, that's correct. Yes.

DOCTOR MURLEY: -- where he expressed our views.

I think we are concerned about the potential, and we have in the past said so.

CHAIRMAN CARR: Well, I don't think we're in a position to want you to say you see a problem if you don't see a problem, and I think you've assured me that you're aware of the potential for the problem if you've been looking at it ever since 1983.

MR. NASH: If I could add something, we didn't concentrate so much in this NUREG that we did most recently on this matter of looking at the various kinds of performance incentives, but if you-- the one before that, NUREG-1256, we did look more into this and indicated the kinds of performance incentives which we consider to be good, so to speak, and which were bad. And essentially what we said at that time was those programs that force the utility to look at the long-run so that they're looking to making investments so that their plant will operate well in the long-run are to be preferred, but those plans that make them look at, you know, next hour or next week, can we keep this thing going another day or so, those are the ones that we think should be

avoided.

Now there were some talks given by NRC officials in the mid-1980s expressing our viewpoints on these things and we did not go back to specific utilities and say, "This we don't like." But we did, in public forums, give our evaluations of what we-- the kind programs we thought were preferable and those that weren't. But we didn't, as I say, go to specific PUCs and express those concerns.

COMMISSIONER ROGERS: But it's the PUCs who set these things --

MR. NASH: Yes.

COMMISSIONER ROGERS: -- not the utilities, so --

CHAIRMAN CARR: Well, in some cases it's-- there is a difference. I have zero sympathy with Pilgrim and Diablo Canyon. They made an agreement, and it's their agreement. They sat down and agreed with the PUCs, this is the way we're going to run it. So if they made a bad agreement --

COMMISSIONER ROBERTS: It wasn't an agreement. It was their proposal, wasn't it?

CHAIRMAN CARR: Well, in one case it was, but it's a -- you know. I mean, if they're going to sign a bad contract, I can't hold -- all I can do is

hold their feet to the safety fire. But that's different than the PUC that levies something.

COMMISSIONER ROGERS: That's right. And I'm talking about the PUCs now. I'm not talking about -- I think those other instances, I think we should go after them. But particularly the Rancho Seco action was a particularly nefarious one that we all were very dismayed about when that was simply put in place. But that's past history.

I think that it would be useful to try to convey maybe what it is that we are concerned about and what we're not concerned about with respect to capacity factory type of incentives. There are other issues, such as the use of SALPs and then other state initiatives of various kinds, and it seems to me we ought to sort those out, not try to mull them all together. They are different and they have different impacts in different directions, and I would say that we shouldn't just try to mix those all up in terms of state incentives. There's a lot going on out there and I don't think we should mix them all up into one muddle, but try to look at each of them separately and try and analyze them.

And I know that you are focusing here on the, essentially, capacity factor type of programs,

and there I would say -- I would think that we ought to be able to make some reasonable policy -- simple policy statements about these programs that could be a useful guide.

CHAIRMAN CARR: Commissioner Curtiss?

COMMISSIONER CURTISS: Let me just pursue two or three lines of questions to make sure I understand what you're telling us, and I will cover the BECO arrangement and the SALPs, of course, because it's addressed in the SECY paper.

Let me ask just a mechanical question. How is it that we know ahead of time with an arrangement that involves two parties, the licensee and the PUC, about the existence of that arrangement or the approach that's being talked about. You've flagged a couple that we've written ahead of time where we, in the case of the letter to Ann Meade, identified the concerns with the New York arrangement, and one other I guess that we knew about. The BECO arrangement seemed to me to be one that we found out after the fact about.

MR. TAYLOR: That's right.

COMMISSIONER CURTISS: It popped up. And it was clear that considerable work went into that. I want to come back to the question of whether we

have identified components, either in the incentive arrangement or in the SALP area, that would render an agreement facially troublesome, regardless of how it's implemented, and the factors, Frank, that you addressed in terms of the context of implementation.

But just a mechanical question. The staff in, I guess, one of earlier SECY papers -- see if I can find it -- back in '85, indicated that it was working on a tracking mechanism that would permit you to identify these arrangements when they're first proposed. Is there -- do we have that capability today, when we contact the PUCs? Do we learn about it after the fact and then adjust our thinking accordingly, or do we know ahead of time what's going on?

MR. NASH: As I indicated, we were concerned at that time about the rapid changes in these. As a matter of fact, we had a tracking plan in place. It was an on-line computer system, and it got to be very expensive and we decided that it really wasn't useful to continue that. And so we don't have an on-line tracking system in mind or in place now.

COMMISSIONER CURTISS: How do we find out, just through the grapevine of the utilities?

DOCTOR MURLEY: Well, I'll give one example on the New York case. And then this gets back to-- I think it's probably a good idea. The staff hosted meetings, regional meetings with public utility commission people. It started in Region III. Jim Kepler did it, I think, in about 1984 or '85, something like that.

And I hosted one up in King of Prussia in early 1987, and Commissioner Asselstine came up at the time. Peter Bradford came from New York, and the commissioner from New York who was proposing that. And we had a big open discussion, an all-day discussion. INPO came up. And the woman from New York, who was proposing it, made it a public proposal, and we had a long discussion about it. I was quite vocal about the fact I didn't think it was a good idea.

But there were several similar kinds of proposals being discussed at meetings like that, and they were being thrown out as possible candidates. So in cases like that where -- I guess I would -- I thought it was a good session, a good meeting. I would encourage similar kinds of sessions with public utility commission people.

Sometimes the utility themselves will tell

us ahead of time the kind of thing that they're negotiating, the broad terms, not the details necessarily, but in broad terms. I think, for example, I was briefed on the Diablo Canyon incentive generally. And they frequently run things by us to be sure that we don't have any fundamental safety problems with the approach. So that's how we find out generally.

COMMISSIONER CURTISS: Okay.

DOCTOR MURLEY: But we don't know all of them, by a long shot.

COMMISSIONER CURTISS: It does seem to me that the first step in the direction of transmitting or conveying any thoughts that we might have -- and I want to get into that in a minute -- on these agreements is to ensure that we are informed early enough so that if we have concerns of a particular nature we can communicate those for the participants at a point where the outcome can be influenced, if we do have a concern. I look at the --

Go ahead, Tom.

COMMISSIONER ROBERTS: That raises a question. What obligation, if any, do PUCs have to consult with us?

COMMISSIONER CURTISS: Well, I don't think

they do.

COMMISSIONER ROBERTS: I think that's the whole point.

CHAIRMAN CARR: Counselor?

MR. PARLER: We would direct our need for information to the utilities. You don't need any expensive on-line system or worry about the problem if you deal with the utilities and tell them you need certain kinds of information such as this.

COMMISSIONER CURTISS: It seems to me the most desirable --

CHAIRMAN CARR: There are two different kinds of things we're talking about. The agreements, it's all right. We could get the utilities to tell us about agreements they might be entering into. That's one case. But the case where the PUC just says this is what we're going to allow and what we're not going to allow, that's not an agreement, I don't think.

COMMISSIONER CURTISS: Where that's the case with Nine Mile, I guess, with the construction cap, and that's one of the ones that they've discussed here.

What I'm, I guess, encouraging is that, rather than some sort of legal mechanism that we

would have to resort to, it does seem to me that this is an area where fruitful cooperation -- the kind of thing that Tom talked about in terms of extending ourselves, both with NARUC and the individual PUCs, get to know them and they can get to know us -- it does strike me that there's some need for at least additional informal communication so that we can expand the grapevine, if you will, in a more effective way. I'm not sure what we do if we just find that that's insufficient to communicate the information.

But it does seem to me, as I look at the discussion here over the last four or five years and the problems or the concerns that have been identified in the cases that we've talked about here that are problematic, Arkansas and Diablo and BECO, what the staff I think is proposing is to monitor those situations to ensure that the implementation of the agreement doesn't lead to safety problems.

Let me ask you, not on those three in particular, but are there any agreements that have been entered into that, if we had known ahead of time, we would have objected to? For example, the concerns that have been identified of a generic nature on the use of SALPs lead me to conclude that

the staff has three concerns with the use of SALP scores in these arrangements.

MR. TAYLOR: I think I would have taken exception to the BECO agreement. They use performance indicators, which are in direct relationship to safety performance and could be a basis for somebody making an incorrect decision, which you alluded to. We were not consulted.

COMMISSIONER CURTISS: If there are cases like that -- it does seem to me that the discussion of the SALP issue is maybe an example of that, where we've got generic concerns, but we've got a specific agreement that uses that approach that's already on the books. We learned about it after the ink was dry.

If there are arrangements like that, perhaps they lend themselves to discussion in some kind of communication, whether it's a formal policy statement or the informal interaction that we've talked about here, to convey the three points that are discussed in the NUREG or the SECY paper in more detail to the individual commissions, so that they at least know ahead of time what our concerns are in those areas.

I'm not sure, in looking at the other

agreements, that I can identify specific issues that, outside of the implementation of the agreement, I would say raise objections just on the face of the agreement before it's even implemented, outside of the context of the kinds of concerns that Frank discussed.

But I can say that, in looking back, I think I hear the staff saying that there have been arrangements that after the fact have been troublesome for us. The Nine Mile construction cap arrangement is one. The BECO arrangement in the use of SALPs raises a different aspect of that. The Rancho Seco referendum or the 50 percent target, those kinds of things it seems to me are useful to identify an early stage, and maybe with a greater degree of informal interaction with the PUCs somehow communicate rather than respond in an ad hoc way as these crop up, and in some cases when they've already been signed.

I guess that's all I have.

COMMISSIONER REMICK: I certainly agree with what Commissioner Rogers has said today. I share the concern that the SECY paper gives the signal that we don't see the potential for a problem, and I personally feel there is a potential for a

problem. I understand you're saying you don't see the evidence of a problem currently, but it gives you the impression I think that the potential is not there.

I also personally feel that it is a misuse of SALP and performance indicators. And the idea of a policy statement to try to lay some of these out, I think, would be worthy of a try, at least.

CHAIRMAN CARR: Okay.

Well, I'd like to thank the staff for the informative briefing. The potential financial impact of this kind of economic incentive regulation appears so great in some cases that it becomes extremely important for the staff to continue monitoring the licensees for those effects.

I urge the staff to remain cognizant of new agreements of this kind, changes to existing agreements, and significant penalties which may have resulted from such agreements. We must be ready to exercise whatever options may be necessary to ensure that economic incentive programs do not adversely affect public health and safety.

Any of my fellow Commissioners have any other comments?

Thanks.

We stand adjourned.

(Whereupon, at 3:00 p.m., the above-entitled matter was adjourned.)

CERTIFICATE OF TRANSCRIBER

This is to certify that the attached events of a meeting of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON ECONOMIC INCENTIVE REGULATION OF NUCLEAR POWER PLANTS

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: APRIL 3, 1990

were transcribed by me. I further certify that said transcription is accurate and complete, to the best of my ability, and that the transcript is a true and accurate record of the foregoing events.

Carol Lynch

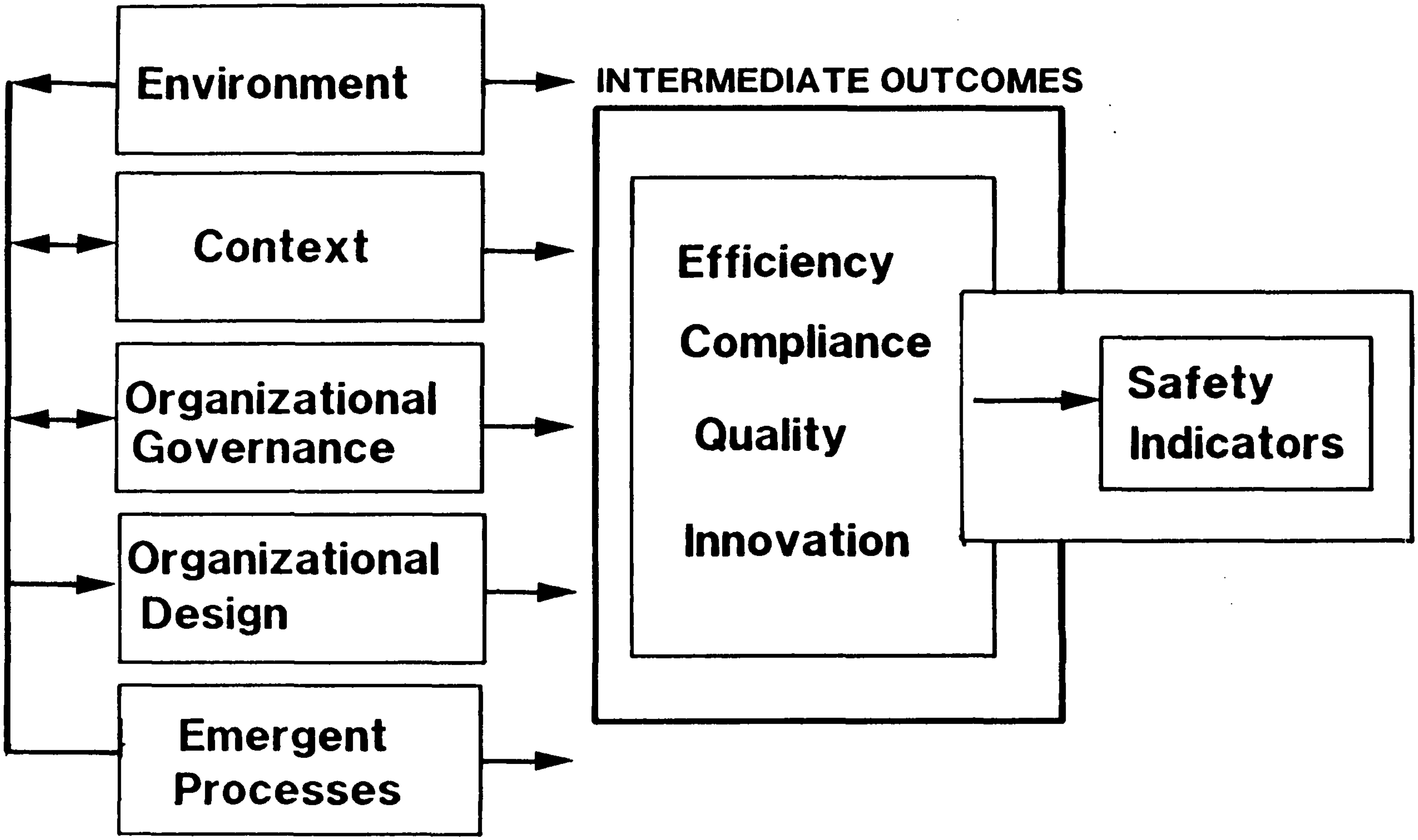
Reporter's name: Peter Lynch

ECONOMIC INCENTIVE REGULATION OF NUCLEAR POWER PLANTS

APRIL 3, 1990

FRANK GILLESPIE
MARTY VIRGILIO

Contact: Darrel Nash
Phone: 492-1256



FRAMEWORK FOR LINKING ORGANIZATIONAL FACTORS WITH SAFETY

SLIDE II

THE FINANCIAL SITUATION OF
UTILITIES IS AFFECTED BY
MANY FACTORS

STAFF MAINTAINS CONTACT WITH PUC'S AND AFFECTED UTILITIES IN ORDER TO OBTAIN UPDATED INFORMATION AND TO CONSIDER POTENTIAL SAFETY EFFECTS OF THE INCENTIVES

SLIDE III

TYPES OF INCENTIVE PROGRAMS

A) INCENTIVES BASED ON CONSTRUCTION DISALLOWANCES

B) INCENTIVES BASED ON VARIOUS MEASURES OF FUEL EFFICIENCY

C) INCENTIVES BASED ON SALP -- ONLY ONE CASE

D) INCENTIVES BASED ON SALES OF ELECTRICITY -- ONLY ONE CASE

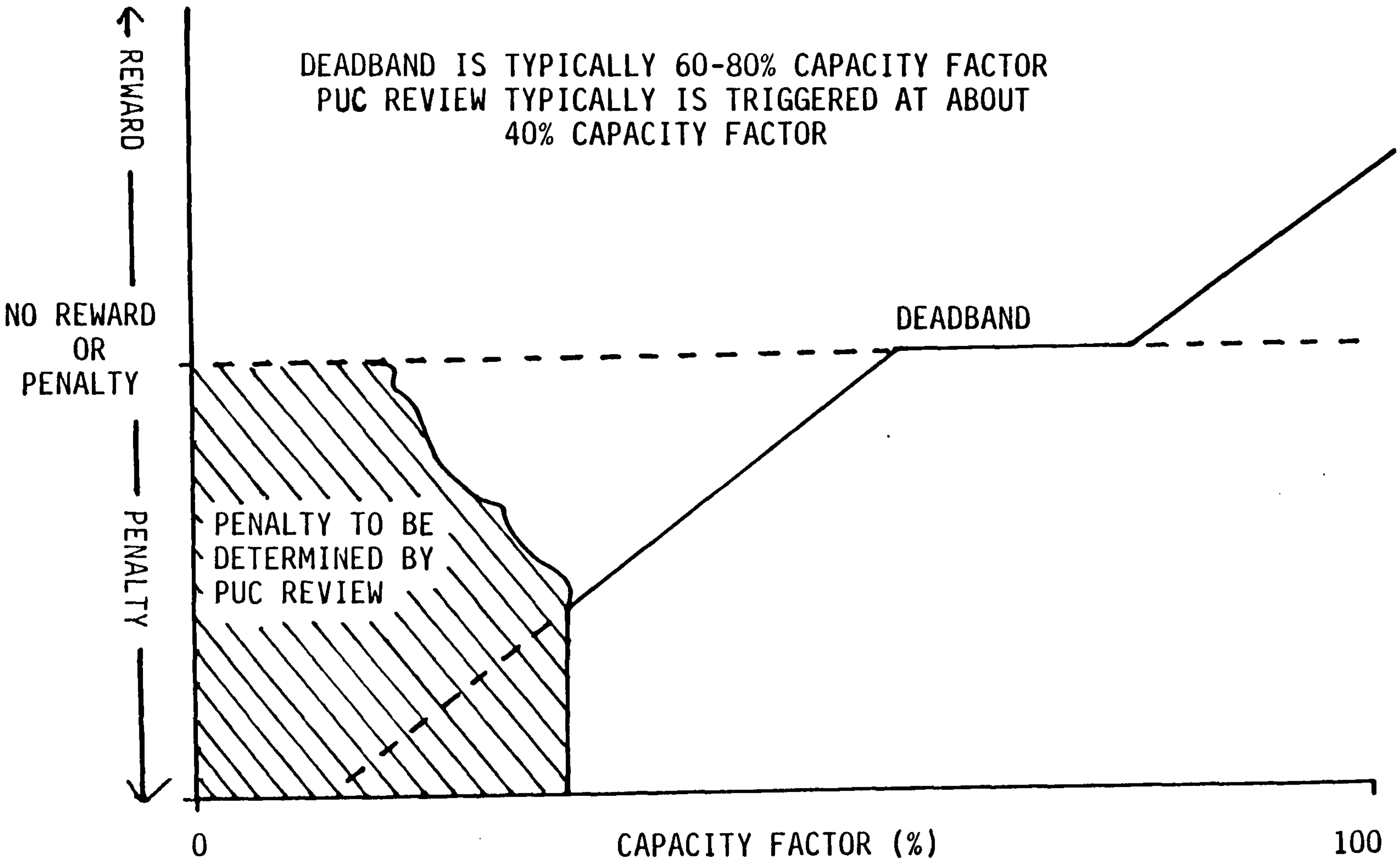
E) REWARDS OR PENALTIES GIVEN FOR CAPACITY FACTORS FALLING OUTSIDE A CERTAIN ACCEPTABLE ZONE (DEADBAND)

F) A SUBSET OF E WITH AN INDETERMINATE LEVEL OF PENALTY AND THEREFORE POTENTIALLY LARGE

G) REWARDS OR PENALTIES FOR CAPACITY FACTORS WITH SHARP CUTOFF CRITERIA

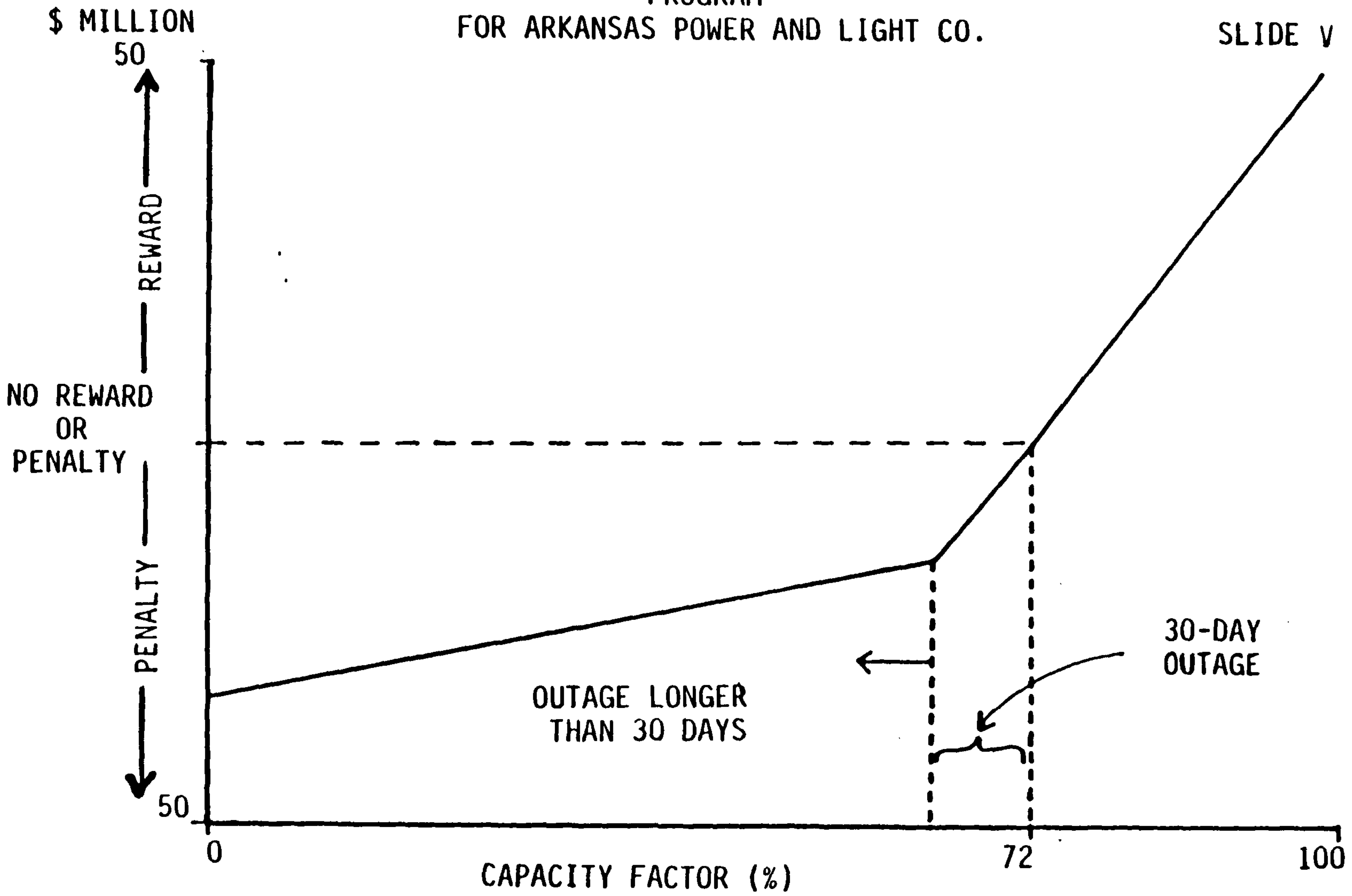
CONCEPTUAL PERFORMANCE INCENTIVE PROGRAMS
BASED ON CAPACITY FACTORS

SLIDE IV



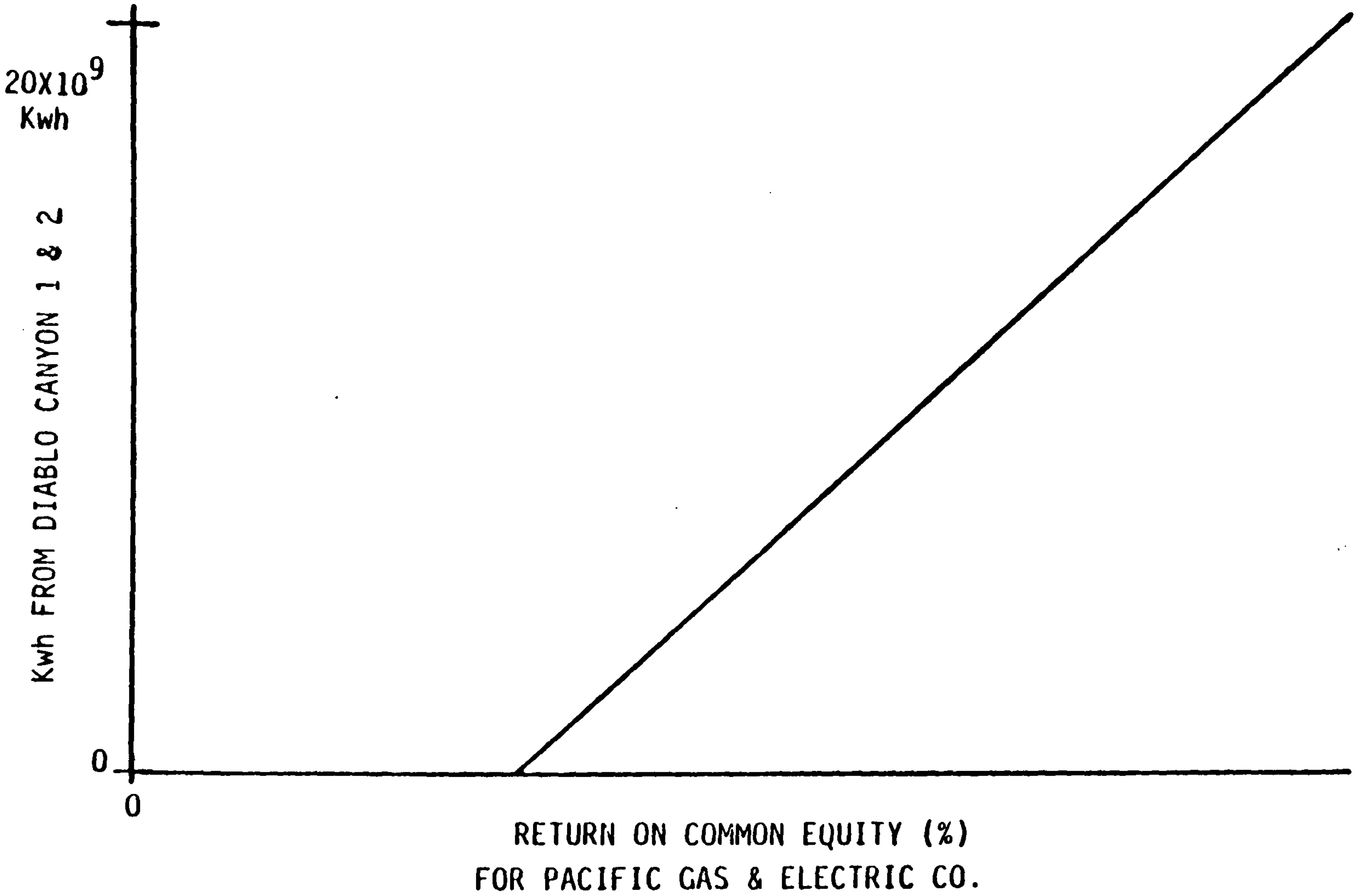
PERFORMANCE INCENTIVE
PROGRAM
FOR ARKANSAS POWER AND LIGHT CO.

SLIDE V



PERFORMANCE INCENTIVE
BASED
ON KWH FROM
DIABLO CANYON 1 AND 2

SLIDE VI



SLIDE VII

<u>FOR PILGRIM</u>

1. INCREASES IN <u>PERFORMANCE ADJUSTMENT FACTOR</u> FOR 1990, 1991 & 1992

2. SALP-BASED: $0.5X10^6 REWARD OR PENALTY FOR EACH 0.1 POINT THAT AVERAGE SALP SCORE FALLS OUTSIDE 1.6 TO 1.8

3. FOR FIVE PERFORMANCE INDICATORS: FORMULAS FOR REWARDS AND PENALTIES OUTSIDE TARGET RANGES

SLIDE VIII

FINANCIAL TERMS

RETURN ON COMMON EQUITY:

THE AMOUNT OF ANNUAL EARNINGS AVAILABLE TO COMMON STOCKHOLDERS AS A PERCENTAGE OF THE COMMON NET WORTH OF A COMPANY.

NET CASH FLOW:

THE CASH GENERATED FROM OPERATIONS AFTER CASH EXPENSES AND DIVIDENDS ARE PAID. NON-CASH EXPENSES SUCH AS DEPRECIATION CONTRIBUTE TO CASH FLOW. AN INTEREST COVERAGE RATIO BELOW 2.0 GENERALLY INDICATES POTENTIAL FINANCIAL PROBLEMS.

INTEREST COVERAGE:

A RATIO OF THE INTEREST ON LONG-TERM DEBT PLUS PRE-TAX INCOME DIVIDED BY THE INTEREST ON LONG-TERM DEBT.

SLIDE IX

EXAMPLE 1

PLANT: PALISADES

OWNER/LICENSEE: CONSUMERS POWER COMPANY

FINANCIAL IMPACT	NO PENALTY	PENALTY WITH RECENT CAPACITY FACTOR	PENALTY AT HISTORICAL CAPACITY FACTOR	MAXIMUM PENALTY
PENALTY ($ MILLION)	0	0	40	120
RETURN ON COMMON EQUITY (%)	16.4	16.4	14.9	11.8
INTEREST COVERAGE	2.39X	2.39X	2.27X	2.03X
NET CASH FLOW	827.0	8.27.0	799.7	744.8

SLIDE X

EXAMPLE 2

PLANTS: OYSTER CREEK, TMI 1

OWNER/LICENSEE: JERSEY CENTRAL POWER & LIGHT COMPANY

FINANCIAL IMPACT	NO PENALTY	PENALTY WITH RECENT CAPACITY FACTOR	PENALTY AT HISTORICAL CAPACITY FACTOR	MAXIMUM PENALTY
PENALTY ($ MILLION)	0	110	0	140
RETURN ON COMMON EQUITY (%)	14.3	6.7	14.3	4.6
INTEREST COVERAGE	4.34X	2.69X	4.34	2.24X
NET CASH FLOW	160.8	88.6	160.8	68.8

SLIDE XI

EXAMPLE 3

PLANTS: NINE MILE POINT 1 & 2

OWNER/LICENSEE: NIAGARA MOHAWK POWER CORPORATION

FINANCIAL IMPACT	NO PENALTY	PENALTY WITH RECENT CAPACITY FACTOR	PENALTY AT HISTORICAL CAPACITY FACTOR	MAXIMUM PENALTY
PENALTY ($ MILLION)	0	140	40	220
RETURN ON COMMON EQUITY (%)	8.4	2.7	6.8	-.006
INTEREST COVERAGE	2.02X	1.49X	1.86	.95
NET CASH FLOW	291.0	182.3	259.9	118.2

SLIDE XII

LICENSEES WHO WOULD EXPERIENCE HIGH IMPACT IF MAXIMUM PENALTIES APPLIED

NIAGARA MOHAWK POWER CORP.
CLEVELAND ELECTRIC ILLUMINATING CO.
TOLEDO EDISON CO.
BOSTON EDISON CO.

LICENSEES WHO WOULD EXPERIENCE MODERATE IMPACT IF MAXIMUM PENALTIES APPLIED

PUBLIC SERVICE ELECTRIC & GAS CO.
BALTIMORE GAS & ELECTRIC CO.
JERSEY CENTRAL POWER AND LIGHT CO.

SLIDE XIII

PRINCIPAL MEANS OF ASSURING SAFE PLANT OPERATIONS

REGULATIONS

INSPECTION PROGRAM

PERFORMANCE INDICATORS

SYSTEMATIC ANALYSIS OF LICENSEE PERFORMANCE (SALP)

MANAGEMENT REVIEWS

OTHER REVIEWS AND MONITORING

PERIODIC UPDATE OF PUC
INCENTIVE PROGRAMS

INDEPTH ANALYSIS OF LICENSEES
EXPERIENCING SEVERE
FINANCIAL STRESS

POLICY ISSUE
(Information)

February 13, 1990 SECY-90-046

For: The Commissioners

From: James M. Taylor
Executive Director for Operations

Subject: ECONOMIC INCENTIVE REGULATION OF NUCLEAR POWER PLANTS

Purpose: To report to the Commission on the analysis of economic performance incentive plans, in response to Item b. of Staff Requirements Memorandum M8900106 (SRM) based on the Commission briefing of June 1, 1989.

Summary: In response to the Commission's request, the staff updated the survey of State performance incentive programs and evaluated the potential effects. Although the staff has done no detailed safety impact of performance incentive programs, the staff believes these programs have little effect. The NRC can manage any potential safety concerns that may be posed by implementing performance incentive programs by current regulatory practices and policies and by monitoring, with existing resources, those reactors for which the potential to incur large penalties exists. A few of the performance incentives programs could have significant financial impacts on licensees if large penalties allowed by these programs are actually imposed. The staff believes any reduction in safety priority that may result from reduced funds for operating and maintaining plants would occur gradually over time as licensees respond to the imposition of penalties. The staff will periodically update the report to reflect changes in programs and imposition of significant penalties or rewards.

The staff has identified a number of options available to the Commission for dealing with potential impacts of incentive programs on reactor safety. However, based on our assessment of the low potential impact on safety of the existing programs, no Commission action is recommended at this time.

Background: A number of State regulatory commissions have established economic performance incentive programs relating to electric power plants. Some programs have existed for a number of years,

CONTACT:
Darrel A. Nash, NRR
492-1256

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whereas others have been substantially modified or are newly established. NRC monitors the provisions of these incentive programs to ensure that they do not create incentives for reactor licensees to change operating or maintenance practices in such a way that safety is diminished. The most common incentive program is one in which rewards, in terms of additional revenue allowances, are given if certain capacity factor goals are exceeded, or penalties, in terms of lower revenue allowances, are imposed if these capacity factor goals are not achieved.

The staff informed the Commission in SECY-85-260 of its efforts to (1) track nuclear power plant performance incentives established by State regulatory commissions, (2) develop a data base of these incentives, (3) evaluate possible safety impacts of incentive programs, and (4) provide periodic reports of its findings. The NRC distributed a few informal reports on State performance incentive programs and, in December 1987, issued Vol. 1 of NUREG-1256 "Incentive Regulation of Nuclear Power Plants by State Public Utility Commissions." On April 28, 1988, the Executive Director for Operations sent a memorandum to the Chairman describing the incentive programs and discussing those characteristics of the programs that the staff considered to have a positive or negative impact on public health and safety. The Commission briefly discussed performance incentives at the Commission meeting on June 1, 1989, for the periodic briefing on operating reactors and fuel facilities. As a result, the Commission requested that the staff provide the following:

1. an update of NUREG-1256
2. a description of types of incentive plans
3. an assessment of potential financial impacts, including any health and safety concerns
4. a discussion of options for Commission response to such arrangements

This paper responds to that request.

Discussion: The staff completed the latest update of plant-by-plant incentive programs that are in place or are being considered. This update, NUREG/CR-5509, "Incentive Regulation of Nuclear Power Plants by State Public Utility Commissions," is enclosed (Enclosure 1). It covers the first two items of the SRM request. We found that performance incentives established by State utility regulatory commissions are applicable to the construction or operation of 73 nuclear power reactors owned by 27 utilities in 18 states. NUREG/CR 5509 describes how specific nuclear power plant performance incentive programs operate and

provides background information for use in evaluating the possible safety implications of the programs. We did not comprehensively survey information about the imposition of penalties by previous implementation of these incentive programs.

The staff believes that the majority of these programs would have an insignificant impact on the safe operation of reactors because of the small scale of the rewards or penalties in relation to the financial size of the utility. The staff, therefore, restricted further analysis to those reactors that were subject to programs that could result in a significant impact on a utility's financial status.

Even for these cases, the staff considers the influence of the incentive plans on reactor safety to be small. We consider the influence to be small because all utilities owning or operating nuclear power plants are required by the Atomic Energy Act, to comply with NRC regulations and requirements regardless of whether incentive programs exist. Nevertheless, economic regulation and, specifically, performance incentive programs have the potential to indirectly influence a licensee's approach to reactor safety. The impact of the programs on safety is not measurable. Clearly, to attempt to measure their impact would be an attempt to distinguish an influence in decisionmaking whose point of departure is the level of integrity of utility executives in carrying out their responsibilities to comply with NRC requirements. NRC regulations, together with license requirements, specify an acceptable safety design and acceptable operational conditions. Furthermore, NRC, through its licensing and inspection activities, verifies that licensees are adhering to safe practices.

From the review performed for NUREG/CR-5509, the staff found that programs for 20 reactors wholly or partly owned by 10 licensees have a potentially significant financial impact (see Enclosure 2). The majority of these programs have provisions for open-ended penalties, so that if reactor capacity factors fall below a certain level, the State commission will "review the situation." For these programs, the staff performed a detailed financial impact analysis of the imposition of maximum penalties possible and the penalties that could have been imposed based on the operating history of the reactors. We assumed the maximum penalty to be a total disallowance of replacement power fuel costs if the reactor were shut down for a year because annual financial impact data are more meaningful.

Three additional programs of particular concern are discussed in more detail in Enclosure 2. First, for Arkansas Nuclear One, there is a sharp "cutoff" on the capacity factor measure (no deadband). This "cutoff" could provide an incentive for the utility to "stretch" operation to achieve the precise target capacity factor.

The second case is Diablo Canyon, where the program is structured so that the utility must generate profits strictly based on electricity sales. This program was just recently instituted and the possible affect on plant operation is thus uncertain.

Lastly, the Massachusetts Department of Public Utilities recently adopted a new kind of incentive program for Pilgrim. This program ties economic rewards and penalties to systematic assessment of licensee performance (SALP) scores and five performance indicators in addition to the capacity factor. These performance indicators are (1) automatic scrams while critical (2) safety system failures, and (3) safety system actuations, all of which are obtained from NRC, and two indicators available from INPO, (1) the collective radiation exposure compared to all boiling water reactors, and (2) maintenance backlog greater than two months old. The rewards and penalties are clearly bounded and are at such a level that the licensee, Boston Edison, probably will not have a great financial incentive to reduce attention to safety to achieve target performance levels. The staff concern is that concentrating on SALP and performance indicators directs utility attention to manipulating the scores themselves rather than to the underlying factors.

The staff does not expect an immediate impact on the safe operation of the affected reactors from any of these programs. Any reduction in safety priority would occur gradually in response to financial problems. NRC's inspection program is sufficient to detect degradation in operations before significant safety problems develop.

Finally, in response to the SRM, the staff has considered options available to the Commission if performance incentives pose health and safety concerns. Two general kinds of options (Enclosure 3) are available and each can be used if a situation warrants. The first option includes direct communications with the State regulatory commission and the licensee, enhanced inspections, assertion of Federal preemption of nuclear safety regulation, and plant shutdowns. The second option available to NRC is to change programs that NRC controls to eliminate their misuse, such as the SALP program.

Conclusions: The influence of State incentive performance programs on safe operation of nuclear reactors is considered to be small. The staff recognizes that performance incentives change from time to time. The staff will remain abreast of these changes by contacts with State regulatory commissions and by formally updating the report of these programs every 12 to 18 months. While options are available to the Commission for responding to incentive programs, the staff believes no action beyond updating of the report is necessary at this time.

Coordination: This paper has been reviewed by the Office of the General Counsel and it has no legal objection to it.

James M. Taylor
Executive Director
for Operations

Enclosures:
1. NUREG/CR-5509 - Commissioners, SECY & OGC only.
2. Summary of Possible Impacts of Economic Performance Incentive Programs on Safety Concerns
3. Options Available to the Commission where Performance Incentive Programs Pose Potential Health and Safety Concerns

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ENCLOSURE 1

NUREG/CR-5509
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Incentive Regulation of Nuclear Power Plants by State Public Utility Commissions

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Prepared by
R. L. Martin, Battelle Human Affairs Research Centers
P. Hendrickson, Pacific Northwest Laboratory
J. Olson, Battelle Human Affairs Research Centers

Pacific Northwest Laboratory
Richland, WA 99352

Battelle Human Affairs Research Centers
Seattle, WA 98105

Prepared for
Program Management, Policy Development, and Analysis Staff
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555
NRC FIN L1236

ENCLOSURE 2

SUMMARY OF POSSIBLE FINANCIAL IMPACTS OF ECONOMIC PERFORMANCE INCENTIVE PROGRAMS WHICH HAVE A POTENTIAL FOR SAFETY CONCERNS

A staff review of the recent survey of performance incentive plans imposed on reactor licensees by State regulatory commissions found that the provisions of some plans were structured or contained uncertainties such that financial stress on licensees and perhaps adverse impact on the safe operation of plants were possible. The licensees subject to these plans were selected for more in-depth review of possible adverse impacts on their plants. The following data describe those licensee-owners of nuclear power plants that appear to be subject to significant economic penalties as a result of performance incentive plans.

Most of the plans that are cause for concern provide for the facility to attain a certain capacity factor. If performance falls below this level over a specified time, usually a year, then the Commission disallows cost recovery--usually some or all of the additional cost of replacement energy fuel. Many plans specify maximum penalties, even for very poor plant performance. However, for most of the plans evaluated below, there is no maximum penalty specifically provided. Therefore, this evaluation assumes a maximum possible penalty of 1 full year of additional replacement fuel costs if the reactor does not operate at all.

The impact is calculated on the basis of the percentage ownership of each licensee at three assumed capacity factors: (1) current performance (January to July of 1989), (2) cumulative performance, for the operating life of the reactor through July 1989, and (3) zero capacity factor, assuming the reactor does not operate at all for the year.

Hypothetical financial impacts are shown for each capacity factor assumption and the resulting penalty. The impacts are measured by typical financial indicators used by the utilities and investors for corporate decisions and for assessing the current investment attractiveness of the utility. Utilities have a strong incentive for each of these measures to be in a favorable range. These measures are (1) the return on common equity, (2) net cash flow, and (3) interest coverage.

Return on common equity refers to the amount of annual earnings available to common stockholders as a percentage of the common net worth of the company. Net cash flow refers to the cash generated from operations after cash expenses and dividends are paid. Non-cash expenses, such as depreciation, contribute to cash flow. Interest coverage is interest on long-term debt, plus income before payment of taxes, divided by interest on long-term debt. An interest coverage of 2.0 is generally considered marginally acceptable in the electric utility industry for the issuance of bonds for new construction. In the tables below, an interest coverage of 2.0 would be designated 2.0x (in keeping with common practice).

In addition to these plans that are based on cost disallowances, three other plans are included below because of particular features. The plan for Arkansas Nuclear One causes concern because there is no flexibility in rewards or penalties based on the capacity factor. At a precise value (different for each plant), the program can change from reward to penalty. This provision provides an incentive to concentrate on precise capacity factor performance rather than totally on safety matters during operation.

Described next is the incentive plan for Pilgrim. This plan provides rewards and penalties for capacity factor, outside a deadband, as well as for performance on SALP scores and performance indicators. As with the Arkansas plan, there is no flexibility in rewards or penalties related to capacity factor. The plan does not seem to provide any particular incentive that would lead to unsafe operation. The NRC should, however, monitor how this plan is implemented to determine if it is causing unwarranted attention to the SALP scores and performance indicators, thus diverting attention from the safety performance of the facility.

Finally, the incentive plan for Diablo Canyon calls for the utility to earn its profits strictly as a function of its generation of electricity. It is quite uncertain how strongly this objective will pressure the licensee to keep the plant operating despite safety considerations that would indicate a change in operations. An increased monitoring of this facility seems warranted to view how the incentive plan is being applied.

In the presentation below, where the plan specifies "industry target" or a similar basis, a capacity factor of 60 percent is assumed, unless specified otherwise. Costs of replacement fuel are estimates for the period of the spring quarter of 1990 to the winter quarter of 1990-91 taken from NUREG/CR-4012, "Replacement Energy Costs for Nuclear Electricity-Generating Units in the United States: 1987-1991." Financial calculations are based on 1988 data from Moody's Utility Manual, the most recent generally available. Data in the "No Penalty" columns below show actual 1988 company performance. Succeeding columns show what the performance would have been if the specified penalties had been imposed. Numerical values in parentheses indicate negative values. In the following tables, "1989cf" refers to the capacity factor for the period January to July 1989. The term "cum.cf" refers to the plant capacity factor for the operating period of the reactor through July 1989.

LICENSEES LIKELY TO BE SUBJECT TO SIGNIFICANT PENALTIES

Plant--Palisades

Owner - Consumers Power Co.

State Regulatory Commission - Michigan Public Service Commission

Provisions - If the capacity factor falls below ~~60~~ percent, the facility is subject to a staff review. The Palisades capacity factor has been below 60 percent in most years. A capacity factor below the target can result in disallowance of replacement power costs.

Capacity Factor for 1989 (January-July) - 65%

Cumulative Capacity Factor - 40%

Impact of Penalties on Consumers Power if Unit Operates at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	0	40	120
Return on Common Equity (%)	16.4	16.4	14.9	11.8
Interest Coverage	2.39x	2.39x	2.27x	2.03x
Net Cash Flow ($ million)	827.0	827.0	799.7	744.8

Plant - Nine Mile Point, Units 1 and 2

Owners Subject to Incentives - Niagara Mohawk Power Corp., Unit 1 100%
Niagara Mohawk Power Corp., Unit 2 41%

State Regulatory Commission - New York Public Service Commission

Provisions - First, fuel cost recovery depends on a sliding scale of any month's variation in the performance compared to the targeted fuel cost. This cost recovery is limited to $15 million to the utility. Second, the utility must absorb 20 percent of revenue shortfall if the targeted sales for resale are not attained. Further, the utility is subject to prudency proceedings for extended outages. Annual replacement power cost is about $350 million for both units.

Capacity Factor for 1989 (January-July) - Unit 1 zero
Unit 2 46%

Cumulative Capacity Factor - Unit 1 56%
Unit 2 40%

Impact of Penalties on Niagara Mohawk if Units Operate at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	140	40	220
Return on Common Equity (%)	8.4	2.7	6.8	(.006)
Interest Coverage	2.02x	1.49x	1.86x	.95x
Net Cash Flow ($ million)	291.0	182.3	259.9	118.2

Comment *Incentive program is said to be limited; however, replacement fuel costs were disallowed for a 6-month period in 1989 and recovery of operation and maintenance costs for 1988 and 1989 were denied.

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Plants - Davis Besse, Perry, and Beaver Valley 2

Owners Subject to Incentive -

Davis Besse	CEI	51.3%
	Toledo Edison Co.	48.7%
Perry	CEI	31.0%
	Toledo Edison Co.	20.0%
Beaver Valley 2	CEI	24.0%
	Toledo Edison Co.	20.0%

CEI is Cleveland Electric Illuminating Co.

State Regulatory Commission - Ohio Public Utilities Commission

Provisions - If average availability factor does not meet industry average availability, replacement power costs will be disallowed. An industry average of 60 percent capacity factor is assumed. (This program will take effect in 1991.)

Capacity Factors for 1989 (January-July) -

Davis Besse	90%
Perry	21%
Beaver Valley 2	88%

Cumulative Capacity Factors

Davis Besse	41%
Perry	52%
Beaver Valley 2	71%

Impact of Penalties on CEI if All Units Operate at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	30	20	100
Return on Common Equity (%)	3.0	2.2	2.4	0.2
Interest Coverage	1.84x	1.71x	1.76x	1.40x
Net Cash Flow ($ million)	(13.8)	(28.8)	(23.80)	(64.0)

Impact of Penalties on Toledo Edison if All Units Operate at Indicated Capacity Factors

	No Penalty 1/	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	20	20	50
Return on Common Equity (%)	(16.0)	(17.3)	(17.3)	(19.2)
Interest Coverage	(0.34)x	(0.47)x	(0.47)x	(0.67)x
Net Cash Flow ($ million)	(93.5)	(105.0)	(105.0)	(122.2)

Plants - Salem Units 1 and 2
Hope Creek
Peach Bottom Units 2 and 3
Oyster Creek
TMI

Owners Subject to Incentives

Salem, Public Service Electric and Gas Co. (PSE&G)	42.5%
Hope Creek, PSE&G	95 %
Peach Bottom, PSE&G	42.5%
Oyster Creek, Jersey Central Power & Light Co. (JC)	100 %
TMI, (JC)	25 %

1/ Toledo Edison experienced financial losses in 1988, unrelated to penalties from the performance incentive program.

State Regulatory Commission - New Jersey Board of Public Utilities

Provisions - The Commission will disallow replacement power costs. Disallowances will be greater percentages for lower capacity factors. For capacity factors under 40 percent, a special review of the circumstances will be made.

Capacity Factor for 1989 (January-July) -

Salem Unit 1	48%
Salem Unit 2	79%
Peach Bottom Unit 2,	11%
Peach Bottom Unit 3,	zero
Hope Creek	87%
Oyster Creek	21%
TMI	102%

Cumulative Capacity Factor

Salem Unit 1	55%
Salem Unit 2,	53%
Peach Bottom Unit 2,	48%
Peach Bottom Unit 3,	50%
Hope Creek	79%
Oyster Creek	51%
TMI	[41%]

Impact of Penalties on PSE&G if Units Operate at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	140	10	470
Return on Common Equity (%)	13.8	11.8	13.6	4.0
Interest Coverage	3.37x	2.45x	3.34x	1.78x
Net Cash Flow ($ million)	483.1	377.4	477.5	123.3

Impact of Penalties on Jersey Central if Units Operate at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	110	0	140
Return on Common Equity (%)	14.3	6.7	14.3	4.6
Interest Coverage	4.34x	2.69x	4.34x	2.24x
Net Cash Flow ($ million)	160.8	88.6	160.8	68.8

Comment - Penalties depend on outcome of reviews. This provision makes sizable penalties possible.

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Plant - Calvert Cliffs

Owner - Baltimore Gas and Electric (BG&E)

State Regulatory Commission - Maryland Public Service Commission

Provisions - On the basis of subjective evaluation of the company's performance in implementing cost and maintenance measures, the Commission can deny recovery of replacement energy costs. Maximum penalties are unspecified in the program.

Capacity Factor for 1989 (January-July) - Unit 1 31%
Unit 2 34%

Cumulative Capacity Factor Unit 1 70%
Unit 2 76%

Impact of Penalties on BG&E if Units Operate at Indicated Capacity Factors

	No Penalty	Penalty at 1989cf	Penalty at cum.cf	MAXIMUM PENALTY
Penalty ($ million)	0	130	0	280
Return on Common Equity (%)	14.5	8.8	14.5	2.1
Interest Coverage	3.66x	2.70x	3.66x	1.60x
Net Cash Flow ($ million)	289.5	180.5	289.5	54.5

OTHER POTENTIAL PROBLEMS

Plant - Pilgrim

Owner - Boston Edison Co.

State Regulatory Commission - Massachusetts Department of Public Utilities

Provisions - Penalties and rewards are based on capacity factor, SALP scores, and five performance indicator targets.

Capacity Factor for 1989 - 10%

Cumulative Capacity Factor - 46%

Impact of Missing Capacity Factor Deadband and Maximum Penalty on Boston Edison

	No Penalty	Penalty for Missing Deadband by 5 Percentage Points	MAXIMUM PENALTY
Penalty ($ million)	0	5	69
Return on Common Equity (%)	9.5	9.0	2.4
Interest Coverage	2.37x	2.31x	1.53x
Net Cash Flow ($ million)	118.4	114.6	66.6

Comment - Plan appears to bound economic penalties. Concern involves relating incentives to safety indicator targets.

Plant - Arkansas Nuclear One Units 1 and 2

Owner - Arkansas Power and Light Co.

State Regulatory Commission - Arkansas Public Service Commission

Provisions - Sharp cutoff of capacity factor measure; no deadband. For Unit 1, capacity factor is 72.923 percent and for Unit 2 it is 71.55 percent. For outages other than refueling, penalty is 90 percent of replacement fuel costs for first 30 days of each year and 10 percent thereafter.

Capacity Factor for 1989 (January-July) -	Unit 1	39%
	Unit 2	76%
Cumulative Capacity Factor -	Unit 1	57%
	Unit 2	64%

Highest Possible Penalty - $30 million

Impact of Missing Capacity Factor Target and Maximum Penalty on Arkansas Power and Light

	No Penalty	Penalty for Missing Target by 5 Percentage Points	MAXIMUM PENALTY
Penalty ($ million)	0	9	30
Return on Common Equity (%)	10.7	10.0	8.2
Interest Coverage	2.29x	2.21x	2.04x
Net Cash Flow ($ million)	221.6	195.8	213.9

Comment - The concern is not about the size of the penalty but the lack of a deadband, thus providing additional incentive to stretch time of operation to achieve target capacity factor.

Plant - Diablo Canyon Units 1 and 2

Owner - Pacific Gas and Electric Co.

State Regulatory Commission - California Public Utility Commission

Provisions - Utility must generate profits strictly on electricity sales.

Capacity Factor for 1989 (January-July) - Unit 1 55%
Unit 2 63%

Cumulative Capacity Factor Unit 1 69%
Unit 2 67%

Highest Possible Penalty - Unknown

Comment - There is a large unknown factor regarding how the profit provisions may affect incentives for safe operation.

ENCLOSURE 3

OPTIONS AVAILABLE TO THE COMMISSION WHERE PERFORMANCE INCENTIVE PROGRAMS POSE POTENTIAL HEALTH AND SAFETY CONCERNS

The staff believes that the possible impact of the existing performance incentive programs on safety is low and that any safety concern can be effectively monitored through existing NRC programs. Therefore, we recommend no action at this time. If safety concerns should develop, either from implementing existing programs or new or modified programs, a number of options are available to the Commission. The particular circumstances would dictate which option would be appropriate. The available options and their appropriate uses follow. Most of these options have been used previously to deal with regulatory concerns. The available options include (1) communication with State regulatory commissions, (2) expression of NRC concerns through speeches, distribution of NUREG/CR-5509 (Enclosure 1), etc., (3) issuance of a Commission Policy Statement, (4) letters to licensees reminding them of their regulatory obligations, (5) enhanced inspections at affected facilities, (6) plant shutdowns, (7) investigation of whether any Federal preemption issues exist, (8) elimination of numerical SALP ratings, and (9) elimination of the SALP program. Except for the SALP issues, a discussion of each of these options follows. A separate Commission Paper on the SALP program is being prepared.

LETTERS TO OR DIRECT PERSONAL PERSUASION WITH STATE REGULATORY COMMISSIONS

State regulatory commissions operate under State laws, independent of Federal and, in particular, NRC oversight. Each agency has its own mandates. Except for Federal preemption of nuclear safety regulation, covered separately below, NRC has no control over policies adopted by these commissions. Nevertheless, State commissions do at times adopt policies or programs, the incentive program being one example, where nuclear regulatory concerns arise.

A letter or personal persuasion may be useful as an initial step to urge reconsideration of provisions of incentive plans that the NRC finds may raise a safety concern or may interfere with the performance of NRC programs. This was the approach taken in 1987 when the Chairman sent a letter to the New York State Public Utilities Commission urging that they not adopt a plan using SALP scores and rewards for individual employees for good performance.

This approach should be taken only after specific safety concerns have been identified and solutions developed. Such letters should deal specifically with the regulatory or the safety concern and the suggested NRC solution, for example, modify or delete the provisions causing concern.

PUBLICIZING OF NRC CONCERNS

NRC can publicize concerns in a number of ways; two possibilities are public speeches and distribution of documents such as NUREG/CR-5509 to the State regulatory commissions. There have been a number of speeches by staff and Commissioners since the inception of State incentive programs in the early 1980's. This approach is more effective before plans are adopted so that NRC concerns are taken into account and differences avoided. The recent adoption of the Massachusetts plan was a case in which there was apparently no regard for the earlier concerns communicated by NRC to the State of New York. These speeches and NUREG-1256, Vol. 1, were available to the Massachusetts Department of Public Utilities staff and to the negotiators who developed the plan.

ISSUANCE OF A POLICY STATEMENT

The Commission could issue a policy statement that reaffirmed the primary responsibilities of licensees to operate reactors safely, regardless of pressures or incentives of any kind from other regulatory agencies. A policy statement could be worded as follows. "The Commission's policy is that safety must be the highest priority consideration in the operation of nuclear power plants. While we do not believe there need be an inherent conflict between economics and safety, it is possible that poorly constructed performance incentives could adversely affect safety if they were allowed to cause undue pressure on utility management or plant employees to place financial goals or job security ahead of safety considerations. In a situation where it is judged that performance incentives are so poorly formulated that they could adversely affect safety, the Commission will take whatever action it believes necessary to ensure that the plant is operated safely."

LETTERS TO LICENSEES

NRR can at any time send letters to licensees reminding them of their obligation to fulfill all the regulatory requirements and that requirements of State regulatory commissions, such as found in performance incentive plans, do not relieve them of any NRC requirements or commitments. Such letters most likely would be used after an incentive plan was in place and the NRC had reason to believe that the application of an incentive plan could pressure a licensee to operate the reactor in an unsafe manner. Similar actions have been taken on a number of occasions, not because of incentive plan concerns but for other issues. For example, in a case in which the State regulatory commission had imposed severe financial conditions on the licensee such that it appeared that capabilities for continued safe operation were strained, the staff of NRR requested and received a commitment in writing from the licensee that the current financial situation will not impact the safe operation of the reactor. (Letter from W. J. Cahill, Gulf States Utilities Company to Harold R. Denton, July 29, 1986.)

ENHANCED INSPECTIONS

Enhanced inspections could be initiated at any time; however, they most likely would be used if NRC determined that communications to the licensee as described above had not relieved NRC's concerns. The inspections would be used to determine whether the licensee was continuing to operate the plant safely and whether any enforcement actions should be taken, up to and including ordering plant shutdowns.

ORDER PLANT SHUTDOWN

The NRC has the ultimate authority to order a reactor to be shut down, if it concludes that continued operation is unsafe. This drastic action has been used sparingly, and would most likely not be used to resolve a performance incentive

plan concern. Even though NRC cannot direct the actions of State commissions, it can order a plant to be shut down if it appears there would be a danger to the public health and safety by the way in which a plan was being implemented. This option probably would be used only after confrontation with the State and perhaps the licensee when none of the other options had been successful in resolving the issue.

FEDERAL PREEMPTION

Safety regulation of nuclear plant operation is preempted by the Federal Government under the Atomic Energy Act. If a regulation exists purely to regulate economic issues, Federal preemption does not apply. Where it appears to NRC that a performance incentive plan tends to usurp safety regulations, NRC can first urge the State to change its plan to delete the problem provisions, as specified by the first option discussed above. If this step does not satisfactorily resolve the issue, then legal proceedings can be instituted to force the State to retract that part of the plan in which Federal preemption is at issue.