

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of:
WISCONSIN ELECTRIC POWER COMPANY
and
WISCONSIN-MICHIGAN POWER COMPANY
(Point Beach Nuclear Plant No. 2)

Box No. 50-301

International Room,
Holiday Inn,
3801 North Mannheim Road,
Schiller Park, Illinois.

Saturday, 8 January 1972.

The above-entitled matter came on for further
hearing, pursuant to adjournment, at 9:00 a.m.

BEFORE:

ANDREW W. GOODRICH, Esq., Chairman,
Atomic Safety and Licensing Board.

DR. CLARKE WILLIAMS, Member.

DR. WALTER H. JORDAN, Member. (Not present.)

APPEARANCES:

(As heretofore noted.)

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EXHIBIT A

1 been done have been proof tests of theory, and that those
2 were conducted at the NSPP, which is at Oak Ridge, a
3 government facility, and at Battelle Northwest Lab, which
4 is, I believe, operating under contract from the AEC.

5 To what extent does the WCAP document 7499-L rely
6 upon or incorporate the information obtained from tests
7 run at these facilities?

8 A There are two tables in this particular document
9 which compare results of certain NSPP and CSE experiments
10 with theoretical predictions based on the model developed
11 by Westinghouse.

12 BY MR. CHERRY:

13 Q Would you point those out, Doctor?

14 A It's Table 4-1, which gives a comparison of the
15 NSPP results in comparison with Westinghouse predictions;
16 page 4-4. And Table 4.2 on page 4-7 gives a similar set of
17 data for two runs in the CSE facility.

18 Q Is there anything else in the report that incor-
19 porates information generated out of national labs, or
20 relies upon?

21 A There is a tremendous overlap, of course, on data
22 that physical scientists develop. There was a similar
23 derivation of drop trajectories published by the Oak Ridge
24 National Laboratory. Whether Westinghouse developed their
25 model from first principles or adapted it from Oak Ridge work,

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1 I don't know. It doesn't make any difference.

2 Q But the results contained in that report are
3 published in an Oak Ridge report, is what you are saying?
4 The same results. You just don't know whether Westinghouse

5 A A similar type of result was calculated by
6 Oak Ridge.

7 Q Would you just, Doctor, go through the Table of
8 Contents and, from your knowledge, tell me with respect to
9 sections where there is overlap as you can see from your
10 familiarity with this WCAP 7499-L with information in this
11 report and the overlap that you say has been done at Battell
12 and Oak Ridge?

13 MR. NALSCH: You mean overlap in terms of reaching
14 similar results?

15 MR. CHERRY: Yes. Overlap in terms of conclusions
16 opinions, mathematical formulas, the state of the art,
17 et cetera.

18 WITNESS BURLEY: Right.

19 Well, Section 3.1 is the original Griffiths
20 model which was published by the British.

21 BY MR. CHERRY:

22 Q That was not developed by Oak Ridge?

23 A (Mr. Burley) It was not developed by Oak Ridge.
24 It has been essentially the starting point for everybody's
25 theoretical predictions for iodine removal efficiency.

1 Q So Westinghouse did not develop that?

2 A Westinghouse did not develop that.

3 Q What else?

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1 A As I said, Section 3.3, the mathematical model,
2 is parallel to what has been done by Oak Ridge but presumably
3 could well have been independent work by Westinghouse.

4 Q But it is identical. Do you use the word parallel
5 and identical similarly in this context?

6 A It is not specifically identical. It is parallel.

7 Q And the parallel is published in a national lab
8 report?

9 A That's right.

10 Q All right. What else?

11 A The mass transfer model has certain similarities
12 to a model developed by Lou Parsley of Oak Ridge. The
13 MSPP and CSE experiments have been published elsewhere.

14 Q When you say the mass transfer model, it is
15 conceivable that the Westinghouse report had a starting point
16 in Mr. Parsley's and took off from there, is that possible?

17 A It's possible.

18 Q Okay, what else?

19 A I think those are the major items which are available
20 to some extent in the open literature.

21 I think one has to get things in perspective,
22 though, and say that virtually everything in this particular
23 report is something that is developed from first principles
24 and could be derived given enough time and money by anybody.

25 Q So that in terms of what one might call a trace

1 secret, say the Coca-Cola formula, for example, is a trade
2 secret, and has such a comprie of formulas that unless you
3 really had it, you could not analyze it. You would not say
4 from what you just said that this report is a trade secret if
5 I use that definition?

6 A I think what is involved, of course, is that
7 Westinghouse has spent some time and money --

8 Q I have no dispute that they spent money.

9 A -- in developing the formulas beyond the concepts
10 and this is the novelty of the report.

11 Q It's the spending of money?

12 A And time.

13 Q And time.

14 But it is not novel in a scientific sense?

15 A It is certainly not novel in a scientific sense.

16 Q Thank you.

17 BY MR. COMBY:

18 Q Dr. Barley, you had indicated that this document,
19 the Staff analytical model, was in a sense theories which the
20 CSE and the MITP experiments were proof tests, could you in
21 order to help me understand the relationship there perhaps to
22 compare it with something I'm a little more familiar with.

23 Would you give me an idea of qualitatively or
24 quantitatively where the experimental versus theoretical work

1 A We have not promoted one system over another.

2 Q Dr. Burley, could I hand you WCAP-7153.

3 A I have 7153.

4 BY MR. CHERRY:

5 Q Now, do you recall the series of questions I asked
6 you with respect to WCAP-7499-L about its novelty in the public
7 literature, et cetera, et cetera, that series of questions?

8 A Yes.

9 Q Does your view of WCAP-7153 lead you to the
10 conclusion that there is no novelty in the scientific sense
11 in that document either?

12 A There is more original work in this particular
13 document, more original experimental work in this document than
14 the other, and a great deal of the information in this particular
15 document is not available in the open literature.

16 Q Now, would you go through the table of contents in
17 WCAP-7153 and first tell me what information is or is not
18 available, to the best of your knowledge, just as we can get
19 a breakdown.

20 A Is not available, you say?

21 Q Either one. Break down the table of contents and
22 tell me what is available in the open literature, and I
23 assure that you have left out, therefore, what is not available,
24 or the other way around.

25 A Right.

1 Q Just tell me which one.

2 A Most of some of the work on sodium thiosulfate and
3 sodium hydroxide stability radiolysis corrosion has been done
4 at the Oak Ridge National Laboratory and is available in
5 various reports. Some of the work, however, in these particular
6 sections is unique and distinct and has not been duplicated by
7 anybody else.

8 Q When you say unique and distinct, does that mean
9 no one else has done it, or it would be scientifically difficult
10 for someone else to do it without certain know-how that
11 Westinghouse seems to possess.

12 A No. The uniqueness and the distinction in most
13 of these experiments is that they were designed specifically
14 for the conditions in the reactor environment. They could be
15 duplicated. It is just that other experiments in the literature
16 have not as closely duplicated these conditions.

17 Q I see. So then you are not suggesting that it's
18 impossible for, say, Babcock & Wilcox, if they wanted to,
19 without this report, to duplicate the parameters of the
20 experiments and run the tests?

21 A That's correct.

22 Q So in that sense, there is no novelty in this
23 report either, scientific novelty in the sense that there is
24 something that Westinghouse has thought of based on their
25 know-how that no one else has?

1 A The novelty at the moment is in the fact that the
2 results are here and have not been published by others.

3 Q But there is no discovery in the scientific sense
4 in this report, WCAP-7153?

5 A Well, in my terminology, there is discovery.

6 Q Well, if I define discovery as an invention as
7 opposed to having done something that no one else has done but
8 could do, if I define it that way, will you say there is
9 discovery in this report?

10 A As long as you keep your "but could do" in there,
11 yes.

12 Q I say but could do.

13 A Yes, and I agree with you if you keep in that
14 proviso.

15 Q Then there is no discovery, you agree with me?

16 A I agree with you.

17 Q Let's go back to the table of contents. Would it
18 be fair to state that Section 3 of the table of contents III
19 essentially contains information that is available in the
20 public literature.

21 A Portions of it.

22 Q Would you tell me which portions to your knowledge
23 are available in the public literature? Let's take A.1 or,
24 I don't know if you could break them down, could you break them
25 down by 1, 2, 3, 4?

1 A I'm afraid I will have to go to each page and check
2 it through and depend on my familiarity with the literature in
3 that respect.

4 Q Well, let me ask you this question.

5 Comparisons between sodium hydroxide and sodium
6 thiosulfate with respect to its properties in a loss-of-coolant
7 accident and the use of an iodine removal spray system, would
8 you say that such comparative analysis is available in the open
9 literature?

10 A An analysis of each solution is available both as
11 to its behavior under thermal and radiolytic conditions and
12 its removal effectiveness for iodine. That comparison is a
13 judgment factor which is made by individuals.

14 Q I understand. Leaving beside the judgment, you
15 would then say that analysis with respect to properties under
16 conditions as to which this report directs itself separately
17 for sodium thiosulfate and sodium hydroxide is available in
18 the open literature?

19 A Portions of it are.

20 Q You are familiar, are you not, with so-called
21 proprietary reports of other vendors?

22 A That's right.

23 Q And is it true that Babcock & Wilcox has an alleged
24 proprietary report with respect to the question of chemical
25 additive sprays?

1 MR. CHAMOFF: Objection on the grounds of relevancy.
2 Was he brought out here to talk about proprietary
3 information?

4 MR. CHERRY: It has arisen. As long as he's here,
5 I would like to have some information.

6 CHAIRMAN GOODRICH: I think we will let him answer
7 the question and see the relevancy.

8 Answer the question.

9 WITNESS BULLLEY: There are several reports by
10 Babcock & Wilcox, proprietary reports, on the subject of
11 sodium thiosulfate spray systems.

12 BY MR. CHERRY:

13 Q Do they also include within their discussions of
14 sodium hydroxide in a comparative way?

15 A Not strictly, no.

16 Q Well, in the same way that this report compared
17 thiosulfate to hydroxide, would the B&W report have at least
18 as much about hydroxide as this does about thiosulfate?

19 A It does not.

20 Q It does not.

21 Now, are there any other vendors that have
22 proprietary reports in this area? Does Combustion have one?

23 A They do not.

24 Q They do not.

25 Now, you are familiar, therefore, with both B&W

1 and the Westinghouse reports?

2 A That's correct.

3 Q Do you find upon a reading of both of them that
4 they both seem to have used the same experimental material,
5 albeit come to different value judgments?

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1 A Specifically, each one directed his attention
2 toward a different additive and spent the major portion of
3 its time on proving the stability and the effectiveness of
4 that particular additive.

5 Q I understand.

6 A So there is relatively little overlap.

7 Q Between the two reports?

8 A Between the two reports on that particular phase.

9 Q But I assume -- and Mr. Fletcher has described
10 some of those experiments that Westinghouse did -- that there
11 were some basic scientific first principles that obviously
12 must have been used by either one. Are you suggesting that
13 both B&W and Westinghouse started with those basic first
14 principles known to the industry, and then just decided to
15 go in different directions in the application of their time
16 and money?

17 A The basic principles essentially were the
18 chemical reactions which involved iodine and certain other
19 chemical species. And, starting from these, the two companies
20 have decided to use different compounds to change elemental
21 iodine, which has a low solubility in water, to a much more
22 soluble species with a lower volatility than were the iodide
23 and iodate species.

24 Q One further question in this line, Dr. Burley.
25 If Westinghouse had decided to the thiosulfate

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1 route and B&W had decided to go the hydroxide route, based
2 upon your knowledge of the industry and your knowledge of the
3 capability of those two companies, could B&W essentially have
4 produced a report like WCAP-7153, and could Westinghouse have
5 produced a report like the B&W one?

6 In other words, would it have been possible with
7 the application of time and money by either company that
8 it could have gone the other way?

9 A Yes.

10 Q Thank you.

11 BY MR. COMLEY:

12 Q Dr. Burley, in TID-14844 is it not true that the
13 assumption of plate-out there assumes a dry wall?

14 MR. CHERRY: May I call attention to the fact
15 that Dr. Burley has a six-twenty plane?

16 WITNESS BURLEY: I have changed my reservation
17 to seven-fifteen.

18 MR. CHERRY: Very well. A stitch in time saves
19 nine.

20 WITNESS BURLEY: Thank you, Mr. Cherry.

21 MR. CHERRY: We like talking to you. We get honest
22 answers from you. And it's a pleasure to hear one once in a
23 while.

24 BY MR. COMLEY:

25 Q Is that not true? --in TID-14844 the plate-out is

1 CHAIRMAN GOODRICH: Mr. Cherry, do you have the
2 information you wanted?

3 MR. CHERRY: I have just a short line of question-
4 ing and then Mr. Comey has a couple of finishing questions.
5 It should not be very long.

6 BY MR. CHERRY:

7 Q Dr. Burley, as a matter of scientific -- good
8 scientific procedure, when one is attempting to analyze or
9 understand a particular scientific principle, is it good
10 scientific procedure to gather all available information in
11 an effort to make an understanding based on everything that
12 is available?

13 A (Mr. Burley) Yes.

14 Q Now when you developed the analytical model for
15 iodine spray removal, did you do one for other than the Point
16 Beach unit? Did you do any others?

17 A I have developed the model, a generalized model,
18 and applied it to just about all the spray systems that have
19 been proposed in the last three years or so.

20 Q So insofar as spray models are concerned, and
21 chemical additives, is it safe to say that that has been your
22 baby at the AEC? You have been responsible for it?

23 A Yes, unfortunately.

24 Q Now in the course of your work, did you use in-
25 ternally, the Regulatory Staff, both the Westinghouse reports

1 on iodine as well as B&W reports and whatever other reports
2 there were?

3 A I have had access to them, yes.

4 Q And you used them in the course of developing your
5 model?

6 A Most of these reports came in after we developed
7 our model which was used in the evaluation of the Point Beach
8 reactor. We are continually updating our model and inputs
9 from the different vendors is used in such updates.

10 Q So is it safe to say that as of this date in your
11 continuing analysis of this matter, you have used information
12 in the B&W reports as well as the Westinghouse reports?

13 A Insofar as it applies to each system.

14 Q I understand.

15 But your total understanding of the chemical
16 additives in the spray program, if I was correct in understand-
17 ing your earlier comment that it is decent scientific pro-
18 cedure to gather all information before you -- not ignore a
19 bit of information. You have not ignored anything, have you?

20 A No.

21 I think, to put matters in perspective, the ex-
22 periments which have been run to test the rate of iodine
23 removal both for sodium hydroxide and sodium thiosulfate
24 have all been reported in the open literature and have been
25 turned out by the national labs and the foreign groups.

1 The work that has been done by Westinghouse and
2 by Babcock & Wilcox, independent of each other and separate
3 from each other, had to do with the specific characteristics
4 of the solution that each proposed.

5 Q Now did you restrict yourself in your update,
6 both before and after your preparation of the model, just to
7 open literature, or did you also consider matters that were
8 in the reports prepared by Westinghouse and B&W?

9 A There was essentially no data which had more than
10 a peripheral bearing on the calculations on the rate of
11 removal of iodine by the spray solutions in the reports of
12 either company.

13 Q No, that's not my question.

14 In your responsibility as in charge of this
15 generalized program, iodine spray removal, you are continuing
16 to update your knowledge of that. Have you restricted your-
17 self in your thinking, in understanding this whole field, to
18 just the open literature or have you also considered the
19 Westinghouse and B&W work?

20 A I have considered all the B&W and Westinghouse
21 reports insofar as they apply to their particular systems.

22 Q Now if I had need or a scientist had a need to make
23 a thorough understanding of the state of the art as of today,
24 to try to review judgments made by the AEC or various of the
25 vendors, would it be valuable to me to have, in addition to

eb4 1 the open literature, the information contained in the
2 Westinghouse and B&W reports, if I wanted to have a total
3 understanding?

4 A I would say Yes.

5 Q Now if there had been just a computer program on
6 iodine spray removal and no proof tests, would you have felt
7 comfortable or would you have insisted on proof tests in order
8 to feel comfortable with the original theory and its applic-
9 ability?

10 A I think the same answer I gave before applies.
11 I prefer an experimental correlation which agrees with the
12 theory.

13 Q Now that is something which you would not restrict
14 just to the iodine field? You would say that was a good
15 scientific principle in any field?

16 A Insofar as it is possible to obtain such data,
17 yes.

18 Q Now would your answer also be the same if the com-
19 puter program was fed with part theory and part bits and
20 pieces of experimental data but did not have experimental data
21 from the total standpoint of the proof test? Would you feel,
22 even in that case, more comfortable to have had some kind of
23 a proof test in order to feel absolutely -- or have reasonable
24 assurance that the theory was proved?

25 MR. HALLSCH: Can we confine the question to

AGREEMENT AS TO DISCLOSURE OF INFORMATION

FORM NO. 1

NRC RULEMAKING - DOCKET NO. RM-50-1

WHEREAS, certain persons and organizations have petitioned to the United States Atomic Energy Commission ("AEC") to participate in a rulemaking hearing to consider the acceptance criteria for emergency core cooling systems for light-water-cooled nuclear power reactors, said proceeding having been assigned Docket No. RM-50-1; and

WHEREAS, Westinghouse Electric Corporation ("Westinghouse") has been requested to disclose to counsel for and members of certain of the participant groups, certain Westinghouse proprietary information relating to the issues to be considered at the hearing;

NOW, THEREFORE, in consideration of the disclosure of such claimed proprietary information by Westinghouse the persons signatoring to this Agreement agree as follows:

(1) The proprietary information will be scrutinized and utilized only for the purpose of judging

its significance for the contentions being advanced or for determining whether a submitted non-proprietary version of a proprietary document is accurate, or in connection with the preparation for the rulemaking hearing. Such examination, comparison or utilization will be conducted on a non-public confidential basis only except as Westinghouse may otherwise agree with any one of the signators hereto.

(2) Unless directed by the AEC or a court of competent jurisdiction, any proprietary information disclosed pursuant to this Agreement will not be disclosed or reproduced without the prior written consent of Westinghouse and without having any person or entity as to whom disclosure is thereby authorized execute a similar agreement.

(3) In the event the signator is directed by the AEC or a court to reproduce or disclose any information in any manner other than as set forth above, the signator shall first advise Westinghouse in writing of such direction, and shall provide full details with respect thereto.

(4) All proprietary information or evaluations, data and reports developed from such proprietary information shall be safeguarded by the signator and held as secret and confidential, except that such restriction shall not apply to:

(a) Any information known to the signator and reduced to writing by the signator prior to disclosure by Westinghouse;

(b) Any information disclosed in writing to the signator by a third party subsequent to disclosure by Westinghouse without violation by such third party of any agreement with Westinghouse; and

(c) Any information which is now available in published print or which later becomes public information other than as a result of acts or omissions of the signator.

(5) Westinghouse retains all right, title and interest in and to the proprietary information.

(6) No patent rights of any kind whatever are conveyed by Westinghouse under this Agreement.

(7) None of the signators hereto may assign this Agreement.

(8) Any person as to whom disclosure is authorized under section 2 above shall not represent or seek to represent a competitor of Westinghouse.

(9) This Agreement sets forth the entire agreement and understanding between the parties as to subject matter of this Agreement and merges and supercedes all prior agreements, commitments, representations, writings and disclosures relating thereto, except that this Agreement does not supercede the Agreement as to Disclosure of Information signed by any of the signators hereto in connection with the Atomic Safety and Licensing Board hearing at Docket No. 50-247 (Consolidated Edison Company of New York, Inc., Indian Point Generating Unit No. 2)

(10) All notices required to be given under this Agreement to Westinghouse shall be in writing and shall be deemed sufficiently given when deposited in the mail, registered or certified, postage prepaid and addressed to Westinghouse at the address set forth below or such other address as Westinghouse shall disclose in

writing:

Westinghouse Nuclear Energy Systems
P. O. Box 355
Pittsburgh, Pennsylvania 15230

Attention: Robert Wiesemann, Manager
Special Licensing Projects

(11) This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

IN WITNESS WHEREOF, the undersigned have duly executed this Agreement the date and year set forth below.

DATE:

WESTINGHOUSE ELECTRIC CORPORATION

By _____

