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NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING ON TRITIUM-PRODUCING

BURNABLE ABSORBER ROD LEAD TEST ASSEMBLIES

IN WATTS BAR CYCLE 2

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SWEETWATER, TENNESSEE

+ + + + +

THURSDAY

AUGUST 7, 1997

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The public hearing was held at the Quality Inn, Sweetwater, Tennessee, at 7:10 p.m., Bob Martin presiding.

PRESENT FOR DOE, NRC, TVA & PNNL:

BOB MARTIN

JAMES WILSON

MARK LESSER

FRED HEBDON

STEPHEN M. SOHINKI

JERRY L. ETHRIDGE

JAMES CHARDOS

A-G-E-N-D-A

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

(7:10 p.m.)

MR. MARTIN: I'd like to welcome all of you.

I have the agenda for the evening's activities on a view graph, and there are copies of the agenda on the table. We'll follow the following format: DOE will provide an overview of DOE's overall tritium program; TVA will describe its role related to the proposed placement of four lead test assemblies in the Watts Bar Unit 1 Plant; the NRC staff will discuss its current safety review and also our inspection processes.

Following each of these presentations we will provide a brief opportunity for specific questions regarding the material presented, and there will be an opportunity provided at the end of all the presentations for people to provide further comments as they wish.

Because the process is being transcribed, when you ask a question please state your name so that the reporter can identify the source of the question in the transcript. This will help us simply in getting back to you on the issue.

If we go past 9:00 we may always schedule a short break, and then we can continue to hear further information. I believe this is going just fine so far, but if there are any members of the press present we

request that you conduct any interviews outside of the room in order the minimize distractions.

Now I would like to present Mr. Stephen Sohinki, Director of DOE's Commercial Light Water Reactor Project Office who will provide an overview of DOE's tritium program.

STEPHEN M. SOHINKI, DIRECTOR, CLWR PROJECT OFFICE
U.S. DEPARTMENT OF ENERGY

MR. SOHINKI: Thanks, Bob.

My name is Steve Sohinki. I'm the Director of the Office of Commercial Light Water Reactor Production in the Tritium Project Office of the Department of Energy. And with me, as Mr. Martin stated, is Dr. Jerry Ethridge who is the Project Manager for the program at Pacific Northwest National Lab. Dr. Ethridge is -- supervised the design and fabrication of the rods that will be tested at the Watts Bar reactor.

I guess I'd like to say I'm very glad to see the turnout tonight. I think it's important that people understand what we're doing in the program, and have an opportunity to ask any questions that you have and express any concern that you might have about the program. Thank you all for coming.

I just thought it was important to give a little background on -- on how we got where we are. I

guess I should start by saying that every America president from Harry Truman on, including President Clinton, the first post-Cold War president, has reaffirmed that this country will maintain, for the foreseeable future, a nuclear deterrent capability. We in the Department, and in the Department of Defense, responded to presidential direction in that regard.

Every weapon in the stockpile that is being maintained by the United States depends upon tritium for function and design. Now, we haven't made tritium in this country since 1988. We made it for several decades at the Savannah River Plant down in South Carolina. The last of the production reactors at Savannah River were shut down in 1988 and we have not made any tritium in the country since then.

We have been living off of recycled tritium from weapons that are being retired as a result of arms limitation agreements that have taken place thus far. But those -- that recycled tritium will only take us so far. And because tritium decays at about 5-1/2% a year it has to be replaced periodically. Our direction as to when tritium has to be replaced comes from the President in a document that he signs annually called the Nuclear Weapon Stockpile Plan. It's a classified document that tells us what types of weapons and how many of each type will be

maintained for the year following and for several years beyond that.

Now, in any given year that requirement could change, and -- and since 1988 that requirement has changed significantly. The goal quantity of tritium in the late '80s was several times what it is now. As a result of the arms limitation agreements they have come down substantially.

But the latest Nuclear Weapon Stockpile Plan issued by the President tells us that we need to have a new supply of tritium available by 2005. And that's the direction we'll be explaining to you on the tritium program of DOE.

When the last of the -- when the last of the new -- the production reactors were shut down at Savannah River, the Department began looking seriously at alternatives for a new supply of tritium. And without taking a lot of time to talk about the history, we completed in late 1995 a programmatic environmental impact statement which assessed several different alternatives to making tritium, including new-build options plus the use of commercial reactors. And among the new-build options we talked about several different reactors: a new heavy water reactor, a new modular high temperature gas-cooled reactor, and a new advanced light water reactor, as well

as a linear accelerator. And of course we looked at commercial reactors.

In December of 1995 then-Secretary of Energy Hazel O'Leary issued a record of decisions in which she adopted what she called a dual-track strategy for issuing a new supply of tritium for the nation's -- to support the nation's stockpile. That dual track consisted of the linear accelerator, and she said we were going to design, build, and test components of the accelerator over the next three years; and the use of the commercial reactor. And she said we would investigate the potential for securing either a reactor or irradiation services for the reactor during that same period. And she said that within three years that the decision -- December '95, and that would make it November of 1998 we would make a selection as to which of those options, accelerator or commercial reactor, would be the primary tritium supply source for the future and which would be the backup source.

Now, she also said that we would be constructing a new extraction facility at the Savannah River Plant to extract tritium from light water rods, and that if we build a new accelerator it would be built at the Savannah River site. The last component of the decision was that in any event, regardless of whether we chose the reactor or the accelerator as the primary path

for making tritium for the future, we would maintain commercial reactors as a contingency option for making tritium.

And what that has come to mean is that we would complete all of the qualification activities with the Nuclear Regulatory Commission with respect to these tritium-producing components, we would fabricate the first core load of rods and sort of put them on the shelf in the event there was a need. We would attempt to negotiate options contracts with utilities to secure the use of their facilities if that were ever needed. And we would complete the construction of new extraction facilities. So those were the components of the decision. And therefore what we're faced with at DOE, or what the Secretary will be faced with in 1998, is the choice between the use of existing assets, and the construction of a new facility for making tritium.

This was an attempt -- this slide is an attempt to capture the system for making tritium in a commercial reactor in one view graph. If you look at the top left-hand corner you'll see tritium-producing burnable absorber rod manufacturer. As Mr. Martin said, we refer to these as TPBARS. A longer name for that term is a little bit of a mouthful.

The reason we call them tritium-producing

burnable absorber rods is that in the nuclear industry in pressurized water reactors utilities use what are called burnable absorber rods in the core to absorb excess neutrons during the reactor operation and control reactivity. And Dr. Ethridge will describe this in some more detail. But the important point to remember for now is that the rods that we've developed perform exactly the same function as a normal burnable absorber rod in the core. And he'll talk about that some more.

We haven't really decided where we're going to manufacture these rods yet. We can manufacture them either inside of the DOE complex or we can privatize their manufacture. We're doing the analysis now to determine whether it would be more cost effective to do it inside or outside the complex. That analysis will be done later this year to support the Secretary's decision.

Following the rod manufacture, as I see it, the rods would be inserted in standard pressurized water fuel assemblies in the same location as present burnable absorber rods. They -- they are—and Dr. Ethridge will tell you in more detail—the same length, same outside diameter as -- as normal burnable absorber rods. The difference is that they use a different type of ceramic to absorb the neutrons, and he'll talk about that in some more detail.

They will be inserted in the reactor for the normal operating cycle of the reactor, which in most cases now is 18 to 24 months. And then following that operation cycle DOE, as the shipper, would pick them up from the reactors and transport them in casks to Savannah River where they would be extracted -- the tritium would be extracted in a new extraction facility that is being designed right now, then shipped to the tritium recycle facility where the tritium is bottled and sent out.

We have two basic options that we're looking at in terms of acquisition of tritium from -- from light water reactors. The first is to buy irradiation services from an existing reactor. In that event there would be no change with respect to ownership or operation of the reactor. The utility that currently owns the reactor would continue to own and operate the reactor. We would have -- the goal would be to have no impact on the reactor operation. We think that that's possible; there would be minimal or no impact on power generation, operating cycle, et cetera.

With respect to NRC involvement, in case of buying of irradiation services the utility involved would have to apply for an amendment to their operating license, not unlike the amendment that TVA has applied for the test. And the NRC would evaluate that amendment, go

through the regulatory process, and determine whether to grant the amendment.

In the case of a reactor purchase, the Department would own the reactor; the facility that owns it now would continue to operate the reactor for us for a period of at least ten years. And the plant would be operated as a defense facility with electricity generation secondary to the purpose of the facility, which would be to make tritium to support the stockpile. In that case the NRC license would also have to be amended to insert the -- this type of burnable absorber rod in the core. But, in addition to that, the license would have to be transferred to DOE; so there's another regulatory step involved.

Now, at the bottom of the slide we have our acquisition milestones. We have a request for a proposal that is now on the street that utilities will be responding to. We had a pre-proposal conference in I guess June, discussed utility questions and comments with respect to the request and the proposals. We expect proposals by September 15th. We have left the request for proposals deliberately wide open with respect to the types of offers that we might receive from the utilities, to allow them to use their imaginations in making offers to us for either the sale of a reactor or to sell us the

irradiation services. And then we would expect to make a selection by March of next year with respect to which -- which utility or reactors would be involved in the long-term program.

Now, what we've done is to build into the request for proposals a phased program. There would be a base contract period during which the utility would do all the preparatory work for submission of the license amendment application for regulatory approval by the NRC. And then, once a decision is made with respect to whether it's going to be accelerator or a reactor, we would make a final determination as to whether to proceed with the option period of the contract and to go ahead and actually irradiate these rods in the reactor.

One thing I should mention, by the way, is the President's requirement, as I said, is that we have tritium available the year 2005, which sounds like a long time away. But when you consider the regulatory approvals that we have to get and the fact that we would actually have to start irradiating the rods in 2003 to have the new gas available by 2005, we're not talking about that much time that we have available to do this.

Wanted to mention just a little bit about what development has gone on previously with respect to these rods. And the major point of the slide is that these rods

have been in a design and development phase for over ten years. In the -- in what used to be the new production reactor program at the Department, the development of these rods was begun in earnest. We actually have irradiated ten 4-foot segments of this same rod design in a DOE reactor, the advanced test reactor out in Idaho. We took one of those ten segments all the way through post-irradiation examination and laboratory extraction. We have now examined the other segments nondestructively, and we'll be starting destructive examination of those segments shortly.

But the point is that the rods that we actually tested performed much better than we expected them to perform. We know, based on our test, that the rod design is solid, that we can both make and retain tritium in these rods very well. Dr. Ethridge will talk about the design of the rod and the testing that was done in a little bit more detail.

But the point is, and there -- and there's a tremendous amount of documentation of those tests which PNL generated and which the NRC must now review. The point being, ladies and gentlemen, that we're not conducting an experiment at the Watts Bar Plant. This is a one-time confirmatory test to confirm the results of the testing that we've already done. Technically we know that

the rods work very well. The point of the test is to provide confidence to the NRC, utilities, and to the public that making tritium in a light water reactor is technically straight-forward and safe. By the way, once we have -- once we have conducted this test and inserted the rods in the reactor we will have demonstrated on a smaller scale the entire cycle for making tritium in a reactor from design of the rods through regulatory approval and irradiation in a reactor.

Briefly, the plan for the test is to place four lead test assemblies in a reactor just to provide some perspective. Usually when a -- a utility does a refueling outage they replace a third to a half of their fuel in the reactor core. And in that batch of fuel there is normally in the neighborhood of 1,000 of these burnable absorber rods. We're replacing 32 of that 1,000 with these rods to be tested at Watts Bar. And there will be eight rods in each of four fuel assemblies. There's a total of 190-plus fuel assemblies in the core. We're utilizing four of those assemblies, eight rods per assembly, one in each quadrant of the core to balance things out for this test, just to give you some perspective with respect to what the test involves. This correlates with the production scenario, if we get to a production scenario in a commercial reactor, if that's the

selected long-term option, where we could put potentially up to 3,000 rods in a reactor core to make tritium.

One other thing that is very important to realize, and Dr. Ethridge will -- will emphasize this again, is there is no fissile material in these rods; that is, there is no plutonium, there is no uranium, there is nothing that you normally find in a fuel element in these rods.

That's basically an overview of the program and briefly something about the test that we're going to conduct. As I said, Dr. Ethridge will talk about -- talk about the rods in a lot more detail, so if you have questions about the design of the rods or any of the technical detail I suggest you wait for him. But if you have questions about the rest of the program, be glad to take them.

You, sir?

MR. JOCHER: My name is William Jocher. I'm the former Chief of Nuclear Chemistry and Environmental Protection for the Tennessee Valley Authority. (Inaudible public comment.) Your rods will fail, also. If and when they fail, how much tritium will get into the (inaudible public comment). How many thousands of curies of tritium (inaudible public comment)? How much of that will be loosed in the Tennessee River? What effect will that have

on people downstream from the plant?

MR. SOHINKI: Well, I -- I think Dr. Ethridge will talk about this some more. But one thing that -- that I think he's going to tell you is that -- that there is no free tritium gas in the rods because of the -- the rod design. And he'll talk about why that is. And I suggest that you -- you wait for that. If you still have the question we can talk about it.

But basically the tritium is bound up in a solid matrix virtually instantaneously upon being made. And you have to heat it to over 1,000 degrees centigrade to get the tritium out of that matrix. It basically forms a plutonium hydride.

Yes, ma'am?

UNIDENTIFIED SPEAKER: I have a policy question.

MR. SOHINKI: Oh, I -- I'm sorry.

Yes?

MS. HARRIS: My name's Ann Harris, and I wanted to know how many utilities have applied to sell you their plant, and is there another new commercial operation across the nation that meets all of the requirements for this action as Watts Bar does? Because we've been told Watts Bar is the only one that has applied for this position, this action you're about to take. And also that

Watts Bar is the only one, and was put in that position even before it was licensed. And that TVA, NRC, and DOE all knew that this plant was going to produce tritium before it was ever licensed.

MR. SOHINKI: Let me address the first question first. We don't know how many utilities are going to apply to either sell us a plant or irradiation services because the proposals are not due until September 15th. So you have to -- you have to separate out this confirmatory test from the long-term program. They're completely different phases of the program.

MS. HARRIS: How many utilities did apply for the testing? How many were approved, let me put it that way.

MR. SOHINKI: Well, there were a couple of bids that were received by PNL. Pacific Northwest Labs contracted for the test.

MS. HARRIS: And who were they?

MR. SOHINKI: And Watts Bar was selected.

MS. HARRIS: The research laboratory and Watts Bar were the only two people that applied?

MR. SOHINKI: Oh, no, no, no. There was another utility that applied, and TVA was selected.

MS. HARRIS: Who was the other utility?

MR. SOHINKI: I believe it was Southern

Company.

MS. HARRIS: And when were they notified that they would not be able to participate?

MR. SOHINKI: I don't know when. When did we make that selection, Jerry? I think it was late fall of last year.

MS. HARRIS: Fall of 1996?

MR. SOHINKI: Correct.

MS. HARRIS: And that's your absolute statement of the way it is; that's your position?

MR. SOHINKI: Yeah, the way --

MS. HARRIS: That's when the Southern Company was informed?

MR. SOHINKI: Pacific Northwest Lab received the bids, they evaluated the bids, and Watts Bar was selected last fall.

MS. HARRIS: Okay, thank you.

MR. SOHINKI: Yes, ma'am?

MS. HONAKER: I'm Jeanine Honaker from Nashville. And my basic question, if you know, my question is: Who -- who conspired to break the law? The Atomic Energy Act specifically separates nuclear power plants from the production of any material for nuclear bombs. So this is a conspiracy and every one of you who are talking about it, who are involved in it, are breaking

a federal law.

(Applause.)

MR. SOHINKI: I can -- I can address that briefly.

We, as well as many others, have looked at the question of whether there are any legal restrictions on making tritium in commercial reactors. It turns out there -- there is nothing in any treaty, in any statute, or any regulation that addresses tritium production in a commercial reactor.

MS. HONAKER: How is that not a part of a nuclear bomb? Tritium is the "H" in the hydrogen bomb.

MR. SOHINKI: Now, what you may -- what you may be thinking about is there are -- there are statutory provisions that address special nuclear materials, which tritium is not. That addresses plutonium and uranium.

MS. HONAKER: It's a part of the bomb, so why is it not a part of this special material?

Listen, if I'm going down the road and my speedometer says that it will go 140 miles an hour I don't know if it will or not. If I decide to test it I am guilty of breaking the speed limit. If you go and -- and do this you're as guilty of breaking the law as I would be if I decided to go 140 miles in a 50 mile an hour line. I don't care what you call it. The spirit of the law was

there when it was made. It was to separate bombs from power. We can all understand that. You don't have to be a nuclear engineer to understand that.

So go back and tell Hazel O'Leary or whoever you have to tell that the public says you're breaking the law, and that you and TVA and NRC are all conspirators, and you should all be arrested right now.

(Laughter and applause.)

MR. SOHINKI: If I could address that; not the part about being arrested, but if I could address the part about weapons. The reason that -- that special nuclear materials are covered in some of those provisions that -- that you may be referring to is that there are significant proliferation concerns with respect to plutonium and uranium.

With respect to tritium, tritium is a substance that is sold commercially in the international marketplace for everything from runway lights to exit signs to watch dials to medical purposes, so that the character issues with respect to tritium is totally different than the issues with respect to plutonium and uranium, from which bombs can be directly made and with respect to which there are significant proliferation concerns.

MS. HONAKER: But you're not making this for

any of those purposes. You're making this specifically to be used in nuclear bombs.

MR. SOHINKI: Yes, ma'am.

MS. HONAKER: That's the only reason you're making that.

MR. SOHINKI: Yes, ma'am.

MS. HONAKER: And therefore you're violating the Atomic Energy Act.

MR. SOHINKI: Well, I would disagree with that. But we can discuss that in some more detail if you'd like. I'd like to find out which provisions of the Atomic Energy Act you're --

UNIDENTIFIED SPEAKER: We can't hear you. You'll have to talk up.

MR. SOHINKI: Yes.

I disagree. I would like to find out which provisions of the Atomic Energy Act Ms. Honaker is talking about.

MR. HOFFMAN: My name's Gene Hoffman. I'd like to have something to say at the end of the meeting about the DOE and NRC matters.

But I couldn't agree more with the statement just made. Your own report on this license state tritium, an essential material in nuclear weapons. And if you're going to have a debate about tritium, as to whether it's a

special nuclear material that's essential to H-bombs, I think you're going to have a hell of an argument.

MR. SOHINKI: Well, all -- all I'm saying is that the Congress has not designated it as a special nuclear material. It has designated those materials with respect to which there are proliferation concerns, namely plutonium and uranium, as special nuclear material.

One thing in addition that I can say is that there -- there are potential interpretations of some sections of the Atomic Energy Act that Ms. Honaker may be referring to that we'd agree could be misinterpreted as applying to the production of tritium. And we have -- we have legislation that's being considered by the Congress now to address those interpretations.

MR. HOFFMAN: Just to identify a document which you know very well is a public law, 97-405, which says special nuclear material is defined in section so and so, and so and so.

MR. SOHINKI: Correct.

MR. HOFFMAN: Cannot be made available for any usage, you know, for any facilities licensed by NRC; no nuclear material can be produced for weapons purposes.

MR. SOHINKI: Right, special nuclear material. That's correct.

MR. HOFFMAN: Can you give us the bill number

of that legislation you just mentioned so we can see if we can't get it upended?

MR. SOHINKI: I don't have it. I don't have it with me, but I can get it for you if you'll give me your name and address. I'll get it for you.

MR. JANEWAY: My name's Don Janeway.

You referred to Ms. O'Leary speaking in January of this year. She spoke of the test facility that's being kept open on standby for the purpose of producing tritium. And her own statement is that if we do accomplish the successful arms control, which supposedly is going along, that that facility would be adequate. Why are we talking about making more anywhere else?

MR. SOHINKI: Anywhere else than --

MR. JANEWAY: Anywhere else besides (inaudible).

MR. SOHINKI: I disagree.

MR. JANEWAY: You didn't even mention that as one of the options.

MR. SOHINKI: That's correct, because it's not being considered right now as an option because it can't meet present requirement.

MR. JANEWAY: She says it would.

MR. SOHINKI: No, what -- what she said was in the event that requirements drop significantly that may

become a question.

MR. JANEWAY: And we're led to believe this is what's happening today.

MR. SOHINKI: Well, if they do obviously that would have to be evaluated.

MR. JANEWAY: Then why are we doing this? Why are we exposing ourselves to more problems when we don't need to?

MR. SOHINKI: Okay, first of all that's one test facility. It's a -- a small research reactor out at the Hanford Reservation, 400 megawatts. It has -- has been -- it was -- started operating in about 1980 to do various types of test. It's a sodium-cooled reactor. It was shut down in about 1992 or 1993 and the deactivation process was begin.

Shortly before the record of decision that Ms. O'Leary signed in December of '95 there was a group from Washington state who made a proposal. It wasn't really a proposal, it was more of a concept. Introduced a concept for the Department with respect to privatization of a facility and production of tritium for the Department. Ms. O'Leary said we would look at the facility to determine whether it could play any role in the tritium picture, and if it could she would take whatever appropriate action should be taken. The

Department is still looking at the test facility.

You -- you're correct, it is being maintained in a standby position until Secretary Pena determines what we should do with it. He's committed to revisit the status of the facility later this year or early next year. And he'll make a determination based on whatever the requirements are at that time, whether to continue to hold it in standby or to continue deactivation of the facility.

MR. JANEWAY: Was it not planned to be kept on standby for at least two years by the state as stated?

MR. SOHINKI: That was the original game plan. So the question is do we want to continue to maintain it on standby, or does it look like the requirements are going to be maintained the way they are for the foreseeable future. In which case the Department would have to make a decision: Should we continue to maintain it in a standby position on the chance that requirements would -- would drop, or should we deactivate it? And that's a decision he'll have to make.

So one of the issues with respect to FFTF is that if the requirements drop such that it would become a player, that it could meet requirements, then a corollary to that is that the need date would also be pushed out fairly far. So the decision would have to be made: Is it worth it to maintain the facility at -- at whatever it

costs to maintain it, or as long as it -- as long a period as you have to maintain it to -- to get out to that need date? So --

MR. JANEWAY: It appears that this --

MR. SOHINKI: So there's a balance that's necessary. And the other thing --

MR. JANEWAY: It appears that this operation is jumping the gun based on a lot of "ifs."

MR. SOHINKI: Well, understand again that we're responding to a presidential direction which says have new tritium available by 2005. Now, that could change. And -- and if it changes we'll have to modify our -- our game plan, no question about it.

I don't know who was first. Why don't we take this gentleman here.

MR. MYCZACK: My name is Lee Myczack.

MR. SOHINKI: Yes.

MR. MYCZACK: The question I wanted to ask: A minute ago you stated that tritium was readily available commercially.

MR. SOHINKI: Yes.

MR. MYCZACK: Why don't you just go buy it? I mean, if it's that -- you make it sound like it's ice cream and potatoes that's just out there. So, I mean, you can't have it both ways: It's not readily available and

this is an essential scenario that -- and this is the only place we can get it.

MR. SOHINKI: That's a good -- that's a good question. The commercial market for tritium is not nearly sufficient to meet the requirements of our program. There are only two suppliers in the world who have enough tritium to meet our requirements. The two suppliers are the Russians and the Canadians. The Russians present obvious problems with respect to -- to relying on them for a supply of tritium, and the Canadians have a policy not to sell tritium for -- for weapon purposes.

(Applause.)

MS. HONAKER: Buy it from the Russians. They need the money. Do a cost benefit analysis and see if you can't buy it cheaper than you can make it.

MR. SOHINKI: That suggestion has been made, Ms. Honaker.

Other questions?

MS. NEAL: My name is Michelle Neal.

How much is TVA being paid for -- to do the test production at Watts Bar?

MR. SOHINKI: It's about $7-1/2 million.

MS. NEAL: $7-1/2 million?

MR. SOHINKI: Right.

MS. NEAL: In the draft environmental

assessment that was issued in June of this year there's a statement that all other U.S. pressurized water reactors of this design obtain their fuel from foreign vendors that impose contractual restrictions on use of their products for defense-related purposes. Why hasn't that been addressed for this particular test at Watts Bar?

MR. SOHINKI: Watts Bar is the only large reactor in the United States that has an all-U.S. core. By that I mean it uses exclusively United States uranium.

MS. NEAL: Right. So what's to prevent Watts Bar from being the only facility that, if this tritium test production were to move forward --

MR. SOHINKI: Oh, I'm -- okay, that --

MS. NEAL: How -- how is that going to be addressed?

MR. SOHINKI: That's a good question.

The way we will address the uranium supply question is that with respect to the long-term program we have two options: We can either provide DOE uranium to the reactors that participate in the long-term program, or we can pay the differential, if there is one, between the cost of obtaining U.S. uranium and the cost to pay for the foreign uranium. So there's two ways to deal with that in the long term. For this test we just decided that would be -- that would be prohibitive, cost-wise, to do that.

MS. NEAL: But it's going to have to be addressed eventually; is that correct?

MR. SOHINKI: Yes. But for the -- for the long term that -- we don't see that as a problem.

MS. NEAL: You don't?

MR. SOHINKI: No.

MS. NEAL: Okay. Now, it's my understanding that -- is there an ounce of tritium that's going to be produced in this test production; is that correct?

MR. SOHINKI: Approximately.

MS. NEAL: And -- and what's the transportation route that we're taking here for an ounce of tritium on this particular test production?

MR. SOHINKI: Well, the rods will be transported -- the current plan is to transport the rods from Watts Bar back to PNL for examination.

MS. NEAL: Are the rods -- have they come from Hanford or PNL already?

MR. SOHINKI: They will -- that would --

MS. NEAL: And then taken to the Westinghouse facility?

MR. SOHINKI: Correct.

MS. NEAL: And then they're going to Watts Bar, they're there, whatever?

MR. SOHINKI: They're -- they're at Watts Bar.

MS. NEAL: They're there?

MR. SOHINKI: Yes.

MS. NEAL: And then they're going to be taken back to PNL?

MR. SOHINKI: Correct.

MS. NEAL: And then possibly taken to Idaho Falls; is that correct? Or the --

MR. SOHINKI: Well, part -- part of the post-irradiation examination may be done at a -- at a facility in Idaho.

MS. NEAL: And then back to Hanford or PNL; is that correct? Or is it --

MR. SOHINKI: Dr. Ethridge, will they do the radiography first and then send it back?

DR. ETHRIDGE: Yes.

MR. SOHINKI: Yes.

MS. NEAL: And we're doing all of that for an ounce of tritium; is that correct?

MR. SOHINKI: Yes.

MS. NEAL: And what's the cost that --

MR. SOHINKI: What we're doing -- what we're doing is --

MS. NEAL: I'm just kind of curious. I'm trying to figure out what the cost of that transportation scenario is for an ounce of tritium.

MR. SOHINKI: Well, the transportation is a fairly minor cost in all this.

MS. NEAL: Do you have a number for that or --

MR. SOHINKI: No, I don't think we have a number yet for the transportation back from the plant, do we? Have we -- have we estimated that?

DR. ETHRIDGE: No.

MS. NEAL: So there was no effort to look at another facility that might be closer to one of -- like the PNL facility or somewhere else that -- I mean, it just kind of seems --

MR. SOHINKI: Well, as a matter of fact, the -- the other potential facility was -- Well, it wasn't closer; it was close to Watts Bar. No.

PNL took bids and -- and Watts Bar was the reactor selected. But, again, the transportation cost is a minor -- a minor component of the entire cost of the test.

MS. NEAL: And the total cost for the test is how much?

MR. SOHINKI: About 7-1/2 million.

MS. NEAL: Okay. But you don't have those numbers—right?—for the transportation?

The other question I have -- and I suppose that this still is an accurate document, the draft

environmental assessment.

MR. SOHINKI: Well, it's been -- I mean, it's been finalized since the draft.

MS. NEAL: Oh, has there been an ROD?

MR. SOHINKI: There's been a finding of "no significant impact" issued.

MS. NEAL: Okay, when was that issued?

MR. SOHINKI: What was the date?

UNIDENTIFIED SPEAKER: 28th. 27, 28th of July.

MS. NEAL: One of the concerns that I had in here was that Watts Bar has been operating for less than a year. This was when this was issued. Therefore the results of annual effluent monitoring and annual air quality monitoring are not yet available. However, the impacts of these emissions are expected to be well within NRC and EPA standards. That bothers me, that that was just kind of, you know: Well, we don't have this information so we don't have it, but we're going to proceed forward. Is that information available now or have you all -- I mean --

MR. SOHINKI: Which information?

MS. NEAL: For annual effluent monitoring and annual air quality monitoring?

MR. SOHINKI: I'm not the best person to

answer that question with respect to what's available in Watts Bar.

MS. NEAL: The question, though, was that this was just disregarded I think in this report so --

MR. WILLIS: I'm Charlie Willis, and I have received the effluent report from Watts Bar. We've looked at it and it was as expected. We knew essentially what was going on, but we had not received the final report when that document was written. But there were no surprises. Watts Bar has done very well on controlling emissions.

MS. NEAL: That's fine. It's just the information wasn't in this report.

And I may have missed this, but I just want to have it clarified once again. In this report it says that there's no analysis really in -- in this report that -- let's see. Current predictions of future stockpile scenarios indicate that recycled tritium will adequately support the nation's nuclear stockpile until approximately 2005. At the time the programmatic environmental impact statement was published previous assessment of the new treaty had placed that date at 2011; current target date of 2005 is based on more recent analysis.

MR. SOHINKI: Right.

MS. NEAL: And -- and the question is: What

-- what is that analysis, more recent analysis, other than a presidential directive? I mean, I'd like to have a little more information than that.

MR. SOHINKI: Well, the President's direction, in turn, resulted from a number of events, including a major re-look at the -- at the force structure in -- in the nation's nuclear weapons stockpile by the Department of Defense. It's called the Nuclear Posture Review. And it was done a couple of years ago. But -- but following the release of the Nuclear Posture Review there was a debate at the International Security Council, among others, that the -- what the tritium requirement should be and what weapons should be in -- in the -- the stockpile that was going to be maintained. And all of that resulted in the -- the 1996 stockpile plan.

So basically it was based on a major reassessment of the nation's force structure. And, by the way, an assessment of where we were with regard to ratification of START-2, START-2 being (inaudible). So there were a lot of international implications in that decision. They looked at what the Russians were doing with respect to START-2, what our force structure looked like, and how comfortable they were with respect to the deterrent capability. So, and I guess that's all I can say about it since I wasn't involved in those discussions.

Yes?

MR. HUTCHISON: Ralph Hutchison. Just a quick follow-up, because I know we're running long.

You said that it's possible DOE could provide uranium from DOE uranium?

MR. SOHINKI: Correct.

MR. HUTCHISON: Is it possible that would be from uranium down (inaudible) from a highly enriched uranium?

MR. SOHINKI: Yes, that's possible.

MR. HUTCHISON: Wouldn't that be a curious scenario.

MR. SOHINKI: For example, they were reserving -- they reserved a quantity of uranium in the event that the Department decided to build a new heavy water reactor, so we could use that uranium. So that's one example. But yes, that's possible.

MR. HUTCHISON: Right. Of course the irony is the point of downsizing (inaudible) was to respond to proliferation concerns and to increase the likelihood of non proliferation. And now you're saying we may turn around and use the bombs again.

MR. SOHINKI: That's with respect to material that had been declared excess to weapons needs. You're right.

Yes, sir?

MR. JOHNSON: My name is John Johnson and I want to know why, now that The Cold War is over, you all want to continue the threat of thermonuclear holocaust for your grandchildren's future by producing this stuff?

MR. SOHINKI: And -- and I guess, you know, whatever feelings any of us may have about that, the only response I can make to that is that the policy makers, including the President and the Congress, have determined that we're going to maintain a nuclear deterrent. And I think you can agree what the President said as to why -- why we need to maintain a nuclear deterrent and make your own judgment about it.

Yes, sir?

MR. HOFFMAN: Gene Hoffman, DOE retiree. Just a quick one.

Following up this trail of the TBAR, especially to Pacific Northwest.

MR. SOHINKI: Yes.

MR. HOFFMAN: It seems to be a critical part -- everything's in place and the extraction facility at Savannah River is just in the conception and design phase --

MR. SOHINKI: Correct.

MR. HOFFMAN: -- and it seems like until that

process is demonstrated you really don't have the whole process.

MR. SOHINKI: Well, the extraction --

MR. HOFFMAN: And that's a few years away.

MR. SOHINKI: The extraction facility is not a great technical leap, but it does present some challenges that have to be worked through.

MR. HOFFMAN: Do you have an estimated cost?

MR. SOHINKI: Yes. It's in the neighborhood of $380 million, I believe.

Yes, sir?

UNIDENTIFIED SPEAKER: Every TWR in the country produces about 200 curies of tritium a year, why not find a way to extract tritium out of the waste water? It seems to me that would be a lot more cost effective method.

MR. SOHINKI: Well, the -- I mean, the tiny amounts of tritium that we make wouldn't make a very big dent in our requirement. Unlike, for example, the reactors up in Canada that make tritium as a byproduct of reactor operation in -- in kilogram quantity. So --

UNIDENTIFIED SPEAKER: Two hundred curies a year per reactor.

MR. SOHINKI: Well, remember, too, it is not an enormous amount of curies. Remember he was talking

about 10,000 curies per gram of tritium. So 200 curies is not a great amount.

Yes, sir?

UNIDENTIFIED SPEAKER: Could you explain why we're even talking about this when DOE has spent 1.2 billion to operate the K-reactor at Savannah River and then walked away from it?

MR. SOHINKI: Well, the -- I guess the only comment I can make about that is that at the time the goal quantity was larger and the need date was supposed to be much sooner than we know it to be now. So that the decision was made at the time to try to upgrade the K-reactor. We spent a lot of money doing it.

And then the question became, when the -- when the President announced -- when the arms limitation consequences became clear and the President announced in November of 1991 the -- the first unilateral cut in the stockpile, then the decision had to be made do we cut our losses or do we continue to maintain a 40-plus-year-old reactor till we need tritium again in its 2000 or later time frame. So --

UNIDENTIFIED SPEAKER: The reactor was run in 1992 after the upgrade was finished. You've got an extraction facility sitting down there. You don't have to spend $380 million to build another extraction facility.

It's a tremendous waste of taxpayers' money just because Hazel O'Leary was an anti-nuke.

MR. SOHINKI: Well, the only thing I can say is that that reactor has some serious safety and environmental concerns associated with it, several --

(simultaneous conversation.)

UNIDENTIFIED SPEAKER: There's not a thing unsafe about that reactor.

MR. SOHINKI: Yeah?

MS. LAPIDIS: My name is Jennifer Lapidis.

How many warheads do we currently have?

MR. SOHINKI: That's a classified number.

MS. LAPIDIS: Why is that a classified number if this is a public hearing? Aren't you holding information that would enable us to have an informed comment on this whole process?

MR. SOHINKI: Well, there -- there -- there are -- The Department has declassified an awful lot of material about the weapons program. There are a couple of -- of pieces of information that still remain classified that the National Security Council, the Department of Defense, and the President have determined should remain classified. One is the force -- the actual force structure; two is the precise quantity of tritium that's required to supply those weapons.

MS. LAPIDIS: So what's the point of a public hearing?

MR. SOHINKI: Point of a public hearing is to explain why we're doing this test.

MS. LAPIDIS: So --

MR. SOHINKI: Yes?

MR. CLARK: Donald Clark from Cumberland Countians for Peace and Justice.

Why do I read, for example, today of a reactor in Ontario, Canada, who deceptively kept their tritium leakages secret, and that it's polluting Lake Ontario? How come Brookhaven National Laboratory, under your control, for 12 years has been leaking? How come I read, here and around the world, tritium, tritium, tritium going to water and polluting aquaforests?

It's just -- it just seems to me, from just your own material, besides what I read in the world press just the last week, that this is a -- a particularly water -- going to water, it's hard to handle, it's always leaking from -- from reactors. I -- I just can't understand why you would go to the commercial areas to do -- particularly for this kind of thing, and in large quantities. Can you explain to me why this seems to always leak? Maybe other things leak, but I -- I'm reading a lot about this.

MR. SOHINKI: Yeah. And I don't know the -- the -- in detail the circumstance with respect to Brookhaven so I really shouldn't comment on that. There are other people at the Department that are a lot more -- that know a lot more about it and they --

UNIDENTIFIED SPEAKER: But you're the expert.

MR. CLARK: It's under you. Aren't you -- aren't you the chief of that?

MR. SOHINKI: No.

MR. CLARK: Oh, okay.

MR. SOHINKI: No, they -- they're -- well, you know, the Office of Defense programs has -- has no responsibility for the operation of the Brookhaven facility. And that's why I say there are others in the Department that could address your question. If you give me your name and address I'll put you in contact with those people.

But with respect to tritium and this program, I think Dr. Ethridge will explain why we don't believe that there will be any tritium leaks from these rods. And I mean technically, when he explains --

MR. CLARK: Well, I agree when -- he can tell that. I'm -- I'm talking -- really, if you don't mind, I'm talking about when you go to the large scale and you're talking about doing it on a commercial --

commercial generator facility, why -- what confidence have we got that this particular kind of a compound, this isotope isn't going to be disastrous? You know, you've had it in Savannah; and Savannah, from everything I've read, was a disaster. It polluted half of the region with tritium.

MR. SOHINKI: Well, there -- I mean, there was some --

MR. CLARK: It went into the air, it went into the water. It's all over the place. It's got a short life -- half-life, but it's still got a long life.

MR. SOHINKI: Again, and I think Dr. Ethridge can -- can better address that concern with respect to the rods we're using now. Remember that at -- at Savannah River we were using a different kind of reactor, a heavy water reactor which required a different kind of target that was nothing like the design we're using now. So I think you've got to take that into account. And again, after Dr. Ethridge has finished with his explanation, I think maybe if that doesn't satisfy you, you can ask your question again.

Yes, sir? Oh, I'm sorry. Can I --

MS. HARRIS: I'm patiently waiting.

MR. SOHINKI: Go ahead, Don.

MR. CLARK: I would like to add one comment.

Lawrence Livermore National Laboratory reports the atmospheric concentration of tritium has increased by approximately three orders of magnitude from the current annual occurrence of tritium, attributable mostly to nuclear reactors. Additionally nuclear resource has treated large deposits of water, most of which is stored in underground tanks. These are in liquid form and a significant mobile environmental hazard at super sites around the world. This is growing, people. It's a big problem.

MR. SOHINKI: Yes, ma'am?

MS. HARRIS: I have two questions. It's Ann Harris again.

If the extraction is going to be at the Savannah River why not give the test down to the Southern Company. Why didn't you prepare them, as you conspired with TVA to do so here at Watts Bar? And this gentleman up here that said that he okayed the radiation test, I'd like to know what was the criteria that TVA used. Were all the tests on the radiation exposure done on one day, or were they -- were they up against the cooling towers, were they out?

I didn't see anybody in my community, and I'm exactly downwind. They haven't sent -- can't find anybody that knows where -- where TVA was out doing this, so I'd

like to know what was -- what was the basis for them okaying a test that I can't find out who or what done it. What are we -- what do we have to do to get that?

MR. WILLIS: I'm not sure I fully understand the question, but I'll give the answer a try.

MS. HARRIS: I can make it real simple. Was the test done up against the cooling tower, was it done out in the community? Where was the testing done that TVA said they done? I mean, they said they did. They're -- they're not producing asbestos over there because it's not the bad kind, but I've got a chemist that's trying to find out which time is the bad kind, since there's only one kind. We're subject to interpretation of words here.

MR. WILLIS: Well, what I commented on was not a TVA test; rather it was their annual report on what actually happened at the plant. They have a program that is consistent with what -- what other plants have in this country, been in place for over 25 years now. We've got criteria for doses that could be received, and they're a small fraction percent of the doses that are -- that we all receive from nature every year. So this is -- this is what we're working to.

And TVA is -- report and the data to support it are -- are available to us, and I have no -- there's no real test to be checked on. It was operational.

MS. HARRIS: Sir -- sir, TVA is well documented and well known by everybody. This is not a secret that they would lie about anything for any reason. I worked there for 16 years so I'm well aware. The NRC is not far behind them. And now I'm having difficulties understanding.

You looked at one of their so-called reports. It is effluent that is done, should be done twice a year, and you're basing a significant change in a nuclear reactor that was just licensed. I mean, TVA went to the NRC and lobbied and did everything they could to get them to change their report so that they looked wonderful. I mean, they've done everything here to accelerate this process. And I'm wondering who all was in complicity with it. I'm trying to get -- sure that everybody gets on the record about who's doing what.

I'm not accusing you of anything, but I want to know what is the basis for these things. Somebody's going to have to take responsibility, and I have this gentleman saying that Bill Clinton is the bad guy in all this and he's requesting Congress --

MR. SOHINKI: Not exactly what I said.

MS. HARRIS: Congress only knows what you guys tell them.

(Applause)

MR. WILLIS: I can -- I can assure you that this is not something that we made easy for TVA or any other utility. We have a -- a rather complicated program requiring measurements, requiring testing of the measuring facility. We have people on site who check to see that these things are done properly. We have visiting experts who come in and inspect to see that the program's conducted correctly.

We have off-site measurements made to support the effluent measurements. We have -- I believe there is a contract with the -- with the state to participate in this off-site program. It's a -- it's a relatively complicated thing, and I can assure you that the -- it wasn't a so-called report. It was really a report. I saw it.

MS. HARRIS: They'll put a title on anything.

MS. HONAKER: Excuse me. I know about the state's monitoring system. They only use thermo luminescent dosimeters. They do not have real time monitors. Do you have any real time monitors that do continuous emission monitoring from every possible place that the emission could occur?

MR. WILLIS: It is impossible to monitor every possible place. The principal release points are monitored. So --

MR. SOHINKI: Okay, let me -- let me suggest that we move on to Dr. Ethridge to -- to talk some more about the rod design, and the NRC to talk about their review, and then maybe we can get back to more of your questions. Go ahead.

UNIDENTIFIED SPEAKER: Mr. Willis, the 121 report produced every six months by nuclear power plants, the only testing that's done on those release points are the (inaudible) release tanks. Are you saying that that's the only testing that's conducted in this experiment outside of routine reactor cooling surveillances that you look at?

MR. WILLIS: I did not say there was an experiment. And I'm being told to sit down and shut up, so I'll do just that.

UNIDENTIFIED SPEAKER: Mr. Hebdon, would you like to answer my question?

MR. HEBDON: I'd like to continue the discussion of the topic of tonight's meeting, which is the lead test assemblies that are going to be installed at Watts Bar; that Watts Bar has requested to have installed.

JERRY L. ETHRIDGE, SENIOR PROGRAM MANAGER

BATELLE PACIFIC NORTHWEST NATIONAL LABORATORY

DR. ETHRIDGE: Well, I'm glad you warmed the crowd up for me.

(Laughter)

DR. ETHRIDGE: What I'll be discussing this evening is a little bit more of the technical side of what we're trying to do here. This may be of some interest to some of you; may not be of some interest to a lot of you. But it is important, I think, to go over and make sure we have a basic understanding of how and why this works.

This is a simple graphic of how tritium is produced in a reactor. You simply take a -- some source of lithium-6, which is an isotope of the light element lithium; you bombard it with a neutron. In this case the source of that neutron will be Watts Bar. For a very short period of time it becomes another isotope of lithium, lithium-7; which then very quickly splits into a helium-4 atom which is your normal, run-of-the-mill helium; and tritium.

And as Mr. Sohinki indicated, tritium does have a relatively short half-life of about 12 years, meaning that about every 12 years the tritium that's been formed is -- that's now tritium that's been formed is half that that was formed after 12 years.

This -- this is the -- a diagram of the tritium-producing burnable absorber rod. And I'll go through each of these components for you. Starting from the outside is a stainless steel, a very strong structural

material. The diameter of this rod is virtually identical to the burnable poison rods that -- of which there are over 1,000 in a normal reactor core. So it is about the same size. On the inside of this stainless steel is an aluminum coating that prevents diffusion of tritium out of the rod to the reactor coolant.

The next component is called a tritium getter. Once tritium is formed in the rod this material absorbs the tritium and places it into a solid solution so that it is not a free gas, it doesn't pressurize the rod, it's not available for escape. It's in a solid form very much like -- this getter acts like a sponge and absorbs the tritium such that it's not released.

The next component is the pellet, lithium aluminate. That's a very high-temperature ceramic material. That's where the lithium is placed in the core or in this rod. And that's where the source of tritium is then. It is released from the pellet once it's formed, and then getter -- in the tritium getter. The inside component is called the liner, and it is used to keep the pellets in place and serves a chemical function as well.

Typically your tritium will come off as tritiated water. This will chemically crack the water and produce just tritium and oxygen, and then the tritium is getter -- in the getter in that solid solution.

Going back to our basic components or basic concepts, this is the -- the chemical or the nuclear reaction that occurs. Lithium-6 plus the neutron gives you helium, tritium, and some energy. The second function of this rod not only is its production, but it's the retention of that tritium. These are the chemical equations that show that that tritiated water is cracked by the zirc and gives you tritium and zirc oxide. That free tritium then is combined with the getter and forms a solid solution of zirconium tritide which requires an extremely high temperature to -- to decompose. And that's what your extraction facility at Savannah River will do once the rod is removed from the reactor.

In the end, after a period of the 16 months in the reactor, you actually find a little bit of tritium in -- in the pellets, a little bit of it in the liner, but by and large a great -- large percentage of it is found in the getter, where it's supposed to be.

This is a standard reactor component. There's a real live one sitting over here on the table that's foreshortened. The eight rods that Mr. Sohinki spoke about will be attached to what's called a hold-down assembly. These are placed inside four reactor fuel assemblies. Rather than having all 24 of these locations have these little short thimble plugs, eight of those

locations will have full-length rods.

The reactor fuel element is designed to accommodate 24 full-length rods; we're only going to be using eight. The remaining thimble plugs are to assist in flow distribution to maintain adequate cooling of the rod and the adjacent fuel. So again, a standard reactor component, we're attaching eight full-length TPBARS to one, and it's fitting inside a normal reactor fuel assembly.

This is a description of the lead test assembly. What you saw before was the -- the production side of things that's starting in 2003. This is the lead test assembly occurring in Watts Bar. Those parts and pieces were brought together at the Pacific Northwest National Laboratory. Those rods -- 32 rods were made there. They were inspected by Westinghouse, who builds and -- and constructs all the fuel for Watts Bar and a number of other reactors around the country. The NRC was there to inspect all of the activities that took place at PNL, as well as TVA was there.

They were then shipped in July to Columbia, South Carolina, where they were installed in this hold-down assembly, four different ones installed in four different fuel assemblies. Those fuel assemblies then were shipped here to Watts Bar during a normal fuel

shipment that occurs typically for this reactor. They are now sitting in the pool awaiting for the reactor to shut down and then be installed in Watts Bar in the October time frame.

Following the irradiation, which normally for Watts Bar's about 18 months, those rods will be removed from the reactor—again, another typical process for a nuclear reactor—placed into a shielded cask and then trucked back to the Pacific Northwest National Laboratory for examination.

These rods are very much like and behave like and weigh like and look like a standard burnable poison assembly that exists in all of your commercial PWRs in the country. They essentially perform the same function: They hold down excess reactivity to get a long fuel life out of the fuel in the reactor. They perform that same function. As I mentioned earlier, it is the same dimension, the same size, weighs about the same. From the control room, from the reactor fuel performance, from a variety of different perspectives you cannot tell these rods from a burnable poison assembly.

Where there are differences is in the material inside the burnable poison assembly. For a standard burnable poison rod, boron-10, an isotope of the element boron, is used to capture neutron. We're replacing the

boron essentially with lithium-6. And again it's -- it's a high-temperature ceramic form and absorbs the neutrons very much like boron does, but instead generates tritium.

From a nuclear perspective the -- the characteristics of Lithium-6 absorption of neutrons is very well known, very well characterized, and can be easily modeled. And as I've indicated here, behaves very similarly to that Boron-10 rod that exists in all reactors. And as Mr. Sohinki indicated, this does not contain any fissile material; no uranium, no plutonium before or after it's irradiated.

Again, these look and behave very much like a standard PB rod. All of the -- essentially all of the tritium that's produced in the rod will be captured in that solid matrix I talked about, the tritium getter. It takes an extremely high temperature to get it out of that; temperatures that are well in excess of most -- well, all reactor accidents, so you're not going to see a lot of tritium, even if we were to have an accident. And from an operations perspective, because they behave so similarly to a standard component, they're relatively transparent to a reactor. You don't have to change the control system, we don't have to change our monitoring system. They behave very similarly.

Not only do they behave similarly under normal

operations, they behave very similarly to -- to an accident scenario, postulated accident scenario. And the response the reactor has to a postulated accident is in no way different because of these 32 rods. You remember we're only replacing 32 of over 1,000 in the core. So the impact on the operation is nil.

External reviews that have taken place prior to this public meeting are listed here. Department of Energy; I have listed the organizations that have performed those reviews. I've also listed then the types of reviews that took place here on the -- on your right-hand side. Programmatic; quality assurance; design; manufacturing; environmental assessment; and of course nuclear safety, all done by the Department of Energy.

Nuclear Facility Safety Board, which is a TVA corporate entity out of Chattanooga, has reviewed the programmatic. And obviously I have -- I neglected to include the safety aspects. That -- they've also done that review. The Watts Bar Plant, itself, has done a comparable review: programmatic; quality assurance; design; manufacturing. They are a cooperating agent on the environmental assessment, nuclear safety, and plant operations.

Continuing then, Westinghouse Electric Corporation, the fuel vendor for Watts Bar, has been a

quality assurance; design; nuclear safety; and a manufacturing review. Remember this is going into their fuel. They had a major interest in this, make sure it was done correctly and met the -- the strict quality standards.

Nuclear Regulatory Commission has done a programmatic; quality; manufacturing; nuclear safety; have reviewed all the technical reports associated with this; and of course are in the process of finalizing their review of the TVA license amendment here at Watts Bar for this activity.

And finally the Advisory Committee for Reactor Safety was briefed on this and looked at the irradiation of these TPBARS in Watts Bar both from a programmatic and a nuclear safety perspective.

That concludes my comments. Would you prefer to have questions now or move on and have them later or which --

MR. HEBDON: We can do a few questions now and then give TVA an opportunity to speak.

DR. ETHRIDGE: Okay, couple of questions.

MS. JANEWAY: Would you please describe for me -- my name is Joyce Janeway -- the trucks and the drivers and the transportation of the -- this safe material.

DR. ETHRIDGE: Okay, the -- the shipment from

Pacific Northwest to Watts Bar, that was a non radioactive shipment, so it was standard shipment using 18-wheel trucks, trained drivers. There was nothing radioactive about it, nothing special about it.

The shipment from Watts Bar to Pacific Northwest National Laboratory after irradiation will be done in a license spent-fuel cask that is used across the country for -- for transporting spent nuclear fuel. It's been done -- there are a series of casks that have been licensed by the NRC, and there have been other casks licensed by the Department of Transportation and by the Department of Energy, all gone through a very extensive set of analyses to show that even in accidents, fires, a series of events, none of the radioactivity leaks out of the cask.

So in this particular case we have all of the tritium held up in that getter, takes very high temperature -- higher than you'd ever see in a fire. You also have then the cask, itself, which is also approved for fire rating, accidents, and so forth.

So the transport from Watts Bar to PNL should be -- it is far less risky, if you will, than a standard spent-fuel shipment, but uses the same cask with the shielding and all of the license that applies to that.

Yes?

MR. HOFFMAN: Gene Hoffman, DOE --

DR. ETHRIDGE: Gene.

MR. HOFFMAN: -- retired. Better be.

The -- it was indicated that the tests done in the ATR have substantiated the feasibility and technology.

DR. ETHRIDGE: Yes, sir.

MR. HOFFMAN: But your own report, the PNL report states that these tests were run at lower pressures, lower temperatures, and shorter time. I'd like to know how you translate that into approving it for Watts Bar conditions.

DR. ETHRIDGE: Okay, well, your statement's incorrect. The report --

MR. HOFFMAN: My statement or the report's statement?

DR. ETHRIDGE: Your statement.

MR. HOFFMAN: It came from the report.

DR. ETHRIDGE: The report indicates that there were -- there were eight rods that were done at full temperature and full pressure of a pressurized water reactor. So eight of the 11 -- and Mr. Sohinki said ten; there were actually 11 done -- were done at full temperature and pressure. It is correct that they were done at a shorter period of time, but they were done at a burn-up rate, which means the rate tritium is produced,

because of the higher flux in ATR, at a similar rate to Watts Bar. So that at the end of life the amount of tritium, the amount of burn-up, the component damage and so forth on those rods equilibrated or was equivalent to PWR conditions.

MR. HOFFMAN: The lithium aluminate -- your report indicates in those tests when they were examined the lithium aluminate had cracks in it. Is there -- was the potential looked at for the racheting of these cracked particles down because of failure of the pipe.

DR. ETHRIDGE: Yes. Yes, all of that was looked at. If you recall, the pellets are -- as the diagram indicated, are annular in nature; means there's a hole in the middle of it. There's a component that runs down the middle that insures that if a crack -- a piece where it occurred it would be held in place both from the inside diameter and the outside diameter.

MR. HOFFMAN: The NRC evaluation indicated that they were concerned about the thermocycling which would lead to differential expansion of the cladding, which expands faster than lithium aluminate.

DR. ETHRIDGE: Right.

MR. HOFFMAN: So providing a -- if cracks do occur there is a possibility that those -- if there are any fragments generated, going down and sliding down. And

-- and then, on the first thermocycle, putting stress on the plant.

DR. ETHRIDGE: I can assure you, having experienced that with the ATR thermocycles, we're an order of magnitude more than you would ever see in a Watts Bar. And we saw no evidence of any racheting at all in those tests.

Yes, sir?

UNIDENTIFIED SPEAKER: Tritium was produced (inaudible). If those locks fail that gas is going to go right to the core. Will you tell me for a fact that if these rods, which are stainless steel, which are known to be susceptible to stress corrosion and are not as sturdy as zircaloy, if they fail they're wide open, that you won't get tritium in the reactor core?

DR. ETHRIDGE: No, I'm -- I'm not going to say that.

UNIDENTIFIED SPEAKER: What happens if you do get any racheting?

DR. ETHRIDGE: Well, first --

UNIDENTIFIED SPEAKER: How much is going to be released in the Tennessee River? How many thousands of curies?

DR. ETHRIDGE: First of all stainless steel will only -- is only susceptible to stress corrosion

cracking under certain conditions which do not exist in a nuclear reactor or its spent fuel pool; okay? So --

UNIDENTIFIED SPEAKER: But there's been numerous instances with nuclear reactors.

DR. ETHRIDGE: The other thing is that the -- if the rod were to fail, a weld or your -- your postulated stress corrosion cracking, water would most likely get into the rod and there would be tritium that would be -- would escape the rod. These rods normally release somewhere on the order of 6.7 curies per year. Per year. Very small amount. There's no thousands of curies that you're talking about; 6.7 curies per year. And multiply that by 32, gives you the number of curies that would be released per rod.

UNIDENTIFIED SPEAKER: So what you're showing me is these rods are safer than the existing rods that are already in the core.

DR. ETHRIDGE: There are no tritium-producing rods in the core.

UNIDENTIFIED SPEAKER: That's not true, sir. You produce tritium in a reactor core.

DR. ETHRIDGE: Oh, yes. Right.

UNIDENTIFIED SPEAKER: And what you're saying to me is that these rods are safer than the ones that are already in the core. Because if those rods crack they're

going to release considerably more tritium out of those rods than I am out of these rods.

DR. ETHRIDGE: No, what you're going to release out of the fuel rods are fission products.

UNIDENTIFIED SPEAKER: No, sir, that's not true because these rods release tritium also.

DR. ETHRIDGE: Oh, sure. Sure.

UNIDENTIFIED SPEAKER: The highest of all, the isotope that you get, it is the first thing that you release.

DR. ETHRIDGE: Is -- is the gas. Is the gas.

UNIDENTIFIED SPEAKER: Tritium.

DR. ETHRIDGE: The -- right. And these -- recall these rods have getters in them. All of the inventory of the tritium that's produced, until the rod fails, is in the getter. Water does not affect the getter; the temperature that the reactor is -- is imposing on them do not affect the getter.

UNIDENTIFIED SPEAKER: But if the getter is cracked --

DR. ETHRIDGE: You're not releasing it. It's in solid solution. Right. It's not released --

UNIDENTIFIED SPEAKER: So the rods that are in the core presently are not as safe?

DR. ETHRIDGE: Pardon?

UNIDENTIFIED SPEAKER: The rods that are in the core presently, the zircaloy rods, the ones in the reactor core then by the definition are not as safe as the rods that you're putting in? This man is shaking his head "yes."

DR. ETHRIDGE: I -- I don't quite understand the question. From a safe perspective my concern from a nuclear fuel rod is not the tritium, it's the fission products. So that would be the most thing I would have the most concern about.

UNIDENTIFIED SPEAKER: It is a known carcinogen.

DR. ETHRIDGE: Yes. Yes, I know.

UNIDENTIFIED SPEAKER: You all are recommending it. Would you live -- live downstream of this facility?

DR. ETHRIDGE: Yes, I would. I have this much confidence in this technology. It's been demonstrated, it's been proven, and that's -- that's all I need.

UNIDENTIFIED SPEAKER: Is there a requirement anywhere for any of you all to live close to the nuclear plants?

(Laughter)

MR. MARTIN: Ladies and gentlemen, we're running about 45 minutes behind time. In order to give

the -- the most people the opportunity to --

UNIDENTIFIED SPEAKER: Let me get a chance to correct something.

MR. MARTIN: We will all be here following the presentation.

UNIDENTIFIED SPEAKER: Well, let me just read this statement from your own report. "The TBAR will be exposed to higher neutron confluences and time and operating temperature and pressure than was achieved at the ATR experiment. I mean, that's your report.

MR. MARTIN: Okay. Thank you.

JAMES CHARDOS, LTA PROJECT MANAGER

TENNESSEE VALLEY AUTHORITY

MR. CHARDOS: Okay, if I could, let me get started.

As both Steve Sohinki and Jerry Ethridge have mentioned, there are four LTAs. They arrived on schedule. They are safely stored at Watts Bar. They will remain in storage until they're loaded at our next refueling outage which is -- and that time period is around the middle of September.

Prior to us loading them into the reactor the NRC will in fact review, as we've heard, TVA's license amendment to amend the license at Watts Bar for this one-time test only. And we'll hear more from the NRC in terms

of that safety analysis.

That safety analysis was done with the DOE; PNL; Westinghouse, our fuel vendor; and TVA. So very extensive safety analysis was done to support the license amendment here at Watts Bar.

Once again, as we've heard from both Steve Sohinki and Dr. Ethridge, they'll have no effect on the plant operations, personnel, or the community. We will, once we are operating, periodically monitor both the reactor coolant and neutron flux to insure proper performance of these lead test assemblies. They will be irradiated once we start up for this operating cycle, and that will run till the spring of '99.

At that time they will be removed from the reactor and safely stored in the spent-fuel pool until after the refueling outage is over, and at that point they'll be shipped -- shipped off site, as Jerry Ethridge has mentioned, by DOE in approved casks to undergo post-irradiation examination at PNNL in Richland, Washington. So that is where we're at.

If I could summarize what both Steve Sohinki and Jerry Ethridge have mentioned, there's only 32 out of a possible 1,000 rods that we're using. There's about an ounce or a minuscule amount of tritium produced over the -- over the 18 months. It's transparent to the plant.

It's be periodically monitored, and for the most -- and from TVA's point of view safety is foremost, both personnel and plant safety.

Any questions? Yes.

MS. HONAKER: Well, I know accidents can never happen, never happen, never happen, never happen. But, listen, what if they do? You've got spark plugs called hydrogen igniters in that plant. According to the report that I read, there are 370,000 curies of tritium that will be produced. So if the accident happens at the end of the cycle and you've got 370,000 curies and it all goes "poof," up to those igniters, what happens to the plant?

MR. CHARDOS: I'm not sure where your 370,000 come from. There's only 11,000 per rod.

MS. HONAKER: Well, I got it out of an NRC document.

MR. CHARDOS: Okay. And as Dr. Ethridge has mentioned, the tritium is hydrited to the zircaloy getter. It cannot be removed.

MS. HONAKER: Well, as I said, I know accidents can never happen, never happen, never happen, never happen.

MR. CHARDOS: Well, I was at TMI, too. Please.

MS. HONAKER: But suppose it does; what

happens? The tritium igniters, which are spark plugs; you've got the hydrogen, which is the "H" in the H-bombs; and you've got a way of setting it to go "boom"; what happens to the plant? Is this TVA's way of decommissioning this plant?

(Laughter)

MR. CHARDOS: Okay, we have done extensive safety analysis and they are designed for the tritium to stay in a hydrited form in the getter. It's not free. Free gas; pardon me.

Yes, sir?

MS. HARRIS: You stated about -- I'm sorry. I'm here again.

You stated about the amendment process.

MR. CHARDOS: Yes.

MS. HARRIS: That the amendment was going to be changed.

MR. CHARDOS: The license was going to be changed.

MS. HARRIS: Well, the amendment is going to be used to change the license?

MR. CHARDOS: Yes.

MS. HARRIS: Can you give us your personal assurance that there will be open and full hearings after this test is performed to give us the assurance that

production won't start based on this precedence of testing amendment? That just because you've done it this time that you won't go back and say, "Well, we did it that time. It was okay. And let's go forward again."

MR. CHARDOS: I can't give you any personal assurance.

MS. HARRIS: Why not?

MR. SOHINKI: If I could just make one comment on that, and the NRC may want to comment on it when they -- when they get up. But again, separate the -- this -- this test is only one component of the overall program. If and when we get to a production scenario there will be utilities that will have to apply for amendments to their operating license to insert rods for the production scenario; okay? That amendment process will provide the opportunity for a hearing with respect to the production -- that production scenario with the NRC; yes. That's one opportunity.

The other opportunity is that we will be doing, once the -- once the utilities come in with their proposals in September, we will initiate an environmental impact statement analyzing impacts of each of the candidate reactors. And of course in the NEPA process, which you may be familiar with, there are substantial opportunities for public involvement in that process. So

yes, you will -- you will have opportunities for involvement.

MS. HARRIS: You're -- you're saying that officially and you're not going to come back here six months down the road and say, "Well, that's not really what we meant. You misunderstood." That there will be more hearings and more openness than there has been in this process?

Because this is the first opportunity that we as the public have had here in our community where we've been dropped on, and we'd like to know if we're going to get the same opportunity that you've given us this time, or is it going to be worse?

MR. SOHINKI: Well, recall, and -- and again the NRC may have a comment on this as well, but this -- the fact that we were doing this test with TVA was announced back in February at a press conference in Chattanooga. There was press coverage about it. The NRC did their review. They -- they published in the Federal Register a proposed finding with respect to this license amendment which was available for comment. So there has been some opportunity with respect to this test to be -- be involved.

MS. HARRIS: Well, sir, we're -- I'm 75 miles from Chattanooga from the public document room and I'm

almost 1,000 miles from the Federal Register in Washington. And it's not published in my local newspaper. So I don't have those same opportunities. You just come down here and dropped it on us.

I want to ask the NRC are they going to give us their assurance that there'll be more -- that the next time will be more responsive to the public as they're sitting up here, lined up and making it you against us? That's what I want to know here. Because I'm not looking for -- It's a done deed. We already know that.

MR. SOHINKI: I have no desire to make it me against anybody. What we're trying to do is put out information about what we're doing. And, you know, I might just add that I have -- I don't know whether Steve Smith is in the audience here, but I -- I invited Steve Smith into a program briefing several months ago. That opportunity is an open opportunity for any group to come in.

MS. HARRIS: He doesn't live in my community.

MR. SOHINKI: I will -- well, that -- what I'm saying is -- what I'm saying is I have -- I have made the offer to anyone who wants to get a full program briefing at any time, come in and find out what we're doing at any time, be glad to talk to you.

MS. HARRIS: Where do you live?

MR. SOHINKI: I've briefed Greenpeace, I've briefed several other groups on the program.

MS. HARRIS: Where do you live?

MR. SOHINKI: I'm up in Washington, but I'm willing to come down here if -- if there's a group that you want to get briefed on the program, be glad to do that.

MS. HARRIS: How many people do I have to have for a group?

MR. SOHINKI: Well, let's -- let's talk about it. I mean --

MS. HARRIS: You know, 100, ten?

MR. SOHINKI: Well, I mean, we can talk about it after the meeting.

But -- but the point is I -- that I'm willing, I want to provide as much information about this program as I can provide.

MS. HARRIS: Well, that'll be a change of policy, sir.

MR. SOHINKI: Not for me it isn't.

MS. HARRIS: Well, you're not in charge and we all know you're just down here. But what I'm trying to get is assurance from somebody here up there. I'd like for somebody just to nod: Yes, we'll give you more opportunities the next time. What's wrong with that?

MR. SOHINKI: All I'm saying is that the NRC regulations provide opportunities to get involved in that process.

Yes?

UNIDENTIFIED SPEAKER: The new secretarial policy on environmental assessment calls for involvement of the public? Let me rephrase that. I know that secretarial policy calls for a full involvement of the public as far as is practical in the preparation of environmental assessment. I learned today of the environmental assessment. Now, you all in Washington know we care about this issue but you did not notify us that it's also -- I mean, down here in DOE Land and Oak Ridge we're used to having meetings about important environmental assessments, we're used to having public hearings. You not only had opportunities talking to us -- and this is Ann's point, I think -- you could have engaged us earlier and more effectively. Now I'm in a position of having to look to at an EA that I haven't seen before, and a FONSI; which I understand we had a whole 15 days to comment on the EA after it was released here.

MR. CHARDOS: Yeah, the --

UNIDENTIFIED SPEAKER: It's not adequate. The licensing standards review is not the way we've done things at Oak Ridge to look at a document this big when we

have -- we've had weeks -- we've had 21 meetings to attend in Oak Ridge; 15 days for a document that thick is not adequate. I want to know now, short of a lawsuit, is there any other way that that FONSI can be -- does the state have the power to ask for a review of a FONSI.

MR. SOHINKI: The state reviewed the FONSI. The state reviewed the environmental assessment that preceded the FONSI.

UNIDENTIFIED SPEAKER: Do they have the power to ask for a review of the FONSI? Do they have any legal standing to do that?

MR. SOHINKI: I shouldn't answer that question on behalf of the state. But I think the answer is -- the answer is no; there was a -- a 15-day preapproval review that was basically --

UNIDENTIFIED SPEAKER: So the only other way to take a look at that FONSI is in court, basically?

MR. SOHINKI: I think that's probably true.

MS. NEAL: Michelle Neal again.

This is -- this is a question, and -- and your name again is --

MR. CHARDOS: Jim Chardos.

MS. NEAL: Okay. It's my belief that tritium production would be an entirely academic issue in the event the U.S. and other weapons powers decide to honor

their commitments under Article 6 of NPT which states that each of the parties to the treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date, and nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

I would like to hear why TVA feels compelled to be involved in the production of a nuclear weapons material, and in my view really puts this community in, you know, a position of jeopardy. I mean, how -- how do you think -- how does -- I mean, how does North Korea or China view the TVA producing weapons grade material? I mean, I --

MR. CHARDOS: TVA has in the past helped out, as part of its charter, U.S. defense programs during World War II and in the past. So this is nothing more than, as -- as Dr. -- as Steve Sohinki would tell you, a presidential -- a presidential --

MS. NEAL: I --

MR. CHARDOS: I understand. I understand your feelings about that.

UNIDENTIFIED SPEAKER: Are you saying TVA's produced materials for nuclear weapons in the past?

MR. CHARDOS: No, I said they have helped out

on defense programs during World War II.

MS. HONAKER: And made nerve gas, too. (inaudible).

MR. CHARDOS: I know.

Yes, ma'am.

MS. NEWCOMB: I think you're giving us the answer to the root of the problem. TVA was established to enhance the life of the people it serves. This program threatens life here as well as worldwide, and feeds the Pentagon and robs the poor.

(Applause)

MR. CHARDOS: I'm sorry; what, sir? Yes?

MR. STARK: My name is Stark.

If this -- doing this is only a way of keeping the cost down then we'd rather pay more for our electricity than to have this happen and -- because we think this is a terrible thing.

(Applause)

MR. CHARDOS: Okay?

MS. LAPIDIS: Jennifer Lapidis again.

How much did it end up costing Watts Bar to -- to get fueled up? I -- it's been about a year that you -- that you've been running. And I know that your initial budget was something like 300 -- let's see, 325 million, and last count it was nine billion to get started.

Congratulations on the 7-1/2 million you're getting for this test, but I'm curious how much it's going to end up costing, how much of a debt you're running.

MR. CHARDOS: I'm sorry, there's too many pieces to that question for me to -- could you start again? I missed the point of the question.

MS. LAPIDIS: I'm curious how much it ended up costing you to get Watts Bar fueled up, to get going. It took 20 years to construct. And your -- last I heard it was costing a million dollars a day.

MR. CHARDOS: Well, I think what was in the paper the last couple of days was something like 6.7 billion total completion cost, something like that.

MS. LAPIDIS: So minus the 7-1/2 million that you're getting from the test --

MR. CHARDOS: The total contract value between Batelle and TVA is 7.6 million, 7.5 million.

UNIDENTIFIED SPEAKER: As for Watts Bar, can TVA supply financial reports that state that right at $11 billion for the entire Watts Bar site.

MR. CHARDOS: Yes.

MR. MYCZACK: Lee Myczack. You've used words—not you but the previous speaker—used words like "typical," "standard," "ordinary." I mean, this is an extraordinary test you're doing here. It's not typical or

standard at all. And when you talk about the public process and you said there'd be more opportunities later on down the road for the public to get involved, this is not a public hearing. You came to tell us what you're going to do. You didn't come -- you stated the fuel rods are safely on site already. I mean, this isn't a public -- -

The public is here to listen to you tell us what you're going to do to us, and that we really don't have any recourse other than a federal lawsuit. What kind of a public process is that? It only satisfies the thin requirement of the law that the public somewhere along the line has to be included. But it's a done deal.

I mean, the fuel rods are on site, you have a date that you're going to do this. What the heck kind of a public hearing is this?

MS. HONAKER: It's a violation of NEPA which says every significant government action shall be preceded by an environmental impact statement. So that's the second law they've broken.

UNIDENTIFIED SPEAKER: At least.

MS. NEAL: Let me just make one more clarification because I think --

MR. MYCZACK: I didn't get an answer yet to my --

MS. NEAL: Oh, I'm sorry.

MR. CHARDOS: Well, those are nice statements. I -- I didn't expect -- I mean, you -- you went through and you discussed what your thoughts were on this public meeting; am I correct? That was a statement on your part?

MR. MYCZACK: You were talking about public input. And I'm not sure which panel that's up here, maybe it was Sohinki -- Sohinki there said that further down the road there'd be other opportunities for the public to be involved.

MR. CHARDOS: Yes.

MR. MYCZACK: There's been no public involvement. You know, we can sit here and make all the noise, but you still got your October start-up date, you got the fuel rods on -- this is not public involvement. You're dictating to us the policy. I'm asking when we're going to have a real public involvement where we can -- when we say no, you'll -- you'll accept that and go back and say, "Well, they said no."

(Laughter)

MR. MARTIN: Ladies and gentlemen, the next speaker, Jim Wilson, would answer that question to some degree. He knows that there are some opportunities for public involvement in the next phase of the program to come up. So at this point in time, with regard to, you

know, where we are on the clock, you know, Jim --

MS. NEAL: Let me make one more clarification on this, if you don't mind. This is the -- this is the draft environmental assessment that was issued on this test production; is that correct? And the rods are already on site. Now, I was trying to figure out, because there was a slide up there that showed -- when did the rods come from PNL and transported to South Carolina?

DR. ETHRIDGE: They arrived at South Carolina 28th of July.

MS. NEAL: The rods?

DR. ETHRIDGE: Yes, the rods.

MS. NEAL: And then, so the 28th of July. They're now on site at Watts Bar; is that correct?

DR. ETHRIDGE: Yes.

MS. NEAL: Okay. There are no -- I mean, that was not at all clear. I mean, this is a draft environmental assessment on -- that was issued on this test production and that was not at all clear on --

I mean, to me, my assumption was that the rods weren't even moving yet out of this -- by reading this document. And, I mean, you can see I've read through this document very carefully and I think it goes to show that -- You know, I mean, I'm sitting here thinking, 'Why am I here tonight?' I mean, you know, the test is -- there's

nothing that --

I mean, I've been -- I don't know. I just am frustrated by the process here and, you know, there's nothing to stop it right now other than, you know, a suit, this lawsuit. And it's just frustrating that, you know, this was a draft environmental assessment. And there -- I just -- I think it was a poorly done draft environmental assessment. So --

MR. CHARDOS: Thank you.

JAMES H. WILSON, SENIOR PROJECT MANAGER
OFFICE OF NRR, NUCLEAR REGULATORY COMMISSION

MR. WILSON: My name is Jim Wilson. I'm the Senior Project Manager in the Office of Nuclear Reactor Regulation, the NRC.

UNIDENTIFIED SPEAKER: We haven't heard a word you've said.

UNIDENTIFIED SPEAKER: Is the mike on?

MR. WILSON: Is the mike on?

I'm the designated NRC point of contact between the Department of Energy and the NRC.

UNIDENTIFIED SPEAKER: You're not being heard by me and I've got pretty good hearing.

MR. WILSON: Okay. I'm the designated point of -- NRC point of contact between the Department of Energy and the NRC in matters pertaining to DOE's program

for the commercial -- commercial light water reactor production of tritium. Mr. Sohinki has described DOE's program, and I'll talk about NRC's involvement with that program.

DOE first approached the NRC staff in early 1996 to advise the staff it was pursuing an option to produce tritium at one or more nuclear generating facilities licensed by the NRC. The staff prepared a joint memorandum of understanding between the DOE and the NRC to describe the operating interface between the agencies on this project, and transmitted this MOU to the Commission in March of 1996. This joint memorandum of understanding supplements an earlier memorandum of understanding between DOE and NRC that was dated February of 1978. And this supplement relates solely to NRC's review of and consultation on DOE's proposal for the commercial light water production of tritium.

The Commission approved the memorandum of understanding in April, and in May of 1996 Chairman Jackson and Secretary of Energy O'Leary signed it, and it became immediately effective. The joint memorandum of understanding agrees that NRC is to provide review and consultation with respect to DOE's possible acquisition of commercial light water reactors or acquisition of irradiation services from commercial light water reactors

for the production of tritium.

The memorandum of understanding acknowledges that an issue exists involving the use of civilian commercial reactors to support military requirements, but stipulates that NRC will not be involved in the decision on whether or not to use an accelerator or a commercial light water reactor to produce tritium to maintain the strategic stockpile. These decisions, as well as the need to sponsor any needed legislative changes, devolve to -- to DOE.

Finally the memorandum of understanding provides for NRC to recover costs associated with this program through reimbursable agreement between the two agencies. The staff described its proposed approach reviewing DOE's proposals related to commercial light water reactor production of tritium in a Commission paper issued in October of 1996. I'll briefly summarize the salient points of the staff's proposed review process that was outlined in that Commission paper.

The staff's review would be conducted in two phases related to Phase 1 and Phase 2 of DOE's tritium program. For Phase 1 DOE proposes to irradiate 32 tritium producing burnable absorber rods made each in four lead test assemblies, one in each quadrant of the reactor core for one cycle of a licensed facility to collect

confirmatory information and to increase licensee confidence in the program.

DOE would submit a topical report containing sufficient information for the staff to determine whether the use of a CLWR to produce tritium would require prior review by the NRC. The staff would prepare a safety evaluation documenting its review of the DOE LTA topical report, and summarizing its conclusions. The staff would consult with the Commission prior to issuance of a safety evaluation. And the last portion of Phase 1 is what we're engaged in now. It's the plant-specific implementation of the lead test assembly irradiation, and it's represented by the Watts Bar license amendment proposal currently under staff review.

For Phase 2—and that's several years down the road—DOE would prepare a topical report on production irradiation of up to 3,300 tritium producing burnable absorber rods in a pressurized water reactor. The staff would review the tritium production core topical report and would provide to the Commission prior to issuance. After Phase 2 safety evaluation on the tritium production core an individual licensee, yet to be selected by DOE, would make application for an amendment to its facility operating license to permit production irradiation.

In its Stock Requirements Memorandum issued in

December of 1996 and related to the staff's Commission paper on the tritium review, the Commission approved the staff's review -- proposed review approached and directed the staff to hold a series of public meetings. First public meeting was held at NRC headquarters in Rockville, Maryland, back in February of this year. It was to provide an opportunity for public comment regarding the technical issues during the lead test assembly phase, and to inform the public of the staff's activities early in the evaluation process. That meeting was noticed in the Federal Register, was transcribed, and was summarized in a meeting summary, and then placed in the public document room under the project number for the DOE tritium project, Project 697.

Second public meeting mandated by the Commission is this meeting here. It is being conducted in the vicinity of the host facility—in this case Watts Bar—prior to loading the test assembly containing TPBARS into the reactor core. The staff will hold similar public meetings in the vicinity of any particular NRC licensed facility engaged in the irradiation of production quantities of TPBARS and tritium.

This last slide briefly summarizes the staff's review of Phase 1 activities related to DOE's proposal for the commercial light water production of tritium. DOE

submitted classified and unclassified versions of its lead test assembly topical report in November and December of 1996. The staff reviewed the LTA topical report and issued requests for additional information in January of this year. DOE responded to the staff's request for additional information and submitted a revised LTA topical report in March of 1997. The staff prepared its safety evaluation, transmitted to the Commission in May, and issued it as NUREG 1607.

The staff's safety evaluation concluded that irradiation of lead test assemblies containing tritium producing burnable absorber rods required prior NRC review and approval. The staff's safety evaluation also identified a number of issues that any licensee seeking to conduct any such irradiation would have to address before the action would -- to be approved.

I'd like to note that as described in the Commission's -- the staff's Commission paper of October of '96, the original purpose of the DOE LTA topical report was to provide sufficient information for the NRC staff to determine whether use of a CLWR to irradiate a limited number of TPBAR LTAs raised generic issues involving unreviewed safety questions. Should the staff determine that no generic unreviewed safety questions are involved in irradiating TPBAR LTAs in a commercial light water

reactor, the provisions of 50.59, without NRC licensing action, would be invoked.

The original report addressed the issues generically and presented several plant-specific analyses for an unspecified Plant A and Plant B over the original reports docketed in November and December of 1996. On February 7th, 1997, DOE announced the selection of Watts Bar as the facility that would conduct the one-time confirmatory test of components that would be used in the production of tritium. After selecting Watts Bar, the facility would carry out the confirmatory irradiation.

In response to staff request for additional information DOE submitted a revised report that presented analysis based solely on the Watts Bar facility. Therefore the staff shifted its review from the generic basis to a Watts Bar-specific basis. And the staff's safety evaluation, issued as NUREG 1607, identified specific evaluations that would have to be provided by Watts Bar in its license amendment request.

On April 30th of 1997 TVA submitted the request for an amendment to the facility operating license. And I'd like to introduce Bob Martin, who's the Project Manager for Watts Bar, who will discuss the staff's review of that license amendment request.

Are there any questions?

MR. HOFFMAN: Gene Hoffman, DOE retired.

The timing on this whole process is really mystifying. You had a technical review, a public meeting in January. Right?

MR. WILSON: We had a -- a review meeting in January and in February we had a public meeting for comment in Rockville.

MR. HOFFMAN: Okay. And that was -- and the NUREG safety evaluation report was issued in May of '97; right? Many months later?

MR. WILSON: I'm sorry?

MR. HOFFMAN: I say several months after the -- the technical review/public meeting was held. And then the May NUREG report lists 15 different items that you've alluded to that TVA is to provide information on. TVA must present additional information in those areas for the safety analysis becoming the application. Now, this is a -- in a May report. Now, have all those 15 issues been addressed by TVA?

MR. MARTIN: Let me try to answer that. This is the point at the presentation that I will pick up on.

MR. HOFFMAN: Yeah. And I guess I'm a little disappointed, Bob. You sent me the information, which I appreciated very much, but you didn't bother to tell me whether those open issues had been addressed since the May

report.

MR. MARTIN: The portion of the staff's review that Jim just presented --

MS. HARRIS: Before he takes that down could he put it right back up for just a second, because I'm interested in having the dates that all those issues were checked off. Has all those items got a date on them when they have been completed?

MR. WILSON: These dates are November and December of 1996; this is January of 1997; this is March of 1997; this is May 2nd; and this is April 30th.

MS. HARRIS: April what?

MR. WILSON: April 30th.

MS. HARRIS: Of '97?

MR. WILSON: Yes.

MS. HARRIS: Okay.

MR. HOFFMAN: I guess my point again is that they submitted April 30th; you had 15 questions still open in May.

MR. MARTIN: I'll get to that.

BOB MARTIN, SENIOR PROJECT MANAGER
NUCLEAR REGULATORY COMMISSION

MR. MARTIN: The review that Jim's organization did was in a sense while it was still a generic issue, if you will, between the NRC staff and DOE.

Following selection of TVA as the host facility, it came appropriate to put the issue on the TVA docket.

Now, TVA -- TVA began that process on April 30 when it submitted an application for amendment of the license to the NRC staff. That amendment application incorporated the PNNL report; the Pacific Northwest report. If you'll recall, the Pacific Northwest report, up through its vintage of approximately March—I think I'm right in that, approximately March—was what the -- what the NUREG report reported on, NUREG 1607, which is what Jim just got through explaining. That report, as you recognize, contained a number of areas in it where the staff could not complete its conclusions and needed additional information.

We extracted those issues from the report and put them on the TVA docket in a letter dated May 29th. So this began our review of the issue as a docket-specific issue in response to TVA's application for an amendment. There are a number of other milestones over the next several months. The period of time was quite active.

We had a meeting with TVA on June 4th to discuss a number of issues, including the quality assurance related issue of the safety related classification of TPBAR components, and also a number of other issues such as thermohydraulics and -- and reload

analysis. I have one item on there where June 4 we put a notice in the Federal Register to the effect that we had received that application and proposed "no significant hazards" consideration determination.

MR. HOFFMAN: Gene Hoffman. Is the -- is the response to those 15 items which NRC raised available in documents to the public?

MR. MARTIN: Oh, yes. Yes.

MR. HOFFMAN: Or the topics here or --

MR. MARTIN: Let me get to my next slide.

The response to virtually all of those issues came back in a letter dated June 18 from TVA. We -- the June 18 letter responded to the entire menu of issues we sent on the Watts Bar docket on May 29th. Some of these issues were not fully resolved with that response, and we continued the dialogue with TVA.

On June 24 we sent TVA another letter on the safety classification of the TPBAR components issues; on July 3 we met with TVA at their request to present a response to that letter. The results of that meeting were very productive. We moved the issue forward quite a long ways. TVA documented the answer to those issues on -- in one of the three letters that was sent in on July 21. Also on July 21 TVA sent in letters to two other issues in that original list of 18 items.

July 23rd we provided notice in the Federal Register of this meeting which we are attending tonight. And the last item acknowledges that TVA expects to begin the fall outage in early September.

Yes?

MR. JANEWAY: Don Janeway.

On these dates that you're putting up here, what is the date that that final decision was made that this was a go?

I have three questions. What is the date for final decision, it's a done deal? What was the date that the rods were manufactured? What was the date that they were shipped?

MR. MARTIN: The date -- I think I can answer the last one first. The dates the rods were shipped from PNNL I think --

Mr. Ethridge, do you have that date?

DR. ETHRIDGE: 29th. The 29th, July.

MR. JANEWAY: 29th of -- they were received in July?

DR. ETHRIDGE: Right.

MR. MARTIN: Okay.

MR. JANEWAY: When were the rods manufactured?

DR. ETHRIDGE: 23rd of July.

MR. JANEWAY: And when was this -- this made a

done deal?

MR. MARTIN: I don't understand that. When -- when was what made a done deal?

MR. JANEWAY: That this was going to be done at Watts Burnable absorber rod.

MR. MARTIN: We have not issued the amendment to the license authorizing that yet. It's still under review, it's still in progress.

MR. JANEWAY: But you made the rods and shipped them to Watts Bar anyhow.

MR. MARTIN: But the license amendment authorizing their insertion has not yet been issued. So if that's what you're referring to, we haven't gotten to that milestone yet.

UNIDENTIFIED SPEAKER: Do you anticipate not doing it?

MR. MARTIN: We're in the midst of our review right now. I can't say what the outcome will be either way. That decision simply has not been created; it hasn't been reached yet.

MS. HARRIS: According to your dates that you put up there, you anticipate it being done. If you go back to that last slide, you said September the 5th is whenever the outage would start at Watts Bar. That is concurrent and it is with the same practice that the NRC

has always done, doing something at 5:00 on Friday afternoon on a long holiday weekend, which is what you're doing here again. That's what I saw up there. Am I wrong? Because that's when you said that TVA is going to -- to start the process.

MR. MARTIN: That's the date that I understand TVA plans to start the next outage. Providing the staff approves the amendment by that time, they will have authorization to put the TPBARS into the reactor. If the staff does not reach that conclusion then TVA would have to look at other alternatives.

MS. HARRIS: Then do you anticipate that you won't get it done? Do you find anything at this point, you know, any reason that you won't get it done?

MR. MARTIN: I can't conjecture at this point. We simply haven't reached that conclusion.

MS. HARRIS: Are you in the process, are you in the review process?

MR. MARTIN: We are in the middle of the review process right now; yes.

MS. HARRIS: Okay.

MR. MARTIN: We've been actively involved ever since May through June and July getting information from TVA to enable us to understand the things that we didn't, that we hadn't yet reached a conclusion on in the NUREG

1607 report. Our technical staff members, many of whom are here with us tonight, have been reviewing that. The process is not finished until they have reviewed the information and made their decisions and, through our normal staff processes, we've put together a response to the license amendment.

MS. HARRIS: I just saw the agenda set us there and this is -- this is past practice with the NRC and TVA, that once it goes into the agenda nothing -- I mean, hell or half of Georgia is not going to stop it. So I'm just wondering if we need to know that those are the dates that everything's going to happen.

MR. MARTIN: I'm not sure I understood your question with respect to the agenda. I think I described to you our review processes, and we're not there yet. We haven't made a decision yet.

MS. HARRIS: So the answer is no answer?

MR. HEBDON: No, the answer is that the license amendment is still under review. A decision has not been made yet. TVA does have the lead test assemblies on site, but they cannot start up from their refueling outage with those lead test assemblies in the reactor unless we authorize the license amendment. And a decision on that has not been made yet.

MS. HARRIS: You've already authorized --

UNIDENTIFIED SPEAKER: But they're on site.

MR. HEBDON: They can have them on site. They're -- they're a fairly benign piece of equipment. They can have them on site as much as they would like. They can't start up the reactor with them in the reactor. That's the part of their license that they have to change, and that's what the license amendment request is -- requests authorization to do.

MS. HARRIS: Fred, as usual you're not answering a question, you're going off into Saudi Arabia somewhere. The question was: You've set your agenda. Do you see any reason for it to not be set?

MR. HEBDON: What I'm telling you is that we have not yet made a decision, and I'm not going to tell you one way or the other because we haven't made the decision yet. I can't answer your question. I don't --

MS. HARRIS: Well, then why did you go with TVA's agenda, then?

MR. HEBDON: I'm just telling you when the refueling outage is scheduled to start.

MS. HARRIS: But if you're putting it up there as the agenda --

MR. HEBDON: I put it up there as the date they're planning to start their -- their fuel -- their refueling outage—I believe that's a fairly public piece

of information—to try and give you an idea of what the -- the schedule is for proceeding.

MS. HARRIS: Have you missed anything that you put on that agenda?

MR. HEBDON: Have we missed any?

MS. HARRIS: Yes.

MR. HEBDON: I believe all of the dates that were on that agenda are dates of things that have happened in the past, with the exception of the refueling outage.

The refueling outage will start. Whether or not they can load the -- the lead test assemblies and whether or not they can start up the reactor with the lead test assemblies in the reactor is the decision that we need to make as part of the license amendment, and I can't answer that. I don't have an answer yet because we haven't reached a decision yet. I can't tell you one way or the other.

MS. HONAKER: Didn't you make a decision of "no significant hazards"?

MR. MARTIN: We have published a proposed finding of "no significant hazards." Yes, we published that in the Federal Register.

MS. HONAKER: What was the date on that?

MR. MARTIN: That was on June 4th.

MS. HONAKER: Well, if you have no significant

hazards then what would preclude your issuing the license amendment? If you've made a decision that there's no significant hazards, what's the barrier?

MR. HEBDON: Well, the "no significant hazards" determination is only one part of the license amendment process. We have to write a safety evaluation to determine whether or not we considered the license amendment to -- to meet the NRC requirements. The "no significant hazards" was, first of all, just a proposed finding; and is only one piece of the process. There's quite a bit else that has to go on in the process before we could authorize the license amendment.

Let me ask a question. We have about five minutes more of prepared presentation, and what I would propose to do is if we could go ahead and go through that, give everyone an opportunity to take a break, because I think it's about ten minutes past when we had originally planned on finishing, and then we'll come back and if anyone else has any additional comments or questions we'll stay here as long as anyone has any comments or questions that they want to ask.

But if we could go ahead and finish up about five minutes of prepared remarks and then give everybody an opportunity to take a break for a few minutes, if that's acceptable to everyone. Okay?

MR. MARTIN: Watts Bar was licensed in part on a review by the staff of a spectrum of accident and transient analysis and information on the design of the plant that's represented in the final safety analysis report. Each fuel cycle of a nuclear power plant is analyzed with respect to the core performance issues, such as core cooling and reactor physics. It's analyzed with respect to the changes that the refueling itself would make on those parameters.

The staff has reviewed TVA's analysis for the next fuel cycle with respect to any changes in the safety analysis due to the use of the TPBARS. This review has included issues in several branches' areas such as the following:

For instance, in their reactor systems areas we looked at computer codes that needed changing. One needed changing a little bit from what the conventional one that had been used before to reflect TPBARS. We requested information from them on a comparison of the reactivity characteristics of TPBARS with conventional burnable absorber rods. We have asked for information and are still looking at thermohydraulic and reload analysis for Cycle 2, and also at the remainder of the transient and accident analysis.

Another area we look at is materials

engineering. The TPBARS are constructed of various materials. The staff has reviewed the materials with respect to their relationship to the safe operation of the reactor during the next fuel cycle. This includes information on the design criteria with respect to the adequacy of state of stresses in the cladding, of the weld qualification procedure that's going to be used; for instance, the welds in the lower end caps to the cladding; the non-destructive examination techniques that were used in the manufacture of the TPBARS.

We also looked rather extensively at the relationship in the quality assurance programs of the various organizations participating in this activity. This includes the laboratory, PNNL; it includes Westinghouse for the support it provided; and it includes TVA's QA organization. We addressed issues in that review such as QA oversight, procurement practices, the audits that were being done, the design organizational interface and -- and so forth. And we also looked at -- in the area of radiation protection, we looked at how any of the accident analysis consequence numbers changed due to the addition of the TPBARS compared to what had existed in the design basis of the plant before.

Yes?

UNIDENTIFIED SPEAKER: Are you aware, sir,

that in 1991 or 1992 that James Taylor, the former EDO of the NRC, said there'd been a complete quality assurance breakdown at Watts Bar? And now you would have us believe that they've recovered from that since 1991 to '97?

MR. MARTIN: As I understand it -- well, that -- that was before my time on the project. But as I understand it, that -- there's a long history of that. It's well documented. For instance, there are a number of NRC staff supplements to the safety evaluation report written on that, and I believe that's all part of the licensing proceeding. And those issues were satisfactorily resolved for the issuance of the low power license in late 1995.

UNIDENTIFIED SPEAKER: The NRC, in their SER, accepted these -- TVA's testing of the gas exchange radiation monitors at Watts Bar. They said back.

MR. HEBDON: That subject is -- is something that you and I've discussed at great length and I really don't think we need to pursue that here. I mean, we've spent hours discussing that subject. We discussed it and explained that issue up to and including the Commission. And it really is beyond the scope of what we're trying to cover here.

We're trying to talk about these lead test assemblies, and -- and that subject is a subject that you

and I have discussed at great length for many hours. And I really don't think it would be fruitful to pursue it here.

UNIDENTIFIED SPEAKER: Did you make a mistake (inaudible)?

MR. HEBDON: Could we go on and talk about the --

We did not make a mistake, and let's just let it go at that.

UNIDENTIFIED SPEAKER: Both you and I know you did.

MR. HEBDON: Could we go on and have our next speaker, please.

MR. HOFFMAN: Bob, I have one question about the TVA responses on June 18th and -- and July 21st. Are those available? When will they be available?

MR. MARTIN: Those are available. That's a publicly available letter issued by TVA.

MR. HOFFMAN: If we sign up on the request for the proceedings will people get those two letters?

MR. MARTIN: I can send those to you specifically if you want.

MR. HOFFMAN: Well, probably other people would like to see it, also.

MR. MARTIN: Yeah, okay.

MR. HOFFMAN: Why couldn't those responses be transmitted with the proceedings?

MR. HEBDON: Yeah, if -- if people are interested in that we can certainly -- if you -- when you put down on the sign-up sheet, indicate that you're interested in that and we can provide them. I mean, we were just trying to cut down on the amount of paper here.

MR. HOFFMAN: And when will -- when will proceedings be issued and --

MR. HEBDON: The meeting summary?

MR. HOFFMAN: Yeah.

MR. HEBDON: From this meeting?

MR. HOFFMAN: After the insertion?

MR. HEBDON: It would --

MR. MARTIN: Within -- within the time that we get the transcript and can prepare the summary of the meeting and administratively issue it. I would say two weeks.

MR. HOFFMAN: Two weeks. Late August.

MARK LESSER, CHIEF, REGION II
NUCLEAR REGULATORY COMMISSION

MR. LESSER: My name is Mark Lesser and I'm with the NRC Office in Region II, Atlanta, and I'm going to talk briefly about the NRC's inspection program of the LTA; basically the other component of -- of NRC oversight.

We have been doing inspections of the LTA, even though it -- we call them in-process inspections. As mentioned, TVA's not licensed to use -- to start up the reactor; however, we want to see the process. As Dr. Ethridge mentioned, we did an inspection from our headquarters branch -- or from the headquarters at PNL to look at the fabrication of the LTA and their quality assurance standards. We have done inspections -- we did -- we did inspect the licensee's receipt of the LTAs on July 29th, and insertion into the spent fuel pool.

We have taken a look at security aspects of this, as basically this slide outlines a -- some planned inspections that we intend to do throughout the cycle. We'll look at chemistry aspects, controls, monitoring. After the cycle is over we will look at the removal of the LTAs from the -- from the reactor, and actually removal from the assemblies and packaging, preparations for shipment.

This plan -- basically the inspectors that are doing that, we have our senior resident inspector, who we didn't introduce, but that's Kim Van Doorn and his staff. Kim is here, lives in the local area. He works at Watts Bar. He has an office there. Him and his staff are there every day. They not only inspect this, but they're -- they inspect all aspects of Watts Bar: operations,

maintenance, testing, and engineering.

That will be supplemented by some regional inspectors to help us with a little more expertise. Basically one other note: This is a -- this plan is flexible. As any issues develop from -- from the staff's review of the -- of the amendment, any issues that we're not already aware of, we can easily load them into our inspection and -- and get the required resources. That's really all I wanted to say about the inspection program.

What I'd like to do is turn it back over to Bob. This completes our -- the staff's formal presentation.

Yes?

MS. NEWCOMB: I have a question for the safety man. When you're transporting nuclear products to and fro Watts Bar do you inform the communities that this is going to travel through, that this is about to happen? Now, I know across the country there are some communities that have declared themselves nuclear-free and you're not allowed to go through that. And I -- I think all those communities should be informed and know what's passing through their -- their territory.

MR. LESSER: Yeah. The question is do we inform communities prior to transporting, for instance, radioactive waste.

MS. NEWCOMB: As safety engineer do you --

MR. LESSER: I don't know -- I don't know if we inform them. I know that -- that they're required to conform to Department of Transportation regulations.

MS. NEWCOMB: Well, that -- that question should be addressed.

MR. HEBDON: Why don't we go ahead and take a break for about 15 minutes and then reconvene. Why don't we take a break.

UNIDENTIFIED SPEAKER: No, no, for those who may have to leave --

MR. HEBDON: Oh, okay.

UNIDENTIFIED SPEAKER: -- where would we address comments? None of the literature says if you couldn't be here tonight or if you're going to not stay till midnight, who should we send comments to?

MR. HEBDON: To Bob Martin. And I believe there's an address in the public announcements.

UNIDENTIFIED SPEAKER: It doesn't -- it doesn't indicate at all that he's going to receive comments.

MR. HEBDON: Oh, he -- he will receive comments.

UNIDENTIFIED SPEAKER: Thanks.

MR. HEBDON: Certainly.

UNIDENTIFIED SPEAKER: When?

MR. HEBDON: You can submit them at any time, but obviously we're proceeding towards making a decision on this, so the sooner you can get the comments to us the -- the easier it is for us to address them as part of our process.

UNIDENTIFIED SPEAKER: Excuse me. Do we have to take a break?

MR. HEBDON: I would like to take a break. I don't know about anybody else. So why don't we take a break for about ten or 15 minutes and then we'll reconvene at 9:30.

(Whereupon, a short recess was taken.)

MR. HEBDON: Okay, at this point we would like to try and go ahead and give people an opportunity to ask any additional questions or -- or make any additional comments. I think we still have a fair number of people that would like to -- to comment, so we'd like to give everybody an opportunity. And so -- but at the same time we will stay until everyone's had an opportunity to say everything they feel they want to say. So if -- if we could sort of make one pass through the -- through everyone, and if you could try and -- and ask your questions and we'll try and answer them. And then if -- if you have longer questions or comments we can try and

address those, you know, as time permits.

We're open to comments either directed to DOE. One thing I would point out is, you know, the action that -- that we're addressing is the insertion of these lead test assemblies into -- into Watts Bar. And that's a -- a one-time deal. We are not at this point -- we have not even been asked to address the issue of whether or not Watts Bar or any other reactor, for that matter, can be used to produce tritium on a long-term basis. That's a different issue. A decision hasn't even been made on that yet.

And if a decision is made, that's something that would be the -- the subject of a -- an entirely different licensing amendment process. And I'm sure we would be -- if it were decided to do it in this area I'm sure part of that process would be additional meetings in this area.

Yes, sir?

MR. JOCHER: I have a brief statement I'd like to read.

MR. HEBDON: Okay. You want to use the podium? It'll make it a little easier to hear.

MR. JOCHER: I'll be glad to give you a copy.

MR. HEBDON: That's fine. We'll make sure it gets put in the transcript.

MR. JOCHER: My name is William Jocher. I'm the former Chief of Nuclear Chemistry and Environmental Protection for TVA. I'd like to request a written response addressed to me within 30 days to the brief comments I'm about to make.

Yankee Row, located in Deer River Valley, Massachusetts, discharged large amounts of tritium, about 1,800 curies a year, to the Deer River. During the course of the ensuing years high incidents of Downs Syndrome, heart disease, and cancer were recorded within a three-mile radius of this badly managed plant. For example, 50% increases in five different types of cancer; 40% increases in heart disease; 110% increases in infectious disease that resulted in mortalities. Also noted was a significant increase in Downs Syndrome cases that normally occur one in 700 to 1,000 cases, were now occurring one in 100 births.

My question is: Do you have data that demonstrates that if Watts Bar is converted to a tritium production facility that it will not cause similar increases in disease downstream from the plant in light of the fact that this plant has the potential to discharge thousands of curies more than Yankee Row ever discharged? My concern is based on credibility issues and accountability issues that have worried me.

For example, 1985 TVA management certified Watts Bar fully ready to operate, and the NRC didn't see it that way until 11 years later in 1996. NPO and NRC found in the early '80s that Watts Bar's quality control program, which was mentioned here previously, could not correct reoccurring problems. Not new ones, reoccurring problems. In the early '90s James Taylor, then the EDO for the NRC, ten years later -- ten years later after the original comments were made, made the same statement; that they could not correct reoccurring problems.

The NRC has written off, since 1984, one-half of the high priority plant generic safety issues with no requirements. NRC failed to recognize or take action, over the course of many years, of plants plagued with problems, and begrudgingly did so only when whistle blowers went public. For example, TVA, Maine Yankee, Connecticut Yankee, Salem, South Texas, Palo Verde where TVA's current senior management staff was all recruited from.

DOE -- DOE failed to protect the public in various states that suffered fallout from above-ground testing done in the early '60s and '70s, and only this week has admitted culpability and taken some responsibility for their actions. DOE failed to take responsibility for human experiments performed in the

'40s, '50s, and '60s, and only now has recently been admitted by Hazel O'Leary within the last year.

Thank you very kindly for listening to what I have to say.

(Applause)

MR. HEBDON: Are there any other questions?

Yes, sir?

MR. HOFFMAN: Is this the time to make a presentation?

MR. HEBDON: I'm trying to give everybody an opportunity. If it's fairly brief we could do it now. If it's long --

MR. HOFFMAN: Five minutes if I speak fast.

MR. HEBDON: Yes, that seems like a reasonable period of time at this point.

MR. HOFFMAN: You'll excuse me for reading a lot of this, so -- in the interest of time it'll just speed the process up.

But my name is Gene Hoffman. I live in Knoxville. I'm retired from the Oak Ridge Operations Office; retired in January of -- of '96. I'm a metallurgical engineer, have degrees from the University of Notre Dame and the University of Tennessee. And my 46 year career included 12 years at Oak Ridge National Lab, nine years at General Electric Space Power, and 25 years

with DOEAEC in Washington and Oak Ridge.

About 90% of my career as a material specialist was working on advanced nuclear systems for terrestrial and -- and space applications. And I have always supported the use of nuclear power for unique and appropriate applications, including power generation and -- and nuclear defense. I've never worked directly on a nuclear weapons system. And only recently did I become aware of the plans for future production of tritium for nuclear weapons application.

It was a shock to me when I found out that following the 1992 -- that following 1992 the administration and DOE management had abandoned a proven 30-year technology and tritium production facility at Savannah River before an alternate technology had been demonstrated. On hearing about this -- this hearing I contacted Bob Martin, and he graciously provided me with a -- the package that TVA submitted on April 30th, FedExed -- next morning. And I've poured over that at some length and tried to absorb all the information that's in there.

And because of the limited time I'd like to read quickly a list of concerns and questions that I have. And I had a little assistance in preparing this. And I'll just read these quickly.

Just prior to 1992 the U.S. spent over $1

billion—I think it was 1.2 billion—to upgrade the K-reactor for continued tritium production at Savannah River. Those upgrades were all successfully completed, and the reactor was then capable of satisfying the U.S. defense program needs for the next 50 years.

Additional millions were spent at Savannah River on training five complete operating reactor crews for the K-reactor. The U.S. expertise for tritium production is found only at Savannah River in this country. If the K-reactor is not utilized for tritium production, decontamination and decommissioning will cost hundreds of millions of dollars in the near term.

The aluminum clad targets which have been used for all tritium production—this is an aluminum lithium alloy clad in aluminum—cannot be used in commercial power reactors. And as you've -- as you've been told, stainless steel will be the cladding material.

The production of tritium in a commercial power reactor requires the design fabrication and qualification of an entirely new target assemblies for which there's neither experience base nor manufacturing -- a proven manufacturing facility. There are no facilities anywhere for extracting tritium from targets which are not aluminum clad. A preconceptual design study at Savannah River on an extraction facility for the targets clad with

stainless steel, the type planned for the Watts Bar test, have been completed. The study estimated the cost of such a facility would be at least $200 million, and I think Bob kicked that up to 380 million.

Tritium production anywhere but Savannah River means that the irradiated and radioactive targets will have to be shipped to Savannah River for tritium extraction over the public roads. Tritium production at Savannah River did not require any off-site shipment of the radioactive targets. It's interesting that the Vogle Plant of Georgia Power is -- is, as I recall, a Westinghouse reactor. My son actually worked on it. Is right across the river from Savannah River, and you'd think that that might be a likely site because it would involve -- would eliminate the need for any transportation other than just crossing the river.

Tritium production in a commercial reactor would require a much higher level of physical security. That hadn't been addressed too much here, but -- but certainly -- and I'm not intimately familiar with how Savannah River handled shipments of tritium, but I imagine there was pretty heavy security involved. Tritium production at Savannah River did not require any off-site shipments of the radioactive targets.

Tritium production in a commercial reactor

would require much higher -- let's see, physical security. I covered that.

And this point has been brought up several times tonight and I don't think it's resolved yet. But Public Law 97-415, January 4th, 1983, 97th Congress, Section 14-E, states that special nuclear material, and I -- I parenthetically put "including tritium." Now, one can argue, well, that's only plutonium and enriched uranium. But since it's widely accepted that the tritium is a critical element of nuclear weapons, and I imagine the physical security involved in the shipment of tritium in the past in this country has treated it as a special nuclear material. I don't know positively, but I can imagine it was.

Anyway, that -- that the section states that public -- special nuclear materials produced in facilities licensed in accordance with the Atomic Energy Act of 1954 may not be transferred, reprocessed, used, or otherwise made available to any instrumentality of the United States or any other person for nuclear explosive purposes.

And my last bullet is: What are the real -- DOE's real reasons for walking away from the taxpayers' -- I put one million plus, but I imagine it's several billion -- investment in the K-reactor at Savannah River.

The -- I've got some copies of some of my

comments here that -- that I'd be happy to give to a limited number of people. But --

MR. HEBDON: If we could also make sure we get a copy for the --

MR. HOFFMAN: Yeah, I certainly -- oh, yeah. Absolutely.

MR. HEBDON: Thank you.

MR. HOFFMAN: But I -- this question's come up several times by all the -- the issues that NRC raised, and I guess I understand from Bob Martin's comments that they've been resolved to the satisfaction of NRC or -- I'm not sure that's the case. But at least none of us have seen those, so which is -- is kind of interesting.

And that's all I have to say. And I'll provide you with copies of this.

MR. HEBDON: Okay, thank you.

Just one point of clarification. I think TVA has responded to all of them. The review of some of those questions is still ongoing and it's not yet -- not yet completed.

Other questions?

Yes, sir?

MR. JOHNSON: Yeah. John Johnson.

I just have a question regarding the security. The NRC is supposed to review the security of the nuclear

plant. I was curious if you've been told that the TVA Board is intent on disbanding the nuclear security and the Public Safety Board, some 300 officers are due to be laid off sometime in the next fiscal year, and they're looking to hire some kind of outside contractor, people who won't be as well trained as the officers that are on site now. And I think that that would affect your decision to let them produce tritium for the next year.

MR. HEBDON: I don't have any specific knowledge of -- of that personally. They -- TVA will have to meet the NRC requirements with respect to security, regardless of whether they do that with employees that are TVA employees or whether they do it with security forces that are -- are hired from various companies. I know different utilities do it different ways. Some utilities use their own security force that are employees of the company; some utilities use contractor employees that they hire from various companies that provide that service around the country.

MR. JOHNSON: Well, wouldn't that weigh on your decision, knowing that -- that at some point, while you all want to be producing this tritium test, that they're going to go from a -- a professional and experienced security force to a bunch of guys who are getting eight bucks an hour?

MR. HEBDON: Well, they have to meet the NRC requirements. And -- and if they meet the NRC requirements then they have a security force that -- that, you know, we will inspect and that we will insure meets the -- the regulations and meets their security plans.

MR. JOHNSON: Well, what if it doesn't, will you --

MR. HEBDON: Then we'll take action.

MR. JOHNSON: Will you stop the tritium production halfway through?

MR. HEBDON: It's -- it's difficult to -- to hypothesize. It would depend on the circumstances. We have a number of options available, various forms of enforcement action if we find violations of the regulations. It would depend on the circumstances. It'd be impossible to -- to hypothesize at this point what action would be taken.

Anyone else?

Yes, sir?

MR. GAULT: I'd like to give you -- that's three -- three or four copies there.

MR. HEBDON: Oh, okay.

MR. GAULT: I'm Ralph Gault, retired clergyman and retired professor at Pleasant Hill, Tennessee.

Honorable ladies and gentlemen, we

respectfully petition you not to establish or build or remodel any nuclear weapons factory, nuclear warfare -- warhead factory, or plutonium, highly enriched uranium, or tritium plant for the following reasons:

Number one, the mass killing of people by bombing with nuclear bombs, propelling missiles with nuclear warheads into the midst of crowded cities, or massed armies, or schools, factories, stadiums, theaters, churches, or other such crowded facilities is a great sin against God and man.

It is true that some persons plan and wish to use the bombs and missiles only as a threat or deterrent, but if they are actually determined to use these weapons as a threat only this would soon be found out by the target group which would then pay no attention to the weapons and the threat would then be quite ineffective. So the -- so to be effective the holders of the weapons would have to be willing to use them for their original or ultimate purpose, namely to kill great numbers of people. This would be quite immoral, for it would violate all laws against killing, both human and divine laws.

On a day that this statement is being written, that is September 23, 1993—this is a revised edition—President Bill Clinton said to the United Nations the United States will lead in ceasing to produce

plutonium and highly enriched uranium. Now, let the United States Department of Energy heed and follow its President and stop planning more plants for the production of plutonium and enriched uranium.

Number two, from the viewpoint of pure non-religious politics more nuclear weapons plants are quite unnecessary now. The Cold War against the Soviet Union is over and there is now no threat from the former Soviet Union. Furthermore the United States has promised or agreed to reduce its stockpile of nuclear weapons. The salvaged plutonium and enriched uranium from the dismantled bombs and missiles would be more than enough to take care of needs in the foreseeable future.

We support the call already made by some concerned citizens that the United States Government arrange for and hold a broad-based interagency discussion with full public involvement to seek a consensus on what we will do with plutonium and highly enriched uranium.

We -- number three, new facilities for the production of nuclear weapons, plutonium, enriched uranium, or tritium would add to the hazardous radioactive wastes that the Department of Energy is morally obligated to clear up. Already efforts to manage the wastes and mitigate impacts will take decades and is expected to cost them in excess of $150 billion. If new facilities produce

much more hazardous waste DOE may never catch up to cleaning -- in cleaning up such waste.

Number four, the present DOE facilities should be researching possibilities and actively converting themselves to producing more socially useful products and restraining workers -- retraining -- retraining workers.

(Laughter)

MR. GAULT: They should budget and set aside funds for such conversions.

Number five, the United States has signed the non-proliferation treaty and should set an example to the world to carry out the purposes of this treaty by stopping the production of nuclear weapons and all components of them. If the United States produces more weapons, plutonium, enriched uranium, and tritium, while at the same time asking other nations to stop the manufacture and testing of nuclear weapons, it seems hypocritical and weakens its persuasive voice.

Number six, there are much better ways of spending our money than to build new nuclear facilities. We need to house the homeless, finance universal health care, repay the national debt, and clean up the present hazardous and radioactive wastes. We cannot afford to do all these and at the same time spend billions of dollars on building and operating new nuclear facilities at the

same time.

Number seven, the last one, according to a careful study by scientists within 100 miles of Oak Ridge the increase of cancer is 34% compared to 5% for all the United States. These figures broke down to 40% increase in the mountain counties and 30% in the low valleys. Thus the U.S. Government is killing its own people.

So now for the above seven reasons we respectfully petition the United States Government to scrap its plans to establish more plants for the production of plutonium and enriched uranium and nuclear weapons. Respectfully submitted.

(Applause)

MR. HEBDON: Thank you, sir.

MR. SOHINKI: Fred, could I make one point?

MR. HEBDON: Certainly.

MR. SOHINKI: One -- one point as a matter of fact with respect to the gentleman's statement, that we -- we have not for a number of years made any plutonium and enriched uranium in the United States. We are not now making any. We have no plans to make any.

MR. HEBDON: Any other questions?

Yes?

MS. LAPIDIS: Can I read --

MR. HEBDON: Oh, certainly.

MS. LAPIDIS: My name is Jennifer Lapidis. I'm Executive Director of the Cumberland Center for Justice and Peace in Suwannee, Tennessee. I'm also a mother.

I realize that today's hearing is to focus on -- well, initially I wrote the possibility of a test production, but I guess it's to focus on the test production of tritium at Watts Bar facility. But there -- there is a much broader scope that needs to be addressed.

I think the big issue we are faced with today, ironically the day after the anniversary of the bombing of Hiroshima, is do we need to continue to build bombs. There's currently over 2,600 metric tons of heavy metal and spent fuel waiting disposal by the DOE. The cleanup of DOE weapon sites such as Oak Ridge are still incomplete.

This is post-Cold War; isn't it? We have such terms as "non proliferation" and "strategic arms reduction," and here we are -- here we are -- here we all are. If we reduce the size of our nuclear arsenal, tritium—freed from dismantling warheads—could be fed back into the inventory for active arsenal according to a report from the Institute of Energy and Environmental Research.

We don't know how many warheads we have now,

but with 4,700 warheads the year of new tritium production would be 2011; with 3,500, 2015; with 1,000, 2024; and with 1,000 with a reduced tritium pipeline, 2032. This would at least buy us some time to reconsider our nuclear policies.

So often we tend to do things just as they -- we've always done them because they've always been done that way. But let me remind you, Department of Energy and Nuclear Regulatory Commission, of something Gandhi said, "My commitment is to truth, not consistency." Thank you.

(Applause)

MR. HEBDON: Ma'am?

MS. HARRIS: I have a prepared statement and I'll leave it with you.

MR. HEBDON: When you're finished you can just give it to the court reporter. We'll make sure they put it in the transcript.

MS. HARRIS: My name is Ann Harris and I live in the Ten Mile community. When the accident happens at Watts Bar me, my mother, my mother-in-law, my children, and grandchildren will have to be evacuated.

I worked at Watts Bar for 14 years. I was removed to the Chattanooga complex after the licensing of Watts Bar, where I was immediately laid off due to so-called budget constraints and a power emergency after TVA

had financed a college education so that I could be more productive.

Watts Bar Nuclear Plant has the most controversial history of any nuclear plant in America: TMI, Browns Ferry, any plant that you find inside the continental United States. History is long and bloody considering the hundreds of bodies that have been forced into the streets in an attempt to force safety into the plant.

The license process was a sham. First TVA had it; then they did not; then again they had it; then they did not. Even the local newspaper got frustrated about when the licensing happened. Musical faxes with press releases. The joke was on the local community about the license -- after the license was granted and, NRC, after you've met your agenda. That one person that gave the license is no longer employed at the NRC. He took an early retirement at the age of 47. The heat of illegal activities must be very hot when breaking the law.

TVA, you asked for and received five amendments to the license before the ink was dry on the original ones. A safe plant would be acceptable if the safety systems were in place. But unfortunately for all of us here tonight that is not -- not even an opportunity, because it's too late to make Watts Bar safe.

And when you boys were going to use 10 CFR 50.59 as the basis for testing and producing tritium why did you change your minds? For those of you that don't know, that is the rule that says a licensee can do anything, produce any item if TVA will make the statement that the change does not reduce the safety margins of the plant. Now, if there's no safety impact why didn't you go ahead and use that "out." Was there a problem on how you could deal with the inquiries from the public when someone found your abuse in the public document?

I realize that once this public meeting is over there will be no more obstacles to tritium production at Watts Bar and you boys want us to accept a massive, highly volatile Defense Department toy that will forever change our community into a war zone, and you hide behind the cloak of defense needs and patriotism. Shame on every one of you.

Will one of you boys respond on how you're going to justify breaking the law to do this testing and production? This process is in direct conflict with the Energy Reorganization Act which separated the DOE and NRC. Rumors abound that you boys are attempting to get a rider attached to any bill -- and tonight we heard what it was -- through Congress that will exempt TVA from this law. Is this true? And if true, why after the fact? What is the

hurry? Why didn't the law get changed before the actions?

NRC, you approved the paperwork when the radiation monitors at Watts Bar were not working. Strange how fast monitors brought up from Sequoyah temporarily fixed the problem. The number of plugs and pipes and tubes with all the holes must make the place look like an old-fashioned telephone switchboard waiting to be hooked up. When can we look forward to the next fire? I believe we should look for oil pumps, bearings, and control room fires. That's where they seem to appear, or at least disappear where the latest ones have occurred.

And NRC, have you made the memorandum of understanding with DOE very public? Are you as proud of that MOU as you were of another MOU where you intentionally misled TVA employees coming to you with safety issues? NRC, did you abdicate your regulatory responsibilities to DOE? If you did, why did you do it?

TVA records show that 3,000 gallons of contaminated water is dumped into the river every day. How soon should the citizens of Chattanooga expect to receive contaminated water into their water faucets, since their water plant's located on the main channel of the river in downtown Chattanooga. I can see the health effects of this decision right away, especially when the children drink water, Kool-Aid, ice tea, bottled Cokes

that contain tritium.

DOE, you admit that tritium is borne best by water and it settles in the area of the kidneys if it does not go quickly. What chance and what about that last glass of water prior to going to bed at night for the four-year-olds that do not know about cancer risks? The health department and local doctors should be overjoyed to know that you boys are insuring their future in health care for longer than they will live. It should make for more public relation contracts than using TV ads.

The $11 -- the $11 billion spent on this plant did not buy the necessary safety to operate it. And even now TVA is not performing preventive maintenance or maintenance on this plant. They're going to tell you different, but records show very different. TVA's broke, they got no money, can't make the payroll. They've begun to raid the retirement funds, over $80 million that they have admitted to that they received so far. This is not the behavior of a well-organized, stable group that should be in charge of this sort of process.

Let me give you an example of the sort of priorities that prevail at TVA. In November 1995 TVA put together a team, which included a project manager, that would look in how to make the hand dryers in the corporate bathrooms blow hotter air faster. In April of this year,

two years later, the chairman made the momentous decision to give back TVA employees hand towels. Now, that's the level of serious practice and the seriousness that's prevalent at TVA today. This is how serious they take you, as the public. So, DOE, look what you can expect.

DOE, you should think about what you're doing and with who. These boys at TVA have lied for so long and to so many that they are now believing their own lies. These are the kinds of people that you're relying on to give you support and keep you out of trouble. When you get in bed with dogs you always get fleas.

NRC, you broke your own rules and ignored significant safety issues to support giving TVA a license for this plant. NRC, you permitted your agenda to override public health and safety issues brought to you well before licensing, and you trusted TVA. NRC, you have no basis for trusting TVA.

And, NRC, why is it that each -- at each of these public meetings where public health and safety are concerned that we always find you aligned with the utilities against the public health and safety. Never in the history of Watts Bar did you ever deny TVA requested -- ever deny TVA a requested license change, FSAR, or licensing amendment. NRC, we would be much better off if you would remove yourself from the process. You could

just do it.

And, DOE, you people brought the Trojan Horse cloaking under the name of atomic energy for defense, hiding as defense needs over 50 years ago to my community. We did not have an opportunity to even discuss your forthcoming destruction over 60 years ago and look where we are today. Watts Bar Lake is posted for contamination; don't eat the fish, don't swim. And in Oak Ridge don't get in the water. Too bad to consider cleaning up. Too many sick people and families to count. DOE, you're here with another horse, but we recognize you and that nag you're riding this time. That dog won't hunt down here again.

Those of us that know TVA and NRC are not surprised to see them in bed together. These boys have slept together for years. Fred Hebdon is the one that told the NRC Commission that Admiral White had not lied about the readiness of Watts Bar way back in the '80s. The NRC had to later retract the statement to Congress.

NRC, when you hold these public meetings why is the public subjected to presentations from these three agencies with little or no time for the public to be heard? Why is the public requested to give a summary of its presentations before we know what you boys are going to present? Why is the NRC sitting in a row with TVA and

DOE against the public? This process appears to be a mechanism to show a piece of paper that the NRC complied with regulations, instead of genuine attempt to hear from the public. Those of us that know this process are not surprised, but the uneducated public does not know that none of you want to correct this process. How sad for a group of grown men that are too scare of their jobs to attempt to correct such open and blatant abuse of the public trust. True Americans would not have brought this horse to us, but would have killed it on the way here.

I wish a written response addressed to me personally within 30 days. I wish to have this document entered into the official record. Thank you.

(Applause)

MR. HEBDON: This lady here I think was quickest.

MS. MYCZACK: I have a couple of questions before I read my statement. First of all how many women work with you?

UNIDENTIFIED SPEAKER: Good question.

MR. MARTIN: One of them is sitting right here with us.

MS. MYCZACK: Okay. One.

MR. HEBDON: The chairman of our Commission.

MR. MARTIN: The chairman of our Nuclear

Regulatory Commission is a lady.

MS. MYCZACK: Just curious.

UNIDENTIFIED SPEAKER: Does she have any children? Do you have any children? Does she have any children?

MS. MYCZACK: Do you have any children?

MR. MARTIN: That -- those are --

MR. HEBDON: Excuse me. I'm sorry, but those are personal questions that really are far beyond the scope of this meeting. Let's --

MS. MYCZACK: Oh, absolutely not. As a matter of fact I think that is the scope of this meeting. And, as a matter of fact, I think we need to have a say in what the scope of this whole process is.

And that's my second question: Do we have a say in the licensing? If we do, I vote no.

(Response from the audience)

MS. MYCZACK: So the reason I turned this toward you all is because I don't like to turn my back on somebody I'm addressing, and I'm addressing my comments to you sitting here at the table. Facts and figures just barely cloak the naked, bare truth: You all are war criminals and you belong behind bars.

(Response from the audience)

MS. MYCZACK: There will come a day when the

World Court judges you such. You are blatantly, unashamedly right out there up-front about your death path strategy. Your test will accelerate destruction as opposed to a life-affirming strategy of building new pathways based on trust.

You're trying to sell us an old, deadly bill of goods based on fear. Move on, old thinkers. We mothers and fathers and children desire and we practice new ways to heal the old and the pitted and the torn, burned, encased, and incancered flesh and sickening, dying internal organs of our children today that your criminal ways have made manifest. And this project will continue that. The need date is now to decommission fear-based tools of destruction such as what I'm looking at right up there. Thank you.

UNIDENTIFIED SPEAKER: State your name.

MS. MYCZACK: My name is Cielo Sand Myczack, and I'm a river keeper for the Broadened Horizons Riverkeeper Project.

MR. CLARK: I'm -- I'm Don Clark with the Network for Environmental and Economic Responsibility of the United Church of Christ. I'm not going to read my statement because it really doesn't -- it really deals to the next phase. It's not necessarily addressed to this phase, but I would hope that you, in your wisdom, can take

all of these considerations into -- into account. We would certainly hope—the Cumberland Countians for Peace and Justice, and the Network for Environmental and Economic Responsibility—would hope that you would not start down this path at all.

And when we review, by the way, by reviewing this World Council of Churches, National Council of Churches, and virtually all of the other faith groups in the main line who are opposed to nuclear energy, and certainly with numerous actions against nuclear bombs of all kinds. Okay? So, and we -- and we would like to lay that on you at every occasion we can. My denomination alone passed 39 against nuclear weapons in the last 20 years; 39 separate actions, and we never repeat an action. In other words, every one was a little different.

So it really can be safely said that the main line religions -- religious community stands against anything that will extend the life of a nuclear reactor, make it slightly less uneconomic to operate, that will delay its demise in any way, or put it in a -- on additional welfare. And that's what we would consider this action to do. You're putting it on welfare. And we don't like welfare for these things, for the -- for the things that are sinful.

We don't think it's patriotic, as -- as some

of the others of you have said. We note that "Physics Today" issue of June deals with radioactive waste, and that is a devastating piece, as well as an NRC from Washington five or six news releases you give me every day. This is devastating stuff for the average person to read. $100,000 fine here, 80,000 here. This is just yesterday; okay? Ontario -- Lake Ontario getting polluted with tritium. You know, it -- it goes on and on and on. NRC is not controlling anything. Things go on. Your Brookhaven National Laboratory goes on for 12 years and you don't even recognize it going on. Okay? It goes on and on and on.

I don't know where your -- where your controls are. I really don't. I can't have any confidence in NRC or certainly in anything else here. I didn't have it when I was in New Jersey and reviewing utilities, some of them non-nuclear. It's very hard for the public to have trust in you. And I think you should really look at that.

Certainly -- and I guess I'm not going to go through the rest of this because I hope it's in your record, and it does deal mostly with the other. But please consider, even in your starting this down this track, the anxiety you are -- you are creating in this public and in this region because you are not trusted, because it is a -- it is viewed as a -- as a first step

along a track where you're going to probably, without much of their input, go along and -- and -- and use this reactor to create something that is going to make the existing bombs much more devastating.

That's what tritium does; okay? They're taking nuclear weapons now, Big Boys and so on, and they're reprocessing them to make them far more devastating so they'll go down into the ground so they can really kill many more people. They're worsening -- they're not making any more uranium, but they're worsening our situation. You need to look -- just look at that.

But you also need to look at this region. They're dismantling now a couple of hundred nuclear warhead assemblies with uranium and lithium parts -- parts in Oak Ridge this year. That's not so far from here. Anxiety, tension.

Okay, they're hosting the only radioactive hazardous waste incinerator in the nation. And they have -- already have over 50 employees who say they're sick. And there's -- and there's reported that many more are afraid of their jobs or they would be reporting it. You have a kind of a -- a bad situation in Oak Ridge and the vicinity.

165 barrels of radioactive ash were dumped in a landfill. Whoa, we discovered, long after it's been

dumped, lack of past and present health studies. There hasn't been any in this region. An enormous residue of hazardous and radioactive waste has been accumulating in this region from Oak Ridge and the vicinity and released into the surrounding environment over many years of a scope and complexity unmatched in the world. Published statements even by some of you have said that.

We are -- you're building new earth-penetrating bombs which I just went into. There's been another massive fish kill in Oak Ridge just within the last week and a half. This -- and that's going into the Tennessee River, part of it, I guess. Maybe into another river here. But I think it eventually gets into the Tennessee. So we've got all kinds of things; mercury poisoning. You know, your -- I don't know how much mercury is going to be -- would ever be done if this goes back to -- to where you have to make some more lithium.

And so we've got a lot of problems in this area, and they don't need it. This area does not need it. Thank you very much.

(Applause)

MS. NEAL: I'm quite tired. 10:00 or 10:20. I have several questions. My name is Michelle Neal and I work with the Tennessee Valley Energy Reform Coalition and Steve Smith, and he's got his kids tonight so that's why

he wasn't here.

When and if this decision is made -- and maybe this is a DOE question -- when would the $7 million go into TVA's hands?

MR. SOHINKI: It'd be over the course of the next couple of years.

MS. NEAL: Couple of years. All right.

And this is just a question. Is it DOE's and NRC's intent to bail out a failed nuclear power program?

MR. SOHINKI: No.

MS. NEAL: All right.

MR. SOHINKI: The amount of --

MS. NEAL: Just wondering. I mean, all right. Is it DOE's --

MR. SOHINKI: What we're -- what we're trying to do is to is to make a substance that we need to make at a rate that's cost effective to the taxpayer.

UNIDENTIFIED SPEAKER: Can't hear you. Can't hear what you said.

MR. HEBDON: Speak up a little, Steve.

MR. SOHINKI: I said what we're trying to do is to have an option for making tritium, if it's called upon, that can do so at a -- at a rate that's cost effective to the taxpayer.

MS. NEAL: It seems to me as if that TVA's

searching for as many ways possible to generate revenues at a plant that would: One, never, ever be -- never, ever pay for itself; and, two, would never, ever be competitive on an open market if the utility industry is -- is to be deregulated from the TVA.

And this is just a side note. If TVA is interested in generating revenues for the plant I know that one of the products of the nuclear -- I mean, of the reaction that we're talking about here is helium. So, I mean, you all might want to consider selling helium balloons or something to generate a little bit more revenue there.

(Laughter)

MS. NEAL: I'm curious as to what -- well, this is a suggestion. The next time that you have a meeting in Rockville it'd be nice that -- I mean, I think this meeting should have been flip-flopped. I mean, we should have been in Rockville in February, not in August. And maybe you can take this $7 million that is being paid to TVA and pay for our way to come up to Rockville so that we can be heard.

Another comment about this environmental assessment, and maybe I don't have a good copy of it, but I actually had to call DOE to find out where to send comments to on this. Nowhere in here, and I -- maybe I

overlooked it, but I actually had to call. And I think my comments were sent to Richland, if that's the right place.

MR. SOHINKI: That's right, the Richland office was responsible for preparing it.

MS. NEAL: But nowhere in this document did I find that address, so it's a problem. And maybe I don't have a good document. I mean, I got it from TVA but anyway --

I just wanted to -- I know this is a minuscule amount of tritium that we're talking about producing here, but tritium's pretty radioactive, from what I understand. Is that not correct?

MR. SOHINKI: It's a radioactive isotope.

MS. NEAL: Like 10,000 curies per gram or something like that?

MR. SOHINKI: Per rod.

MS. NEAL: Okay. What would happen -- and my understanding is also that standards are based on a 70 kilogram man; is that correct, for doses? Is that --

MR. SOHINKI: I'm not sure about that.

MR. WILLIS: There's a man and a woman, reference man and a reference woman.

MS. NEAL: But it's based on adult male or female?

MR. WILLIS: No. There are model children and

infants that go into the -- into the analyses; yes.

MS. NEAL: Okay. My question is what -- what would happen -- and I think this is a very valid scenario -- if a pregnant female were to drink tritium water? I mean, what happens to the developing fetus in that respect?

MR. SOHINKI: I guess that would depend on how much tritium she consumed and what happened to her once she consumed it.

MS. NEAL: Well, I think that's something that really needs to be investigated. And I don't know -- I mean, there's some studies that have been done that -- that show there's some pretty significant impacts on a developing fetus if tritiated water is consumed, and it's not anything pretty to look at.

MR. WILLIS: We do take those things into account, as you might realize. We do keep up with the literature.

MS. NEAL: Well, I haven't seen it in any literature that I've read with respect to this draft environmental assessment.

This is -- and you all might not be able to see this, but I think you might recognize this. And it goes into like the tritium history. And it's interesting to note that -- that it's -- it goes down. I mean, you

know, there's tritium production stock -- President Bush announces first of three significant nuclear weapon stockpile reductions. This was in -- around the latter part of '91. President Bush announces second of three nuclear stockpile reductions. Tritium requirements reduced to three-eights of NPR goal. That was in like late '93.

And then sometime around maybe first part of '94 DOD Nuclear Posture Review supports further tritium goal reduction.

So my question is why, relative to this scale-down, why should I assume that we need this tritium? I mean, why should that be an assumption on my part? And I -- I don't want to -- I particularly don't want to hear presidential directive because I don't buy that. I mean, why -- why should I assume that, that there's a need for that. I mean, I just -- with given the history of tritium and --

MR. SOHINKI: Well, let me try it another way. There are -- as I said, there are the numbers and types of weapons that are in the stockpile that are going to be maintained, each require a specific amount of tritium. And when you add that up and take into account the reserve requirements, that tells you how much tritium we need to support that number of weapons plus have the reserve

that's required. So that's how the need date is calculated: You take the number and types of weapons, you take the tritium requirements for each of those weapons, and then you calculate out how much -- how long the tritium will last in order to supply those weapons plus have the required reserve.

MS. NEAL: So --

MR. SOHINKI: And right now the number of weapons and the types of weapons dictate the 2005 date that I spoke about earlier.

MS. NEAL: And the reason that -- again, that went from 2011 or whatever, to 2005 was respect to START treaties and where they're at?

MR. SOHINKI: Well, the -- the 2011 I think was based upon speculation that START-2 was going to be ratified.

MS. NEAL: But it has been ratified by our Senate.

MR. SOHINKI: That the Russians have not ratified --

MS. NEAL: I mean our Senate, though, has ratified that; is that correct?

MR. SOHINKI: Yes.

MS. NEAL: Okay.

MR. SOHINKI: But the treaty is not in force,

obviously.

MS. NEAL: Oh, well.

One other thing, and then I want to read something into the record and I'll be finished. Part of -- I guess it was just this part of the memorandum of understanding between the Nuclear Regulatory Commission and the Department of Energy, there's a statement on Page 2 that says, "Selection by DOE of this option or of other options may require amendment of the Atomic Energy Act of 1954 and the implementing NRC regulations." Is that still a valid statement?

MR. SOHINKI: Yes.

MS. NEAL: And that is in reference -- the amendment to the Atomic Energy Act is in reference to what? I mean --

MR. SOHINKI: Well, for example, if -- if we were going to purchase the reactor and maintain an NRC license as the owner of the reactor, that would require a change to the Atomic Energy Act. Because we are not now a, quote, "person" as that term is defined for the purposes of holding an NRC license. So you would have to change the Atomic Energy Act to allow us to hold a license.

MS. NEAL: But tritium is not a non-proliferation issue; is that right?

MR. SOHINKI: Tritium -- I'm not sure how that relates to the --

MS. NEAL: Well, I mean, I just -- I'm trying to figure out exactly, because there -- there seems to be some conflicting statements.

MR. SOHINKI: Tritium is -- tritium -- as I said, tritium is not a proliferation issue as plutonium and uranium is; that's true.

MS. NEAL: Right. Okay.

And this will be the last thing. And I think that it's just something that it's -- it's good to hear and I think we all need to hear it, even though it is 10:30 on a Thursday night.

Weapons are the tools of violence. All decent men detest them. Weapons are the tools of fear. A decent man will avoid them except in the direst necessity, and if compelled, will use them only with the utmost restraint.

Peace is the highest value. If the peace has been shattered, how can he be content? His enemies are not demons but human beings like himself. He doesn't wish them personal harm; nor does he rejoice in the victory. How could he rejoice in victory and delight in the slaughter of men? He enters a battle gravely, with sorrow and great compassion as if he were attending a funeral.

And I think we need to reflect on that before

we ensue on this type of project. I thank you for the time to comment.

(Applause)

MR. HEBDON: Thank you. Another speaker?

MS. JANEWAY: I want to congratulate the three departments in our government for working so quickly on this that -- I mean, usually the wheels of government work very slowly, but this seems to have worked very quickly. And I just wanted to thank you for that.

But I also sort of wonder about this department checking on this department checking on this department, which are all government agencies, of which one of them feels that $28 billion is not enough to be in debt so they want to keep a party barge. That's all I have to say.

MR. HEBDON: Thank you.

Sir?

MR. LORD: I'm Charlie Lord from Pleasant Hill, Tennessee. And it just astonishes me that after the government has put all this money into making a facility down at Savannah River, Georgia -- I mean, South Carolina, they would look for somewhere else to make tritium. It just boggles the mind.

I'd just like to report a little bit here on radioactive pollution in Britain. A new study funded by

the British Department of Health has found plutonium in the teeth of children throughout England, North Ireland, Scotland, and Wales. The study shows that radioactive discharges from the Sutherfield Plutonium Reprocessing Factory has contaminated people throughout the region. The study's authors conclude the source of plutonium has been radioactive discharge from the Sutherfield plant which is operated by the government-controlled British Nuclear Fuels, Limited.

The study's findings are reminiscent of revelations of the late '50s and '60s that above-ground nuclear tests had led to radioactive contamination of children's bones and teeth. Public protest against this contamination led to the negotiation of the 1963 Limited Test Ban Treaty which banned atmospheric nuclear tests. The international community moved decisively to stop the poisoning of children by nuclear weapons tests. Now it must do the same with radioactive contamination and plutonium reprocessing.

And I wonder if we know if they -- I wonder if anyone has tested the teeth of children around Oak Ridge and Knoxville. Thank you.

(Applause)

MR. HEBDON: Thank you.

Yes, sir?

MR. HUTCHISON: My name is Ralph Hutchison. I'm the Coordinator of the Oak Ridge Environmental Peace Alliance. We represent about -- a little over 600 members, most of whom live in East Tennessee.

The Oak Ridge Environmental Peace Alliance is opposed to the production of tritium for use in nuclear weapons, even one ounce. According to the Department of Energy's own analysis, even in the unlikely event that the United States continues to maintain a huge nuclear arsenal with more than 8,500 warheads, 3,500 strategic, there's no need for new tritium production until the year 2015. The momentum to produce tritium comes from those who deny the end of the Cold War.

In 1988 the Department of Energy attempted to restart tritium production citing a, quote, "urgent need for tritium." When faced with the prospect of describing that urgent need to a judge in a persuasive way, however, the Department of Energy backed away from that claim.

Tritium production then became the subject of an environmental analysis which looked at several alternatives for the production of tritium for nuclear weapons, to the delight of the companies who stood to benefit from the investment of taxpayer dollars to fund their new reactors.

And finally DOE completed a programmatic

analysis of the environmental impact of tritium production. Not a site-specific analysis, not addressing anything about TVA, Watts Bar, or Spring City. The results make it clear the Department of Energy does not need more tritium for the U.S. arsenal until the year 2015; unless, of course, you imagine that the Russian Duma cannot, in the next 17 years, bring itself to pass the START-2 Treaty.

To produce tritium now sends a clear message to the world the United States is in the nuclear bomb business way beyond 2015. That's a business we ought not to be in and it's a message we ought not to send.

I cite three good, simple reasons why we shouldn't be in that business. One is the Nuclear Non-Proliferation Treaty which became the law of the United States of America in 1970 by action of the United States Senate, commits the United States to pursue complete disarmament. Continuing to produce fissile weapons materials contradicts that commitment.

Two, the World Court ruling last July on a case questioning the legality of nuclear weapons ruled that every nation, including the United States, has a responsibility to pursue the abolition of nuclear weapons. Of the 14 judges on the court, ten agreed that nations should give up their weapons of mass destruction.

And three, such knowledgeable insiders as General Lee Butler, former head of U.S. Strategic Forces in the Strategic Air Command, a man who was responsible for our nuclear forces until his retirement in 1994, has come out of retirement to call for the abolition of nuclear weapons by the United States and every nation. General Butler says these weapons are morally indefensible as weapons of mass destruction, as well as militarily ineffective. He says it is now clear that nuclear weapons make us and the world less secure. Now, I figure if Lee Butler can get it after a lifetime, and the 60 other generals and admirals from around the world, surely the bureaucrats in the Department of Energy, and the members of the Nuclear Regulatory Commission, and the leadership of the Tennessee Valley Authority can get it.

Perhaps those of you who are responsible for this current effort to produce bomb tritium can explain to us why we are here talking about the investment of taxpayer and ratepayer dollars in this latest scheme to produce tritium in a way that squares -- not with a presidential directive drawn up by people locked in the Cold War -- but that squares with the reality of the world we live in now, and even more the reality we will be living in in the year 2015.

The Oak Ridge Environmental Peace Alliance

further opposes the production of bomb tritium in the Watts Bar nuclear reactor in particular for four reasons. The Atomic Energy Act draws a solid line between civilian and military nuclear power programs. The line made sense when it was drawn, and it makes sense now. It's a line which still enjoys the support of most of the nuclear estimates. This tritium effort is one of several actions of the federal government which are erasing that line.

Now, this line, whether the particular quotation marks in the law support it or not, has been in effect in the United States, and it has been of critical importance in our efforts to dissuade other nations from pursuing nuclear weapon capabilities. Civilian nuclear power and military nuclear power, we have told the North Koreans and Iran and others, are distinct and must be kept separated. We have offered assistance and support to North Korea's civilian power program for the specific purpose of forbidding further development of military nuclear power.

Erasing this line now in our own country is foolhardy, and it places in peril the principle stance we have taken before the world. It puts the U.S. in a position that I dare say none of its citizens would desire. It makes us an arrogant nation standing before other nations to say we can do it but you cannot. You do

as we say, not as we do. As a matter of policy that position is untenable.

Also as discussed -- as the NRC made clear in raising its concerns in the memorandum of understanding, such an action violates the Atomic Energy Act. The separation of civilian and military nuclear programs to the point of having separate federal agencies and separate health and safety rules and guidelines has made sense, and still does.

While both programs deal with materials that pose dramatic health and safety risks, the materials used to make thermonuclear weapons have been produced and controlled throughout their life cycle under intense security and safeguards far beyond what the Nuclear Regulatory Commission requires of commercial nuclear facilities. Civilian nuclear power plants, including Watts Bar, do not approach that level of security.

Material access controls required by Department of Energy facilities which handle special nuclear materials are not in place here at Watts Bar. Weapons plants have security plans which take into account the realty that they are likely targets for terrorist attacks, and which attempt to eliminate vulnerability. Watts Bar has no such plan, and in fact has significant vulnerabilities. In becoming a tritium producer Watts Bar

becomes a bomb plant in the eyes of many in the world. And this has a significance which we especially who live near it cannot ignore.

The potential for environmental harm is serious. The Department of Energy's former tritium production facilities have all had releases and accidents which release tritium. As a radioactive liquid which mimics water's path through the food chain, tritium poses unusual health risks. It's notoriously difficult to confine, and it quickly joins with one of life's more important building blocks, supplanting the nourishing properties of water with the destructive power of radiation.

Science cannot yet tell us of all damage that tritium does when it's unleashed in the environment, but that is not a reason to be dismissive of health risks or public concerns. Quite the contrary. It's precisely why we should seek to eliminate or, in this case, not -- simply not to create health risks from potential exposures whenever possible.

Increasing the risks of environmental insult of those who live near this facility and those who recreate downstream, of fish and fowl and wildlife, of biota and vegetation, of the whole of our ecology is particularly unjustified since there is no need for the

material DOE plans to produce here.

And finally Tennessee Valley Authority ratepayers, of which I am one, are paying for the construction and operation of this plant. The recently announced rate hikes of TVA demonstrate that those who opposed pouring the billions into the ill-advised Watts Bar Plant construction were right when they said ratepayers will eventually have to pay for this. It's not right for ratepayers to be required to subsidize the nuclear weapons program of the United States through their electric bill. May sound like a neat economy to the budgeteers in Washington. Hey, we can produce electricity and make tritium for bombs all at the same time. But the fact is the majority of people in the United States -- according to a poll taken last May, more than 80% of the people in the United States oppose continued production of nuclear weapons and the materials that make nuclear weapons.

NRC and DOE are here because TVA is unique among utilities in its lack of accountability to the people who pay its bills. You couldn't do this at a public utility. People wouldn't approve it. That's why you're here at this particular plant for your test, because this scheme does not enjoy public support. In a democracy that's supposed to mean the government does not

do it.

So I suggest to you that what happens here in the next three months is a test of democracy. If you persist in your proposed plan you do so knowing you lack the support of the public; knowing you're forcing ratepayers to do something they would not of their own freewill do; knowing you are violating the law of the land; and knowing you are placing this community and region at increased risk.

For this reason the Oak Ridge Environmental Peace Alliance insists that the NRC demonstrate its good judgment and its responsibility as an agency of the federal government that is of, by, and for the people, to decline the amendment to TVA's license and to stop this ill-advised scheme to turn a commercial reactor into a bomb plant before it wastes any more taxpayer dollars. Thank you.

(Applause)

MR. HEBDON: It's -- it's approaching 11:00. I'd like to try and finish up by 11:00 if we could, which I think is about two hours later than we had originally indicated. So if -- if you do have additional comments, if we could try to be brief and we will try and get everybody out of here by 11:00.

Sir?

MR. JOHNSON: Yeah, I'll try to be brief. I've got some comments I'd like to make.

My name is John Johnson. I live downstream in Chattanooga, Tennessee. I'm with a group called Catoowa Earth First.

I'd like to remind you gentleman that yesterday was the 52nd anniversary of the bombing of Hiroshima, and Saturday will be the anniversary of the bombing of Nagasaki. Those are very devastating events that I hope not to see repeated on the history of this planet, and I would hope that you would feel the same way.

We don't need more nuclear weapons. I don't care what Bill Clinton says, I don't care what your bosses say. If you're men of conscience, if you want your -- your grandchildren and future generations to live in a world that is safe and equitable and with peace, then you won't go through with this plan. Then you'll stop it dead in its tracks right now.

The Department of Energy has proven itself inept. We can just look at the mess that you've made in Savannah, up at Oak Ridge, and at Hanford, and at the numerous other sites around the country, you know that you -- you can't carry out a project like this with any efficiency or any guarantee that it's going to be safe and clean. Already there are numerous contaminants at the

bottom of the Watts Bar reservoir that are poisoning the Tennessee River and the people who use it, because of your past actions.

The DOE and the TVA have abused the Tennessee Valley, the Tennessee River, and the people who lived here for long enough. We're sick of it. We don't want to take it anymore, guys. Pack up your toys and go home. You all have to go back and live in Washington and Rockville, Maryland, and out on the Pacific northwest, while we've got to live here, drink the water. And I'm tired of it. I want you to clean it up. I don't want you to mess it up anymore.

I'm not convinced that Watts Bar or Sequoyah or any other TVA reactor are safe. There's been too much of a history of problems that are well-documented with the NRC, and to consider doing something like this is really ridiculous. I just -- I really think that -- that you do not have the right to threaten future generations with nuclear destruction and radioactive contamination.

The other thing is, is your plan calls for this stuff to be done in -- in 2003, 2005, 2011. You don't have a guarantee that Watts Bar is going to last that long. You think it will, but you have no guarantee that that nuclear plant is going to last that long.

UNIDENTIFIED SPEAKER: It might not be here.

It might not be here.

MR. JOHNSON: And I guess TVA has been missing our attention on this issue and you just, you know, really love to get beat up in the press so you want to come up with a foolish plan to waste ratepayers' money to breed tritium in a nuclear plant has been under criticism probably since its conception.

And speaking to the security issue, I think that we proved on July 11th, 1994, that a rag-tag bunch of hippies can penetrate the security of that nuclear plant, but now you're going to produce bomb-grade materials there and think that -- that the terrorists can't do anything down there. Give me a break.

And I want to put you all on notice now that if you go through with this, if you want to threaten the future of my grandchildren with your weapons of mass destruction, that your offices in the DOE, the NRC, and at the Watts Bar Nuclear Plant, you're going to be subject to future non-violent direct actions to disrupt your stupid plans to mess up the planet. Thank you.

MR. HEBDON: Thank you.

(Applause)

MR. HEBDON: Yes?

MS. HONAKER: I have a letter from a lady in Nashville who -- Sue Bailey had taken off to be here

because she had heard earlier that the meeting was scheduled for the 11th. We don't know when it was changed, but her vacation was scheduled specifically to be here on the 11th. So she asked me to read this very short report to you.

"To the NRC from Sue Bailey, 211 37th Avenue North, Apartment B-9, Nashville, Tennessee; re tritium production at Watts Bar.

"I hope to have an opportunity to comment in more detail, but I wanted to go on record today that I am against this unnecessary and expensive plan. I'm against producing more tritium for more nuclear warheads. If more weapons were needed we have enough tritium to last until 2015. I'm against the federal government producing bomb material in a civilian reactor, which is against the Atomic Energy Act. This seems unwise and unsafe as well. Please give the public additional opportunity to comment on this plan." And I'll turn this over to you.

I wanted to ask just a few questions. I'm Jeanine Honaker from Nashville. And somebody with a pencil please write these numbers down as they're given to me. Would -- would you all please keep notes.

What is the annual budget -- what was the annual budget for 1997 for the DOE, the total budget?

MR. SOHINKI: For the entire department?

MS. HONAKER: For the entire department, please.

MR. SOHINKI: I -- I'm not sure exactly.

MS. HONAKER: Can anybody here tell me?

MR. SOHINKI: I think it was in the neighborhood of $15 billion.

MS. HONAKER: $15 billion. That's per year.

All right, NRC, how much was your budget for 1997?

MR. HEBDON: I don't know.

MS. HONAKER: Can anybody here tell me, round numbers?

MR. HEBDON: No. No.

MS. HONAKER: All right, now, I want to answer a question that was asked over here by this young lady sitting on the second row. You asked how many bombs were produced or how many we have now. We don't even need to know. All we need to know is that only two have been used ever. We need to know how many can ever be used. Zero. So how many more do we need?

(Response from the audience)

MS. HONAKER: Zero. How much can we save by not having the DOE? How much per year? Tell me.

(Response from the audience)

MS. HONAKER: 15 billion. What is the

government trying to do? Reduce the deficit. So what do we need to do? Abolish DOE.

I ask you each one to ask President Clinton to line-item veto every penny in the budget for DOE and NRC. Let the nuclear plants who produce the waste take care of it. They produce the profit from the waste. DOE doesn't need to take over that. Let the -- let the private utilities keep their own waste and be responsible for it. We don't need any more weapons; we don't need DOE, period.

The NRC is only a public relations department for the nuclear industry. We -- they make people think that they are being regulated and taken care of when they are nothing but just a -- a "yes" man for anything the nuclear industry wants. They won't tell us how much the budget is, but whatever it is, however many billions it is, reduce it to zero. Reduce the deficit by reducing unnecessary pork barrel. That's all these two agencies are.

And TVA is another one. I would just rather pay more money for utilities that produce electricity that is not nuclear, and we will see if that can't happen if we eliminate TVA and the whole thing. They are 27 -- $27 billion in debt that was due to nuclear power plants that nobody ever wanted. These people are arrogant law breakers who care not one whit for anything but their own

paychecks. And I say -- I dare say that every one of them is brilliant enough to do something that would be beneficial for society. And let's urge them to go find a job that will help humanity instead of kill people.

(Applause)

MR. HEBDON: Thank you.

Any other comments?

Okay, thank you all very much. That concludes the meeting.

(The hearing is concluded at 11:00 p.m.)

STATE OF GEORGIA

COUNTY OF CLAYTON

I, MELANIE L. SCHALLOCK, do hereby certify that the foregoing proceeding was taken down as stated in the caption, and the questions and the answers thereto were reduced to typewriting by me; that the foregoing is a true, correct, and complete transcript of the presentations, comments, and questions given.

This, the 9th day of August, 1997.

MELANIE L. SCHALLOCK
Certified Court Reporter
CCR #B-1695

AGENDA

Public Meeting on Tritium Producing Burnable Absorber Rod Lead Test Assemblies In Watts Bar Cycle 2

Quality Inn
Sweetwater, Tennessee

Thursday, August 7, 1997

7:00 - 7:15	Welcome, Introduction, and Explanation of Meeting Format Bob Martin, Senior Project Manager, Office of NRR, U. S. Nuclear Regulatory Commission
7:15 - 7:45	Overview of DOE's Tritium Program Stephen M. Sohinki, Director, CLWR Project Office U.S. Department of Energy
	Jerry L. Ethridge, Senior Program Manager, Batelle Pacific Northwest National Laboratory
	Questions on DOE and PNNL presentation
7:45 - 8:00	TVA Discussion of Watts Bar Activities James Chardos, LTA Project Manager, TVA
	Questions on TVA presentation
8:00 - 8:30	NRC Staff Review and Inspections James H. Wilson, Senior Project Manager Office of NRR, NRC
	Bob Martin, Senior Project Manager, NRC
	Mark Lesser, Chief, Region II, NRC
	Questions on NRC Staff's Review
8:30 - 9:00	Further Public Comments and Presentations

TESTIMONY TO THE NUCLEAR REGULATORY COMMISSION

August 7, 1997, at Sweetwater, Tennessee

All weapons of mass destruction are demonic. They are the work of the devil. What else can we call them when their aim and purpose is to maim and destroy life (human, other animal, and plant life), and, in the process, they also destroy much of the rest of God's creation? In addition to the intense and widespread suffering and death brought about by the use of these abominable weapons, a large proportion of the Earth's precious limited resources are consumed in the production of them, and the water, the soil, and the air are poisoned, both in the production and the use of them, causing much further illness and death. What but a perverted mentality could put so much effort, time, money, and the Earth's resources into such terribly destructive instruments, making the circumstances immeasurably less enjoyable and secure for all life here on Earth? Do we want to make the Earth into a poisoned wasteland where life is next to impossible? Is our country so hopelessly addicted to this violent and destructive way of life that we are unwilling to stop depending on these weapons and would rather drag all the rest of the world down with us?

Think what could happen if we put this time, effort, money, and greatly reduced other resources into creating a truly sustainable, healthy, and peaceful way of life for ourselves and helping the other peoples of the Earth to do likewise. There are people in our country and in many other places in the world who have such a vision and such a purpose in life. If you and others in our government can't take leadership in doing this, why don't you admit your inability and let others do it?

Walter Stark
P. O. Box 154
Pleasant Hill, Tennessee 38578

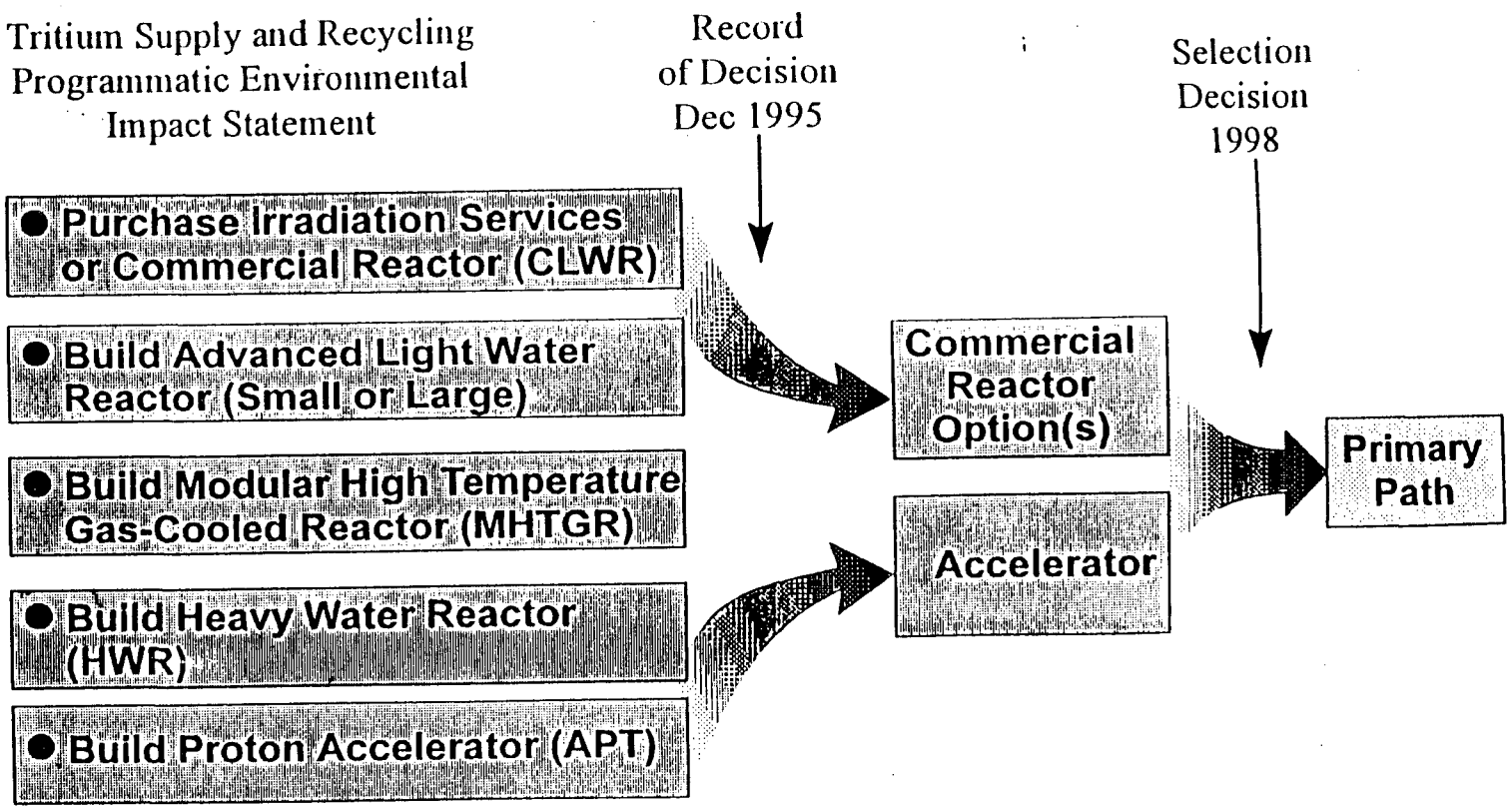
Requirement for New Tritium

Office of Defense Programs

- All warheads in the U.S. nuclear weapons stockpile depend upon tritium to function as designed.
- No new tritium has been made since 1988.
- Tritium decays at a rate of 5.5% per year (12.3 year half life).
- The weapons stockpile is currently being supported with tritium taken from dismantled warheads.
- The President's Nuclear Weapons Stockpile Plan and Congress require that DOE be capable of making new tritium by 2005.

Dual-Path Strategy for Tritium

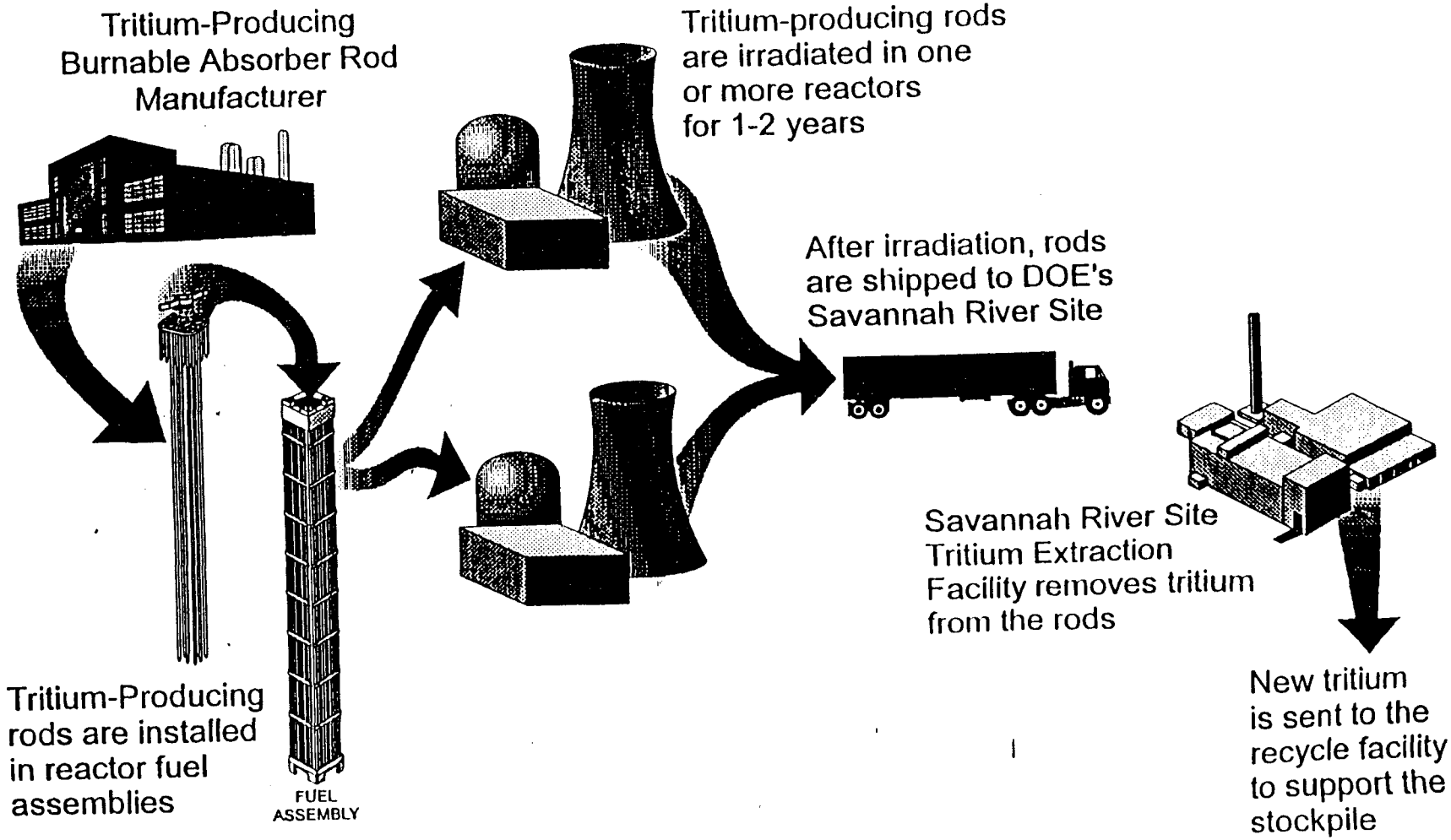
Office of Defense Programs



- All new facilities will be located at the Savannah River Site
- The Commercial Reactor option will be a contingency source of tritium in any case. DOE will establish contracts with reactors, manufacture a core load of rods, contruct an extraction facility, and complete all licensing requirements so that the option can produce tritium on short notice.

System for Producing Tritium in Commercial Light Water Reactors

Office of Defense Programs



Commercial Reactor Acquisition Strategy

Office of Defense Programs

- **Irradiation Services**
  - No change in current owner/operator of commercial reactors
  - Minimum impact on power generation or operating cycle
  - Amendments to NRC licenses required
- **Reactor Purchase**
  - DOE becomes owner of commercial reactor(s). Operator remains.
  - Plant operated as a defense facility optimized for tritium production.
  - NRC license must be amended and may need to be transferred.
- **Acquisition Milestones**
  - June 4, 1997 — Issued Final Request for Proposals
  - September 15, 1997 — Proposals Due to DOE
  - February 10, 1998 — Selection of Succe$sful Offeror(s)
  - March 1, 1998 — Award(s) of Contract(s)

Past CLWR Development and Testing

Office of Defense Programs

- Light Water Reactor development and testing was conducted under the New Production Reactor Program, 1988 - 1992. **$69M spent**

- Technical feasibility was well demonstrated

  - Eleven tritium-producing rods were irradiated in the Advanced Test Reactor at the Idaho National Engineering Laboratory. All have undergone non-destructive examination and one has been destructively tested. All rods performed even better than expected.

  - The tritium extraction process was defined

  - Safety issues were evaluated. No open items.

  - Commercial vendors for target components were identified. Fabrication process specifications were developed.

- Eight major technical reports were prepared.

The Lead Test Assembly (LTA)

Office of Defense Programs

- **Purpose**
  - To confirm the results of successful prior testing of tritium-producing burnable absorber rods (TPBARs). **This is not an experiment.**
  - To provide added confidence to utilities and the NRC that tritium production in commercial reactors is safe and technically straightforward.
  - To demonstrate the entire cycle from design through manufacture of components, regulatory approvals, and irradiation in a reactor.

Tritium Lead Test Assemblies

Office of Defense Programs

- **The Plan**

  - **Place four Lead Test Assemblies (LTA), each containing eight Tritium Producing Burnable Absorber Rods (TPBAR) in the Watts Bar reactor for a single, normal operating cycle.**

  - **Only 32 of the over 1000 burnable absorber rods typically found in a fuel reload wil be replaced for a single cycle.**

Commercial Light Water Reactor Production of Tritium

Office of Defense Programs

Irradiation of Lead Test Assemblies in the Watts Bar Reactor

Presentation to the Public
at the Watts Bar Nuclear Site
August 7, 1997

Stephen M. Sohinki
Director, Commercial Light Water Reactor Project
US Department of Energy

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NUCLEAR REGULATORY COMMISSION
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FOR IMMEDIATE RELEASE
(Wednesday, July 22, 1997)

NRC STAFF TO HOLD PUBLIC MEETING ON AUGUST 7 AT SWEETWATER ON TVA PROPOSAL TO CONDUCT TRITIUM PRODUCTION TESTS AT WATTS BAR

Meeting Will Begin at 7:00 P.M. In Quality Inn Conference Room

The Nuclear Regulatory Commission staff has scheduled a public meeting on August 7 at Sweetwater, Tennessee to provide a review and opportunity for public comment on the proposed use of the Watts Bar nuclear power plant for a Department of Energy feasibility test on tritium production.

The meeting will be held from 7:00 until 9:00 p.m. in the conference room of the Sweetwater Quality Inn, adjacent to Interstate 75. Members of the public who are interested in presenting comments relative to TVA's proposal should contact Robert Martin, Project Manager, Division of Reactor Projects I/II, U. S. Nuclear Regulatory Commission, Mailstop O-4B21, Washington, D.C., 20555, (301) 415-1493.

Contact should be made no later than five days prior to the meeting, and persons planning to attend should call one or two days prior to the meeting to be advised of any changes.

Those wishing to comment should provide a brief summary of the information to be presented and the time requested. Time allotted for presentations by members of the public will be determined by the number of requests received and announced at the beginning of the meeting. Unscheduled presentations will be considered if time permits, and written statements will be accepted and included in the record of the meeting.

Here is a tentative meeting agenda:

7:00 p.m. - NRC Opening Remarks
7:15 p.m. - DOE Program Description
7:45 p.m. - TVA Presentation
8:00 p.m. - NRC Review & Inspection Process
8:30 p.m. - Public Comments
9:00 p.m. - Meeting Adjourns

The Tennessee Valley Authority owns and operates Watts Bar and is seeking to amend its operating license to permit insertion of test assemblies into the reactor core to carry out the test program. The Department of Energy is investigating the feasibility of using commercial power reactors to produce radioactive tritium for use in the nation's nuclear weapons program.

#

8-7-'97

Sweetwater, TN

My name is William Jocher
I am the former chief of nuclear chemistry and environmental protection for the TVA. I request a written response addressed to me within 30 days to the brief comments that I will submit to you in writing and verbally with in the next few minutes

Yankee Rowe, located in Deer River Valley, Mass., discharged large amounts of TRITIUM , 1800 curies per year, to the Deer River. During the course of the ensuing years high incidences of Downs Syndrome, heart disease, and cancer were recorded within a 3 mile radius of this badly managed plant.

For example:

50% increases in 5 different types of cancer
40% increases in heart diseases
110% in infectious diseases that resulted in deaths

Also noted was a significant increases in Downs Syndrome cases that normally occur one in 700 to 1,000 cases were now occurring 1 in 100 births.

My question is "**do you have the data that demonstrates that if Watts Bar is converted to a TRITIUM production facility that it will not cause similar increases in disease down stream from the plant, in light of the fact that this plant will discharge thousands of more curies than Yankee Rowe ever discharged."**

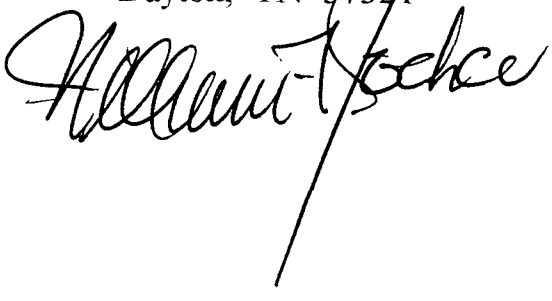
My concern is based on creditability issues that have me worried e.g.:

- In 1985 TVA management certified Watts Bar fully ready to operate—and The NRC did not see it that way until 11years later in 1996
- INPO and NRC found in the early 80s that WBN Quality Control program could not correct reoccurring problems
- In the early 90s James Taylor, then EDO for the NRC, ten years later made the same observation

- NRC has written off since 1984 one half of the high priority plant generic safety issues with no requirements.
  NRC failed to recognize or take action over the course of many years at plants plagued with problems and begrudgingly did so only when whistleblowers went public—for example: TVA—Maine Yankee---Conn. Yankee, Salem –South Texas and Palo Verde where TVA's current senior management staff was all recruited from.
- DOE failed to protect the public in various states that suffered fall out from above ground testing done in the early 60s and 70s and only this week has admitted culpability and taken some responsibility
- DOE failed to take responsibility for human experiments performed in the 40s, 50s and 60s and only has been recently been admitted to by the last DOE Secretary O'Leary.

My Address is

William Jocher
133 Gholdston Dr.
Dayton, TN 37321



A PROGRAMMED ENVIRONMENTAL IMPACT STATEMENT TO THE UNITED STATES DEPARTMENT OF ENERGY

BY

RALPH M. GALT, PLEASANT HILL, TENNESSEE

Honorable ladies and gentlemen:

We respectfully petition you not to establish or build or remodel any nuclear weapons factory, nuclear warhead factory, or plutonium, highly enriched uranium or tritium plant for the following reasons:

(1) The mass killing of people by bombing with nuclear bombs, propelling missiles with nuclear warheads into the midst of crowded cities, or massed armies, or schools, factories, stadiums, theaters, churches or other such crowded facilities is a great sin against God and man.

It is true that some persons plan and wish to use the bombs and missiles only as a threat or "deterrent", but if they are actually determined to use these weapons as a threat only this would soon be found out by the target group which would then pay no attention to the weapons and the threat would then be quite ineffective. So to be effective the holders of the weapons would have to be willing to use them for their original or ultimate purpose -- namely to kill great numbers of people. This would be quite immoral, for it would violate all laws against killing -- both human and divine laws.

On a day that this statement is being written, that is on September 27, 1993, President Bill Clinton said at the United Nations, "The United States will lead in ceasing to produce plutonium and highly enriched uranium". Now let the United States Department of Energy heed and follow its president and stop planning more plants for the production of plutonium and enriched uranium.

(2) From the viewpoint of pure non-religious politics more nuclear weapons plants are quite unnecessary now. The "cold war" against the Soviet Union is over; and there is now no threat from the former Soviet Union. Furthermore the United States has promised or agreed to reduce its stockpile of nuclear weapons. The salvaged plutonium and enriched uranium from dismantled bombs and missiles would be more than enough to take care of needs in the forseeable future.

We support the call already made by some concerned citizens that the United

States Government arrange for and hold "a broad- based, interagency discussion with full public involvement, to seek a consensus on what we will do with plutonium and highly enriched uranium." (Nashville SANE/FREEZE: Campaign for Global Security)

(3) New facilities for the production of nuclear weapons, plutonium, enriched uranium, or tritium will add to the hazardous and radioactive wastes that the Department of Energy is morally obligated to clean up. Already "Efforts to manage the wastes and mitigate impacts will take decades and is expected to cost in excess of $150 billion." (Nashville SANE/FREEZE: Campaign for Global Security) If new facilities produce much more hzerdous waste DOE may never catch up in cleaning up such waste.

(4) The present DOE facilities should be researching possibilities and actively converting themselves to producing more socially useful products, and retraining workers. They should budget and set aside funds for such conversions.

(5) The United States has signed the nonproliferation treaty, and should set an example to the world to carry out the purposes of this treaty by stopping the production of nuclear weapons and all components of them. If the United States produces more weapons, plutonium, enriched uranium, and tritium while at the same time asking other nations to stop the manufacture and testing of nuclear weapons it seems hypocritical, and weakens its persuasive voice.

(6) There are much better ways of spending our money than to build new nuclear facilities. We need to house the homeless, finance universal health care, repay the national debt, and clean up the present hazardous and radioactive wastes. We cannot afford to do all of these things and spend billions of dollars on building and operating new nuclear facilities at the same time. *[See ½ page insert]

So now for the above 7 reasons we respectfully petition the United States Government to scrap its plans to establish more plants for the production of plutonium and enriched uranium, and nuclear weapons.

Respectfully submitted,

Ralph M. Galt

Ralph M. Galt.

September 27, 1993
revised on August 6, 1997.

* (7) According to a careful study by scientists within 100 miles of Oak Ridge the increase of cancer is 34% compared to 5% for all of the United States. These figures broke down to 40% increase in the mountain counties and 30% in the low valleys. Thus the U.S. Government is killing its own people. (Studies by State of Tennessee Department of Health.)

United States
Nuclear Regulatory Commission

NRC REVIEW OF TRITIUM PRODUCTION IN COMMERCIAL LIGHT-WATER REACTORS PROJECT NO. 697

August 7, 1997

Jim Wilson

Generic Issues and Environmental Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Joint DOE/NRC Memorandum of Understanding

- approved by Commission in April 1996
- signed by Chairman and Secretary of Energy on May 22, 1996
- provides for review and consultation by NRC with respect to DOE's program for the CLWR production of tritium

NRC Review

Phase 1 - Lead Test Assembly (LTA)

- DOE submits LTA topical report
- staff prepares safety evaluation for LTA topical report and consults with Commission prior to issuance

Phase II - Tritium Production Core

- DOE submits production topical report
- staff prepares safety evaluation for production topical report and provides results to Commission prior to issuance

Public Meetings

Commission requires a series of public meetings:

- **provide for public comment regarding the technical issues associated with LTA irradiation to ensure the public is aware of the staff's review activities early in the evaluation process**
- **hold public meeting in the vicinity of the host facility prior to loading LTAs into the reactor core**
- **hold similar public meetings prior to production phase irriadiation at any particular NRC licensed facility**

Phase I - Lead Test Assembly (LTA) Review

- DOE submits LTA Topical Report
- Staff issues request for additional information (RAI)
- DOE submits response to staff's RAI and issues revised LTA Topical Report
- Staff issues NUREG-1607
- TVA submits license amendment request for Watts Bar

Comments at NRC Meeting
Sweetwater, TN - August 7, 1997

My name is Gene Hoffman. I live in Knoxville, TN and retired from the Oak Ridge Operations Office of the US Department of Energy in January, 1976. I am a metallurgical engineer and I have degrees from the University of Notre Dame and the University of Tennessee. My 46-year career included 12 years at the Oak Ridge National Laboratory, 9 years with General Electric Space Power, and 25 years with DOE/AEC in Washington and Oak Ridge. About 90% of my career as a materials specialist was spent working of advanced nuclear energy systems for terrestial and space applications. I have always supported the use of nuclear power for unique and appropriate applications, including power generation and nuclear weapons. I have never worked directly on nuclear weapons systems.

Only recently did I become aware of the plans for future production of tritiuim for nuclear weapons applications. It was a shock to me when I found out that following 1992 the Administration and DOE management had abandoned a proven 30-year technology and tritium production facility at Savannah River before an alternate technology had been demonstrated.

On hearing about this NRC hearing I contacted Robert Martin of the NRC seeking more technical information about the planned, pre-production test planned for Watts Bar Nuclear Plant #1 next month. The next day after my request I received a Fed Ex package with a copy of the TVA-to-NRC application dated April 30, 1997for a licensing change to permit the planned test. During the past week I have attemped to absorb the extensive information contained in this one-inch thick document.

Because of the limited time available I would like to quickly read the list of comments, concerns and questions which I have prepared and submit them to the NRC staff for consideration. This list is attached.

Eugene E. Hoffman

Eugene E. Hoffman
10504 Sandpiper Lane
Knoxville, TN 37922-5518
Ph. 423-966-3964

WHY MAKE TRITIUM AT WATTS BAR?

- Just prior to 1992 the US spent over $1 billion to upgrade the K Reactor for continued tritium production at Savannah River. Those upgrades were all successfully completed and the reactor was then capable of satisfying US defense program needs for the next 50 years.

- Additional millions were spent at Savannah River on training five complete reactor operating crews for the K Reactor. The US expertise for tritium production is found only at Savannah River.

- If the K Reactor is not utilized for tritium production, decontamination and decommissioning will cost hundreds of millions of dollars in the near term.

- Aluminum-clad targets, which have been used for all tritium production to date, cannot be used in a commercial power reactor.

- The production of tritium in a commercial power reactor requires the design, fabrication and qualification of entirely new target assemblies for which there are neither an experience base nor manufacturing facilities.

- There are no facilities anywhere for extracting tritium from targets which are not aluminum clad.

- A pre-conceptual design study at Savannah River on an extraction facility for targets clad with stainless steel (the type planned for Watts Bar) has been completed. This study estimates that the cost of such a facility will be at least $200 million.

- Tritium production anywhere but at Savannah River means that the irradiated and radioactive targets would have to be shipped to Savannah River for tritium extraction over public roads. Tritium production at Savannah River did not require off-site shipment of the radioactive targets.

- Tritium production in a commercial reactor would require a much higher level of physical security than normally required for such a facility.

- Public Law 97-415 (Jan. 4, 1983-97th Congress) Section 14e states that special nuclear material (including tritium) produced in facilities licensed in accordance with the Atomic Energy Act of 1954 may not be transferred, reprocessed, used or otherwise made available by any instrumentality of the United States or any other person for nuclear explosive purposes.

- What are DOE's real reasons for walking away from the taxpayers' $1 billion-plus investment in the K Reactor at Savannah River?

Public Law 97-415
97th Congress

An Act

To authorize appropriations to the Nuclear Regulatory Commission in accordance with section 261 of the Atomic Energy Act of 1954, as amended, and section 305 of the Energy Reorganization Act of 1974, as amended, and for other purposes

Jan. 4, 1983
[H.R. 2330]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

AUTHORIZATION OF APPROPRIATIONS

Nuclear Regulatory Commission. Appropriations authorization.

LIMITATION ON USE OF SPECIAL NUCLEAR MATERIAL

SEC. 14. Section 57 of the Atomic Energy Act of 1954 (42 U.S.C. 2077) is amended by adding at the end thereof the following new subsection:

"e. Special nuclear material, as defined in section 11, produced in facilities licensed under section 103 or 104 may not be transferred, reprocessed, used, or otherwise made available by any instrumentality of the United States or any other person for nuclear explosive purposes.".

42 USC 2014. 42 USC 2133. 2134

NUREG–1607

May, 1997

Safety Evaluation Report

related to the Department of Energy's proposal for the irradiation of lead test assemblies containing tritium-producing burnable absorber rods in commercial light-water reactors

Project No. 697

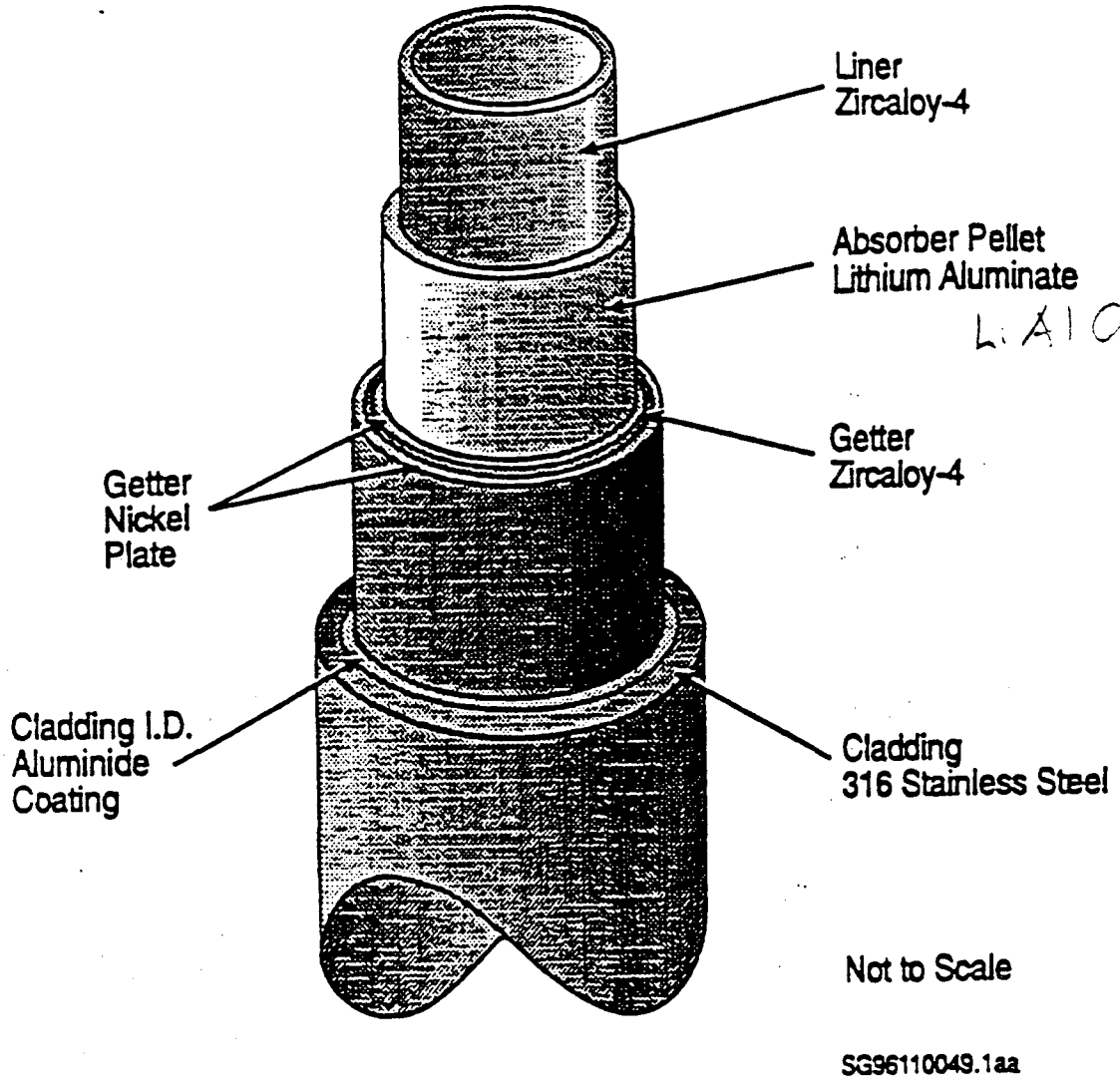
U.S. Nuclear Regulatory Commission

Therefore, the staff concludes that a licensee undertaking irradiation of TPBAR LTAs in a CLWR will have to submit an application for amendment to its facility operating license before inserting the LTAs into the reactor.

10.2 Issues Requiring Additional Analysis

The staff has identified a number of areas in which TVA will have to supplement the information in the DOE report before the staff can determine whether the proposed irradiation is acceptable at Watts Bar. These are listed below, along with the section(s) of this safety evaluation in which each is discussed.

TVA must present additional information and analyses in these areas in its safety analysis accompanying the application for amendment to the facility operating license for Watts Bar.



Reactions. See §§ 2.2 2.3

Figure 2-3 Sketch of TPBAR Components

NUCLEAR REGULATORY COMMISSION
PUBLIC HEARING
Thursday, August 7, 1997
7:00 PM Sweetwater, TN
Testimony of Donald B. Clark

The Cumberland Countians for Peace and Justice, representing several of the churches in neighboring Cumberland County, is opposed to the manufacture of tritium at Tennessee Valley Authority's Watts Bar nuclear power plant in Spring City, TN.

The Network for Environmental & Economic Responsibility of the 1.5 million member United Church of Christ (UCC) is also opposed as would be the numerous peace, social justice, and environmental groups in the mainline religious community.

Much of the anti-nuclear power and weapons activity in the various denominations and in the World Council of Churches and National Council of Churches came in the late 1970's with statements like the Friends Committee on National Legislation in 1976 declaring:

"We believe that U.S. reliance on fission nuclear power to fill the energy needs of an economy characterized by extravagance and waste needlessly mortgages the peace, welfare, and freedom of future generations.

"The threat to peace results from the diversion of fission fuel materials for nuclear or chemical warfare or terrorist activity.

"The threat to welfare results from the risk of catastrophic reactor accidents, from health damage due to low-level radioactive emissions associated with reactors, fuel-processing plants, and waste storage, from the radioactive poisoning of the biosphere, and from environmental damage.

"The threat to freedom results from the extreme amount of security required to prevent damage and diversion, especially at reactor power plants, fuel treatment plants and in transporting material between them."

The National Council of Churches adopted a 29 page policy statement on THE PLUTONIUM ECONOMY in 1976, which was adapted from a "Statement of Concern" drawn up by a distinguished panel of scientists and scholars chaired by Dr. Margaret Mead and Dr. Rene Dubos. The report contains scary implications, and dire warnings that are all still true! An editorial on another National Council of Churches statement in 1979 is attached. The statement came before the World Council of Churches changed its policy to become unsupportive of nuclear power.

My denomination, the UCC, adopted a Pronouncement on Energy in 1979. We noted that "nuclear energy production creates a present threat and leaves a legacy to future generations" of endangered lives, proliferation of weapons-grade nuclear materials and nuclear waste material which will remain highly toxic for

centuries. We supported renewable energy sources and asked for policies to encourage them. We called for subsidies, obvious and hidden, to be terminated for the fossil fuel and nuclear industries.

Many of the resolutions and statements by religious bodies have been updated, strengthened a bit &/or reaffirmed over the last 20 years. Some call for ending the life of all nuclear plants as well as opposing building or expanding plants. We have recognized nuclear energy as bad news for God's creation for a long time. The military-industrial complex, the arms race, and nuclear weapons have been the subject of numerous declarations of religious condemnation. The UCC in national meetings adopted 18 such resolutions in the last 20 years, and we do not reaffirm past statements!

So it can be safely said that the mainline religious community stands against anything that will extend the life of a nuclear reactor, make it slightly less uneconomic to operate, delay its demise, or put it on additional welfare. We view them as a "costly mistake" in the first place.

We want to stop the Department of Energy from building bombs in Oak Ridge. We support the Nuclear Non-Proliferation Treaty, the Comprehensive Test Ban Treaty, no further nuclear testing of any kind and the rapid dismantlement of nuclear weapons. We do not believe that spending $5 billion next year on our nuclear weapons arsenal, on essentially creating more deadly nuclear weapons out of old ones is politically appropriate, responsible, moral, or logical.

The Cumberland Countians for Peace & Justice has physicists and other scientists as consultants. They have shared the June special issue of PHYSICS TODAY on radioactive waste. It certainly appears that the world has an enormous, daunting and growing nuclear waste problem. You know that there is no place to store it other than where it is generated (in containers not designed for the long term) and no "demonstrably acceptable" site for either simple storage or final disposal of spent fuel exists anywhere. We are not making much progress toward solutions which is imperiling workers and neighbors, like us, and can't help but be extremely costly. I get 4 or 5 news releases a day from the NRC which are not reassuring!

In the PHYSICS TODAY issue, a 12 year tritium leak to groundwater from the spent fuel holding tank of a reactor at Brookhaven National Laboratory was discussed. Public trust in the environmental, safety and health practices of the laboratory was very fragile and is now nonexistent. I dare say that public trust of the management of any nuclear reactor or research laboratory anywhere in the world is slim and justifiably should be nonexistent. The history of secrets, deceptions and lies preclude trust and engenders anxiety. Those in the industry and the NRC are seemingly confident that nuclear science has the answers (a

faith based on self-dillusion and arrogance?) and must be pursued no matter what the costs. Alternatively using the economic resources devoted to nuclear reactors and weapons, by the United States, for only a few months, could solve the world hunger and literacy problems and fund world wide environmental restoration. Redirecting the human resources of the nuclear and war industries to the meeting of creation needs is essential, in my view.

Tritium, according to your glossary, is the heaviest isotope of hydrogen, being three times heavier. Tritium gas is used to multiply the explosive power of nuclear bombs, inspiring the term "hydrogen bomb." It is normally produced in **production reactors** at the Hanford or Savannah River sites, as is plutonium. According to a 1995 *FACING REALITY* publication on Nuclear Weapons "Cleanup", "tritium is highly radioactive and hundreds of thousands of curies of it were routinely released to the air and water around the Savannah River plant where it was manufactured, increasing the radiation exposure to citizens in a large region. Tritium production required the equivalent of at least one large reactor running full time for more than 30 years, generating many thousands of tons of EXTREMELY RADIOACTIVE WASTE." Continuing in another part of the report: "The government purchased between 40,000 and 120,000 tons of lithium concentrate and enriched most of it in order to extract about 400 to 1,500 tons of Lithium-6 metal, a relatively rare non-radioactive isotope used in tritium production and directly as a weapon ingredient. Lithium processing is said to have required most of the entire world's stockpile of mercury during the 1950's. According to DOE estimates, more than **1,000 tons of mercury**, a poisonous heavy metal, have been released into the environment **around Oak Ridge**, Tennessee. At many sites, toxic organic solvents were dumped onto or injected into the ground and have contaminated groundwater aquifers."

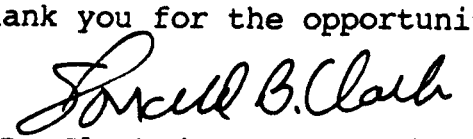
No one can justify further toxic impacts on this region! Enough is enough! Some examples of present and potential impacts are:

- dismantling a couple hundred nuclear warhead assemblies with uranium and lithium parts in Oak Ridge this year;
- hosting the only radioactive hazardous waste incinerator (which more than 50 employees have reason to believe is making them sick);
- finding 165 barrels of radioactive ash dumped in a landfill; no permits being obtained for hazardous waste transport in the state and wastes coming from more and more states;
- the lack of past and present health studies of workers, families and area people;
- an enormous residue of hazardous and radioactive waste accumulated or released into the surrounding environment over many years of a scope and complexity unmatched in the world;
- building new earth-penetrating bombs from old B-61's, preparing to work on MX missiles and reworking W-87 Trident warheads;

and the apparent reluctance of the DOE to accept responsibility to clean up what they have caused to be polluted.

There is no justification, in our view, for producing more tritium when the DOE stockpile will last until 2015 even without adhering to the next arms treaty with Russia.

Thank you for the opportunity to present our views.



Donald B. Clark is a pharmacist, retired executive of Hoffmann-La Roche pharmaceutical company who now lives in Pleasant Hill in Cumberland County, TN. He co-convenes the United Church of Christ Network for Environmental & Economic Responsibility and chairs the Cumberland Countians for Peace & Justice.

Until recently, he was on the executive committees of New Jersey Citizen Action, New Jersey Environmental Federation, Partners for Environmental Quality, Cornucopia Network of N.J. and the Metropolitan Ecumenical Ministry of N.J. Each was involved with public utilities and most with energy. He represented the United Church of Christ in stockholder resolutions addressed to several utilities and has served on advisory committees to the N.J. Department of Environmental Protection and on the State Energy Plan, among others. He serves on the United Nations Environment Programme Environmental Sabbath Committee and the National Council of Churches Eco-Justice Working Group.

NCC SAYS NO TO NUCLEAR POWER

San Antonio.

✦ AFTER carrying a pro-nuclear policy statement on its record for 29 years, the National Council of Churches (NCC) has reversed itself and officially joined the antinuclear forces. The action came during the semiannual meeting of the NCC's Governing Board here at Travis Park United Methodist Church May 9-11. The board debated nuclear energy issues for three days before asserting that it favors a national energy policy "which does not need to utilize nuclear fission."

I

Relations between the NCC and the nuclear power industry have not been friendly for some time, but the only previous official position of the organization representing 32 Protestant and Orthodox communions has been a statement adopted in 1960 supporting peaceful uses of nuclear energy and urging private industry to launch an all-out development of nuclear fission as an energy source. Skeptics frequently say that church policy makes little difference in public debates, but the lobbying conducted prior to this meeting suggests that in this instance the nuclear power industry coveted a continuing relationship with the churches. Delegates were subjected to massive, sophisticated and obviously expensive efforts by the industry to forestall adoption of an antinuclear posture. Some delegates told of visits to their homes by nuclear supporters who lobbied this body as they might the U.S. Congress — but to no avail.

The Governing Board, completing a process begun in 1974, passed its policy statement 120-26, well above the needed two-thirds vote required to establish NCC policy. The national anxiety generated over the recent near-disaster at Three Mile Island had led some observers to predict that the delegates would demand immediate shutdown of all existing nuclear plants. This they did not do. The statement approved here drew essentially from the language debated at the board's last meeting in November 1978, several months before the Three Mile Island accident. Citing a moral responsibility to "work together as accountable stewards of the whole earth and as bold advocates for fairness in the human community," the board concluded that the problem of nuclear waste and the potential for human mechanical accidents were too great to justify the risk of continued nuclear-fission development. At a post-meeting press conference, Council President William Howard said he interpreted the board's action to mean that the NCC opposes further development or building of nuclear plants but does not favor shutdown of plants now in use.

The new policy statement also supports a ban, approved with little dissent, on the commercial use of plutonium — a reflection of how rapidly church opinion has moved since a March 1976 Governing Board meeting when an antiplutonium resolution passed only after heated and prolonged debate. In that discussion in Atlanta, the NCC appeared to go out of its way to say that in opposing plutonium — with its "eternal" nuclear waste problem and its potential as a weapons source — it did not mean to condemn nuclear fission as a power source. Now it does, and not with a resolution that merely expresses opinion but with a policy statement that will serve as a foundation for future council programs.

II

In introducing the statement Joel Thompson, a Church of the Brethren minister from Elgin, Illinois, established a moderate tone, observing that in opposing reliance on nuclear fission as an energy source, the National Council would not be advocating "that we close down Chicago tomorrow" — a reference to that city's heavy dependence on nuclear plants. This moderating tone probably helped the body to withstand a determined effort by Olof H. Scott, Jr., of Charleston, West Virginia, who offered a substitute proposal from the Antiochian Orthodox Church calling for "continued development of potential sources of energy that would be reliable, economical and environmentally acceptable." With backing that appeared to come largely from Episcopal, Lutheran and Orthodox delegates, Scott cautioned the board to avoid taking premature action on a subject about which there is such uncertainty. "Any rigid policy advocated today," he said, "would no doubt seem dated or irrelevant in only a few years." He also introduced the values of freedom and equity into the debate, adding them to the values of sustainability, fairness and participation cited in the original document.

Scott's argument on equity is reflective of the stance taken by the World Council of Churches, which perhaps for the first time in many years is on the opposite side from the NCC on a major social issue. The WCC, strongly influenced by Third World nations, maintains that the abandonment of nuclear power is not an option for underdeveloped nations. Scott puts it this way: "Because of the special advantages that the earlier-developing societies enjoyed as a result of less expensive energy sources available [to them], they should recognize their obli-

gation to minimize the economic impact to developing countries – and to less-privileged individuals in their own countries."

By adding equity to the argument, Scott and the Antiochian Orthodox Church forced the NCC to weigh the correction of the dangers of nuclear waste and potential radiation leaks against the danger of economic deprivation in much of the rest of the world. This sober reminder no doubt helped temper the final policy statement, but it did not deter the council from taking its stand against nuclear fission as a long-term energy source.

In its guidelines, the NCC document acknowledges that a "just energy policy" involves ethical "trade-offs." But if a particular technology poses a risk of "irreversible global damage," society should realize that "the greater the risk, the less moral justification there is for its use." Agreeing that human survival depends on energy, the statement urges distribution by a "standard that insures adequate food, health, housing and clean air and water for all." Its ecological justice guidelines make no reference to freedom, perhaps because equal distribution with limited fuel sources might require some sacrifice of freedom. And it is this sacrifice that Olof Scott sought to address when he asked that future energy policies respect "the precious individual freedoms that represent the dreams, the diversity and the dignity of all human beings." By reversing its 29-year-old pro-nuclear stance, however, the National Council has determined that the moral cost of nuclear power is simply too high a price to pay, regardless of other consequences.

III

In a second major action the Governing Board unanimously affirmed "as its own" a joint statement on disarmament adopted last month by church leaders from the United States and the Soviet Union. That document urges "the earliest possible approval of the SALT II accords." Entitled "Choose Life," the statement was supported by Protopresbyter Vitaly Borovoy, Russian Orthodox delegate to the World Council of Churches, who praised SALT II as a next step toward "real, complete, general and total disarmament." Borovoy, a familiar and popular figure in world ecumenical circles, received a standing ovation from the NCC board after he spoke in favor of the paper.

The unanimous vote for the disarmament accords came as a surprise since some "peace movement" churches, particularly the Church of the Brethren, have expressed reservations about supporting a treaty that does not reverse the arms race. One representative from the Brethren church told me later that while his denomination is still debating what posture to take on SALT II, delegates here felt that they could support the "Choose Life" document because it affirms a dialogue for peace between U.S. and Soviet church leaders. The title of the statement is drawn from Deuteronomy 30:19: "I call heaven and earth to witness against you this day, that I have set before you life and death, blessing and curse; therefore choose life, that you and your descendants may live."

While acknowledging that SALT II "does not provide for more substantial arms reductions," the paper adds that it "does provide a new and essential framework . . . for negotiating substantial and equal reductions." Further, the treaty, which must be approved by two-thirds of the U.S. Senate, would "open the way to decisive progress on other critical disarmament issues" that would enable the U.S. and the Soviet Union "to share more fully in the constructive works of peace in economic, technical and cultural affairs."

As it was taking a new policy stand on nuclear power and affirming its disarmament position, the board took its first look at a proposed policy statement on "The Injustice of the Criminal Justice System" and passed a resolution on "The Undocumented and Overstayed Person" which looks toward a future policy statement advocating amnesty for persons who have immigrated illegally into the U.S.

Position papers on such complex problems do not provide clear-cut solutions, but they do raise the consciousness of a society that still looks for the moral dimension in its decision-making process.

JAMES M. WALL.

Commercial Light Water Reactor Production of Tritium

Office of Defense Programs

Irradiation of Lead Test Assemblies in the Watts Bar Reactor

Presentation to the Public
at the Watts Bar Nuclear Site
August 7, 1997

Stephen M. Sohinki
Director, Commercial Light Water Reactor Project
US Department of Energy

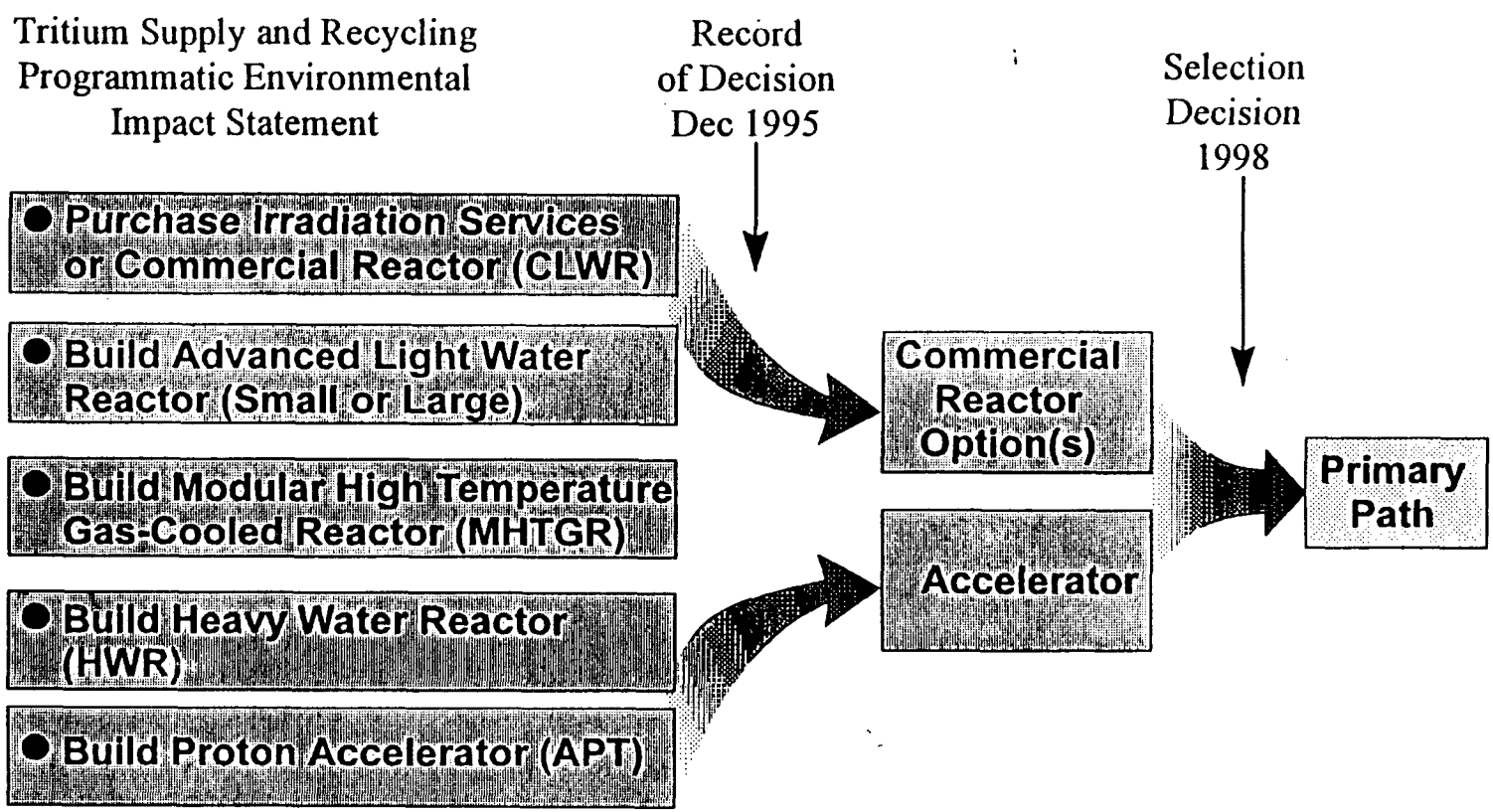
Requirement for New Tritium

Office of Defense Programs

- All warheads in the U.S. nuclear weapons stockpile depend upon tritium to function as designed.
- No new tritium has been made since 1988.
- Tritium decays at a rate of 5.5% per year (12.3 year half life).
- The weapons stockpile is currently being supported with tritium taken from dismantled warheads.
- The President's Nuclear Weapons Stockpile Plan and Congress require that DOE be capable of making new tritium by 2005.

Dual-Path Strategy for Tritium

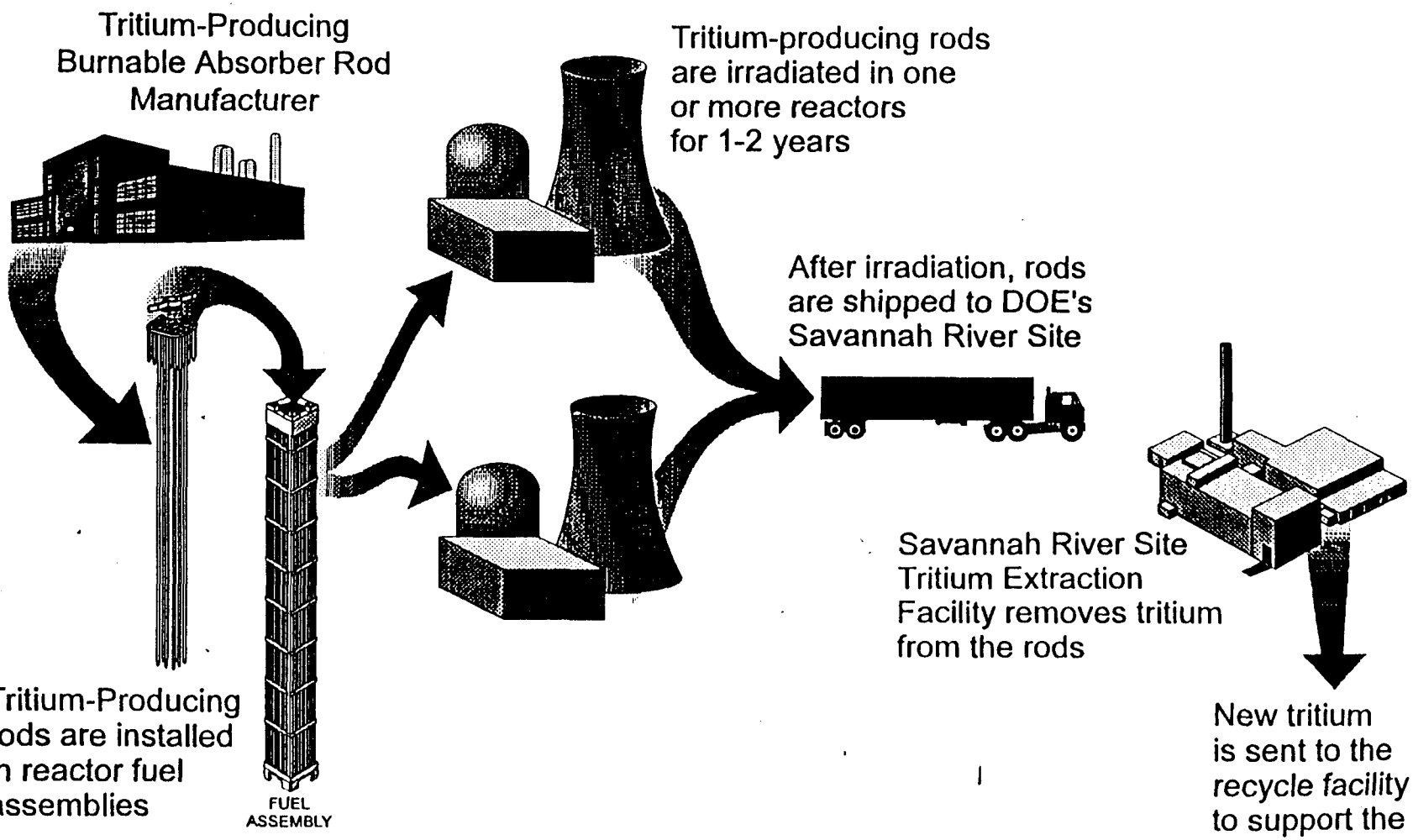
Office of Defense Programs



- All new facilities will be located at the Savannah River Site
- The Commercial Reactor option will be a contingency source of tritium in any case. DOE will establish contracts with reactors, manufacture a core load of rods, contruct an extraction facility, and complete all licensing requirements so that the option can produce tritium on short notice.

System for Producing Tritium in Commercial Light Water Reactors

Office of Defense Programs



Commercial Reactor Acquisition Strategy

Office of Defense Programs

- **Irradiation Services**
  - No change in current owner/operator of commercial reactors
  - Minimum impact on power generation or operating cycle
  - Amendments to NRC licenses required
- **Reactor Purchase**
  - DOE becomes owner of commercial reactor(s). Operator remains.
  - Plant operated as a defense facility optimized for tritium production.
  - NRC license must be amended and may need to be transferred.
- **Acquisition Milestones**
  - June 4, 1997 — Issued Final Request for Proposals
  - September 15, 1997 — Proposals Due to DOE
  - February 10, 1998 — Selection of Successful Offeror(s)
  - March 1, 1998 — Award(s) of Contract(s)

Past CLWR Development and Testing

Office of Defense Programs

- Light Water Reactor development and testing was conducted under the New Production Reactor Program, 1988 - 1992. **$69M spent**

- Technical feasibility was well demonstrated

  - Eleven tritium-producing rods were irradiated in the Advanced Test Reactor at the Idaho National Engineering Laboratory. All have undergone non-destructive examination and one has been destructively tested. All rods performed even better than expected.

  - The tritium extraction process was defined

  - Safety issues were evaluated. No open items.

  - Commercial vendors for target components were identified. Fabrication process specifications were developed.

- Eight major technical reports were prepared.

The Lead Test Assembly (LTA)

Office of Defense Programs

- **Purpose**
  - To confirm the results of successful prior testing of tritium-producing burnable absorber rods (TPBARs). **This is not an experiment.**
  - To provide added confidence to utilities and the NRC that tritium production in commercial reactors is safe and technically straightforward.
  - To demonstrate the entire cycle from design through manufacture of components, regulatory approvals, and irradiation in a reactor.

Tritium Lead Test Assemblies

Office of Defense Programs

- **The Plan**

  - **Place four Lead Test Assemblies (LTA), each containing eight Tritium Producing Burnable Absorber Rods (TPBAR) in the Watts Bar reactor for a single, normal operating cycle.**

  - **Only 32 of the over 1000 burnable absorber rods typically found in a fuel reload wil be replaced for a single cycle.**

Tritium Producing Burnable Absorber Rod

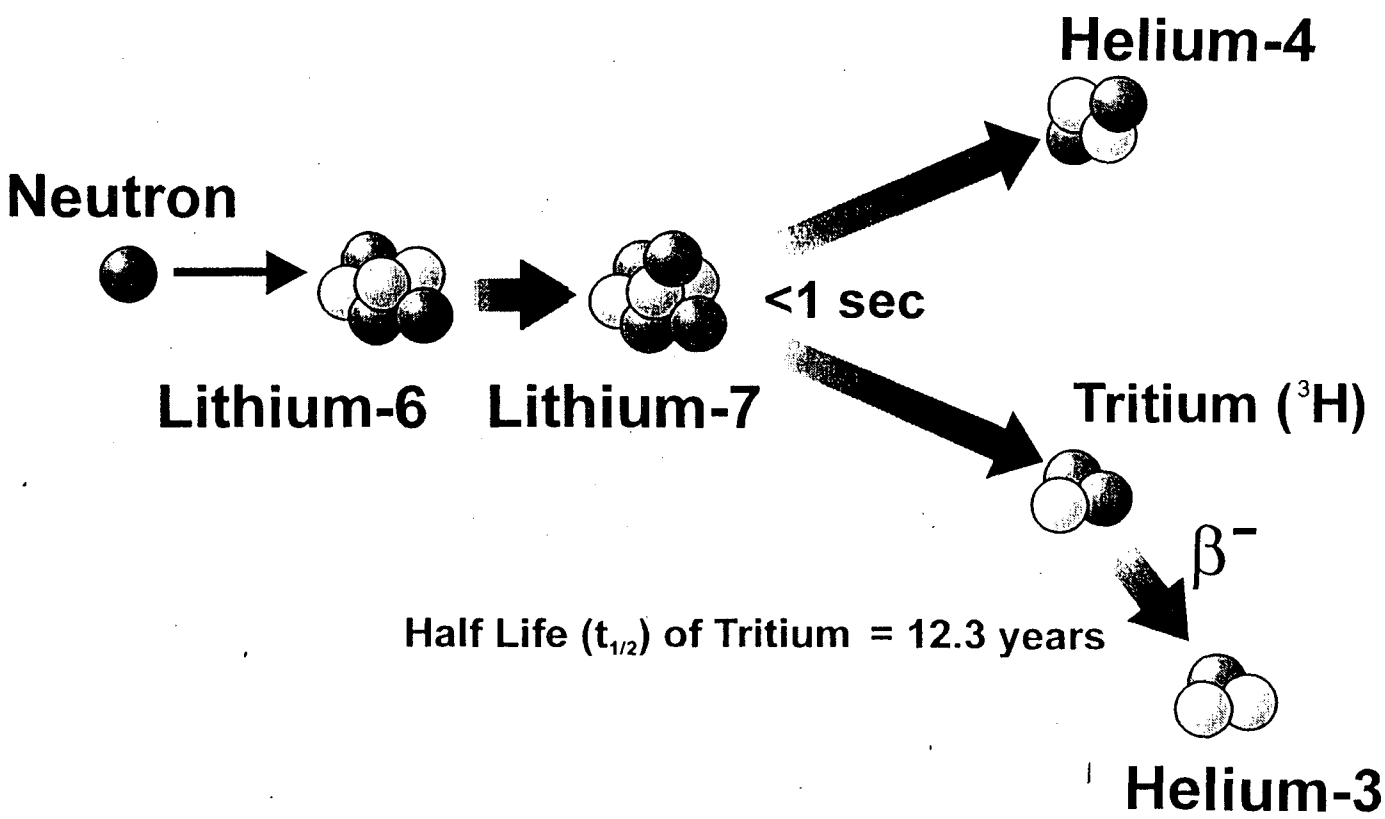
Technical Discussion

August 7, 1997

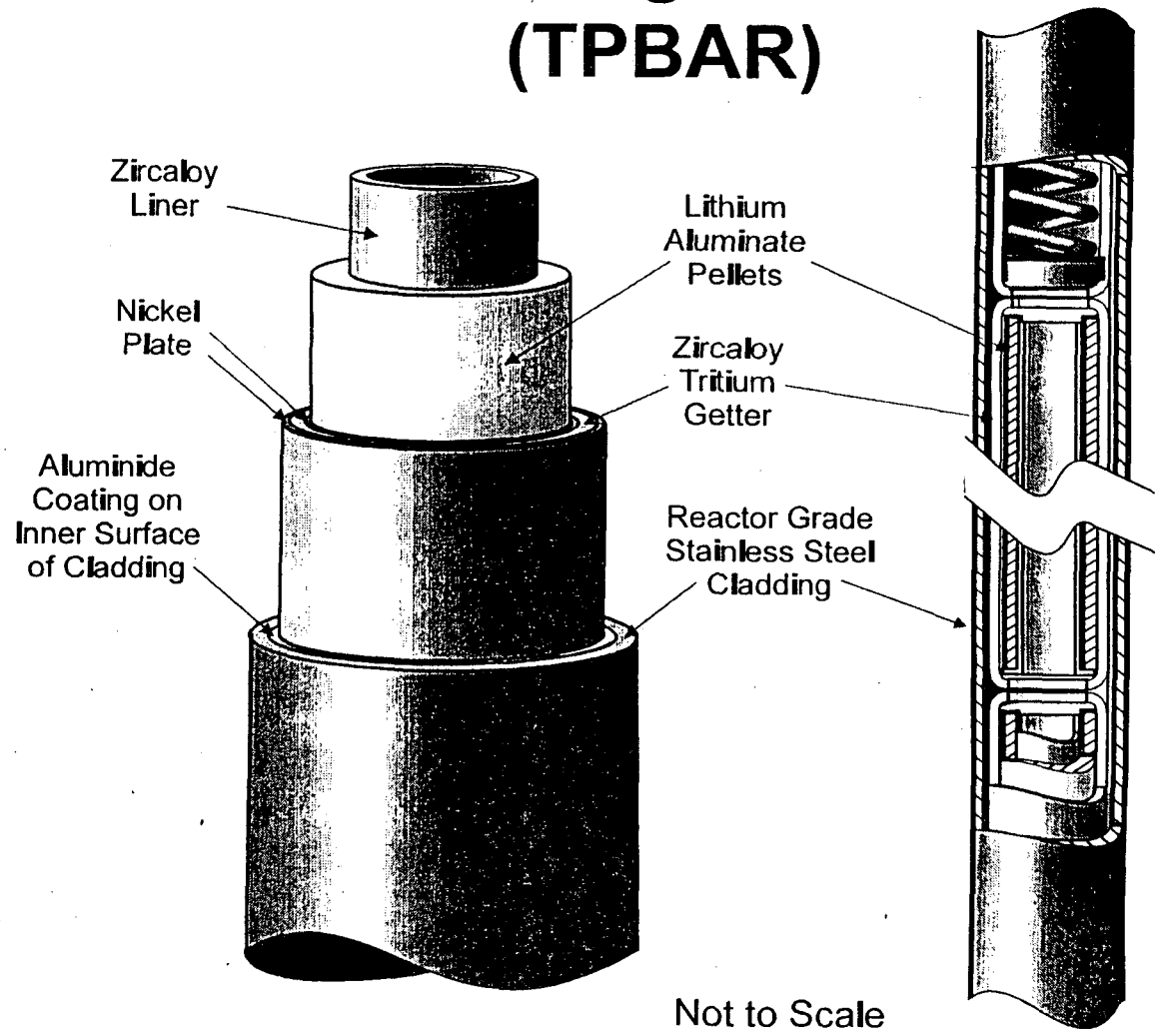
Dr. Jerry L. Ethridge

Pacific Northwest National Laboratory

Production of Tritium from Lithium in a Reactor



Tritium-Producing Burnable Absorber Rod for Commercial Light Water Reactors (TPBAR)



Not to Scale

Basic Concepts

Production: $^{6}Li + {}^{1}_{o}n \longrightarrow {}^{4}He + {}^{3}H + 4.8\ MeV$

Retention:

$2({}^{3}H_2O) + Zr \longrightarrow ZrO_2 + 2({}^{3}H_2)$ (Liner)

$^{3}H_2 + Zr \longrightarrow Zr^{3}H_2$ (Getter)

High PRF* (Barrier)

Distribution:

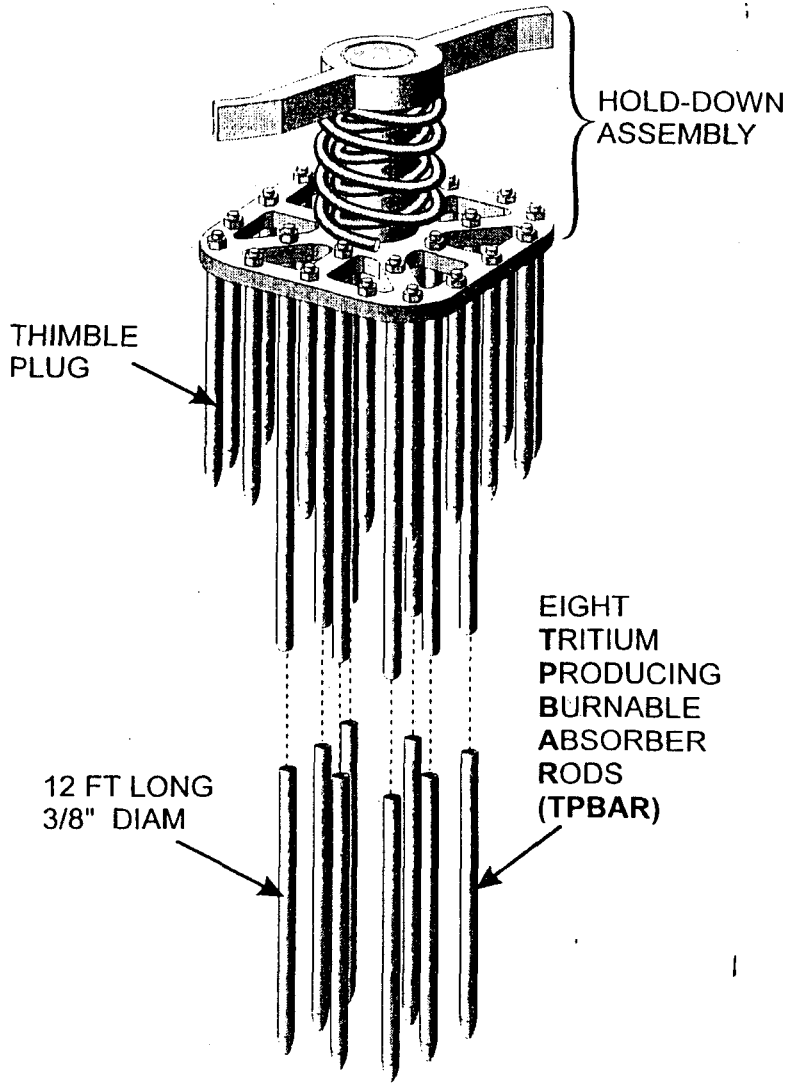
^{3}H in pellets

^{3}H in Zr liner

^{3}H in NPZ getter

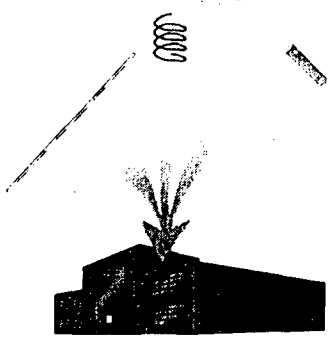
* PRF (permeation reduction factor) = ratio of tritium permeability in bare stainless steel to that of a coated tube; i.e., high PRF means low tritium release.

Tritium Producing Burnable Absorber Assembly

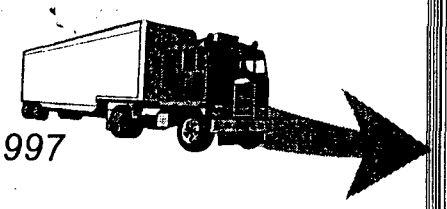


Lead Test Assembly System Description

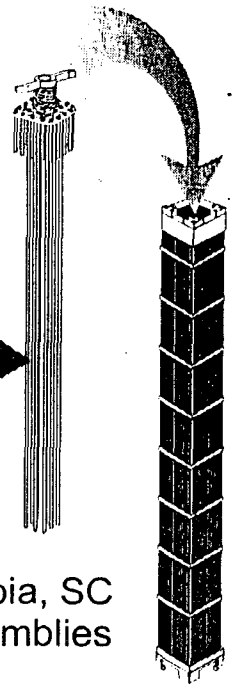
1 Parts are purchased and assembled by PNNL



Ship July 1997

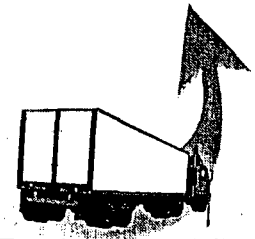


2 Lead Test Assembly (LTA) Tritium Producing Burnable Absorber Rods (TPBAR) were sent to Westinghouse, Columbia, SC to be inserted in four fuel assemblies



FUEL ASSEMBLY

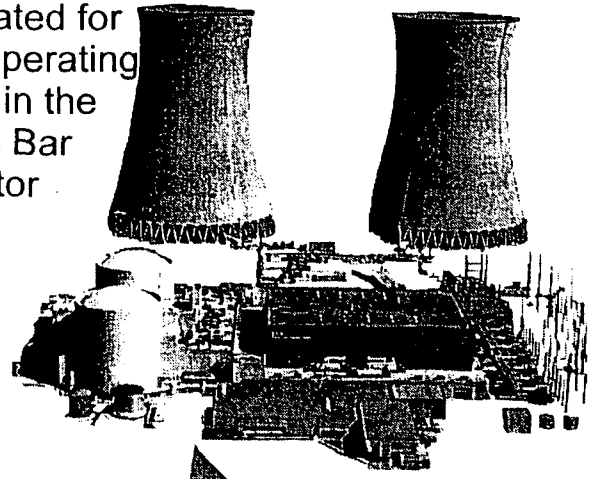
3 Fuel assemblies with LTAs were sent to Watts Bar



Ship July 1997

4 LTAs to be irradiated for one operating cycle in the Watts Bar Reactor

Start up October 1997



5 Irradiated LTAs are returned to lab for post-irradiation examinations

Ship approx May 1999

TPBARs Are Like a Standard Commercial Burnable Poison Rod

- The TPBARs perform the same function as the burnable absorber rods normally found in a commercial reactor
- The TPBAR has the same dimensions as burnable absorber rods
- The TPBAR substitutes Lithium-6 as the neutron-absorbing material in place of the usual Boron-10
  - The Lithium-6 is in a ceramic form (lithium aluminate)
  - When Lithium-6 absorbs a neutron, it transmutes into tritium
- The TPBAR's neutron-absorbing characteristics are very similar to those of rods containing Boron-10
- TPBARs contain no fissile material, I.e., no uranium or plutonium

Performance of TPBARs During Normal Reactor Operations

- TPBARs perform a reactivity hold down function like standard burnable absorber rods
- Essentially all tritium produced is captured in a solid matrix in the TPBAR getter and can only be released under extremely high temperature
- From a reactor operations perspective, the TPBARs are 'transparent."

Performance of TPBARs During Accidents

- **The TPBARs are predicted to behave similar to standard burnable absorber rods and provide the same mitigating response to accident scenarios, i.e., the TPBARs have no impact to reactor operations during an accident**

External Reviews of LTA in Watts Bar

Organization	Types of Review
U.S. Department of Energy	• Programmatic • Quality Assurance • Design Review • Manufacturing Review • Environmental Assessment (EA) • Nuclear Safety
Nuclear Facility Safety Review Board (TVA Corporate Review Board)	• Programmatic
Tennessee Valley Authority (Watts Bar Plant)	• Programmatic • Quality Assurance • Design Review • Manufacturing Review • Cooperating Agency in the EA • Nuclear Safety • Plant Operations

External Reviews of LTA in Watts Bar (Cont'd)

Organization	Types of Review
Westinghouse Electric Corporation	• Quality Assurance • Design Review • Manufacturing Review • Nuclear Safety
U.S. Nuclear Regulatory Commission	• Programmatic • Quality Assurance • Manufacturing Review • Nuclear Safety • Target Rod Technical Reports • TVA's License Amendment
USNRC - Advisory Committee for Reactor Safety	• Programmatic • Nuclear Safety

TRITIUM LEAD TEST ASSEMBLY (LTA) PROGRAM

James S. Chardos
Project Manager
August 7, 1997

TRITIUM LEAD TEST ASSEMBLY (LTA) PROGRAM

- The four LTAs arrived on schedule, and have been safely stored at Watts Bar

- LTAs to remain in storage until they are loaded into the reactor (mid-September)

- TVA's safety analysis to load the LTAs is currently under review by the Nuclear Regulatory Commission

TRITIUM LEAD TEST ASSEMBLY (LTA) PROGRAM

- LTAs will not have an effect on plant operations, plant personnel, or the community
- LTA performance will be periodically monitored
- LTAs to be irradiated during the upcoming operating cycle which ends Spring 1999

TRITIUM LEAD TEST ASSEMBLY (LTA) PROGRAM

- LTAs to be removed from the reactor and safely stored until after the 1999 refueling outage

- LTAs will be shipped offsite by DOE in approved casks to undergo post-irradiation examinations

Good evening---Dept of Energy—NRC—TVA
8-7-'97 --Sweetwater, TN

My name is Ann Harris. I worked at Watts Bar for 14 years. I was removed to the Chattanooga complex after the licensing of Watts Bar where I was immediately laid off due to "budget restraints and a power emergency " after TVA had financed a college education so that at I could be more productive.

Watts Bar Nuclear Plant has the most controversial history of any nuclear plant in America. TMI—Browns Ferry—ANY PLANT! The history is long, --and bloody---- considering the hundreds of bodies that have been forced into the streets in an attempt to force safety into the plant.

The license process was a sham. First TVA had it ---then ----they did not. Then ---again, they had it ----then they did not. Even the local news paper got frustrated about when the licensing finally happened. Musical faxes with press releases!

The joke was on the local community after the license was granted and NRC after you met your agenda.. That one person that gave the license is no longer employed at the NRC--he took an early retirement at the age of 47. The heat of illegal activities must be very hot when breaking the law.

TVA--you asked for and received five amendments to the license before the ink was even dry. A safe plant would be acceptable IF the safety systems were in place. It is too late to make Watts Bar safe—

And when you boys were going to use 10 CFR 50.59 as the basis for testing and producing TRITIUM, why did you change your minds? For those of you that don't know, that is the rule that says a licensee can do anything, produce any item, if TVA will make the statement that the change does not reduce the safety margins of the plant.

Was there a problem on how you would deal with the inquires from the public when someone found your abuse in the public documents? I realize that once this public meeting is over, there will not be any more obstacles to TRITIUM production at Watts Bar. And you boys want us to accept a massive, highly volatile, defense department toy that will forever change our community into a war zone and you hide behind the cloak of ---defense needs—and patriotism –shame on you!

Will one of you boys respond to how you are going justify breaking the law to do this testing and production. This process is in direct conflict with the Energy Reorganization Act which separated the DOE and NRC. Rumors abound that you boys are attempting to get a rider attached to ANY bill going through congress that will exempt TVA from this law. Is this true? And if true, why after the fact? What is the hurry? Why didn't the law get changed before these actions?

NRC --- you approved the paper work when the radiation monitors at Watts Bar were not working. Strange how fast monitors brought up from Sequoyah temporarily fixed the problem.

The number of plugs in pipes and tubes with all the holes, must make the place look like an old fashioned telephone switchboard waiting to be hooked up. When can we look forward to the next fire? I believe we should look for oil, pumps, bearings and control room fires. That is where they seem to appear or at least where the latest ones have occurred.

And NRC have you made the Memorandum of Understanding with DOE very public? Are you as proud of that MOU as you were of another MOU where you intentionally misled TVA employees coming to you with safety issues?

NRC did you abdicate your regulatory responsibilities to DOE? If so why?

TVA records show that 3000 gallons of contaminated water is dumped into the river every day. How soon should the citizens of Chattanooga expect [redacted] receiving contaminated water into their water faucets since their water plant is located on the main channel of the river, in downtown Chattanooga? I can see the health effects of this decision right away. Especially when the children drink water—kool aid—iced tea—bottled cokes—that contains TRITIUM.

DOE you admit that TRITIUM is borne best by water. And it settles in the areas of the kidneys if it does not go quickly. What about that last glass of water prior to going to bed at nite for the four year olds that do not know about cancer risks? The health department and local doctors should be overjoyed to know that you boys are insuring their future in health care for longer than they will live. It should make for more public relations contracts using TV ads.

The $11 Billion spent on this plant did not buy the necessary safety to operate. And even now TVA is not performing preventative maintenance or maintenance.

TVA is broke ! No money. Can't meet payrolls. They have begun to raid the retirement funds. Over $80 million so far. This is not the behavior of a well organized stable group that should be in charge of this sort of process.

Let me give you an example of the sort of priorities that prevail at TVA:

In November of 1995 TVA put together a "team"—including a project manager—that would look into how to make the hand dryers in the corporate bathrooms <u>"blow hotter air faster".</u> In April of this year ,1997 , the chairman made the momentous decision to <u>give back TVA employees their hand towels.</u> That is the level of seriousness prevalent at TVA today.

DOE you should think about what you are doing and with who. These boys at TVA have lied for so long to so many

that they are now believing their own lies. These are the kinds of people that you are relying on to give you support and keep you out of trouble. When you get in bed with dogs you will always get fleas.

NRC you broke your own rules and ignored significant safety issues to support giving TVA a license for this plant. NRC you permitted your agenda to override public health and safety issues brought to you well before licensing. AND YOU TRUSTED TVA! NRC you have no basis for trusting TVA.

And NRC why is it that at each of these public meetings, where public health and safety are concerned, that we ALWAYS find you aligned with the utilities against the public health and safety? Never in the history of Watts Bar did you ever deny TVA a requested license change, FSAR, or license amendment. NRC we would be much better off if you would remove yourself from the process. —NRC you just do it.

And DOE you people brought the Trojan Horse cloaking under the name of atomic energy for defense, hiding as ---defense needs, over 50 years ago. We did not have an opportunity to even discuss your forth coming destruction over 60 years ago and look where we are today . Watts Bar lake is posted for contamination—too bad to consider cleaning up. Too many sick people and families to count. DOE you are here with another horse but we recognize you and that nag you are riding this time. That dog won't hunt down here again.

Those of us that know TVA and NRC are not surprised to see them in bed together. These boys have slept together for years. Fred Hebdum is the one that told the NRC Commission that Admiral White had not lied about the readiness of Watts Bar way back in the 1980s. The NRC had to later retract the statement to congress.

NRC: when you hold these public meetings, why is the public subjected to presentations from these three agencies with little or no time for the public to be heard? Why is the

public requested to give a summary its presentations before we know what you boys are going to present? Why is the NRC setting in a row with TVA & DOE against the public? This process appears to be a mechanism to show a piece of paper that the NRC complied with regulations instead a genuine attempt to hear from the public.

Those of us that know this process are not surprised but the uneducated public does not know that none of you want to correct this process. How sad for a group of grown men that are too scared of their jobs to attempt to correct such open and blatant abuse of the public trust. True Americans would not have brought this horse to us but would have killed it on the way here.

I wish a written response addressed to me personally within 30 days. I wish to have this document entered into the official record. Thank you.

Justice, then Peace.

Ann Harris (423-376-4851)
305 Pickel Rd
Ten Mile, TN 37880

NUCLEAR REGULATORY COMMISSION
PUBLIC HEARING

Thursday, August 7, 1997
7:00 PM Sweetwater, TN
Testimony of Donald B. Clark

The Cumberland Countians for Peace and Justice, representing several of the churches in neighboring Cumberland County, is opposed to the manufacture of tritium at Tennessee Valley Authority's Watts Bar nuclear power plant in Spring City, TN.

The Network for Environmental & Economic Responsibility of the 1.5 million member United Church of Christ (UCC) is also opposed as would be the numerous peace, social justice, and environmental groups in the mainline religious community.

Much of the anti-nuclear power and weapons activity in the various denominations and in the World Council of Churches and National Council of Churches came in the late 1970's with statements like the Friends Committee on National Legislation in 1976 declaring:

"We believe that U.S. reliance on fission nuclear power to fill the energy needs of an economy characterized by extravagance and waste needlessly mortgages the peace, welfare, and freedom of future generations.

"The threat to peace results from the diversion of fission fuel materials for nuclear or chemical warfare or terrorist activity.

"The threat to welfare results from the risk of catastrophic reactor accidents, from health damage due to low-level radioactive emissions associated with reactors, fuel-processing plants, and waste storage, from the radioactive poisoning of the biosphere, and from environmental damage.

"The threat to freedom results from the extreme amount of security required to prevent damage and diversion, especially at reactor power plants, fuel treatment plants and in transporting material between them."

The National Council of Churches adopted a 29 page policy statement on THE PLUTONIUM ECONOMY in 1976, which was adapted from a "Statement of Concern" drawn up by a distinguished panel of scientists and scholars chaired by Dr. Margaret Mead and Dr. Rene Dubos. The report contains scary implications, and dire warnings that are all still true! An editorial on another National Council of Churches statement in 1979 is attached. The statement came before the World Council of Churches changed its policy to become unsupportive of nuclear power.

My denomination, the UCC, adopted a Pronouncement on Energy in 1979. We noted that "nuclear energy production creates a present threat and leaves a legacy to future generations" of endangered lives, proliferation of weapons-grade nuclear materials and nuclear waste material which will remain highly toxic for

centuries. We supported renewable energy sources and asked for policies to encourage them. We called for subsidies, obvious and hidden, to be terminated for the fossil fuel and nuclear industries.

Many of the resolutions and statements by religious bodies have been updated, strengthened a bit &/or reaffirmed over the last 20 years. Some call for ending the life of all nuclear plants as well as opposing building or expanding plants. We have recognized nuclear energy as bad news for God's creation for a long time. The military-industrial complex, the arms race, and nuclear weapons have been the subject of numerous declarations of religious condemnation. The UCC in national meetings adopted 18 such resolutions in the last 20 years, and we do not reaffirm past statements!

So it can be safely said that the mainline religious community stands against anything that will extend the life of a nuclear reactor, make it slightly less uneconomic to operate, delay its demise, or put it on additional welfare. We view them as a "costly mistake" in the first place.

We want to stop the Department of Energy from building bombs in Oak Ridge. We support the Nuclear Non-Proliferation Treaty, the Comprehensive Test Ban Treaty, no further nuclear testing of any kind and the rapid dismantlement of nuclear weapons. We do not believe that spending $5 billion next year on our nuclear weapons arsenal, on essentially creating more deadly nuclear weapons out of old ones is politically appropriate, responsible, moral, or logical.

The Cumberland Countians for Peace & Justice has physicists and other scientists as consultants. They have shared the June special issue of PHYSICS TODAY on radioactive waste. It certainly appears that the world has an enormous, daunting and growing nuclear waste problem. You know that there is no place to store it other than where it is generated (in containers not designed for the long term) and no "demonstrably acceptable" site for either simple storage or final disposal of spent fuel exists anywhere. We are not making much progress toward solutions which is imperiling workers and neighbors, like us, and can't help but be extremely costly. I get 4 or 5 news releases a day from the NRC which are not reassuring!

In the PHYSICS TODAY issue, a 12 year tritium leak to groundwater from the spent fuel holding tank of a reactor at Brookhaven National Laboratory was discussed. Public trust in the environmental, safety and health practices of the laboratory was very fragile and is now nonexistent. I dare say that public trust of the management of any nuclear reactor or research laboratory anywhere in the world is slim and justifiably should be nonexistent. The history of secrets, deceptions and lies preclude trust and engenders anxiety. Those in the industry and the NRC are seemingly confident that nuclear science has the answers (a

faith based on self-dillusion and arrogance?) and must be pursued no matter what the costs. Alternatively using the economic resources devoted to nuclear reactors and weapons, by the United States, for only a few months, could solve the world hunger and literacy problems and fund world wide environmental restoration. Redirecting the human resources of the nuclear and war industries to the meeting of creation needs is essential, in my view.

Tritium, according to your glossary, is the heaviest isotope of hydrogen, being three times heavier. Tritium gas is used to multiply the explosive power of nuclear bombs, inspiring the term "hydrogen bomb." It is normally produced in **production reactors** at the Hanford or Savannah River sites, as is plutonium. According to a 1995 *FACING REALITY* publication on Nuclear Weapons "Cleanup", "tritium is highly radioactive and hundreds of thousands of curies of it were routinely released to the air and water around the Savannah River plant where it was manufactured, increasing the radiation exposure to citizens in a large region. Tritium production required the equivalent of at least one large reactor running full time for more than 30 years, generating many thousands of tons of EXTREMELY RADIOACTIVE WASTE." Continuing in another part of the report: "The government purchased between 40,000 and 120,000 tons of lithium concentrate and enriched most of it in order to extract about 400 to 1,500 tons of Lithium-6 metal, a relatively rare non-radioactive isotope used in tritium production and directly as a weapon ingredient. Lithium processing is said to have required most of the entire world's stockpile of mercury during the 1950's. According to DOE estimates, more than **1,000 tons of mercury**, a poisonous heavy metal, have been released into the environment **around Oak Ridge**, Tennessee. At many sites, toxic organic solvents were dumped onto or injected into the ground and have contaminated groundwater aquifers."

No one can justify further toxic impacts on this region! Enough is enough! Some examples of present and potential impacts are:

- dismantling a couple hundred nuclear warhead assemblies with uranium and lithium parts in Oak Ridge this year;
- hosting the only radioactive hazardous waste incinerator (which more than 50 employees have reason to believe is making them sick);
- finding 165 barrels of radioactive ash dumped in a landfill; no permits being obtained for hazardous waste transport in the state and wastes coming from more and more states;
- the lack of past and present health studies of workers, families and area people;
- an enormous residue of hazardous and radioactive waste accumulated or released into the surrounding environment over many years of a scope and complexity unmatched in the world;
- building new earth-penetrating bombs from old B-61's, preparing to work on MX missiles and reworking W-87 Trident warheads;

and the apparent reluctance of the DOE to accept responsibility to clean up what they have caused to be polluted.

There is no justification, in our view, for producing more tritium when the DOE stockpile will last until 2015 even without adhering to the next arms treaty with Russia.

Thank you for the opportunity to present our views.

Donald B. Clark

Donald B. Clark is a pharmacist, retired executive of Hoffmann-La Roche pharmaceutical company who now lives in Pleasant Hill in Cumberland County, TN. He co-convenes the United Church of Christ Network for Environmental & Economic Responsibility and chairs the Cumberland Countians for Peace & Justice.

Until recently, he was on the executive committees of New Jersey Citizen Action, New Jersey Environmental Federation, Partners for Environmental Quality, Cornucopia Network of N.J. and the Metropolitan Ecumenical Ministry of N.J. Each was involved with public utilities and most with energy. He represented the United Church of Christ in stockholder resolutions addressed to several utilities and has served on advisory committees to the N.J. Department of Environmental Protection and on the State Energy Plan, among others. He serves on the United Nations Environment Programme Environmental Sabbath Committee and the National Council of Churches Eco-Justice Working Group.

NCC SAYS NO TO NUCLEAR POWER

San Antonio.

✦ AFTER carrying a pro-nuclear policy statement on its record for 29 years, the National Council of Churches (NCC) has reversed itself and officially joined the antinuclear forces. The action came during the semiannual meeting of the NCC's Governing Board here at Travis Park United Methodist Church May 9-11. The board debated nuclear energy issues for three days before asserting that it favors a national energy policy "which does not need to utilize nuclear fission."

I

Relations between the NCC and the nuclear power industry have not been friendly for some time, but the only previous official position of the organization representing 32 Protestant and Orthodox communions has been a statement adopted in 1960 supporting peaceful uses of nuclear energy and urging private industry to launch an all-out development of nuclear fission as an energy source. Skeptics frequently say that church policy makes little difference in public debates, but the lobbying conducted prior to this meeting suggests that in this instance the nuclear power industry coveted a continuing relationship with the churches. Delegates were subjected to massive, sophisticated and obviously expensive efforts by the industry to forestall adoption of an antinuclear posture. Some delegates told of visits to their homes by nuclear supporters who lobbied this body as they might the U.S. Congress — but to no avail.

The Governing Board, completing a process begun in 1974, passed its policy statement 120-26, well above the needed two-thirds vote required to establish NCC policy. The national anxiety generated over the recent near-disaster at Three Mile Island had led some observers to predict that the delegates would demand immediate shutdown of all existing nuclear plants. This they did not do. The statement approved here drew essentially from the language debated at the board's last meeting in November 1978, several months before the Three Mile Island accident. Citing a moral responsibility to "work together as accountable stewards of the whole earth and as bold advocates for fairness in the human community," the board concluded that the problem of nuclear waste and the potential for human mechanical accidents were too great to justify the risk of continued nuclear-fission development. At a post-meeting press conference, Council President William Howard said he interpreted the board's action to mean that the NCC opposes further development or building of nuclear plants but does not favor shutdown of plants now in use.

The new policy statement also supports a ban, approved with little dissent, on the commercial use of plutonium — a reflection of how rapidly church opinion has moved since a March 1976 Governing Board meeting when an antiplutonium resolution passed only after heated and prolonged debate. In that discussion in Atlanta, the NCC appeared to go out of its way to say that in opposing plutonium — with its "eternal" nuclear waste problem and its potential as a weapons source — it did not mean to condemn nuclear fission as a power source. Now it does, and not with a resolution that merely expresses opinion but with a policy statement that will serve as a foundation for future council programs.

II

In introducing the statement Joel Thompson, a Church of the Brethren minister from Elgin, Illinois, established a moderate tone, observing that in opposing reliance on nuclear fission as an energy source, the National Council would not be advocating "that we close down Chicago tomorrow" — a reference to that city's heavy dependence on nuclear plants. This moderating tone probably helped the body to withstand a determined effort by Olof H. Scott, Jr., of Charleston, West Virginia, who offered a substitute proposal from the Antiochian Orthodox Church calling for "continued development of potential sources of energy that would be reliable, economical and environmentally acceptable." With backing that appeared to come largely from Episcopal, Lutheran and Orthodox delegates, Scott cautioned the board to avoid taking premature action on a subject about which there is such uncertainty. "Any rigid policy advocated today," he said, "would no doubt seem dated or irrelevant in only a few years." He also introduced the values of freedom and equity into the debate, adding them to the values of sustainability, fairness and participation cited in the original document.

Scott's argument on equity is reflective of the stance taken by the World Council of Churches, which perhaps for the first time in many years is on the opposite side from the NCC on a major social issue. The WCC, strongly influenced by Third World nations, maintains that the abandonment of nuclear power is not an option for underdeveloped nations. Scott puts it this way: "Because of the special advantages that the earlier-developing societies enjoyed as a result of less expensive energy sources available [to them], they should recognize their obli-

gation to minimize the economic impact to developing countries – and to less-privileged individuals in their own countries."

By adding equity to the argument, Scott and the Antiochian Orthodox Church forced the NCC to weigh the correction of the dangers of nuclear waste and potential radiation leaks against the danger of economic deprivation in much of the rest of the world. This sober reminder no doubt helped temper the final policy statement, but it did not deter the council from taking its stand against nuclear fission as a long-term energy source.

In its guidelines, the NCC document acknowledges that a "just energy policy" involves ethical "trade-offs." But if a particular technology poses a risk of "irreversible global damage," society should realize that "the greater the risk, the less moral justification there is for its use." Agreeing that human survival depends on energy, the statement urges distribution by a "standard that insures adequate food, health, housing and clean air and water for all." Its ecological justice guidelines make no reference to freedom, perhaps because equal distribution with limited fuel sources might require some sacrifice of freedom. And it is this sacrifice that Olof Scott sought to address when he asked that future energy policies respect "the precious individual freedoms that represent the dreams, the diversity and the dignity of all human beings." By reversing its 29-year-old pro-nuclear stance, however, the National Council has determined that the moral cost of nuclear power is simply too high a price to pay, regardless of other consequences.

III

In a second major action the Governing Board unanimously affirmed "as its own" a joint statement on disarmament adopted last month by church leaders from the United States and the Soviet Union. That document urges "the earliest possible approval of the SALT II accords." Entitled "Choose Life," the statement was supported by Protopresbyter Vitaly Borovoy, Russian Orthodox delegate to the World Council of Churches, who praised SALT II as a next step toward "real, complete, general and total disarmament." Borovoy, a familiar and popular figure in world ecumenical circles, received a standing ovation from the NCC board after he spoke in favor of the paper.

The unanimous vote for the disarmament accords came as a surprise since some "peace movement" churches, particularly the Church of the Brethren, have expressed reservations about supporting a treaty that does not reverse the arms race. One representative from the Brethren church told me later that while his denomination is still debating what posture to take on SALT II, delegates here felt that they could support the "Choose Life" document because it affirms a dialogue for peace between U.S. and Soviet church leaders. The title of the statement is drawn from Deuteronomy 30:19: "I call heaven and earth to witness against you this day, that I have set before you life and death, blessing and curse; therefore choose life, that you and your descendants may live."

While acknowledging that SALT II "does not provide for more substantial arms reductions," the paper adds that it "does provide a new and essential framework . . . for negotiating substantial and equal reductions." Further, the treaty, which must be approved by two-thirds of the U.S. Senate, would "open the way to decisive progress on other critical disarmament issues" that would enable the U.S. and the Soviet Union "to share more fully in the constructive works of peace in economic, technical and cultural affairs."

As it was taking a new policy stand on nuclear power and affirming its disarmament position, the board took its first look at a proposed policy statement on "The Injustice of the Criminal Justice System" and passed a resolution on "The Undocumented and Overstayed Person" which looks toward a future policy statement advocating amnesty for persons who have immigrated illegally into the U.S.

Position papers on such complex problems do not provide clear-cut solutions, but they do raise the consciousness of a society that still looks for the moral dimension in its decision-making process.

JAMES M. WALL.