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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON STATUS OF NRC TECHNICAL
TRAINING PROGRAM

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PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, September 14, 1989

The Commission met in open session, pursuant to notice, at 10:00 a.m., Kenneth M. Carr, Chairman, presiding.

COMMISSIONERS PRESENT:

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

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STAFF SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

JOE SCINTO, Deputy General Counsel

HUGH THOMPSON, Deputy Executive Director for Operations

EDWARD L. JORDAN, Director, AEOD

R. LEE SPESSARD, Director, DOA, AEOD

KENNETH A. RAGLIN, Director, TTC, DOA, AEOD

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

10:05 a.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

Today the staff will brief the Commission on the status of NRC technical training programs. Since enhancing the technical effectiveness and professional credibility of the staff, particularly our inspectors, remains one of our major goals, the Commission is particularly interested in the ongoing technical training process and any innovations being implemented to keep the staff up to date. In my experience, a valid and continuing training process is essential to maintaining a viable technical organization.

I understand copies of the briefing slides are available at the entrance to the meeting room.

Do any of my fellow Commissioners have any opening comments?

If not, Mr. Thompson, please proceed.

MR. THOMPSON: Thank you, Mr. Chairman, Mr. Commissioners. I'd like to certainly echo my support that we have for the importance of the training center and the training programs for NRC employees. I think it's even more important these days that the training centers and our training capability provide us with

the capable employees that we depend on for the key of our safety mission. The college programs today are having fewer graduates in the nuclear training program, which really emphasizes the need for a training program that covers not only the inspector program but also all of NRC.

It's certainly been my observation in the recent years to see the training program grow from one that was focused primarily to the inspection enforcement activities of the region, which remains a very important effort, but also to cover areas such as the operator licensing program that NRR would have a major responsibility for, at least when we initially started our request to expand that, as well as to the NMSS program.

So, today I'm just delighted to see the progress the training center has made in being able to support the mission of NRC overall. I think today's briefing will focus and highlight on that. In fact, I think Mr. Jordan will identify things even beyond that that the training activities do today.

So, the briefing will be done today by Mr. Jordan and Mr. Raglin, and Lee Spessard here who's also responsible for the activities here in headquarters are with us today. So, we'll be pleased

to respond to any questions after the briefing.

Ed?

MR. JORDAN: Okay. We last briefed the Commission in January of 1988 and at that time we described the scope, the quality and quantity of training that was being done, and we identified some initiatives that were underway, including -- we were in the process of procuring a B&W simulator at the time and we were in the process of developing a training and qualification program in conjunction with the program offices for all of the NRC technical staff, and we were going through some curriculum enhancements at the time. This is consistent with our mission to develop and provide technical training, manage contracts in support of that, manage the simulator facility and, in addition, provide technical assistance in various areas where the training center has special expertise. For instance, in the numbers of senior licensed personnel that worked at the center.

We feel that the organization and people are the most important element. There are a total of 28 positions at the training center. There is a vast experience and capability there in terms of their background. Nineteen of the people are from the Navy

Nuclear Program, 15 of them have SRO licenses, certifications, and 18 of them have prior commercial experience. Of course, that's an overlay of the same people having many of the same elements.

We feel also a strength is the coordination with the program offices. We have a training advisory group that the program offices have participated in to a very high level that provides advice to the center on our overall training programs. We have good feedback from that.

I'd like to talk briefly about the facilities, for those that have not been there, and we have a couple of slides that we can show to describe the facilities.

(Slide) Could I have the first slide, please?

There is a modern office building on the outskirts of Chattanooga, which is about five miles outside of the town. Motel facilities are adjacent, a pleasant, harmonious area.

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

The training center occupies three floors of that building and this is a photograph showing the installation of one of the simulators. This is a

black box General Electric simulator that was installed in 1986. I was just sort of struck by the difficulty of installing a simulator on a third floor of a modern office building.

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

This is a picture in the classroom. That is the simulator classroom, the black box boiling water reactor. This is a plant -- I'm sorry, a simulator that's close to the Clinton facility in terms of its design layout. It has many CRT displays, so it provides a good environment for the modern control room for our personnel.

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

The next is the SNUPPS Westinghouse simulator. This was installed in 1987. This is a view from the instructor's platform and it looks like a real casualty in process there. The panels are lit up very brightly, not normal operations.

(Slide) Next slide, please.

That's the most recent simulator, the third and last simulator that we have, WNP-1, B&W that was installed in 1988. The SPDS panels are being pointed to and this was during a briefing of the Soviet

inspectors that were here last month and one of the simulator engineers, Jim Griffin, is giving a description.

There are five classrooms at the facility, a number of training aids.

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

Just an illustration. A BWR jet pump and a control rod drive module and these are static displays but they're beneficial in communicating with the students.

I'd like to step on Ken just a little bit and talk about the training and qualification program.

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

Because that was a commitment we made during the last briefing that we were in the process of establishing a cooperative training qualification program for the program offices and we --

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

And what I wanted to point out is that the miles -- this is page 3 -- the milestones that were established for 1988 and 1989 have essentially all been met. The positions that were identified for

having the training and qualification program were identified, training needs have been established in a rather rigorous fashion, and those training needs between the offices have been integrated so that the training center can provide a reasonable level of efficiency in meeting those needs. And finally the requirements and the revised training programs have essentially been developed and we'll be then reviewing the effectiveness of this program.

The next area that we will look at will be reexamining the inspector training itself. We've been conducting, of course, the normal inspector training program and refreshers, but I think it's time to reexamine that overall program.

With that, I turn it over to Ken and let him carry through the rest of the material.

MR. RAGLIN: Thank you very much, Ed.

I'd just like to highlight some of the phases that were associated with that program for developing the headquarters training aids.

(Slide) Could I have slide 3 again, please?

The first part was associated with grouping positions and that involved job analysis in some cases and an intuitive approach in other cases and I'd just like to recognize a great deal of hard work on behalf

of the program offices and on behalf of the Office of Personnel, in particular in the job analysis process.

As we continued through the phases, group needs were identified and the groups we're talking about are groups of similar technical positions. For example, in NRR there are seven groups, including positions such as project managers, reviewers from different divisions, technical assistants.

The established requirements line on the chart there indicates the program office implementation through an office letter or whatever means of the actual training requirements and the two stars on the bar there indicate the implementation by NRR and NMSS. So, we're very pleased that this has happened because it greatly facilitates quantifying the real needs of the program offices.

I'd like to highlight the fact that the development of the revised programs actually got an early start. We were able to proceed on that almost immediately because from the beginning we had a pretty good idea of where NRR was headed in reactor technology courses and we were able to develop and implement the courses in 1988, and that process has continued with several presentations of courses specifically for the NRR staff through 1989.

(Slide) The next slide, please?

COMMISSIONER ROGERS: Excuse me. Before you do that, how many positions did you identify in numbers?

MR. RAGLIN: For NRR, it's seven large groups. For NMSS, it's 28 smaller groups, where each of those groups still has an accumulation of different positions, but similar positions. Then within AEOD there are maybe ten different technical groups.

COMMISSIONER ROGERS: And those are groups, those aren't individual positions though, is that right?

MR. RAGLIN: In some cases it might just be one position description, several people. In other cases it would be a grouping of two or three position descriptions that might include eight or ten people.

MR. THOMPSON: But I think, and correct me if I'm wrong, it covers say most of the technical inspection activities in the regions. So, all your technical inspectors would be covered, as well as most of your reviewers in NMSS and NRR headquarters. So I think most of the technical positions within NRR, NMSS and the regions and AEOD --

MR. RAGLIN: And AEOD, right.

MR. THOMPSON: -- are covered by this

program.

COMMISSIONER ROGERS: This just says headquarters though.

MR. RAGLIN: Right.

COMMISSIONER ROGERS: The headquarters part of it.

MR. JORDAN: We had already a regional training program and so we've continued to implement that.

MR. THOMPSON: But this was to broaden it to include the headquarters things. So, I think if you're trying -- what does it cover today, we cover just about all of our technical positions that we have there.

MR. RAGLIN: (Slide) Slide 4, please?

Feedback is an extremely important part of the training process and in support of the feedback, we do provide a dynamic schedule. We try to project out a year and a half in advance. In fact, the schedule for FY '90 and continuing about halfway into FY '91 is presently at the printers.

On the other hand, we realize that in order to meet the needs, the schedule will change, the priorities will shift. Certain courses will have to be added. Certain courses will not be able to be

supported because of one reason or another. It's a constant process of responding to changing needs. A couple of examples of these changing needs have been within the last year we were able to accommodate the training of about 25 contract operator license examiners, 15 in Westinghouse technology and ten in General Electric technology. That's a significant perturbation in the training process because these were people that were going through the full course series and it required some coordination, but it was accomplished.

Another example of shifting needs has been the use of simulator emergency operating procedure training as simulator refresher training. That was something that was suggested by the regions based on the needs today compared with the needs a year ago and so that's being implemented at this time.

Another example of the response to the needs has been the development and the shifting of some of the courses in direct support of the headquarters offices.

Another thing I'd like to particularly highlight is the training advisory group because I just can't overemphasize the importance of this particular group in providing feedback and direction

to where the technical training programs really should be headed.

It's an outstanding group whose typical representatives are division directors, the regions and the program offices are all represented on the group that meets twice a year at the training center and it allows us to maintain very close ties with both the regions and the program offices. It's resulted in a number of new initiatives and feedback which have changed some of the existing programs and these, in turn, have led to program revisions which are translated into changed training requirements such as in the NRC Inspection Manual Chapter 1245 for inspectors, the examiner standards for operator license examiners and office letters for the programs associated with headquarters offices.

(Slide) Next slide, please.

This chart gives an indication of the quantity of technical training that's been provided over the last few years. We use the term "course weeks" because that's something that can be correlated generally with the level of effort required to put on the course if it's something that the staff does, or with the amount of money that's required in order to contract for the course.

The chart shows an increase in course weeks both for reactor technology training and for specialized technical training. Specialized technical training is a name that we give a grouping of training. It's primarily non-reactor training, although not totally exclusive of that.

The big increase in reactor technology training actually occurred in the statistics for fiscal year 1988 and that was associated with bringing on line full course series in the B&W design and development and implementation of some courses for NRR.

The big change in the statistics for specialized technical training has occurred within the last year. There are 13 new specialized technical training courses that have been brought on line in the last year. The statistics are dominated by several presentations of examination techniques courses for operator license examiners which I'll speak to momentarily. Secondly, site access training and site access refresher training which has involved large numbers of the headquarters staff within the last year.

So, the overall statistics certainly support the idea that the quantity of training that is going

on has been increasing. We appear to be pretty stable in reactor technologies, so I would essentially project that line straight across. On specialized technical training, I believe we're probably at a peak right now because the statistics over the last year are higher because of all the site access and site access refresher training. I would expect it to go down a little bit and level off.

The distribution of training over this same period of time has shifted a little bit. For reactor technology courses going back to FY '86, there was an approximate distribution of 75 percent regional people attending and 25 percent headquarters. A comparison for FY '89 on the number of training opportunity slots, it's about 50/50 for reactor technology. For specialized technical training courses, we project the long-term distribution to be about 60 or 70 percent from the regions and about 40 or 30 percent from the headquarters offices.

(Slide) Next slide, please?

There have been some significant modifications to the reactor technology curriculum in support of the user needs and a few of these are highlighted on this slide. First of all, there's been a development in implementation of a full course

theories in Combustion Engineering technology. This gives us the full series in all four vendor designs and when I speak of a full series I'm speaking of a three week reactor technology course, followed by a two week advanced technology course, followed by a one week simulator course, all in the same technology.

Another major initiative has been the development of a cross training series in the B&W and CE technology areas. The idea here was to provide a mechanism by which technical personnel who are already formally qualified in one of the PWR vendor designs could qualify in a second one in a shorter period of time without sacrificing any of the quality. And so, what we've ended up with is a three/one series where it's a three week combined course picking up the best features of the first two courses and a simulator course. It allows qualification from a formal training standpoint in four weeks as opposed to six weeks and it maintains the same standards of level of detail and exam quality.

These full series courses and cross training courses are typically attended by the reactor inspectors, the operator license examiners, headquarters operations officers and some other miscellaneous troops.

Another big effort has been associated with the development of courses for the NRR staff. We called it a mini-series, just for lack of a better name. It's been developed and implemented for the Westinghouse and General Electric technologies and it's a two/one series for NRR, or two weeks followed by one week -- a two week classroom followed by a one week simulator course. And it's widely attended by NRR project managers and some other technical groups.

Finally in reactor technology area, there's been extensions of the full course series in support of additional needs for operator license examiners. So, one to two course weeks simulator time have been provided for operator license examiners. The first one is associated with more hands-on training doing normal evolutions, actions that they will be directly observing licensed candidates conducting during the exams.

The second extra week is associated with emergency operating procedures on the simulator. It's vendor specific, EOP training in that case.

(Slide) Next slide, please.

In addition to the expanded reactor technology training that's been provided on behalf of operator license examiners, a great deal of effort has

also taken place to provide examination techniques training. It's involved a great deal of work by the training center staff and NRR, in particular the operator licensing branch, over the last year and a half. The initial development and presentation of the courses was provided through contractors. Initially there were three courses, a written exam techniques, a simulator exam techniques and a walk-through exam techniques course. There were four rounds of these three courses given over about the last year or so. Relatively recently, we've shifted and brought the responsibilities in house such that the instructors for the examination techniques courses are the training center for one of the instructor positions and NRR from the operator licensing branch.

So, we feel this has been a good move. It gives a better perspective, a better NRC perspective for the training that we're trying to provide and we feel it's also given us better quality.

CHAIRMAN CARR: Who is the contractor? Do you remember?

MR. RAGLIN: We used the task order contracts that we had in place for reactor technology and RTS, Resource Technical Services, was the task order holder. Separately, they subcontracted to an

individual who has been involved with operator licensing as a contract examiner before and it was really a combination.

CHAIRMAN CARR: Okay.

MR. RAGLIN: The courses have now been consolidated into two courses that will be presented on a continuing basis by the NRC staff. One of them is the written exam techniques course and the other is an operating exam techniques course which incorporates both the simulator and the walk-through portions.

(Slide) Next slide, please.

Another major area of emphasis over the last couple of years has been associated with health physics training, both in the reactor area and the nuclear materials fuel cycle area. There have been training development workshops in November of '88 for the reactor HP community. That got us started on the right foot. There's been a great deal of coordination with NMSS and the regional materials personnel in establishing new manual chapter requirements for materials inspectors.

I was personally involved in the state cost sharing task force that recently issued NUREG 1356. As part of that, I got to take a good look at the programs that were in place and planned for the

training of agreement state personnel. As a result of the work with the different groups of people, we've been able to consolidate our position a bit and make more efficient use of the resources.

One of the breakthroughs has been the actual structure of the curriculum for the reactor HPs, the materials HPs, the fuel cycle HPs and, in all probability, the agreement state personnel. By the curriculum structure, I'm speaking of instead of having all courses front loaded such that you have to do everything before you're able to be certified as a qualified inspector, there's now a grouping where one batch of them is required for certification. And at that point in time, assuming the individual has completed all of the other activities, he can be certified for independent inspections.

There's another grouping that still required training, but it's not required right away. It's required over a period of time, maybe two years. And then there's a third grouping that's supplemental training for specialization, the idea there being that not all HP inspectors need this specialization in this particular area or that one.

Another breakthrough I feel we've made in the HP area has been the concept of having certain

courses that can be attended by both reactor and materials personnel. There are some examples of that where it's a stand alone course and it's the same all the way through.

There are other examples where it's a course that has certain modules which are core modules attended by all people in the class and other modules split out into breakout sessions where the materials people go into one room and get a specific module at the same time the reactor people go into another room and get something different.

We look forward to common courses that would involve both NRC staff and agreement state personnel as well. This has to increase the flexibility for the managers that are trying to schedule the courses in, schedule the people into the courses. It typically allows an opportunity to attend maybe one of three different presentations of the course during a given year rather than being specifically limited on this one particular week that a course might only be given once in a year.

So, we feel there's been a lot of progress in the consolidation of the health physics area.

(Slide) Next slide, please.

A number of courses associated with the

health physics curriculum have been provided during the last year. This particular slide shows some of other HP courses which will be made available during the next year. The way they're grouped on the slide is chronologically. I'd like to highlight the second one, the HP technology course. That's a course that we consider to be the cornerstone of the curriculum for the reactor and materials health physicist. It includes basic coverage of exposure, instruments surveys, ALARA findings and applications. This is an example of one of those courses which would be attended by reactor and materials personnel and it would have breakout sessions.

The one above it, teletherapy and brachytherapy is an example of a course which is specific to the materials area and, of course, is not appropriate for the reactor people.

The third one on the list, whole body counting/internal dosimetry is an example of a course which is appropriate and included in the curriculum for both reactor and materials personnel. There's no change in that class. I mean there's no breakout session in that class.

The last two, reactor radwaste course and an advanced health physics course, are courses that are

required for reactor health physicists and not appropriate for the materials or fuel cycle personnel.

(Slide) Next slide, please.

In addition to the courses associated with the health physics curriculum, a number of other specialized technical training courses have been provided. Some of these are highlighted on this slide. I'd like to mention non-power reactor technology. That's one that's come to pass in the last year, in fact within the last quarter. It involves non-power reactor design types and systems of these reactors, reactor physics as specifically related to the fuel, non-power reactor licensing, technical specifications, inspections. Another one, cold chemistry course that was given within the last year. This dealt with analytical techniques, analysis, technical specifications, et cetera.

One area that's consumed quite a bit of our time over the past year is associated with site access training and site access refresher training. Right now, both of these are given in stand-up classroom environment. I'd like to highlight our plans for site access refresher training for the future. The refresher training is something that all personnel needing unrestricted access to the different

facilities need to be refreshed on every year. That's a fairly massive effort. So, our long-range solution for this involves the use of computer based training for the site access refresher training. We project that will be available here in headquarters in the learning center managed by the Office of Personnel starting in FY '90 and continuing and it will also be available in the regions.

One more thing I'd like to highlight is a new initiative on safeguards training. This represents, in essence, a program shift somewhat from NMSS to the training center. It's associated with physical security performance testing workshops that previously were funded by NMSS and developed by Sandia National Lab. Recently there was a safeguards training development workshop at the training center and there will be some revision to the program for the safeguards inspectors. There's going to be a consolidation of the courses previously given by Sandia into a new two week safeguards technology course.

I just highlight this one because we're really just scratching the surface from a training center standpoint in the safeguards area, but the surface is now scratched.

(Slide) Okay. Next slide, please.

Over the last year there have been a number of special requests for previously unscheduled training. Some of these are highlighted on this particular slide. Some training for the government of Mexico and its regulatory agency. There was a two week reactor technology course given in Mexico last October. That's the fourth such course that's been given in Mexico since 1977.

As an aside, there have been a number of courses given in foreign countries over the years, maybe ten or 11 different ones.

As a follow-up to that course, we'll be providing some simulator training for some of the Mexican individuals who were involved in the previous course and there's a simulator course on the General Electric simulator at the training center in October.

We've been able to provide a couple of reactor technology courses for the State of Illinois personnel. We were just able to work those in on short weeks, weeks that had holidays where we typically don't have courses scheduled for the NRC staff. We were able to accommodate that and they were able to accommodate it by having their people work on a holiday. So, that worked out pretty well.

There have been two national news media seminars given at the training center over the last year and I would distinguish these a little bit from the previous maybe 30 or so news media seminars that have been given in the past. These are different in that they were a little longer, they were given at the training center, they involved some demonstrations on the simulators at the training center and they also involved a question and answer session associated with some health physics issues.

COMMISSIONER ROBERTS: What was the attendance at those?

MR. RAGLIN: It was maybe 10 or 12 people scattered from around the country. There were newspaper reporters. The last one we had a couple of people from *The Washington Post*. We had one from *Nucleonics Week*. We typically have newspaper or TV personnel. One of the last two we had three or four people from the State of Florida, and it's media personnel.

CHAIRMAN CARR: How long do they last?

MR. RAGLIN: It was a day and a half.

There's a similar session that's planned for October, reactor concepts training for congressional staffers. It will be similar to the national news

media seminars except that it will be totally focused on reactor technology and there's no question and answer session in health physics that's planned for that one.

CHAIRMAN CARR: Do you do anything for schools, service clubs, boy scout troops, that kind of stuff?

MR. RAGLIN: Actually we've never been requested to do anything like that. We've given some tours on occasion, but that's something that could be accommodated relatively easily if asked.

(Slide) Next slide, please.

Another significant area of interest over the last year and for the foreseeable future is associated with severe accident considerations. A course has been developed in support of the emergency response function. The course has been a collaborative staff effort in developing and presenting. The pilot version was given in May of this year. It's one that's designed for reactor safety team members, protective measure team members. It could be given to the executive team if that was considered desireable.

The course content includes accident instrumentation and emergency operating procedures,

which is part of it, and then a large part of it is associated with severe accident phenomenology, core melt sequences and consequences, some sample calculations and some severe accident insights. This collaborative effort has involved AEOD as the program office from the Incident Response Branch outlook. The direct instruction has been provided by training center and, in particular, research personnel. The feedback function is coming from NRR on that one.

The plans for the future are to give a second headquarters presentation and then once the content is well established and stable, the plans are to provide one of these seminars in each of the regions during the next fiscal year.

(Slide) Next slide, please.

A big initiative for the next couple of years will be associated with expanding risk based perspectives within our existing, well established training curriculum. Recent events such as the one at the Bilbus Plant and Agency concerns about certain high risk events and precursors to these high risk scenarios have caused us to take a look at what we're doing within the reactor technology training program. After we've looked, we've concluded that we really need to build in an additional culture at the training

center.

We have a very strong culture right now from an operational perspective. What we plan to do over the next year and a half is continue that, but also build in a risk based culture. The goal is to increase the staff awareness of risk dominant sequences, major risk contributors and the staff here -- I'm first talking about the training center staff and then I'm secondly talking about the NRC staff as a whole and in particular those who attend technical training center programs.

The concept here is not to create a special risk course. It's to factor in these perspectives into the existing programs. This likewise is a collaborative staff effort that will be heavily involving AEOD, NRR and Research. It will result in some specific training to all members on the training center staff, a couple of courses in the PRA technology transfer curriculum, and it will result in integration into the existing courses, integration all the way into the lesson plans, the course manuals and routine or special presentations as appropriate. So that's one of the things that we intend to do over the next couple of years.

(Slide) Next slide, please.

Simulator training is provided in all four reactor vendor designs. As noted earlier, there are three full scope simulators at the training center, one modeling GE, one modeling Westinghouse and one modeling B&W. In addition to those, we presently obtain CE simulator time through a contract with Combustion Engineering and the use of the facility at Windsor, Connecticut.

This graph shows the usage of NRC simulator training time over a ten year period starting in FY '85 and projecting out to FY '94. That's the graph that is represented by the black rectangles for each of the data points. The other graph is associated with cost per hour for the simulator training based on the actual costs and the actual hours. That is highlighted by the triangles there.

There are some inflection points on these curves that I would like to point out, starting with the graph that's showing simulator hours. If we go back to fiscal year 1985, all of the simulator training that we were providing was achieved by procuring the time and paying by the hour on a number of different simulators. It's increased and there's a down dip in fiscal year '87 and the reason for that is that Westinghouse simulator time was generally not too

available during that time period.

We were previously using the TVA Sequoyah simulator for Westinghouse simulator training and TVA requirements essentially shut us out of simulator training time on that particular machine. Also, this was the year in which the procurement for the Westinghouse SNUPPS simulator was taking place and as a result we were only able to provide a little over 600 simulator hours in Westinghouse technology in FY '87. So that's why that particular data point is as low as it is.

As we continue on, FY '88, '89 and '90, we believe that we will reach a stable, steady state simulator hour usage of about 4200 hours. That's about 1500 hours on the GE simulator, 1500 on Westinghouse, 600 on the Babcock & Wilcox simulator and about 600 hours of Combustion Engineering simulator training. Those numbers support the number of full course series and cross training series, NRR mini-series and all of the other training that we believe we'll be providing for years to come.

CHAIRMAN CARR: And how many training hours in a year do you usually work with?

MR. RAGLIN: For the simulators or --

CHAIRMAN CARR: Well, yes, whatever you

call -- what's a year's worth of training hours? I guess I'm trying to figure out how much time these things are idle.

MR. RAGLIN: Oh, okay. From that standpoint, the Westinghouse simulator is busy on day shift almost all of the time. The GE simulator is about the same. On most weeks, we have swing shift available, although several times throughout the year we'll have a day shift and a swing shift class on the same simulator. We presently do no training on night shift.

So, there is a substantial amount of simulator time that's available particularly on the swing shift. On the other hand, all of the simulator time involves the use of staff and that's really where we're more limited than the availability of the time.

The graph of the cost per hours shows an increase from FY '85 to '86.

(Slide) Could I have the slide, please?

That increase reflects the start-up costs for the General Electric simulator, relocating it to the training center, building modifications, et cetera. Those start-up costs were $329,000.00. So that's why there's a relatively high number there.

For FY '87, it's still relatively high

because it reflects the start-up costs for the Westinghouse simulator project and that was $325,000.00 and it also reflects a relatively low number of Westinghouse simulator hours.

For FY '88, it reflects the start-up costs for the B&W simulator and those were $299,000.00. And then it heads down. The apparent anomaly for FY '90 is associated with the fact that we are upgrading the capabilities of the NRC simulators and so these upgrade costs are reflected in the computations here and that's why FY '90 is higher than FY '89 and then it goes down to a relatively low number. So, if we look at the out years, the cost per hour gets down to around $200.00 or even less, $200.00 per hour. This compares extremely favorably with the present $700.00 per hour that we're paying for Combustion Engineering simulator time.

It's also worth noting that we have a stable solution for General Electric, Westinghouse and Babcock & Wilcox. We do not have for Combustion Engineering. The solution that we had before is disappearing and we believe that Combustion Engineering will be shutting down that facility in the near future. So, we're presently exploring alternatives for a long-term combustion engineering

simulator solution.

CHAIRMAN CARR: What are they going to do with it?

MR. RAGLIN: I think they'll just shut it down and use the space for something else because their paying customers have gone away. Everybody has site specific simulators and the need will go away.

CHAIRMAN CARR: So, you might get it on the cheek?

MR. RAGLIN: Possibly.

COMMISSIONER ROGERS: Offer them space for it.

MR. RAGLIN: (Slide) Next slide, please.

A comprehensive plan to upgrade the capabilities of the NRC controlled simulators is in progress at this time. The upgrade will be accomplished within the existing budget and at substantially less cost than commercial rates. It's associated with both the hardware and a software upgrade to the simulators. It's necessary to upgrade the hardware, and when I speak hardware I'm talking the computer hardware that runs it, in order to support better thermal hydraulic modeling which is necessary.

The simulator computer procurement has been

completed. The delivery of the first upgraded computer should take place yet this month. The software improvements include redesign of the instructor stations, adding input/output override, which allows failing any individual meter or indicator. Something that's extremely important when we're training examiners, not quite as important when we're training inspectors.

Finally, the upgrade includes the addition of a high fidelity thermal hydraulic model. This is possible through the use of the in-house expertise, and when I speak of the expertise I'm talking about two simulator engineers in Chattanooga on the training center staff, as well as Doctor Stan Fabic on the AEOD staff. This combination of people gives us a unique opportunity to carry out the upgrade at relatively low cost in comparison to what utilities are paying for commercial upgrades.

We're projecting that when done, these simulators will then have state-of-the-art capabilities, advanced simulation capabilities, the ability to run extended scenarios, ability to do multiple failures. It will allow us to do several things that presently we can't do. We project that this is a project that will be completed over the next

two to three years.

(Slide) Next slide, please.

In addition to the technology improvements associated with the simulators, a number of other high technology enhancements are either in place or are being actively pursued at this time. These two will be accomplished within the existing budget. Some of the major examples are highlighted on this particular slide. A computerized examination bank system is something that we obtained more than a year ago and is in operation right now.

Over the last year we've added some audiovisual editing equipment at the training center. That gives us local video tape production capability for small scope projects. Case in point, we're producing a video tape that will be used by the regions as part of the site access training. It's not something that we're into on a large scale, but we do have some capability in this area.

Another example is laser videodisc plant tours. There are some systems that we've watched evolve over the last two to three years and the evolution has reached a point where it's extremely attractive to us now. These laser videodisc systems involve a disk which typically contains about 54,000

color slides of components and locations for some particular plant. These slides were actually shot at that plant. Our plans are to have this capability in the classroom and to have multiple disks so that we can show plants of different BWR product lines and maybe two or three examples for each of the reactor technology areas. So there's a procurement effort on this line already in progress.

Another major addition for the future will be classroom engineering simulaticns. This will take a great advantage of work that's been done by Doctor Fabic on the AEOD staff in the development of analysis work stations. We're extending it from analysis to training purposes and what we project is that in the classroom we will have this engineering simulation capability running the high fidelity thermal hydraulic code, essentially the same code as will be added to the NRC controlled simulators.

We'll have an ability to show certain things in the classroom that you just can't see on the simulators because the parameters either are not computed or they're not displayed. It should allow great enhancement to the transient analysis that's done in our advanced technology course for each of the technologies as well as some specific examples such as

BWR instability, for example. We can show that on one of these engineering simulations.

The displays from the videodisc and from the engineering simulations will be projected in the classroom on projection TVs which will typically fill up an image size maybe eight by eight feet. What we're trying to do there is make sure the people in the back of the room can always see the displays and see what's going on.

Okay. This concludes the major items that I wanted to describe. I'd like to turn it back over the Ed Jordan.

MR. JORDAN: (Slide) Okay. I'd like to have the next slide, please, and just discuss briefly the other uses of the TTC expertise.

Individuals from the staff participate in diagnostic evaluations. In fact, each of the diagnostics to date has had a reactor engineer participating, participate in other NRC team inspections such as recent work at Pilgrim and South Texas. Performing technical consulting for, for instance, the CRGR or the ERDS Project within AEOD. Incident response support, the training center provides and the personnel provides support in exercises and we expect to have one of the ERDS

stations available from the training center back to the operation center for use during drills. So we'll be able to drive an ERDS station back here from the training center. So, it will be a big benefit for exercises in the future.

We've participated in human factors research projects with the Office of Research in team skills and behavior using the equipment and using personnel from the center itself. And so there is a resource there that has a --

CHAIRMAN CARR: How much use have those civilian human factors research people made of the simulators when we offered them to them? Have they used them?

MR. JORDAN: Outside of NRC --

CHAIRMAN CARR: Remember they came in and said, "One of our problems is we can't ever get on a simulator," and we said, "Try us."

MR. JORDAN: I'll let Ken answer that.

MR. RAGLIN: We've had no formal requests other than those through the Office of Research. There were two projects that involved research and research contractors that were completed last year and there's another one on enunciator research that will be completed sometime between now and May of the next

year. But we've had no university requests or anything like that.

MR. JORDAN: (Slide) Last slide, please.

In summary, I think I would sort of trace the maturation process of the training center. We really started the training center years ago as more or less an operator training program using utility operator training techniques and procedures. It evolved to being an inspector training program. Now a technical staff training and I think becoming even more advanced in terms of the culture change that Ken described toward severe accident and emphasizing the risk perspectives. So, it continues to grow and I think prosper.

These are, in my view, extraordinary contributions from a staff of 28. We feel that the center has been very responsive to needs of the Agency, particularly now in the health physics and materials and waste areas. But the using of our in-house expertise in upgrading the simulators is a substantial cost savings for the Agency that will in fact provide a very high quality engineering simulator within a very limited budget and, in fact, will also provide expertise for the Agency that we didn't have.

High technology enhancements, we're

continually looking for ways to improve the effectiveness and efficiency of training. We're looking for training aids that are beneficial for our staff to use as well as different techniques.

So, I'm very pleased with the progress that the training center has made and I appreciate your interest in hearing the story.

MR. THOMPSON: That concludes our briefing, Mr. Chairman and Commissioners. If you have any questions, we'd be delighted to respond to them.

CHAIRMAN CARR: Commissioner Rogers?

COMMISSIONER ROGERS: I've got some questions, but before I ask them I just want to say that I think your presentation today was absolutely superb and what you're doing is really exciting. I started making a little list of things that I wanted to compliment you on and I stopped making the list because it was getting too long.

So, I'll ask you some questions, but it's really just for my own information. I want to just simply say that there's no doubt in my mind that what you've done here is really outstanding and it's just a -- I did visit the center almost a year ago, I guess, and was very impressed with what I saw there. There's been obviously a lot of progress since then.

So, I think we're getting a lot of mileage for our money in this center. It's really a fine effort.

Just a few questions though, if I could, to get a little more information. You mentioned early on that there are people at the technical training center who have had corporate experience and some that don't have corporate experience. Some come from the Navy and haven't had any corporate experience, some have come from the private sector. How are you getting a cross fertilization of experience among these people?

One of the comments that I hear frequently in the field in talking to people at nuclear power plants is that they think in general our people are very highly qualified technically but they haven't had much corporate experience or much operating experience. And we know that that's always a difficulty for us to fill that need.

Do you have any ways in which you're trying to somehow or other share the perspective of a person who has had operating and corporate experience with those who have come without it?

MR. RAGLIN: Are you talking about sharing that with members on our staff?

COMMISSIONER ROGERS: Yes. No, no, within your own staff, within your own team.

MR. RAGLIN: Okay. Well, included in this headquarters training program development, we're part of that and there is an instructor qualification program. We have a rigorous program that brings any new instructor up to speed. We do have a mixture on the staff where several of the people are former senior reactor operator license -- or former SROs and we have some other people who haven't had that experience.

We spend a great deal of time in instructor training on the simulators. Over the last couple of years, we've gotten all of the staff out in the field on a lot of different activities. For example, we've supported every diagnostic evaluation that's taken place. We've had a number of these team inspections in addition to some of the things that aren't-- weren't listed on the slides there. We've had trips to individual facilities by a number of our people. But we make a very conscientious effort to try to have the same result from each course, independent of who the actual instructors are. There's no substitute for having been an SRO on shift for several years, but we try to compensate for it as best we can.

Going the other way, we do have some people who are non-degreed and who are working on the

completion of the degree. So, the way we're approaching it is trying to even out the staff all the way around.

COMMISSIONER ROGERS: Well, sometimes informal mechanisms work as well or better than a more formal approach to trying to -- you know, a course or something like that. I don't have anything specific to suggest, but it does seem to me that somehow or some way of informally talking about different perspectives as they relate to the training programs, from past experience, can be a -- it may be sort of telling war stories, but they really do help in giving some insights that don't -- you never really want to write down in a course outline or something.

MR. RAGLIN: I think that we do that to some degree in the qualification program because one of the components of that is for each qualifying instructor to get a system check out from certain people for every system that's covered there. Those are very detailed system checkouts, not unlike those in the Navy qualification program. A great deal of material is covered in the --

MR. THOMPSON: But I think cross fertilization will be a key, is an important area that we can look at in a little bit more detail since the

key staff is small and I think that's a good point.

Lee, did you have something?

MR. SPESSARD: Yes. I just wanted to add that in addition to everything he mentioned, we've had a lot of turnover in our staff. We push that. We've brought in senior resident inspectors to the training center. In fact, we have an individual that's leaving momentarily to go to the Waterford plant. So, we're sending them out and we're bringing them in in addition to --

CHAIRMAN CARR: Turnover inside NRC or what's the loss rate, I guess?

MR. RAGLIN: The last few people who have left the training center have gone to other positions within the Agency.

MR. SPESSARD: All within the Agency.

CHAIRMAN CARR: Okay. And how about are you able to hire industry retired operators? They're starting to retire out there these days. Are you looking at that opportunity?

MR. SPESSARD: We're always looking.

CHAIRMAN CARR: Advertising for --

MR. SPESSARD: Well, every vacancy that I have, we are actively recruiting.

CHAIRMAN CARR: Okay.

MR. SPESSARD: My name is mud in the regional offices, I can tell you that.

MR. THOMPSON: I'm not aware of any recent retired SROs that have applied, but obviously the training center would be high on the list of opportunities for them.

COMMISSIONER ROGERS: They may not be thinking of it though.

MR. THOMPSON: That's true.

CHAIRMAN CARR: That's why I keep advertising that when I visit.

COMMISSIONER ROGERS: I think that's a great thing to do. I hadn't thought to do that, but I've heard of people --

CHAIRMAN CARR: I tell them we're looking for them down there and we're also looking for them on our inspection teams.

MR. SPESSARD: We just worked out a three person deal within our Agency where a resident inspector from Region IV is coming to the training center and we're sending an instructor there. We've sent an instructor over to Sequoyah and we have examiners coming to the center. So --

CHAIRMAN CARR: I would imagine some of our residents will be looking for places to go other than

headquarters as we start moving them around.

MR. RAGLIN: That's a distinct possibility.

COMMISSIONER ROGERS: Could you say a little bit about what the site access training involves? What really is involved in that course?

MR. RAGLIN: It's what the utilities typically call nuclear general employee training. It's the part of the training which is not site specific such that when the individuals go on site all they need to do is get to site specific stuff in order to get unrestricted access. It includes dressing out in NIC clothing. It includes the standard type of briefings that would be given by the licensees at their facility if our people needed to get the same thing there.

COMMISSIONER ROGERS: Okay. Do you have any special training or have you thought about offering any special training for inspectors of fuel fabrication facilities?

MR. RAGLIN: There's an effort along those lines that's planned. It may be within the next fiscal year and I'm no sure when it's going to end up. But that's one of the areas that was identified by certain NMSS technical groups as a part of this phased plan and, yes, it's on the drawing board.

COMMISSIONER ROGERS: Well, I've picked up some indications in just my travels around that that's an area that we maybe should be paying more attention to, particularly with respect to questions such as approaching criticality, that a lot of misconceptions on the part of some of the licensees themselves, or there have been in the past, as to what is safe-- what are safe distances and so on and so forth and not -- and being approached from a rather unsophisticated point of view that actually have come rather close to creating a critical situation when they thought they were making it less than critical.

In other words, greater distance isn't necessarily moving you away from criticality. It may be moving you to criticality under certain conditions.

It just seems to me that maybe there's some issues there that we're not -- we haven't been quite enough alert to and trying to include some training on these things from an engineering point of view. I'm not thinking so much from the point of view of health physics, although that would obviously be an important part of it. But maybe from the standpoint of reactor engineering.

MR. RAGLIN: Yes.

COMMISSIONER ROGERS: And I would hope that

if we do have a program that it would at least have some part addressed to questions of geometry and criticality.

MR. RAGLIN: Criticality was an area that was identified also in the NMSS plan and we have a couple of leads on some criticality courses. In all probability, based on the relatively small numbers of people, these would be arranged through slots to an existing course. But we have a couple of hot leads in that area.

MR. THOMPSON: Maybe Mr. Glen Sjoblom, who is responsible for part of that area in NMSS, can address the point. He is also, I believe, on the --

MR. SJOBLOM: Criticality safety is an extremely important, though somewhat unique, area and we and the industry as well have a problem with having fully qualified people. We do have an existing training program that is available through two different lengths of courses at the University of Mexico and, in fact, some of the NRC senior criticality safety people participate in the teaching of that course. Two people in NMSS participate in that.

We have been -- at one of the recent workshops we had with the fuel facility licensees in

May of this year, we in fact had an item on the agenda there. And as a result of talking this issue up, the University of Tennessee has established a sub-element in their nuclear engineering program like a major in criticality safety. They intend to run five or six people through that. It is an extremely important subject. We do not ever want to have another inadvertent criticality accident in our program.

And so, we are not currently working really directly with TTC on that because there is this available course, but as Ken mentioned, that's something that is for the future.

COMMISSIONER ROGERS: I hope I'm not taking too much time, but I've got a little list of things here that I'd like to hear about. The other is non-power reactor technology. How many times has that course been given and who attended it?

MR. RAGLIN: It's just been given this one time.

COMMISSIONER ROGERS: Given once. How many people and who were they?

MR. RAGLIN: Mostly -- well, there's a distribution. It was mostly regional people and some from headquarters. I think the class had 15 to 18 people in it. It was given within the last quarter.

The primary presentations were given by INEL and Les Constable of the Region IV staff gave NRC perspectives on one day during the course, most of that day. It's something that's established now and so would logically be presented on a regular basis perhaps once a year.

COMMISSIONER ROGERS: And just one more comment and then I'll back away because I want to give other people a chance.

It does seem to me that your risk based perspective is a very important initiative. That's really important to try to weave that into our program. It certainly is much more the approach that we're all taking on looking at nuclear issues. I think to try to put that in as a component of all of your courses is really very, very important and I think it's a marvelous initiative.

Okay. Thank you.

CHAIRMAN CARR: Commissioner Curtiss?

COMMISSIONER CURTISS: I just have one question. In the area of maintenance, are we doing anything to provide specialized training in that area and in particular now as we've got the maintenance team inspections out on the road and participants, different teams and different individuals and perhaps

with different interpretations of the way the TI operates, what to look for and how to look for it? Is there anything that we're doing or ought to do in that area to ensure that what we get back from the team inspections now over the next several months will, in fact, be based upon a uniform interpretation of what we're looking for?

MR. RAGLIN: We are doing certain things that relate to maintenance. I don't know that I could closely align these with the maintenance team inspections yet. For example, we do offer motorized valve operator training. We do offer emergency diesel generator training. In the last meeting of the training advisory group, there was some discussion there by the NRR representative about some upcoming training in the electrical area in support of the maintenance team inspections. We haven't gotten to the point of quantifying those needs and proceeding with them. Those are some examples.

We don't have any hard needs -- from the training center perspective, we don't have any hard needs that have been identified other than the ones that are being provided right now. It's something we see as coming. It's still a little fuzzy to us right now.

COMMISSIONER CURTISS: But the sense is at this point it's just a preliminary sense that as you look at the team inspections that are coming in, it may be comparable to what we saw in the early days of the SALP reports where the results and the approach and what you're looking for and how you're looking for it may depend more on the personality and makeup of the team with the consequent result that it's difficult to compare team inspections from region to region and from team to team. I wonder if it might not make sense to take a look at what can be done there.

MR. THOMPSON: Yes. We'll take a look at get back to the Commission just kind of outlining the training and the programs that we plan to have in place for those teams that go out.

COMMISSIONER CURTISS: That's all I have.

CHAIRMAN CARR: On the time that you spend doing inspections for other people as part of inspection teams, do they reimburse you for your time? How do you account for that in your budgeting because I gather that's kind of random?

MR. RAGLIN: Within the budget process we've developed a model that can predict how many course weeks of training we can provide with a given size

staff and it make certain assumptions. Included in those assumptions are the time that is associated with the various inspections.

I will have to admit, however, that the time that we have in fact devoted to the diagnostic evaluation teams has greatly exceeded what we had assumed in the labor area.

CHAIRMAN CARR: So you can update your model.

MR. RAGLIN: A little bit.

MR. JORDAN: I think I'd make a comment about that. There is clearly a positive side to that, to having the instructors out in an environment with inspectors --

CHAIRMAN CARR: If you have to pay him, you're going to turn around and charge him for educating him on your trips.

MR. JORDAN: It's sort of like you pay them now and pay them later. Within our program office, we believe it fits and is beneficial.

CHAIRMAN CARR: Okay. Well, we ought to have some consistent way of figuring out how much of this we're going to spend because we've got to get it into the real budget. You know?

MR. JORDAN: And I think maybe the point

should be made that we're getting training support from the other offices. For instance, severe accident training, the Office of Research is actually putting on part of the course presentation. So there is a reasonable interchange and the NMSS also provides some training. So, we feel that there's a reasonable exchange there that probably comes out pretty close.

CHAIRMAN CARR: Well, as we keep adding all that training in there though, we can't keep taking it out of hides. Sooner or later we've got to account for it and budget for it and make sure that we do that.

MR. JORDAN: Yes, sir.

CHAIRMAN CARR: How about when we train Illinois and Mexico, who pays for that?

MR. JORDAN: We do.

MR. RAGLIN: The travel is paid by the host country or, in this case, the State of Illinois. We were just able to accommodate both of those cases.

CHAIRMAN CARR: You provide the people --

MR. RAGLIN: Yes.

CHAIRMAN CARR: -- and the training.

MR. THOMPSON: I think that probably was addressed in the report about typically they'll have spaces available and we'll accommodate them to the

extent that we can.

CHAIRMAN CARR: Right. Yes, it's not a question of when they send them down there, it's a question of when you're going. You travel to Mexico, I assume.

MR. THOMPSON: Right.

MR. RAGLIN: They pay the travel.

CHAIRMAN CARR: When you briefed us back in, I guess it was early or last fall and you sent us a memo then later on in October on materials training. You said there were a lot of courses set up but there were still four going to be set up at the technical training center. Is that the ones you're talking about for materials inspection that are going to be set up there, four more courses?

MR. RAGLIN: It's probably more than four, more now. We know a lot more about where we need to be in the materials curriculum than we did when we last briefed in January of '88. So, what we were referring to is definitely now incorporated into what we're planning now. But there's some new things that have also been added.

CHAIRMAN CARR: I guess my curiosity is we've got qualified inspectors. Are we requiring those inspectors to take these additional courses that

might not have been around when they qualified, to keep their qualification up to date or current or whatever?

MR. THOMPSON: Let me ask Glen Sjoblom, who's been working directly with the regions on establishing the basic qualifications to respond to that question.

Glen?

MR. SJOBLOM: Let me give an example of a course that would be in a category like you're talking about, the irradiators. We have underway in TTC some development of a contracted for course to teach people about the large pool type irradiators. That is going to be a subcontracted course. So that's one example. A course where we've had --

CHAIRMAN CARR: Well, it's not the course I'm as much interested in as what are we going to require the inspectors to attend?

MR. SJOBLOM: We definitely would -- for those who haven't had a sufficient basis for believing they have a good understanding of that technology, we would require them to take that course. It is not going to be necessarily a hard and fast rule because some people could have a come on knowledge of that technology through years of their experience. But the

intent is, yes, as we add new courses, we would require those people needing that to go back and take those courses.

MR. THOMPSON: But generally, I suppose, the section leader and the branch chiefs in the regions or headquarters would evaluate the individual's training need. Typically we do it on an annual basis and say, "Hey, this course is now available. It wasn't available previously. We have a need for you to make sure you have your background in that area." So I think that's the way it would be.

CHAIRMAN CARR: Okay.

MR. JORDAN: And maybe I could make a point there that I think in the past 18 months we've changed from responding to individual's training desires and changed to accommodating the Agency's training needs.

CHAIRMAN CARR: That's what I'm looking for.

MR. JORDAN: This being a substantial difference, yes.

CHAIRMAN CARR: The other thing is are we able to accommodate all the people that we need to be trained, or are we -- I guess, are we training hours limited or are we budget limited?

MR. RAGLIN: I feel comfortable that we're essentially meeting the need. There were some

adjustments made about a year and a half ago, particularly in the reactor technology area. We had what appeared to be a peak coming and we adjusted the class size for the full course series classroom courses from 18 to 24 on a trial basis. I'm pleased to report that our evaluation was that it didn't deteriorate the course and we were able to continue that.

So what we expect for those courses is that normally we'll have 18 people, and we typically do, but we allow up to 24. And so by making that one shift, we're able to accommodate some peaks and valleys in the program. Many of the courses will be oversubscribed and people will have to wait until the next presentation of the course. But looking on a yearly basis, I'm comfortable that we're presently meeting the needs that have been identified.

CHAIRMAN CARR: We don't have a large backlog of people needing training we're not able to accommodate, then?

MR. RAGLIN: Let me throw in one more qualifier. Now, this headquarters training and qualification program development, one of the things that's still going on by the Program Office is, now that the program has been defined, is to look at the

incumbents and make these decisions. Does this person have enough here, or does he need to go to this training? And I haven't seen the numbers yet from NRR, and it's such a big office that that potentially could change my answer on that question. But right now, I'm comfortable that we're meeting the needs.

CHAIRMAN CARR: Well, keep an eye on it so we can stay informed.

As I wander around, I get lots of comments about the inspectors and their -- let's say their non-similarity in inspection techniques and processes and opinions. And I understand we have a course down there that you teach in the initial inspector training area that teaches philosophy of inspection, or somebody teaches it. It's your training.

MR. SPESSARD: The fundamentals of inspection course.

MR. RAGLIN: Right.

CHAIRMAN CARR: And somewhere in that, we give the NRC philosophy, I assume, of inspection.

As far as we know, have all our inspectors taken that course?

MR. RAGLIN: Yes. I think that's a very good assumption. That's one of the things that's specifically listed in the regional qualification

journals and in the similar document for the headquarters position. That is a course that there was a significant Agency effort to revise about two years ago to standardize, and it's been given several times in the new format. So, we feel comfortable that the same information is being transmitted independent of which region it is, and it's been given several times in headquarters, several sessions for the NRR staff.

CHAIRMAN CARR: And do we have a requirement for a refresher training in that area?

MR. THOMPSON: Not in the fundamentals. We do have a requirement for refresher training, or what are called "continuing training" for the resident inspector types and I guess our inspectors. But I don't believe it goes back over that course.

MR. SPESSARD: Not for the fundamentals, no.

CHAIRMAN CARR: I understand that's only a couple hours or something, the re-fundamentals or --

MR. SPESSARD: No, sir, that's three --

CHAIRMAN CARR: Or the philosophy portion of that fundamentals is what I'm really worried about. I mean, do we inspect by the module and ignore the fire because it's not on the check-off list, or do we look for the safe -- I guess, how do you inspect?

MR. THOMPSON: Safety versus compliance philosophy.

CHAIRMAN CARR: That kind of thing. Presumably, that's where this philosophy is put out.

MR. THOMPSON: Right.

CHAIRMAN CARR: My concern is it's not put out the same to everybody and we don't refresh that philosophy at a routine basis. So, take a look at that, will you?

MR. THOMPSON: We'll look into that, because I think that is an important area. I know that we --

CHAIRMAN CARR: I'm trying to get consistency --

MR. THOMPSON: Right.

CHAIRMAN CARR: -- in the residents throughout the -- so that we don't get, well, one guy want's to do this or one region wants to do that or your headquarters guy comes out and he wants a different thing than somebody else does.

In the manuals you talked about and in the guides for procedural inspection and all that stuff that we worked over a couple of years ago, is there any follow-up to make sure those things are being used consistently? Do we audit that program? Who audits training? Anybody?

MR. RAGLIN: We don't specifically audit it, but we do get feedback from everyone of those fundamentals of inspection courses. We end up issuing certificates on them and we keep heavily involved with their -- we know that the new modules are being used uniformly in the regions. As far as the --

CHAIRMAN CARR: How do you know the regional program conforms to your suggested program in the manual?

MR. RAGLIN: Because the regional managers who are giving the presentations are using the same lesson plans --

CHAIRMAN CARR: Okay.

MR. RAGLIN: -- that were developed, and it was -- when the major change occurred about two years ago, there was a wide developmental effort that was then circulated for comment through the regions and program offices, and then everybody bought into it. And we feel comfortable that it's consistent on that basis, because the same lesson plans, the same presentations during the fundamentals of inspection course.

CHAIRMAN CARR: Okay. Any other questions?

Well, I certainly join my fellow Commissioners in thanking you for the presentation. I

think it's been a very informative briefing and training is one of the keys to doing our work right. The programs seem to be responsive to the needs that we've got and I'm interested that you've got specialized training going on now, and the future looks bright as far as the kinds of things you're getting into. Certainly, upgrading our simulators and getting state-of-the-art type response is important.

I would encourage continued efforts to improve training for fuel cycle and material inspectors, because I feel like that's some of our weakest points. And I say I note that we may need periodic refresher training in the area of NRC inspection philosophy. I'm trying to weed out those few people who may have their own idea of how to inspect, rather than our idea. So, I urge the staff to continue seeking and making improvements in training quality and diversity offered to our staff, as well as to other people we can.

Any other comments? If not, we stand adjourned.

(Whereupon, at 11:30 a.m., the above-entitled matter was concluded.)

CERTIFICATE OF TRANSCRIBER

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

TITLE OF MEETING: BRIEFING ON STATUS OF NRC TECHNICAL TRAINING PROGRAM

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: SEPTEMBER 14, 1989

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

Carol Lynch

Reporter's name: Peter Lynch

NRC TECHNICAL TRAINING PROGRAM

September 14, 1989

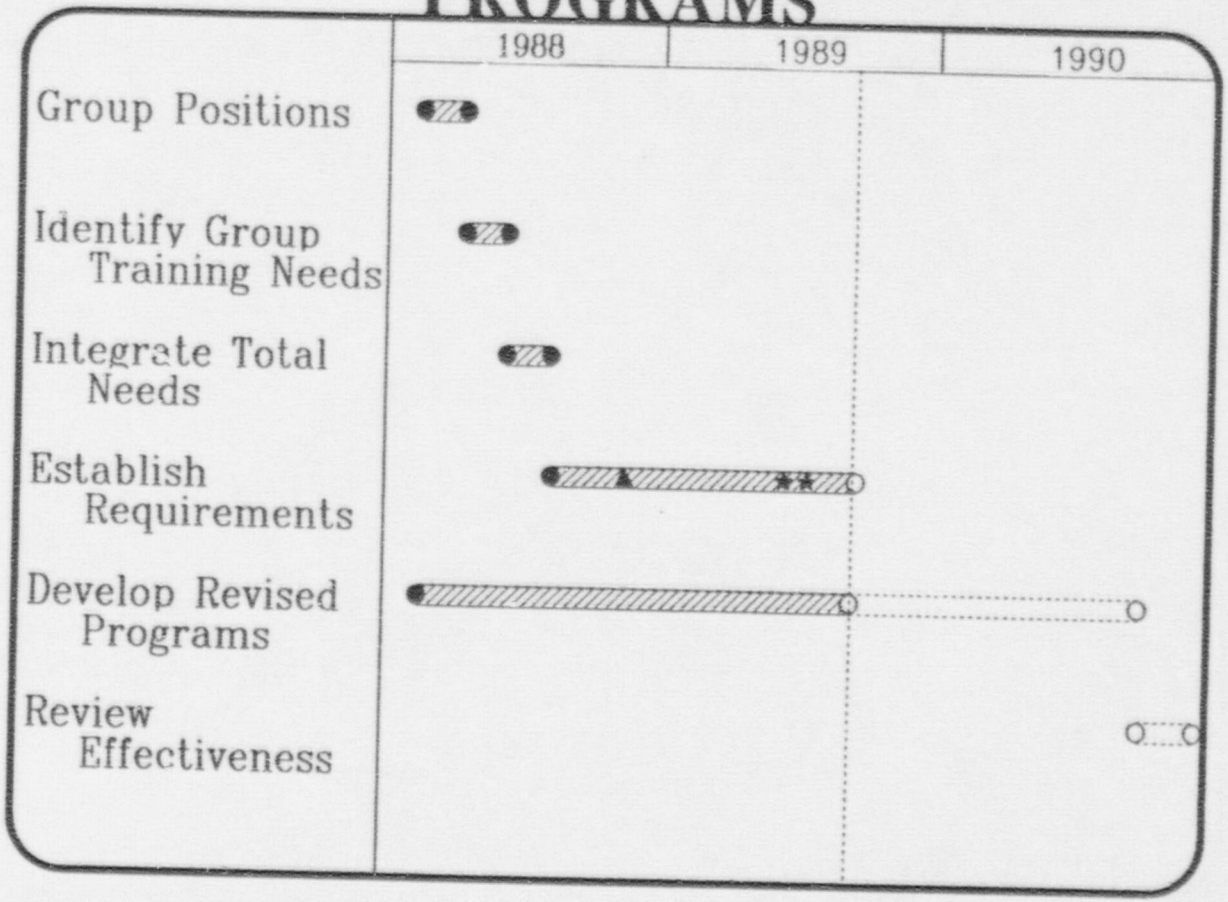
Edward L. Jordan, Director, AEOD
R. Lee Spessard, Director, DOA, AEOD
Kenneth A. Raglin, Director, TTC, DOA, AEOD

Contact: Kenneth A. Raglin
Phone: FTS 856-6500

INTRODUCTION

- Background
- TTC Mission
- TTC Organization
- TTC Facilities

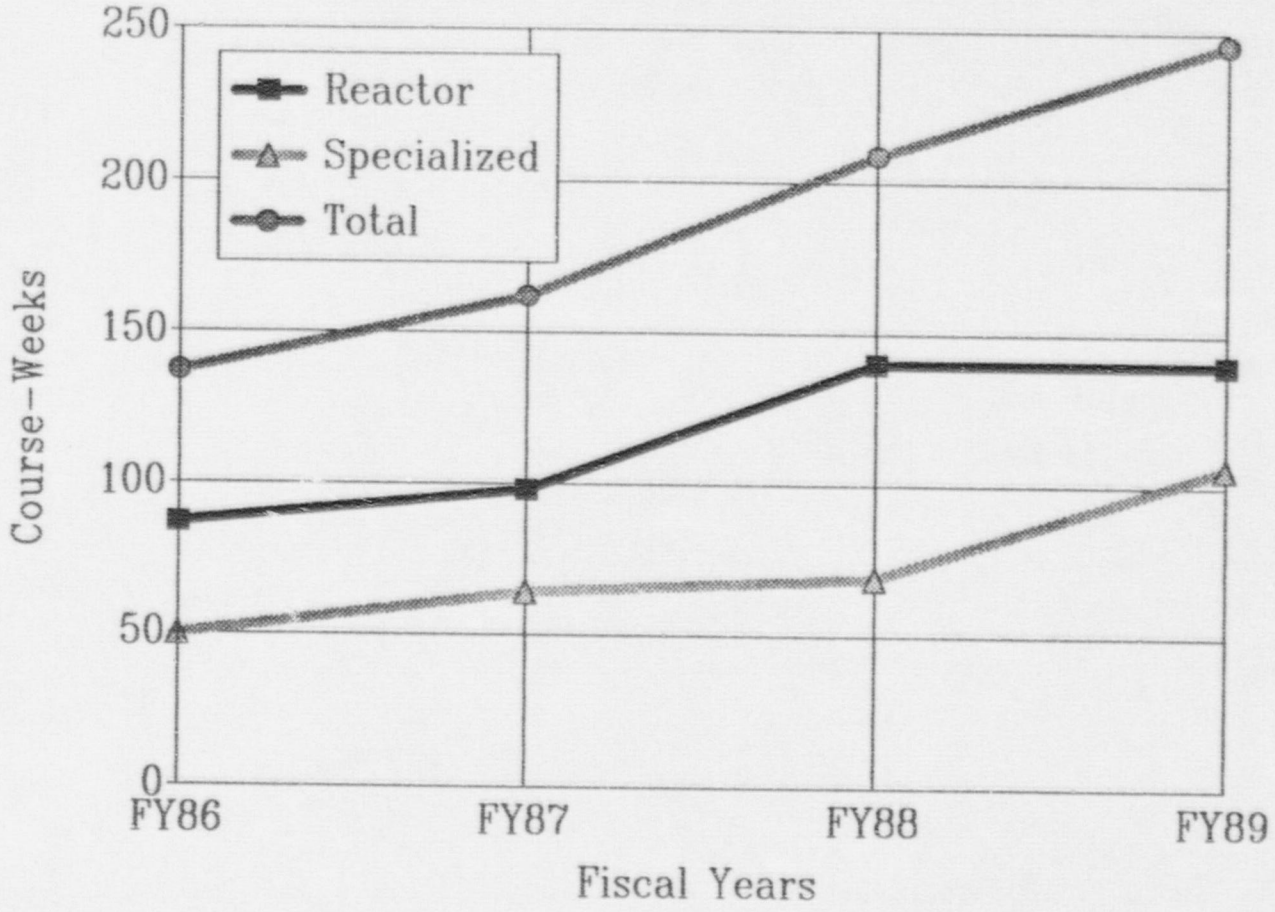
HEADQUARTERS TRAINING PROGRAMS



FEEDBACK PROCESS

- Dynamic Schedule
- Response to Changing Needs
- Training Advisory Group
- Program Revisions

COURSE-WEEKS OF TRAINING



REACTOR TECHNOLOGY TRAINING INITIATIVES

- Full Course Series in CE Technology
- Cross Training Series (B & W and CE Technologies)
- NRR Mini Series (Westinghouse and GE Technologies)
- Full Series Extensions for Examiners (All Technologies)

TECHNIQUES TRAINING FOR EXAMINERS

- Heavy Involvement by TTC Staff and Operator Licensing Branch of NRR
- Development and Initial Presentation by Contractors
- Content revision and Instruction by NRC Staff
- Consolidation of Material into Two Courses

CONSOLIDATION OF HEALTH PHYSICS TRAINING

- Reactor Radiation Protection Specialists
- Materials Radiation Protection Specialists
- Common Areas with State Personnel
- Most Efficient Use of Resources

HP INITIATIVES

- Teletherapy and Brachytherapy (9/89)
- HP Technology (12/89)
- Whole Body Counting/ Internal Dosimetry (Early FY90)
- Pool-Type Irradiators (Mid-FY90)
- Reactor Radwaste Course (Late FY90)
- Advanced Health Physics (Late FY90)

ADDITIONAL TRAINING

- Incident investigation Team Training and A/I Workshops
- Non-Power Reactor Technology
- Cold Chemistry Course
- Site Access Training (SAT) and Site Access Refresher Training (SART)
- Safeguards Training Initiative

SPECIAL REQUESTS

- GE Technology Course in Mexico
- GE Simulator Course for Mexico (10/89)
- Westinghouse and GE Technology Courses for State of Illinois Personnel
- National News Media Seminars
- Reactor Concepts Training for Congressional Staffers (10/89)

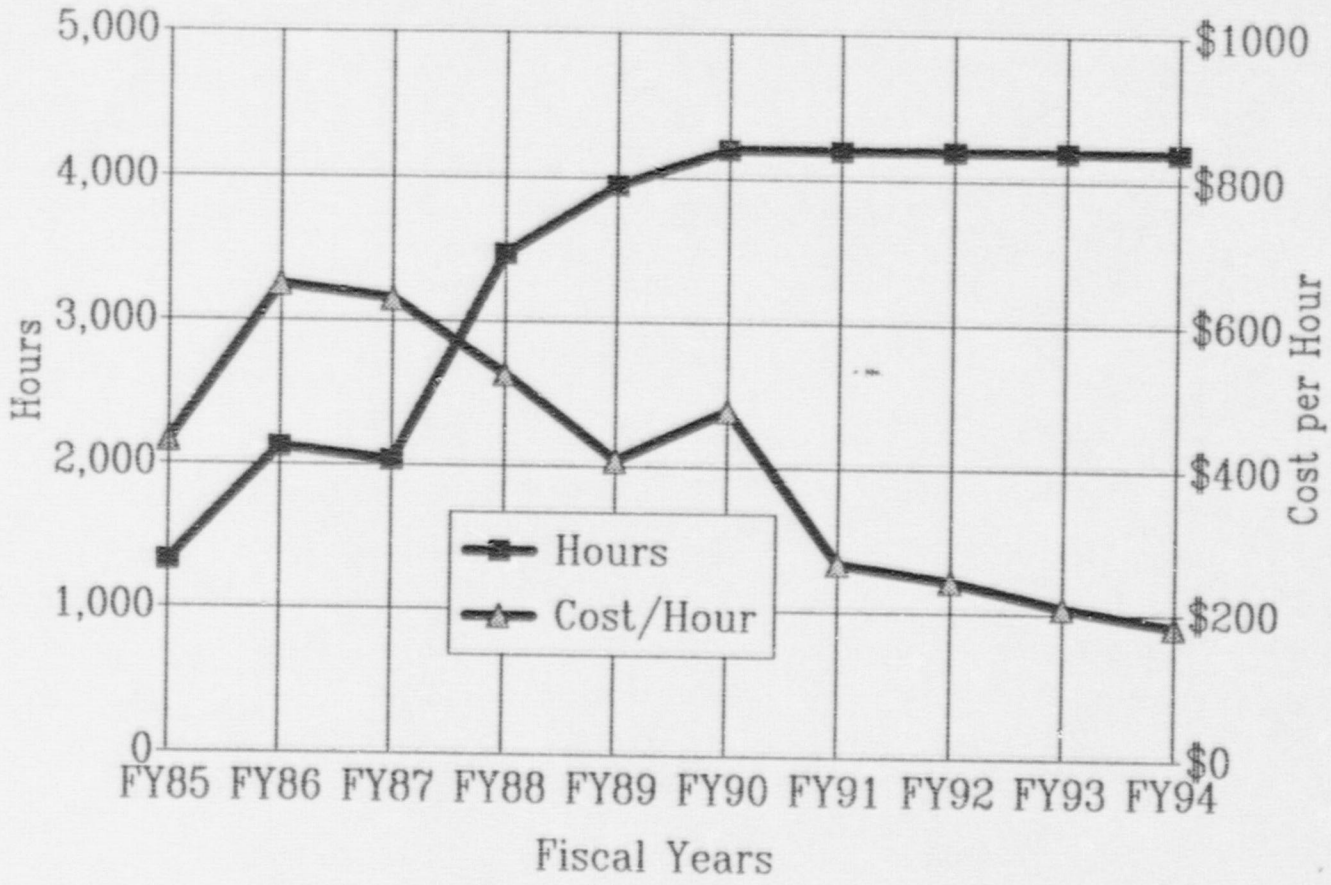
SEVERE ACCIDENT CONSIDERATIONS

- Increase Staff Awareness of Severe Accident Methodology and Insights
- Collaborative Staff Effort
- Current and Planned Activity

EXPANDING RISK BASED PERSPECTIVES

- Increase Staff Awareness of Risk Dominant Sequences and Major Risk Contributors
- Collaborative Staff Effort
- Specific Training for TTC Staff
- Integration into Existing Courses

SIMULATOR USAGE AND COST



SIMULATOR UPGRADE PLAN

- Hardware and Software Improvements in Progress
- Use of In-House Expertise
- Projected State of the Art Capabilities
- Timing

HIGH TECHNOLOGY ENHANCEMENTS

- Computerized Examination Bank System
- Audio-Visual Editing Equipment
- Laser Videodisc Plant Tours
- Classroom Engineering Simulations
- Classroom High Resolution Video Displays

USES OF TTC EXPERTISE

- NRC Diagnostic Evaluations
- NRC Team Inspections
- Technical Consulting Projects
- Incident Response Support
- Human Factors Research Projects

SUMMARY

- TTC Continues to Mature As Agency Resource
- Program Evolving in Support of Agency Needs
- Risk Perspectives Being Incorporated
- Simulators Being Upgraded to State of the Art
- High Technology Enhancements Being Pursued

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DATE: 10/3/89

FROM: SECY Correspondence & Records Branch

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Meeting Title: Brief on Status of NRC Technical Training Program

Meeting Date: 9/14/89 Open X Closed _____

Item Description*:	Copies Advanced to PDR	DCS Copy
1. TRANSCRIPT w/viewgraphs	1	1
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