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NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

PUBLIC MEETING

DISCUSSION OF NUCLEAR POWER NEEDS OF PENNSYLVANIA-NEW JERSEY-MARYLAND

Place - Washington, D. C.

Date - Thursday, 14 June 1979 Pages 1-38

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Public Meeting

DISCUSSION OF NUCLEAR POWER NEEDS OF

PENNSYLVANIA-NEW JERSEY-MARYLAND

Room 1130
1717 H Street, N.W.
Washington,D.C.

Thursday, 14 June 1979

Meeting in the above-entitled matter was convened, pursuant to notice, at 3:15 p.m., JOSEPH M. HENDRIE, Chairman, presiding.

PRESENT:

JOSEPH M. HENDRIE, Chairman

VICTOR GILINSKY, Commissioner

RICHARD KENNEDY, Commissioner

PETER BRADFORD, Commissioner

JOHN AHEARNE, Commissioner

Messrs. Smith, Feehan, Price, Everett, Eckert Lindsay, Haines, Fowlkes, and Hoyle.

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P R O C E E D I N G S

CHAIRMAN HENDRIE: Let's see, the second group of briefers headed by Mr. Robert Smith, Chairman of the Public Service Gas & Electric.

Please bring up whomever you would like to have at the table and introduce them for the record, please.

Go head.

MR. SMITH: Good afternoon, gentlemen. I am Robert I. Smith, Chairman, Chief Executive, Public Service Electric & Gas Company.

I am here this afternoon as the representative of the Pennsylvania-New Jersey-Maryland interconnection and the owners of Salem.

With me at the table, on my far right, John Feehan, Chief Executive of Atlantic City Electric.

Next to him, Bill Price, who is Vice President, Generation Delmarva Power & Light Company.

On my left, Lee Everett, Chief Executive Officer of Philadelphia Electric Company.

Next to Lee, Dick Eckert, our Senior Vice President, Public Service, of Energy Supply & Engineering.

In the audience we also have John McDonald, who is our Senior Vice President of Governmental Affairs, Public Sevice.

Also Richard Fryling, our Assistant General Solicitor

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From Philadelphia Electric, Vincent Boyer, Senior Vice President.

And I might also mention the President of our New Jersey Board of Public Utilities George Barbour wanted to be here today. He was unable to do so. But I understand that a letter --

CHAIRMAN HENDRIE: He is represented by a letter to the Commissioners.

MR. SMITH: Fine.

Our purpose here today is to discuss the power supply situation of the Pennsylvania-New Jersey-Maryland connection with specific reference to Salem No. 2.

I think the gentlemen from the Department of Energy have described the interconnection so that it is unnecessary for us to do that. And I think we can say that we agree with them that our reserves during this coming summer will be adequate.

However, the costs of that supply are up in part because of the Three Mile Island accident and removing those two units from the system, and of course the continuing increase in the cost of fuel oil is directly affecting our customers.

Of prime concern to us is the operation of Salem No. 2. I don't think I have to describe the unit. You are familiar with it. It is 1100 megawatts Westinghouse Unit. It

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is owned by the four companies here represented; Public Service and Philadelphia Electric each own 42 percent, and Delmarva,Atlantic City Electric each own 8 percent.

A recent NRC announcement indicates that the present intent is to delay, at least until August 1st, the operating license of Salem 2, and that is of importance to us.

We believe that Salem No. 2 is essentially ready for operation. Construction is complete, testing is complete up to the core load. And as we understand it, all modifications required by the NRC to date have been completed.

Our field people tell us that they believe that the Region 1 inspectors are satisfied the plant is ready for an operating license.

The review by the NRC Staff in Washington is not quite complete, but there are very few outstanding items. We believe that these can be resolved in a very short period of time.

The primary difference between Salem 2 and the operating nuclear unit on the system is that about a five-month test program is going to be required before commercial operation of Salem 2, after we receive the operating license and the plant, of course, is not presently radioactive.

In focusing on the Salem 2 operating license, I would like to briefly discuss four aspects of the Salem delay.

First, with regard to load carrying ability on

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the system, I think that subject has been adequately discussed with regard to reserve capacity. However, within the Southern part of New Jersey we could be tight on voltage requirements during peak days.

Even with a low output from Salem 2, having the unit synchronized with this system, would give us the voltage stabilization which would be advantageous for possible peak loads in September.

Obviously --

COMMISSIONER AHEARNE: What period did you say would be a problem in handling the voltage stability?

MR. SMITH: Where it could be.

COMMISSIONER AHEARNE: In what period did you say? Summer?

MR. SMITH: Peak in September. We occasionally have peaks in that system in September. Obviously this unit can't be ready for June and July peaks. But, if it could even be on-line and synchronized, it could be of help in late September.

COMMISSIONER BRADFORD: When does your system experience its peak?

MR. SMITH: We have had peaks in June and in September.

COMMISSIONER BRADFORD: Its annual peak?

MR. SMITH: Yes. Oh, system peak. I am talking

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about our company peak.

It various with the different companies. PJM's peak has been during the summer months. But we have had peaks in June. Ours has been, peaks also in September.

COMMISSIONER BRADFORD: But the peak -- PJM system peak is generally July, August?

MR.EVERETT:Corresponds to hot weather. Whenever we have hot weather in the summer we have a peak.

MR. SMITH: Actually, a lot of industries are shut down during the summer months, so we have reduced operations.

You are liable to have a peak in June if you have a hot day, or September, if you have a hot day, because they are normally -- it is not during their normal vacation period.

COMMISSIONER BRADFORD: Do you know offhand how many years in the last 25 years, the annual peak has occurred in either June of September?

MR. SMITH: I do not have that information.

MR. EVERETT: Since about 1965, '66.

COMMISSIONER BRADFORD: Every year?

MR. EVERETT: Every year.

COMMISSIONER BRADFORD: Either June or September?

MR. EVERETT: We have a substantial difference between winter and summer peak.

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COMMISSIONER BRADFORD: I am talking about June or September versus July or August.

MR. EVERETT: It is impossible to say when during the summer season we will get the hot weather. It usually takes three or four days of very hot humid weather to develop the saturation of heat that causes the air conditioning peak.

But, as Bob said, it could be in June or September with perhaps weather that is not quite so hot because of industry going full tilt.

COMMISSIONER AHEARNE: But the question was going back the last 25 years.

MR. EVERETT: I don't have a list.

MR. FEEHAN: September 23rd is burned in my memory.

(Simultaneous discussion.)

MR. SMITH: Let me point out, the two major problems we have had on our system, one occurred in June and one occurred in September.

MR. ECKERT: Big outages. They weren't during the peak.

(Laughter.)

COMMISSIONER BRADFORD: And were they because of a shortage of capacity?

MR. ECKERT: No.

MR. SMITH: It was a shortage of capacity in September.

MR. EVERETT: It was brought on by a shortage, but it wasn't as a direct result of an inadequate ability to serve at that point. It was brought on by units not coming on when scheduled, and therefore having to rearrange transmission lines in order to cope with the reduced capacity. And the lines weren't arranged so that they were reliable enough. And when an operating error happened, why it cascaded on the system.

MR. SMITH: I think the people from DOE have also indicated that a major portion of our generation, about 20 percent is nuclear. So, obviously, we need nuclear capacity on our system to maintain operations.

So, if for any reason the thought was occuring to anybody to shut down nuclear plants on our system, we would be in deep trouble.

With regard to the economics, again, there has been quite some discussion on the fuel cost differential and the net results to the customers. With Salem at 100 percent capacity, our figure is $600,000 a day. This is not out of line with the DOE figure which I think was $400,000 some odd, on the basis of 70 percent capacity factor.

COMMISSIONER AHEARNE: But you would never be running at any length of time at 70 percent capacity, would you?

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MR. SMITH: We hope we do.

COMMISSIONER BRADFORD: Some year.

MR. SMITH: This is a scenario that can go on all afternoon.

CHAIRMAN HENDRIE: A 100 percent day is worth so much, and if you move off to longer periods of time since you aren't going to run every day, every hour at 100 percent, you grade down, and everybody choose his own guess at the reasonable annual plant factor and we will apply accordingly.

MR. EVERETT: These are monthly factors, I think. We are not talking about annual. There is a difference. We have had monthly capacity factors of our nuclear units over 100 percent.

COMMISSIONER BRADFORD: But not, probably, during the startup period.

MR. EVERETT: These were mature units.

MR. SMITH: We used for our calculations, a 5 mil per kilowatt hour fuel cost for nuclear, and 25 mils for the oil, which are somewhat more conservative, I think, than the figures which DOE supplied.

I think the other factor that perhaps should enter into consideration of the capacity factor in Salem 2 is that it is a duplicate of Salem 1, which we have had operating experience with. I think a lot of the problems that might have occurred with the first unit on the plant we

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have taken care of, so I think there is a better chance of having higher capacity factor in Salem 2.

However, I think probably more important than the economics with regard to our customers is the saving in oil consumption which can be made by operation of this nuclear unit. Again this 100 percent capacity at the nuclear is equivalent to a saving of 45,000 barrels a day of oil.

And again, you can take however many days at what percentage capacity you want and use that 45,000 barrels a day figure to come up with an oil savings.

COMMISSIONER AHEARNE: Are you saying that from this system that you would definitely be using oil capacity to replace it?

MR. SMITH: Yes.

I think it has been pointed out that we operate in economic dispatch. We have examined the availability of capacity from adjacent systems. We are utilizing all the coal burning capacity in our own system. As a matter of fact we have more than this much oil burning on our system, but we just backed off that.

The investment in Salem 2 is $700 million. Part of that is in construction work in progress in the rate base, but only a very small part of it. Maybe a third of that.

This unit, of course, is sitting there. It is a

mm11 $700 million investment, nonproductive. It has got interest charges, of course, on the money. And it costs about $1000 a month, just for standby service to keep the thing moving.

MR. ECKERT: A million dollars.

MR. SMITH: I'm sorry, a million dollars a month.

(Laughter.)

I could never talk in that long a number.

Now I think we all recognize that Three Mile Island was a very serious accident, and that following Three Mile Island all of us have been required to examine our nuclear operations.

Immediately after the accident we established a task force within the company to examine all the details of the accident. We referred them to our Salem designs to see what corrections or modifications should be made as a result of that investigation.

We have had 25 people full time working on that. We have added to that representatives from the other owners who are working with this task force. We anticipate that within the very near future we will have up to 60 people working full time on the design and investigation of some of these possible modifications.

We have worked with a Westinghouse owners' group which was assembled immediately after the accident, who

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reviewed the Westinghouse design. Our people are active in the AIF task forces and also with APRI, again in examining the ramifications of the accident.

We are well along in finalizing design of some of the modifications. We have ordered equipment for some changes, and have actually accomplished a number of changes as of this date.

I have before me a 13-page list of items which we are working on; some of the things which we have concluded; have done the work on Salem 2 pressurizer logic change; alarms for the pressure operated relief valve; saturation indications in the computer which are given directly to the operator; and containment isolation in case of an accident. We do have positive containment isolation.

We are in the midst of design, have all the material for a reactor head vent system --

COMMISSIONER BRADFORD: When you say containment isolation, what would trigger it?

MR. SMITH: Any one of a number of factors.

MR. ECKERT: There is a lot of things that will trigger containment isolation.

COMMISSIONER BRADFORD: But that was true in Three Mile Island as well. The problem is having the right thing trigger it.

MR. ECKERT: We had to look at the logic as to just

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when it would be triggered and when it wouldn't.

For instance, safety injection. I don't think that triggered containment isolation in TMI. It does for us.

CHAIRMAN HENDRIE: No, it didn't.

COMMISSIONER KENNEDY: But it does with you?

MR. ECKERT: This kind of thing. It is very complex, we realize, but that is an example.

MR. FEEHAN: It doesn't wait for the pressure to get to 4000 -- (Inaudible.)

MR. SMITH: Rate of water rise, reactor vessel level, things like that. We are engaged in designs and securing material.

COMMISSIONER GILINSKY: What are you doing about reactor water level?

MR. SMITH. We are working with Westinghouse, I think on that.

Dick?

MR. ECKERT: Yes, we have some preliminary designs, but we have some problems with those designs and they really have to be finalized at this stage.

CHAIRMAN HENDRIE: What is the aim here on this particular item? To try to get some indication down in the vessel, upper part of the vessel?

MR. ECKERT: Yes.

But it is a complex thing to do and the design has

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not been completed. We haven't submitted anything to the NRC at the present time.

COMMISSIONER GILINSKY: You don't regard any of these things as being affected by the plant going critical?

MR. SMITH: Well, Salem 1 has been operating for two years. This is an identical design which we have already made modifications to, the things we are considering -- we are also planning to install in Salem 1 at the first opportunity, assuming the NRC approves the changes we have proposed.

MR. ECKERT: If you are concerned about the radiation field in installing some of these things, we looked at the two we think are most difficult to install, which is the vent system and the water level in the reactor. And we don't see either one of those requiring a lot of man hours being worked in the high radiation level.

We don't think it is very significant as to whether the plant has actually operated or not.

CHAIRMAN HENDRIE: What is your projection Dick, on when you shake out with Westinghouse on whether you really want to do those things or not, and how, exactly, you do them? Because you know there is a period of time here in any unit, of course,in the workup when you still have relatively modest radiation levels even in close. So there is some period of time.

Do you project that you are settling down on whether

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you are going to do it or not, is it near term or months?

MR. ECKERT: From a radiation point of view, we looked at the radiation levels that exist on number one which has been operating, and we considered some of these designs and used those radiation levels. And that's what I mean, using those levels we did not have an excessive amount of radiation.

COMMISSIONER GILINSKY: What sort of numbers are you talking about?

MR. ECKERT: Give me a minute.

COMMISSIONER GILINSKY: Surely.

MR. SMITH: I think what we are saying is we have divided some of these into short-term and long-term. Some of these are going to take maybe years to work out the designs and changes, develop specific designs and get the material.

Some of the valves we ordered have fairly long lead time, so that we will be accomplishing all of the things we can accomplish short-term, within a very short period of time.

MR. ECKERT: In response to your earlier question, the vessel vent system, if indeed the final design in Salem is a preliminary design, and please understand that qualification, we would see a total manrem exposure of about 4 manrem.

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On the level instrumentation I have a radiation level in which men would work, but I don't have the man hours involved in it.

Talking about work on the reactor head, which runs 75 to 100 mr per hour. Hotleg connection, which is 100 to 300 mr. And some work in the bottom of the vessel, which is again 100 to 350.

This vessel level design is not as firm in our minds as the vent design. So I would say those numbers are more in question --

COMMISSIONER AHEARNE: And ever the design that you have there, roughly what kind of hours are you talking about for that installation?

MR. ECKERT: On the vent design --

COMMISSIONER AHEARNE: No, on the pressure level.

MR. ECKERT: What kind of man hours?

COMMISSIONER AHEARNE: Yes.

MR. ECKERT: I don't have that number with me. But obviously the full intent would be to prefabricate everything ahead of time, do nothing more than make a few cuts. Probably in the area where the incore thimbals come up into the seal room. It is a radiation area, but it is not so high that you can't put people in it for direct work.

COMMISSIONER AHEARNE: You don't have a tap already on say the hotleg?

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MR. ECKERT: Well, we have -- the hotleg, well we have vents, drains, things of that nature. That is a difficult thing to design because you have to look at the velocities, the water that is going in. That is the hard part is the top tap, not the bottom tap.

The bottom tap you can do in the seal cable area.

MR. SMITH: The other area of investigation prompted by Three Mile Island is, of course, operator training. We have reviewed our operator training.

We have always had an extra shift on operations at Salem 1, and will have on Salem 2. This extra shift is essentially in training during the off periods. They also provide backup, vacation and absences by other shift members. But we have provided continuous training of our operators.

We have been working with the industry and the AIF particularly h[illegible]ask force working in operator training and we endorse their proposal to establish a nuclear operations institute which will essentially be a quality assurance institute for operators in such an area where it is demonstrated that we do need continuous high-level operator training.

In summary, we see Salem 2 as a duplicate of Salem 1 with some modifications already made as a result of the Three Mile Island incident.

We would urge that you consider expediting the

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Salem 2 license because of not only the economic benefits, but the savings in oil which will result. We feel that this can be done without compromising safety at all.

And that is our presentation.

COMMISSIONER GILINSKY: Could I ask you, are you saying that the things our Staff wants to have done can be done more quickly, or that they don't need to be done before the plant goes into operation? In effect, they are operating out of an excess of caution?

MR. SMITH: Well, I think we have responded to all of the bulletins that have been issued. I'm not sure that we all know what things the Staff wants to be done yet.

However, Salem 1, as I said, is an operating unit. As far as I know we are not talking about shutting those units down. We have made modifications to Salem 2. We will make any other modifications that are considered to be necessary.

COMMISSIONER GILINSKY: You have to start somewhere, though, and it is natural to start with plants that haven't started up yet. So they are, naturally, treated differently than plants that are operating, just as you would treat a plant that is not yet constructed more differently.

But what I am trying to get at is, what is your view about the position of our Staff, which seems to be what is in issue here?

MR.SMITH: Well, the public indication has been

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that the license will be delayed until August 1st.

I think a different way of stating might be, at least until August 1st.

We are concerned that this thing will drag out. And you can argue about whether it is $600,000 a day or $300,000 a day, but it is still a tremendous amount of money. And we think it is in the national interest to reduce the burning of oil, and this 45,000 barrels a day I think represents about 10 percent of the national shortfall.

COMMISSIONER BRADFORD: But the 45,000 barrels a day --

MR. SMITH: But that is going to come sometime. Maybe October or November, if you start now.

MR. ECKERT: A delay in the startup will do nothing more than move a whole block of work further out in time.

(Simultaneous discussion.)

MR. ECKERT: So it means very little if you are replacing it in September, October, November, or the next three months. We will still have a net difference.

MR. EVERETT: You never make up a lost day in our business.

COMMISSIONER GILINSKY: Let me ask my question again.

Are you asking that the plant be turned on for approved operation today, or simply that we take these

mm20 important matters into account as we go down the road and review what needs to be done?

MR. SMITH: I think we can ask you to authorize the plant to be turned on today. But I am sure that you have the final say in this. You will have to, in your considered judgment decide whether the plant should be kept off for another three months, four months or six months.

I think all we presented today is what we see as the consequences of delay.

CHAIRMAN HENDRIE: I think the Staff has been working to gather up and sort out what they believe are the short-term steps that ought to follow from Three Mile Island, in addition to the ones represented by the bulletins already issued.

And it would be my hope that we could develop those in fairly straightforward fashion pretty quick now. The work has been going on for several weeks. And then see how fast -- look at your list of things you are already doing and see how those things are coming along and how soon they might be implemented and what is reasonable to do, and look at it from that standpoint.

I don't, for myself, regard us as [illegible]ng in some mode where we have just shrugged and said, well, no we are not considering anything this season, try us next winter. I don't perceive it that way in any sense.

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And I think it would be useful for us perhaps to have some indication of the direction you are going. The Staff will certainly want to go over these in detail pretty quick any way. Among other things, I think there is considerable interest in things like that vessel level indication, and about whether in fact the analyses would support one's sort of first reaction which was, well, gee, that seems like a pretty good idea, why don't we do that.

But, I would like some sense that it might ultimately be useful in at least some cases, and as people who have some experience around water -- around boilers know, liquid level, a two-phase system is very good.

It is a pity we have to measure it.

MR. ECKERT: Particularly a dynamic system.

CHAIRMAN HENDRIE: Yes.

So, you know, it is not just a transparently simple situation where even the meanest intellect will arrive at the right solution on casual observation. And I am sure the Staff will be interested,and I will be interested in some of the analyses. But I think it would be helpful if those were available.

Let me ask a question that may lead us into a little different line of discussion:

Salem 1 is operating. There is an emergency plan for the site?

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MR. SMITH: Yes.

CHAIRMAN HENDRIE: Emergency planning is obviously one of the significant items of discussion that follows from Three Mile.

I guess Jersey does have --

MR. SMITH: We were one of the five states, I understand, that has a plan which has been concurred in by the Commission.

COMMISSIONER AHEARNE: Twelve states.

CHAIRMAN HENDRIE: Something like twelve.

But do you know offhand how far offsite your own emergency plan reaches in terms of contact with local emergency group leaders and so on?

MR. SMITH: I don't have the details with me.

What I can tell you is that following the Three Mile Island accident, the Superintendent of State Police called representatives of the utilities in New Jersey together with the Department of Environmental Protection which had the basic responsibility for drawing up the plan. Called us down to Trenton to review the Three Mile Island incident.

As a matter of fact, New Jersey sent a couple of state policemen over to the Harrisburg site, who reported directly back to Trenton.

They are reexamining all the details of their emergency plans, and there may be some proposed modifications

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in those plans as a result of that examination and as a result of the experience at Three Mile Island.

We do have a whole series of people to call from the station and we are now getting state police even more involved. They appear to want to take the principal role in the administration of this plan. They want to be called first now. They want to know now also any event that occurs, whether it is an emergency event or not; they want to know when the plant is shut down, when it comes on line-. So they have taken a very active interest in the whole operation.

MR. ECKERT: Perhaps another response to your question as far as distance is concerned,the first town is I think, about 4 1/2, 5 miles away. And it is a small town. But they are involved in the emergency plan. How much further out than that it goes, I don't know. The next town is out between 8 and 10 miles. Very isolated there.

MR. SMITH: The police, Dick, are going to all the towns in the surrounding area, visiting them, since Three Mile Island and are reenforcing the whole evacuaqtion plan.

CHAIRMAN HENDRIE: John?

COMMISSIONER AHEARNE: Well, I want to ask either Bill Lindsay or Frank Haines on the question of the stability of the grid.

Do you people look at that issue? And, if you

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mm24 1 have, do you have any comments?

2 MR. LINDSAY: We have looked at it a little bit
3 from the standpoint that was mentioned here, namely that
4 under certain light load conditions -- there is a lot of
5 coal-fired generation in the western part of PJM, and
6 of course light-load -- while in heavy-load conditions much
7 of that is being used there, but as total load conditions fall,
8 more of that is shifted to the East.
9 And so, under conditions of light load, it appears
10 that there is a possibility of voltage control problems
11 arising in the absence of more generation in the East, which
12 is an economic problem because it could be replaced with oil
13 and has to be.
14 MR. ECKERT: That may be a new problem we have to
15 worry about, because it is not what we were referring to.
16 MR. SMITH: That is part of it, though.
17 MR. ECKERT: That is part of it. The very heavy
18 loads, however, with outages in the southern part of the
19 state, both transmission and an outage from closing Salem 1
20 under a worst condition, could get into a low load situation
21 in the southern part of the state. And I think that is what
22 Bob was referring to, not a low load.
23 CHAIRMAN HENDRIE: Frank, you had a hand up.
24 MR. HAINES: I simply wanted to observe that

25 yesterday we went and looked at the transmission system and

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it is on the 500 kv ring that they have. It has a major generating ring that goes around their load and it is right on it.

COMMISSIONER AHEARNE: Another question to either of the two of you.

The State of New Jersey, as well as the company has just indicated an estimate of 500,000 barrels of oil, so this is roughly 10 percent for national use, and this is roughly 10 percent of that. Does that sort of jibe with your numbers?

MR. HAINES: (Nodding affirmatively)

MR. LINDSAY: Yes, sir, it does.

MR. ECKERT: The 500,000 barrel figure was quoted by Stuart Eizenstat.

COMMISSIONER AHEARNE: 45,000 is a 10 percent level -- is at 100 percent capacity level. So I was wondering what the 500,000 is. A similar --

MR. ECKERT: That is a net --

COMMISSIONER AHEARNE: But that is a real number as opposed to 100 percent is a theoretical upper bound. And that is really what I was trying to ask.

MR. FOWLKES: Excuse me. The numbers that I got from PJM indicated the 45,000 barrels a day was based on an 80 percent operation of Salem No. 2. That is what I was told.

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COMMISSIONER KENNEDY: Would you go over that again?

MR. FOWLKES: The 45,000 barrels a day shortfall -- not shortfall, but increased usage without Salem No. 2, it was indicated to me that that was based on an 80 percent operation for the Salem No. 2 unit, capacity factor I'm talking about now.

MR. SMITH: Our number is more conservative.

MR. ECKERT: I am sure the 45,000 by our numbers is with 100 percent capacity.

MR. SMITH: There are two other factors which I didn't mention, which perhaps have some bearing.

One is that -- and I know this -- Public Service has a responsibility for engineering design construction of Salem 2. We have our own in-house engineering staff that did that. So all the people who have direct relation to that design are in house and always available. We are not depending on some architect-engineer who has maybe three or four other plants to worry about, to look into some of these things on Salem.

The other thing which I think is public information, GPU has contracted with Philadelphia Electric for Philadelphia Electric's share of the Salem 2 output, so you have got a situation here where GPU would actually be helped if Salem 2 was in service.

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MR. EVERETT: For about 8 to 10 years.

COMMISSIONER AHEARNE: Would that be all?

You are saying Philadelphia Electric doesn't really need --

MR. EVERETT: The capacity at this time.

And with other changes in our system, completion of Limerick 1 and 2, we won't need this capacity for about 8 or 10 years.

COMMISSIONER AHEARNE: Just to make sure I have that --

CHAIRMAN HENDRIE: What is the state on Limerick 1?

MR. EVERETT: It is about 50 percent complete as far as construction is concerned.

COMMISSIONER AHEARNE: It had been several numbers of reserve margin, but I gather without trying to get involved in which number is the accurate one, I think you mentioned that even without Salem this summer you are going to have a --

MR. SMITH: We couldn't argue the case on the basis of lack of capacity.

MR. EVERETT: We have been concerned with the possibility of a shortage in number 2 oil, which we use for peaking, combustion oil. And our suppliers have offered us none on the spot market. We do depend occasionally on the spot market for purchase of that type of oil, so we have

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curtailed the use of those kinds of machines during peaking so far, but we really haven't had any peaking weather at this point in the summer.

So that one could go either way. If we cannot use the combustion turbines or must limit their use, then we may have a larger problem than we think at the present time. That's about all we can say.

COMMISSIONER BRADFORD: So, the power pool presumably establishes some sort of capacity responsibility for each of the companies within it. As of what date does the power pool presently allow you to count Salem 2 against your capacity responsibility?

MR. EVERETT: If I understand your question right, it can't be counted until it is dispatched. That means it has to be in commercial operation, it has to be turned over for day-to-day dispatching purposes to the system operator and the PJM operator.

COMMISSIONER BRADFORD: So it is not counted at all in the power pool's -- your projections through the summer?

MR. SMITH: It is in the forecast, but it is not available.

COMMISSIONER BRADFORD: It is not part of what they are considering and relying on until sometime out towards the end of the year.

MR. SMITH: We haven't changed the date yet.

29 mm

CHAIRMAN HENDRIE: What was the date, by the way?

MR. SMITH: The date was, for commercial operation on the system, in June?

MR. ECKERT: The end of June.

MR. SMITH: Commercial operation would be three to four months after then. It would be putting power -- we make an estimate of when it is going to go on line. We get into 10 percent for so long and 30 percent for another period.

It is about a five-month schedule to get from the operating license up to 100 percent power test, and during that period it is on there for varying loads.

CHAIRMAN HENDRIE: Let's see. Did you say the machine is, in your view, ready for an OL now?

MR. SMITH: Yes.

CHAIRMAN HENDRIE: And I guess the Staff now --

MR. ECKERT: There are a few minor things that are resting with Staff.

CHAIRMAN HENDRIE: -- and I&E will have to complete some --

MR. ECKERT: I believe that completed everything.

COMMISSIONER BRADFORD: Can you run through those five months for me?

You said it was 10 percent for one period of time, then 30 percent for another?

MR. SMITH: If you assume a July 1 operating license.

~~281 359~~

mm30

COMMISSIONER BRADFORD: Right.

MR. SMITH: Core loading complete by July 8.

Prepare for criticality July 12.

Initial criticality August 16.

Prepare for generator synchronization August 16.

Initial generator synchronization August 29.

10 percent power testing August 29.

30 percent power testing September 4.

50 percent power testing September 19.

Planned outages September 28.

Startup to 75 percent power October 9.

75 percent power October 14.

90 percent power October 31.

100 percent power November 8.

Commercial operation November 23.

COMMISSIONER BRADFORD: With outages during that period?

MR. SMITH: Just one outage.

COMMISSIONER BRADFORD: Just one outage.

CHAIRMAN HENDRIE: Other questions?

COMMISSIONER GILINSKY: If I could return to this point about the water level. I don't don't know what the meanest intellect is. If I recall correctly, Harold Denton said he wanted those in before he gave out any more operating licenses. If I am wrong about that, I hope somebody

~~281 355~~

mm31

will check into that and correct me.

MR. ECKERT: In order to install this it will require new materials that will have to be ordered once it is decided what to install, in time, on nuclear grade 1 equipment, can be measured in a year or so, not in a week or so.

I see no way that such equipment could be ordered, installed -- first of all, design approved in a short period of time. The lead time for these things is very lengthy because of all the manufacturing requirements, qualifications.

COMMISSIONER GILINSKY: Did I recall correctly?

COMMISSIONER AHEARNE: I don't recall that.

MR. ECKERT: The contact that we have had with Harold Denton indicates what he wanted to do is try to firm up whether it would be done, and then set a schedule to do it, because of his recognition of the long lead time.

And with the water level as mentioned, the two-phase operation of water power, it makes it questionable if this is an advisable thing to do. The information I was giving you earlier was if it is decided that indeed this is the right thing to do, these are the radiation areas we would be working in to do it.

COMMISSIONER AHEARNE: When you said whether "this is the right thing," did you mean a particular design you are considering, or the concept at all?

mm32

MR. ECKERT: The concept at all.

MR. EVERETT: Whether or not this instrument would tell anything useful. That is an important question. I hope we don't ignore it.

COMMISSIONER AHEARNE: You are saying whether or not a measurement of water level in the reactor vessel will tell you anything useful at all?

MR. EVERETT: It is normally seldom it will tell you anything, even in an emergency.

I think that is a good question that should be answered very explicitly before we begin to tag things on to these systems.

COMMISSIONER AHEARNE: I guess when you say it should be answered, then you don't accept the current -- like ACRS recommended --

COMMISSIONER GILINSKY: I must say I didn't hear anything like this raised when we were up before the Congress and had the ACRS here. It may be right. I don't know what the right answer is.

MR. ECKERT. We are waiting for the Staff to look very hard at this. And they are not sure it is a useful evaluation.

It has not been resolved.

CHAIRMAN HENDRIE: I talked to some of the Staff people who are engaged in it. There are some pretty good

mm33

arguments going on; people trying to understand the various transient situations in which it would give you a meaningful level, and if it would, why that would certainly be good, and try to sort out when it might mislead you if you didn't understand the nature of the beast and so on.

I think at Three Mile there were some times there when the pumps turned off and things were sort of sitting and just steaming quietly, when it sure would have been valuable if the water level gauge would have indicated that you wanted to do some things which I would have thought might have been done anyway.

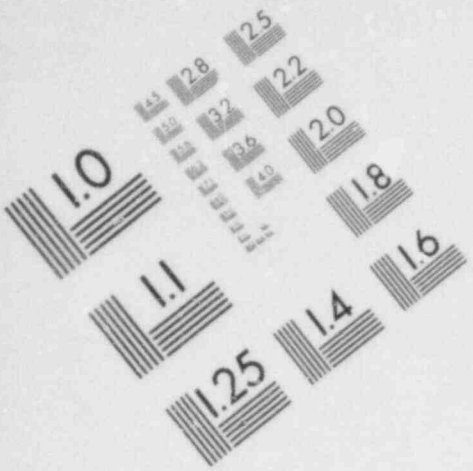
But on the other hand, there are a number of situations where you have that flow, and maybe even as low as natural circulation flow where you want to look and see what you want to get as a reading on that.

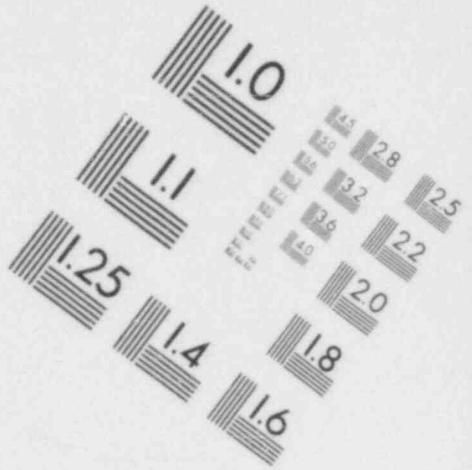
COMMISSIONER AHEARNE: You are discussing not so much the question of whether it would be valuable to have an accurate measurement, but whether it is feasible to develop a device that gives you an accurate measurement.

CHAIRMAN HENDRIE: Feasible in the sense of putting a tap on the top and a tap down here, and you read that differential.

COMMISSIONER GILINSKY: Well, it doesn't tell you the water level. It tells you how much water is in there.

MR. EVERETT: That is pressure differential.





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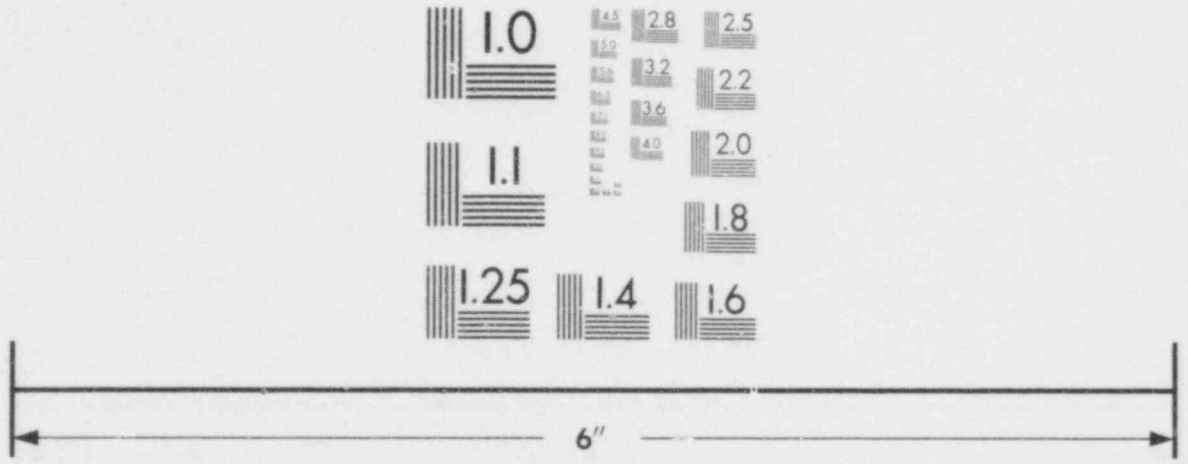

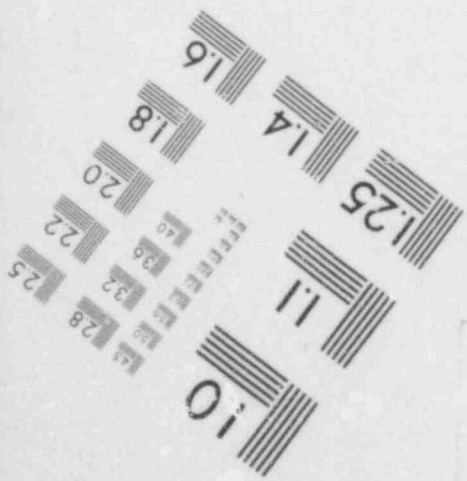

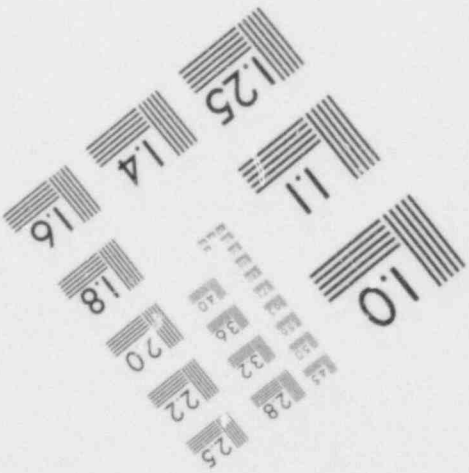

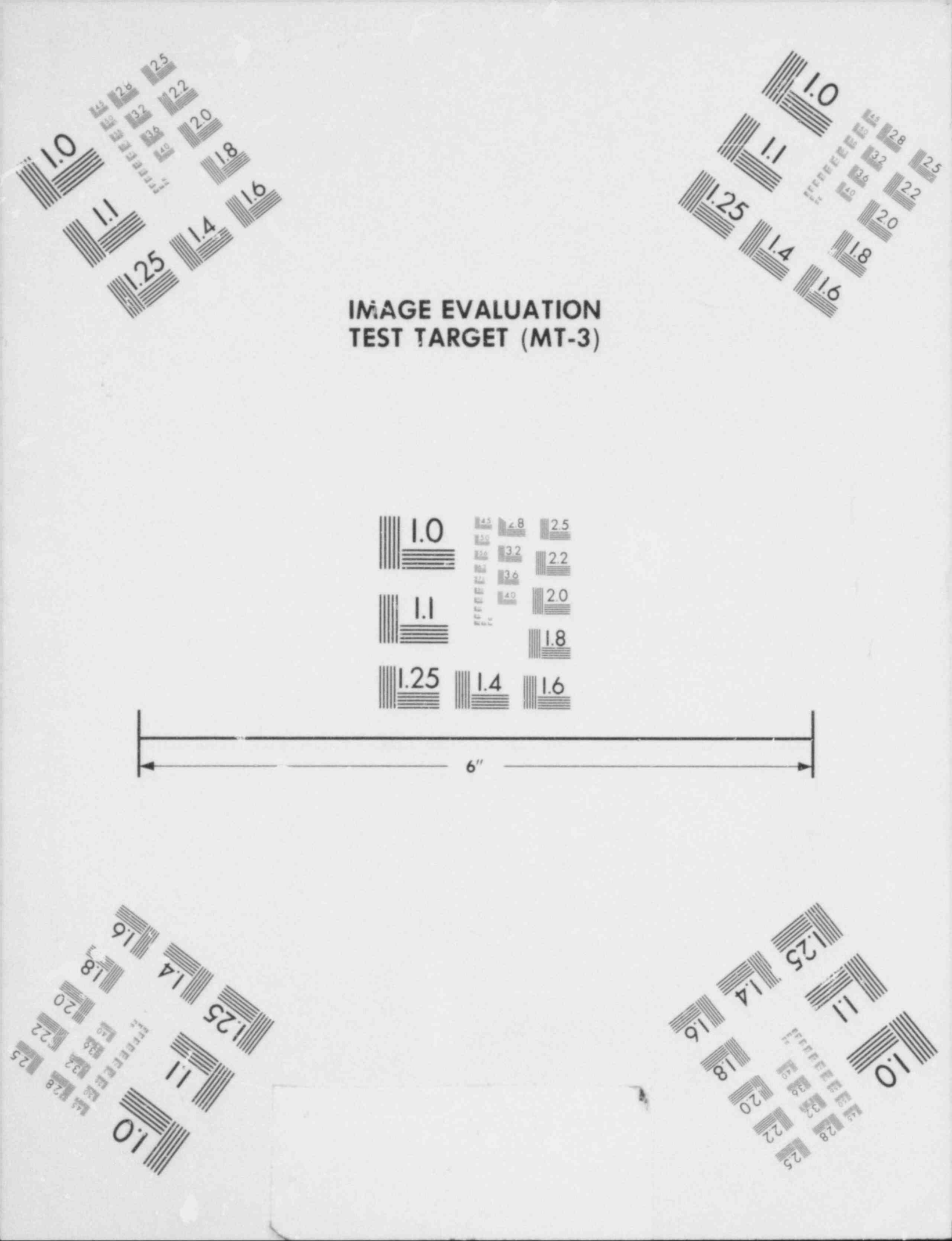
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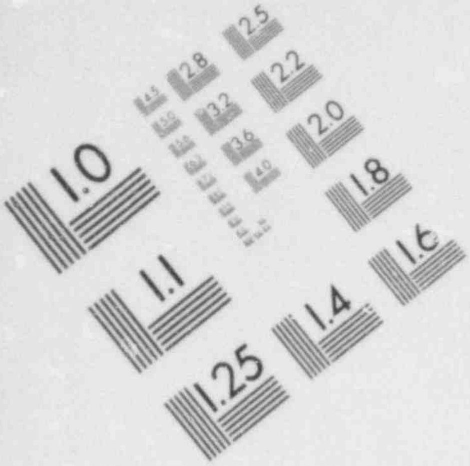

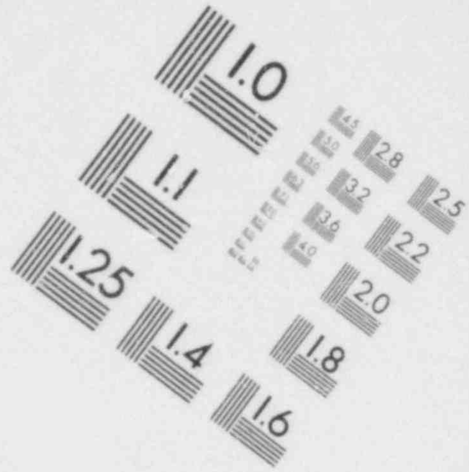

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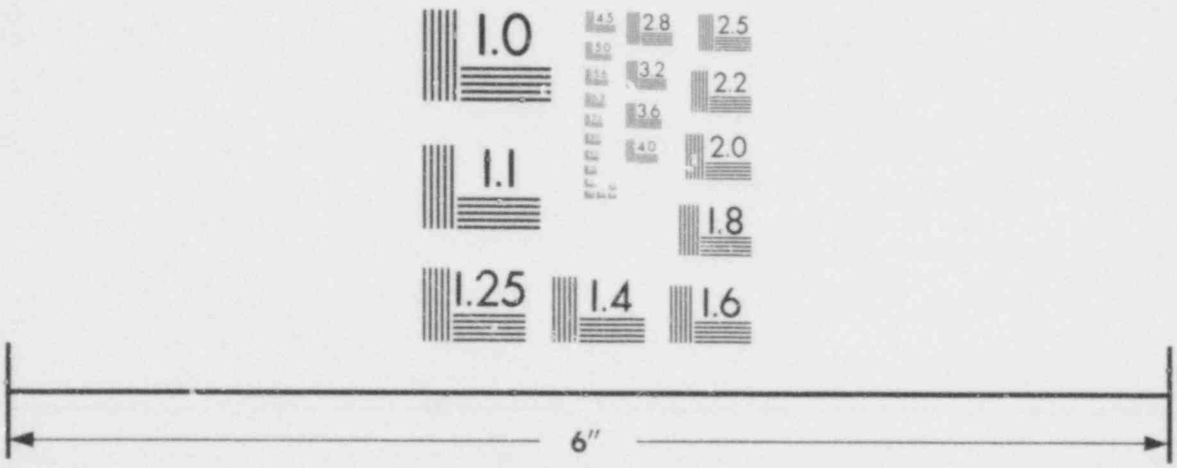

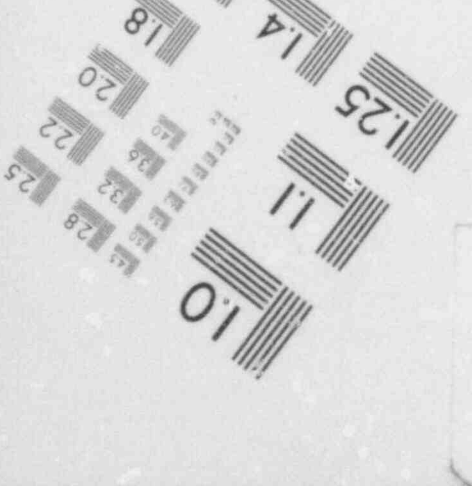

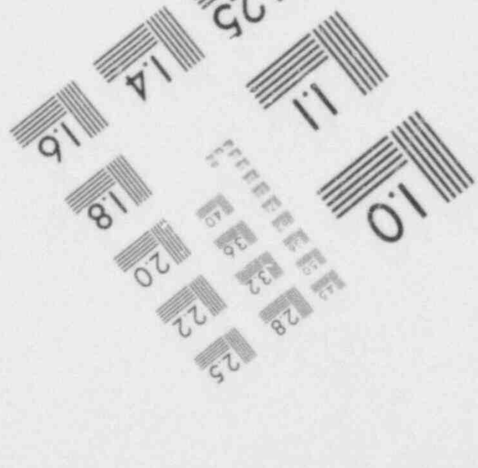

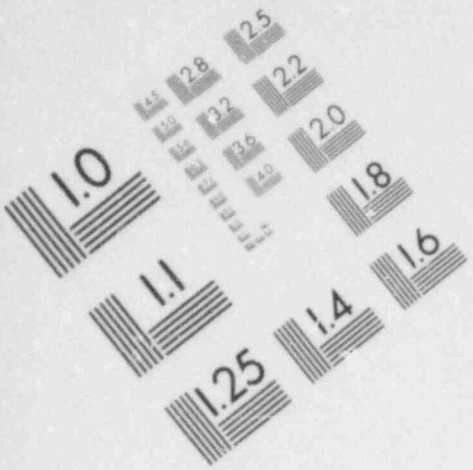

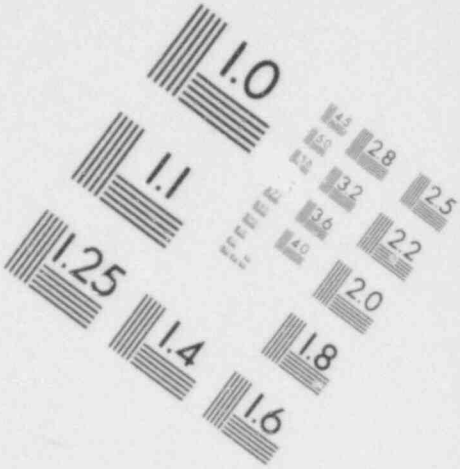

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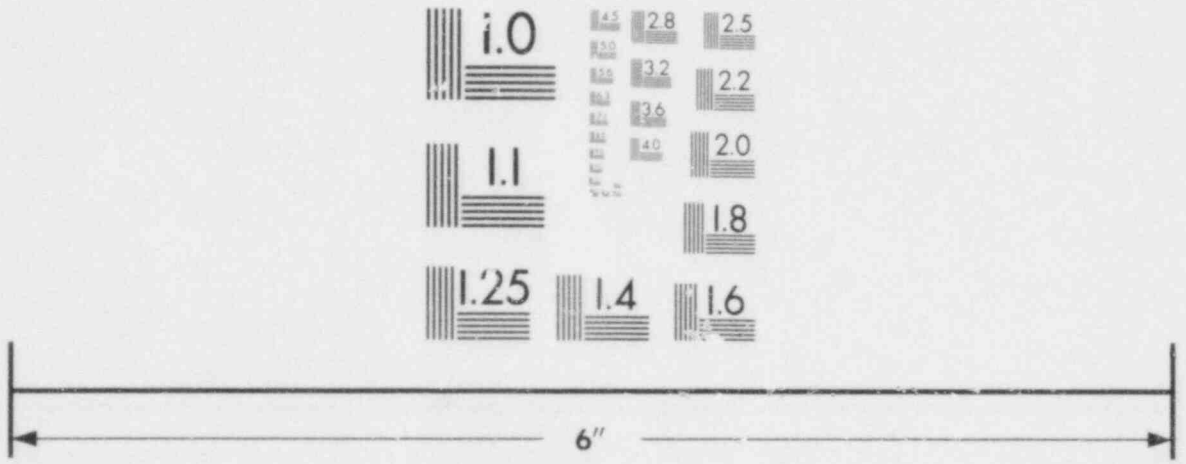

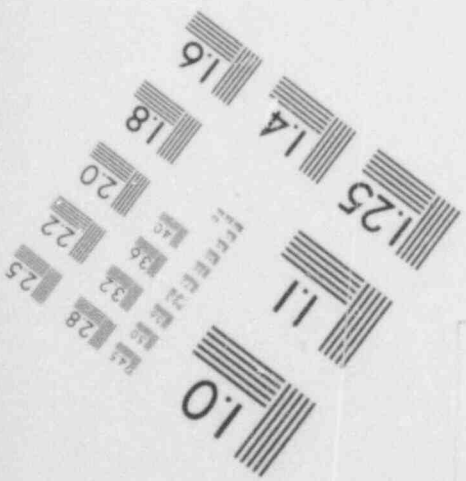

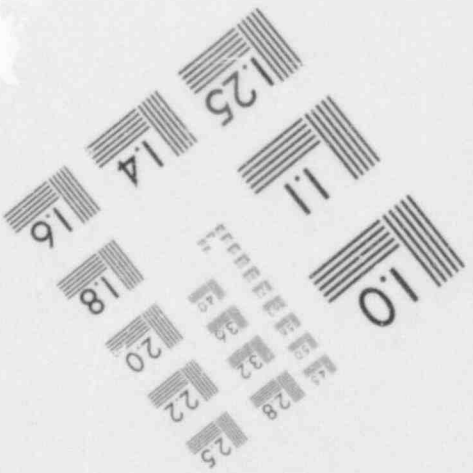

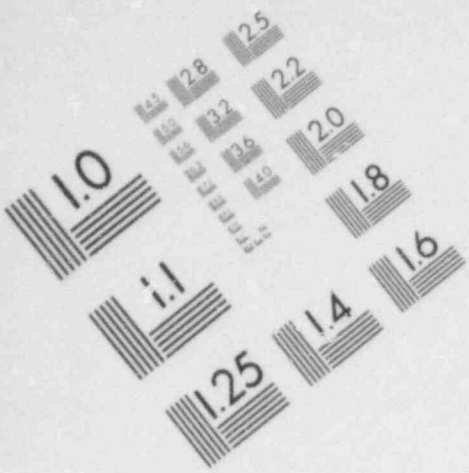

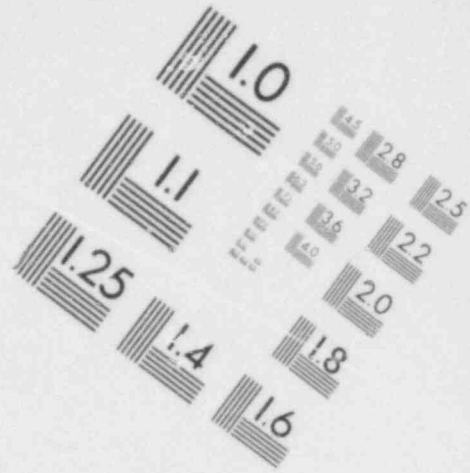

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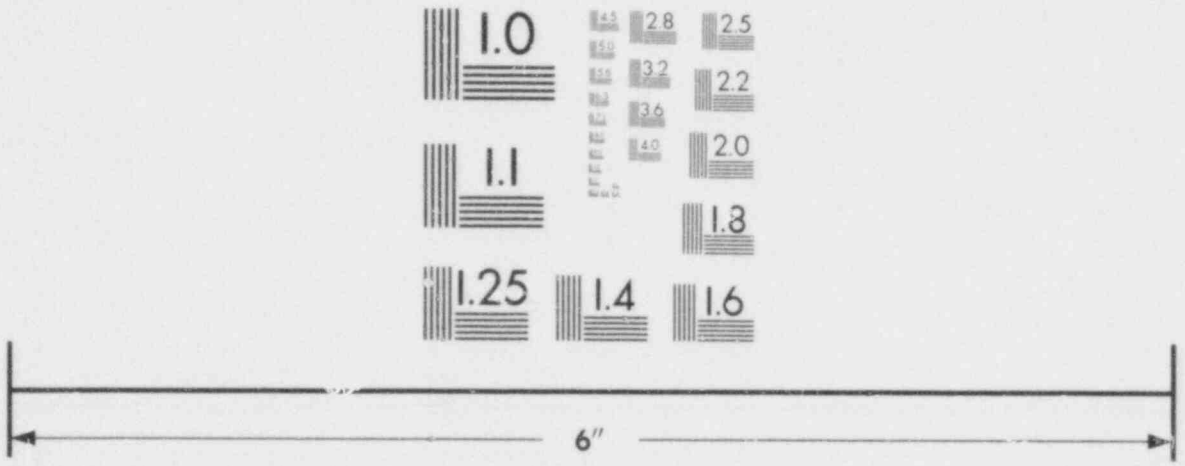

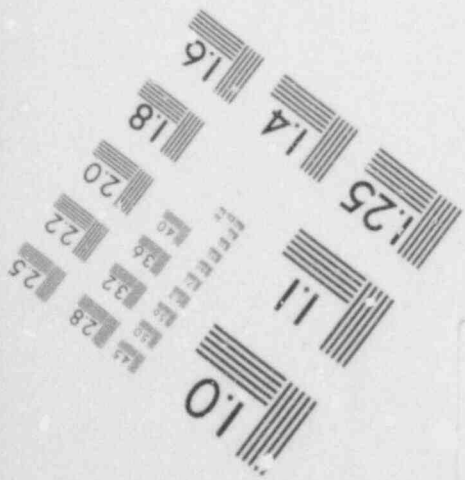

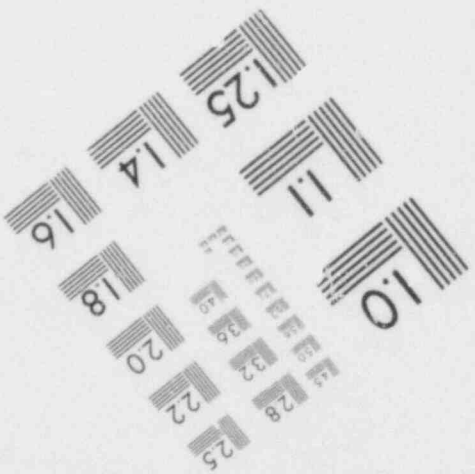

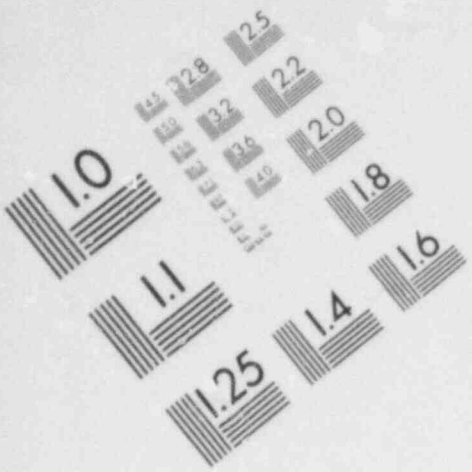

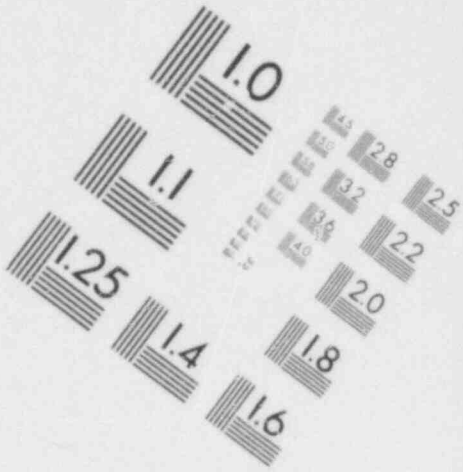

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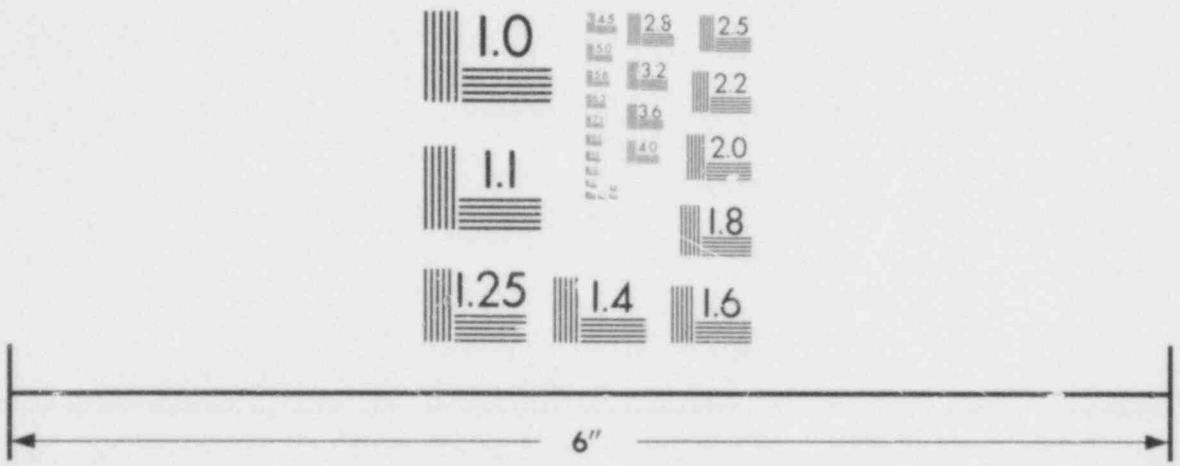

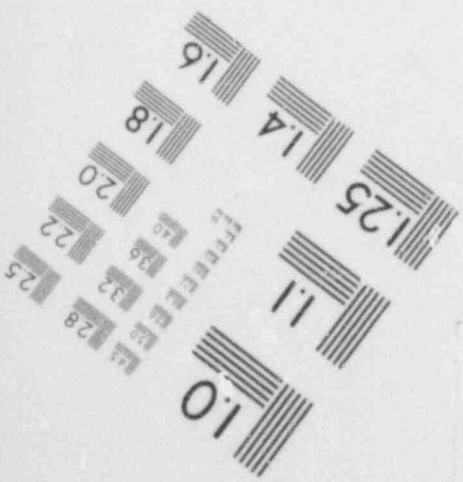

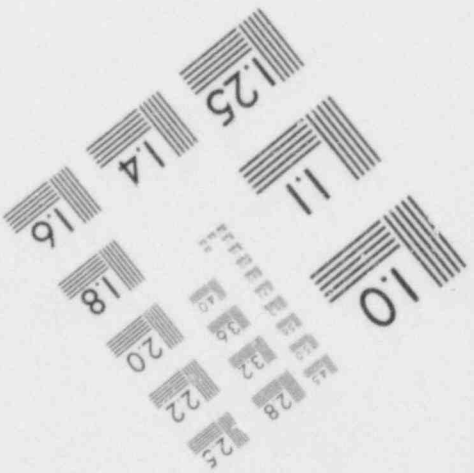

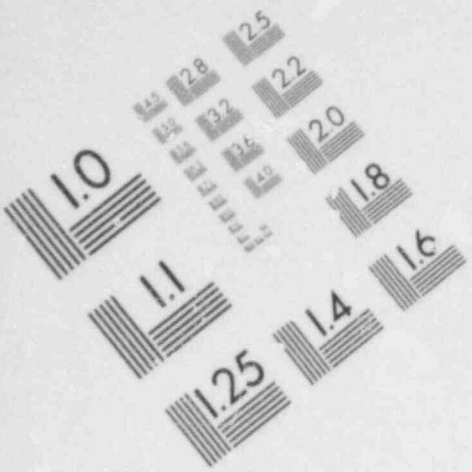

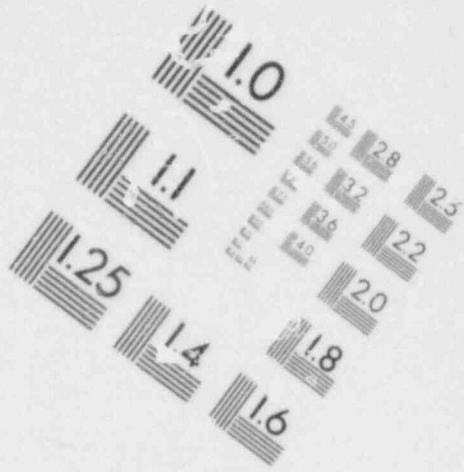

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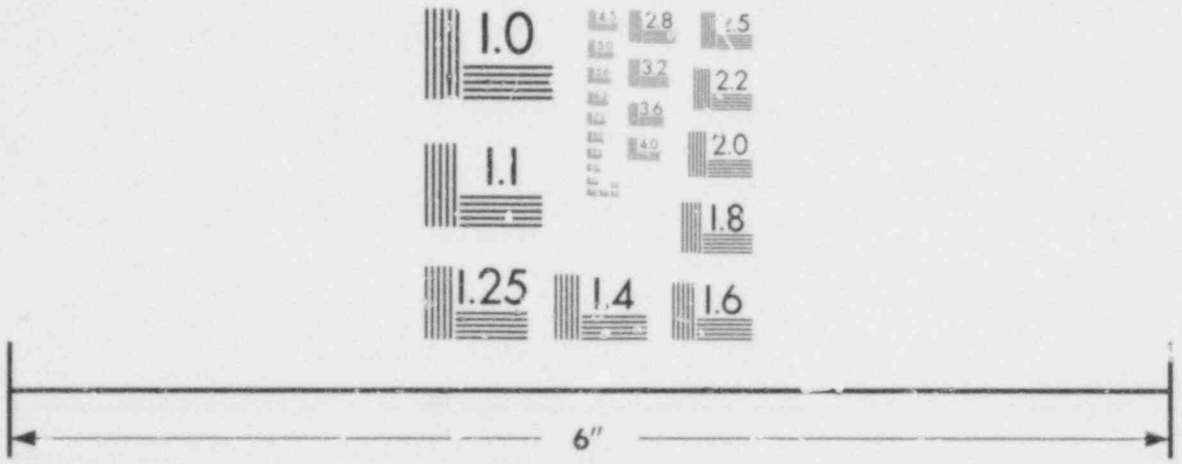

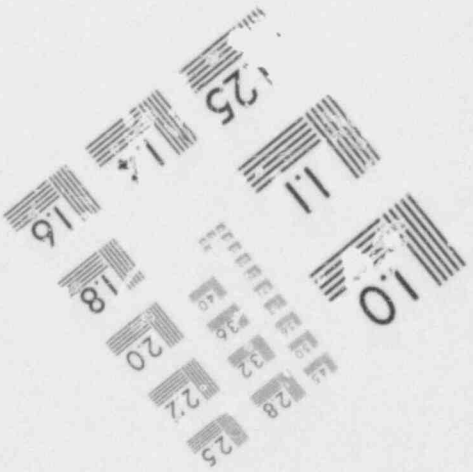

mm34

CHAIRMAN HENDRIE: It is a pressure differential which may be due to dynamic forces and density differences.

(Simultaneous discussion.)

COMMISSIONER AHEARNE: I would guess this is an interesting, but different discussion.

MR. EVERETT: If you had a once-through boiler under the accident conditions, you can postulate. And if you have a dynamic once-through boiler you have got to figure out just what that measurement really means.

CHAIRMAN HENDRIE: Yes. I think there is a fair possibility that we will want to see something along this line because we will decide on balance it will be useful to have.

On the other hand, there is still some sorting out of the arguments one way or the other.

I don't want anybody to interpret my comments this morning as saying here I think it is a bad idea.

COMMISSIONER AHEARNE: How about this afternoon?

CHAIRMAN HENDRIE: This afternoon. It is a longer day than I thought.

-- or, that I am advocating. I am just saying there are some aspects that need to be sorted out before we go off.

Now the general question of accurate fluid condition throughout the system obviously there are better ways we can devise to know that, and the better off we will be.

mm35

Whether those are necessarily differential -- derived from differential pressure, you know, just high-low tapping and then inferring what the pressure differences mean, is meaning not so clear to me.

Well, other questions?

MR. EVERETT: Mr. Chairman, may I ask a question?

COMMISSIONER KENNEDY: Why not.

CHAIRMAN HENDRIE: We don't always expect an answer when we ask a question, and I am sure you don't always expect an answer when you ask a question.

MR. EVERETT: I was concerned to read that part of the reason for the holdup in issuing licenses -- if not the whole reason -- was lack of manpower resources because of the commitment of the Commission Staff to TMI analysis.

And I would think that the economics, if it is economics and safety, are certainly a judgment factor that you have to make on the site of safety.

But, if it is a manpower shortage that the Commission faces, there ought to be resources in this nation that the economics would dictate we can utilize to help out in that.

COMMISSIONER AHEARNE: But you do take into consideration the possibility that there might be some other things other than economics, that might be driving the Staff to be concerned with perhaps taking --

mm36

MR. EVERETT: Of course.

COMMISSIONER AHEARNE: I think you ought to at least recognize that that was an overriding factor.

COMMISSIONER KENNEDY: But let me say to the extent that the point you make is correct, it is that in fact there is a manpower shortage, and to the extent that that drives the question, let me say that I agree with you there ought to be resources in this nation which can be brought to bear to solve it.

COMMISSIONER GILINSKY: I don't think it applies though in this case, because the Staff has given higher priority to those systems that are closer to completion.

CHAIRMAN HENDRIE: There are a half dozen plants that are close, and Unit 2 at Salem is the lead unit in that trend, and I think the Staff resources, as Vic says, will be focused on those ready and near-ready units.

So, I think it is considerably less of a problem for the plant, for the unit that we are talking about here, than it is in general.

In general, in fact, we have a severe Staff resource problem and are taking steps to try to help that as fast as we can.

MR. EVERETT: The nation has tremendous technological resources as you all know at the national labs, Oak Ridge, Argonne, Savannah River and I'm sure you haven't overlooked

mm37

that.

CHAIRMAN HENDRIE: We have been in those discussions.

COMMISSIONER AHEARNE: We haven't overlooked that. BUt I am sure you also recognize there was a very major accident, and for whatever reasons it did happen, and there is a lot of understanding that has to be developed.

MR. EVERETT: I don't mean to minimize --

COMMISSIONER AHEARNE: It is possible for some of the comments to be interpreted as that perhaps you were minimizing it.

COMMISSIONER AHEARNE: I certainly don't think you were minimizing it, not in the least.

CHAIRMAN HENDRIE: Other comments?

(No response)

Thank you very much, and we thank our colleagues from FERC and the Energy Resources Administration -- Regulatory Administration, I'm sorry.

(Whereupon, at 4:10 p.m., the hearing in the above-entitled matter was adjourned.)