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NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DUKE POWER COMPANY

(Oconee-McGuire)

Docket No. 70-2623

Place - Charlotte, North Carolina

Date - 29 June 1979

Pages 2730 - 2885

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the matter of:	
DUKE POWER COMPANY	
(Amendment to Materials License SNM-1773 for Oconee Nuclear Station Spent Fuel Transportation and Storage at McGuire Nuclear Station)	Docket No.70-2623

Board Room, Fourth Floor,
Mecklenburg County
Administration Building,
720 East Fourth Street,
Charlotte, North Carolina.

Friday, 29 June 1979.

The hearing in the above-entitled matter was reconvened, pursuant to adjournment, at 8:30 a.m.

BEFORE:

MARSHALL E. MILLER, Esq., Chairman,
Atomic Safety and Licensing Board.

DR. EMMETH A. LUEBKE, Member.

DR. CADET H. HAND, Member.

APPEARANCES:

On behalf of the Applicant:

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On behalf of the Regulatory Staff:

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C O N T E N T S

Witnesses	Direct	Cross	Redirect	Recross	Board
John P. Roberts T. Jerrell Carter, Jr. Darrel A. Nash R. Daniel Glenn Brett S. Spitalny (Continued)	)	2733			

Exhibits

(None)

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PROCEEDINGS

CHAIRMAN MILLER: The evidentiary hearing will be in session.

Whereupon,

JOHN P. ROBERTS,

T. JERRELL CARTER, JR.,

DARREL A. NASH,

R. DANIEL GLENN,

and

BRETT S. SPITALNY

resumed the stand on behalf of the NRC Regulatory Staff and, having been previously duly sworn, were examined and testified further as follows:

CHAIRMAN MILLER: Mr. Roisman, I believe you were cross-examining the panel when we left off yesterday.

MR. ROISMAN: Yes, Mr. Chairman.

CROSS-EXAMINATION (Continued)

BY MR. ROISMAN:

Q We were looking at document 19-B. Mr. Glenn, you were here when the testimony was given yesterday with regard to document 19-B, were you not?

A (Witness Glenn) Yes.

Q I had asked Mr. Spitalny the reason for the change in the language that appears on page 7, the sentence which had had the phrase "expense already incurred by Duke,"

eb2

which was changed to "options available to DPC as a result of..."

Do you agree with the reason that the statement was changed?

A Yes, I do.

Q Now directing your attention to page 8, the bottom of the second full paragraph, the sentence:

"The basins at Catawba have been specifically designed with excess capacity to allow for the storage of this fuel."

Can you tell me why was that sentence taken out?

Let me withdraw that for a moment and ask you a preliminary question.

Are you responsible for it being taken out?

A No, I'm not.

Q Were you consulted?

A We discussed it briefly, but at that time no decision was made whether it was going to be taken out or not.

In that discussion that Mr. Spitalny and I had, we discussed it and it was my recollection at that time that our preliminary decision was to leave it in.

Q So the ultimate decision to take it out was not your decision at all?

A No, it was not.

eb3

Q Was it your decision, Mr. Spitalny?

A (Witness Spitalny) What had taken place, Mr. Glenn and I had discussed what we were going to do with that particular sentence, and I left it with him that I would discuss it with Mr. Ketchen as to what we were going to do with it.

We then decided it was six of one, half a dozen of the other, as to the impact of whether the statement was in or not. And it was just mutual agreement there wasn't any hard facts as to a specific reason we should take it out.

Q Did you take it out because it wasn't correct?

A No.

Q Why did you take it out?

A It was my understanding, looking back when I was doing the evaluation, it was my understanding that that was the intention, that Catawba was specifically designed with excess capacity to allow for foreign storage.

My reason for taking it out is simply because of the fact that I am not on top of what all management decisions at Duke are, and I didn't want to misstate something if indeed it wasn't a true fact. It was my understanding but I didn't think that leaving in a statement that came out and said it was specifically done for a certain aspect if indeed it was a management decision that may have encountered a number of things.

eb4

Q Do you remember signing an affidavit dated May 11th, 1979, entitled "Affidavit of Brett S. Spitalny and R. Daniel Glenn," which was attached to the Staff's Motion for Summary Disposition in this case with regard to NRDC Contentions 3c and 3d, which contained the identical sentence on page 8 thereof? Do you remember that?

A Yes.

Q Why did you feel that you could confidently swear to its accuracy then and you couldn't confidently swear to it now?

A I could swear to the accuracy of what I felt about that statement, and I still can. The reason that any of the testimony has changed between the day this was pre-filed and today is because of the manner in which argumentative and conclusory statements have been stricken from the testimony.

It was only because of that that we went through and struck any sentences. It's not to say that I may now believe that the sentences that are struck are inaccurate or incorrect; it's only the form of the sentence.

Q You mean you consider that the sentence reached a conclusion and therefore was not appropriate? I assume this was not because it was argumentative.

A Where are you referring to?

Q I'm sorry, the sentence at the bottom of the

eb5

second full paragraph on page 8 of Staff Exhibit 19-B.

A Would you rephrase what you're asking about that?

Q You indicated that the only reason for which testimony was changed was either because it was conclusory or argumentative, and now I'm asking you which was the reason that was applicable to this, because it was conclusory or because it was argumentative?

MR. KETCHEN: Objection.

CHAIRMAN MILLER: Overruled.

WITNESS SPITALNY: I don't want to limit myself to those two terms: conclusory or argumentative.

CHAIRMAN MILLER: Actually, Mr. Spitalny, you have not answered directly the question that has been asked two or three times. Why was that change made? Whatever the reason, let's just get it out and get it over with.

WITNESS SPITALNY: The reasonI thought I had stated was because I can't make a statement that the management decision, whenever it was made to expand the pools at Catawba, was made for that specific purpose as a management decision at that time.

CHAIRMAN MILLER: You say you can't or you can?

WITNESS SPITALNY: I cannot.

CHAIRMAN MILLER: You cannot.

And yet twice, once in the form of a sworn affidavit and another in the prefiled direct testimony, you

eb6 did make the specific statement. Now wasn't that based on something?

WITNESS SPITALNY: It was based on my knowledge and what I understood it to be.

CHAIRMAN MILLER: That was your best belief at the time that you made it, and it's your best belief now? Is that correct?

WITNESS SPITALNY: That's correct, it's true. I still believe it's true.

I'm just saying my reason for taking it out is not saying it's inaccurate; it was only taken out because I thought I would then get pointed at and say "How do you know what Duke's management decision was?"

CHAIRMAN MILLER: I suppose that's true of anything where you're quoting Duke management.

WITNESS SPITALNY: That's the whole reason we even thought about striking that sentence. The accuracy of --

CHAIRMAN MILLER: Who did you discuss striking it with, for reasons other than accuracy?

MR. KETCHEN: Mr. Chairman, I'll stimulate that he discussed it with me, and it was based on your earlier rulings in this proceeding that we ought to look at our documents and see if we could get rid of any argumentative stuff. And this got --

CHAIRMAN MILLER: Was this deemed to be

eb7

argumentative? This is a statement of fact, that the basins had been specifically designed with excess capacity to allow for the storage of this fuel. That seems to me to be perfectly factual. Whether it's true or not, or correct, is another issue. But as far as the form of it....

MR. KETCHEN: Again, you asked us to do that and we went through, and this is-- You know, it was in a gray area. We didn't know whether the witness--

CHAIRMAN MILLER: I think that's sufficient.

MR. KETCHEN: That's the way we were trying to comply with the order.

CHAIRMAN MILLER: All right. I think it has been sufficiently covered.

BY MR. ROISMAN:

Q Mr. Glenn, let me direct your attention to -- still looking at Staff Exhibit 19-B, at the top of page 10, the first full paragraph on that page was all struck. Why was that paragraph struck?

Let me withdraw that in light of our previous discussion.

Did you decide that it should be struck?

A (Witness Glenn) It was a decision made by Mr. Spitalny and myself.

Q All right.

So you're in a position to answer my question

eb8

as to why, you participated in the decision?

A Can I read this?

Q I just want to know, did you participate in the decision to have it struck?

A Yes.

Q All right.

A Excuse me, I thought I answered that.

Q I'm sorry, I wasn't clear that you had.

A Let me have a minute to read this, please.

Q All right.

(Pause.)

A First of all, I've got to admit that the evening we had done this, first of all I think I had been on the stand most of that day, and I was very tired, as we all have been. And I'm going to have difficulty in answering your question.

But I think we were discussing along the same lines as we were before about the problems with our interpretations of the Board's rulings and whether we were drawing conclusions and whether it was something we could do or not.

Q Well, let's test that for a second.

Look back at page 8 if you would, please, of Staff Exhibit 19-B.

The last paragraph on the page begins with the sentence, "The applicant's...." Would you just read that

eb9

first sentence there for me?

A "The applicant's commitment...."?

Q Yes.

A "The applicant's commitment to nuclear power coupled with the number of reactors projected to be on line in the 1990s places the applicant in a unique position available to very few utilities."

Q Now in your judgment, is that a conclusory statement?

A The fact that I say it's a unique position available to very few utilities could be construed as what you say. However, it's based on a look at the number of reactors that Duke does have available, and the number of reactors that other utilities within the United States do have available, and the sequence at which those reactors are coming on line for Duke, in my opinion, put them in a unique position.

Q I'm sorry, I wasn't questioning whether you had a basis for the conclusion. I was merely try to test your understanding of what constitutes a conclusory statement in order to test --

A I came to a conclusion.

Q And do you think that statement is at least as conclusory as the paragraph at the top of page 10, which has been stricken?

eb10

MR. KETCHEN: Mr. Chairman, I'm going to object to this whole line of questioning. We can take out, based on discussions with the witnesses and Counsel in preparation for a hearing, anything we want to in our testimony. It seems to me like as long as when they're sworn, the witnesses adopt it, that it's in line with the ruling of the Board the other day.

These witnesses did swear to it as changed, and I don't think it's getting into any impeachment process here. If he wants to do that, fine, but I think it's going back to stuff that has been stricken.

The other day when a paragraph was struck or withdrawn, I wasn't allowed to pursue that paragraph further and see whether any other paragraph following the paragraph in Mr. Rotow's testimony depended on the struck paragraph.

CHAIRMAN MILLER: It was a little different proposition because you couldn't inquire into the reason. You in effect, as I recall, you were invited to inquire into the reason. There was a dispute between you and other Counsel as to whether the one was contingent on the other. That's a wholly different proposition.

Let's be real clear about it. When the witnesses say, "This is my testimony, I prepared it," they're testifying. This is proper; they're entitled to do so.

Now when there have been changes made in it and

shall there's been a series of changes made in it, whether it be given orally or whether it be given in the form of prefiled written which is adopted as sworn testimony by the witnesses, inquiry as to the reasons for changes is perfectly proper.

MR. KETCHEN: Is it proper if they get into areas where they're asked to, in light of your ruling, interpret the legal ramifications of your ruling of the other day, to take out argumentative types of --

CHAIRMAN MILLER: One man's argument might be another man's bias. And that's the reason it's being permitted here. And there seems to be some question as to whether or not some of these things removed are conclusory under our rule or anybody else's interpretation. At least that's what the cross-examination is probing.

That's a different proposition.

MR. KETCHEN: My objection is overruled, I take it?

CHAIRMAN MILLER: Yes. But it's there for the record.

MR. ROISMAN: I just might point out that this paragraph also is contained in the May 11th, 1979, affidavit of Spitalny and Glenn, so it is a sworn-to paragraph, not merely just prefiled and proffered. It appears at the top of page 10 in that affidavit.

b12

BY MR. ROISMAN:

Q Mr. Glenn, let me just go back again. I believe the question that's on the table is:

Isn't this sentence that appears as the first sentence of the last paragraph on page 8 of Staff Exhibit 19-B no more conclusory than the paragraph which appears on the top of page 10 of Staff Exhibit 19-B which has been struck?

A (Witness Glenn) The reason the paragraph was struck was because of the last sentence in that paragraph, and since we didn't think we could say that sentance, there wasn't any use going into the whole paragraph.

And the reason for putting the whole paragraph in was removed, so why not remove-- If the sentence is removed we might as well remove the whole paragraph.

Q It's your testimony that "This cannot be considered cost-effective" was an overly conclusory statement?

A I think that was correct.

Q Mr. Spitalny, is that also your understanding of the reason the paragraph at the top of page 10 was struck?

A (Witness Spitalny) There were two reasons, as I understand it. That is one of them.

It was difficult again with respect to that particular sentence for us to make a decision which we still believe is accurate and I will still swear to it today, that personally -- in my opinion I personally do not believe

eb13

that that is cost effective. But I can't swear to the fact that Duke does not believe it is cost effective.

That particular issue, as it came up and Mr. Glenn and I discussed it, the second area of concern that I had with this particular paragraph is the one word "solutions," which appears on the third line in the middle. It says "....would leave the applicant with two solutions to the same problem."

I was a little uneasy with the word "solutions" in that this was not a solution to the over-all problem of storing fuel. That's not what this is really solving.

I thought about just changing the word to reflect what better would have been, that it would leave them with two measures, two interim solutions.

It bothered me, that coupled with the fact that I can express my opinion but not Duke's decision. We had discussed it on Wednesday evening. When I left Mr. Glenn, we had considered maybe we ought to take it out. I told him I would speak with Mr. Ketchen to express our feelings about it. And we decided yes, we would take it out.

Q You indicated that you had difficulty because of the word "solutions" and that neither of the two things discussed in the stricken paragraph were solutions to the problem, they were just interim solutions.

Is it correct that in doing the analysis which

eb14

the Staff has done on this application, you have not attempted to analyze what would be the solution to the spent fuel storage problem for the Oconee Units and then evaluated, in your judgment, what was the best alternative?

A I did not try and come up with what the best solution for the lifetime storage of the Oconee spent fuel is.

I did determine that enough options remained available to allow for the storage of the fuel, so that I did not consider it necessary to pursue coming up with the best alternative. I don't think that's my job.

Q In that same vein then, you did not look to see whether or not any future alternatives would in any way be impacted by the short-term measures, that is, the long-term ultimate solution for the spent fuel storage problem for the facility would --

Let me withdraw it and state it again. I'm sorry.

Did you consider whether an interim solution such as the one proposed by the applicant here would or would not influence the availability of subsequent options to solve the long-term spent fuel storage problem for the Oconee reactors?

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Q No, I did not believe that an interim measure taken now would foreclose other options available to them. If they were to look at the options, building a pool the size to -- a size large enough to retain all the fuel in my

eb15

judgment would foreclose other options if, at a later date, they thought they had made a mistake in building a new pool.

My reason for saying they would foreclose it, they would have made a tremendous monetary commitment. And then if they have this facility existing and for some reason they didn't like it, they may at that point not desire to shift or rerack the pools or anything because they do have this facility there and they would use it, even though they didn't want to.

So that particular one could foreclose other interim options.

For example, if they were three-quarters of the way through constructing this thing -- let's say it was 1982 or 1983 -- and DOE then comes out with a final decision and says "We are going to have an AFR available in 1987," now Duke says "We just spent $53 million building this facility, and now DOE comes in with an AFR and we wouldn't have had to spend any money."

In that respect they are foreclosing their available options.

Looking at the other alternatives, that of re-racking, it's a measure which will carry them to the year -- with stainless steel racks -- 1982, with poison racks, possibly 1987. I'm specifically looking at Oconee right now.

If as they approach 1982, DOE has not come out

eb16

with anything, they still have to them the option of putting poison racks in that pool, the option of poison racks at McGuire, the option of transshipment; many alternatives which again are another interim phase.

If you look at the option of transshipment now without reracking, again that buys them the exact same analogy that I just pointed out with the reracking. It's something to gain another two, three, four, five years, whatever the particular option may be.

If as they're approaching the foreclosure of that particular segment and there is nothing happening nationally, well, they then move to their next option, so I don't believe it is foreclosing the issue.

Q At first, did you, prior to today, do any written analysis in which you really tried to work out which choices would or would not be more likely or less likely to foreclose options, or did the Staff? Did anybody on the Staff?

A I didn't do a written analysis to determine that, no.

Q You mentioned in terms of the cost, you gave this example of the independent spent fuel storage facility being three-quarters built and then it turning out that the government had built one, and Duke saying Oh, my God, I just wasted $53 million.

Isn't it true that they would have to pay for

eb17 their share of a government AFR?

A That's true.

Q Have you done an analysis to determine whether the cost per assembly storage in a government AFR would be higher or lower than the cost that Duke would pay if it built its own independent spent fuel storage facility for Oconee?

A I've not done an analysis. I'm familiar with what some of the figures are.

Q You mean you're familiar with what some of the people have estimated?

A With DOE estimates.

Q For the cost of that?

A That's correct.

Q Do you consider the DOE estimates to be reliable as to what the cost per fuel assembly would be for the government to build an away-from-reactor storage facility?

A I don't know the basis for their calculations and how they came up with their final number. I don't believe I can answer that question accurately.

Q So you're not sure that it would necessarily be a loss to build its own independent spent fuel storage facility rather than to wait for the government independent spent fuel storage facility -- the government AFR?

A I think it depends on how the program comes about and what is required, or what, at the time it comes about,

eb18

would seem more advantageous.

What I'm trying to get at is it's my understanding that the utility is not required to store at a DOE AFR if that were to come about. But that's not to say that at some date it might not be required.

Additionally, if reprocessing was to turn around again, which nobody has got a good handle on, I would think it would be advantageous to reprocess the fuel that is sitting in their independent facility where there is something to be gained by the assemblies that are just sitting there instead of lost cost.

So I don't know the situation that is going to come about.

Q Well, what you're saying is that there are some factors which are yet to be decided and you are going to try to have all the factors available before you have to make a decision. Is that essentially what you're saying?

A Yes. I'm saying today I think we're a little premature in trying to determine the disposition of the fuel in the year 2012 for the Oconee site.

Q But there is also some risk with waiting to make the commitments, isn't there? I mean to begin with, you just have the lead time problem with an independent spent fuel storage facility.

A Well, I think the risks that you have by prudent

eb19

people would be taken into consideration.

Q But I'm just saying we're talking about having done an analysis but not a written one, and I'm just saying in that analysis, do you recognize that there are risks to not making commitments to a longer-term solution in 1979, just as there are risks to making a commitment to one in 1979?

A If the risk that you're really referring to is lead time or availability of the materials, whether it be racks or construction equipment, I'm not sure what you're referring to when you say "risk."

Q Let me explain so that we are talking on the same wavelength.

What I mean is the risk that if you don't go ahead and build the independent -- start to build the independent spent fuel storage facility in 1979, that then the time comes that you begin to feel that that does look like the most cost-effective thing to do, it may be too late to do it, and you may be forced to take the second-best option, a government AFR that is actually going to cost you more per fuel assembly, or the building of -- the expansion of existing pools at facilities already under construction.

In other words, with something that's got a five-year lead time, you may be running some risks by not starting it early because you may not be able to choose it when it

eb20

becomes clear to you that it was the right thing to do. That's the risk I'm talking about.

A I believe that in evaluating alternatives that are available to anybody, when you evaluate that alternative, you have to evaluate what is needed and required to accomplish that given alternative. In the case of an independent facility, what is needed to accomplish the availability of that facility is five years.

What is needed to accomplish the availability of poison racks is a year, give or take a few months.

Stainless steel racks, the same thing.

If you were to put down on a piece of paper all your available alternatives, what commitments you would have to make in evaluating each alternative and when you would have a decision point, as you're approaching this decision point you have to look at what's available to you.

If for some reason we hypothesize and say that if Duke does not start a new facility by the end of 1979 they're not going to be able to build the facility for some reason -- let's just hypothesize that the equipment is not going to be available to build it -- why that would mean that they now have six months to take a look at what alternatives are available to them.

Within the next six months they either have to make a commitment to build that facility or evaluate the

eb21

other alternatives to be able to solve the same solution -- the same problem that that facility would solve.

Q Well, don't you agree that the decision that would be reached on which one of those courses of action to follow is very much influenced by whether you believe the government is going to have an AFR available or not, and when?

A The basis for my statement on page 8 of this document I believe -- let me check --

Q Identify "this document" just for the record.

A I'm sorry, 19-B, page 8.

The last paragraph that you were referring to which reads:

> "The applicant's commitment to nuclear power coupled with the number of reactors projected to be on line in the 1990s places the applicant in a unique position available to very few utilities."

I think that if we took a look at a different utility which only had one or two reactors coming on line, they are in a situation where they can say "What are the opportunities available to us? We can only put poison racks in these two facilities that we have, and when we do that we then have to do something outside of the utility. We could go to pin compaction, or we have to construct a new pool, a new something-or-other."

eb22

The statement here says Duke is in a unique position because they have quite a few reactor plants that are still yet to come on line or are under construction and in lieu of having to build this other pool, they can say "Well, we're already building another pool. We're building a pool at Catawba. Why should we make a commitment to build another pool on the site of Oconee when we're already committed to spend money to build the Catawba pool? Whatever the intial design was for the Catawba pool, at that site it is cheaper to expand that pool to twice the size it was initially designed for than it would be to build two separate pools of the original size.

So I'm saying that particular option which is available to Duke puts them in a position where they can evaluate all the alternatives.

Q But let's look at the transshipment option for a second.

MR. KETCHEN: Excuse me.

Were you finished with your answer?

WITNESS SPITALNY: THat's all right.

BY MR. ROISMAN:

Q It's true, isn't it, that if you transship fuel from Oconee to McGuire you remove space from the McGuire pool that's available for McGuire's spent fuel to be stored? Isn't that correct?

eb23

A (Witness Spitalny) That's true.

Q And that if the time at which the McGuire spent fuel could be stored away from McGuire at a government facility, permanent or interim, is such that it's not available until after the McGuire pools are full, then you have to move some fuel from the McGuire pool and some fuel from the Oconee pool to yet another pool, in this case it's assumed the Catawba pool? Isn't that correct?

A That's one of the available options, yes.

Q And the Catawba pool itself will then be less available for storing Catawba fuel? Isn't that correct?

A That's correct.

Q So ultimately, putting it into the vernacular, somebody has got to pay the piper; right? Some plant, somewhere, has either got to build enough capacity to store all of its fuel plus the fuel of the reactors that weren't, like the little pig, thinking of the future, or we've got to assume that there's going to be a government AFR or permanent waste disposal capability available before those crucial dates are reached. Isn't that correct?

MR. KETCHEN: He couldn't hear you.

WITNESS SPITALNY: I'm sorry, no.

BY MR. ROISMAN:

Q Why not?

A (Witness Spitalny) Because we're looking at a

eb24 reactor plant which is licensed for a finite period of time. If it was an infinite period of time and we were generating fuel infinitely, then I would agree with your statement, but it's a finite period of time.

If we can look at the amount of assemblies which are going to be generated over that finite period of time and come up with an option to store that fuel for that finite period of time or -- excuse me -- to store that fuel for an infinite period of time but it's a finite number of assem-

1b blies, that statement is not true.

2a fls

2A WRB/wb1

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Q Do you know of any existing proven acceptable technology by which the Oconee pools, in and of themselves, would have the capability of storing the lifetime fuel to be discharged from the Oconee plant?

A The Oconee pools? Keeping the assemblies on site?

Q Right there. No new pools built.

A For the lifetime --

Q --of the Oconee reactors.

A If you want to give me a few minutes I'll think about it. I don't know if I can come up with--

Q It's not an analysis that you've previously done?

A I believe we can get awful close, if we can't make it.

I would like to reserve my position to take a look at it.

Q All right.

Will you just tell me which are the options that you would be looking at in order to be able to obtain that?

A Poison racks at Oconee will buy time until 1987.

Q Okay.

A Pin compaction. If we were able to store fuel from 1974 until 1987, which is thirteen years, in the existing capacity, pin compaction will buy them a 70 percent increase. 70 percent of 13 is 8, 8-1/2 years.

Q So pin packing is one of the options you'd look

WRB/wb2

at?

A Yes.

Q Okay.

Let me direct your attention to page 2685 of yesterday's transcript. If you could ask your counsel to give you a copy of that.

(Document handed to the witness)

A I've got page 2685.

Q Would you begin reading at line 10 on that page, please, indicating whether it's an A, an answer, or a Q, a question?

A Okay. This was an answer:

"The options that we considered were the construction of an ISFSI, the expansion of Oconee pools, shipment of the spent fuel to another site. Basically those are the alternatives that address increased capacity.

"QUESTION: What about pin packing?

"ANSWER: We did not address it.

"QUESTION: How come?

"ANSWER: Pin packing is becoming an option. I don't believe it has been shown to be a valid one as such. The start of the art I think is just coming to that. It just was not addressed."

wb3

Q That's far enough. Thank you.

Now do you still think that testimony yesterday was correct?

A Yes, sir. I'd like to make a statement, if I may.

Q Sure.

A I believe things are in a little bit different context now as to what was said there and what was sa[illegible].

No. 1, the document was done during the last year. No. 2, pin packing is just coming to the state of the art. It has not been done anywhere outside of experimentally, I believe.

Also, you just asked me now if Oconee was forced to keep everything on site what would they consider? Well, my very first option is poison racks, not pin packing; the first option is poison racks. After you've got the poison racks in there you've got until 1987 to better the technology for pin packing.

Pin packing has been introduced now. It is coming around. It's a viable option.

Q Wait a second. Take a look at the page again. I believe what you told me and what you just read is that it's not a viable option.

A Excuse me; let me clarify that.

I'm saying, there I said it was not a viable

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option right now. Now I'm saying it's a viable option for the future. I'm making a distinction.

Q Let me go back. My question had been: available technologies now. I said, Using available technologies now what exists for Oconee being able to store its lifetime fuel at the site.

I just want to be clear about one thing. Is pin packing an available option now, in your judgment?

A I believe we are putting blinders on if we say yes it is or no it's not.

Q I believe you're the one who made it clear, and it's your statement, "I don't believe it has been shown to be a valid one as such."

Now I'm just asking--

A Today.

Q And now I'm asking you today if you're making a decision about what to do about Oconee fuel, do you put pin packing as a valid option or not?

MR. MC GARRY: I'm going to object, Mr. Chairman. I think this question has been asked four times. I think the witness--

CHAIRMAN MILLER: What were the answers, then?

MR. MC GARRY: I think my perception of the answers was that the witness feels that pin storage, pin packing is just coming into being. Mr. Roisman is asking, What is Duke

wb3 going to do to maintain its spent fuel on the Oconee site. The ewitness has said--

CHAIRMAN MILLER: The technology isn't available now: wasn't that the original question?

MR. MC GARRY: That's correct. And what Mr. Spitalny is saying is, it's just about at that point in time. In fact there is an application, I believe he mentioned earlier, by Maine Yankee, or whatever it was. So he's aware of that. It's just at that stage. It's not a remote technology.

I think he has answered this four times.

CHAIRMAN MILLER: Well, he has answered a different way. As I recall, yesterday he said he didn't regard it as a proven technology that he was considering in making certain evaluations: I forget what they were. And I believe that's what you suggested.

Isn't that right?

WITNESS SPITALNY: That's correct.

CHAIRMAN MILLER: That was my memory of what he said yesterday. I assume today he's making some kind of variation.

WITNESS SPITALNY: No. Excuse me. No. I'm putting it in proper context.

CHAIRMAN MILLER. What's your testimony?

WITNESS SPITALNY: I'm not changing what I said.

wb6 The context of the question yesterday was, Why did you not evaluate pin packing?

CHAIRMAN MILLER: What was your answer?

MR. SPITALNY: My answer was I did not believe it a viable option to replace transshipment or reracking now. I do believe it's a viable option for tomorrow, I'm saying 1980, whatever. I'm making a distinction here that these things are in two different context.

CHAIRMAN MILLER: All right. Go ahead.

I don't think he's answered clearly. He's got fragments of three or four different answers, he says in different contexts; which is fair and reasonable. But we're trying now to get it in one place. So complete your answer and put in whatever factors you wish, in fairness to yourself and your testimony.

Go ahead to other matter that you haven't covered, Mr. Spitalny. We'd like to have a full answer.

BY MR. ROISMAN:

Q Do you have a judgment as to when you think this not-yet-ready but soon-to-be-ready option will be ready?

A (Witness Spitalny) It would be a total guess.

Q It doesn't seem to be out of the question in this case. Go ahead.

MR. KETCHEN: Mr. Chairman, why does he have to guess? I think he has given his answer.

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CHAIRMAN MILLER: Well, we don't want any witness to guess.

BY MR. ROISMAN:

Q So you don't know-- Then you're saying that you don't know that it will be available, say when the Oconee units have exhausted their capability of reracking with poison racks; is that right?

A (Witness Spitalny) That's a true statement. But what I said about available alternatives is that there is a decision point. If, as you're approaching 1987 and you only have two options left: let's hypothesize again one option is the construction of a new facility and the other operation is pin packing: if you reach 1982 and it doesn't look like pin packing is going to come about, you'd better make a decision about building that new facility, because you now have five years until you reach 1987.

So I'm not going to say that pin packing won't be available in 1987; I said that that decision will have to be made when you reach your decision point for all of your alternatives that you may spread out on this piece of paper.

Q But my initial question to you went back to this issue of whether, if what you are doing is assuming the off-site storage at another Duke reactor of Oconee spent fuel, don't you ultimately have to worry about where some facility's spent fuel is going to be put? Because you're stealing space,

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in effect, from some subsequent reactor. Your answer to me, as I remember, was that that would only be valid if we were talking about an infinite production of spent fuel.

Now I was trying to test that by finding out from you whether at this point in time, which is admittedly a decision point, you could confidently conclude that the Oconee fuel could be handled on the Oconee site without building an independent spent fuel storage facility, as a way of -- then going on and asking you the same question about McGuire and the same question about Catawba, to try to find out whether at this decision point you were or were not making commitments that might in the future require you to do something which you wouldn't have had to do if you had made a different decision now. And I was testing that by asking you-- and I'm going to ask you again:--

Based upon today's technology, do you know of a way that you can store the lifetime productivity of spent fuel from Oconee at the Oconee site using the existing pools?

MR. MC GARRY: Objection. The question has been asked four times.

CHAIRMAN MILLER: Overruled.

WITNESS SPITALNY: Today I probably could not get the Oconee site to the year 2012. But the decision point that you refer to I don't believe is the decision to be made.

MR. ROISMAN: I understand.

wb9

BY MR. ROISMAN:

Q What about McGuire? Could you today say as to McGuire that it has the capability, based upon the same criteria you just used for judging the Oconee site, for a lifetime storage of its spent fuel output?

A (Witness Spitalny) The answer is no, with the same qualifications.

Q Okay. I understand that.

And what about Catawba? If it's a calculation you want to make--

A Just a minute.

(Pause)

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A Awful close. I just did a thumbnail calculation, and it's awful close.

Q So, for Catawba, its capability to store the lifetime output of its reactors, assuming for a moment that that became its option, could be directly affected by whether any fuel from another reactor got stored there is close enough, but another five or six hundred assemblies from other reactors might make the difference, isn't that true?

A It might.

CHAIRMAN MILLER: I think the witness, in answering, did have a certain qualification. We'd like to have him explain it to us. If you're going to ask him, fine. If not, we'll ask him.

MR. ROISMAN: Okay, go ahead.

CHAIRMAN MILLER: In making your response you said, at least as to the first two reactors, that no, there was not any way that you understood the situation, by using the present facilities without additional building, you could contain the entire lifetime of spent fuel generated at the particular facility, for Oconee or for McGuire, but you said there was a certain qualification.

Do you recall that?

WITNESS SPITALNY: Yes.

CHAIRMAN MILLER: You agree that there was a qualification?

WITNESS SPITALNY: Yes.

CHAIRMAN MILLER: Well, for the record, we'd like for you to explain what that qualification or assumption was.

WITNESS SPITALNY: Certainly.

Initially, what I was saying about Oconee, I was saying that I do not believe we were at the decision -- or the decision point that we're at now is not the decision Mr. Roisman is bringing upon us.

CHAIRMAN MILLER: What's the difference?

WITNESS SPITALNY: He is saying, let's make a decision as to whether or not we transship, or even pursue just an interim solution, or let's make a decision to build a new facility, because we may at a later date foreclose --

CHAIRMAN MILLER: Well, that's another matter, what he's assuming. I'm talking about --

WITNESS SPITALNY: I'm going to get there. That's my understanding of what his decision point is now. I'm saying--

CHAIRMAN MILLER: Well, what's your decision point?

WITNESS SPITALNY: Please. I'm --

CHAIRMAN MILLER: No, I'm asking the question. Now answer my question. Let's --

WITNESS SPITALNY: I'll get to that. I have to make a distinction.

CHAIRMAN MILLER: Wait a minute. Let me ask the

question.

What I'm asking you is to tell what your assumptions are, or what your decision point is. And then we'll talk about somebody else's.

Now, I'd like to have the question answered my way, and I don't need a lot of help. Just answer my --

WITNESS SPITALNY: You asked me to explain the qualification. My qualification is based on a distinction between a decision point, his decision versus mine.

CHAIRMAN MILLER: What's yours?

WITNESS SPITALNY: I'm trying to explain. His is --

CHAIRMAN MILLER: What's yours?

WITNESS SPITALNY: The decision we are at today is looking at whether or not transshipment is a viable option. It's also considering what other alternatives exist to the utility that will enable them to store fuel.

He's saying, can you keep Oconee fuel on site for the lifetime of the pool?

I'm saying that that may, indeed, be able to be accomplished if you don't keep blinders on and hold yourself to 1979, June 29th, technology.

I'm saying it looks like there may very well be ways that come about which will enable that to be done. Even if new technologies don't come about to enable it to be stored on site, I haven't found anything wrong with moving

it to McGuire, or moving it offsite. Or, rather than building an ISFSI today, build one in 1982 if it looks like you're still not going to come up with a solution.

So my distinction for answering his question is, June 29, 1979, no, I cannot come up with a reason-- or a method, to maintain fuel on site for the lifetime of the fuel. But that's not to say that on June 30th I may not be able to do that.

That's my distinction.

CHAIRMAN MILLER: All right. Now, my question relates to what is your decision point, the one that you choose to use that you think should be used. You may explain it.

WITNESS SPITALNY: My decision point is an analysis of the alternatives that exist, and the decision --

CHAIRMAN MILLER: As of what time? You mean the present time?

WITNESS SPITALNY: As of this licensing action.

CHAIRMAN MILLER: Today?

WITNESS SPITALNY: Yes.

CHAIRMAN MILLER: All right.

WITNESS SPITALNY: You look at this licensing action, the decision that we're making here is: Are the impacts from this licensing action significant as to not warrant the issuance of a license?

That is what -- that's the overall question. I'm still uncertain why we're in this hearing.

CHAIRMAN MILLER: Well, don't speculate.

(Laughter.)

I'm sure we'd get a lot of different answers on that one.

(Laughter.)

I want to be clear. I understand what you mean by your decision point as you analyzed it. I think you've answered it, but if there's anything further you want to add, go ahead.

DR. LUEBKE: But isn't it true that in these operations that decision points progress in time? I mean this is not the only time to make decisions.

WITNESS SPITALNY: That's correct. You're keeping your eyes closed.

DR. LUEBKE: There are additional times to make decisions.

WITNESS SPITALNY: 100 percent. There are other options available at a later date. Why make a decision today that's going to commit you for the rest of the output of Oconee?

CHAIRMAN MILLER: Well, let's look at the entire span, then, and let's look at infinity in the sense of not restricting it to the lifetime necessarily, of any of these

plants. Taking that long view, does that have any impact upon the decision point that you might otherwise use at some years in the future from today, but somewhat short of or possibly foreclosing alternatives that might exist at that long range?

Now, what about that as a point of --

WITNESS SPITALNY: No, it does not. Today -- if I can at least say the options that are becoming available, that is, including pin compaction and the option of dry storage, which is being looked at, you will be able to store the lifetimes of every one of Duke's facilities, the lifetime storage of that fuel, without ever building an ISFSI.

DR. LUEBKE: That's because the water is removed and gives them additional space to use? I mean, what's the factor in dry storage that --

WITNESS SPITALNY: In dry storage you can -- the biggest thing about the ISFSI is the cost per assembly, of constructing the --

DR. LUEBKE: I see. It's a cheaper building?

WITNESS SPITALNY: Sure.

CHAIRMAN MILLER: Well, aren't we looking at feasibility first, and then we look at cost factors? Don't we --

WITNESS SPITALNY: We look at a lot of things. We look at feasibility, we look at the impact, and last of

which we look at cost.

CHAIRMAN MILLER: Well --

WITNESS SPITALNY: But if we have looked at what the impacts are, and the impacts are insignificant, you can then look at the cost.

CHAIRMAN MILLER: Well, you keep looking at cost, so I was just wondering whether it was just being uttered that way or if you were putting it on a higher priority than something else.

WITNESS SPITALNY: No, no. I'm assuming every option I'm considering has insignificant impacts.

CHAIRMAN MILLER: Well, then, in your judgment, if you have a judgment, do you have sufficient experience and competence, as you see it, to have a judgment as to whether there is a reasonable assurance that there will be a viable method of handling all of the spent fuel storage from these particular plants during the lifetime of the plants?

WITNESS SPITALNY: I believe there's a viable method, yes. Yes, sir.

CHAIRMAN MILLER: Based on reasonable assurance, now. We've heard that term used a lot.

WITNESS SPITALNY: Yes. And I would even --

CHAIRMAN MILLER: I'm not asking --

WITNESS SPITALNY: -- add another one now, if I

may, to the options we've cited.

CHAIRMAN MILLER: You may.

WITNESS SPITZAENY: Duke has -- let me get my numbers straight -- Cherokee 1 and 2, I believe -- I would have to ask a question to be sure what the -- may I ask that, what the stage of construction of Cherokee 1 & 2 is? Have they started?

MR. MC CARRY: Yes.

WITNESS SPITZAENY: I believe they were at 10 percent, or something like that?

MR. MC CARRY: 10 to 20 percent.

WITNESS SPITZAENY: 10 to 20 percent? How about Cherokee 3? Nothing has started. Okay.

Let me --

CHAIRMAN MILLER: You're assuming now, with this information, 10 to 20 percent of one unit of Cherokee?

WITNESS SPITZAENY: Two units of Cherokee. Cherokee-3 has not been started. Parking also remains.

Now, what I'm saying is, not even looking at the options we've been talking about, reracking, poison racking, ISFSI, pin compaction, Catawba, I have said, will carry their storage of fuel into the nineties.

A decision could be made today to increase the size of the pool of Cherokee 1 and 2; if they are 10 or 20 percent down the line, I would think it would not be too

difficult to expand -- physically expanding the size of the pool.

Cherokee 3 is still an option which remains to be said as to when it's going to come on line, from Duke Power, what they're going to do about that. If they would like, they can build one specific pool at that site for Cherokee 3, which is large enough to hold every utility's spent fuel.

CHAIRMAN MILLER: What capacity would that be, approximately? Just approximately.

WITNESS SPITALNY: Are we saying every utility, or every Duke facility?

CHAIRMAN MILLER: Well, no, Duke's storage I assume is what you meant there.

WITNESS SPITALNY: It depends on what type of plants they're putting in there. We've got a distinction -- I could talk of present Catawba, because I know full-core Catawba is 193 assemblies. I'm not quite sure what units they're putting into Cherokee and Perkins.

Let's make an assumption for the time being that they're putting in the exact same plant that Catawba has. Catawba has 193 assemblies per full core. Let's say the number 200. We've got three units at Cherokee. I don't know where we draw the line. If we hypothesize that Cherokee and Perkins are coming on line --

CHAIRMAN MILLER: Use whatever ones you deem reasonable. I'm asking you about reasonable assurance, and so --

WITNESS SPITALNY: Well, I --

CHAIRMAN MILLER: -- you keep it within what you consider to be reasonable and --

WITNESS SPITALNY: Well, it's difficult for me to quantify the numbers right now, if I don't know what their boundaries are.

CHAIRMAN MILLER: All right. Now, we're both talking at the same time here. I'll stop and you talk.

(Pause.)

See, when I stop, we both stop.

(Laughter.)

WITNESS SPITALNY: I'm sorry. I was just thinking, but I can come up with the numbers relatively quick, I believe.

CHAIRMAN MILLER: Take your time.

(The witness performing calculations.)

MR. KETCHEN: Mr. Chairman, are we on the record?

CHAIRMAN MILLER: Yes, we are. If you want to go off, we will.

MR. KETCHEN: No, I just wanted to say, I don't know whether, and I want to make sure, that Mr. Spitalny has got the right numbers.

CHAIRMAN MILLER: Do you want to go over it with him?

MR. KETCHEN: Yes. My number is that Cherokee 1 and 2 cores is more than 193.

WITNESS SPITALNY: I made the assumption that Cherokee was the same thing as Catawba. Catawba, I believe, was 193, wasn't it?

Oh, wait, wait, wait. Let me back up.

McGuire is 193. Catawba is 240?

VOICE: No, McGuire is also.

WITNESS SPITALNY: Then they are the same? Okay.

All right.

Well, I was --

CHAIRMAN MILLER: Well, what are you hypothesizing?

WITNESS SPITALNY: I was just saying they were using the same units that they're using at Catawba.

MR. KETCHEN: Wouldn't it be better to have the right number for Cherokee, rather than hypothesizing?

CHAIRMAN MILLER: Yes. We'd rather have the right number. Give him the right number. Who has the right number?

VOICE: Cherokee is 241 and Catawba 193.

WITNESS SPITALNY: And Perkins?

VOICE: Perkins, 241.

(The witness performing calculations.)

MR. BLUM: Mr. Chairman, if this is going to take a while --

WITNESS SPITALNY: No, I'm done.

For the storage of 40 years of Ocones -- I'm making one other assumption -- I'm looking at. . . no, let's forget that.

40 years of Oconee, 40 years of McGuire, 40 years of Catawba, 40 years of Cherokee, 40 years of Perkins. I have a number of 36,550. That number may fluctuate, give or take a little bit, by the burn of the assemblies.

But for practical purposes, that is the number that I come up with, with the present pools that exist right now or that are anticipated for these units that we are discussing, are capable of holding, with pin compaction, 27,000 assemblies.

What we're looking at is a problem area of 10,000 assemblies.

CHAIRMAN MILLER: You say that's assuming pin compaction, 27,000?

WITNESS SPITALNY: Yes.

CHAIRMAN MILLER: Is anything else assumed, to arrive at that figure?

WITNESS SPITALNY: Poison racks and pin compaction.

CHAIRMAN MILLER: Okay.

WITNESS SPITALNY: The two that are the most

readily foreseen as becoming available.

And what I'm saying is: If we're going to make these assumptions that Cherokee and Perkins are going to come on line at whatever date, we have not taken into consideration the fact that Duke may, as they approach the 1990s, the year 2000, if Perkins comes on line in 1995 that thing is not going to be done generating fuel until the year 2035.

So they've got a lot of time before they're going to hit this number, 36,000. As they're approaching that, the options that they have available to them now are increasing the size of the pools at these facilities.

CHAIRMAN MILLER: Pardon me. Let me see if I got you right.

This 27,000 is based upon the use of pin compaction and poison reracking, with present or anticipated pools did you say? I'm not sure I got that right.

WITNESS SPITALNY: Yes, that's correct.

CHAIRMAN MILLER: Okay.

WITNESS SPITALNY: Anticipated in what's designed right now for the Cherokee and Perkins plants.

CHAIRMAN MILLER: I understand that.

I think we'll take a recess now, and give everybody a chance to absorb the information.

WITNESS SPITALNY: If we will continue on that

same question, there is one thing I would like to say.

CHAIRMAN MILLER: Sure, go right ahead.

WITNESS SPITALNY: When I say the option that Duke can at any time increase the storage of these pools, when you're looking at a number of $30,000 per assembly, give or take a couple thousand, to build an independent facility, it was shown that when they expanded, physically expanded, the size of Catawba they initially had a certain pool that they want, they physically expanded the size of that, and per assembly the cost was on the order of $4,000 per assembly.

So we're looking at a cost differential of $26,000.

DR. LUEBKE: May I ask, when you do that are you going to put the rods in the cask and move them over, if you just expand the present pool?

WITNESS SPITALNY: Well, you would be able -- if you were going to store from Oconee to McGuire, you would have to move the fuel from Oconee to McGuire, to those pools. So you do have that. But I would also point out that if you have an independent facility, you will still have that cost for shipment, which is the most expensive part of the -- the most expensive part of the shipment is not the movement by truck, it's the picking up of the assembly, putting it into the cask, and unloading the cask again.

So the cost factor is not quite a constant, but it's going to be seen anyway. So I would make that stipulation,

that they have the option of building these pools any size they'd like. They've not even started yet. And it's not inconceivable to build them large enough to hold assemblies for every spent fuel assembly that's going to be generated by every one of their facilities for the lifetime of every one of their plants.

CHAIRMAN MILLER: Is there anything else you want to add to make your explanation complete, and then we'll go back to it and we'll start with it when we've had our recess.

WITNESS SPITALNY: No.

CHAIRMAN MILLER: Thanks, Mr. Spitalny.

(Recess.)

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CHAIRMAN MILLER: Okay, we'll resume, please.

Mr. Spitalny, do you have something to add to your answer, for completeness?

WITNESS SPITALNY: Yes, I do.

There have been some questions brought up as to the duration of a license, when it expires, and we've used the time frame of 40 years.

Again, I may be a little bit out of my realm of expertise, in that I do not work on the Part 50 side, but I would like to point out that the 40 years that's referred to for the issue of a license is from the issuance of the CP, construction permit, not from an OL.

This means that the calculations I just did for 40 years would not really be seen for that amount of assemblies.

Just to cut it down, to allow for construction time, if we just said 8 years, for example, which I'm using on today's reference of what it might take for a construction, it would cut the number that I mentioned down by 20 percent. And that number comes down to 29,240 assemblies.

So I wanted to at least qualify that, to show that the actual time that the utility is going to be generating fuel is not a 40-year period of time. Now we're talking the number 29,000 versus storage capacity, with compaction again, of 27,000, which shows somewhere between now and when they're going to run into a problem, which is well, well into the year 2000, they have to increase their capacity by 2,000-3,000 assemblies.

So I did want to clarify that.

CHAIRMAN MILLER: Very well.

Mr. Roisman?

CROSS-EXAMINATION (Resumed)

BY MR. ROISMAN:

Q Mr. Spitalny, you mentioned the decision date issue. At this point in time is it your testimony that this is the time for making a decision on transshipment?

A (Witness Spitalny) I'm saying this is the time to

make the decision on this licensing action.

Q Isn't it true that the reracking that has been now approved at Oconee-1 and 2 will provide them with storage space until sometime around the middle or latter part of 1982? Is that correct?

A That's correct.

Q And that sometime between now and around the middle of 1982 they can make a decision to do poison reracking at those facilities, which would carry them into sometime around 1987? Isn't that correct?

A That's correct.

Q Why is today the decision time with respect to transshipment, then?

A Because the Staff has received an application to evaluate the option of shipping 300 assemblies from Oconee to McGuire. The Staff has evaluated that application, and has determined that the impacts are insignificant

We have issued a negative declaration. We have come to a hearing. There are no grounds that I can come up with to deny issuance of that license.

There is no reason to forestall a decision on that license. We have gone through the review, the Staff is aware of what the impacts are.

If you want to table this issue and call me back in 1982, I don't know that I'm going to be on top of it, to

give the proper input to any hearing board.

There's no reason to have to forestall it to any given time.

Q Well, but isn't it true that your prior testimony was that the prudent thing to do was not to make these commitments to options until you had to, so that you could see what was available?

A That's correct. By issuing the license, there is not a commitment of any sort. The commitment has already been made, basically, in the expense to get this far in this licensing action.

What remains of the action itself, of the procedural part of it, is that no more cost is added to the decision of the Board.

When Duke -- if Duke was to receive approval of that license, they can still put that license in a drawer and leave it there if they'd like. They have not made any commitments. It remains an option available to them. It may be a contingency. If for some reason they have to shut down two plants at Oconee, and they are maintaining one full core reserve at any date, it may be at that point that it may be a lot cheaper to ship 300 assemblies or 177 for a full core, or whatever might be needed, to allow them to discharge two reactors.

There's no reason they shouldn't be given that

contingency option. There's no grounds for denying it.

So we have gone -- we have looked at this thing since March of 1978, and the decision making point is now. There's no reason to --

Q That would equally apply to making a decision that they can build an independent spent fuel storage facility at Oconee also, right?

A To making a decision about one, they could certainly --

Q About the Staff making a decision.

A Well, there is a monetary commitment that would be made by them to get the Staff to do that, the preparation of an Environmental Report, of the documents, the application, and the license fee.

Q But that's like what they've done for the transshipment, I assume?

A That's true. But the difference is, it's already been done here. Why should we --

Q You mean the options are now somewhat narrowed because of the expenditures that have already been made?

A Certainly not. The option still remains available to them as much as it did before. The difference that I'm pointing out is that they have taken this licensing action as far as it has gotten so far. We have gone down 90 percent of the path, or whatever the number might be, and

there's no reason to put off the remaining 10 yards.

Q But my question is to you:

Are you saying that it would also be equally reasonable for a decision now to be made -- I understand your saying you wouldn't make it unless you got an application -- to build an independent spent fuel storage facility at Oconee?

A The decision would not be made by me. If Duke had decided that that's the way they wanted to go, fine. My position with respect to these alternatives is they put in an application for transshipment. We have determined it to be insignificant. We have recommended approval of that license.

Duke, in the Environmental Impact Appraisal,--and I've gone on record as saying that reracking had been a viable option with the qualification of time that we have previously discussed -- has been shown by the February 2nd application and the approval of their application to rerack the Oconee 1 and 2 pool, that that was also an option which remained available, which also resulted in a decision by the Staff as to approval.

With respect to poison racks, I'm not arguing for transshipment in lieu of any other one of these. If Duke wants to decide to throw this one away and come in with an application to put in poison racks, we will evaluate it based

on experience, assuming they take the proper procedures, go along with the regulations, it will probably be approved.

If the construction of an IFSFI was determined to be their course of action that they wanted to take, they have the procedures, they know what to do to prepare an environmental report, to put in an application. We have the guidelines to review it, and to make a decision on that application.

I have not said that all these alternatives that exist should not be done, because you should do transshipment. I have just said that there is nothing wrong with transshipment.

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Q Are you saying that if the Applicant applied simultaneously for the ISFSI and the poison reracking along with the transshipment application that the Staff would simply approval all three, assuming that the criteria that you have laid down are met?

A Very possible. We were doing the transshipment action, and the Staff also approved the rerack application at the same time.

Q So in short your position is that it is not the Staff's responsibility to choose among these options?

A It's the Staff's responsibility to determine the impact of these options. If the impact of the option which is selected is acceptable, it is also the Staff's responsibility to approve it.

Q And not your responsibility to find the -- quote -- "best -- unquote?

A If the impacts are acceptable, we do not have to go any further, that's true.

Q Even if one were obviously superior to another, as long as the impacts were acceptable, your judgment would be that the Staff would approve it?

A If there was an option that was obviously superior, we would probably go back and ask the applicant why they had not evaluated it.

This all takes place during the review -- I'm

mpb2

going to get to your answer.

Q Okay.

A In my correspondence to Duke Power in October of 1978, I wrote them a letter saying I thought they ought to take another look at reracking because they had initiall come in and said 'We couldn't do it', and in my letter I described the way that it could be done. And I said 'please evaluate my method, tell me why you can't do it, and we'll continue down the path.'

They came back in with a response and explained what some problem areas were and why they preferred this. I accepted that and we continued.

I think I said I was going to get back to your question, and I really just lost your question in my train of thought.

Q It would be easier if you would start your answer by answering my question and then explain it.

I believe the question was:

If one option were obviously superior, but all options were -- quote -- "acceptable" -- unquote -- would you still approve the one?

A Okay.

We in the course of the review would make a decision as to, for example, when they responded to that letter we may have said 'we disagree with your response to

mpb3

that letter'. So during the course of the review we would have decided whether or not this option -- if the impacts are much greater than the impacts of the other option, somewhere during the course of the review we would have decided which way to go.

We do have the right to deny the approval of an application.

Q Even if it's -- quote -- "acceptable" -- unquote -- when not compared with alternatives -- that's the point I'm trying to get at, what your position is on that.

A I believe we're getting into the area again where we were yesterday on the practice of the Commission. That decision would become, if not legal management, to determine exactly what stand we would take, I would have to know the exact parameters, why is one obviously better than the other.

If we came up with that much of a distinction, there must have been something the Applicant has overlooked. And if they stood fast and said 'No, I don't care', and there was that much of a distinction, then we probably would not have come up with acceptable impacts.

But I don't know --

Q Well, let's try to construct one, then.

Let's say that one option involved a certain complete solution to the problem, and the other involved

mpb4

speculation with regard to future events occurring such that if pursued it might or might not ultimately end up with a complete solution to the problem.

And I have in mind, for instance, independent spent fuel storage facility on the one hand as being -- let's just get clear on that.

Would you agree that that would be, if adopted and implemented, assuming the pool were large enough, a complete solution to the Oconee spent fuel storage problem?

A Yes.

Q And it is a today option; we don't have to wait and find out; you know that it is an acceptable thing to do, assuming that the Applicant designs it according to well established standards.

A Yes, assuming normal practices, yes.

Q Okay.

So that would be option one on the table.

Option two on the table is a transshipment option based upon an assumption that before transshipment has been used up there would be a government away-from-reactor storage facility built. Okay?

And we'll make the assumption now for this hypothetical I'm asking you that the Staff believes that the reliance on the government building the AFR is unreasonable. The Applicant says 'We think it's reasonable.' It's

mpb5 a judgment what one thinks it is, okay?

In a case like that you believe that the transshipment is -- quote -- "acceptable", that is, it does not involve any unacceptable environmental or safety impacts. You also believe that the independent spent fuel storage facility is acceptable and doesn't involve any untoward environmental or safety impacts.

In that particular case one is a complete solution to the problem, the other is based upon, for our hypothetical, an unreasoned assumption about the availability of an AFR.

Is it your understanding of the Staff practice that you would still be permitted to approve the transshipment or that what you would have to do is to tell the Applicant 'We can't approve that because we think that the independent spent fuel storage facility is -- quote -- "obviously superior"' -- unquote.

A Sticking to the exact limitations you've set on it --

Q Yes, you should do that. And you understand it only commits you to the hypothetical, not to what your view of the real world is.

A I understand.

MR. KETCHEN: Can I understand the hypothetical too? What is the part about -- the AFR part?

mpb6

MR. ROISMAN: That it's unreasonable to assume that one will be available when the Applicant believes that it is reasonable that one will be available.

WITNESS SPITALNY: I have to say that my responsibility would lie in evaluating the proposals. I can't make that decision. To me, that would have to be raised to Staff position with regard to that issue. And I can't -- to my knowledge I cannot respond to say what the Staff will do.

I do not know to say what the Staff would do.

BY MR. ROISMAN:

Q Do you have a judgment as to whether you think this task considers that the option is open for it to say no to the transshipment because of the availability of the ISFSI option?

A (Witness Spitalny) The Staff always has the option to say no, I believe, but there would have to be some qualifications or some basis for the Staff to make the decision. But they are not required to always approve an application.

I'm speaking independently of impacts.

Q I understand.

A And again, this is my understanding. I'm not speaking for the Staff right now; I'm speaking for myself.

Q Okay, that's fine.

You mentioned in an earlier answer the idea that

mpb7 that it would take five years for an ISFSI. You're talking about five years from what starting point?

A Design.

Q And what's the basis for that?

A Design may take about a year.

Q No, I'm sorry, I didn't mean what makes up the elements of it.

What evidence or experience are you relying on for making the time estimates that you've made that make up a total of five years?

A Basically I think that experience for constructing such a facility I don't believe could be put up with what has to do into it in less than -- I'm not a construction expert -- two to three years.

I'm out of my realm of expertise. I am speaking now of what I have known -- what documents I have seen, what has been relied on, estimates from DOE, Stone and Webster, independent utilities that have analyzed it, and so on and so forth.

I am taking the overall picture from what I have seen and relying that the average from everything I have seen has said two to three years for construction. And then putting everything else into perspective, it would take about five years.

Q Mr. Roberts, you were the project manager for

mpb8 the Stone and Webster proposed spent fuel standard design review, is that right?

A (Witness Roberts) Yes.

Q Do you have a judgment as to how long you feel it would take for the construction of that spent fuel storage facility if someone chose to want to buy it from Stone and Webster and have it built?

A I believe that in some of the prepared documents that I think came from the Applicant on discovery or something I have seen a Stone and Webster estimate.

Q Yes?

A And I believe it was -- and maybe it would be good to pull it out.

Q I think I have it here.

CHAIRMAN MILLER: Yes.

We have one, we'll show you, Mr. Roberts. It was an exhibit marked for identification.

MR. ROISMAN: I'm not finding it right at this moment, but maybe I can avoid the problem --

WITNESS ROBERTS: I believe I do remember the number.

The reason I wanted the document was that I think the statement in the document itself was -- Okay, good.

(Handing document to the panel.)

CHAIRMAN MILLER: It turned up just in time,

mpb9 Mr. Roberts.

BY MR. ROISMAN:

Q This is NRDC Exhibit number 10, which was introduced into evidence for the limited purpose of proving that it existed.

A (Witness Roberts) And I'm going to read a sentence from the second paragraph of this letter.

"As we have discussed by telephone on August 18, 1978, we believe that this facility could be constructed and in operation within 33 months of an authorization to proceed at a site with an existing operational nuclear power plant."

Now the key point here, the reason I wanted this exact sentence, was that the assumption by Stone and Webster here is 33 months after they have obtained an authorization. That would effectively mean after we have granted them a license, because we would have had to have gone through the review process. I'm not going to count in site data and so forth because I'll make the assumption -- it may be a little liberal an assumption -- that if it's an operational site they have essentially pretty well got the site data.

And so we're still talking probably roughly a year in addition to this 33 months. So we're talking in the neighborhood probably of four years. In other words,

mpb10 Stone and Webster could possibly save up to a year.

Now I think we're all aware that this is a site dependent situation, and there is an evaluation that interfaces with the operational plant and so forth. And this may be a liberal estimate, but say on the order of four years now as opposed to I think the five year figure that is generally one that is quoted for something built on a separate site. And we can see that there would be these other factors involved.

Q I see.

Now you're basing your answer on what Stone and Webster has said with the addition of the year or so for the actual application getting approved. You did not independently evaluate whether you felt the Stone and Webster 33 month number was a good one or a bad one?

A That is correct.

Q By the way, there was some dispute. Maybe you can clear it up.

You'll notice the first paragraph of that same letter, NRDC Exhibit number 10, makes a statement regarding actions that the NRC had taken.

Would you just read the portion of the paragraph that identifies some NRC action that I would like to ask you a question about.

A "I am enclosing a brief description of

mpb11

the Stone and Webster interim spent fuel storage facility design and the press release announcing the NRC acceptance of this design."

Q What actually has NRC done with regard to the Stone and Webster design?

A Okay.

There are two actions. This letter was prior to the second action. I believe I have the particular letters you're talking about, and I will pull them out.

I believe we have already forwarded to NRDC some months ago, many months ago, the July 12 letter that we sent to Stone and Webster which was a letter of approval on the conceptual design.

Q May I see that?

A Yes. Sure.

I remember getting a telephone request from someone in your office and forwarding it.

Subsequently Stone and Webster came back to us and discussed their desire to get portions of the standard design, which is the report SWECO-7601, the topical report which has the standard design of Stone and Webster. They were interested in getting into a position where they could reference at least portions of that topical report in any future site specific application.

mpbl2

So we continued our review and we came up with a second letter, January 12, 1979, which lists sections of the report which may be referenced, and that's in this letter.

If you want me to say anything further, I will.

DR. LUEBKE: May I ask, is any of this in the form of I guess you'd call it take-off drawings?

WITNESS ROBERTS: There are in the SWECO-7601, there are drawings of --

DR. LUEBKE: Sufficient to go out to an architect-engineer or whatever and get bids and time estimates? That's what I call take-off drawings.

WITNESS ROBERTS: Well, I think Stone and Webster would essentially be their own architect-engineer --

DR. LUEBKE: There are two stages. You have a conceptual design --

WITNESS ROBERTS: This is beyond the conceptual. This is I would say very close to an FSAR, and it's actually so stated I believe in the SWECO report.

DR. LUEBKE: So there's quite a bit of detail.

WITNESS ROBERTS: Yes, right.

And it's also stated -- this is off the top of my head, but I believe that Stone and Webster indicated either in the report or in the letter when they handed us that report that they were the architect-engineer and essentially they would be going around to utilities.

mpb13

CHAIRMAN MILLER: Pardon me.

What was the date of that first letter? Was that July?

WITNESS ROBERTS: July 12, 1978.

CHAIRMAN MILLER: Thank you.

WITNESS ROBERTS: And this letter from Stone and Webster is September 6, '78. So it falls between the two letters.

BY MR. ROISMAN:

Q Now these two letters that were sent to Stone and Webster, were they prepared with your participation? I see that one was signed by Mr. Sterrastecki, and I don't know, is the second one also?

A (Witness Roberts) The second one is signed by me for Mr. Leland Ross.

Q But these are documents which you directly participated in the preparation of?

A Yes.

MR. ROISMAN: Mr. Chairman, after we have a break at some later time, I would like to probably offer these. But I think since we've only got these copies, maybe what can happen is they can be circulated among any party who wants to know whether they want them offered or not offered to be able to make their objections.

I also have not read them.

mpb14

CHAIRMAN MILLER: All right.

Circulate them at the next recess, in about an hour, and we'll make the record then.

BY MR. ROISMAN:

Q And I'm not going to ask you any more questions about those right now because I haven't had a chance to look at them either.

A (Witness Roberts) Okay.

Q We're not as big as the Regulatory Staff and things do get into the office that not all of us see, and that happens to be one of them.

In the document marked NRDC Exhibit number 10, the Stone and Webster has also made an estimate of how much they think the spent fuel storage facility would cost. As I remember it was roughly $10,000 per fuel assembly, based upon a standard size, of something like 2800 fuel assemblies at a fixed price -- I don't remember the number now, in the neighborhood of $28 million.

My question to you is:

Did you form any opinion about whether you felt that number as to cost was a reliable number?

MR. KETCHEN: Just a minute.

Before you answer, I want to double check.

Do you know that's the correct number in the report?

mpb15

MR. ROISMAN: I will show the witness so that he can see it.

CHAIRMAN MILLER: Identify it, yes, from the exhibit.

MR. ROISMAN: All right.

First I'm going to show the witness attached to the letter is another letter. Attached to the other letter is something called Interim Spent Fuel Storage Facility, by Brian G. Schultz, Project Engineer. And I am now showing the witness what is the second page with substantive material on it in that.

And in the bottom I'm directing his attention to something that describes the size of the facility in terms of metric tons per BWR and PWR.

I'll later ask the witness if he agrees that that's essentially a 2800 fuel assembly size.

And secondly I'm directing the witness's attention to the letter itself which, in the third full paragraph, gives an order of magnitude figure for costs are in, and then lists mid-20-millions for the facility without fuel racks and five-to-eight-million for fuel racks depending on the type, design and number.

MR. KETCHEN: The basis for my interjection here and possibly an objection, in that same document I have another number of 2300. I just wanted to make sure that the

mpb16 record -- I want to make sure that the question is clear.

MR. ROISMAN: I'll just let the witness make his own --

CHAIRMAN MILLER: All right.

Let Mr. Roberts --

BY MR. ROISMAN:

Q It would be easier for the record if you could put it in the context of size for fuel assemblies rather than in terms of metric tons.

But if you don't have any opinion on the cost, if you don't have an independent opinion on the question of the cost --

A (Witness Robert) By an "independent opinion" if you mean have they gone through an analysis or something, the answer is no.

Q Well, in terms of the judgment about it.

A Okay, judgment.

Q Don't give the answer. Just tell me, do you have a judgment?

A Yes.

Q Okay.

Then go ahead and tell us now what your understanding is of the physical size of the fuel assemblies, of the facility they're describing, and of the dollar cost.

A Okay.

mpb17

There is a little situation here that I should drop back and explain there.

In their evaluation or in their report SWECO-7601, we did not evaluate any particular rack design. The reviewer that reviewed that did essentially scope out the capacity to see if 1300 metric tons UO_2 could be stored. He said there was no problem. So that's kind of a shifting figure here.

Stone and Webster might come in with different rack designs that were more or less compact.

So we have not really looked at it in terms of assemblies, but if you take the figure 1300 metric tons UO_2, it works out to about 1100 metric tons U, and then divide by about .45 to get the number of PWR assemblies.

I can do that with a pencil here or somebody's calculator. I think it's 1150 roughly.

So that gives you about 2555 or so assemblies.

Q Okay.

By the way, can you tell me, do you know, is that 1300 metric ton the base number based upon an assumed poison rack?

A No, that was not a poison rack, as I recall. I'm making the statement -- Let me think a minute.

I'm not absolutely certain that it was not a poison rack, but I'm reasonably certain that it wasn't from

mpb18 my discussions with the reviewer.

What the reviewer did was go through a set of -- you know, look at some rack design that had been approved and scope the capacity from that, and then, you know, checked it off essentially.

Q Right.

A As far as I can recall, it was not a poison rack. And so that would be as far as I could state the case.

Q All right.

Now how about the dollar number? We've got about 2550 in terms of capacity with the non-poison rack. What about the dollar number? What do you understand it to be?

A The dollar number I understand to be today the figure that Stone and Webster is now quoting, which is about 24.4 million. But they're making an assumption that they would get 1400 metric tons uranium of fuel in that, so that they're obviously thinking of a slightly more compact rack design.

But if you go to -- Let's assume the 24.4 million and the 2555 assembly, that comes out to about $9500.

Q Okay.

Now you said before that you did have a judgment. Now we've got the base data in. What's your judgment about that number as a cost number?

mpb19

A I think it's probably a reasonable number.

Q You can relax; I'm not going to be back to you for a couple of minutes.

MR. KETCHEN: No, he can't.

(Laughter.)

BY MR. ROISMAN:

Q Mr. Spitalny, I'd like to direct you -- Well, first let me ask a separate question of Mr. Glenn.

Mr. Glenn, you heard Mr. Spitalny's testimony regarding various I guess head calculations.

Would that be a fair description of them --

A (Witness Spitalny) Depending on which calculations you're referring to.

Q -- of the potential availability of options in the future sort of through the lifetime of Oconee, possible availability of pin packing, the possibility of availability of dry storage.

Did you essentially agree with that analysis of his?

A (Witness Glenn) Yes.

Q Had you done a comparable analysis, or did you just talk to him and accepted his?

A We have essentially done independent analysis in that we kind of knew what each other was doing, but at the time some of these analyses were done we were about 3000 miles

mpb20 apart.

So we conferred, but we essentially came to some independent decision.

Q Did you do a written analysis?

A No, I did not.

Q Now, Mr. Spitalny, I'd like to direct your attention to Staff Exhibit 19-B, footnote number 1 on page 2.

A (Witness Spitalny) Yes.

Q Okay.

Would you just read the footnote, please?

A "The date 1995 was chosen as a result of NRDC's statement for the purpose of selecting a lower bound for this discussion. The date does not reflect, however, a deadline at which time Duke will have a spent fuel storage crisis. Other options which remain available to Duke Power under today's state of the art technology will carry them well beyond the year 2000 without the need for constructing a new spent fuel pool. These alternatives have not been evaluated at this time due to, one, their need is speculative at best, and, two, continuing advances in the state of the art technology may provide other solutions during the next 20 years."

Q Now I just want very briefly, Mr. Spitalny, for

mpb21 you to give me the options that are contained in the statement "...other options which remain available..." and the options which you referred to in the phrase that begins after the (2) "...continuing advances in the state of the art technology..."

Would you please tell me which options are in the "other options"? Let's do that one first.

A The other options were the poison racks, the construction of the ISFSI, pin compaction, dry storage, double tiering.

Q Okay.

And which of the options that are contained in the phrase "...continuing advances in the state of the art technology may provide other solutions during the next 20 years."

What did you have in mind there?

A I don't have anything in my mind presently. I'm saying that it says "may provide other solutions", it doesn't say "will provide".

My feeling is that if you look back 20 years ago, what options did we have? We didn't have the poison racks, we didn't have pin compaction. We weren't sure about dry storage.

All I'm doing is saying that 20 years hence there may be, based on what has happened so far, and the fact

mpb22 that we have a waste management program dealing with this, there may be other solutions that come about over the next 20 years.

2B flws

2bl ebl
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Q Okay. Let's be clear.

Your testimony is that, among others, pin packing and dry storage represent today's state-of-the-art technology.

A No, they are not necessarily representative of today's state of the art. They are two alternatives which exist presently which may be included in today's state of the art, but not limited to.

Q Okay. All right.

But they are among options which are in today's state-of-the-art technology?

A Dry storage has been considered for a period of time.

Q I'm just trying to get a clarification so I understand what you're saying.

A Okay.

Q Let me direct your attention, Mr. Glenn, to the top of page 4 of Staff Exhibit 19-B.

Would you read that paragraph just to yourself and tell me if you feel that, in light of the present circumstances, that statement is still an accurate statement?

A (Witness Glenn) Yes, I feel this is still accurate.

Q Is it the case that it is still reasonable to assume that Duke will not rerack with stainless steel racks?

A In light of their very recent approval of their

eb2 license, it would seem logical that they will now put the stainless steel racks in. I think they may even have actually begun that process; I'm not sure.

Q So is your answer to my question it is not reasonable to assume that they will not rerack with stainless steel racks?

A Would you restate the question, please? I'm sorry.

Q Is it still reasonable to assume that Duke will not rerack with stainless steel racks?

A It would not be reasonable to assume that.

Q In the rest of the paragraph you have indicated that if they didn't rerack with stainless steel racks but chose instead to rerack with poison racks, that the pool would be sufficiently full that there would have to be some offsite shipment in order to permit the installation of poison racks.

A Right.

Q If they complete the reracking with stainless steel racks, will there come a time when that statement will still be true, that is, that you would have to ship offsite in order to rerack with poison racks even though they had reracked with stainless racks?

A That's true.

Q Will that statement be true-- Do you know when the time will come, how long after the stainless steel racks

eb3

are in?

A Not really, because I don't have a feel for how full that basin would have to be precisely, in terms of the number of -- how much physical space within the basin would have to be filled.

If it's two-thirds of the basin physically full before that, you know, I don't have a feel for that number.

Q All right.

But we can agree that at some point after they've reracked with stainless steel racks, it would still be possible to rerack with poison racks without transshipment, and that at some subsequent time, it would not be possible to rerack with poison racks without some transshipment? Is that right?

A There will definitely be a decision point somewhere down the road where Duke will have to make a decision.

Q Will have to make a decision if they want to avoid transshipment?

A Right.

Q Okay.

And that will occur, in your judgment, after the stainless steel rack has been installed?

A Yes.

Q The last phrase of the paragraph:

"However, the added cost added to this

eb4

licensing action (dollars in man-rem) must be added to the cost for poison racks."

"This licensing action" refers to reracking with stainless steel racks?

A Right.

Q What's the point of that statement? What are you trying to convey by that statement?

A What I'm trying to convey is that if Duke were required to put in the stainless steel racks simply for the purpose of allowing time and space to immediately put in poison racks, that the two costs, both in dollars and man-rem, would have to be added together.

Q Would it be your judgment that if one were trying to reduce man-rem and reduce dollar expenses, the more prudent thing to do would be to decide before you do any reracking that you will rerack with the poison racks?

A If time allows for that decision.

Q I understand.

A Yes.

MR. ROISMAN: Mr. Chairman, I would like to ask a point of clarification.

If the Board has in front of it the page we're looking at, the very next paragraph represents in effect a summary by these witnesses of testimony that Mr. Carter is giving. If it can be understood, as it was on earlier days,

eb5

that the summaries of these witnesses' testimony as it appears in other witnesses' testimony is not -- quote -- "evidentiary" -- quote -- we don't have to go through the rigamarole of moving to strike.

We've got Mr. Jerrell here and I will be asking him about the full-core reserve question. I don't want to have to also ask Messrs. Glenn and Spitalny, or challenge their credibility or anything on this issue.

CHAIRMAN MILLER: Yes.

Is there any objection on the part of Counsel?

MR. KETCHEN: Let me see if I understand it.

Yes, I believe I will object because, as I understand this testimony, that paragraph, following the first paragraph on the page that was being questioned, is one of the factors that goes into the statements and testimony in the preceding paragraph.

So to the extent that they are considering that FCR, I think that they are subject to cross-examination, but I would have no problem with the fact that what Mr. Carter says about the FCR policy of the Commission as reflected here is the policy.

I just don't understand --

MR. ROISMAN: I think I understand.

MR. KETCHEN: I don't want it limited to these witnesses to say that they can assume that that is the policy.

eb6 Okay?

MR. ROISMAN: Right.

My understanding is the witness is free to assume that the FCR situation is as Mr. Carter's testimony alleges it to be, after cross-examination it is whatever it stands, but that they are not independently trying to tell us what the FCR situation is.

So that the only witness that I have to talk to about the FCR, the validity of the FCR policy is Mr. Carter.

MR. KETCHEN: Fine.

CHAIRMAN MILLER: It may be agreed then.

MR. ROISMAN: That would equally apply then, Mr. Chairman, to the next paragraph as well.

CHAIRMAN MILLER: That would be based also upon the testimony of Mr. Carter and not upon the independent judgment of these witnesses? Is that correct?

MR. KETCHEN: Yes, with the qualifications that are on the record about what the policy is.

CHAIRMAN MILLER: All right. Then it may be so understood.

BY MR. ROISMAN:

Q Let me ask you, Mr. Spitalny and Mr. Glenn, turning to page 5, the last sentence in the first paragraph, your reference to "Experience has shown," are you relying upon experience that you yourselves have accumulated, or are

ab7 you relying upon experience Mr. Carter has accumulated?

A (Witness Spitalny) The last sentance?

Q The last sentence of the first paragraph on page 5.

A Referring to the $500,000?

Q Yes.

A That sentence was put in here as a result of my uncovering documents and just related experiences that may be obtained from other utilities in setting down what their costs were. I took that figure from what I knew to be the high number.

Now what I did at that point was contact Dr. Nash who is the cost-benefit witness, and confirmed with him that that number was indeed an accurate number, and the reason he has been brought here is to confirm that that number-- He's the one who worked in that area for the Staff. He can confirm that that is an accurate number.

2b1 Q All right.

WRB/wb

wb1

2B-2

MR. ROISMAN: The next paragraph on page 5, Mr. Chairman, the second sentence also appears to fall within this category, being essentially based on Mr. Carter's testimony; unless there is some dispute about it.

CHAIRMAN MILLER: It appears so.

Does counsel have any objection to that.

MR. KETCHEN: Which one are we speaking of now?

MR. ROISMAN: The second sentence of the second full paragraph on page 5.

MR. KETCHEN: I think I see what's coming here. And I think I'm going to have to object to it, because I think it does depend on Mr. Carter's affidavit but I think it also is the statement of these witnesses, Mr. Glenn and Mr. Spitalny of what their basis is. And, to that extent, I would have to object to the further qualification of this testimony. They are a panel, this was not an individual effort in a vacuum.

CHAIRMAN MILLER: The question is, Are you contending that the witnesses have it within their competency and knowledge to have independent bases for that statement rather than relying upon that of the other identified witness? If so, they'll be cross-examined; if not, then the examination would be limited to the witness whose knowledge and experience was the basis for it.

MR. KETCHEN: It's in the middle of that. I'm

WRB/wb2

saying that they have the competence to choose from their information what they would establish as the basis.

CHAIRMAN MILLER: All right. You may cross-examine.

MR. ROISMAN: Let me just be clear, Mr. Ketchen. You're saying the second paragraph on page 5, the sentence that begins with "As discussed in the Staff's testimony for NRDC Contention 5 (T. Jerrell Carter affidavit)," and the remainder of that, that the foundation for that statement is not exclusively T. Jerrell Carter's statement, it is also some independent statement by these witnesses?

CHAIRMAN MILLER: That's what he said.

MR. KETCHEN: Are you asking me that?

CHAIRMAN MILLER: Yes.

MR. KETCHEN: No, I'm saying that that's their statement in this testimony of their basis, what they relied on.

MR. ROISMAN: I don't have any problem with that. I just want to make sure that if I wanted to test the validity of the conclusion that at the standard design philosophy has been--

MR. KETCHEN: They would say they got that from Mr. Carter.

MR. ROISMAN: That's all I needed to know.

MR. KETCHEN: Let me ask the witnesses: Am I

wb3

characterizing that correctly? I don't want to testify.

WITNESS SPITALNY: Yes.

MR. ROISMAN: Mr. Chairman, looking at page 6, there's a paragraph in the middle of the page, the second full paragraph, that begins "In conclusion," and it is, not surprisingly, conclusory. It seems to be sufficiently conclusory that I think it should be stricken from the testimony. It's based upon environmental impacts and a lot of other stuff in the FCR question, and I think that is a conclusion that (a) is to be drawn from evidence, not to be part of evidence, and it depends upon, of course, cross-examination and an analysis of lots of other pieces of testimony.

CHAIRMAN MILLER: Mr. Ketchen?

MR. KETCHEN: Mr. Chairman, I would object to that. The witnesses up there have been cross-examined for hours on this subject matter and have been asked what their conclusions were and how they did their review, and so forth and so on. And it's part of their job to draw conclusions and make decisions.

CHAIRMAN MILLER: You may examine.

We are ruling that these are, as stated to be, urged by the Staff to be the opinion evidence of these witnesses who, as represented, are competent to form such opinions based on knowledge and information in their possession; that the staff is entitled to proffer the testimony, and

wb4 you are entitled to cross-examine as to the basis for those opinions.

4.190 BY MR. ROISMAN:

Q Mr. Glenn, let me direct your attention to page 6, the paragraph that begins "In conclusion."

What is your independent knowledge for the statement that "The alternative of transshipment is reasonable..."?

A (Witness Glenn) I feel that transshipment is a reasonable option and that there have been many generic studies done on transshipment that have concluded that the environmental impacts, other factors considered, are sufficiently small to make transshipment a reasonable alternative. But in this case the evaluation of those same types of criteria also indicated that transshipment would be reasonable.

Q Were those evaluations ones that you made or ones that other people made?

A In one case it was one that I made.

Q Which one?

A It was in the Generic Environmental Impact Statement on Commercial Waste Management, which is now in draft form.

Q That's a Department of Energy publication?

A The Department of Energy.

Q And what does it denote to say that it's in draft form?

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A I don't understand your question.

Q What does it mean to say it's a draft as opposed to final? What's the status of it?

A Presently, this week, hearings are being held in Washington, D.C., which is the first hearing on the draft document. And there will be hearings in various parts of the country. With the final document scheduled to be written April of 1980.

Q And is one of the purposes of all those hearings and comments to test the validity of the conclusions that are made in the draft regarding the reasonableness of transshipment?

A That would be a very small part, but, yes.

Q And do you consider it possible that the data that will come forward will cause you to change your mind about the reasonableness of transshipment?

A For me, personally? To change my mind?

Q Yes.

A No.

Q You don't see any possibility that your mind could be changed on the subject?

A There is a possibility that my mind could be changed on this subject; however I think it would be remote. I would have to be shown very specific evidence as to why transshipment was not a reasonable alternative. Maybe not

wb6 the most acceptable, but a reasonable alternative.

Q Tha statement here, "....results in environmental impacts of equal or less magnitude...." What's the basis for that statement?

A An evaluation of the environmental impacts of the transshipment determined that those were small; comparing the environmental impacts of reracking and determining that those were also small; a cursory look into the environmental impacts of building an independent spent fuel storage installation, and determining that those were also not be considered significant, and determining that all these impacts were essentially, for all practical purposes, of the same magnitude, and coming to the conclusion that-- First of all, I want to qualify what I say by saying that I'm a consultant to NRC and what I say doesn't bind NRC. I can't speak for NRC except in that context.

Q Let's just make the record clear on that.

MR. ROISMAN: Mr. Chairman, I want to state my position that a witness for NRC binds them for this proceeding. It may not bind them for purposes of anything else, but the witness is proffered as an NRC witness.

MR. KETCHEN: This witness cannot bind on conclusions of law.

CHAIRMAN MILLER: I don't think we were talking about questions of law. We're talking about the objection,

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which is to the effect of the staff tendering this witness as part of a panel and being bound in the testimonial sense by the testimony of the witness whom it vouches for.

MR. KETCHEN: What we're saying is, He, as a consultant, is offered as a witness for cross-examination on behalf of the Staff.

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BY MR. ROISMAN:

Q Go ahead. I interrupted you.

A (Witness Glenn) That was just my feeling.

My conclusion was that it was an alternative that could be approved.

Q Did you independently do the environmental analyses of the three things you listed: spent fuel transshipment, reracking, and the cursory look at the ISFSI?

A I have done a cursory look at the ISFSI in that that also is a part of my work on the commerical waste management document. That was one of my responsibilities and therefore, I am familiar with what kind of impacts and what magnitude those impacts are going to be for the construction of an independent spent fuel storage installation.

So yes, that's the way I looked at the cursory look at the independent spent fuel storage installation.

As far as reracking, I looked at the impacts as they relate to exposure, the man-rem exposure that's going to be involved in performing that reracking operation.

Q You mean you looked at numbers that someone else did, or you produced numbers?

A I looked at other people's numbers.

Q And were those Dr. Nehemias' numbers essentially?

A Those, and those of the Applicant also.

Q And what about in terms of transshipment, did

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you also there look at numbers by Dr. Hehemias and the applicant, or did you generate your own numbers?

A I essentially generated my own numbers.

Q Tell me how did you generate those numbers? What did you do?

A The numbers for transshipment were based on various documentation that's available as to procedures on how one would go about evaluating those impacts, specifically out of NUREG 0170, a document that I relied on heavily.

After traveling that route I was convinced in my own mind that the NUREG 0170 document could be applied to this case and could be used to come up with a reasonable estimate of what the impact of transshipment would be on the public; also on the drivers.

And as far as the loading and unloading of the casks, the occupational exposure there, I was in contact with Dr. Eger of the Morris, Illinois, operation for General Electric to get a feel for what their exposure was for unloading casks. And I based my numbers, some of my numbers for those particular operations on those numbers, plus numbers that the applicant had supplied me.

Q What is your judgment as to what the number is for unloading, if you just limit yourself to the Morris, Illinois, experience? What were they showing for --

A They were showing about-- That number was .12

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man-rem to unload the casks.

Q Does the unloading include getting it off the truck and getting the assembly into the pool?

A Right.

Q All of that?

A Right.

Q Would you assume that it would be essentially the same number for getting it out of the pool and into the cask and onto the truck?

A Yes, I would.

Q What about the driver exposure? Did you have any-- Did you find any experience data that you could look to for purposes of driver exposure?

A WASH-1238 makes a statement that says that experience has shown that exposure rates to persons in the cab of the vehicle is on the order of .2 mr per hour, and I used that number.

Q You used that number. Okay.

Let me draw your attention to the top of page 8, Mr. Glenn.

In that paragraph the first one says "The referenced document does not state...." and then goes on.

And in the next two sentences it says "DOE indicates...." and then "DOE is encouraging...."

Are the second and third sentences there the

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statements made based on the documents or statements made based upon some direct contact with DOE?

A Based on the document.

Q The statement at the bottom of -- I'm sorry, Footnote 2 on page 8, what is the basis for that statement? In other words, what part of the document do you point to to support that statement?

A That was some work that Mr. Spitalny did, and I think it might be better to ask him that.

Q All right.

Mr. Spitalny, Footnote 2 on page 8 of Staff Exhibit 19-B?

A (Witness Spitalny) Yes. The reason that that was put in there was to-- We had used--

Q I'm sorry, Mr. Spitalny. I don't want to know the reason, I want to know the source. What part of the document do you point to to support that conclusion?

A That was my conclusion, based on reading the document.

Q What part?

A That same section of the document.

Q You mean just the portions that are quoted in the previous page, on page 7?

A No, I'm sorry, the first few pages of the document, the first two or three pages of the DOE document.

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Q Did you at any time make an effort to contact officials of the Department of Energy to verify whether your reading of the document indicated in Footnote 2 or in the paragraph at the top of page 8 was accurate or not accurate?

A No, I did not.

Q On the bottom of page 8, the paragraph that begins at the bottom, "The applicant's commitment to nuclear power," what did you mean by that, Mr. Glenn?

A (Witness Glenn) Any utility that builds 13 reactors has got to be committed to nuclear power.

Q Are you aware of what Duke's present plan is with regard to five of those 13, namely, the third Cherokee unit and the three Perkins units?

A That's four units.

Q I'm sorry, my mistake, four.

A Yes. I am now aware of that. After getting to Charlotte, it was the first thing I heard on the news after I got here. I thought it was very appropriate that they allowed me to hear it as soon as I got here.

Q Duke has a lot of power in Charlotte.

(Laughter.)

MR. BLUM: They provide most of the power.

WITNESS GLENN: Those units have been postponed; they have not been cancelled.

BY MR. ROISMAN:

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Q I didn't say they did. I just asked you about those four units. You can say anything you want about them.

A (Witness Glenn) Please restate your question.

Q I want to know what impact their action with regard to the four units has on this conclusion about applicant's commitment to nuclear power. Would you say the commitment is less in light of that statement?

A Duke has stated that they are going to consider, from what I've read in the newspaper, if I may qualify it, you know, that they are going to -- they may look at other things but they have not cancelled their reactors. They are still committed to them.

They said that possibly there might be a slight change in their projected power needs, and so they're going to delay the units, which is something that is characteristic of most reactor facilities. There tends to be a delying of the project.

So I cannot make a conclusion as to whether they are now committed to nuclear power, less committed to nuclear power than what they were. They are still talking about the same units; they are just delaying them somewhat.

Q Is it your understanding that the delay of those four units is an indefinite one or a definite one to a specific date certain?

A I do not know-- Excuse me. Irregardless of

eb7 the fact whether they are delayed or not, there are still enough reactor sites available to Duke, even without those four units, that they are still in the same position.

Q As a matter of fact, I was just going to ask you about that.

The next sentence starts, the one at the bottom of page 8 and carries over to page 9, starts with "This position...."

If we assume for a moment that the Duke system is going to consist of all the reactors that are still scheduled for firm completion dates and we exclude for the moment the ones that have been indefinitely -- or that have been deferred, it is a true statement that some place must be found, whether within the Duke system or outside of it, to store the spent fuel that will be generated by those nine plants? Is that not correct?

A Some place will have to be determined.

Q I'm just talking about interim storage, pending some permanent waste disposal.

And I take it that it is true that to the extent that you move the spent fuel from one of those sites to another of the sites, while relieving the problem at site 1, you increase the problem at site 2 by exactly the number of spent fuel assemblies that you transfer to it. Is that not true?

A That is true.

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Q And that ultimately at some site, if we assume there's not going to be an interim facility available away from the Duke site and that there's not going to be a permanent waste disposal facility available until all the Duke plants that we're now talking about have completed their life, some place you're going to have to get spent fuel space for all those plants. Is that not correct?

A You are ultimately going to have to find space for all the fuel, right.

Q Okay.

So when you state here that:

"This position allows them to become independent and self-sufficient in terms of spent fuel storage capacity in that they are capable of transfers within their own system."

Isn't it equally true that they are capable of handling all their spent fuel within their own system without transfer, simply by the building of an independent spent fuel storage facility at those sites where the pools already exist, and the expansion of the pools at those sites where that's possible to hold the lifetime discharge? Isn't that true?

A That is true.

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Q Isn't that equally true for every utility in the country; that is, that they are capable of expanding plants that still have not advanced so far in construction to hold a lifetime supply, and building independent spent fuel storage facilities for those that have passed the point of no return, so to speak, and they could store their lifetime output within their own systems?

A With the number of reactors that Duke has, it allows them more flexibility in determining at what time they will have to choose options. The actual delay of Cherokee actually allows them more time to make their decision because less fuel is going to be generated at the Cherokee station.

While what you say, or what you have asked me in this series of questions may be true, the decision point as to when those decisions would have to be made is not now.

Q Okay. But let's just get that one thing: You have said it "may be true." It is true, is it not, what I have said?

A It is true.

Q Okay.

And the point you're attempting to make has nothing to do with Duke becoming independent and self-sufficient; it has to do with your perception of the flexibility available to Duke versus other utilities; isn't that true?

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A Duke can maintain their independence through the various alternatives available to them. I've calculated that with -- well, my number includes all the reactors. But with pin compaction and all the other alternatives that are available to Duke as stated in Mr. Spitalny's testimony, they could conceivably not ever need to build an independent spent fuel storage installation. But it is an alternative that's available to them. And I've answered your questions in the context that you asked them.

Q I should hope so.

A So -- you know, you asked me a question that required a very definite answer, and I gave you that answer.

Q That's what this is all about, Mr. Glenn. I'm trying to ask them precisely and you're trying to answer them precisely. I appreciate your doing that.

But my point now is that I'm trying to just understand, and I want to be clear: the thing you're focussing on that makes this applicant unique is not its ability to become independent and self sufficient: that's something which you acknowledge all the -- or that you feel all the utilities should do; it's that Duke has, in your judgment, more ways of getting to be independent and self sufficient than, perhaps, a utility that only had two reactors. Is that the thrust of what you're tr-ing to say?

A I've got to be perfectly candid and say, usually

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your questions are long enough that I forget what the first part of it is while I'm trying to think of what to say about the second part of it.

MR. KETCHEN: You're not alone, Mr. Glenn.

CHAIRMAN MILLER: We'll have it rephrased, Mr. Glenn.

WITNESS GLENN: I apologize. That's no reflection on you. I lose track of what you say.

CHAIRMAN MILLER: We'll have it rephrased, please.

BY MR. ROISMAN:

Q You are focussing on something you consider unique with regard to the applicant; is that correct?

A (Witness Glenn) Unique in the number of reactors that they have available. There's only like two or three other utilities that are--

Q I don't have any quarrel with that. I'm just trying to get clear what it is you mean that is unique about them. And do I understand that what it is that is unique about them is that they can become independent and self sufficient with more flexibility than a utility that merely had two sites with three reactors?

A If a utility only has two sites their ability to transship is quite limited, simply because of the number of facilities that they have. Another reactor-- Another utility is going to be quite reluctant to accept fuel, to jeopardize

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their storage for the aid of another utility.

So, therefore, I'm saying that just because of the physical number of reactors they have, and the way they are coming on line, it allows them a great deal of flexibility, and it allows them to use a significant -- to have available to them a significant number of alternatives that they can consider at any one time, and that is not a cut-and-dried.... There's not a cut-and-dried solution to what Duke should do. You can't say at this point that Duke should do this for the rest of the life of these reactors: that in itself limits Duke.

Q But let me see: I'm trying to get the comparison. You've made a comparison here between Duke and other utilities. Are you saying that a utility with only two sites doesn't have the same flexibility that Duke has with the potential number of sites, we're looking at five sites?

A Yes.

Q And that for the utility with only two sites the transshipment option is not as viable?

A I wouldn't say that it is not as viable. This situation that Duke is in affords them more of an opportunity to use the transshipment alternative, just because of the way the reactors are coming on line.

As I stated before, we've only analyzed for 300 shipments, we haven't analyzed the transshipment impact for

wb5 anything more than that.

Q You're talking now about the environmental cost of those impacts?

A Yes.

Q Isn't it true that a utility that, let's say, had a site with three reactors at it and another site with two reactors, and just assume for a moment that at the first site they are older reactors and that the site with only two plants is a relatively new one, that if its older plants are beginning to fill up their storage space, that for that plant the opportunity to transship to the newer plant is as much of a flexible opportunity as it is for Duke to have all of these sites; that is, it can relieve its problem at Plant 1, 2 and 3 by shipping to Plants 4 and 5?

A Yes.

Q And is the thing that makes it less advantageous to Duke, is that when 4 and 5 reach the point that they're getting full, 1,2 and 3 have already reached the point where they're full, and that utility is then forced to have to look at an independent spent fuel storage facility; we will assume for a moment it has exhausted the reracking, pin packing, and other things you're talking about; that it's got to look at either off-site storage or independent spent fuel facility storage at the site where it has the need for storage capability?

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A If they have exhausted all of their alternatives, including pin packing, at that point a utility would have to consider the use of independent facilities, whether they are government-owned or privately-owned.

Q Okay.

And what you're saying about Duke is, if Duke should reach that point vis-a-vis its shipment from Oconee to McGuire and then the two pools at McGuire and the two pools at Oconee begin to get full, what puts it in the unique position is, it can go to Catawba; is that right? That's what makes it different from our hypothetical utility?

A That would make it different, yes.

Q Okay.

And that, from your perspective, is an important difference? I mean, you said "....in a unique position available to very few utilities." Is it that characteristic you feel is the unique part?

A Yes.

CHAIRMAN MILLER: Is this a convenient point to have our morning recess?

MR. ROISMAN: If I could ask just about two more questions?

CHAIRMAN MILLER: All right.

BY MR. ROISMAN:

Q And when the Catawba and the McGuire and the

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Oconee pools are filled, the availability of the Cherokee pools makes -- that's more of a uniqueness; is that correct; about Duke?

A (Witness Glenn) Yes.

Q And, finally, when those pools are full, the potential availability of the Perkins pool is a part of that uniqueness; is that correct?

A Yes.

MR. ROISMAN: That's fine.

CHAIRMAN MILLER: Okay. It came out right. Okay. We'll have a recess.

(Recess)

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CHAIRMAN MILLER: Let's go.

Two things we'd like to take up preliminarily. First of all, we've been checking our mutual schedules as well as the statements that Counsel made yesterday and it looks as though about the only open week where we have a window would be the week of August 6th, the 6th through the 10th.

Would you check your calendars and see if we have anything that's absolutely prohibitive, because almost all the other dates, we run into conflicts and they are too difficult.

MR. BLUM: For the record, Mr. Chairman, I will have to withdraw as Counsel for CESG on the last day in July this year, since I'm going to be working for the North Carolina Law Center.

CHAIRMAN MILLER: Yes, you explained that to us. We regret losing you. We appreciate your being here and for that reason, we have granted leave for you to cross-examine the panel, since you probably won't have any future opportunity.

I take it you'll probably want Mr. Riley, who is representing himself and the organization, to take over upon your withdrawal. Is that correct?

MR. BLUM: Yes, sir.

CHAIRMAN MILLER: Leave will be granted for that

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purpose.

Mr. Blum, you may examine the panel.

MR. KETCHEN: Did you want to get our responses to the schedule?

CHAIRMAN MILLER: I was assuming you could make it.

MR. KETCHEN: One qualification on the week. Would the 6th be a travel day and --

CHAIRMAN MILLER: No, we're trying to do it now in five days, you see, so allow travel on Sunday, much as we dislike to, in order to have the 6th, 7th, 8th, 9th and 10th with the hope we can at least finish then, and close our record. And nobody can guarantee us that if we travel the 6th, we will be through the 10th.

MR. MC GARRY: Would you like to hold it in Washington?

CHAIRMAN MILLER: I'd love to, but I would have to have a unanimous stipulation as to that.

I think Mr. Riley is unavailable for a Washington hearing. Isn't that correct?

MR. RILEY: If one of the parties is inclined to provide the expenses for my participation, it might turn out to be cheaper all around.

CHAIRMAN MILLER: Off the record.

(Discussion off the record.)

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CHAIRMAN MILLER: Back on the record.

We'll continue to give thought to the matter, but as far as the date is concerned, the Board will announce and we will enter an appropriate order.

Consider this an oral order, that this hearing will resume, the evidentiary hearing will resume on August 6th and will run for a week, a work week, through the 10th of August. The place perhaps may be a little more definitively set at a later time, but those will be the dates.

MR. ROISMAN: Mr. Chairman, are you making any ruling with regard to the opportunity or lack of opportunity for the parties to present additional testimony at that time, other than the minor additional testimony that we've all been allowed to present in the form of some further direct examination of a witness?

I have in mind particularly statements that Mr. Tourtellotte had made about what the Staff might do or might not do.

We had a discussion yesterday about this GAO document, Chairman Hendrie, and Worth Bateman at DOE. Are you in any way addressing that question now?

CHAIRMAN MILLER: No.

While I think of it, one question I will address now.

In the future, and in any other case I'm

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involved in, direct written testimony prefiled shall be in the form of questions and answers. We can handle objections a little better, and it's a good reminder for both Counsel and witnesses of the form. And I think this may help everybody so we don't get into the problem that you have with a narrative.

So if you'll have that in mind if there be future testimony in this case, at any rate please cast it in the Q-and-A form.

Now do you wish to consider at this time additional testimony, or do you want to complete the cross-examination? Maybe that's what we had better do. Let Mr. Blum have his opportunity, and then in an hour or so, we'll probably suspend this hearing and we can discuss those matters.

Mr. Blum, you may proceed.

BY MR. BLUM:

Q Mr. Spitalny, is it your consideration that Duke has already built a spent fuel storage facility at Catawba, or is in the process of building that?

A (Witness Spitalny) To my understanding, Catawba is on the order of 50 percent constructed.

Q When you did your study for the Environmental Impact Appraisal, I think you - is it true that in the back of your head you were considering Catawba as a repository

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for Oconee and McGuire fuel?

A Not as a repository; as a continuing option.

Q As a spent fuel storage facility for Oconee fuel; isn't that it?

A Yes.

Q That was in the back of your head?

A Yes.

Q And it's fair to say then that you were considering-- Or is it fair to say that you were considering that Duke had already committed itself to building a spent fuel storage facility at Catawba which could be used for Oconee fuel?

A Duke had committed itself to expanding the pool at Catawba. It was my belief that it was for the storage of Oconee and McGuire fuel, but it would not be an irreversible em[illegible]or. THey are not committed to put Oconee and McGuire fuel in it.

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Q You made some mental calculations about what they could do for the year 1991, I think?

A No, I have made some written calculations. I have some written notes that go on even beyond that. I don't have all my notes with me for the purposes of this testimony. I have spoken verbally, from calculations.

Q Through the year 1991 how many spent fuel storage-- excuse me.

How many spent fuel assemblies will have to be shipped if there is no further poison reracking?

A The number is on the order of -- I don't have the exact number here -- but the number is, I believe, on the order of about 2,000 assemblies. But I'd like to reserve that, if you want to pick on it, I'd like to calculate it, or find what the correct number is.

Q Well, that's about . . . that's fine.

So in 1991 isn't it true that both Oconee and McGuire, without any further pool expansion, would have to be shipping all their future production to Catawba for storage?

A Without any further expansion, yes.

Q Were you present for the calculation of the accident rate of about .02 accidents per 300 shipments?

A I was present for that. I don't know if you have recorded it properly.

Q I was going to ask you if you can accept that figure.

A That was being -- I followed it when it was being done, when the calculation of that number was being done by the transportation panel, and I would like to let them respond to that, that area. I was present when they discussed it, and I did follow what they did.

Q You don't consider that a portion of your expertise at all?

A Accident analysis, transportation?

Q Yes, sir.

A No.

Q What was the source of your consideration of the routine radiological exposure during transportation in the EIA?

A What was the source -- would you repeat that, please?

Q Yes. You have a whole section --

A Just tell me what you're referring to.

Q You have a whole section 6, isn't it, that considers -- no -- Section 5 -- that considers environmental impacts, in part during transportation?

A That's true. Now, please repeat the question.

Q What's the source of all that? Where did all that material come from?

A These were calculations which were done -- we assumed a source term, shipping of spent fuel assemblies which had a burnup of 36,000 megawatt days on it.

Q All right. Tell me what the source term is.

A In the Appendix, I believe there's a table which has the source terms. A-32, A-31.

Again, these calculations were done by Mr. Glenn. He used the H.P, health physicist. But that's the source term, is page A-31.

Q Mr. Glenn, did you calculate a source term of curies, by the way, for 270 day old fuel?

MR. KETCHEN: Do you have a copy of that document, Mr. Glenn?

WITNESS GLENN: Yes. I have it. He's referring to not the correct page. The source term for transportation accidents is page A-32.

BY MR. BLUM:

Q No, I'm talking about the transportation without accidents at this point.

A (Witness Glenn) Rephrase the question, then.

Q What is the -- you have a value in curies for 270 day old fuel, one assembly, don't you?

A Well, first of all, no, I do not. In explanation, the routine transportation doses were calculated based on the regulatory limit of 10 mrem per hour, 2 meters.

Q Two meters from the edge of the truck, or --

A Yes.

Q Okay. So you didn't ever figure out how many curies are actually involved in one spent fuel assembly, is that true, Mr. Glenn?

A No, it's not. I have a copy of a computer run done on the ORIGEN run that calculated the curies per metric ton, and I can take that number and relate it to a fuel assembly.

Q Did you ever do that?

A I never specifically did that, no.

Q Have you read Garrick's paper, Dr. Garrick's paper--

MR. KETCHEN: Mr. Chairman, I'm going to have to object to this line. We had the cask panel on last Saturday. Mr. Glenn was up there. I believe that the opportunity for cross in this area was available, and I can't recall directly but if he didn't ask Mr. Glenn questions at that time, I believe he should have.

Now we're going back, I believe, into that same subject matter, and going to repeat it again with this switness. He was on that other panel, I agree, but if we want to talk about that, I think we should excuse this panel and bring -- if they're here, I don't even know whether or not they're here -- bring the other guys back. Some of them are.

But if we want to go back into that area, I think there should be some limits based on cumulative and repetitious and those kinds of bases.

CHAIRMAN MILLER: Are you going to be cumulative and repetitive, Mr. Blum?

MR. BLUM: No, sir. I have every intention of not doing so.

CHAIRMAN MILLER: Very well. Proceed.

We're giving a certain amount of leave. This is the last opportunity. We do have discretion, I think, and we will grant him leave now, because of the circumstances.

MR. BLUM: My understanding is this is the time to ask about the environmental impact assessment, and these are the gentlemen who are now presenting testimony on that.

MR. KETCHEN: As it relates to one of your contentions.

CHAIRMAN MILLER: Well, the relation to any matter he has an interest in. This panel, at least in part, is supporting some of the analyses and conclusions that pertain to the environmental impact appraisal, Mr. Ketchen, aren't they?

MR. KETCHEN: I was coming to that. It came up yesterday at one point, and I wanted to interrupt Mr. Roisman, but he wasn't at a proper point in his cross that he would allow that, and I didn't want to get into it.

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But I wanted to indicate that we haven't offered that EIA, prepared under Mr. Spitalny's direction, yet, and we haven't been through the drill of updating it. And I wanted to point that out to Mr. Roisman. We haven't been through that process. Some of that is true, yes, but --

CHAIRMAN MILLER: Well, I'm sure you'll do it, and we'll allow you to do it, Mr. Ketchen, because --

MR. KETCHEN: Yes, some of it is true as it relates to the contention. The EIA will at a later time come in in the case in chief.

CHAIRMAN MILLER: Well, the EIA is coming in at some point. I mean you're required to offer it, and you intend to do so.

MR. KETCHEN: Yes, sir.

CHAIRMAN MILLER: Very well. You may examine.

BY MR. BLUM:

Q Mr. Glenn, is it fair to say that the EIA relies on the containment by the cask and the retention by the cask during transport of all radioactive substances?

A (Witness Glenn) Yes.

Q For instance, on A-32, where you calculate -- or you have listed out your source terms for -- I guess that would be Table A-9, the transportation accident source term, this figure, the cask over-pressurization figure, those figures are based on .1 percent of the cask coolant . . .

A Please, could you start over again? The outside racket caught my attention.

Q Okay. Referring to Table A-9, page A-32 of the Environmental Impact Appraisal, the column of figures refers to your calculation, or your assumption, that .1 percent of the coolant would be released, is that true ?

A For cask over-pressurization?

Q Yes.

A Right.

Q All right.

So that if, under circumstances that have previously been considered, 100 percent, or close to that, of the contents -- the coolant contents -- were released, those figures would be multiplied by a thousand times?

A If you assumed that 100 percent of the coolant was released you would have to multiply those numbers by 1000.

Q What was your source of information about extra severe collision? What did you use in that?

A What was my source of information on the extra severe collision?

Q Yes.

A You mean my reference for the terms that I used, or --

Q Yes.

A (Pause.)

Q Well, let me ask you: Was it NUREG-170?

A This accident is explained in WASH-1238. Also it's an accident that was used in the commercial waste management document that I referred to, the generic environmental impact statement on commercial generation of wastes.

Q Are you familiar with the document called, "An Assessment of the Risk of Transporting Spent Nuclear Fuel by Truck," PNL-2588?

A I've probably seen it. But I'm not familiar with it.

Q I'm not sure what the record shows on this, but are you familiar with Dr. Garrick's testimony and written report?

A No.

Q You haven't read that?

A No.

MR. BLUM: Since there appears to be adequate time in the interval between now and the next hearing, I would like to ask if Mr. Glenn could read that report, which is part of this record, because there are some questions about the assumptions that we'd like to ask him at that time, at a future time.

MR. KETCHEN: Mr. Chairman, I'm going to object to that, I think.

CHAIRMAN MILLER: It does seem doubtful, Mr. Blum, that you can compel a witness to read anything you want him to read. You can interrogate him reasonably, but I don't think you have the right to convert him into your witness by directing him to read something so that you may than cross-examine him on it.

MR. BLUM: Well, I think he's indicated some familiarity with the document already, but I don't see any point --

CHAIRMAN MILLER: Well, if he's used it in any of his conclusions, and if it's relevant some way --

WITNESS GLENN: Excuse me. I did not say that -- I said I knew of the document that he's referring to, and I said I was familiar with it -- I said I was aware of the document but I had not --

CHAIRMAN MILLER: Yes, that's what I understood the testimony to be, that you had a passing familiarity with it, you may have seen it, but you didn't really recall what it said or didn't use it in any of your testimony or preparation thereof, if I understood you correctly.

WITNESS GLENN: That's correct.

CHAIRMAN MILLER: So, in that event, I don't believe you have the right to compel him oto read it. If you wish to put on evidence that his lack of familiarity with it somehow affects his expertise, that might be another

matter. But that's a wholly different area.

MR. KETCHEN: Incidentally, Mr. Chairman, I might point out that I thought that he wasn't going to be back here, anyway. So . . .

MR. BLUM: I'm not, but CESG continues to be.

CHAIRMAN MILLER: Well, the organization -- I guess it's a corporation, isn't it?

MR. RILEY: It is.

CHAIRMAN MILLER: In that event, it's immortal.

(Laughter.)

All right. You may proceed.

MR. BLUM: Its purpose may cease to exist.

BY MR. BLUM:

Q All right. It's safe to say that you didn't rely on that document in any way in preparing the Environmental Impact Appraisal, is that true?

A (Witness Glenn) That is a safe statement.

Q Now, do you rely at some point on the analytical evaluations of the NSP-4 or the NAC-1 casks that have been performed by various groups? Is that true?

A That is true.

Q And did you consider any physical means of release of the contents of the cask, other than accident or sabotage by high explosives?

A No. That's not within the realm of my evaluation.

Q Did you consider the accidental penetration of the neutron shield in your calculations of radiological consequences for the EIA?

A Loss of the neutron shield is considered on page 34, 6.1.2.

MR. KETCHEN: Would you give me that again?

WITNESS GLENN: 6.1.2, page 34.

BY MR. BLUM:

Q Can you give me a source term for the neutron shield water at equilibrium?

A (Witness Glenn) Zero. Essentially zero.

Q What does "essentially" mean?

A The activation of water by this type of a neutron flux will produce very little, if any, measureable radioactivity in that water.

Q How about the borates and the ethylene glycol in that solution.

A You're talking about a fairly low dose rate in this case, as far as neutron activation studies would go. And it is my opinion that there would be very little radioactivity in that liquid.

Q Did you consider -- do you know what would happen to the contents of the neutron shield if a rifle bullet were fired through the shield envelope?

A What would happen to the water?

Q Yes, sir.

A I imagine it would come back out the hole.

Q All right.

Looking at the EIA, Section 5.2, do you have -- you have a statement there that no known -- I'm not sure who is responsible for it, but I'll ask this of both of you -- excuse me, it's 5.1:

"No known leaking element will be shipped from Oconee to McGuire."

A (Witness Glenn) It's my understanding that there are various procedures within the reactor that they can tell where a leaker is in the core, that they would be able to then sample those assemblies to see if there may be indeed a leaker.

There's not a fool-proof, 100 percent measurement of each fuel assembly as it comes out of the reactor, to see if it is leaking or not, but there are methods to determine -- to limit the number of fuel assemblies that would be leaking.

Q Did you consider, with regard to, say, the shipment of leaking fuel elements, Duke Power's past infraction record on inspections and evaluations?

A We assumed that the assembly that was shipped was leaking. If that assembly was not leaking, the source term in the water that would be released would be on the

order of the maximum permissible concentrations of water for, I believe it's -- I'm great with 10 CFR -- it's 10 CFR -- well, some section there. I believe it's Appendix B, Table 1. These numbers would be essentially on that order, and in that case the impacts that are listed here for these accidents would be much lower than what they are.

Q Are you talking about maximum fuel pool water, or maximum releases to a lake?

MR. KETCHEN: Excuse me. Did you hear the question? I didn't understand. Was there a last part to the question, something about a lake?

WITNESS GLENN: This is the type of --

CHAIRMAN MILLER: Excuse me -- one at a time. Are you making an objection, Mr. Ketchen?

MR. KETCHEN: No, I just want to make sure that he heard the question. I didn't.

CHAIRMAN MILLER: All right. Re-frame the question, so the witness understands the question.

BY MR. BLUM:

Q Without reference to 10 CFR section number, I was wondering if you're comparing it to the radioactivity of fuel pool water or discharge -- water that's discharged into a lake or river, from a reactor site.

A (Witness Glenn) I believe this type of a number that I'm referring to would be the number that would be

allowed to be released into the effluent from the reactor, like into some kind of a sanitary --

Q A holding tank?

A No. It's a reasonable limit. I'm kind of ...you know, I don't have the regulation in front of me. I don't remember exactly what it says.

CHAIRMAN MILLER: Well, if you're going to go into it, let him look at the regulation.

WITNESS GLENN: All I'm saying is that these numbers are very low numbers that you're going to come up with. Therefore, a fuel pool that's at equilibrium with the kind of experience that you would see in a fuel pool, it's the kind of numbers that GE reports for their fuel pool. It's the kind of numbers that various reactors report for their fuel pools, if they haven't recently had a refueling operation.

BY MR. BLUM:

Q Mr. Spitalny, when you considered all the options available to Duke, there is, of course, -- well, we now know-- or is it true that we now know that there is a series of options that would allow them to store all the fuel generated by Oconee at Oconee? Isn't that true.

A (Witness Spitalny) A series of options, assuming mine, looking at it, is that they are to become available, yes.

Q Well, having reracked with high-density racks, they can now rerack with poison racks?

A That's true.

Q And in the interim time that that would give them, they could now build an independent spent fuel storage facility?

A That's right.

Q Or they could wait a couple years and see what happens with pin compaction?

A That's true.

Q So that reracking with poison racks at this time would give them a couple of years, at any rate, to consider future technology, isn't that true?

A That's a true statement.

Q There is no need at this time to transship to gain space in the pool for any reracking, isn't that true?

A True.

Q In some of this testimony you're giving a figure of $36,000 per fuel assembly for an independent spent fuel storage facility?

A I believe the number is $30,000.

Q $30,000?

A Yes.

Q That would be on page six of 19-C. Where did that figure come from?

A That figure is based on a number of studies which have been done, evaluating the cost of building an independent spent fuel storage installation.

Some of the examples where these numbers have come from, to start with, Duke Power Company has estimated the cost of an ISFSI at $34,500 an assembly. DOE --

Q Is that the source of the number?

A No, I was continuing. I said there were a number of studies.

DOE has estimated in their documents in the mid-20s, 22 to 24, I can't really say, thousand dollars per assembly for the construction of an independent spent fuel storage installation.

There was a study done by MHB Associates which was done for NRDC in which they have come up with the number of $21,000 per assembly. That was a 1978 study, so that number should be escalated to put it in perspective to '79 figures, which would move that up on the order of $23,000-$24,000 an assembly.

Q Well, do you have any other figures that are $30,000 per assembly, other than Applicant's?

A The DOE number, when it was obtained, was -- I have the document here, but I forget the date, the issuance. I think a couple of their documents came out between July and December of '78. Basically, the figures would now be

escalated also.

We have -- what I has said is the construction of the ISFSI ranges upward to approximately $30,000. Actually, I could have said ranges upwards to $34,500, because the highest I've seen is Duke's. I did not say that that is the best estimate. I just said it ranges to $30,000 as a number to select, as a --

Q Why didn't you put ranges down --

MR. KETCHEN: Wait a minute, now. Are you finished?

WITNESS SPITALNY: I was going to continue.

My Table, which is Staff Number 13, which was a comparison of alternatives. Alternative number 5, which is the construction of an independent spent fuel storage installation, the Staff number is $25,000. That was based, because I did have more documents that showed in the range of the mid-twenties. My statemant on page 6 of 19-C merely says, "ranges upward to approximately $30,000."

BY MR. BLUM:

Q Why didn't you say, "ranges from $10,000 to $30,000?"

A (Witness Spitalny) Because I don't think it ranges from $10,000 to $30,000, and in that context --

Q You heard Mr. Roberts a half an hour or an hour ago say that the Stone & Webster proposal at $9500 per assembly was reasonable.

A I believe Mr. Roberts continued to say that that

was not for an independent facility which had to supply its own systems, its own cooling, its own radwaste system, its own ventilation, and was an independent facility. That did rely on a parant facility.

Q Well, a semi-independent spent fuel storage facility at Oconee could rely for many of its services on a parant facility, isn't that true?

A Yes, it could.

MR. KETCHEN: Are you going to ask him what his definition of a semi-permanent, whatever it is, facility is, or not?

WITNESS SPITALNY: If I could clarify what I understood it to be, the figure which I came up with earlier for expanding Catawba, for example, which was a physical expansion on the order of $4000 an assembly, to the order of building something completely separately, which Duke estimates at $34,500, I am only saying it's semi-independance falls somewhere between all of these things, from the extreme of the $4000, being completely relying on everything there, to the other extreme of completely building something entirely new.

BY MR. BLUM:

Q Now, onpage 51 of the Environmental Impact Appraisal, you have several figures that go to the point that the construction of a spent fuel facility might be 39,000 or

$10,000 or $7,000 or $12,000. I don't understand what caused that to double in a period of six months.

A (Witness Spitalny) Nothing has caused that to double. The number you're looking at is not in the same context as the figure for $30,000.

If I could refer you to page 51, the second paragraph, the last sentence reads:

"Costs for maintenance, operation, safeguards, security, interest on investment, overhead, transportation, and other costs would be added to this estimate."

We had testimony submitted by the Applicant sometime last week which broke down what their costs were, and showed that the actual construction costs were on an order of 25 to maybe 33 percent, one-quarter to a third percent of what the actual cost was for operating and maintaining a facility.

And you would have to take all these into consideration. The number we've used in the $30,000 figure and the $25,000 figure on the comparison of alternatives is talking complete construction of it, construction and operation. It's the bottom dollar.

Q So you haven't revised these figures upward to make this alternative look less appetizing, you've just considered it at great length since that time?

A I think I've testified as to all the figures,

where they come from.

I haven't changed any other reason behind the figures.

Q You think that maintenance, operation, safeguards, security, interest on investment, overhead, transportation and other costs would be about $15,000 per fuel assembly?

A Yes.

Q Do you know how much Duke spends for construction on an annual basis?

A No, I do not.

Q You don't know what percentage, then, cost of even a $50 million independent spent fuel storage facility would be of their annual construction costs?

A I don't know what their annual construction cost is.

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flws wel
:6 mpbl

Q Is it safe to say that your reasoning as you began the Environmental Impact Appraisal study was that each step of this procedure is licensed, and therefore we don't much have to worry about the whole procedure of transportation?

MR. MC GARRY: Objection.

MR. KETCHEN: Objection.

I don't think the form of the question -- I think the form of the question is ambiguous.

CHAIRMAN MILLER: I thought he asked him whether or not he said something.

MR. KETCHEN: It was "this procedure, that procedure". You know, I don't know whether he said that.

The regulatory procedure in this case --

CHAIRMAN MILLER: Did you understand the question?

WITNESS SPITALNY: I believe if you are referring to as what was stated in our initial oral testimony that was given on the first or second day of the proceeding, if that's what you're making reference to?

BY MR. BLUM:

Q Well, I'm trying to get at your state of mind as you did the Environmental Impact Appraisal, beginning that process.

A (Witness Spitalny) My state of mind -- I don't know what was my state of mind.

mpb2

(Laughter.)

I would say I was probably staying sober, but....

(Laughter.)

What was going on in my --

CHAIRMAN MILLER: I guess the question is:

When you were working on the Environmental Impact Appraisal, what assumption did you make, what was your mental set, as such, if you can recall?

WITNESS SPITALNY: Okay.

Basically I was given an application to review, and to do that you have to do an overall assessment of the entire package. And whatever the parameters may lead you to you evaluate.

My particular feeling behind it is looking at it and breaking it down into increments of what does this action really involve. It involves -- I've gone through this, this is all in the record -- but it involves taking Oconee fuel out of a pool which is licensed to maintain that fuel, doing it in accordance with procedures which have already been approved or have been used to handle the fuel, putting it into a cask which is certified to receive the fuel, transporting it which is done in accordance with DOT and NRC regulations, putting it into another pool which will be licensed to receive that fuel and constructed to maintain in a safe manner the storage of that fuel.

mpb3

Basically I looked at the entire operation like 'well, here is what the increments are as far as what this action entails'. The question that had to be resolved is does the transportation of 300 of these actions have any significant impact', and it was with that in mind that I was looking at the overall action to make that determination.

BY MR. BLUM:

Q So you started out thinking that since every step is licensed, the entire procedure should have minimal impact?

A (Witness Spitalny) Well, I don't think I prejudged the results, which I think is what you're alluding me to. We waited to see what the results were.

The results stand for themselves. We've come up with numbers. The document stands on its own; whatever my thoughts may have been prior to coming out with the document are superseded by what the document actually says.

Q I'm interested, though, in your answer to the question I asked you, which is:

Your initial reaction, the place where you started was that since every step is licensed, the entire sum of all those steps should have minimal impact.

MR. KETCHEN: Asked and answered, Mr. Chairman. We've been through this once, twice, three times.

CHAIRMAN MILLER: Well, I think that he has answered no.

mpb4

WITNESS SPITALNY: I think that would be a foolish assumption to make because you have to compare the accumulation of effects.

BY MR. BLUM:

Q Looking at your document, NRC 13, the table of comparison of alternatives, Mr. Glenn, you've got a figure, looking at the first one, transshipment, under the public column for both Applicant and Staff, that gives you .1 man-rem total.

Haven't you eliminated the other traffic on the road?

A (Witness Glenn) The EIA itself only speaks to dose to the public along the route, and, yes, indeed, I went back to that and threw this number out and we made this table up. And I, as an oversight, I failed to put in the dose to the population traveling on the route, which would double that number. It would make that number .2.

CHAIRMAN MILLER: Do you want to make that correction now in the record?

WITNESS GLENN: Yes, I think so.

CHAIRMAN MILLER: All right. Go ahead and describe it by page number and then we'll have it in the record.

WITNESS GLENN: On Staff Exhibit 13, the second page, under Applicant, Public, the total dose is listed as

mpb5 .1 man-rem; it should be .2 man-rem. And the dose per assembly should be .0006 instead of .0003.

The same correction needs to be made under Staff, the Public, and those same two numbers need to be changed.

BY MR. BLUM:

Q You mean in Alternative 6?

A (Witness Glenn) Still in Alternative 1. This is on Alternative 1.

Continuing on, under Alternative 3 -- excuse me, can I back up? I changed the Applicant's number and I can't do that. I apologize for that. I just realized what I did.

CHAIRMAN MILLER: The Applicant's number has been supplied to you by the Applicant, so it appears right or wrong.

WITNESS GLENN: Right.

CHAIRMAN MILLER: So your change will then be the second one?

WITNESS GLENN: Under Alternative 1, Staff, the Public, the manner of exposure per assembly should be .0006. The total man-rem should be .2.

Under Alternative 3, Staff, Public, the dose per assembly, that number should be changed to .0006, and the total dose should be .14.

Under Alternative 6, the third page, under Staff, Public, the dose per assembly should be .0006, and the exposure or total exposure should be .2.

2B mpb 6

BY MR. BLUM:

Q While we're looking at that table, Mr. Glenn, would you like to strike Alternative 3?

A (Witness Glenn) No.

Q It's no longer possible.

MR. KETCHEN: Mr. Chairman, I think the attorney is testifying. I don't know whether that's true or not.

BY MR. BLUM:

Q Alternative 3 is no longer possible, isn't that true?

A (Witness Glenn) I think I testified that since the application for that reracking with stainless steel racks has been approved that I felt -- it was my understanding that that reracking had possibly already begun, that it probably precluded this alternative, although I think that is in the record and I still think this shows what that alternative would involve.

DR. LUEBKE: It does no harm, does it?

WITNESS GLENN: It does no harm.

CHAIRMAN MILLER: Does it help; does it contribute to your analysis? I don't know, I'm just asking. I don't even have it in front of me.

WITNESS SPITALNY: Should I respond?

CHAIRMAN MILLER: Sure.

WITNESS SPITALNY: We haven't gotten to a

mpb7 point where we have reached the point of no return on this particular action that Duke is pursuing. I believe they have sent divers down to cut out the first portion that they are going to rarack, but they could tomorrow decide that they only want to put in the first third of these stainless steel assemblies.

CHAIRMAN MILLER: Is that reasonably likely?

I'm just trying to get what you in your own judgment would consider likely or not likely.

WITNESS SPITALNY: Well, my reason for qualifying it, then, would be -- obviously I guess we're not going to get an immediate decision on this particular action, but if we were, if transshipment for some reason was to become precluded they may then be faced with what their other alternatives are, and they may say 'Hey, let's not spend the money and put in these stainless steel racks, let's stop and buy poison'.

CHAIRMAN MILLER: That's a reasonable explanation.

WITNESS SPITALNY: So I would say that it belongs here. It's an explanation of where the figures come from.

CHAIRMAN MILLER: I understand that. Thank you.

BY MR. BLUM:

Q Do you think, Mr. Spitalny, that that's a viable alternative, the partial reracking with high density racks, stopping that procedure, applying for a poison rack license,

mpb8 and then completing the procedure with poison racks?

A (Witness Spitalny) I would imagine that it's viable, as long as whatever damage has been done doesn't break the integrity of the seismic qualifications of the remaining racks, and there would have to be an evaluation to determine that indeed they could proceed that way.

I wouldn't say yes it can be done, but I would imagine that yes it is a viable alternative.

Q And that alternative might have gotten or could possibly get Duke enough time so that they wouldn't have to ship the -- What is your assumption here? -- 248 assemblies that you've postulated in footnote E of 13?

A I would probably say that yes they would not have to ship 248 assemblies, but I would not say that that would preclude transshipment without being able to look at how many new higher density racks they're going to put in and what the actual numbers are.

they may still have to ship 100; I just don't know.

Q All right.

Looking at the EIA at this time, do you have --

MR. KETCHEN: Could you refer me to a page?

MR. BLUM: Yes. Page 30, Radiological Effects on the Public, 5.3.2.

BY MR. BLUM:

mpb9

Q In that you -- in the traffic jam -- Well, first of all, who is responsible for this section of the EIA?

A (Witness Glenn) I am.

Q In the traffic jam -- and stop me if I've asked you this before -- what separation between vehicles have you used?

A I used three meters.

Q Is that a reasonable assumption in a traffic jam from your experience?

A I don't think it's unreasonable. The vehicles could be closer together, but my intention was to get as many vehicles as possible, you know, as close to the --

Q Now --

A Let's say it's as reasonable as six inches.

Q Well, three meters is about ten feet.

A That's right.

Q That's -- assuming a traffic jam on I-85, you can't get ten feet away if you're alongside that truck, can you?

A You can.

Q Do you know the width of a lane of I-85?

A Not to give you a number.

Q And in traffic jams typically the following vehicle is a couple of feet behind the stop lights on the

mpb10 preceding vehicle, isn't it?

A No.

Q Are you relying on the signs to --

A No, no, I'm not.

I just don't stop two feet from a truck. I don't know what that truck's going to do. I don't know if he's going to have to back-up, and therefore I try to keep a distance between myself and that truck.

I drive a Honda.

(Laughter.)

And, by the way, it does have a radioactive sign on it too.

CHAIRMAN MILLER: The Honda does?

(Laughter.)

MR. ROISMAN: It comes t[illegible] way from Japan.

(Laughter.)

WITNESS GLENN: Mark one down for the Chairman. The truck would have a radioactive sign on it.

BY MR. BLUM:

Q So for instance, if you have a bus pulling up right behind that truck, you're counting on the sign to keep the driver from pulling up right behind the truck's stop-lights?

A (Witness Glenn) I'm not measuring exposure to the engine on the bus, I'm measuring exposure to the people in

mpb11 the vehicle. And they're going to be further back than the front of the....

Q Now I'm considering the driver of the bus who sits right behind his windows and over his engine, or -- unless the engine is in the back there. And from my experience, at any rate, he would pull closer to --

MR. KETCHEN: Mr. Chairman --

MR. BLUM: Let me finish the question.

BY MR. BLUM:

Q -- would pull closer to the truck, and you can verify that from your own experience.

CHAIRMAN MILLER: Objection sustained.

Do you think about another ten minutes or so?

MR. BLUM: Well, I'm working on it.

CHAIRMAN MILLER: Okay.

BY MR. BLUM:

Q All right.

Did you consider the -- in this section of analysis -- the possibility of a series of cars passing this truck which might, for example, be moving at 50 miles an hour?

A (Witness Glenn) Excuse me. I've answered this question before.

CHAIRMAN MILLER: Are you going to answer any differently?

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WITNESS GLENN: No, I'm not.

CHAIRMAN MILLER: All right.

Then we'll consider it as having been asked and answered

MR. BLUM: All right.

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CHAIRMAN MILLER: You'd better hurry, Mr. Blum, we're not going to have a quorum much longer, we're down to two.

(Laughter)

BY MR. BLUM:

Q All right. Your recollection of this would be better than mine. Would you look at Section 6.3 -- excuse me; Table 6-3 is what I'm referring to, which is on page 38.

Have I asked you about that table?

A (Witness Glenn) Yes, you have.

Q All right. I don't think I want to do it again, then.

Looking at Table 7-1, page 46, does the ALARA requirement mean that you move the oldest fuel first if fuel continues to cool off, as this table indicates it does?

A I have no knowledge or-- You know, I don't profess to be an expert in ALARA. However, I would imagine that Duke would move the fuel that was probably most available that met the criteria for the shipment, and I wouldn't put any other restrictions on them. I would say that if there was a fuel assembly that was cooled 270 days and they can move that fuel assembly without moving any other fuel assembly in the pool to get to it, they would move that one. If there was a fuel assembly that was a year old, and they would have to make three or four in-pool transfers to get to it, they

wb2

would probably not use that fuel assembly. That's my opinion.

Q So you don't feel there's any requirement that they look around and find five-year-old fuel?

A The only requirement that I know that would be placed on them is, the fuel would have to be cooled 270 days.

Q Would finding a five-year-old fuel assembly, would that not be the assembly that would give the least exposure to the public?

A Yes, it would. -- Excuse me; I realize I'm being kind of abrupt, and I do apologize for that. I'm very, very tired, and I just want to state that I apologize for me....

CHAIRMAN MILLER: Yes, I think that's reasonable. I think we're all rather tired. We're been running twelve hours or so a day.

MR. KETCHEN: Mr. Chairman, he comes from the West Coast and because of the time, biological changes, he doesn't get very much sleep at night anyway.

(Laughter)

CHAIRMAN MILLER: I think that's a correct observation. The witness is tired, and I think we had probably better bring the examination to a close pretty soon. So could you get right down to what few things you want to cover while we have the opportunity? We have reached the time that we had planned to recess until August.

MR. BLUM: Mr. Chairman, I'm perfectly happy to

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stop here and reserve a shot at these folks, or Mr. Riley, which I don't think will be very lengthy.

CHAIRMAN MILLER: Yes. We're not precluding you. We wouldn't want to have repetition, but we're not precluding you from continuing relevant examination in August.

MR. BLUM: I think that's what we'd like to do.

CHAIRMAN MILLER: I think, then, that everyone is tired. I think we really should bring this phase of our evidentiary hearing to a conclusion.

We'll discuss with you now the resumption August the 6th for a week.

Now are there any other matters that should be discussed? I know several of you have raised the question of documents that have been mentioned, or whether or not there would be additional witnesses, rebuttal or otherwise, that we're not presently familiar with.

Do you want to discuss that for a few minutes?

MR. MC GARRY: I'll take an easy one first.

CHAIRMAN MILLER: All right.

MR. MC GARRY: The testimony of Dr. Hamilton was received in evidence. It wasn't bound into the record. Somehow I guess on Saturday we lost sight of this. I would request that that testimony be bound into the record of today's transcript.

CHAIRMAN MILLER: All right.

(The document follows:)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
DUKE POWER COMPANY	)	
	)	Docket No. 70-2623
(Amendment to Material License SNM-1773 for Oconee Nuclear Station Spent Fuel Transportation and Storage at McGuire Nuclear Station)	)	

TESTIMONY OF DR. LEONARD D. HAMILTON

My name is Leonard D. Hamilton. My address is 6 Childs Lane, Setauket, New York 11733.

I am, among other responsibilities, Head of the Biomedical and Environmental Assessment Division in the National Center for Analysis of Energy Systems; the Division is jointly sponsored by the Department of Energy and Environment and Medical Department, Brookhaven National Laboratory, Associated Universities, Inc.

The Biomedical and Environmental Assessment Division aims at developing a realistic assessment of biomedical and environmental effects of energy production and use. All forms of energy, including electric power generation using fossil fuels, hydro, nuclear, and new technologies, are assessed.

I have been involved in assessing the risks of radiation for man for 30 years, specifically the health effects of nuclear energy for electric power generation for nearly 20 years, and the assessment of the comparative health effects from various energy sources for the past 6 years. The

Biomedical and Environmental Assessment activity formally began in July, 1973; for the past and present year, our level of effort is 120 man-months annually.

I received my Bachelor of Arts in 1943 and qualified in Medicine from Oxford University in 1945. I am a registered medical practitioner in the United Kingdom and a licensed physician in New York State. After several positions in University hospitals, I proceeded to research at Cambridge University on histological studies of the mechanism of the action of therapeutic doses of ionizing radiation for which I received my Ph.D. in experimental pathology in 1952. In the meanwhile in 1951 I had received my Doctor of Medicine degree from Oxford; this is a senior medical qualification in the U.K., roughly equivalent to Diplomate in Internal Medicine in the U.S. I am also a Diplomate of the American Board of Pathology (Hematology).

From 1950-1964 I spent 14 years on the research staff of the Sloan-Kettering Institute for Cancer Research and on the clinical staff of Memorial Hospital in New York being Associate Member and Head, Isotope Studies Section at the Institute and Assistant Attending Physician, Department of Medicine at Memorial. During this time I was also a member of the faculty of Cornell University Medical College and a Visiting Physician, Cornell Division, Bellevue Hospital. Since then I have maintained a continuing association with the Sloan-Kettering Institute as Associate Scientist.

At the Institute my laboratory research was on the molecular structure of the genetic material (DNA) and the cells in man concerned with the immune mechanism. I provided the DNA on which the proof of the double-helical structure of DNA is based, and was one of the first to establish the long life of cells in immunity. My clinical work in the hospital involved research on treatment of patients affected with cancer and leukemia with new chemical agents and new applications of radiation therapy.

In 1964 I joined the scientific staff of Brookhaven National Laboratory as Senior Scientist and Head, Division of Microbiology, and Attending Physician, Hospital of the Medical Research Center. Since 1973 I have been Head of the Biomedical and Environmental Assessment Group which in 1976 became a Division of the National Center for Analysis of Energy Systems.

At Brookhaven I continued my laboratory research begun at Sloan-Kettering. In addition, since my Visiting Fellowship at St. Catherine's College, Oxford 1972-73, I have been concerned with placing all risks in life in perspective; and, since becoming Head of the Biomedical and Environmental Assessment activity in 1973, particularly with the assessment of the hazards associated with alternative energy sources and their use. Our group has the lead responsibility to the Department of Energy (DOE) for the assessment of health effects from energy systems and for coordinating such assessments nationally.

My interest in the risks of radiation for man began with my Ph.D. work in Cambridge in 1944 and, since DNA and the immune system are prime targets of radiation damage, has continued throughout my laboratory research. I have been associated informally with the United Nations Scientific Committee on Effects of Atomic Radiation (UNSCEAR) almost since its inception in 1957, served as Consultant, Office of the Under-Secretaries for Special Political Affairs, UNSCEAR, 1960-62, and reviewed most of its working papers since then. I was a member of the National Academy of Sciences Committee on Biological Effects of Atomic Radiation, Subcommittee on Hematologic Effects, 1958-64, the NRC-NAS Solar Energy Research Institute Workshop, 1975, and the NRC-NAS Committee on Environmental Decision Making, Steering Subcommittee on Environmental Monitoring, Panel on Effects Monitoring 1975-76, was a member of the Mayor's Technical Advisory Committee on Radiation, New York City, from 1963 to its end in December 1977, and of its successor, the Technical Advisory Committee on Radiation to the Commissioner of Health in the City of New York since then. Since 1972 I have been Consultant to the Environment Directorate, Organization of Economic Co-operation and Development, since 1976 served as DOE (formerly ERDA) represenative in the U.S. Delegation to the Environment Committee, and U.S. delegate to the Joint Environment-Energy Steering Group. I am currently a member of three NRC-NAS groups concerned with the health effects of energy: the Health Effects Resource Group, Risk/Impact Panel of the Committee on Nuclear and Alternative

Energy Systems (CONAES); and the Committee on Research Needs on the Health Effects of Fossil Fuel Combustion Products (HEFF), and the Panel on Trace Element Geochemistry of Coal Resource Development Related to Health (PECH).

In the past year I was a member of United Nations Environmental Programm (UNEP) International Panel of Experts, reviewing the health and environmental damage from the fossil fuel cycle, and of a similar panel reviewing the nuclear fuel cycle. I chaired a Workshop on the Costs of Damage from SO_x for the Organization for Economic Co-operative and Development (OECD), and have been a member of an Advisory Group on the Health Effects of Alternative Energy Sources for the International Atomic Energy Agency (IAEA). Since last year, I have been one of the Consultants to HEW NIOSH, overseeing the Portsmouth Naval Shipyard Study.

I have been Professor of Medicine, Health Sciences Center, State University of New York at Stony Brook, New York since 1968 and I am currently member of the American Association for Cancer Research, American Society for Clinical Investigation (emeritus), American Association of Pathologists, Inc., and the British Medical Association.

Duke Power Company has asked me to assess the various health effects associated with their proposed activity of transporting spent fuel from its Oconee Nuclear Station to its McGuire Nuclear Station. I have focused on the following:

a. Modification of existing Oconee spent fuel pools.

The total doses calculated by Mr. Lionel Lewis (See Testimony of Lionel Lewis) for modification of existing racks (reracking), installation of poison racks, Units 1, 2 and 3, and transportation and storage at McGuire, based on the shipment of 400 spent fuel assembiles, are 84, 107, and 56 person-rem respectively. Using the cancer risk estimates for the general population for exposures to low dose, low-LET radiation, single exposure, both sexes combined, absolute risk model from the Report of the Committee on the Biological Effects of Ionizing Radiation (BEIR-III), the incidence of cancer for the reracking option would be $(2.2\text{-}3.4)\ 10^{-2}$ with mortality $(0.6\text{-}1.1)\ 10^{-2}$, and for the poison rack option $(2.8\text{-}4.2)\ 10^{-2}$ with mortality $(0.6\text{-}1.4)\ 10^{-2}$. The incidence of cancer for transportation and storage at McGuire would be $(1.5\text{-}2.3)\ 10^{-2}$ and mortality $(0.3\text{-}0.7)\ 10^{-2}$.

Using the genetic effects information given in the 1972 Report of the Committee on Biological Effects of Ionizing Radiation, (BEIR I), from which the recently published update of the BEIR Committee, BEIR III does not differ significantly, the genetic effects for the three options were estimated. Reracking would give rise to 0.0006-0.009 genetic effects first-generation, and 0.003-0.08 total genetic effects at equilibrium. Poison racks would give rise to 0.0007-0.009 genetic effects first generation, and 0.004-0.09 total genetic effects at

equilibrium. Transportation and storage at McGuire would give rise to 0.0003-0.007 genetic effects first-generation, and 0.002-0.05 total genetic effects at equilibrium.

b. Construction of separate storage facility at Oconee.

The total doses calculated for AFR on Oconee site and for transportation and storage at McGuire are 48 and 56 person-rem respectively. Using the cancer risk estimates as above (a), the occurrence of cancer from AFR on site would be $(1.3\text{-}1.9)\ 10^{-2}$ with mortality $(0.4\text{-}0.6)\ 10^{-2}$. The occurrence of cancer from transportation and storage at McGuire would be $(1.5\text{-}2.3)\ 10^{-2}$ and mortality $(0.3\text{-}0.7)\ 10^{-2}$. Using the genetic risk estimates as above (a), the AFR on site would give rise to 0.0003-0.006 genetic effects first generation and 0.002-0.04 total genetic effects at equilibrium. Transportation and storage at McGuire would give rise to 0.0003-0.007 genetic effects first generation, and 0.002-0.05 total genetic effects at equilibrium.

c. Construction of separate storage facility away from Oconee but not at McGuire.

The total doses calculated for AFR off Oconee site and for transportation and shipment at McGuire are 72 and 56 person-rem, respectively.

Using the cancer risk estimates as above (a), the incidence of cancer for AFR off-site would be $(1.9\text{-}2.9)\ 10^{-2}$ with mortality $(0.5\text{-}0.9)\ 10^{-2}$. The incidence of cancer for trans-

portation and storage at McGuire would be $(1.5\text{-}2.3)\ 10^{-2}$ with mortality $(0.3\text{-}0.7)\ 10^{-2}$. Using the genetic risk estimates as above (a), the AFR off-site would give rise to 0.0005-0.009 genetic effects first-generation, and 0.003-0.07 total genetic effects at equilibrium. Transportation and storage at McGuire would give rise to 0.0003-0.007 genetic effects first-generation, and 0.002-0.05 total genetic effects at equilibrium.

d. Radiation dose to persons living in the vicinity of the transportation routes.

The annual population dose that would be received by approximately 42,000 persons who live within 0.5 miles of the route over which 400 spent fuel assemblies will be transported would be 0.14 person-rem. The corresponding annual population doses that would be received by the same 42,000 persons from background radiation would be 5880 person-rem; i.e., 42 thousand times greater.

Using the cancer risks estimates as above (a), the occurrence of cancer from routine releases in persons living along transportation routes, i.e., the 42,000 persons who live within 0.5 miles of the route, would be $(3.7\text{-}5.6)\ 10^{-5}$, with mortality $(1\text{-}1.7)\ 10^{-5}$. The corresponding annual incidence of cancer from natural background radiation would be 1.58-2.35 with mortality $(4.12\text{-}7.29)\ 10^{-1}$.

For perspective, the annual death rate from all causes in South Carolina is 8794 per 100,000 persons and in North

Carolina 8803 per 100,000 persons. The annual mortality from cancer in South Carolina is 1209 per 100,000 persons, and in North Carolina 1286 per 100,000 persons. One thus expects roughly 370 of the 42,000 to die each year from all causes, and, 52 deaths from cancer per year.

Using the genetic effects risk estimates as above (a), the genetic effects from routine releases in persons living along transportation routes would be 1×10^{-6} -1.7×10^{-5} genetic effects first generation, and 5×10^{-6} -1.3×10^{-4} total genetic effects at equilibrium. The corresponding genetic effects from natural background radiation would be 0.0412-0.706 genetic effects first generation, and 0.212-5.47 total genetic effects at equilibrium.

The current incidence (resulting from causes other than the added radiation) of human genetic effects is ~107,000 per million liveborn.

e. Radiation dose to persons traveling over the transportation routes concurrently with spent fuel shipment.

The dose that would be received by people traveling over the transportation routes concurrently with spent fuel on the conservative assumption that such a person would be following the truck for 10 hours for 400 shipments at a distance of 100 feet from the truck for approximately 300 miles is 0.16 rem per person, or for 4 hours for 400 shipments at a distance of 100 feet from the truck for approximately 170 miles is 0.064 rem per person.

Using the cancer risk estimates as above (a), the risk of the occurrence of cancer in a person who had followed the truck for 10 hours for 400 shipments at a distance of 100 feet from the truck for approximately 300 miles would be $(4.29\text{-}6.38)\ 10^{-5}$ with mortality $(1.12\text{-}1.98)\ 10^{-5}$, and for 170 miles would be $(1.71\text{-}2.55)\ 10^{-5}$ with mortality $(4.5\text{-}7.9)\ 10^{-6}$.

Using the genetic risk estimates as above (a), the genetic effects in persons who had followed the truck for 10 hours for 400 shipments for approximately 300 miles would be 1.12×10^{-6} -1.92×10^{-4} genetic effects first generation, and 5.76×10^{-6} -1.49×10^{-4} total genetic effects at equilibrium. For persons who had followed the shipments for 4 hours for approximately 170 miles, the corresponding figures would be 4.48×10^{-7} -7.68×10^{-6} genetic effects first generation, and 2.3×10^{-6} -5.95×10^{-5} total genetic effects at equilibrium.

f. Radiation dose to persons in the vicinity of an accident or exposed to a delay in transit.

On the assumptions used in the U.S. NRC Environmental Impact Appraisal related to Spent Fuel Storage, December 1978 (p.31), the population dose for a traffic jam would be less than 0.2 man-rem and the maximum dose to an individual would be 15 mrem (note Mr. Lionel Lewis in his testimony is more conservative and uses a 10-hour rather than a 3-hour traffic jam with a maximum dose to an individual due to delay of 30 mrem) and using the cancer risk estimates as above (a), the total risk of cancer

from such a delay would be less than $(5.36\text{-}7.97)\ 10^{-5}$ with mortality $(1.4\text{-}2.47)\ 10^{-5}$. The risk of an individual developing cancer as a result of such a delay would be $(4.02\text{-}5.98)\ 10^{-6}$ with mortality $(1.0\text{-}1.8)\ 10^{-6}$.

Using the genetic effects risk estimate as above (a), the genetic effects of delay would be less than 1.4×10^{-6} - 2.4×10^{-5} genetic effects first generation, and 7×10^{-6} - 1.9×10^{-4} total genetic effects at equilibrium.

From the risk analysis made by Dr. B. John Garrick of the transport of spent fuel (See Testimony of Dr. B. John Garrick), from 400 shipments of spent fuel assemblies, using the cancer risk estimates as above (a) the total risk of cancer from all accidents in such shipments would be $(7.2\text{-}10.8)\ 10^{-4}$ with mortality $(1.9\text{-}3.4)\ 10^{-4}$. Using the genetic effects risk estimates as above (a), the genetic effects of all accidents in such shipments would be 1.9×10^{-5} - 3.3×10^{-4} genetic effects first generation, and 9.6×10^{-5} - 2.5×10^{-3} total genetic effects at equilibrium.

Conclusion

The total somatic (risk of cancer) and genetic effects from propinquity, delay, and accidents in the transport of 400 spent fuel assemblies are extremely small and the total hazard to health is thus correspondingly extremely small.

g. Residual health risks to workers even if NRC regulations are complied with.

The occupational dose to workers involved in the transportation and storage at McGuire option is 56 person-rem. The corresponding occupational doses to workers for modification of existing racks (reracking) is 84 person-rem, for installation of poison racks, Units 1, 2, and 3, 107 person-rem, for AFR on-site 48 person-rem, and for AFR off-site, 72 person-rem.

Using the cancer risks estimates as above (a), the incidence of cancer for transportation and storage at McGuire would be $(1.5\text{-}2.3)\ 10^{-2}$ and mortality $(0.3\text{-}0.7)\ 10^{-2}$, the incidence of cancer for the reracking option would be $(2.2\text{-}3.4)\ 10^{-2}$ with mortality $(0.6\text{-}1.1)\ 10^{-2}$, the incidence of cancer for the poison rack option would be $(2.8\text{-}4.2)\ 10^{-2}$ with mortality $(0.6\text{-}1.4)\ 10^{-2}$, the incidence of cancer for the AFR on-site option would be $(1.3\text{-}1.9)\ 10^{-2}$ with mortality $(0.4\text{-}0.6)\ 10^{-2}$, the incidence of cancer for the AFR off-site option $(1.2\text{-}1.8)\ 10^{-2}$ with mortality $(0.3\text{-}0.6)\ 10^{-2}$.

Using the genetic effects risk information as above (a), transportation and storage at McGuire would give rise to 3×10^{-4} - 7×10^{-3} genetic effects, first generation, and 2×10^{-3} - 5×10^{-2} total genetic effects at equilibrium. The corresponding genetic effects from reracking would be 6×10^{-4} - 9×10^{-3} first generation, and 3×10^{-3} - 8×10^{-2} total genetic effects at equilibrium. The corresponding genetic effects from poison racks would be 7×10^{-4} x 9×10^{-3} genetic effects first generation, and 4×10^{-3} - 9×10^{-2} total genetic

effects at equilibrium. From AFR on-site, there would be 3×10^{-4} - 6×10^{-3} genetic effects, first generation, and 2×10^{-3} - 4×10^{-2} total genetic effects at equilibrium. From AFR off-site there would be 5×10^{-4} - 9×10^{-3} genetic effects first generation with 3×10^{-3} - 7×10^{-2} total genetic effects at equilibrium.

Overall Conclusion

The overall health effects, i.e., the total expected risks of cancer and of genetic effects in the general population and in workers, occupationally exposed, from any of the options - reracking, poison racks, AFR on-site, AFR off-site, and transportation and storage at McGuire - are very small, both in terms of total risk and of risk to any individual.

The transportation option involves a risk of less than one hundred thousandths of a percent increase in the mortality rate of the exposed population. Among workers the risk calculated from the maximum radiation exposure would be one-tenth of one percent probability of developing cancer.

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MR. MC GARRY: The other observation, I believe the transcript reflects that with respect to Mr. Rotow's survey, there was an Applicant's Exhibit 16 running from 16-A through 16-O, when indeed it went from 16-A through 16-P. And I'd like the record to reflect that.

CHAIRMAN MILLER: All right, the record will reflect that. I do recall 16-P, and if it's in error we'll have it corrected.

MR. MC GARRY: Thank you, Mr. Chairman.

MR. KETCHEN: Mr. Chairman, I have a couple of easy ones about the record too.

Yesterday I cited to you a case, Diablo Canyon. I cited the wrong ALAB. It should have been ALAB-334 instead of ALAB-410, just for the record.

The second thing is on yesterday's transcript Dr. Parsont was asked some questions, I think questions by the Board, and -- through no fault of the Reporter -- but his answers did not get recorded. He has informed me he has examined the transcript;and at the appropriate time we would like to make the proffer of what his answers would be to the questions that were asked.

The questions were asked but the answer that he made was not recorded.

CHAIRMAN MILLER: He made the answer but it was not recorded?

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MR. KETCHEN: It was not recorded.

CHAIRMAN MILLER: All right.

We'll give you leave. Please circulate the proffered answer which was not recorded to other counsel so that we can have agreement on its accuracy or have a chance to make objections to it.

MR. KETCHEN: We can do it now, if there's time, if it's an appropriate time, or I can do it in writing later.

CHAIRMAN MILLER: I'd suggest doing it in writing. It would be a little easier for everybody to look at it. But you will be given leave to do so, Mr. Ketchen.

MR. KETCHEN: Thank you, sir.

CHAIRMAN MILLER: Anyone else now that wishes to be heard?

MR. ROISMAN: Mr. Chairman, one easy one, maybe two hard ones.

On the easy one, could I ask that the Staff provide copies to myself and the parties, including the Board, of the two letters that Mr. Roberts made reference to dealing with the status of the Stone and Webster independent spent fuel storage design?

MR. KETCHEN: Yes.

CHAIRMAN MILLER: Mr. Ketchen will take care of that.

What are your hard ones now?

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MR. ROISMAN: Well, I don't know that they're hard ones.

I would like to suggest a procedure to avoid any hard ones, and that is that the parties be directed within two weeks from today to make a proffer of any additional testimony that they intend to introduce into evidence at the proceeding coming up on the 6th of August.

By that I do not mean minor corrections to some witness; but we have had at this time some extensive direct examination of witnesses that was done orally. That doesn't seem to be necessary any longer.

We've had the Staff indicate that they might wish to make a proffer of evidence dealing with certain areas they don't feel they've adequately investigated. I would just like to have some deadlines and some procedures set up for that being proffered, for parties being permitted to express their judgments as to whether that's appropriate or not.

I'd just suggest two weeks because that seems like a reasonable time. But I would be amenable to a different time if somebody wanted a different one.

MR. MC GARRY: I'd suggest three, Mr. Roisman, because next week is the 4th of July.

CHAIRMAN MILLER: Yes, three would be better.

I would ask that all parties and counsel submit

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in writing any direct testimony that they wish to produce at the oncoming hearing, and that, as I've indicated before, we would prefer -- Well, we would direct that it be in question and answer form for ease of handling by witnesses and objections and the like.

Does anyone have any objection to the suggestion of three week's time?

MR. MC GARRY: No objection.

MR. KETCHEN: Would that be by the day of the 27th of July?

MR. ROISMAN: Today is the 29th.

MR. KETCHEN: That would be the 20th of July.

CHAIRMAN MILLER: All right.

Let's ask, then, that on or before July 20th that such direct testimony or exhibits, if it be in exhibit form, be offered.

We would request also that when we give dates, we mean, as far as the Board is concerned, they should be in the Board's hands by that date. We don't want to gamble on the mail.

So if you wait until the last minute, hand-deliver it, or if you're going to allow time and you gamble on the mail, fine.

MR. ROISMAN: Mr. Chairman, when you included exhibits, I assume you're not including the sort of routine

mpb6 kind of exhibits. you have a document, you ask the witness to talk about it; you're talking about testimony in the form of exhibits?

CHAIRMAN MILLER: That's right, studies, analyses, where in fairness to everyone they should be subject to a little bit of study, especially if it's going to take some expert to study it. In fairness to all, that's really what we're trying to do.

MR. ROISMAN: Would you also consider establishing a deadline for parties to raise at least preliminary objections to the introduction of that evidence on grounds that do not go to things like qualifications of the witness, but go to either questions like fundamental relevance, opportunity, should have been done before if it was going to be done, and those sort of basic things that we would spend a lot of legal argument on, that we could at least get papers in on it in advance?

CHAIRMAN MILLER: Well, the Board would have no objection if counsel are agreeable. I think it would be helpful to all of you.

MR. MC GARRY: No objection.

CHAIRMAN MILLER: All right.

Then we would request all counsel to state also in writing such objections as they have for other than preliminary or foundation proof or some of the obvious types

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of things. Those that would require some study and effort in order to have a reasoned response.

MR. ROISMAN: And what would that be, like a week?

CHAIRMAN MILLER: Yes, the week after receipt of it, let's say. You can vary that yourselves, then, by the promptitude with which they're filed or the speed with which they're delivered. So the week after receipt, please.

Any other suggestions on procedure that would assist the parties and the Board?

MR. ROISMAN: Just one other, and that is that the Board simply advise all of us of a date by which you would like us to indicate if any of us have any objection to the hearing being held in Washington, and that would then avail any party the opportunity to tell you if they had that objection and give Mr. Riley an opportunity to see if anybody makes a proffer and whether he wants to accept that proffer.

And the rest of us could also --

CHAIRMAN MILLER: Well, the Board would have no objection to holding the hearing in Washington; It would have to be by agreement and consent of all counsel and parties.

MR. ROISMAN: I just thought to set a date by which everybody knows they've got to let you know or else be bound by your issuing an order that sets the hearings

mpb3 here.

CHAIRMAN MILLER: I don't know whether that would be meaningful or not.

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I think we're going to go ahead and set the hearing here. I think we have to give our notices. The Board has to compile its own jurisdictional requirements.

Now this isn't to say that on fairly short notice we could amend and we could arrange for a Washington hearing, because we could hold it in our own courtroom. So time won't prejudice the Board, but I don't think that we want to put a time limit upon the parties because we, the Board, do have to go ahead and take care of its own notices.

MR. ROISMAN: All right.

MR. KETCHEN: Sir, with respect to the start of the hearing that day of the 6th, could you give us a liberal starting period, maybe nine or nine-thirty on the first day?

CHAIRMAN MILLER: All right.

What would you prefer.

MR. KETCHEN: I'd prefer nine-thirty.

CHAIRMAN MILLER: We'll make it nine-thirty, then, on the 6th.

It might be helpful -- and you gentlemen and ladies have all done this, your professional courtesy is appreciated by the Board. You've handled yourselves very well, and we appreciate it on the part of all counsel and parties.

It might be helpful also, since you're trying a case and it's strenuous enough for all, to exchange

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information in advance. If you're going to have a witness, give a witness list and a short summary if it's before you're preparing direct.

In other words, extend to each other the courtesies that would be helpful to you professionally and that you would like; the Golden Rule. It helps in trial cases.

Thank you very much. We do appreciate the courtesies that you have all shown the Board. We'll look forward to seeing you, then, somewhere August 6th.

(Whereupon, at 12:50 p.m., the hearing in the above-entitled matter was adjourned, to reconvene on 6 August 1979, at 9:30 a.m.)