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1 UNITED STATES OF AMERICA
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3 NUCLEAR REGULATORY COMMISSION

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5 BRIEFING ON RESUMPTION OF CONSTRUCTION OF
6 MARBLE HILL
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11 Nuclear Regulatory Commission
12 Room 1130
13 1717 H Street, N.W.
14 Washington, D. C.

15 Wednesday, May 7, 1980

16 The Commission met, pursuant to notice, at 10:00 a.m.

17 BEFORE:

- 18 JOHN F. AHEARNE, Chairman of the Commission
19 VICTOR GILINSKY, Commissioner
20 JOSEPH M. HENDRIE, Commissioner
21 PETER BRADFORD, Commissioner

22 NRC STAFF PRESENT:

- 23 LEONARD BICKWIT, General Counsel
24 SAMUEL J. CHILK, Secretary
25 E. HANRAHAN
C. WILLIAMS
H. SHAPAR
V. STELLO
J. G. KEPPLER

P R O C E E D I N G S

(10:00 a.m.)

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3 CHAIRMAN AHEARNE: The Commission meets this morning
4 to hear from the Director of Inspection and Enforcement on
5 matters relating to the Marble Hill facility. We had issued a
6 series of papers in the past, one of which was an order issued
7 on March 14, and as part of that we said that we requested the
8 Director of the Office of Inspection and Enforcement to brief
9 the Commission prior to lifting the order suspending construction
10 at Marble Hill.

11 This tracks with, I think, the approach the Commission
12 has been taking over the last year to involve itself more closely
13 in many of the more major issues. This also, I would have to
14 agree, points out that we are following some of the actions that
15 were recommended to us by Mr. Moffett as a result of a series
16 of hearings that he held.

17 Vic, I see you have some of your troops with you and
18 lots of papers here in front of us. So we have the morning.

19 MR. STELLO: Thank you, Mr. Chairman. If we might
20 have the first slide? And while that is going on let me introduce
21 Mr. Keppler, who is the Director of our Regional 3 office. We
22 have Williams who will be doing the briefing this morning in
23 detail. But before we get there I want to return to that order
24 that you referred to earlier, which required a number of actions
25 on my part, and to summarize for you the things that were in the

1 order that have been done. To the extent that you wish to get
2 into any of those this morning, we are prepared to do that.

3 We have gone through the Sassafras Audubon Society
4 filings. There are, I think, roughly eleven documents related
5 to that particular issue, some of which contain a list of
6 questions and concerns.

7 We have been through each of those to convince
8 ourselves that we are handling each of them, in our judgment
9 satisfactorily, are prepared to go through them if need be this
10 morning.

11 The correspondence related to these issues we hope to
12 have complete before the resumption of construction is granted.
13 There are draft replies in various stages, some of which have
14 already been completed and set out and others I hope to have done,
15 if we can, early next week.

16 We have conducted extensive investigations into the
17 issues that have come up as a result of allegations, our own
18 investigations. We are aware of the investigations that have been
19 done by the FBI and have been briefed on the results of those
20 investigations to again assure ourselves that nothing has come
21 up that we haven't properly accounted for in the program we will
22 be outlining for you today.

23 I should remark that their investigation, however, is
24 pending. It is not complete. They have not decided on the
25 matter as of this time.

1 CHAIRMAN AHEARNE: Can you talk here about what the
2 scope of their investigation is?

3 MR. STELLO: Very generally, it deals with an issue
4 related to whether or not some of the construction activity
5 where they had to make a repair was done so incorrectly, and
6 there was attempt to cover up the need for that repair, to
7 withhold that kind of information from the NRC. That is the
8 substance of the FBI inquiry, and also, we have looked into that
9 matter ourselves.

10 You have already indicated we were to brief the
11 Commission before the order was to be lifted and to not take any
12 action on lifting the order until five days after the briefing.
13 We fully intend to comply with those two requirements of the
14 order, and we will be in the next several days preparing the
15 necessary documents to take the action that will implement the
16 program we will be describing to you this morning.

17 The last item of the order is the actual meat of the
18 presentation, which is a review of the problem itself, a brief
19 background, and then finally getting into describing the
20 corrective actions that have been taken in the overall program
21 that we think is meaningful in terms of allowing the
22 construction to resume, given that our satisfactory items that
23 are completed and the whole points are identified in Appendix C
24 to the paper that we provided you prior to the briefing.

25 So with that, Cordell.

1 MR. WILLIAMS: Good morning, Mr. Chairman and other
2 members of the Commission. It is my pleasure to appear before
3 you today to present the status of the staff's findings and
4 evaluations concerning the confirmatory order issued on August 15,
5 1979 for the Public Service of Indiana, Marble Hill facility.

6 I am Cordell Williams, construction project section
7 chief, located in Region 3, Offices of Inspection and
8 Enforcement.

9 This presentation includes facility information,
10 significant construction events leading to the issuance of the
11 order, a description of the licensees' ongoing corrective
12 actions and the NRC Region 3's inspection and confirmatory
13 activities.

14 First slide, please?

15 The Marble Hill facility is located in southern
16 Indiana, immediately west of the Ohio River and approximately
17 ten miles south of the little town of Madison, Indiana. It will
18 utilize 2 - 4 loop Westinghouse designed pressurized water
19 reactors, each capable of producing a net electrical output of
20 approximately 1130 megawatts.

21 The limited work authorization which initiated the
22 first safety-related work at the site was issued in August 1977.
23 The construction permit was issued in April of 1978.

24 The following slides will show in part the status of
25 construction at the site at this time. The first slide here

1 provides an overview of the construction site. In the
2 immediate foreground we have a batch plant and to the left of the
3 large, dark structure there is the Unit 2 containment, and to the
4 right we have the Unit 1 containment.

5 Next slide?

6 This slide presents a closeup view of the two
7 containments. We can see on the right that Unit 1 containment
8 has approximately 75 percent of the concrete in place, and on the
9 left, Unit 1 only has the concrete -- I am sorry, the containment
10 lining erected. In the immediate foreground we have the
11 components of the polar cranes that will ultimately be installed
12 within the two structures.

13 Next slide?

14 Here we have a view showing once again the Unit 1
15 containment, with the construction opening on the right side
16 there. In the diagram, the first still structure we see there
17 is the auxiliary building and immediately behind, the taller
18 still structure, is the turbine building.

19 Next slide?

20 Here we have a closeup view of the Unit 2 containment
21 showing the intricacies, if you will, of the installation of the
22 reinforcing still with equipment hatch to the left, the opening
23 there about mid-screen, and to the right the white circles are
24 the end caps on certain of the penetrations through containment.

25 Slide B?

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Since April 1979 there have been a number of significant occurrences which led to the suspension of construction in August of 1979. Among these NRC 3 performed a special inspection, or several special instructions in early April 1979, wherein we identified significant problems with the placement of concrete.

As a result of identification of these problems NRC 3 followed up with an escalated enforcement action meeting, wherein we discussed the issues of the corrective actions with the licensee and indicated that the issues had to be resolved in an expedient fashion.

Shortly thereafter, in May of 1979, NRC received allegations wherein it was alleged that certain concrete deficiencies, herein described as honeycombs, were being covered up without benefit of proper corrective actions being taken.

Shortly thereafter, in June, NRC was also informed of additional allegations involving testing of concrete prior to its placement.

During June and July of this year, I am sorry, of 1979, NRC confirmed the central substance of the allegations involving the coverup of concrete patches.

Parts of the issues involving the concrete coverup are currently under Justice Department investigation. However, assuming that all of the allegations are true, action has been

1 taken by the licensee at NRC to preclude recurrence of the
2 alleged events.

3 Here in this slide we have an example of honeycombing
4 as it occurs in a concrete structure. To the immediate left
5 of the rebar, the reinforcing still we see there, we see a void
6 and further to the left of that void we see the evidence of
7 misconsolidation that is the failure of the sides of the
8 concrete to fully fill the voids between the rock of the
9 aggregate.

10 Next slide?

11 COMMISSIONER HENDRIE: Cordell?

12 MR. WILLIAMS: Yes, sir.

13 COMMISSIONER HENDRIE: Who is the contractor for
14 construction? Is there a single overall construction management
15 contractor?

16 MR. WILLIAMS: The construction management is being
17 done by PSI. The constructor responsible for civil work, the
18 concrete work we are looking at here, is being managed by their
19 contractor Newburg.

20 COMMISSIONER HENDRIE: Yes.

21 MR. WILLIAMS: This slide shows the reinforcement
22 still that is included within most concrete structures. Here we
23 see the complexities that are introduced by the congestion. In
24 the immediate righthand corner of that slide, the upper righthand
25 corner, we see one of the embeds, an embedded steel structure

1 that will be used either as an anchor or foundation subsequently.
2 This congestion contributes to the occurrence of honeycombing.
3 Honeycombing itself is something that is expected and planned
4 for within large civil enterprise of this sort.

5 Next slide?

6 Here we have another example of the occurrence of
7 the alleged events, the allegations as presented by Mr. Cutshell.
8 In the center of that slide we have a six-inch long pencil to
9 give you some evidence as to size. This is one of the areas
10 that had been previously improperly prepared. At the borders
11 of that patch, the chipped out area, you see a dark area. That
12 was the repair material, the dry pack, that had been placed
13 over these misconsolidated areas.

14 In this instance we have had the licensee, after
15 identification of this patch, by alleged Mr. Cutshell, and the
16 subsequent confirmation by NRC, you simply struck it and it
17 fell, we had them dig back to show that all the honeycombing
18 had not been previously removed. In this instance it is three
19 to four inches deep, and it involves this rebar, the
20 reinforcement still that is very near the surface.

21 Next slide?

22 Here we have another example of the same thing. In
23 this instance the honeycombing has occurred in a floor or deck
24 and the supporting beam.

25 Once again the honeycombing only involved the outer

1 surfaces of the structure. In this instance it has not been
2 completely removed because we decided very early to simply have
3 the evidence be demonstrative of the finding and the allegation.

4 The tag that we see there, hanging there, is a
5 subsequent --

6 COMMISSIONER HENDRIE: Cordell, how far up does the
7 honeycombing go? So far what we have seen is just failure
8 of consolidation in the cover concrete.

9 MR. WILLIAMS: So far those are the only areas that
10 have been identified by Mr. Cutshell, and so far those are the
11 only areas that we have subsequently confirmed.

12 Now additional steps have been taken to assure that
13 similar voiding and other discontinuities have been essentially
14 avoided within the volume of the concrete.

15 COMMISSIONER HENDRIE: Well, these things need to be
16 patched because you don't want the steel bare in there, but the
17 loss of that layer, I assume that the down is down, and the
18 loss of that bottom layer isn't contributing much to the beam
19 strength anyway.

20 But it is generally then the cover concrete that
21 hasn't consolidated here?

22 MR. WILLIAMS: Yes. It is is the complexity, if you
23 will, of having the congestion of the rebar and the form which
24 is of course quite necessary at that interface, and of course
25 the conditions of the concrete at the time of placement and its

1 handling contribute to this.

2 COMMISSIONER HENDRIE: Yes.

3 MR. WILLIAMS: But the occurrence of honeycombing
4 itself is not an indication of inadequacy. The fault in this
5 instance is simply the failure to properly identify, included in
6 a QA system, and make it visible and otherwise repaired.

7 COMMISSIONER BRADFORD: Now what is it that assures
8 you that this is only going on at the surface and that back in
9 is hard and solid?

10 MR. WILLIAMS: The first assurance, if you will, is
11 history, but of course we can't rely entirely on that in prior
12 experiences in placing concrete. But secondly, in those
13 instances where it is at the surface, it is removed to the extent
14 that it involves the remaining volumes of the concrete.

15 Now in the instance of our interest here we have
16 gone further and had certain volumetric examinations performed,
17 titled microseismic evaluation of bulk concrete, if you will.
18 What in fact happens is you place a transducer on the surface
19 of the concrete, you initiate a small seismic event by striking
20 it with a hammer, thereby propagating sound waves through the
21 volume, and you listen to the echoes. With fairly sophisticated
22 electronic gear you suppress the noise and -- I am sorry, static
23 and reflections from expected surfaces like the re-steel, and
24 what you have left is essentially a picture of major
25 discontinuities, those that are larger than aggregate, and in the

1 instances of this inspection air bubbles as small as a quarter
2 of an inch, when they were on a plane and in an aggregate
3 condition, where they represented a major interface.

4 Slide?

5 Here is another example, once again of what I call
6 here the superficial honeycombing, roughly three to four inches
7 deep. We have dug back to the first layer of reinforcement
8 steel. The honeycombing in some instances goes beyond there
9 several inches. We are expecting it to. Once again we are
10 merely uncovering those alleged conditions as reported by our
11 first allegor in this area.

12 Now in this slide you also see a grid pattern that
13 has been laid out above that honeycomb condition. This was a
14 subsequent event wherein we use the microseismic test technique
15 to make an evaluation of the potential, if you will, or the
16 possible inclusion of major voiding within that wall.

17 Now this honeycombing here is possible to the extent
18 that we would expect to see some there, and you would look for
19 it because we have got not only the re-steel, but we have got a
20 major penetration, as represented by that pipe, which makes it
21 more difficult to place concrete from the top, get it to properly
22 flow under and properly involved in all the enforcement,
23 reinforcement steel.

24 Next slide?

25 Now further to assure ourselves that the microseismic

1 technique was capable of determining significant inclusions,
2 voiding and honeycombing within the volume of the concrete, and
3 capable of getting this useful information for additional
4 assurance, we also were -- I am sorry?

5 COMMISSIONER BRADFORD: Does voiding just mean larger
6 honeycombing? What is the difference between a void and a
7 honeycomb?

8 MR. WILLIAMS: Well, it is actually what the word
9 says. It is an open space. There isn't anything there.
10 Honeycombing says that the rock, the large parts of the concrete
11 are there, but the fines, the cement case, isn't, or if it is
12 there it is inadequately involving the aggregate.

13 To go beyond those test results which are essentially
14 electronic in nature and we can't see back there, we and the
15 licensee agreed that certain destructive tests had to occur.
16 In this instance it was coring. That core is approximately
17 three inches in diameter.

18 Now that core was taken at a location wherein the
19 ultrasonic test technique had indicated that there was an
20 unplanned for reflector, a void or a honeycomb. Now in this
21 instance we were also interested in determining, making a
22 determination as to the conservatism of the test.

23 The evaluation indicated that there were certain
24 bare plane at a given depth. The cores were made, and indeed,
25 we did find small entrapped, a plane of small entrapped air

1 bubbles.

2 On the immediate left of the 4 and under the
3 alphabet A, there is an example of one of those. It is roughly
4 three-eighths of an inch in diameter, very typical of all
5 construction involving concrete. And in this instance, though
6 it was a reflector, it demonstrated that we were on an
7 extraordinarily conservative side in approaching our statistical
8 measurement in this fashion.

9 Next slide?

10 CHAIRMAN AHEARNE: When you do your transducer
11 measurement, what kind of a cone of area are you actually
12 measuring?

13 MR. WILLIAMS: All right. This transducer is really
14 an array of devices. There are five elements, five energy
15 transducers within a frame that is roughly eight inches in
16 diameter. You can't speak of it in the same context that you
17 would radii. It is not that directional, and it isn't intended
18 to be.

19 It has a very broad -- the electronics, the front
20 end, the transducer has a very broad frequency response.
21 What you do is place that cone, and you can go as far as eight
22 inches away, a foot and a half away, and strike the bulk of the
23 concrete. And it listens to information coming from any
24 direction, whether you have generated radio waves --

25 All right.

1 CHAIRMAN AHEARNE: Roughly, what size region would
2 you then end up measuring?

3 MR. WILLIAMS: It varies with depth, as I am sure you
4 recognize. There is a schedule that is a part of the procedure
5 that defines the zone of interest for a given depth. Once
6 you find sensitivity, if you get a back echoe from the back
7 surface that is of a given amplitude then you are sensitive
8 enough.

9 What defines that area of interest, the cone that we
10 speak of here, it is not a number that I can give you here. I
11 would have to consult that chart, but in each instance there was
12 enough overlap in the placement of the grids to assure that we
13 had at least 50 percent overlap and sensitivity capability
14 to here and interface, a problem ringing in the volume of the
15 concrete.

16 CHAIRMAN AHEARNE: Did you do those measurements only
17 in the areas where Mr. Cutshell had said there were weaknesses,
18 or did you do other areas?

19 MR. WILLIAMS: No. This examination was not --
20 certainly it drew from, the fact that it occurred when it did
21 drew from our receipt of allegations. NRC had requested it in
22 May when we first -- I am sorry, May and April, when we first
23 identified difficulties with placement. Therefore, when we used
24 this technique, we were interested in an assessment by statistical
25 examination of the entire volume of concrete. And the criteria

1 used to select the sample areas was not tied to location of
2 identified superficial problems.

3 CHAIRMAN AHEARNE: But did I understand you correctly
4 earlier to say that the areas where you did find problems were
5 the areas where Mr. Cutshell had suggested?

6 MR. WILLIAMS: No. If I did give that bit of
7 information, it was incorrect and not the conclusion to be
8 drawn.

9 The areas where we found reflectors were areas other
10 than those where Mr. Cutshell had pointed out deficient
11 concrete patching and other than those where we had likewise
12 identified the same problem.

13 They were chosen at random based upon the areas of
14 examination, based upon wall section, the degree of congestion,
15 the nature of the pour, elevation and other criteria within
16 that family.

17 CHAIRMAN AHEARNE: Maybe I am getting you ahead of
18 your presentation? Were you going to then reach some conclusion
19 about what you found as a result of those examinations?

20 MR. WILLIAMS: In a broader fashion. We can speak
21 to it specifically here. By my best understanding and
22 recollection, the findings have not disclosed, the findings by
23 the ultrasonic technique have not disclosed any rejectable
24 condition.

25 Excuse me just a second here.

1 COMMISSIONER BRADFORD: What is a rejectable
2 condition?

3 MR. WILLIAMS: A rejectable condition is -- I can't
4 give you an answer any more comprehensively than one is one
5 wherein either the misconsolidation or other anomaly would
6 undermine the structural integrity of the structure, the wall or
7 the floor, as defined by the design.

8 It would take a design evaluation to speak to that
9 question very specifically; however, for quality control
10 purposes, the quality control procedures will define
11 honeycombing, much as we have seen, as the pictures represented
12 here, and this is repaired without benefit or any need for any
13 further analysis.

14 But now had we during, had they during their
15 ultrasonic evaluation found a large anomaly, a large inclusion,
16 that would have made for some evaluation. They would have to
17 make a decision at that time.

18 COMMISSIONER BRADFORD: Are you saying then that
19 conditions which would have been rejected had they been found
20 by the normal QA, QC procedures would not necessarily be
21 rejectable conditions as you are defining them for purposes of
22 the results of the ultrasonic testing?

23 COMMISSIONER HENDRIE: The point is that the external
24 problems, the honeycombing on the outside, at least the sort
25 of stuff that is shown in the pictures, which is rather shallow

1 and just goes down to the first rebar layer, is concern rather
2 more for the loss of protection to the reinforcing steel than it
3 is from a strength standpoint? So that you want to repair all
4 those areas, not because the structure may be weaker than the
5 design basis, but rather to restore the protective cover which
6 the designers want over the first rebar layers, for corrosion
7 protection and long-term stability.

8 Now when you get into the internals of the structure,
9 where any substantial void would be a structural concern, then
10 indeed you look and see how big a signal you get and then
11 decide whether you need to core to validate the acoustical
12 signal, or whether it is a small one so that whatever object is
13 causing the reflection is small enough so as not to be of
14 structural concern.

15 You see, there is a quantitative difference in the --

16 COMMISSIONER BRADFORD: Well, what does the QA, QC --

17 COMMISSIONER HENDRIE: -- basis for repair.

18 COMMISSIONER BRADFORD: What assurance does the
19 QA, QC procedure give you against voiding? Are there voids
20 which had they been found in the course of QA, QC work would have
21 immediately been fixed but which would be too small to be of
22 significance from the point of view of what we would consider
23 to be rejectable?

24 COMMISSIONER HENDRIE: I guess I am not quite getting
25 the right play. The whole proposition is a quality assurance and

1 quality control exercise on the product here.

2 COMMISSIONER BRADFORD: Yes. What I am really after
3 is just whether at this point in time under our testing
4 procedures, using as a yardstick the question of whether it
5 threatens the overall integrity of the structure we would wind
6 up not ordering the fixing of things that a QA, QC person might
7 flag and say, wait a minute, that has got to be done over, if he
8 caught it on the day of the pour or something of that sort.

9 COMMISSIONER HENDRIE: That probably is possible.
10 That is, if you had been coming along with a set of lifts in the
11 concrete and you now have a rough surface down there in the
12 wall, and the QA man comes by and sees, I don't know, a patch
13 of sand has been kicked down on it, if they are running a good
14 tight well-controlled construction effort he will see that
15 the construction foreman blows that stuff off there before they
16 lay the next lift on it.

17 Now if it doesn't get removed and you pour on top of
18 it, then later on you are going to have to decide whether the
19 unconsolidated volume that that represents is of a significant
20 enough size to go in and have to pound the whole thing out and
21 go back and repour. And if it is, why, then this kind of
22 testing is pretty sensitive. It is getting a lot better than it
23 used to be, I must say, to judge by your report, Cordell.

24 MR. WILLIAMS: Our experience has surprised me, if
25 you will.

1 COMMISSIONER HENDRIE: Yes.

2 MR. WILLIAMS: They were able to define a very small
3 plane of air bubbles less than a quarter to three-eighths
4 inch in diameter and less than two inches --

5 COMMISSIONER HENDRIE: Well, anyway, you know if you
6 pick up something that appears to be large enough to be of
7 concern, why, typically you will core to confirm what is going
8 on, because you can replug a core relatively easily in the wall,
9 and if you find it is, no, it is not a big deal, why, you
10 probably from a structural standpoint in some ways making a
11 major repair is a matter that has to be done with great care
12 to make sure that what you put back in fact now brings the whole
13 structure up. So if you don't have to do that, why, you will
14 avoid the possible pitfalls that go along that route.

15 One point I will make about the sensitivity of this
16 stuff, if indeed you are consistently picking up small voids,
17 a quarter, half-inch voids, and then on the occasions when you
18 have picked one up and cored are able to verify that indeed
19 you are finding things like that, it suggests a pretty decent
20 continuity of the bulk concrete product.

21 MR. WILLIAMS: That is the conclusion that was drawn --

22 COMMISSIONER HENDRIE: Because you wouldn't get nice
23 clean signals like that if you didn't have pretty good quality
24 material, you know, except at the location of the bubble itself,
25 which is no great shakes as a structural --

1 COMMISSIONER GILINSKY: Could I just return to what
2 I understood Peter's question to be? You are drawing a
3 distinction between something which needs to be fixed and
4 something which is "rejectable," is that right?

5 MR. WILLIAMS: I am not following your question at
6 this point.

7 COMMISSIONER GILINSKY: Well, I understocd --

8 MR. WILLIAMS: Go ahead.

9 COMMISSIONER GILINSKY: The structure, as I understood
10 it, which had these surface flaws, would be required to be
11 repaired.

12 MR. WILLIAMS: Yes.

13 COMMISSIONER GILINSKY: But you didn't regard that
14 as rejectable?

15 MR. WILLIAMS: Yes.

16 COMMISSIONER GILINSKY: Rejectable means what? You
17 put a jackhammer to it and --

18 MR. WILLIAMS: In this instance, given a patch much
19 like either of the ones we saw before, this occurred during the
20 placement of the concrete.

21 COMMISSIONER GILINSKY: Right.

22 MR. WILLIAMS: Some -- -- maybe -- -- in the high
23 plate of the slide -- I am sorry, the form is removed. It is
24 at that time that you identify a honeycomb condition. Now the
25 the proper series of events is that the craftsman removing it

1 and their foreman would have notified QC or QC would have been
2 there by routine, by virtue of their routine involvement, it
3 was noted and identified this honeycomb condition and prescribed
4 a corrective action which would involve turn, jackhammering it
5 out, back to sound concrete, giving it a configuration that
6 makes it easy to patch, not jagged and rather oddly shaped as
7 we saw there, but one with very positive corners. They would
8 have been instructed to remove even sound concrete beyond that
9 outer surface of re-steel, so that the patch itself will involve
10 an anchor mechanically, once it is set up to the rebar.

11 To that extent those conditions were rejectable.
12 Now that is only for that patch. It is a control mechanism,
13 a quality control device assuring that all such patches are
14 addressed.

15 Now there are other quality control devices that --

16 COMMISSIONER GILINSKY: Well, let's see, I didn't
17 understand your earlier comment when you said you found nothing
18 which was rejectable.

19 MR. WILLIAMS: Different subject.

20 COMMISSIONER HENDRIE: That was with the ultrasonic,
21 not ultrasonic. That means that the acoustic --

22 MR. WILLIAMS: Beyond the surface.

23 COMMISSIONER BRADFORD: Beyond what you had seen at
24 the surface.

25 MR. WILLIAMS: A subsequent act. We would evaluate

1 the volume of the concrete. To date we have not identified
2 anything rejectable.

3 CHAIRMAN AHEARNE: Thank you. Now that we have
4 brought you far out, we will come back in.

5 MR. WILLIAMS: Now, subsequently to identification
6 of -- I am sorry, subsequent to the confirmation by NRC and the
7 licensee of the accuracy, if you will, of allegations by Mr.
8 Cutshell, NRC issued two immediate action letters in June and
9 July of 1979. These instructions required that the licensee
10 corrects certain process control activities involving the
11 placement of concrete and instructed the licensee to
12 expeditiously accomplish the ultrasonic examination we were
13 previously discussing, and it also asks that they identify and
14 correct all the nonconforming patches at the site.

15 Of course the fundamental requirement there was that
16 all concrete civil activities were to stop until these
17 corrections had been made and restarted with 100 percent NRC
18 overview and involvement in their activities.

19 These actions were not effective. The nonconformance
20 has continued, speaking to inherent deficiencies in either
21 program implementation, qualifications of personnel.

22 The other significant event that occurred during this
23 period of time --

24 COMMISSIONER BRADFORD: Well, how could the
25 nonconformances have continued if they had stopped work?

1 MR. WILLIAMS: The issue of stop work order instructed
2 the licensee to take corrective actions in the form of training
3 personnel, correcting procedures that appeared deficient by
4 our evaluation.

5 We would then lift the stop work for demonstration
6 of capability. During these demonstrations they failed again
7 to show adequacy. We issued another stop work immediate action
8 letter, then went through the same series of events. It was
9 likewise not effective.

10 And that speaks to larger problems than immediate
11 problems of placement or immediate conditions or adversities
12 that they may have encountered in the area that we watched.

13 COMMISSIONER HENDRIE: Reinforced concrete is pretty
14 forgiving stuff. It is not a bad place to see whether your
15 QA machinery is working, because later on on the job you get into
16 some things that are not so forgiving, and if you can't keep
17 the concrete work up to snuff, why, it is high time to stop and
18 reevaluate before you get on to these other areas.

19 COMMISSIONER BRADFORD: Forgiving in the sense that
20 it is relatively easy to fix?

21 COMMISSIONER HENDRIE: Not only relatively -- well,
22 it depends on whether you are the guy that has to handle the
23 jackhammer. You know, the jackhammer operator may not think it is
24 very easy to fix, but you know, it is at least simple in
25 principle.

1 COMMISSIONER BRADFORD: We are having some experience
2 with that right now.

3 COMMISSIONER HENDRIE: No, but more particularly,
4 forgiving in a structural sense, in a well-designed section
5 you have to work hard to make enough errors to really destroy
6 structural integrity. The stuff can stand a lot of mistreatment.
7 That doesn't suggest that it is allowed, because we are looking
8 for high quality here, and as I say, but it is a good place
9 to see whether your QA organization is working. And if it is
10 not, why, there is a good place to stop and fix it.

11 MR. WILLIAMS: Now the other significant event
12 occurred in this same period of time was the issuance by the
13 National Board of Wall and Pressure Vessel Inspectors, their
14 findings as documented in the report dated July 10th, 1979.

15 Now excuse my brevity, it was a very large report
16 and it documented numerous items and issues of nonconformance.
17 But principally it involved the quality documentation, the
18 paper that speaks to quality of piping, much like the piping
19 we observe here on this slide.

20 It also involved the authority of PSI in purchasing
21 and handling and distributing that piping to its subcontractors
22 and the relationship between PSI and its subcontractors at the
23 site with the responsibility to install this piping.

24 COMMISSIONER GILINSKY: This is the handling of the
25 piping on site after it has been received?

1 MR. WILLIAMS: And prior to. The quality
2 documentation that speaks to its quality was at issue. The
3 authority of the licensees in terms of their N stamp commitments
4 and their decision to become an N stampholder, and the relation-
5 ship between the subcontractors at the site who were installing
6 the piping, and the licensee.

7 COMMISSIONER GILINSKY: What precisely was the
8 problem? Was the licensee not involved in this process
9 sufficiently?

10 MR. WILLIAMS: He was very much involved in the
11 process, but the involvement had not been in conformance with
12 the Code.

13 COMMISSIONER HENDRIE: In what way?

14 MR. WILLIAMS: The licensee made the decision that
15 it would be the N stampholder. The licensee had not made the
16 overt commission by hiring the necessary third party inspection
17 agency. They had not subjected itself to survey by the ASME
18 Code in the State of Indiana to determine the adequacy of their
19 quality assurance program separate from the 10 CFR, Part 50,
20 Appendix B program.

21 Various third party inspectors for the contractors
22 at the site were having difficulties in their estimation in
23 acquiring competent paper to speak to the quality of the
24 materials that their companies were in possession of.

25 CHAIRMAN AHEARNE: Had they applied for the N stamp

1 certificate?

2 MR. WILLIAMS: No, they had not, not at that time.

3 COMMISSIONER GILINSKY: -- -- as though they had?

4 MR. WILLIAMS: They were acting as though they had,
5 but --

6 COMMISSIONER GILINSKY: Could you give me a 60-second
7 primer on the significance of being an N stamp holder?

8 COMMISSIONER HENDRIE: Do you want me to try?

9 MR. WILLIAMS: I will yield to you, sir.

10 COMMISSIONER HENDRIE: And you supplement.

11 In normal construction contracting practice, if you
12 wanted to buy a batch of pipe like this, why, you would decide
13 what kind you wanted in the design sense and put out a bid for
14 it and somebody would be low bidder, and you would give him the
15 job and he would send you the pipe with a transportation sheet
16 that says here is the pipe you ordered on order number so and
17 so against your purchase order so and so, and you would paint
18 that on the pipe and send it to the warehouse at the site and
19 so on.

20 The N stamp business is a totally different game,
21 and people who have done ordinary power plant construction, for
22 instance, and think that moving into the nuclear field and in
23 particular becoming an N stamp holder is just sort of more the
24 same, go through a terrible shock. It is a different world.

25 Each piece of pipe comes with a great thick sheaf of

1 documentation that authenticates its material properties, the
2 tests that were made on those heaps, and the fabrication and
3 the pipe and everybody that touched it is signed off there. And
4 the N stamp holder, by George, he is on the hook with the Code
5 committee to make sure all of that is there and to stand behind
6 all of the fabrication procedures as being strictly according
7 to Section 3 of the Code and so on.

8 And as I say, people who have worked with other
9 sections of the ASME Code and think, well, Section 3, we will
10 just go on and move into that, you know hire two more guys and
11 another secretary and we can do that, oh, boy, do they get into
12 trouble.

13 COMMISSIONER GILINSKY: Well, Cordell said something
14 about the utility choosing to be an N stamp holder. Could it be
15 otherwise than for them to be an N stamp --

16 COMMISSIONER HENDRIE: Yes.

17 COMMISSIONER GILINSKY: What would be the
18 alternative?

19 MR. WILLIAMS: The alternative is to delegate that
20 responsibility to some contractive agency.

21 COMMISSIONER GILINSKY: I see, the architect
22 engineer or --

23 MR. WILLIAMS: Could be an example.

24 COMMISSIONER HENDRIE: The engineer constructor on
25 other sites would typically be the N stamp holder.

1 COMMISSIONER GILINSKY: Now what do we require here,
2 just that someone be an N stamp holder?

3 COMMISSIONER HENDRIE: We require that the
4 significant portions from our standpoint of the plant be built
5 to Section 3 requirements of the ASME Boiler Pressure Vessel
6 Code, and that in turn requires that that be done, that the
7 fabrication be by N stamp holders who fabricate, and the
8 constructors, assemblers the same and so on.

9 COMMISSIONER GILINSKY: Is there a requirement in that
10 path for an N stamp holder to have an independent set of
11 inspectors?

12 CHAIRMAN AHEARNE: Well, the Code itself has a
13 whole series of requirements on quality assurance for an N stamp-
14 holder, and part of getting an N stamp is the Boiler Code
15 Committee on N stamps comes down and grills the organization
16 and make sure it has those appendages to it.

17 MR. STELLO: You are required to contract with an
18 authorized inspection agency for that purpose.

19 COMMISSIONER GILINSKY: The utility could not have
20 been unaware of what the requirements for being an N stamp holder
21 are?

22 CHAIRMAN AHEARNE: Is this their first nuclear power
23 plant?

24 MR. WILLIAMS: Yes, sir.

25 CHAIRMAN AHEARNE: This is their first?

1 COMMISSIONER GILINSKY: What was the problem?

2 MR. WILLIAMS: Why did they not do so in a timely
3 fashion?

4 COMMISSIONER GILINSKY: What is our understanding of
5 the problem?

6 MR. WILLIAMS: It was our conclusion, as documented
7 in an earlier report in August was that it was, the salient
8 contributing factors was lack of a good understanding of the
9 requirements. I characterized it much earlier as being
10 arrogance, ignorance, and expediency.

11 COMMISSIONER GILINSKY: That seems to be fairly
12 clear.

13 MR. WILLIAMS: The circumstances have significantly
14 changed since that time.

15 COMMISSIONER GILINSKY: On all three?

16 MR. WILLIAMS: On all three.

17 COMMISSIONER BRADFORD: Or at least the first two.

18 CHAIRMAN AHEARNE: According to one of these letters
19 from, I guess from the Indiana board, they criticized the
20 company for applying for an interim letter instead of the
21 certificate.

22 COMMISSIONER GILINSKY: That is the result?

23 CHAIRMAN AHEARNE: That is the result.

24 MR. STELLO: They are in the process of getting an
25 N stamp. They obviously cannot get one until they are allowed

1 to start doing some work, and you have to show through
2 implementation before you can actually get the stamp.

3 CHAIRMAN AHEARNE: In order to get the stamp must
4 construction be underway?

5 MR. STELLO: Yes. I guess in principle they can't
6 get the stamp until they actually start to show through the
7 process of their QA system that everything is acceptable before
8 the stamp is actually awarded.

9 COMMISSIONER GILINSKY: Who actually gives the stamp
10 out? Who do they get the stamp from? I understand it is the
11 ASME, but who is it in fact, a local committee or what?

12 MR. WILLIAMS: No, in this instance the Subcommittee
13 on Nuclear Certification will receive a report from their
14 inspection and evaluation team that will either recommend that
15 a stamp be given or recommend that another survey be performed,
16 denied.

17 Now the series of events in response to the Code's
18 requirement, Section 3 of the Code, is that the licensee or
19 whoever the owner is decides who will be then stamp holder. At
20 that point he then is obliged to develop a quality assurance
21 program that meets the requirements of the ASME Section 3. That
22 is Section NA-4000.

23 Secondly, he is obliged to submit this program to
24 the reviewing team for their concurrence and comment. Once you
25 have gotten beyond that, we have got an acceptable program

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documented, then there is a need to demonstrate that your organization and your staff and your craftsmen are capable of meeting that program.

At this point the licensee or the owner has his demonstration survey. The ASME team will come in, examine each portion of the Code and watch the implementation of those activities. If they find conformance to the requirements and the licensee demonstrates that it is capable across the board, then an N stamp is issued.

After the acceptance of the QA program, an interim letter is issued. It prevents the licensee or the owner from getting into the chicken-before-the-egg syndrome, if you will. You have got to have a stamp to make a product. But you have got to do something in order to demonstrate --

CHAIRMAN AHEARNE: But it sounds like you are already there on that syndrome, and then I think what Mr. Stello said and I thought what you said is that in order for them to get the stamp they must have construction underway. But I thought in answer to Commissioner Hendrie's point, I thought the answer was yes, you must have an N stamp in order to do the construction.

So I am not yet clear how you both manage to do it --

COMMISSIONER HENDRIE: You have to get it; John, you have to be in the process, as Cordell has lined out here, and it requires --

1 CHAIRMAN AHEARNE: You have to be in the process of
2 applying for it?

3 COMMISSIONER HENDRIE: Yes.

4 CHAIRMAN AHEARNE: So our requirements don't require
5 someone to actually have it. They have to be in the process of
6 applying for it.

7 MR. STELLO: Well, along the sequence that is laid
8 out here.

9 CHAIRMAN AHEARNE: You follow the Code and that is
10 the Code process.

11 MR. STELLO: Well, you actually are starting to do
12 things before it is finally awarded. I guess you could have
13 gotten one if you had built a nuclear plant before.

14 CHAIRMAN AHEARNE: Clearly, there are other people
15 could have got it, yes.

16 MR. STELLO: Yes, but if it is your first time, I
17 would think --

18 CHAIRMAN AHEARNE: Yes, so then the answer is to the
19 specific questions, one of the questions that Mr. Moffett had
20 raised was, should PSI be permitted to resume construction
21 without benefit of the N certificate. And your answer is they
22 can't get the N certificate until they are allowed to begin
23 construction. Is that correct?

24 MR. STELLO: They will not be able to -- as I under-
25 stand it -- actually have an N stamp until they are allowed to

1 resume. Is that correct?

2 Can they actually be given the N stamp before they
3 start their --

4 MR. WILLIAMS: They must demonstrate capability to
5 the ASME survey team before they can acquire an N stamp.

6 COMMISSIONER HENDRIE: I suppose at least in
7 principle it is possible to go off to the edge of the site and
8 direct a series of prototypical installations, piping, machinery
9 and all the rest of it, and to carry out on that dummy set of
10 prototypical installations all of the operations that they
11 need to show the Code committee.

12 But since that involves pretty, you know, for
13 something like constructing a power plant, why, there is a
14 lot of it and nobody has felt it useful or necessary to go and
15 spend some millions over there on a set of dummy objects.

16 COMMISSIONER GILINSKY: I wonder if you could round
17 out my education on the N stamp by telling me who pays for the
18 ASME surveys.

19 MR. WILLIAMS: In the instance of PSI?

20 COMMISSIONER GILINSKY: Well, just assume it is the
21 same location.

22 MR. WILLIAMS: The owner pays for the survey.

23 COMMISSIONER GILINSKY: Pays the ASME?

24 MR. WILLIAMS: Submits a fee, several thousands of
25 dollars, makes the request, makes other contacts, prepares

1 himself for the examination.

2 COMMISSIONER GILINSKY: Now, the survey team are
3 presumably members of the ASME from various organizations?

4 MR. WILLIAMS: And various consultants.

5 COMMISSIONER GILINSKY: And they serve in their
6 capacity as consultants to the ASME? I presume they are not on
7 the payroll of some other organization while they are surveying
8 this site?

9 MR. WILLIAMS: By my experiences the consultants
10 have been either retired experts in the area or full-time
11 employees of the ASME.

12 COMMISSIONER GILINSKY: Oh, of the ASME? So in other
13 words, they wouldn't be pulling somebody off from another
14 board, plant, or somewhere --

15 MR. WILLIAMS: Sometimes that is necessary. The
16 team --

17 COMMISSIONER GILINSKY: Well, I mean some other
18 area and --

19 CHAIRMAN AHEARNE: What do they do?

20 MR. WILLIAMS: The teams are composed variously
21 of members of the industry, and sometimes they are retired
22 experts in the area. Often NRC inspectors have participated
23 as a team member. In fact, I was associated with a team that
24 reviewed the Marble Hill AQAM, their QA program responsive to
25 NA-4000.

1 CHAIRMAN AHEARNE: That is a third party system.

2 COMMISSIONER GILINSKY: But in that capacity you
3 were employed by the ASME?

4 MR. WILLIAMS: No, sir. I was employed by the U. S.
5 Nuclear Regulatory Commission. I sat as a witness on that team
6 and commented as appropriate.

7 COMMISSIONER GILINSKY: I see, but you were not a
8 member of the team?

9 MR. WILLIAMS: I was a member of the team, but --

10 COMMISSIONER GILINSKY: We had better get on with
11 it.

12 CHAIRMAN AHEARNE: We can have a separate briefing.

13 (Laughter.)

14 COMMISSIONER GILINSKY: It sounds like an important
15 subject.

16 CHAIRMAN AHEARNE: Well, it is.

17 COMMISSIONER HENDRIE: Vic, go back to the
18 inefficiency, ignorance and arrogance or whatever it was. That
19 one really --

20 CHAIRMAN AHEARNE: Cordell, why don't you move on?
21 The ASME essentially said that they did not have an N stamp,
22 and called them to task, and what, essentially said you can't
23 continue?

24 MR. WILLIAMS: That was the conclusion. Actually
25 there is another imparted element here, and that is the State

1 of Indiana, the State of Indiana Boiler and Pressure Vessel
2 Code, which enforces the ASME Code within the State of Indiana
3 as a part of their administrative law, and the problem is
4 describing the law part.

5 Second to that, the State of Indiana has a state
6 inspector at the site, and it was this inspector in contact
7 with the contractor's inspector at the site who raised the
8 little issue and had it eventually put before the national
9 board, initiating the inspection that brought forth the report
10 that indited all the issues that we have before us now.

11 CHAIRMAN AHEARNE: I see. All right.

12 MR. WILLIAMS: The last significant thing that
13 occurred during 1979, leading to order, was the NRC Region 3's
14 management assessment of Public Service of Indiana, as reported
15 in our inspection dated July 26 through August the 23rd. In
16 that inspection we concluded that the QA program commitments
17 were inadequately implemented. That included --

18 CHAIRMAN AHEARNE: Across the board.

19 MR. WILLIAMS: It was completely across the board.

20 Next slide?

21 Based on those issues that we have just discussed,
22 NRC issued an order on August 13th, and the basis for that was
23 failure, as I stated before, to implement the QA program. The
24 elements of that were, one, insufficient management and
25 management controls on the part of PSI, insufficient technical

1 qualification of personnel on the part of PSI and insufficiently
2 experienced personnel.

3 Contributing to that basis was the confirmation of
4 the allegations regarding the concrete patches by NRC and PSI,
5 numerous noncompliances involving ASME Code requirements as we
6 discussed earlier, numerous noncompliances involving civil
7 activities separate from the patches, the control of concrete
8 and concrete placement, the control of form preparation, and
9 numerous noncompliances involving the records of the activities
10 that we have just described here, such as special processes and
11 the control of contractor activities.

12 Next viewgraph?

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1 COMMISSIONER GILINSKY: Could I just get back to
2 your word "arrogance"? Was it that the utility thought that
3 this was a job it could handle and thought it was doing a
4 satisfactory job, or simply that they felt that they didn't
5 need to do any more than they were doing?

6 MR. WILLIAMS: In my using that characterization,
7 when I describe it as being the utility's, a characterization
8 that I lay on the utility, I am speaking about that level of
9 the utility's management that have the responsibility for this
10 ASME effort, the level where it apparently stopped, which was
11 fairly high in their organization at the site, the quality
12 assurance management, if you will, who were fully cognizant of
13 the problems and difficulties identified by the third party
14 inspectors long before the National Board got involved.

15 Their failure to resolve those problems with the
16 local inspectors, their failure to interface in a
17 comprehensive and open fashion with the State of Indiana were
18 things that I found to be simply arrogance and ignorance.

19 CHAIRMAN AHEARNE: But did they elevate that at all
20 to the upper management of PSI?

21 MR. WILLIAMS: The significance of their failures at
22 that level had not been properly assessed and by all of my
23 evaluations had not gone to levels of management within PSI
24 that could have taken a comprehensive corrective action.

25 COMMISSIONER AHEARNE: The converse would also have

1 to be true, that the upper levels of PSI management were not
2 keeping close touch.

3 MR. WILLIAMS: Precisely; and that was the first of
4 the findings: failure to have adequate management involvement
5 and control. Supervision. It is essentially a management
6 problem, from my point of view.

7 COMMISSIONER HENDRIE: We have got a couple of
8 reorganization plans that we are surplusng. If it would
9 help, we could just forward them out, some leftover ones.

10 (Laughter.)

11 MR. WILLIAMS: Now I would like to talk about things
12 the licensee has done since we have identified all of these
13 adversities at the site. Since the issuance of the order, the
14 licensee has acquired an independent organization to analyze
15 their management, their organization, their schemes, their
16 methods of communicating and doing things.

17 The organization hired was Management Analysis
18 Company, and the report that they generated was dated October
19 2, 1979. This report in all of its essential substance agreed
20 with the finding that NRC made in early August, August 3rd, in
21 our report 7911.

22 Subsequently the licensee has, in a number of
23 iterations, revised their quality assurance and quality
24 control procedures in their entirety. The same process, the
25 same revisions as necessary are being conducted for the

1 contractors at the site and elsewhere.

2 The licensee has made a significant increase in the
3 qualifications in terms of experience and background and the
4 numbers as appropriate for their on-site staff for the
5 management of this project. For example, prior to the order,
6 there were approximately 78 professional and management
7 personnel at the site directly representing PST. At this
8 time, there are more than 108. This is within professional and
9 management organizations.

10 The licensee has examined all existing
11 contracts to make a determination of any conditions that might
12 be adverse to quality, and has drawn its conclusions.

13 The licensee is in the process and has completed, in
14 some instances, the verification of all materials received
15 prior to the work stoppage. Every product, piping assembly,
16 cement, aggregate, nuts and bolts, everything that was
17 received prior to the stoppage is being reevaluated in terms
18 of the quality documentation that supports to it, to make a
19 determination that it conforms to the construction permit
20 requirement.

21 The licensee is in the process of verifying that all
22 existing construction method design requirements, the MINOW
23 test that was discussed earlier, the microseismic examination
24 of concrete, is one of the examples of elements that are being
25 put in place here.

1 The licensee has established a program and is
2 substantially along the way in resolving the findings of the
3 National Board. They introduced a 14-point program for
4 resolution to the State of Indiana in January of 1980.

5 The licensee has been in the process and has
6 substantially resolved the NRC findings during this period of
7 time, and there have been a significant number.

8 Lastly, the licensee has maintained and
9 implemented programs to maintain the integrity of materials
10 stored in place at the site.

11 COMMISSIONER GILINSKY: Have there ever been any
12 changes among the persons responsible for these programs?

13 MR. WILLIAMS: Very significant changes.

14 CHAIRMAN AHEARNE: As just mentioned a moment ago,
15 part of the problem was that there was not a flow of
16 information up and a control down at senior levels. What
17 change has been made that might indicate that PSI at a more
18 senior level is keeping track?

19 MR. WILLIAMS: The most significant of those changes
20 now is that senior corporate management, that is, Mr. William
21 Shields, is now stationed at the site, has located his
22 household in the immediate vicinity of the site.

23 COMMISSIONER GILINSKY: What position does he hold in
24 the company?

25 MR. WILLIAMS: Vice president. The principal

1 engineering and QA organizations, parts of which were
2 previously in Indianapolis, have now all been moved to the
3 site. Much of the procurement activity now originates at the
4 site. With this close proximity and just the facility of
5 having the guy across the hall, this contributes significantly
6 to the ultimate success of their endeavor and the resolution
7 of our problems, with it.

8 MR. STELLO: Some further organizational changes
9 were made. When I heard about them I asked that the
10 Commission be informed, and I understand you got a copy of the
11 letter identifying some further changes in the company which
12 take further responsibilities that Shields had away and pretty
13 much make his sole job the Marble Hill nuclear plant.

14 CHAIRMAN AHEARNE: You can't be heard in the back.

15 MR. STELLO: That is unusual.

16 (General laughter.)

17 MR. STELLO: Okay. There were some further
18 organizational changes, and I think there was a letter to the
19 Commissioners and you all should have a copy.

20 CHAIRMAN AHEARNE: Now, this corporation that you
21 mentioned, when they did this review I imagine they ended up
22 with a bunch of recommendations. Did you agree with the
23 recommendations?

24 MR. WILLIAMS: Yes. They were in essential agreement
25 with the findings the NRC had made August 3rd of 1979.

1 CHAIRMAN AHEARNE: Has the company taken exception or
2 not implemented any of those recommendations, that you know
3 of?

4 MR. WILLIAMS: To my knowledge, most all of the
5 recommendations, in terms of their large scope -- the broader
6 definitions, if you will -- have been implemented. Action has
7 been taken for each of the areas NRC identified, and the
8 principal areas, I was in agreement with this, yes.

9 COMMISSIONER GILINSKY: Is there a recognition on
10 their part that they had acted improperly before as opposed to
11 simply acted in a way that we didn't like?

12 MR. WILLIAMS: Without doubt, from my point of view,
13 sir.

14 MR. STELLO: I would underscore that. That is my
15 belief, too, that they recognize that they now had major
16 problems, and really understand the need to turn things
17 around. There is little question in my mind that that
18 recognition is there throughout the whole corporation.

19 MR. WILLIAMS: Next slide, please.

20 COMMISSIONER BRADFORD: Do any of these changes reach
21 the contractor organization as well, or are you --

22 MR. WILLIAMS: Yes, sir. The same changes, the same
23 considerations, the same findings across the board through
24 organizations at the site, as appropriate. Some of the
25 contractor organizations are performing quite adequately.

1 COMMISSIONER BRADFORD: Now, what can you say about
2 the enforceability of these changes and proposed changes.
3 They, I take it, are not license conditions. What are they?
4 What form do they take and what do you enforce against in the
5 future?

6 MR. WILLIAMS: In principle, our enforcement will be
7 Appendix B rules. We enforce them directly, and when we have
8 a problem, we cite those as items in nonconformance. Now,
9 their implementing program or QA requirements will be part of
10 the application. There will be a document that clearly
11 identifies what this program is. We expect that they will
12 implement it.

13 Whenever there is a failure on their behalf to
14 implement it, we don't cite them against those detailed
15 procedures; we go immediately to the regulations, to Appendix
16 B. This is an area I think, incidentally, I might add, that I
17 do believe is worth looking at. I think recent experience has
18 indicated we probably ought to spend some time looking at this
19 very issue; and we are.

20 COMMISSIONER HENDRIE: The issue being?

21 MR. STELLO: The question of license requirements or
22 conditions for construction permits.

23 COMMISSIONER HENDRIE: Beyond that, the more general
24 one that Peter raises periodically of what is it that you
25 enforce against. That is, there are a number of detailed

1 measures which are laid out in the staff report saying here
2 are all these recommendations, and here is what they are doing
3 or have done or have agreed to do.

4 Now, is their maintenance of those detailed fixes a
5 matter against which you can enforce? That is, if one of
6 these resolutions of a recommendation, if they decide to stop
7 doing that, is that something you can cite them on? It is more
8 than just license conditions. Those things could be license
9 conditions, but, God, then the license begins to look like the
10 public library. There must be a better way.

11 I think we ought to have an intermediate enforcement
12 action which would be called the "Displeasure of the
13 Director." If somebody out there doesn't do good and
14 displeases the director --

15 CHAIRMAN AHEARNE: Of course, there are always
16 enforcement actions they have already taken, the kind that get
17 them to stop work.

18 MR. SHAPAR: There is always the possibility of
19 issuing a precise order requiring to do specific things we
20 feel the regulations themselves have not been complied with.
21 In a sense, that is what has been done with the order that has
22 been issued.

23 COMMISSIONER BRADFORD: Just one other question about
24 that. Can these conditions in the order that has been issued
25 be the basis for civil penalties, leaving aside the question

1 of stop work orders and citations. Can these conditions now be
2 penalized against if they are violated?

3 MR. STELLO: Sure.

4 MR. BICKWIT: Wait a minute. These are conditions
5 that you are imposing as a condition to restart? Are these
6 going to be made part of the license? I don't believe so.

7 MR. STELLO: No; but if there is a failure to do
8 these things and we already have an enforcement action, if
9 there is a failure, and I say we will use Appendix B as the
10 basis, we can cite them and issue a civil penalty.

11 MR. BICKWIT: Will it be clear that any violation of
12 these conditions will be a violation of Appendix B?

13 MR. STELLO: "Any" means all? I would have to use my
14 judgment, but in principle the answer is yes.

15 MR. BICKWIT: I think that is the answer to your
16 question. To the extent that the answer is yes, then you can
17 impose civil penalties.

18 MR. WILLIAMS: Subsequent to the issuance of the
19 order, NRC, Region 3 inspection staff has been in the
20 process of examining the licensee's programs for verification
21 of material and construction, that which existed prior to the
22 order, examining the changes the licensee has made to staffing
23 and qualifications and number and confirming that these
24 changes are appropriate.

25 They have examined the changes to the quality

1 assurance manuals, procedures and detailed instructions for
2 any activity covered by these documents. We have been
3 participating in and shall continue to participate in the
4 related activities of the ASME Code, National Board, and the
5 State of Indiana Pressure Vessel Board.

6 We have been conducting inspections of existing
7 construction and storage materials at the site; principally
8 through activities of our resident inspector, and full support
9 from the Region 3 offices in Glen Ellyn. And we have been
10 coordinating NRC activities with the U.S. Attorney's Office as
11 appropriate, involving the allegations.

12 These activities are continuing at this time.
13 Substantial progress has been made in all areas.

14 COMMISSIONER CILINSKY: What is the status of the
15 U.S. Attorney's involvement?

16 MR. STELLO: They still have the matter under
17 consideration, the FBI investigation and the Justice
18 Department consideration. They have not reached a final
19 conclusion. We are aware of what they have done and have had
20 very good communication with them, but they have not made a
21 decision yet.

22 CHAIRMAN AHEARNE: Now, one of the issues that they
23 would be addressing, is it correct, in the Sassafras
24 submission they had identified a former cement inspector, an
25 employee of U.S. Testing, who stated in his sworn transcript

1 one of the inspection reports was falsified. Is that one of
2 the issues being looked at?

3 MR. STELLO: I feel a little uncomfortable in talking
4 about the specific issues.

5 COMMISSINER HENDRIE: I think, particularly in view of
6 some recent history, we ought not to sit here and see how far
7 we can press the Director of I&E on these Justice Department
8 matters.

9 CHAIRMAN AHEARNE: All right. Before we finish,
10 though, I will ask -- one of the items he is requested to do
11 is be prepared to address the issues raised in the Sassafras
12 statement. That is one of the issues I would like to at
13 least --

14 MR. STELLO: We can deal with the issue from our
15 knowledge. We have looked at all of these issues ourself and
16 are prepared to deal with them on the basis of our own
17 knowledge.

18 MR. WILLIAMS: Next slide, please.

19 Construction restart considerations at this time.
20 The complexities of the construction at the site are such that
21 the licensee must demonstrate capability in any area a step at
22 a time. The total adequacy of each activity will be
23 completely evaluated by NRC Region 3.

24 That is, restart of construction should proceed
25 incrementally as approved and overviewed by the Nuclear

1 Regulatory Commission.

2 Before the start of any activity, the licensee must
3 have all pertinent quality assurance, quality control
4 programs, and instructions fully established. His project
5 management, quality assurance organizations and engineering
6 staff must be verified to be in place and appropriately
7 qualified.

8 Nuclear Regulatory Commission confirmation of each of
9 the above activities will be completed.

10 COMMISSIONER GILINSKY: Who is the constructor?

11 MR. WILLIAMS: Newburg is the principal civil
12 contractor at the site and constructor by definition. But PSI
13 is its own generalist.

14 COMMISSIONER HENDRIE: As I understand it, Indiana
15 Public Service here is filling that construction management
16 function, which on another site, I don't know, you might find
17 Stone and Webster doing or Bechtel doing on contract for a
18 utility. So if you ask who is the constructor here, I think
19 it is PSI.

20 They are directing the subcontracts in the various
21 specialty areas and pulling it all together, and it is their
22 ball of wax to make it all work and go together and do it
23 right.

24 COMMISSIONER GILINSKY: Now, is there an architect
25 engineer?

1 MR. WILLIAMS: Sargeant and Lundy in Chicago.

2 COMMISSIONER GILINSKY: But they are not involved in
3 the supervision of construction.

4 MR. WILLIAMS: Certainly they support the engineering
5 effort and the design effort. In fact, they are it. The
6 manager for the site, the manager of the construction, is PSI,
7 and the various organizations like the Materials Management
8 Analysis Corporation, have been contracted by them. But it is
9 a PSI responsibility.

10 CHAIRMAN AHEARNE: So there is some one person at the
11 site whose title is Manager of Construction, or Site
12 Superintendent?

13 MR. WILLIAMS: Yes. We have had several iterations,
14 changes with the names of those titles, but that is correct.
15 The principal corporate director, if you will, of construction
16 is Bill Shields at the site at this time.

17 CHAIRMAN AHEARNE: So Shields, then, is -- well, let's
18 see. He is in charge of everything with respect to the plant.
19 Is that correct?

20 MR. WILLIAMS: Precisely.

21 CHAIRMAN AHEARNE: Does he have some one individual
22 working for him who is responsible for the actual physical --

23 MR. WILLIAMS: Yes, sir. If I may consult staff, I
24 can get that information for you. The project director is
25 George Brown, and he likewise has a staff of several others.

1 CHAIRMAN AHEARNE: And Brown is also PSI.

2 MR. WILLIAMS: Yes, sir.

3 COMMISSIONER GILINSKY: Let me ask you. Is it unusual
4 for a utility in its first nuclear venture to supervise the
5 construction itself?

6 COMMISSIONER HENDRIE: No. Probably a majority of
7 plants are built by an engineer constructor for a utility, but
8 cases in which the utility manages the construction itself,
9 this is certainly not unique.

10 COMMISSIONER GILINSKY: I mean on the first time out.

11 MR. STELLO: I don't know what the statistics are, but
12 those utilities that have managed their construction for their
13 fossil-fired plants are those which are the family of
14 utilities which would --

15 COMMISSIONER HENDRIE: Commonwealth Ed, PG&E, TVA,
16 Niagara Mohawk. There are a whole series who have
17 traditionally done a lot of their own engineering. I think as
18 sort of a general matter, quite apart from the difficulties
19 this project has gotten itself into, I think nothing we say
20 here ought to imply that that is a bad configuration.

21 There is, in fact, a considerable merit in a utility
22 having an engineering organization that they feel is strong
23 enough to manage the construction of a plant, and the utility,
24 after all, is going to operate it for 30 or 40 years and they
25 have a considerable incentive to build it right.

1 So if they get in there and put all the resources in
2 and pay attention to everything, I think it leaves them in a
3 strengthened position to operate and maintain the plant in a
4 sound way.

5 Now, what I judge happened here is that PSI didn't
6 fully appreciate what it was like to do nuclear grade
7 construction, and things just sort of got ahead of them.
8 And I think if they now settle down and carry out the detailed
9 steps as prescribed here, I think they will be the better for
10 it and the station, in the long run, will be the better for
11 it.

12 COMMISSIONER GILINSKY: Some of the outfits that you
13 mentioned are among the biggest in the country and have got
14 substantial engineering staffs.

15 COMMISSIONER HENDRIE: Yes, that is right. The
16 strength and ability to do its own projects of a utility
17 engineering force is generally scaled to the utility size.
18 Small utilities will seldom have enough construction activity
19 to justify maintaining that kind of staff.

20 CHAIRMAN AHEARNE: What size is PSI as a utility?

21 MR. STELLO: How do you characterize? Do you mean in
22 total numbers of employees, megawatts of electricity, or --

23 MR. KEPPLER: It handles just the southern part of
24 Indiana, so it is a pretty small utility. I don't know the
25 number of people. But I think your statement is correct. I

1 think the company did assume they could build this plant like
2 they have built other fossil plants, not realizing the type of
3 expertise and overview that was needed to assure the job was
4 done properly.

5 CHAIRMAN AHEARNE: Why don't you continue?

6 MR. WILLIAMS: As I said before, at this point in
7 time in our consideration for restart, the principal
8 conclusion is that things must proceed in an incremental or
9 stepwise fashion. Receipt inspection is the first of the
10 activities that we will consider for restart. That is, the
11 receiving products from off-site manufacturers and
12 constructors onto the site, putting it in storage or
13 distributing it out to the various contractors, who will
14 eventually do the construction.

15 NRC has identified the considerations and documents
16 which must be completed before restart, before a restart
17 recommendation, such as: special process procedures in place,
18 those detailed procedures that a receipt clerk would implement
19 or his recordskeeper would implement; that the qualification
20 of the staff has been verified by NRC; and that the management
21 controls extend from the clerk that files the record to Mr.
22 Shields.

23 After this activity has been started and has been
24 demonstrated by the licensee to be acceptable as far as
25 performance of PSI is concerned, then other construction

1 activities can be initiated, such as the civil work, concrete
2 placement, mechanical structural, electrical, and ASME
3 code-related piping.

4 Once again, these activities would be started in an
5 incremental fashion with 100 percent NRC overview and
6 confirmation.

7 Now, none of these four activities outlined above
8 could proceed until NRC has confirmed that the required staff
9 overall, QC procedures, management controls, material and
10 construction verification, that is, the verification that the
11 existing materials and existing structures are good, have been
12 satisfactorily completed.

13 Then IE will recommend an incremental resumption of
14 these construction activities.

15 Based on review of the examination by the NRC Office
16 of Inspection and Enforcement, the Office of Nuclear Reactor
17 Regulation, we conclude that the licensee has at this time
18 comprehensively responded to the order, identified the cause
19 of the deficiencies in the QA program implementation and other
20 areas, and has taken or is in the process of taking the steps
21 to preclude recurrence.

22 Based on completed as well as planned corrective
23 actions, we find that sufficient progress has been made by the
24 licensee to consider permitting resumption of safety-related
25 construction work in an incremental stepwise fashion.

1 This work will proceed with confirmation by NRC,
2 through examination of established hold points, that
3 corrective actions have been effective.

4 CHAIRMAN AHEARNE: If I could then get back to Baker
5 or Cordell, I am not sure which one, the Sassafras issues.
6 That was one of the specific items that you were interested
7 in.

8 MR. STELLO: Yes. Do you want to go through each
9 one?

10 MR. WILLIAMS: Specific ones.

11 CHAIRMAN AHEARNE: I guess I myself asked about a
12 couple of ones. One relates to U.S. Testing. U.S. Testing's
13 role is what? What is the role of U.S. Testing?

14 MR. WILLIAMS: U.S. Testing at this site is
15 principally responsible for performing the tests of civil
16 activities: soils, concrete, aggregate.

17 CHAIRMAN AHEARNE: As subcontractor to Newburg?

18 MR. WILLIAMS: Let me clarify that. Yes, a
19 subcontractor to Newburg, correct.

20 CHAIRMAN AHEARNE: All right. Now, in the Sassafras
21 they talked about a former cement inspector. It said his
22 initial report indicated a failure of the cement batch but was
23 changed to show that it had passed. Another was that he was
24 instructed by U.S. Testing to wait for a good batch of cement
25 before sampling it.

1 COMMISSIONER HENDRIE: If he was good enough to squint
2 at the concrete before testing and judge which batches were
3 going to produce test cylinders that met strength, he is going
4 to be a very wealthy man because he is undoubtedly the most
5 valuable construction worker now alive in the United States of
6 America. He can save enormous amounts of money to people who
7 are pouring concrete.

8 CHAIRMAN AHEARNE: Well, I didn't read the whole
9 section. There are other parts about being poured in rain,
10 curing temperatures recorded when no one was present.

11 MR. WILLIAMS: While all of the issues of that
12 allegation have not been fully resolved and, in fact, certain
13 procedures are still in process in terms of getting in contact
14 with the gentleman and going further with it, we have taken
15 actions to preclude the recurrence of any event of that sort;
16 but moreover, we have taken, in our instructions through the
17 licensee, actions to demonstrate that the existing concrete
18 currently meets the quality requirement, and that those
19 procedures -- if, indeed, it was a procedural
20 deficiency -- that control that work have been improved to the
21 extent that any issues that could have been open at that time
22 are currently covered, if you will, or will ultimately be
23 resolved.

24 CHAIRMAN AHEARNE: Have we talked to this guy?

25 MR. STELLO: This is an individual, I recall, who

1 came to the Commission -- we got authority to issue a subpoena
2 to the gentleman and he did not show up at that time. We are
3 in the process of having that subpoena enforced by Justice.

4 CHAIRMAN AHEARNE: So we have certainly been trying to
5 talk to him but he has been relatively unwilling.

6 MR. STELLO: I think that is a fair statement.

7 CHAIRMAN AHEARNE: Then I guess the only other issue
8 I really have is on the ASME section there is a request here
9 about the Hartford nuclear inspector from Cherney (?)
10 Construction Corporation being instructed not to provide
11 services to PSI.

12 MR. WILLIAMS: That is completely reasonable. The
13 selection services provided by Hartford are paid-for services
14 by the contracting person, in this instance Cherney. That
15 inspector, representing Cherney's interest, could not involve
16 himself in PSI's interest or anyone else's interest at that
17 site.

18 COMMISSIONER BRADFORD: On that same page from which
19 John was quoting there is a phrase that I don't think you used
20 in the briefing, but apparently there are affidavits charging
21 flaws in the concrete work, including something called heavy
22 faults. What would they be?

23 MR. WILLIAMS: Heavy?

24 COMMISSIONER BRADFORD: Heavy faults in the case of
25 the reactor containment building. What would they be?

1 MR. WILLIAMS: I am not acquainted with those remarks.
2 Are you?

3 COMMISSIONER BRADFORD: These are apparently from the
4 affidavits of people named Rogers, Mortenson and Bolston (?).

5 MR. WILLIAMS: Well, my best recollection is those
6 were craftsmen on the site. I don't recognize heavy faults as
7 having been an issue. I don't remember that language. I don't
8 know what it means.

9 COMMISSIONER HENDRIE: I was going to say I don't
10 know, either. It is not a recognizable colloquialism for
11 something I have ever heard of.

12 MR. STELLO: I don't know. Is that one of the
13 affidavits that came in some time ago?

14 COMMISSIONER BRADFORD: I don't have the affidavit. It
15 is from the Sassafras Audubon Society's request for hearin-
16 It is the paragraph above the one John was reading from
17 regarding U.S. Testing. The phrase "heavy faults" is in
18 quotes.

19 COMMISSIONER HENDRIE: Of course, it has been a long
20 time since I have been young, and the word "heavy" has gone
21 through a whole cycle of slang use. Heavy faults.

22 MR. WILLIAMS: By my best recollection, this has to
23 do with the report, at least one of these gentleman, Stanley
24 Mortenson (?), of cracks in the concrete, superficial cracks
25 at the surface that had water leaking. We have pursued that

1 with them and had them identify the several areas. We
2 concluded that there were no significant defects there at all.

3 It is stress cracking that occurs at the surface of
4 concrete. The water was there because of puddling above, and
5 some of it was groundwater but the structure is incomplete and
6 we felt it was normal. In fact, we didn't pursue it beyond
7 that.

8 The gentlemen that I recall talking with, who were
9 civil expertised, appeared to be satisfied with the
10 explanations that were given. We saw nothing there that
11 should be described as heavy faults, whatever that has come to
12 mean in this document.

13 COMMISSIONER BRADFORD: It was mentioned in the
14 Regovan (?) inquiries that the Commission ought to be
15 embarking on a review of the relationship between financial
16 constraints generally and safety. Do you have any sense of
17 the extent to which fixed price contracts have played a role
18 in any of the practices that you have come across?

19 MR. WILLIAMS: Personal opinion?

20 COMMISSIONER BRADFORD: Yes.

21 MR. WILLIAMS: It is reflected somewhat in our finding
22 in our report on August 3rd. The nature of the contract
23 itself is not inherently deficient, fixed price or a contract
24 arrived at in another fashion. But when other elements,
25 principal elements such as faulty assurance, faulty control,

1 and the leadership at the site are defective, that conditions
2 adverse to quality will occur.

3 And that seemingly is independent of the nature of
4 the contract. That is a gut response, if you will, sir.

5 CHAIRMAN AHEARNE: I have two other questions. One
6 question was: In the information paper that you sent out, you
7 mentioned that at the public meeting you held, the NRC
8 indicated it retained a technically qualified consultant to
9 assist the staff in the review. I guess I was a little
10 curious as to whether that was meant to imply that you did not
11 feel like the staff was technically qualified, or you were
12 trying to get an outside individual to provide comments.

13 MR. WILLIAMS: The question came up from Mr. Dattilo
14 in our meeting. Let me remark at the outset that although we
15 did not have the recorder there, we have done the best we
16 could in transcribing the meeting and have sent transcripts up
17 to the Commission and will make them available, as we
18 indicated, to people in the community.

19 The issue that came up was the group that Mr. Dattilo
20 was representing wanted to know if it was possible to have an
21 outside consultant that was generally acceptable to both them
22 and to us involved to give an independent look. It seemed to
23 me that the concern that they had, that this was a good idea.
24 I met with Mr. Dattilo this morning to try to outline a way in
25 which to do just that, engage a consultant, which in my view

1 is very beneficial to us as well in trying to make the
2 assessment.

3 I think we do have the resources available within the
4 Commission and we could do it, but the press of other business
5 would cause it to take a little bit longer than I like. But
6 given that we had this suggestion, it seemed to me a good idea
7 with which we could satisfy our own needs and the needs of the
8 group that has the concerns.

9 I think if we could work this out, in my opinion it
10 would go a long way in making the group out there feel more
11 comfortable with the adequacy of the job that I know we have
12 done and we are doing.

13 CHAIRMAN AHEARNE: The only other question was you
14 mentioned this would be an incremental series of actions,
15 constant NRC review. Who will actually have the control
16 there. Jim, will that be you?

17 MR. KEPPLER: We haven't decided that yet.

18 CHAIRMAN AHEARNE: I see. I gather it will be either
19 Jim or Vic, is that correct?

20 MR. KEPPLER: Yes, one or the other.

21 CHAIRMAN AHEARNE: I would like to call to the
22 attention of my colleagues that in the order that we sent out,
23 we said the Director of Inspection and Enforcement will brief
24 the Commission prior to lifting the order suspending
25 construction, and that following that briefing, construction

1 may resume at the Director's discretion unless otherwise
2 ordered by the Commission, but in any event not earlier than
3 five days after the briefing.

4 For myself, I am satisfied with the briefing.

5 COMMISSIONER HENDRIE: In view of the staff support,
6 the briefing and discussion this morning, I am satisfied that
7 the Director is proceeding in a prudent and reasonable way.

8 COMMISSIONER BRADFORD: I think we put the five days
9 in there to allow for reflection and --

10 CHAIRMAN AHEARNE: Oh, yes. I just wanted to call
11 everybody's attention --

12 COMMISSIONER BRADFORD: Certainly if no one objects
13 within five days --

14 CHAIRMAN AHEARNE: Well, it is the Commission that
15 has to object.

16 COMMISSIONER BRADFORD: If the Commission does not
17 object within five days --

18 COMMISSIONER GILINSKY: I wanted to compliment you on
19 the briefing. I thought it was a very fine briefing.

20 MR. WILLIAMS: Thank you, sir.

21 MR. BICKWIT: I just want to make clear that I
22 understand what is being done. You are not going to lift the
23 order at this point. What you are contemplating, as I
24 understand it, is a series of incremental confirmations that
25 certain construction activities can take place without

1 endangering public health and safety.

2 MR. STELLO: It is incremental, and Appendix C
3 specifies the particular hold points, and it is our intent to
4 let that particular activity start, to look at how well they
5 have done before the next step would start, and if they don't
6 do well, to not permit the sequence of steps that follow. In
7 fact, we may rescind the first one.

8 MR. BICKWIT: The order remains in effect while you
9 are making these incremental confirmations.

10 MR. SHAPAR: Well, if all steps go well and they go
11 through all the increments, the order will have effectively
12 been lifted.

13 MR. BICKWIT: Ultimately. My only question is, as
14 you are incrementally confirming that various steps can take
15 place, that the order will stay in effect.

16 CHAIRMAN AHEARNE: Part of those steps are
17 construction.

18 MR. BICKWIT: I know that. The order stays in effect
19 with respect to the remaining construction activities.

20 MR. STELLO: I guess I ought to ask you a question.
21 Right now they can't do anything.

22 MR. BICKWIT: Right.

23 MR. STELLO: We are going to pick up the cover and
24 let them do a little bit. Has the order been lifted when we
25 do that?

1 MR. BICKWIT: No.

2 MR. STELLO: Okay. Then the answer is no, we haven't
3 lifted the order.

4 MR. SHAPAR: The order is being complied with rather
5 than lifted.

6 MR. BICKWIT: I am satisfied.

7 CHAIRMAN AHEARNE: Cordell, thank you very much. That
8 was excellent.

9 (Whereupon, at 11:44 a.m., the briefing was
10 adjourned.)

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This is to certify that the attached proceedings before the
NUCLEAR REGULATORY COMMISSION

in the matter of: Briefing on Resumption of Construction of Marble Hill

- Date of Proceeding: May 7, 1980

Docket Number: _____

Place of Proceeding: Washington, D. C.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Shirley Wolf

Official Reporter (Typed)

Shirley Wolf

Official Reporter (Signature)