

PROPOSED RULE PK-30,40,50 et al (50 FR 5600) (141)

# STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY 12223

PUBLIC SERVICE COMMISSION

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October 11, 1985

Mr. Samuel J. Chilk  
Secretary of the Commission  
US Nuclear Regulatory Commission  
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Comments on the Decommissioning Criteria for Nuclear  
Facilities: Proposed Rule - Federal Register Volume 50,  
No. 28 (February 11, 1985)

Gentlemen:

These comments on the subject proposed rule are submitted in my capacity as an expert staff witness for the New York State Public Service Commission; the comments are my own and do not necessarily reflect the opinions or policies of the Commission.

Through the discovery process, I obtained a copy of a letter from Thomas S. LaGuardia dated September 2, 1985 (attached). Although the comment period for the Proposed Rule has expired, I am enclosing the hearing record dealing with decommissioning in the case referred to by Mr. LaGuardia for your consideration.

The New York State Public Service Commission will not rule on this matter for many month, and many briefs will proceed the ruling.

Sincerely,

*Harvey R. Prins*

HARVEY R. PRINS  
Nuclear Power Generation Planner  
System Planning Section  
Power Division

HRP:jlh  
Enc.

cc: F. Haag  
W. Shaffer

Acknowledged by card... OCT 17 1985

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PDR PR  
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0510 add. Part G. Skyer, 11/30/85  
Catherine R. Mutter, 11/30/85  
Robert W. Wood, 11/30/85  
Zoltan Kozlowski, 11/30/85



September 2, 1985  
N11-25-GC-06

Mr. Samuel J. Chilk  
Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Comments on the Decommissioning Criteria for Nuclear  
Facilities: Proposed Rule - Federal Register Volume  
58, No.28 (February 11, 1985)

Gentlemen:

I have reviewed the Proposed Rules in detail and offer the  
following comments:

Financial Assurance and Preliminary Planning: Pgs 5602 & 5604  
I do not agree with the Commission's proposed endorsement of a  
funding level at \$100 million (in 1984). For large power  
reactors (greater than approximately 200 MWe), site-specific  
estimates prepared by TLG Engineering, Inc. and other  
independent consultants indicate decommissioning costs  
(removal of radioactivity) are in the range of \$101 to \$142  
million in 1985 without contingency, or \$126 to \$178 million  
with 25% contingency. Demolition of the remaining non-  
radioactive structures and systems add another \$30 to \$50  
million, or \$38 to \$63 million with 25% contingency. The  
overall cost range is \$164 to \$241 million in 1985 dollars.  
State public utility commissions predictably have adopted the  
\$100 million estimate as the upper limit of allowable costs  
for decommissioning.

In the Niagara Mohawk Power Corporation case before the New  
York State Public Service Commission (Case 29070 1985), TLG  
Engineering, Inc. prepared a detailed component and structure  
cost estimate on a site-specific basis at a cost of \$229  
million for complete removal, with 25% contingency in 1985  
dollars. Dr. Harvey Prins of the PSC staff recommended only  
\$100 million be allowed for the decommissioning of the 1080  
MWe NMP-2 reactor. Therefore the NRC's endorsement of the  
\$100 million estimate is counter-productive to providing  
adequate funds for safe decommissioning. I recommend the  
certification amount be deleted from the Final Rule.

Financial Assurance: Pg 5602

The proposed adjustment factor of two times the Consumer Price  
Index (CPI) is inappropriate for updating decommissioning  
costs. Factors that affect decommissioning cost are  
escalating at rates far exceeding the CPI. I recommend the  
commission provide guidance to group the costs into the  
categories of labor, equipment and materials, shipping and  
burial. Appropriate plant indices may then be applied to each  
category.

cost element using Handy-Whitman for labor and materials, published shipping tariffs, and published burial rates.

Financial Assurance: Pg 56#2

I disagree that generic studies and specifically the PNL studies should be used to estimate decommissioning costs. Generic studies fail to account for site-specific differences at particular plants, and attempts to adjust for such differences are inadequate and irreconcilable with site-specific studies. Generic studies do not account for the following factors.

1. Site labor costs - management and crew
2. Shipping distances and routing difficulties
3. Regional compact burial costs
4. Facilities available (rail siding, barge docks or truck roadway restrictions)
5. Site factors - seismicity, hydrology, site restoration requirements
6. Site structures - cooling towers, ocean cooling, tsunami walls, stacks
7. Plant specific factors - PWR: Number and type of steam generators - containment design - free standing or steel-lined concrete, steel reinforced or pretensioned
8. Plant specific factors - BWR - Mark I, II or III reactor designs - degree of contamination in secondary systems
9. A/E design differences
10. Plant modifications and backfits
11. Errors in generic vessel and internals radioactive inventory - curies and weights
12. Allowable exposures to workers
13. Two-shift vs one-shift operations
14. Utility and Decommissioning Operations Contractor (DOC) staffing levels
15. Removal of non-radioactive components and structures to gain access to radioactive components and structures
16. Sorting and segregation of radioactive wastes
17. Waste volume reduction equipment available on-site.

These and other more detailed differences are usually not accounted for adequately in generic studies. Therefore, generic studies should not be used for cost estimating.

I trust these comments are constructive. If you have any questions, please call me.

Sincerely,

*Thomas S. LaGuardia*  
Thomas S. LaGuardia, PE  
President

1 previously marked for identification, were received in  
2 evidence.)

3 JUDGE MATIAS: Who's the next witness,  
4 Miss Curtin?

5 MR. VAN RYN: Mr. Prins, I believe.

6 JUDGE MATIAS: Mr. Prins, would you raise  
7 your right hand?

8  
9 H A R V E Y R. P R I N S, having been called as a  
10 witness, being first duly sworn by the Administrative  
11 Law Judge, was examined and testified as follows:

12 JUDGE MATIAS: State your full name and  
13 address, please, Mr. Prins.

14 THE WITNESS: My name is Harvey Raymond  
15 Prins. My address is Three Empire State Plaza, Albany,  
16 New York.

17 JUDGE MATIAS: Mr. Van Ryn, is this your  
18 witness?

19 MR. VAN RYN: Yes.

20 JUDGE MATIAS: All right.

21 DIRECT EXAMINATION

22 BY MR. VAN RYN:

23 Q Dr. Prins, I show you a document entitled "Prepared  
Testimony of Harvey R. Prins" consisting of nine pages

1 and ask if it was prepared by you or under your  
2 direction?

3 A Yes, it was.

4 Q Do you have any corrections to make to this document?

5 A No, I do not.

6 Q Do you adopt this document as your prefiled testimony  
7 in this proceeding?

8 A Yes, I do.

9 MR. VAN RYN: Your Honor, I ask that  
10 Mr. Prins' testimony be copied into the record as if  
11 given orally.

12 JUDGE MATIAS: Objections?

13 (No response)

14 JUDGE MATIAS: Hearing none, Mr. Reporter,  
15 take in as though given orally the prepared testimony  
16 of Harvey R. Prins.

17 (Whereupon the following is the prefiled  
18 testimony of Witness Harvey R. Prins in the above-  
19 entitled matter, consisting of nine pages:)

1 BEFORE THE  
2 STATE OF NEW YORK  
3 PUBLIC SERVICE COMMISSION  
4 -----

2324

5 In the Matter of  
6 Cases 29069 & 29070  
7 Proceeding on the motion of the Commission as to the rates,  
8 charges, rules and regulations of Niagara Mohawk Power  
9 Corporation for electric and street lighting services.  
10 -----

11 Prepared Testimony of

12 Harvey R. Prins  
13 Nuclear Power Generation Planner IV  
14 System Planning Section  
15 Power Division  
16 Department of Public Service  
17 Three Empire State Plaza  
18 Albany, New York 12223

16 Q. Please state your name and business address.

17 A. My name is Harvey R. Prins and my business address is  
18 New York State Department of Public Service, Three  
19 Empire State Plaza, Albany, New York 12223.

20 Q. What is your position with the Department of Public  
21 Service?

22 A. I am a Nuclear Generation Planner in the System  
23 Planning Section of the Power Division.  
24



1 Q. Please summarize your responsibilities in that  
2 position.

3 A. At the Department of Public Service, my  
4 responsibilities are in the areas where radiological  
5 factors could have an impact on nuclear power plant  
6 operation. These areas include:

- 7 (a) outage due to radiation levels;
- 8 (b) low-level waste disposal;
- 9 (c) spent fuel storage and disposal;
- 10 (d) emergency planning; and
- 11 (e) decommissioning of nuclear facilities.

12 I also represent the Department at interagency  
13 meetings.

14 Q. What is your educational background?

15 A. I received a Bachelor of Science degree in Civil  
16 Engineering from Newark College of Engineering. I  
17 received a Master of Science and Doctor of Engineering  
18 degree in Environmental Engineering from Rensselaer  
19 Polytechnic Institute. My education at RPI includes  
20 20 graduate credits in Nuclear Engineering.

21 Q. What are your professional qualifications?

22 A. I am a Professional Engineer in the State of New York.  
23 I am also certified in Health Physics by the American  
24 Board of Health Physics.

25 Q. Briefly summarize your professional experience.

1 A. I have three years' experience in teaching  
2 Radiological Health at Lowell Technologies Institute  
3 and the University of Michigan.

4 For nine years, I was a Nuclear Engineer with  
5 the New York Department of Environmental Conservation.  
6 My duties there were: (1) to keep informed of the  
7 developments in the nuclear industry and evaluate  
8 their impact on the environment; (2) regulate  
9 discharges of radioactive materials into the  
10 environment; (3) formulate and implement radiological  
11 surveillance programs to monitor discharges and  
12 environmental levels of radioactivity; (4) perform  
13 surveillance of the West Valley burial site and  
14 recommend corrective action in the site operation  
15 where necessary.

16 For the past five years, I have been with the  
17 Department of Public Service.

18 Q. Have you testified in other rate cases before this  
19 Commission?

20 A. Yes, I testified in Case 28211, Consolidated Edison  
21 Company; in Case 28225, Niagara Mohawk Power  
22 Corporation; and in Cases 28313-6, Rochester Gas and  
23 Electric Corporation. I also submitted testimony in  
24 Case 28553 and Case 29029, Long Island Lighting  
25 Company.



1 Q. What is the purpose of your testimony?

2 A. The purpose of my testimony is (1) to review the basic  
3 studies setting forth technology safety and costs for  
4 boiling water nuclear power reactor decommissioning;  
5 (2) to review the studies performed for Nine Mile  
6 Point Two decommissioning cost and (3) to present a  
7 current cost estimate for Nine Mile Point Two.

8 Q. What are the basic studies on the decommissioning  
9 costs associated with boiling water nuclear power  
10 reactors?

11 A. In the United States, there are two basic generic  
12 studies. The first was sponsored by the Atomic  
13 Industrial Forum and done by Nuclear Energy Services  
14 (the AIF-1 study). The authors are William J. Manion  
15 and Thomas S. LaGuardia. The study was published in  
16 November 1976 and included an analysis of a 1,160 MWe  
17 boiling water reactor (AIF/NESP-009). The cost for  
18 the immediate dismantlement mode of decommissioning  
19 (the method previously approved by the Commission) was  
20 \$31.2 million in 1975 dollars.

21 The second study was sponsored by the Nuclear  
22 Regulatory Commission and done by Battelle Pacific  
23 Northwest Laboratory (the Battelle Study I). The  
24 authors are H.D. Oak, G.M. Holter, W.E. Kennedy, Jr.  
25 and G.J. Konzels (NUREG/CR-0672). The study was

1 published in June 1980. The analysis was for a 1,155  
2 MWe boiling water reactor, the Battelle reference  
3 plant. The cost for the immediate dismantling mode of  
4 decommissioning was \$43.6 million in 1978 dollars.  
5 Both of these studies were comprehensive, widely  
6 distributed and received extensive peer review from  
7 the interested scientific and engineering community.

8 Q. Were these studies ever updated?

9 A. Yes, a study sponsored by the Atomic Industrial Forum  
10 and done by Stone and Webster Engineering Corporation  
11 was published in May 1981 (AIF/NESP-021) (AIF-2  
12 study). This study updated the cost of  
13 decommissioning to 1980 dollars for both the AIF and  
14 Battelle studies. For the AIF reference plant, the  
15 cost was \$44.79 million and for the Battelle reference  
16 plant, \$56.27 million.

17 These studies are reasonably consistent with each  
18 other and the differences between them have been  
19 explained.

20 Q. What is the most recent study?

21 A. A study sponsored by the Electric Power Research  
22 Institute, and done by Battelle Pacific Northwest  
23 Laboratories, was published in May 1985. The title  
24 is, "Updated Cost for Decommissioning Nuclear Power  
25 Facilities", (EPRI NP-4012) (Battelle-2 study). The

1 authors are R.I. Smith, G.J. Konzels, E.S. Murphy and  
2 H.K. Elder. This group includes some of the authors  
3 who performed the original Battelle 1 study. They  
4 took into account comments received on the original,  
5 the rise in cost and changes in the regulatory  
6 environment that have occurred since 1978. Their cost  
7 estimates for the immediate dismantlement mode of  
8 decommissioning in 1984 dollars was \$97.2 million if  
9 done with utility staffing, or \$119.7 million if done  
10 with contractor staffing. These costs include a 25%  
11 contingency factor.

12 Q. What use should be made of these generic studies?

13 A. Any decommissioning study should be consistent with  
14 the findings of these generic studies or the  
15 differences should be explained in detail.

16 Q. What decommissioning cost estimates have been made for  
17 Nine Mile Two?

18 A. In the hearing before the State of New York Public  
19 Service Commission (Case 28059), in December 1981,  
20 concerning the continued construction of Nine Mile  
21 Two, company witness Thomas LaGuardia presented  
22 testimony. He estimated the cost for decommissioning  
23 Nine Mile Two at \$86.2 million in 1978 dollars. This  
24 amount includes a 25% contingency. His estimate was  
25 based on a study done for Fermi Two (the Fermi study),

1 a 1,100 MWe boiling water reactor, with adjustments  
2 made for Nine Mile Two-specific features.

3 In the current rate case, the company has  
4 submitted a study done by the NUS Corporation in  
5 September 1982 (Exhibit 106A and 106B) (the NUS  
6 study). This study is based on a detailed study of  
7 Diablo Canyon 1 and 2, Westinghouse Pressurized Water  
8 Reactors (PWR). There were adjustments made using  
9 data from the Battelle study and data from Nine Mile  
10 Two. The cost is estimated to be \$154 million in 1982  
11 dollars. This figure includes a 25% contingency  
12 allowance.

13 Q. Does the method used in the NUS study produce a  
14 reasonable estimate for Nine Mile Two decommissioning  
15 cost?

16 A. No, using a PWR data base to obtain an estimate for a  
17 Boiling Water Reactor (BWR) is an inappropriate  
18 method. The Niagara Mohawk staff apparently agrees  
19 with this conclusion (SM475). The reference plant for  
20 the Battelle studies closely resembles Nine Mile Two;  
21 therefore, using a PWR data base when the very  
22 detailed study of Battelle was available, produces  
23 unnecessary inaccuracies. The reason Niagara Mohawk had  
24 the NUS study performed is also unexplained,  
25 especially since the study they presented in

1 Case 28059 was based on the Fermi II plant which more  
2 closely resembles Nine Mile Two.

3 Q. In view of the above history, what amount would you  
4 recommend for the decommissioning cost of Nine Mile  
5 Two?

6 A. I would recommend \$100 million in 1984 dollars. This  
7 is the amount stated in the Nuclear Regulatory  
8 Commission's proposed rules on "Decommissioning  
9 Criteria for Nuclear Facilities" (Feb. 11, 1985,  
10 Federal Register, Vol. 50, page 5602).

11 The NRC's proposed rules have been developed in  
12 response to a petition for rulemaking (PRM-50-22)  
13 concerning decommissioning financial assurance,  
14 initially filed by the Public Interest Research Group  
15 on July 5, 1977. The topic of decommissioning has  
16 received much study by the NRC and other interestetd  
17 parties. The NRC sponsored the Battelle studies as a  
18 basis for its rulemaking.

19 The Electric Power Research Institute states  
20 that the estimates developed in the Battelle-2 Study  
21 are consistent with the \$100 million level on which  
22 NRC based its ruling.

23 The \$100 million derived in the very timely  
24 study, done by a competent group and endorsed by EPRI,  
25 includes a 25% contingency factor. This contingency

1 factor should be sufficient to cover any differences  
2 between the reference plant and Nine Mile Two.

3 Q. Does this conclude your testimony?

4 A. Yes.

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1 JUDGE MATIAS: Further direct?

2 MR. VAN RYN: The witness is available  
3 for cross-examination.

4 JUDGE MATIAS: All right. Mr. Dax?

5 MR. DAX: Thank you, your Honor.

6 CROSS-EXAMINATION

7 BY MR. DAX:

8 Q Dr. Prins, have you ever participated in decommissioning  
9 a nuclear power plant?

10 A No, I have not.

11 Q Have you conducted a study of the engineering and  
12 funding requirements involved in decommissioning a  
13 nuclear power plant?

14 A No, I have not.

15 Q Have you ever performed or supervised construction work  
16 in a nuclear power plant?

17 A No, I have not. ..

18 Q You recommended that an estimate of \$100 million in  
19 1984 dollars be used for the decommissioning of Nine  
20 Mile 2 for purposes of rate year revenue requirements;  
21 is that correct?

22 A That is correct.

23 Q And your reference is the proposed rules that are  
currently pending before the NRC; is that correct?

1 A That is correct.

2 Q And the rules, as I understand them -- and tell me if  
3 your understanding differs -- provide at this point --  
4 and they are proposed rules -- for giving the utilities  
5 the option of certifying that they have sufficient  
6 internal financing to assure decommissioning at the end  
7 of the life of the nuclear facility based on either a  
8 site-specific study or using a cost estimate of the  
9 \$100 million in 1984 dollars? Is that a correct under-  
10 standing of the rules?

11 A I believe that's the way it was published in the Federal  
12 Register.

13 The discussion behind that was that the  
14 utility could either assure that they have the \$100  
15 million or justify another figure, and the other figure  
16 -- since the NRC is concerned that the utility has  
17 adequate funds, that they have surplus funds, the NRC  
18 would not be concerned.

19 Q Right. And the NRC -- this other option would be based  
20 on the adequacy of the funds, that would be judged by  
21 the NRC based upon the site-specific study that would  
22 have to be presented by the utility; is that correct?

23 A In my understanding, there were quite a few hearings  
before that, before the rule was published. But in some

1 of the staff meetings that the NRC staff was briefing  
2 the commissioners on, they said to either assure  
3 \$100 million or justify another figure.

4 Now, when they had that option, it was  
5 implied that the utility wanted to justify a lesser  
6 figure, they would need a site-specific study.

7 Q And you're saying that the NRC wouldn't be concerned if  
8 they were trying to justify a figure larger than \$100  
9 million? Is that what you're telling me?

10 A That would be my interpretation of the process that went  
11 through in the rule-making proceeding.

12 Q But the rules as published in the register don't make  
13 that explicit, do they?

14 A They don't make that explicit, no.

15 Q Now, are you sponsoring the \$100 million as your estimate  
16 of what it will cost to decommission Nine Mile 2 at the  
17 end of its life?

18 A Yes, I am.

19 Q That is your estimate? You're not simply recommending  
20 that the NRC's proposed prescription of \$100 million be  
21 adopted? You're actually saying that that's a good  
22 estimate for Nine Mile 2?

23 A No. The \$100 million that the NRC has proposed is  
consistent with the Battelle studies and the EPRI review

1 of the Battelle studies, and the Battelle study was  
2 based on the WPS II plant, Washington power plant number  
3 two, which is essentially identical to Nine Mile 2, so  
4 that on that basis I would propose that \$100 million.

5 Q And have you conducted a study or any kind of  
6 verification of the validity of that \$100 million  
7 estimate for Nine Mile 2 or is your conclusion based  
8 upon your knowledge of what it was -- what the NRC's  
9 figure was based on that you just described to me?

10 A No. I did a study to compare the two plants and the  
11 nuclear steam supply parts of the plant are essentially  
12 identical.

13 Now, there is a difference in the design  
14 earthquake for Nine Mile 2, I think --

15 (Pause)

16 A OK. The seismic design for Nine Mile Point 2 was 0.15G  
17 and the seismic design for the Washington II plant is  
18 0.26G. That would indicate that the Washington II  
19 plant would be more ruggedly designed.

20 (Continued on following page.)  
21  
22  
23

1 Q Now, did you publish this study that you performed?

2 A No, I did not.

3 Q And you did not present this in an exhibit or in any way  
4 as part of your testimony?

5 A No, I did not.

6 Q Has it been subjected to peer review?

7 A Well, the Washington 2 design basis earthquake is in the  
8 FSAR, and that did receive extensive review.

9 Q No, did your study receive peer review? You said that  
10 you conducted a study by which you compared Nine Mile 2  
11 to WPS 2, and I am asking whether that study --

12 A Well, that was one aspect of my review or study, yes.

13 Q And was that study exposed to peer review?

14 A No, but the facts are subject to extensive review. The  
15 design basis earthquake is a very large part of the  
16 review for constructing the plant.

17 Q But your interpretation of those facts is what I am  
18 asking about. Your interpretation of those facts has  
19 not been subject to peer review.

20 A Well, I have talked to a Staff geologist on it, and also  
21 on comparison of labor rates between the Pacific Northwest  
22 and the North Atlantic, I looked at the Handy Whitman  
23 index for nuclear power plants and it is higher in the  
Northwest than it is in the Northeast.

1 Q But, again, whatever you did, whatever the list of things  
2 that you looked at, you did not put it together in a  
3 published package and subject it to review by anybody  
4 in the industry?

5 A No, but the outline of it is contained in my testimony.

6 Q Now, in 1981 this Commission reviewed an estimate for  
7 decommissioning Nine Mile 2 of 86.2 million in 1978  
8 dollars. I believe that was in Case 28059, or perhaps  
9 some earlier review of Nine Mile 2.

10 A This was Nine Mile 2 --

11 Q Yes.

12 A -- or Nine Mile 1.

13 Q Nine Mile 2. Is that a correct statement, to your  
14 knowledge?

15 A Could you repeat the question?

16 Q I am asking you just to confirm whether an estimate of  
17 86.2 million in 1978 dollars for decommissioning Nine  
18 Mile 2 was presented to this Commission on behalf of the  
19 cotenants?

20 A Yes. It is on page 6 of my testimony.

21 Q Now, do you know whether this was incorporated by the  
22 Commission into its assumptions regarding the Commission  
23 and the costs of continued construction of Nine Mile?

A I am not sure how it was incorporated, but it was an item



1 of concern, the decommissioning, but what the Commission  
2 did to balance it to determine whether to continue  
3 construction or not, I could not tell you.

4 Q Is that something you could check on in some way?

5 A The record in that area is very extensive. Unless you  
6 can give me a cite --

7 Q If we were to provide you with the citation to the  
8 record and the Commission decision in that case, would  
9 you for purposes of our conversation right now accept  
10 that the Commission used that figure in its calculations  
11 of the economics and the cost of continued construction  
12 of the Nine Mile 2?

13 A I know that Staff did use the figure of decommissioning  
14 cost in that case, whether to continue construction or  
15 not.

16 Q The Staff of the Public Service Commission --

17 A Right.

18 Q -- did use the 86.2?

19 A No, they used a higher number.

20 Q Used a higher number.

21 A Right.

22 Q Now, was that higher number also stated in 1978 dollars,  
23 or was it in some --

A Offhand I would not know. I would have to check that.

1 Q Now, if the \$100 million that you are recommending is in  
2 '84 dollars and the contenants' estimate of 86.2 was in  
3 '78 dollars, and Staff used some higher number, is it  
4 possible that what you are really talking about is a  
5 decrease in the estimate from prior estimates for the  
6 decommissioning of Nine Mile 2?

7 A You are saying what Staff had used in their case?

8 Q You have told me that Staff used a higher figure than  
9 86.2. The missing ingredient that we do not know is  
10 what year dollars that was stated in, but it is possible  
11 that if we knew that fact, if we knew what year dollars  
12 those were in, and we knew the number-- and we do know  
13 that the 86.2 was based on '78 dollars -- that when we  
14 compare either of those to the \$100 million in '84  
15 dollars, what we are really talking about is a decrease  
16 in the estimate in real terms?

17 A The total would go down if you put it in '85 dollars;  
18 that is true.

19 Q Now, you have shown some familiarity with the NRC rules,  
20 and I would like you to state whether or not it is true  
21 that the NRC views the \$100 million as not accounting and  
22 not including the cost of demolishing the nonradioactive  
23 structures of a nuclear facility?

A That is not clear exactly. In the Battelle study, they

1 say administrative buildings and warehouses and some other  
2 structures are beyond the jurisdiction of the NRC since  
3 they do not contain radioactivity contamination;  
4 however, the other structures would be removed to below  
5 grade and restored.

6 Q I notice that you have what looked like a copy of the  
7 relevant copy of the *Federal Register*.

8 A Yes, I do.

9 Q Do you have *Federal Register* Volume 50, No. 28, dated  
10 Monday, February 11, 1985, page 5600 and following?

11 A Yes.

12 Q Would you turn to 5606 and look in the right-hand column?  
13 About one-third of the way down there is a sentence that  
14 begins: This amount does not account for cost of  
15 shipment of spent fuel. . . then it goes on to say: or  
16 the cost of demolition of nonradioactive structures which  
17 is not required for NRC license termination.

18 A That is correct.

19 Q Now, do you have reason to dispute that?

20 A No, I do not.

21 Q Do you also see there that the NRC assumes --

22 A Excuse me. I lost the page again.

23 Q OK. It really does not matter. Maybe you do not need a  
page reference here: that the \$100 million is stated in

1 '84 dollars, but the NRC assumes escalation at twice the  
2 CPI rate of inflation?

3 A That is what they are proposing, yes.

4 Q Now, have you presented a calculation based on rate year  
5 dollars of what that would translate into?

6 A No, I have not.

7 Q But it would be higher than 100 million?

8 A Yes, sir.

9 Q Have you examined any of the comments that have been  
10 filed on the proposed rules?

11 A No, I have not. I have talked to the one who is mentioned  
12 here in the *Federal Register* on the phone. They said they  
13 had received about 136, something in that neighborhood,  
14 comments, and they would not know if the proposed rule  
15 would be changed or not. They could not tell at this  
16 time.

17 Q It would not surprise you if some of those comments took  
18 issue with the adequacy of the \$100 million, would it?

19 A No, it would not surprise me at all.

20 Q And it would not surprise you if some of those comments  
21 came from both utility owners of nuclear plants and  
22 opponents of nuclear plans, opponents of the nuclear  
23 industry?

A No, it would not be surprising.

1 Q Are you familiar with a group called Public Citizen  
2 Environmental Action?

3 A Is that Ralph Nader's group?

4 Q I believe it is a subsidiary of some sort. I do not want  
5 to misstate the facts, but I think that is the case.

6 A I have heard of them.

7 Q Do you know whether or not they have criticized the  
8 \$100 million estimate as being inadequate?

9 MR. VAN RYN: Your Honor, I object. If  
10 Mr. Dax has some hypothetical questions, I wish he would  
11 state them in that manner. It is obvious the witness is  
12 not directly familiar with this matter.

13 MR. DAX: Fine. I withdraw the question.

14 BY MR. DAX:

15 Q Now, you indicated that you were familiar with the  
16 studies which underlie the \$100 million estimate. You  
17 referred to the Battelle study of the WPS 2 plant.

18 A Yes, I did.

19 Q And it is your understanding that that is the basis for  
20 the \$100 million.

21 A That is correct.

22 Q And is that known as NUREG-CR-0130?

23 A That is NUREG-CR-0672.

Q 0672?

1 A Yes.

2 Q That is the BWR study?

3 A That is correct.

4 Q OK. Then the one I quoted would be the PWR study?

5 A I would not know. I would have to check that.

6 (Continued on following page.)

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1 Q Did you ever receive correspondence from one of the  
2 authors of that study concerning aspects of the  
3 study?

4 A Yes. I had correspondence from Mr. Smith concerning  
5 the curve -- the correlation coefficient, when you're  
6 using scaling down to -- from the reference plant to a  
7 lower powered reactor.

8 Q That was in the context of a Rochester case --

9 A Yes.

10 Q -- looking at the Ginna plant?

11 A That is correct.

12 Q I'd like to show you a document. This is a four-page  
13 document on the letterhead of Battelle Pacific Northwest  
14 Laboratories dated October 29, 1982 directed to  
15 Mr. Harvey R. Prins.

16 It's signed on the second page by Richard  
17 I. Smith and it has a two-page attachment to it.

18 Is this the letter that you have referred  
19 to?

20 A Yes, that is correct.

21 MR. DAX: Your Honor, I'd like to  
22 have this marked for identification.

23 JUDGE MATIAS: All right. Hand a copy  
to the reporter.

1 Mr. Reporter, this will be 175 for  
2 identification.

3 (The aforementioned document was marked  
4 as Exhibit No. 175 for identification.)

5 BY MR. DAX:

6 Q Now, let me just refer you to the second page of the  
7 letter. It appears therein that Mr. Smith offered what  
8 he terms a warning with respect to the use of the  
9 Battelle study, and in there he states that the analyses  
10 were intended to provide order of magnitude estimates  
11 good to within a factor of two, certainly, but not  
12 intended to be used without further site-specific  
13 analysis.

14 Is that a correct reading of the letter?

15 A If I recall, we were talking about the Ginna plant  
16 which would be scaled down from the PWR study. It was an  
17 addendum to the PWR study and we were discussing on the  
18 phone with Mr. Smith whether or not the scaling factor  
19 they had developed for the addendum to the PWR study  
20 would be applicable to Ginna.

21 Now, the scaling factor is what was under  
22 consideration at that time and he said that it should  
23 be valid within a factor of two. That was the scaling  
factor.

1 Q Now, that's with respect to the PWR study?

2 A The PWR study, right. The Ginna plant is a PWR some-  
3 where in the neighborhood of 600 megawatts --

4 Q Now --

5 A -- and the NUREG study was for 1,000 megawatts, so in  
6 the addendum to the PWR study, they had developed  
7 scaling -- scaling factors to get from the basic plant  
8 down to a smaller sized plant and that was the concern  
9 of using that scaling factor, to get an estimate for  
10 Ginna.

11 Q But his cautionary remarks go to the entire study in the  
12 addendum, do they not? He says that they are good  
13 within an order of magnitude of a factor of two.

14 A I believe he was just applying that to the scaling  
15 factor, not to the whole study.

16 Q That's how you interpreted this?

17 A That's how I interpreted that, because that was the item  
18 under discussion.

19 Q Did you ever call him up or have any further  
20 correspondence to discuss whether your understanding of  
21 that was as you so stated?

22 A No, I did not pursue that particular aspect of it.

23 Q So in your view, the scaling factors, then, were to  
be viewed as accurate within a factor of two? That's

1 what you're saying?

2 A Yes. In the addendum to the PWR study, which I don't  
3 have the number offhand, but it may be the one you  
4 referred to earlier, they had evaluated three smaller  
5 plants and drew a curve to -- I think it was three or  
6 four, I'm not sure.

7 But they had evaluated three or four  
8 smaller plants to draw a curve in order to extrapolate  
9 downwards from the base study and one of the plants they  
10 had chosen for a data point to that curve was the Ginna  
11 plant and he was saying in this letter, when I was  
12 talking to him on the phone, that the study for Ginna was  
13 not as thorough as the other ones and therefore it  
14 would be within a factor of two, definitely.

15 Q And you don't believe that that same caution would --  
16 just in your knowledge of how these studies are  
17 performed, you don't believe that that same cautionary  
18 limitation would be applicable to any other parts of the  
19 study?

20 A Well, the precaution is published in the study itself.  
21 It could not be applied blindly to any plant.

22 You would have to see if it was applicable,  
23 so there is a precaution in this study that is a little  
different than what's in the letter and the precaution

1 in the study says that if you just apply it to any plant,  
2 you're liable to come up with an error.

3 However, if you examine the parameters  
4 that are in there and see that they're applicable to  
5 the site you're considering, they definitely would be  
6 much closer than a factor of two.

7 Q It could be under those situations, if you find that  
8 the study plant was very similar to the target plant,  
9 that you --

10 A And you took into consideration the other factors like  
11 the weight scale and the seismic design and transportation  
12 difficulty, if you looked at all of them and saw no  
13 reason to discard the Battelle study, then the Battelle  
14 study results should be applicable.

15 Q So would you agree, then, as a general matter, that  
16 the better a plant -- excuse me. The better a study  
17 approximates the condition of a plant that's being  
18 examined for purposes of estimating costs, the better  
19 will be that study for using it as the basis for the  
20 estimate?

21 MR. VAN RYN: Your Honor, I'd just like  
22 to be clear that that's a hypothetical question.

23 MR. DAX: No, it's not a hypothetical  
question. It's a question of procedure.

1 BY MR. DAX:

2 Q Is it true that as a matter of procedure, in your  
3 opinion, that the closer the study plant approximates  
4 the plant in question, the better and more reliable  
5 will be the study results when applied to the plant in  
6 question?

7 MR. VAN RYN: I'll accept that.

8 THE WITNESS: Yes, that's true.

9 BY MR. DAX:

10 Q Now, you've criticized along these lines the NUS study  
11 which formed the basis for the decommissioning cost  
12 estimate that the Company is currently applying prior  
13 to the TLG update which has now been precluded  
14 from this case?

15 A Right.

16 Q And you say that one problem with NUS study was that the  
17 reference plant was a PWR plant and correctly point out  
18 that Nine Mile 2 is a BWR plant; is that correct?

19 A That is correct.

20 Q And you also refer to the study presented by  
21 Mr. LaGuardia in Case 28059 in December of 1981, and you  
22 say that that was based on a plant more akin to Nine  
23 Mile 2.

A That is correct.



1 Q So as between the NUS study and that study, you would  
2 say that the 19 -- December 1981 study would be the  
3 preferable one as between those two?

4 A If it was just between those two, that would be correct.

5 Q And would you then agree as a general matter that the  
6 more effort that's taken to refine our knowledge of the  
7 specifics of a plant, the more we focus on plant  
8 characteristics that are unique to that plant,  
9 characteristics of the whole economy, wage rates, things  
10 like that, the better the reliability of the study  
11 in question?

12 A Are you comparing one study to another?

13 Q No. Again, I'm going back --

14 A Yes, the more effort you put into the study, the better  
15 it should be.

16 Q The more site-specific it is, the better it should be?

17 MR. VAN RYN: Your Honor, I object. The  
18 site-specific issues have already been dealt with --

19 MR. DAX: I don't understand how this --

20 MR. VAN RYN: -- unless he makes it quite  
21 clear that this is a hypothetical question.

22 JUDGE MATIAS: I don't think --

23 MR. DAX: I don't think it's a  
hypothetical question. I'm just talking about general

1 policy, engineering.

2 JUDGE MATIAS: Of course, I think the  
3 question was answered some time ago, but I will permit  
4 an answer in case I'm wrong on that score.

5 THE WITNESS: Well, if the studies are  
6 of equal quality, then a site-specific study would be  
7 preferable to a generic study if it were of equal quality.

8 BY MR. DAX:

9 Q Fine. Now I want you to turn to Mr. LaGuardia's study,  
10 and I know that his -- I mean his testimony.

11 I know his testimony has been precluded.  
12 I'm only using it for reference to a quotation  
13 that's in it. Do you have his --

14 MR. VAN RYN: Your Honor, if he would  
15 like to read a quotation from another document, that  
16 would be fine. I don't want the testimony referred to.  
17 If you would like to read a quotation --

18 JUDGE MATIAS: It can be referred to.

19 MR. DAX: I can mark it as an exhibit  
20 if I want to.

21 (Pause)

22 JUDGE MATIAS: I have it right here.

23 MR. DAX: All right.

(Document proffered by Judge Matias to

1 Mr. Dax.)

2 THE WITNESS: I believe I don't have it.

3 BY MR. DAX:

4 Q Well, I'll show you this. I have a copy in my file, too.  
5 I just wanted to have a copy for you.

6 What I'm referring to is a quotation from  
7 an American Association of Cost Engineers, a  
8 definition of the word or the concept "contingency" and  
9 there is an indented paragraph appearing on that page  
10 of the precluded testimony which sets out that definition.

11 Have you previously seen that definition  
12 in the course of reviewing this testimony or at any  
13 other time?

14 A I've seen it.

15 Q OK. Just so that I can get this in the record, since  
16 the testimony will not be -- let me read it.

17 It says "Contingency is a cost element  
18 of an estimate to cover a statistical probability of  
19 the occurrence of unforeseeable elements of cost within  
20 the defined project scope due to a combination of  
21 uncertainties, untangibles and unforeseen/highly unlikely  
22 occurrences of future events based on management's  
23 decision to assume risks (for the occurrence of those  
events)." Do you have any comment on that?

1 Do you agree with that definition or do  
2 you disagree with that definition?

3 A No.

4 Q You agree with it?

5 A I agree with that, that that's what it says.

6 However, I agree that's an acceptable standard for a  
7 contingency factor.

8 Q Well, do you have a different definition in mind if you  
9 were to define the term "contingency"?

10 A No, I do not.

11 Q On pages 8 and 9 of your testimony, you state that  
12 the 25 percent contingency that was included in the  
13 Battelle study which formed the basis for the NRC's  
14 \$100 million estimate should cover all differences  
15 between the referenced plant and Nine Mile 2. Is that  
16 your testimony?

17 A Yes, that is my testimony.

18 (Continued on following page.)  
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1 Q Based on what we just reviewed as far as the definition  
2 of contingency, wouldn't you agree that that would appear  
3 to be a different use of the contingency concept than  
4 that used in the definition?

5 A That is correct. It is different, yes.

6 MR. DAX: I have no further questions.

7 JUDGE MATIAS: Any further cross?

8 MS. BRENNER: I have no cross for him.

9 JUDGE MATIAS: All right. Redirect  
10 examination?

11 MR. VAN RYN: May I consult with the  
12 witness?

13 JUDGE MATIAS: Yes.

14 (Discussion off the record.)

15 JUDGE MATIAS: Back on the record.  
16 Redirect examination?

17 MR. VAN RYN: I have one question, your  
18 Honor.

19 REDIRECT EXAMINATION

20 BY MR. VAN RYN:

21 Q Dr. Prins, you stated that you compared the Battelle  
22 study to Nine Mile 2. When you did the study, you made  
23 no adjustment to the figures and numbers used by Battelle,  
did you?

1 A No, I did not.

2 MR. VAN RYN: Thank you.

3 JUDGE MATIAS: You are excused, Mr. Prins.

4 Thank you very much.

5 (Witness excused.)

6 JUDGE MATIAS: Exhibit 175, Mr. Dax?

7 MR. DAX: 175 I would move into evidence.

8 JUDGE MATIAS: Objections? 175 will be  
9 admitted.

10 (Exhibit No. 175 was received in evidence.)

11 JUDGE MATIAS: All right. Then the next  
12 witness scheduled is Ellis. I have not seen him today.  
13 Is he here? Is there cross-examination for Mr. Ellis?

14 MR. DAX: We have none.

15 JUDGE MATIAS: Does anyone have any?

16 MR. VAN RYN: I would just like to state  
17 that I had an oral understanding with Mr. Ellis as of  
18 Monday that he would be bound to accept whatever result  
19 was reached on the Company's decommissioning study for  
20 his own decommissioning testimony.

21 JUDGE MATIAS: I do not know what that  
22 means.

23 MR. VAN RYN: He has two sections in his  
testimony --