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3 SUPERIOR COURT OF THE STATE OF CALIFORNIA
4 FOR THE COUNTY OF ORANGE
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9 MARY GABALDON, individually and)
as Personal Representative of)
10 the Estate of Esequiel Gabaldon;)
STEVEN GABALDON, individually;)
11 and PAUL GABALDON, individually,)

12 Plaintiffs,)

13 vs.)

No. 811474
)

14 BOEING; ROCKWELL; THE BRUSH)
BERYLLIUM COMPANY (formerly Doe)
15 Defendant No. 1); and DOES 3)
through 100, inclusive,)

16 Defendants.)
17)
18

19 DEPOSITION OF DENNIS JAMES PAUSTENBACH, Ph.D., DABT
20 Sunday, October 15, 2000
21 Long Beach, California
22

23 REPORTED BY: Lyn Corrin Aaker, CSR No. 6228
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Deposition of DENNIS JAMES PAUSTENBACH,
Ph.D., DABT, an Expert Witness, taken
on behalf of Plaintiffs, at 401 East
Ocean Boulevard, Suite 800, Long Beach,
California 90802, commencing at the hour
of 11:07 a.m., Sunday, October 15, 2000,
before Lyn Corrin Aaker, CSR No. 6228,
pursuant to Notice of Taking Deposition.

APPEARANCES OF COUNSEL:

For Plaintiffs:	LAW OFFICES OF RAPHAEL METZGER
	BY: RAPHAEL METZGER
	Attorney at Law
	401 East Ocean Boulevard
	Suite 800
	Long Beach, California 90802
For Defendant	LAW OFFICES OF PETER J. NOVA
BRUSH WELLMAN	BY: PETER J. NOVA
COMPANY:	Attorney at Law
	456 Patten Street
	Sonoma, California 95476

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I N D E X

WITNESS	EXAMINATION	PAGE
Dennis James Paustenbach, Ph.D., DABT	By Mr. Metzger	8

EXHIBITS FOR IDENTIFICATION (All exhibits bound under separate cover.)		
Plaintiffs' 1	Copy of curriculum vitae; 76 pages	9
Plaintiffs' 2	Copy of "Settlement Conference/ Mediation Brief"; 31 pages	10
Plaintiffs' 3	Copy of "The Standard for Control of Chronic Beryllium Disease"; 7 pages	11
Plaintiffs' 4	Copy of "Identifying Appropriate Occupational Exposure Limit for Beryllium"; 40 pages	12
Plaintiffs' 5	Copy of contract; 5 pages	12
Plaintiffs' 6	Copy of deposition notice; 6 pages	13
Plaintiffs' 7	Copy of "Beryllium"; 10 pages	13
Plaintiffs' 8	Copy of "Non-occupational Berylliosis"; 13 pages	13
Plaintiffs' 9	Copy of "Interaction of Genetic and Exposure Factors in the Prevalence of Berylliosis"; 10 pages	14
Plaintiffs' 10	Copy of "Significance of the Blood Beryllium Lymphocyte Proliferation Test"; 4 pages	15

1	(continued)	I N D E X	
2			
3		EXHIBITS FOR IDENTIFICATION	
4	Plaintiffs' 11	Copy of "Beryllium Disease: A Clinical Perspective"; 8 pages	15
5			
6	Plaintiffs' 12	Copy of "Epidemiology of Beryllium Sensitization and Disease in Nuclear Workers"; 7 pages	15
7			
8	Plaintiffs' 13	Copy of "Risks of Beryllium Disease Related to Work Processes at a Metal, Alloy, and Oxide Production Plant"; 8 pages	16
9			
10			
11	Plaintiffs' 14	Copy of "Chronic Beryllium Disease in a Precious Metal Refinery"; 8 pages	16
12			
13	Plaintiffs' 15	Copy of "Threshold Limit Values 1984"; 63 pags	17
14			
15	Plaintiffs' 16	Copy of "Beryllium Disease Screening in the Ceramics Industry"; 8 pages	17
16			
17	Plaintiffs' 17	Copy of "A Long-term Follow- up of Workers Exposed to Beryllium"; 9 pages	18
18			
19	Plaintiffs' 18	Copy of "Retrospective Beryllium Exposure Assessment at the Rocky Flats Environmental Technology Site"; 5 pages	18
20			
21	Plaintiffs' 19	Copy of "Chronic Beryllium Disease Prevention Program, Final Rule, Economic Analysis"; 5 pages	18
22			
23			
24	Plaintiffs' 20	Copy of "History of Beryllium"; 17 pages	- 19
25			

1 (continued)

I N D E X

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Plaintiffs' 21	EXHIBITS FOR IDENTIFICATION Copy of "Assessment of Risk Potential"; 12 pages	19
Plaintiffs' 22	Copy of "10 CFR Part 850"; 62 pages	19
Plaintiffs' 23	Copy of "Chronic Beryllium Disease and Cancer Risk Estimates"; 14 pages	20
Plaintiffs' 24	Copy of "Machining Risk of , Beryllium Disease and Sensitization With Median Exposures Below 2 Micrograms Per Cubic Meter"; 10 pages	20
Plaintiffs' 25	Copy of "Federal Register on Beryllium"; 14 pages	20
Plaintiffs' 26	Copy of "Immunopathogenesis of Chronic Beryllium Disease"; 21 pages	21
Plaintiffs' 27	Copy of "Differential Diagnosis of Chronic Beryllium Disease"; 10 pages	21
Plaintiffs' 28	Copy of "Draft Documentation of the Threshold Limit Value for Beryllium and Compounds"; 14 pages	21
Plaintiffs' 29	Copy of "Animal Models of Beryllium-induced Lung Disease"; 7 pages	23
Plaintiffs' 30	Copy of "The Natural History of Beryllium Sensitization and Chronic Beryllium Disease"; 7 pages	23

1	(continued)	I N D E X	
2			
3		EXHIBITS FOR IDENTIFICATION	
4	Plaintiffs' 31	Copy of "A Study on the Beryllium Lymphocyte Transformation Test"; 6 pages	23
5			
6	Plaintiffs' 32	Copy of "Epidemiological Aspects of Beryllium-induced Nonmalignant Lung Disease"; 7 pages	24
7			
8	Plaintiffs' 33	Copy of "Beryllium Disease Screening in the Ceramics Industry"; 8 pages	24
9			
10	Plaintiffs' 34	Copy of "Chronic Beryllium Disease: Uncommon Disease, Less Common Diagnosis"; 3 pages	24
11			
12	Plaintiffs' 35	Copy of "Chronic Beryllium Disease: Diagnosis and Management"; 3 pages	25
13			
14	Plaintiffs' 36	Copy of "A Study of Beryllium Exposure Measurements, Part 2"; 4 pages	25
15			
16	Plaintiffs' 37	Copy of "Beryllium Disease: A Clinical Perspective"; 9 pages	25
17			
18	Plaintiffs' 38	Copy of summary of documents; 3 pages	26
19			
20	Plaintiffs' 39	Copy of "The Origin and Basis of Threshold Limit Values"; 14 pages	27
21			
22	Plaintiffs' 40	Copy of "Non-occupational Berylliosis in Lorain, Ohio, August 5, 1948"; 82 pages	27
23			
24			
25			

1	(continued)	I N D E X	
2			
3		EXHIBITS FOR IDENTIFICATION	
4	Plaintiffs' 41	Copy of typewritten notes; 2 pages	28
5			
6	Plaintiffs' 42	Copy of "Medical Meeting at Luckey, Ohio, March 20, 21, 1951"; 28 pages	137
7			
8	Plaintiffs' 43	Copy of "St. Clair OnSite Box No. 128"; 6 pages	138
9	Plaintiffs' 44	Copy of August 29, 1967 J.M. DeNardi, M.D., letter; 2 pages	138
10			
11	Plaintiffs' 45	Copy of August 9, 1974 NGK Insulators, Ltd., letter; 2 pages	141
12			
13	Plaintiffs' 46	Copy of August 16, 1974 Shogo Shima, M.D., letter; 2 pages	142
14			
15	Plaintiffs' 47	Copy of "Beryllium Poisoning and Health Care"; 26 pages	144
16			
17	Plaintiffs' 48	Copy of "The Standard for Control of Chronic Beryllium Disease"; 7 pages	154
18			
19	Plaintiffs' 49	Copy of "Beryllium"; 10 pages	155
20			
21	Plaintiffs' 50	Copy of "Machining Risk of Beryllium Disease and Sensitization With Median Exposures Below 2 Micrograms Per Cubic Meter"; 10 pages	156
22			
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1 SUNDAY, OCTOBER 15, 2000, LONG BEACH, CALIFORNIA

2 11:07 A.M.
3 * * *

4
5 DENNIS JAMES PAUSTENBACH, Ph.D., DABT,
6 the witness herein, having been first duly sworn,
7 was examined and testified as follows:

8
9 EXAMINATION +

10 BY MR. METZGER:

11 Q. Good morning, Doctor. Would you
12 state and spell your full name for the record,
13 please.

14 A. Dennis James Paustenbach.

15 Q. Is that P-a-u-s-t-e-n-b-a-c-h?

16 A. Yes, it is.

17 Q. And you are a Ph.D. Correct? Not a
18 medical doctor?

19 A. That's correct.

20 Q. You've given depositions before?

21 A. Yes.

22 Q. Approximately how many?

23 A. Between 10 and 20.

24 Q. That's over your entire career?

25 A. Yes, sir.

1 Q. You feel comfortable with the
2 process?
3 A. Yes.
4 Q. You understand you're under oath?
5 A. Yes.
6 Q. All I'll say is that if you don't
7 understand a question that I ask you, just let me
8 know, and I'll rephrase it so that it is clear to
9 you. You've been designated as an expert in this
10 case on behalf of the defendant Brush Wellman, and
11 you've been asked to produce certain documents here
12 at your deposition today. I see you've brought
13 materials.
14 First of all, do you have a
15 curriculum vitae?
16 A. Yes.
17 Q. May I have that, please.
18 A. Yes.
19 MR. METZGER: All right. That will be
20 Exhibit 1.
21 (A copy of the aforementioned
22 document, consisting of 76 pages, was
23 marked by the court reporter as
24 Plaintiffs' Exhibit+ 1 for identification;
25 bound separately.)

1 BY MR. METZGER:
2 Q. And what are the other materials that
3 you've brought with you?
4 A. I brought a settlement conference/
5 mediation -- you asked me to bring things that were
6 given to me by Mr. Nova.
7 Q. I'll tell you what. Is everything
8 that you've brought with you here on the table?
9 A. Yes. There may be some doubles, by
10 the way.
11 Q. Let me just take a look at these
12 things because some look familiar and some don't.
13 I'll identify some and I'll mark some. You've
14 brought a settlement conference/mediation brief
15 prepared by my office, which you've made some
16 highlighting on. Okay. And I guess we'll make that
17 Exhibit 2.
18 (A copy of the aforementioned
19 document, consisting of 31 pages, was
20 marked by the court reporter as
21 Plaintiffs' Exhibit+ 2 for identification;
22 bound separately.)
23 BY MR. METZGER:
24 Q. You've got here a copy of the
25 so-called crime fraud order with some other records

1 attached to it. Oh, I see.

2 MR. NOVA: That's the attachment to No. 1
3 here -- or No. 2.

4 MR. METZGER: All right. We'll make that
5 all, then, Exhibit 2, then, since it was one
6 document. Thank you.

7 Q. All right. Chapter 41 written by you
8 in Patty's 5th edition is "The History and
9 Biological Basis of Occupational Exposure Limits for
10 Chemical Agents."

11 Does this chapter at all address
12 beryllium?

13 A. I don't recall if beryllium is in
14 there.

15 Q. I'm going to get a copy of this made,
16 but I'm not going to attach it to the deposition. I
17 always like to read things that folks like you
18 write.

19 Next we have "The Standard for
20 Control of Chronic Beryllium Disease" by
21 Merrill Eisenbud published in "Applied Occupational
22 Environmental Hygiene," January 1998. That will be
23 Exhibit 3.

24 (A copy of the aforementioned
25 document, consisting of seven pages, was

1 marked by the court reporter as
2 Plaintiffs' Exhibit+ 3 for identification;
3 bound separately.)
4 BY MR. METZGER:
5 Q. Your article "Identifying Appropriate
6 Occupational Exposure Limit for Beryllium," marked
7 "Draft 9/9/00," which will be Exhibit 4. That's
8 what that is. Correct?
9 A. Yes, sir.
10 (A copy of the aforementioned
11 document, consisting of 40 pages, was
12 marked by the court reporter as
13 Plaintiffs' Exhibit+ 4 for identification;
14 bound separately.)
15 BY MR. METZGER:
16 Q. Your contract with Mr. Nova for this
17 case. Correct?
18 A. Yes.
19 MR. METZGER: This is Exhibit 5.
20 (A copy of the aforementioned
21 document, consisting of five pages, was
22 marked by the court reporter as
23 Plaintiffs' Exhibit+ 5 for identification;
24 bound separately.)
25 BY MR. METZGER:

1 Q. Okay. The notice of deposition with
2 the transmittal letter from Mr. Nova will be
3 Exhibit 6.
4 (A copy of the aforementioned
5 document, consisting of six pages, was
6 marked by the court reporter as
7 Plaintiffs' Exhibit+ 6 for identification;
8 bound separately.)
9 BY MR. METZGER:
10 Q. Exhibit 7 will be the 1963 version of
11 Stokinger's article on "Beryllium" in Patty's second
12 revised edition. Correct?
13 A. Yes, sir.
14 (A copy of the aforementioned
15 document, consisting of 15 pages, was
16 marked by the court reporter as
17 Plaintiffs' Exhibit+ 7 for identification;
18 bound separately.)
19 BY MR. METZGER:
20 Q. The "Nonoccupational Berylliosis"
21 article by Eisenbud from 1949. Correct?
22 A. Yes.
23 MR. METZGER: That will be Exhibit 8.
24 (A copy of the aforementioned
25 document, consisting of 13 pages, was

1 marked by the court reporter as
2 Plaintiffs' Exhibit+ 8 for identification;
3 bound separately.)
4 BY MR. METZGER:
5 Q. Now, here is what appears to me to be
6 a duplicate of the Eisenbud article that we
7 previously marked. Is that correct?
8 A. Probably. I've brought doubles in
9 case you want to put them as exhibits.
10 Q. Oh, you did. That's very nice of
11 you. That's this one. Correct?
12 A. Yes.
13 Q. The only thing is that one has your
14 highlighting on it. Let's make that one the exhibit
15 rather than this one, and I'll give that one to
16 you. Okay?
17 I have a check for you which I'll
18 fill out the amount and everything at the end after
19 you give me your tax ID number.
20 The Richeldi article, which will be
21 No. 9.
22 (A copy of the aforementioned
23 document, consisting of ten pages, was
24 marked by the court reporter as
25 Plaintiffs' Exhibit+ 9 for identification;

1 bound separately.)

2 MR. METZGER: An article by Lee Newman,
3 No. 10, "Significance of the Blood Beryllium
4 Lymphocyte Proliferation Test."

5 (A copy of the aforementioned
6 document, consisting of four pages, was
7 marked by the court reporter as
8 Plaintiffs' Exhibit+ 10 for identification;
9 bound separately.)

10 MR. METZGER: The Hardy article from 1980
11 "Beryllium Disease: A Clinical Perspective" will be
12 Exhibit 11.

13 (A copy of the aforementioned
14 document, consisting of eight pages, was
15 marked by the court reporter as
16 Plaintiffs' Exhibit+ 11 for identification;
17 bound separately.)

18 MR. METZGER: The Kreiss article
19 "Epidemiology of Beryllium Sensitization and Disease
20 in Nuclear Workers" will be Exhibit 12.

21 (A copy of the aforementioned
22 document, consisting of seven pages, was
23 marked by the court reporter as
24 Plaintiffs' Exhibit+ 12 for identification;
25 bound separately.)

1 MR. METZGER: The Kreiss article "Risks of
2 Beryllium Disease Related to Work Processes at a
3 Metal, Alloy, and Oxide Production Plant," which
4 will be Exhibit 13.

5 (A copy of the aforementioned
6 document, consisting of eight pages, was
7 marked by the court reporter as
8 Plaintiffs' Exhibit+ 13 for identification;
9 bound separately.)

10 MR. METZGER: The Cullen article "Chronic
11 Beryllium Disease in a Precious Metal Refinery,"
12 Exhibit 14.

13 (A copy of the aforementioned
14 document, consisting of eight pages, was
15 marked by the court reporter as
16 Plaintiffs' Exhibit+ 14 for identification;
17 bound separately.)

18 BY MR. METZGER:

19 Q. That's yet another copy of that
20 article. Let me just keep this with this one over
21 here because it has more highlighting, but I'll give
22 this back to you.

23 A. Okay. Can we go off the record for a
24 second?

25 Q. Sure.

1 (Discussion held off the record.)
2 MR. METZGER: Let's go back on.
3 The "Threshold Limit Values," 1984,
4 of the ACGIH, Volume 9, will be Exhibit 15.
5 (A copy of the aforementioned
6 document, consisting of 63 pages, was
7 marked by the court reporter as
8 Plaintiffs' Exhibit+ 15 for identification;
9 bound separately.)
10 THE WITNESS: You got this one. Right?
11 BY MR. METZGER:
12 Q. Let me just keep this with this
13 because it has some highlighting on it, and I'll
14 give that back to you. All right.
15 The Kreiss article "Beryllium Disease
16 Screening in the Ceramics Industry" will be
17 Exhibit 16.
18 (A copy of the aforementioned
19 document, consisting of eight pages, was
20 marked by the court reporter as
21 Plaintiffs' Exhibit+ 16 for identification;
22 bound separately.)
23 MR. METZGER: The Cotes article "A Long-term
24 Follow-up of Workers Exposed to Beryllium" will be
25 Exhibit 17.

1 (A copy of the aforementioned
2 document, consisting of nine pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 17 for identification;
5 bound separately.)

6 MR. METZGER: The Barnard article
7 "Retrospective Beryllium Exposure Assessment at the
8 Rocky Flats Environmental Technology Site" will be
9 Exhibit 18.

10 (A copy of the aforementioned
11 document, consisting of five pages, was
12 marked by the court reporter as
13 Plaintiffs' Exhibit+ 18 for identification;
14 bound separately.)

15 MR. METZGER: "Chronic Beryllium Disease
16 Prevention Program, Final Rule, Economic Analysis"
17 will be Exhibit 19.

18 (A copy of the aforementioned
19 document, consisting of five pages, was
20 marked by the court reporter as
21 Plaintiffs' Exhibit+ 19 for identification;
22 bound separately.)

23 MR. METZGER: "History of Beryllium" by
24 Martin Powers is Exhibit 20.

25

1 (A copy of the aforementioned
2 document, consisting of 17 pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 20 for identification;
5 bound separately.)
6 THE WITNESS: Do you have this one?
7 MR. METZGER: No. The Preuss article,
8 "Assessment of Risk Potential," Exhibit 21.
9 (A copy of the aforementioned
10 document, consisting of 12 pages, was
11 marked by the court reporter as
12 Plaintiffs' Exhibit+ 21 for identification;
13 bound separately.)
14 THE WITNESS: Have you got this one?
15 MR. METZGER: "10 CFR Part 850,"
16 Exhibit 22.
17 (A copy of the aforementioned
18 document, consisting of 62 pages, was
19 marked by the court reporter as
20 Plaintiffs' Exhibit+ 22 for identification;
21 bound separately.)
22 THE WITNESS: Did you get this one?
23 BY MR. METZGER:
24 Q. Yes. Let me put this with the other
25 one, and I'll give it back to you when I go through

1 it. Can we finish the rest of these? And then
2 we'll go through the notebook.

3 The McGavran article, Exhibit 23.

4 (A copy of the aforementioned
5 document, consisting of 14 pages, was
6 marked by the court reporter as
7 Plaintiffs' Exhibit+ 23 for identification;
8 bound separately.)

9 MR. METZGER: The Kreiss article "Machining
10 Risk of Beryllium Disease and Sensitization With
11 Median Exposures Below 2 Micrograms Per Cubic Meter"
12 will be Exhibit 24.

13 (A copy of the aforementioned
14 document, consisting of ten pages, was
15 marked by the court reporter as
16 Plaintiffs' Exhibit+ 24 for identification;
17 bound separately.)

18 MR. METZGER: The "Federal Register,"
19 October 17, 1975, on "Beryllium" will be
20 Exhibit 25.

21 (A copy of the aforementioned
22 document, consisting of 14 pages, was
23 marked by the court reporter as
24 Plaintiffs' Exhibit+ 25 for identification;
25 bound separately.)

1 MR. METZGER: The Rossman and Jones-Williams
2 article "Immunopathogenesis of Chronic Beryllium
3 Disease," this will be Exhibit 26.

4 (A copy of the aforementioned
5 document, consisting of 21 pages, was
6 marked by the court reporter as
7 Plaintiffs' Exhibit+ 26 for identification;
8 bound separately.)

9 MR. METZGER: Rossman's "Differential
10 Diagnosis of Chronic Beryllium Disease" will be
11 Exhibit 27.

12 (A copy of the aforementioned
13 document, consisting of ten pages, was
14 marked by the court reporter as
15 Plaintiffs' Exhibit+ 27 for identification;
16 bound separately.)

17 MR. METZGER: This is another copy of the
18 Kreiss article we just identified, which I'll put
19 with that, and I'll get it back to you.

20 "Draft Documentation of the Threshold
21 Limit Value for Beryllium and Beryllium Compounds,"
22 1999, ACGIH, will be Exhibit 28.

23 (A copy of the aforementioned
24 document, consisting of 14 pages, was
25 marked by the court reporter as

1 Plaintiffs' Exhibit+ 28 for identification;
2 bound separately.)
3 BY MR. METZGER:
4 Q. Are there some others you put on the
5 floor over there?
6 A. Yes. They're doubles.
7 Q. Can I just see those?
8 A. Sure.
9 Q. Oh. May I just have this?
10 A. For you, of course.
11 Q. Thank you. You probably have a whole
12 stack of them, like I do in my reprints over there
13 (indicating).
14 You have the 2000 TLV booklet.
15 Correct?
16 A. Yes.
17 Q. I don't know that we're going to mark
18 that. Let me just ask you: Is there anything
19 particular in here about beryllium that you are
20 relying on for your opinions?
21 A. Not that I recall, no.
22 Q. There haven't been any changes in the
23 last year or notice of intended changes, have there?
24 A. No.
25 Q. Going back to articles, No. 29,

1 "Animal Models of Beryllium-induced Lung Disease'' by
2 Finch, that's Exhibit 29.

3 (A copy of the aforementioned
4 document, consisting of seven pages, was
5 marked by the court reporter as
6 Plaintiffs' Exhibit+ 29 for identification;
7 bound separately.)

8 MR. METZGER: Article by Newman, "The
9 Natural History of Beryllium Sensitization and
10 Chronic Beryllium Disease," will be Exhibit 30.

11 (A copy of the aforementioned
12 document, .consisting of seven pages,, was
13 marked by the court reporter as
14 Plaintiffs' Exhibit+ 30 for identification;
15 bound separately.)

16 MR. METZGER: Yoshida, "A Study on the
17 Beryllium Lymphocyte Transformation Test,"
18 et cetera, will be Exhibit 31.

19 (A copy of the aforementioned
20 document, consisting of six pages, was
21 marked by the court reporter as
22 Plaintiffs' Exhibit+ 31 for identification;
23 bound separately.)

24 MR. METZGER: Eisenbud's "Epidemiological
25 Aspects of Beryllium-induced Nonmalignant Lung

1 Disease" will be Exhibit 32.

2 (A copy of the aforementioned
3 document, consisting of seven pages, was
4 marked by the court reporter as
5 Plaintiffs' Exhibit+ 32 for identification;
6 bound separately.)

7 MR. METZGER: Another Kreiss article,
8 "Beryllium Disease Screening in the Ceramics
9 Industry," that will be Exhibit 33.

10 (A copy of the aforementioned
11 document, consisting of eight pages, was
12 marked by the court reporter as
13 Plaintiffs' Exhibit+ 33 for identification;
14 bound separately.)

15 MR. METZGER: An article by Middleton,
16 "Chronic Beryllium Disease: Uncommon Disease, Less
17 Common Diagnosis," will be Exhibit 34.

18 (A copy of the aforementioned
19 document, consisting of three pages, was
20 marked by the court reporter as
21 Plaintiffs' Exhibit+ 34 for identification;
22 bound separately.)

23 MR. METZGER: Rossman's "Chronic Beryllium
24 Disease: Diagnosis and Management" will be
25 Exhibit 35.

1 (A copy of the aforementioned
2 document, consisting of three pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 35 for identification;
5 bound separately.)
6 MR. METZGER: This is a copy unmarked.
7 Seiler, S-e-i-l-e-r, "A Study of Beryllium Exposure
8 Measurements, Part 2," will be Exhibit 36.
9 (A copy of the aforementioned
10 document, consisting of four pages, was
11 marked by the court reporter as
12 Plaintiffs' Exhibit+ 36 for identification;
13 bound separately.)
14 MR. METZGER: "Beryllium Disease: A
15 Clinical Perspective" by Harriet Hardy will be
16 Exhibit 37.
17 (A copy of the aforementioned
18 document, consisting of nine pages, was
19 marked by the court reporter as
20 Plaintiffs' Exhibit+ 37 for identification;
21 bound separately.)
22 MR. METZGER: This is a copy I will return
23 to you. I'll put this with the other just because
24 it has highlighting, and you'll get them back at the
25 end. Okay?

1 Q. I'm referring to your article. The
2 three pages of typewritten notes regarding
3 discovery, I assume that this was prepared by
4 Mr. Nova and sent to you. Is that correct?
5 A. No. The staff looked into voluminous
6 documents that you exchanged, and it's a summary of
7 what's in those.
8 Q. Prepared by your staff?
9 A. Yes, prepared by my staff.
10 MR. METZGER: That will be Exhibit 38.
11 (A copy of the aforementioned
12 document, consisting of three pages,, was
13 marked by the court reporter as
14 Plaintiffs' Exhibit+ 38 for identification;
15 bound separately.)
16 BY MR. METZGER:
17 Q. And then you have a notebook before
18 you.
19 A. Yes.
20 Q. More articles, or what?
21 A. One is the Jeff Paul article.
22 Q. Let me just see the notebook, and
23 we'll go through it.
24 The Jeffrey Paul article will be
25 Exhibit 39.

1 (A copy of the aforementioned
2 document, consisting of 14 pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 39 for identification;
5 bound separately.)
6 MR. METZGER: A typewritten study called
7 "Non-occupational Berylliosis in Lorain, Ohio,
8 August 5, 1948," which will be Exhibit 40.
9 (A copy of the aforementioned
10 document, consisting of 82 pages, was
11 marked by the court reporter as
12 Plaintiffs' Exhibit+ 40 for identification;
13 bound separately.)
14 THE WITNESS: These probably aren't
15 relevant.
16 BY MR. METZGER:
17 Q. Let me just take a look. These are
18 the discovery requests and responses directed to
19 plaintiff. Correct?
20 A. And then the responses, yes.
21 Q. I may mark those later. I'm not
22 going to at this moment. However, I will mark this
23 two-page document. Was that prepared by your staff?
24 A. Yes.
25 MR. METZGER: That will be Exhibit 41.

1 (A copy of the aforementioned
2 document, consisting of two pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 41 for identification;
5 bound separately.)
6 BY MR. METZGER:
7 Q. You have a copy of the second amended
8 complaint, which I will not mark now, and more
9 discovery requests and responses. Correct?
10 A. Yes.
11 Q. Okay. Have you prepared any other
12 writings regarding this case?
13 A. No. In fact, the two that you have I
14 didn't prepare.
15 Q. Okay. Fair enough. Have you
16 received any other writings regarding this case from
17 anyone that you have not yet shown me?
18 A. Not to the best of my knowledge.
19 Q. Okay. Dr. Paustenbach, is this the
20 first beryllium case that you are giving testimony
21 in?
22 A. Yes.
23 Q. Have you worked on or consulted on
24 beryllium cases before this case?
25 A. No. That's not correct.

1 Q. Okay.
2 A. Would you rephrase the question.
3 Q. Have you consulted on beryllium cases
4 before this case?
5 A. Yes.
6 Q. How many?
7 A. One or two.
8 Q. And were those cases of chronic
9 beryllium disease?
10 A. Yes.
11 Q. And for whom did you consult?
12 A. The law firm of Jones, Day.
13 Q. And were you consulting on behalf of
14 Brush Wellman?
15 A. Yes.
16 Q. Were those cases arising out of
17 Pennsylvania?
18 A. I don't recall.
19 Q. Do you recall the names of those
20 cases?
21 MR. NOVA: It's your deposition. You have
22 to fend for yourself.
23 THE WITNESS: I suppose all cases are public
24 knowledge. One is called Ziegler, Z-i-e-g-l-e-r,
25 and I don't recall the name of the other one.

1 BY MR. METZGER:
2 Q. Are these cases of CBD arising out of
3 Brush Wellman facilities?
4 A. That's my recollection.
5 Q. Out of which facility?
6 A. One was Elmore, and I don't recall
7 the other.
8 Q. Was the Ziegler case in Elmore?
9 A. That's my recollection.
10 Q. When did you begin consulting with
11 Jones, Day on these cases?
12 A. Within the last two years.
13 Q. Have you given any depositions in
14 those cases?
15 A. No.
16 Q. Have you prepared any reports in
17 those cases?
18 A. Yes.
19 Q. Have those been provided to opposing
20 counsel in those cases?
21 A. I don't know.
22 Q. Do you have those reports with you?
23 A. No.
24 Q. Generally, what areas do those
25 reports cover?

1 A. The history of knowledge regarding
2 beryllium and industrial hygiene controls.
3 Q. Is it one report that you prepared
4 for both cases?
5 A. No.
6 Q. How many?
7 A. There was one report prepared for one
8 case, and I'm not sure if I completed the report for
9 the second case.
10 Q. Is the history of the knowledge of
11 beryllium the first report that you prepared?
12 A. I don't recall.
13 Q. What is the other one about?
14 A. Related issues.
15 Q. Such as?
16 A. Industrial hygiene controls and some
17 discussion of occupational exposure limits.
18 Q. Who is the plaintiff's attorney for
19 those cases?
20 A. I don't recall.
21 Q. Are any of the opinions which you
22 have for the present case also opinions which are
23 set forth in those reports?
24 A. No.
25 Q. Do you have any opinions in this case

1 regarding the subjects of those reports?
2 A. Could you rephrase that or repeat the
3 question, please.
4 (Question read.)
5 MR. NOVA: If you understand it, you can
6 answer it.
7 THE WITNESS: I don't think I do. If I
8 understand your question properly --
9 BY MR. METZGER:
10 Q. Do you have any opinions in this case
11 regarding the history of knowledge of beryllium
12 disease to offer in this case?
13 A. I don't think that question doesn't
14 make sense. You've got a grammar problem in it.
15 Could you read it back.
16 (Question read.)
17 THE WITNESS: That's what he said. It
18 doesn't make sense.
19 BY MR. METZGER:
20 Q. Let me rephrase it. Have you
21 formulated any opinions in this case regarding the
22 history of knowledge of beryllium?
23 A. Yes.
24 Q. And regarding the history of
25 knowledge of beryllium disease?

1 A. Yes.
2 Q. And those are subjects which are
3 covered in that report that you prepared. Correct?
4 A. Not as it pertains to this case, and
5 it is a minor portion of other -- of that other
6 case.
7 Q. But some part of the report in that
8 case that you prepared concerns the history of the
9 knowledge of beryllium and beryllium disease.
10 Correct?
11 A. That's my recollection.
12 MR. METZGER: Peter, I would like that
13 report. It's within the scope of the request,
14 document request, specifically "all reports prepared
15 by said expert which refer to or reflect any
16 opinions said expert has concerning this case."
17 Will you provide the report, Peter?
18 MR. NOVA: No. It's work product.
19 MR. METZGER: All right.
20 Q. Did you provide that report to
21 Jones, Day?
22 A. Yes.
23 Q. Did you provide that report to
24 Jones, Day with the intent that it be made available
25 to opposing counsel to reflect your opinions in the

1 case?
2 A. I don't know what the intent of
3 Jones, Day was with that report.
4 Q. I'm asking you about your intent.
5 Did you write this report in that case with the
6 intent of disclosing your opinions to the opposition
7 in the case?
8 A. I can't guess what Jones, Day was
9 going to do with it. I assumed that it might be
10 used in that way, but I don't know if that's what
11 they planned to do.
12 Q. When you wrote the report, did you
13 intend it never to see the light of day?
14 A. When I do litigation work, I don't
15 think like that.
16 Q. You assume that it would become
17 available. Correct?
18 A. Not necessarily.
19 Q. Does that report have a title?
20 A. Not that I recall.
21 Q. Your best description of it is the
22 history of the knowledge of beryllium and beryllium
23 disease?
24 A. That's definitely not the title.
25 Q. What is your best description of it?

1 A. I think it's an opinion about the
2 facts of a case.
3 Q. But it includes a history of the
4 knowledge, the state of art of beryllium --
5 A. As I said, I don't recall how much of
6 the history is in there. That's not the primary
7 focus of the paper.
8 Q. What is the primary focus?
9 A. It's to talk about exposures and
10 historical engineering controls.
11 Q. For beryllium?
12 A. Yes.
13 Q. And the subject of the other paper is
14 what?
15 A. I said I didn't recall if I finished
16 the other paper or not. My recollection is I began
17 it. I don't know that I finished it.
18 Q. And what is the subject of it?
19 A. I think it's similar material.
20 Q. How does it differ from the first
21 one?
22 A. I don't recall. It's been several
23 months since I worked on it.
24 Q. Have you provided that other one to
25 Jones, Day at least in draft form?

1 A. I don't know that.
2 Q. Have you written any other materials
3 for litigation regarding beryllium?
4 A. No.
5 Q. Has your deposition been scheduled in
6 either of those cases?
7 A. No.
8 Q. All right. Now, one of the items we
9 marked here (indicating) was your recent paper
10 regarding beryllium. I am aware of that. And that
11 was presented publicly recently. Correct?
12 A. Yes.
13 Q. Other than that paper, have you
14 written any other papers on beryllium?
15 A. Do you mean by "written" papers for
16 which I am one of the authors?
17 Q. We'll start with that.
18 A. Yes.
19 Q. How many?
20 A. My recollection is there's one other.
21 Q. And what is the title of that?
22 A. I believe it's something like the
23 history and critique of air sampling methodologies
24 for beryllium.
25 Q. And has that been published?

1 A. No.
2 Q. Has it been submitted for
3 publication?
4 A. Yes.
5 Q. To which journal?
6 A. "Applied Occupational and
7 Environmental Hygiene."
8 Q. When was it submitted?
9 A. September of 2000.
10 Q. Have you submitted to any other
11 journals?
12 A. No.
13 Q. Who are the coauthors of that with
14 you?
15 A. Marc Kolan, Mike Kent, and I don't
16 recall the other authors.
17 Q. Have you provided a copy of this
18 article to anyone else?
19 A. Not to the best of my knowledge.
20 Q. Has this article undergone any peer
21 review either prior to submission -- any peer review
22 prior to submission to the journal?
23 A. Not other than the three authors, to
24 the best of my knowledge.
25 Q. Do you have a copy of that with you,

1 by chance?
2 A. No.
3 Q. Okay. Did you receive funding for
4 that article?
5 A. I don't recall if I was given monies
6 to help write the article or not.
7 Q. How much time did you spend,
8 approximately, preparing that article?
9 A. A substantial amount.
10 Q. Could you estimate for me the number
11 of hours or days?
12 A. I would guess between 20 and 60
13 hours.
14 Q. And is this a project that was done
15 for your business?
16 A. Yes.
17 Q. And what is the name of your
18 business?
19 A. Exponent.
20 Q. Is that a corporation or dba?
21 A. It's a corporation.
22 Q. Are you the president of that
23 company?
24 A. No.
25 Q. What is your title with that company?

1 A. Vice president.
2 Q. Who is the president?
3 A. Michael Gaulke.
4 Q. Could you spell the last name?
5 A. G-a-u-1-k-e.
6 Q. And how long have you been with this
7 company?
8 A. Two years.
9 Q. What is its business?
10 A. It's in the business of eye level
11 engineering work generally to reconstruct and
12 understand the cause of accidents and disasters. It
13 also has within it a group that does environmental
14 and epidemiology work.
15 Q. And who are the people in that group?
16 A. Who are the people in that group?
17 Q. Yes.
18 A. There's approximately 180 people in
19 that group.
20 Q. Okay. Do you head up that group?
21 A. No.
22 Q. Who does?
23 A. Jack Mandel.
24 Q. Is he an epidemiologist?
25 A. Yes.

1 Q. Do you have stock ownership in this
2 company?
3 A. Yes.
4 Q. What is the percentage of your stock
5 ownership with the company?
6 A. I don't think I have to disclose that
7 today.
8 Q. Well, I think you may because I'm
9 trying to find out and explore financial bias here.
10 For this article which you spent about 20 to 60
11 hours on, did other people in your group also work
12 on that article?
13 A. I don't recall.
14 Q. Was there a budget for that article,
15 that study?
16 A. To the best of my knowledge, yes.
17 Q. Did you see the budget?
18 A. I don't recall.
19 Q. Do you have to sign off on budgets
20 for work that you do?
21 A. I generally don't.
22 Q. Did you negotiate this contract for
23 the company?
24 A. I was the first scientist to interact
25 with Brush. I did not negotiate the contract.

1 Q. So this is paid for by Brush Wellman?
2 A. I've told you I don't recall if the
3 time I spent on that paper was paid for by
4 Brush Wellman. It may or may not have been. I
5 often do a lot of work pro bono that has to do with
6 research.
7 Q. Well, you met with Brush regarding
8 the initial discussion. Correct?
9 A. Which discussion?
10 Q. You just mentioned a discussion
11 regarding the budget.
12 MR. NOVA: No, he didn't.
13 MR. METZGER: Go back and read it.
14 (Answer read.)
15 BY MR. METZGER:
16 Q. I apologize. I misunderstood. Whom
17 did you discuss this study with at Brush?
18 A. If I may correct where we're going,
19 the road is convoluted. We're not connecting the
20 questions in a sequential way.
21 Q. All right.
22 A. It's kind of like telling you how to
23 get to New York going through West Virginia and
24 North Dakota and Michigan.
25 Q. Just tell me how it came about.

1 That's what I want to know.
2 A. So you'd like to know how I came
3 about getting to know Brush Wellman?
4 Q. Start with that, sure.
5 A. I received a call one day from
6 Marc Kolan.
7 Q. Approximately when was that?
8 A. About maybe 21 months ago.
9 Q. And what did he ask you in that call,
10 or tell you?
11 A. Which one do you want to have
12 answered?
13 Q. What did he tell you?
14 A. He told me he understood that I was
15 likely to know something about occupational disease,
16 and he'd like to ask me about beryllium.
17 Q. What did you tell him?
18 A. I told him I remembered beryllium and
19 that I used to teach a course in which I discussed
20 beryllium.
21 Q. Did he tell you anything more than
22 that?
23 A. He said he was from a firm that was
24 the world's largest producer of beryllium.
25 Q. At that time had you known of

1 Brush Wellman?
2 A. Only historically.
3 Q. And did he tell you why he was
4 calling you?
5 A. He said that the TLV was being up for
6 review, and he wanted my opinion as to the
7 scientific merit for the proposal.
8 Q. And did you tell him that you would
9 be willing to work with him on that?
10 A. Yes.
11 Q. Did you discuss financial
12 arrangements at that time?
13 A. No.
14 Q. Were you with this company Exponent
15 at the time?
16 A. Yes.
17 Q. Did you tell him that you have to
18 work out a contract with Exponent?
19 A. Yes.
20 Q. And did you direct him to anyone at
21 Exponent to negotiate that?
22 A. Yes.
23 Q. Whom did you direct him to?
24 A. Sue Lawless --
25 Q. And who is she?

1 A. -- or Bonnie Clipson. Sue Lawless or
2 Bonnie Clipson.
3 Q. And who are they?
4 A. They are contract negotiators.
5 Q. For the company?
6 A. Yes.
7 Q. And was a contract consummated?
8 A. Yes.
9 Q. Have you seen it?
10 A. I don't think so.
11 Q. Do you know what the amount of the
12 contract is?
13 A. No.
14 Q. Do you have a copy of it?
15 A. No.
16 Q. Who would?
17 A. Bonnie Clipson or Sue Lawless.
18 Q. All right. Have you been compensated
19 for the two papers that you've written regarding the
20 Jones, Day cases?
21 A. Those aren't papers.
22 Q. Reports.
23 A. They're either reports or opinion
24 letters, but I have been compensated.
25 Q. And has that compensation been to you

1 directly or to Exponent?
2 A. It goes to Exponent.
3 Q. And how much has Exponent been
4 compensated for those papers or reports?
5 A. I don't know. I think I've answered
6 this question previously.
7 Q. Okay. Are there any other articles,
8 reports, papers, letters, opinions that you've
9 written regarding beryllium that you haven't already
10 mentioned?
11 A. In the spirit of trying to get this
12 resolved, there have been papers, if you will,
13 presented at scientific meetings over the last
14 couple years that might fit under the umbrella of
15 your question.
16 9. Are those listed on your CV?
17 A. I believe they are.
18 Q. About how many such papers are we
19 talking about?
20 A. More than five and less than 15.
21 Q. All right. Would you identify them
22 for me from your CV?
23 A. How do you wish to identify them?
24 Q. If they're numbered, tell me the
25 number. If not, read me the title.

1 A. It was presented in Orlando, Florida
2 at the American Industrial Health Conference. The
3 title was "Alveolar-deposited airborne particles of
4 beryllium as a predictor of the prevalence of
5 disease in a beryllium processing facility."

6 The second paper presented at the
7 same conference was called "Biomonitoring for
8 beryllium in workers of a beryllium processing
9 facility."

10 The third paper presented at the same
11 conference, "Chronic beryllium disease and beryllium
12 sensitization at a beryllium mine and extraction
13 facility."

14 The next paper at the same
15 conference, "The role of extrapulmonary exposure
16 pathways in the prevalence of chronic beryllium
17 disease and beryllium sensitization."

18 Prior to that, at the Society of
19 Toxicology meeting, I presented a paper called
20 "Consideration of alternate exposure pathways in the
21 possible relation to prevalence of chronic beryllium
22 disease."

23 Q. Is that all?

24 A. To the best of my knowledge, yes.

25 Q. Dr. Paustenbach, would you just show

1 me which page on your CV you were reading from.
2 A. Yes. Page 36 and 37.
3 Q. All right, thank you. There were,
4 I'm gathering, four papers that you presented in
5 Orlando, Florida. Correct?
6 A. That one of us presented. I don't
7 recall that I presented any of them. I believe I'm
8 an author on all of them, but I don't recall if I
9 presented them.
10 Q. Do you recall actually presenting as
11 speaker any of them?
12 A. (Witness peruses document.)
13 I don't believe I presented any of
14 these four papers. Now, I've answered the question
15 previously, but for the sake of completeness, you do
16 know I gave the paper that you've read, that you
17 have a copy of, at the ACGIH conference. I did not
18 list that, since I assumed you already knew about
19 it.
20 Q. Okay. Fine. That's fine.
21 A. That one I gave, myself.
22 Q. All right. Have these papers been
23 published in a collection of papers of this
24 conference?
25 A. Not yet.

1 Q. Is that expected to happen soon? Do
2 you know?
3 A. It's expected that they would appear
4 sometime before June of 2001.
5 Q. In which journal?
6 A. "Applied Environmental and
7 Occupational Hygiene."
8 Q. With respect to those four papers,
9 did you have funding for them?
10 A. I think our firm received funding to
11 help prepare the papers.
12 Q. That's Exponent?
13 A. Yes, sir.
14 Q. And who funded those papers?
15 A. Well, I'm not entirely certain.
16 Q. Do you have a general idea?
17 A. I would suspect that it would be
18 Brush Wellman or its insurance carriers.
19 Q. Has any of the work that you've done
20 been funded by Brush Wellman's insurance carriers?
21 A. I don't know.
22 Q. Why do you suspect that these papers
23 may have been funded by Brush Wellman's insurance
24 carriers?
25 A. Simply because of my professional

1 history in the business.

2 Q. Could you explain to me what it is
3 about your professional history that leads you to
4 believe or suspect that these papers were funded by
5 Brush Wellman's insurance carriers?

6 A. Quite often in tort work there is a
7 claim to the insurance carrier, asking them for
8 funding to pay for lawyers and expert witnesses and
9 their associated bills. I assume that they have
10 insurance, and I assume that they will ask for some
11 sort of compensation at the end.

12 Q. In the past have you received funding
13 from insurance carriers to prepare papers?

14 A. Well, it sounds -- the way you're
15 wording it is a bit of a pejorative. One does
16 research and then -- provided by someone, and if you
17 can receive some support to support your time to
18 write the publication up, that can sometimes be paid
19 for by the company or its carrier. One never knows
20 at the end of the day who's paid for it.

21 Q. Well, in the past have you received
22 checks paid by insurance carriers for papers which
23 you were asked to write?

24 A. Never.

25 Q. Have the companies that you've worked

1 for received checks from insurance carriers for
2 papers?
3 A. I'd have no idea.
4 Q. Have you had discussions with
5 Brush Wellman's insurance carriers?
6 A. No.
7 Q. Were these four papers, in your mind,
8 written with the idea that they would likely be used
9 for purposes of litigation?
10 A. No.
11 Q. Was that discussed at all?
12 A. No. Maybe more specifically, what was
13 discussed was the primary intention to share this
14 with the scientific literature.
15 Q. All right. Are there any other
16 papers, articles, studies, letters, opinions that
17 you have written regarding beryllium that you
18 haven't mentioned yet?
19 A. Not to the best of my recollection.
20 Q. Are you presently preparing any
21 papers on beryllium?
22 A. No.
23 Q. Now, if I recall correctly, you
24 mentioned that you were first contacted by, I
25 believe, Marc Kolaniz about 22 months ago.

1 A. I think I said 21 months ago.
2 Q. Okay. I'm sorry. 21 months. Prior
3 to that time, had you done any work regarding
4 beryllium?
5 A. I think I've answered this
6 previously. All I had done is lecture at the
7 university on beryllium.
8 Q. At which university?
9 A. Purdue.
10 Q. Are you still on the faculty there?
11 A. No.
12 Q. When you lectured at Purdue, was this
13 a single lecture, or was it a course that you were
14 teaching?
15 A. It was a course.
16 Q. What was the title of the course?
17 A. I believe it was "Occupational
18 Disease."
19 Q. And was this a single-semester
20 course?
21 A. Yes.
22 Q. Of that semester, how much time was
23 actually spent on beryllium within this course?
24 A. Perhaps half a lecture.
25 Q. Which would be how long?

1 A. 45 minutes.
2 Q. And you were discussing beryllium
3 just as one of the issues or one of the substances
4 that environmental or occupational medicine people
5 are concerned about. Is that correct?
6 A. I wouldn't put it that way. It was
7 one of perhaps 100 chemicals that I would discuss as
8 being able to produce disease at certain doses.
9 Q. Did you write up the lecture that you
10 presented for that course?
11 A. I don't recall.
12 Q. Do you still have it somewhere, if
13 you did?
14 A. Perhaps.
15 Q. On disk maybe?
16 A. No chance.
17 Q. About when was this?
18 A. 1980.
19 Q. Did you do any independent research
20 prior to giving that lecture?
21 A. What do you mean by that?
22 Q. Original research.
23 A. On beryllium or on other things?
24 Q. On beryllium.
25 A. No.

1 Q. Is it fair to say that your first
2 original research on beryllium has been since you
3 were contacted by Marc Kolan?z?
4 A. Yes.
5 Q. And when Marc Kolan?z first contacted
6 you about 21 months ago, did you understand that he
7 was contacting you with respect to litigation?
8 A. No.
9 Q. You understood that he was contacting
10 you with respect to the OSHA standard which was
11 coming up for review?
12 A. No.
13 Q. All right. Have you prepared any
14 summary of your opinions for this case?
15 A. No.
16 Q. Okay. Well, have you in any way
17 categorized your opinions?
18 A. Yes.
19 Q. Okay. How many opinions have you
20 formed regarding this case?
21 A. I don't have a specific number.
22 Q. You are able to recount them to me,
23 though, the general opinions?
24 A. As I understand the scope of my
25 testimony in this case, yes.

1 Q. All right. Then let's do that. Will
2 you please tell me what your opinions are for this
3 case.
4 A. Well, the first opinion is that the
5 current threshold limit value is 2.0 micrograms per
6 cubic meter and that that guideline has been in
7 place for a long time, approximately 50 years, and
8 that it has been evaluated and re-evaluated quite a
9 number of times since then, and until recently it
10 was generally considered to be protective.
11 The second opinion would be that the
12 information available to us today doesn't allow us
13 to identify a better occupational exposure limit.
14 The reason for that is we're not sure of all the
15 factors which are influencing the likelihood of
16 either being sensitized or developing CBD. I think
17 those are the two broadest of the opinions.
18 Q. Okay. Do you have any opinions to
19 offer in this case specifically regarding my client,
20 Esequiel Gabaldon?
21 A. No. Excuse me. Would you read back
22 the question.
23 (Question read.)
24 MR. NOVA: I'm going to object.
25 THE WITNESS: It's a pretty broad

1 question.
2 BY MR. METZGER:
3 Q. I don't mean it to be --
4 A. I assumed you meant about his medical
5 conditions, and, therefore, I don't have an opinion
6 about his medical conditions.
7 Q. Well, actually, I meant it a little
8 more broadly than that, but let me clarify because
9 I'm not trying to trick you in any way.
10 It sounds to me like your opinions
11 are concerning the standard, the standard for
12 beryllium, and that that is irrespective of whoever
13 the plaintiff in the case may be. Is that correct?
14 A. I think that's fair.
15 Q. In other words, your testimony is
16 rather generic. It could be used in this case or
17 another CBD case, and it wouldn't differ based on
18 who the plaintiff is?
19 A. That's generally true.
20 Q. Okay. So is it fair to say that you
21 are not going to be rendering any opinions regarding
22 Mr. Gabaldon, despite the fact that you've been
23 provided with all of these discovery requests and
24 responses?
25 A. Again, it's fairly broad. I've been

1 asked to answer your questions about the
2 occupational exposure limits and their adequacy.
3 MR. NOVA: And I'm going to object. The
4 discovery responses contain multiple allegations
5 regarding the 2 microgram standard, too many to
6 enumerate.
7 MR. METZGER: Well, I appreciate that,
8 Peter, but I prefer that you not coach
9 Dr. Paustenbach.
10 MR. NOVA: I prefer you don't try to trick
11 him.
12 MR. METZGER: I'm certainly not trying to
13 trick him.
14 Q. In any event, is it fair to state,
15 Dr. Paustenbach, that you would not consider
16 discovery responses prepared by a plaintiff in a CBD
17 case to be authoritative scientific pronouncements
18 on chronic beryllium disease or standards of control
19 for chronic beryllium disease?
20 MR. NOVA: I'm going to object that the
21 question obviously misstates who prepared the
22 responses. There's absolutely no indication in this
23 case that they were prepared by the plaintiffs as
24 opposed to plaintiff counsel.
25 You can answer the question.

1 THE WITNESS: It doesn't sound like a
2 question related to industrial hygiene or
3 toxicology; so I'm going to decline to answer it
4 based on lack of understanding of the question.
5 BY MR. METZGER:
6 Q. Let me ask you: For your opinions in
7 this case, are you relying at all upon the discovery
8 responses that were provided to you by Mr. Nova?
9 A. I don't believe so.
10 Q. Okay. And are you relying at all on
11 the mediation brief that was provided to you by
12 Mr. Nova?
13 A. You're not saying Mr. Nova. Who is
14 the attorney that you are referring to?
15 MR. NOVA: I think he's talking about
16 plaintiff's mediation brief. I don't know what he's
17 talking about. If you don't understand the
18 question, don't answer it.
19 THE WITNESS: I don't know who "Mr. Delco"
20 is.
21 MR. NOVA: No. He said "Nova."
22 THE WITNESS: Oh, he did say "Nova"? I'm
23 sorry. It might be the fan. My opinions are not
24 based on this response (indicating).
25 BY MR. METZGER:

1 Q. On the discovery responses?
2 A. Yes, sir.
3 Q. Right. And you were also provided by
4 Mr. Nova a mediation brief that was prepared by me.
5 A. Yes, sir.
6 Q. Are you relying on that for your
7 opinions in this case?
8 A. No, sir.
9 Q. All right.
10 A. I assume by that you mean have I
11 been influenced by either of your writings in what
12 I'm about to testify to.
13 Q. No. I'm not asking whether I
14 persuaded you. I'm asking you whether you're
15 relying on that. Is that the type of matter that
16 you, as an expert, would rely on?
17 A. No.
18 Q. I'd like to discuss with you the two
19 general opinions which you've identified.
20 MR. NOVA: Well, maybe before we get into
21 that, I'd like to take a break at some appropriate
22 point to go to the bathroom.
23 MR. METZGER: Let's take a break.
24 (A recess was taken.)
25 BY MR. METZGER:

1 Q. Dr. Paustenbach, the first opinion
2 that you rendered regarding the current TLV and
3 its -- the time period during which it's been in
4 effect is something which is basic knowledge.
5 Correct?
6 A. Yes.
7 Q. And I believe you stated that until
8 recently, it was generally considered to be
9 protective. By that do you mean protective of
10 health?
11 A. Yes.
12 Q. And when you say until recently it
13 was generally considered to be protective of health,
14 until when are you referring to?
15 A. I think beginning in the mid, if not
16 slightly earlier, '90s there began to be a question
17 about exactly how compliant one needed to be to 2.0
18 micrograms per cubic meter to provide the level of
19 protection typical in threshold limit values.
20 Q. And what specifically raised this
21 question in your mind in the mid or earlier 1990s?
22 A. A number of things. The new
23 diagnostic techniques and the increased use of the
24 BLPT started to suggest that some people had
25 subclinical CBD that they wouldn't have observed

1 under old diagnostic techniques.
2 Q. And what year do you date that to?
3 A. The literature is a little unclear.
4 Those researchers at the front are normally five
5 years or so ahead of general practice; so my
6 recollection is that BLPT and the flexible
7 bronchoscope began to get used in the mid to
8 late '80s.
9 Q. And it's your belief that the
10 researchers who were investigating that were about
11 five years ahead of that time?
12 A. The researchers investigating that
13 were doing the work in the mid to late '80s, and
14 five years later others began to use those
15 techniques more frequently.
16 Q. I see. And which researchers are you
17 speaking of specifically?
18 A. I need to look at the pile of papers
19 that I gave you. Do you mind if I refresh my
20 memory?
21 Q. If you need to look at them, we can
22 do that. I just thought that this was something
23 that you would have off the top of your head.
24 A. I like to be specific, but I think
25 that Newman and Rossman began to be talking about it

1 in the late '80s and using it, and others were using
2 the BLPT in the late '80s as well.

3 Q. Now, you mentioned that until
4 recently the 2 microgram standard was generally
5 considered to be protective. When you say it was
6 generally considered to be protective, by whom are
7 you referring?

8 A. I'd say the industrial hygiene
9 community.

10 Q. Is it your opinion -- do you have an
11 opinion as to whether as of the mid or early 1990s
12 the 2 microgram standard was considered to be -- was
13 generally considered to be health protective by
14 Brush Wellman?

15 A. Could you repeat that, please.
16 (Question read.)

17 THE WITNESS: From what I can determine,
18 they generally believed it was protective.

19 BY MR. METZGER:

20 Q. And what do you base that opinion on?

21 A. My work with them over the last two
22 years and some of their writings.

23 Q. Have you asked Brush Wellman,
24 Mr. Nova, or the Jones, Day firm to provide you
25 historical writings regarding their belief in the

1 health protectiveness of the 2 microgram standard?
2 A. I've asked for all related material.
3 I don't know that I've ever asked for it quite that
4 way, but I've asked for all the information they
5 considered relevant for me to understand the history
6 of the 2 microgram standard. And, of course, I did
7 my own research, which would only involve the
8 published materials.
9 Q. You did a literature search?
10 A. Yes, sir.
11 Q. Do you have that with you?
12 A. No.
13 Q. Was that done in connection with
14 these papers that you did for Jones, Day?
15 A. I don't recall. I don't think so.
16 MR. NOVA: They weren't papers, for one
17 thing; so the answer to the question is no.
18 MR. METZGER: Are you now going to answer
19 the questions for the doctor?
20 MR. NOVA: Are you going to keep misstating
21 them, or are we going to have to go get the judge to
22 rule on your questions? How many times are you
23 going to keep saying it? They're not papers that he
24 wrote for Jones, Day.
25 BY MR. METZGER:

1 Q. Did you write them in Sanskrit?
2 Withdrawn.
3 A. You didn't mean to mischaracterize
4 me, did you, Counsel?
5 Q. No.
6 MR. NOVA: I think he did mean to
7 mischaracterize it.
8 BY MR. METZGER:
9 Q. Anyway, at any point in time, did you
10 ask anyone from Brush Wellman or Mr. Nova or any of
11 the attorneys from Jones, Day to provide you all of
12 the written documentation in Brush Wellman's,
13 possession regarding their assessment of the 2
14 microgram standard since it went into effect?
15 A. I don't know that I've asked that
16 specific question. I can tell you my impression has
17 been that I've received everything that they have,
18 that they've ever heard of, regarding the history of
19 the standard back to 1949. They've been quite
20 generous in sharing information with me about that.
21 Q. Has Brush Wellman provided you any
22 documents which indicate that Brush Wellman knew as
23 early as the '50s that the 2 microgram standard was
24 not health protective?
25 A. For the sake of the rest of this

1 deposition, we probably need to tie down what
2 compliance with the 2 microgram standard means
3 because I find that the literature and what little I
4 can tell about litigation abuses the term; so we
5 probably need to define that.
6 Q. I'm sure we do, but my question
7 didn't even ask you about compliance. All that I
8 asked you was: Did Brush Wellman provide you any
9 documents which indicated that it knew as early as
10 the '50s that the 2 microgram standard was not
11 protective of health?
12 A. My answer is the same. The question
13 is too broad to answer. As you know --
14 MR. NOVA: Then if the question is too
15 broad, then he can rephrase it.
16 THE WITNESS: All right.
17 BY MR. METZGER:
18 Q. Did Brush Wellman provide you any
19 documents dating from the 1950s?
20 A. I believe so.
21 Q. What are they?
22 A. It's whatever work was published
23 including the documentation of the TLVs, most of
24 which you've recorded as exhibits, were given to me.
25 Q. Did Brush Wellman provide you any

1 documents from the 1950s other than those which have
2 been marked as exhibits?
3 A. Yes.
4 Q. What are they?
5 A. I wouldn't know. You asked about all
6 documents from the 1950s. I don't know those off
7 the top of my head.
8 Q. Where are they?
9 A. Where are they?
10 Q. Yes.
11 A. They may not be pertinent to this
12 case.
13 MR. NOVA: Just answer the question. Where
14 are the documents?
15 THE WITNESS: Oakland, California.
16 BY MR. METZGER:
17 Q. Where in Oakland?
18 A. In our offices in Oakland.
19 Q. In whose office?
20 A. The Exponent office.
21 Q. And which office within Exponent?
22 A. The Oakland office.
23 Q. Where are they housed in the office?
24 A. I believe in the central corridor.
25 Q. But is there someone who has -- if

1 you wanted to obtain some of those documents, is
2 there someone who you would ask to get them for you?
3 A. Yes.
4 Q. Who is that?
5 A. Jessica Green.
6 Q. Now, do you have an opinion to render
7 in this case as to when the adequacy of the --
8 strike that.
9 Do you have an opinion to render in
10 this case as to when the inadequacy of the 2
11 microgram standard was knowable by Brush Wellman?
12 A. I've never said it was inadequate,
13 and I don't believe they'd say it's inadequate, and
14 I wouldn't say it's inadequate in the way you just
15 described it.
16 Q. Let me define the term for purposes
17 of this question.
18 A. Excuse me. Can I go off the record?
19 Q. No. Stay on the record.
20 When I use the term "inadequate" in
21 the following question, I'm going to be referring by
22 inadequacy to inadequate to protect health. Okay?
23 With that in mind, my question is:
24 Do you have an opinion to render in this case as to
25 when it was knowable by Brush Wellman that the 2

1 microgram standard was inadequate?
2 A. I haven't said that the 2
3 microgram --
4 MR. NOVA: The question is: Do you have an
5 opinion? Yes or no?
6 THE WITNESS: That's what he asked?
7 MR. NOVA: I think it was a yes-or-no
8 question.
9 THE WITNESS: Could you read it back,
10 please.
11 (Question read.)
12 THE WITNESS: Yes.
13 BY MR. METZGER:
14 Q. What is your opinion?
15 A. Well, the accumulated information
16 beginning from 1948 upon which one can then make a
17 decision as to whether it's adequate.
18 Q. As you sit here today, is it your
19 belief and opinion that the 2 microgram standard for
20 beryllium is inadequate to protect the health of
21 workers exposed to beryllium?
22 A. Based on what we know today, there's
23 an inadequate amount of information to understand --
24 to be able to answer that question.
25 Q. Do you have an opinion today as to

1 whether workers are contracting chronic beryllium
2 disease at exposures which are below the 2 microgram
3 standard?

4 A. As I said before, we don't have a
5 population that hasn't been exposed for some period
6 of time to concentrations above 2 to be able to
7 answer that question definitively with the exception
8 perhaps of the Cardiff study or the Cardiff data
9 set.

10 Q. Well, with respect to the Cardiff
11 site, do you have an opinion as to whether workers
12 exposed at that site to beryllium have been,
13 exposed -- strike that.

14 First of all, do you have an opinion
15 as to whether workers at the Cardiff site have been
16 exposed to beryllium below the 2 microgram standard?

17 A. Of course they have. They've also
18 been exposed above.

19 Q. That was going to be my next
20 question. Do you have an opinion as to whether
21 there are any workers at the Cardiff site who have
22 been exposed to beryllium only below the 2 microgram
23 standard?

24 THE WITNESS: Reread it, please.
25 (Question read.)

1 THE WITNESS: To the best of my knowledge,
2 no one has access to the specific individual
3 exposure histories that would allow me to answer
4 that question.
5 BY MR. METZGER:
6 Q. Do you have any data to opine that
7 workers at the Cardiff site have been exposed to in
8 excess of 2 micrograms on an eight-hour
9 time-weighted average?
10 A. I know that some workers have at
11 times for one day been exposed above 2.
12 Q. Do you have an opinion as to whether
13 the 2 microgram standard for beryllium, as it has
14 been implemented by industry, is protective of
15 worker health?
16 MR. NOVA: Objection; overbroad, vague.
17 THE WITNESS: I think it's too early to
18 know.
19 BY MR. METZGER:
20 Q. Why is that?
21 A. Because of the breadth of your
22 question, I'm going to assume that the breadth of
23 your question is inartful rather than meant to be
24 misleading. But it's fairly clear that in order to
25 answer a question about the adequacy of that

1 guideline, you need to set a criteria as to how
2 often you're going to exceed it or allow one to
3 exceed it, to what degree, to what form of beryllium
4 you're referring, to the particle size to which
5 you're referring, whether or not we understand the
6 cohort with respect to genetic susceptibility, and
7 whether we need to understand if dermal contact or
8 ingestion is an important component to the
9 predicting whether or not disease will occur.
10 Q. The 2 microgram standard has been in
11 effect for about 50 years. Correct?
12 A. Yes.
13 Q. And during that 50-year period, has
14 that standard, as it has been applied in industry,
15 been protective of worker health?
16 MR. NOVA: Objection; vague, overbroad.
17 THE WITNESS: You stated, I believe, as it
18 has been applied in industry?
19 BY MR. METZGER:
20 Q. Yes.
21 A. You don't really apply a standard in
22 terms -- it's the wrong term. You attempt to comply
23 with the standard.
24 Q. Let me put it, then, in those terms
25 for you. Has industry's attempts to comply with the

1 2 microgram standard for beryllium over the last 50
2 years prevented occupational cases of CBD? By
3 "prevented" I mean prevented the occurrence of such
4 cases.

5 MR. NOVA: Objection; vague, compound.

6 THE WITNESS: I don't think one could say
7 that.

8 BY MR. METZGER:

9 Q. Okay. So it's your belief that there
10 have been cases of CBD that have occurred over the
11 last 50 years, despite industry's attempts to comply
12 with the 2 microgram standard?

13 A. Yes.

14 Q. And how long has it been known by the
15 beryllium industry that its attempts to comply with
16 the 2 microgram standard were not preventing
17 occurrences of CBD in exposed workers?

18 MR. NOVA: Objection; vague.

19 THE WITNESS: Probably ten years.

20 BY MR. METZGER:

21 Q. Okay. And upon what do you base that
22 opinion?

23 A. I think that in the industry CBD was
24 observed in the last ten years that would have been
25 reflective of exposures of prior years that told

1 them that the constellation of exposures had brought
2 about that disease.

3 Q. Now I'm the one who's not
4 understanding. All right. Are there any documents
5 that you are relying on for your opinions in this
6 case other than -- strike that. Let me go back.

7 Are there any documents authored by
8 Brush Wellman that you are relying on for your
9 opinions in this case?

10 (Question read.)

11 THE WITNESS: I assume you mean by
12 "Brush Wellman," employees of Brush Wellman.,
13 BY MR. METZGER:

14 Q. I will rephrase the question and make
15 it clear for you. We have identified here certain
16 documents that you have brought with you. They've
17 been marked as exhibits, and some of them may be
18 articles which are coauthored by some Brush Wellman
19 employees.

20 Other than these documents which have
21 been marked as exhibits here today, which you
22 brought with you, are there any documents whatsoever
23 that have been authored by any Brush Wellman
24 employees that you are relying on for any of your
25 opinions in this case?

1 A. Yes.
2 Q. What are they?
3 A. I believe the article by Kent,
4 et al., which will be published, I believe, sometime
5 in 2000, would be a document that would influence my
6 opinion.
7 Q. And is that one of the papers that
8 was presented?
9 A. It was not a paper that I presented.
10 It's a paper that Mr. Kent presented.
11 Q. At this Orlando conference?
12 A. I don't recall if he presented it in
13 Orlando, but he did present it at the FEACGIH
14 symposia.
15 Q. And what was the topic of this
16 article?
17 A. It was a paper that evaluated the
18 relationship between particle size, morphology, and
19 positive on BLPT.
20 Q. Did that article discuss any
21 historical literature regarding beryllium?
22 A. I think so.
23 Q. Did that article address when it was
24 known by Brush Wellman that the 2 microgram standard
25 was not preventing cases of CBD?

1 A. Again, I don't think you mean to
2 represent what's been discussed. I don't think
3 Brush Wellman believes that if one complies with the
4 2 microgram standard, that CBD won't be prevented.
5 I think it's their opinion that it probably is
6 prevented if you always comply to 2.
7 Q. Has someone told you that, that
8 that's their opinion?
9 A. Yes.
10 Q. Who told you that?
11 A. Kolanz and others.
12 Q. Who else?
13 MR. NOVA: Who else in the universe of the
14 planet, or who else from Brush Wellman?
15 BY MR. METZGER:
16 Q. Who else from Brush Wellman told you
17 that they believe that if the 2 microgram standard
18 is complied with, cases of CBD will be prevented?
19 A. I don't know if I've said that. If I
20 have just said that, I may have misspoken. Could
21 you read back what I did say.
22 (Answer read.)
23 MR. METZGER: I would like the record to
24 reflect that Dr. Paustenbach is reading the
25 reporter's screen containing the transcript of his

1 testimony.
2 MR. NOVA: And he's doing that to try to
3 understand what he's being asked in this deposition,
4 which is getting more confusing by the minute.
5 BY MR. METZGER:
6 Q. Are you ready to resume,
7 Dr. Paustenbach?
8 A. Yes. I'd like to clarify something I
9 said because the two sentences, at least as the
10 court reporter has recorded them, are nonsequitur.
11 Q. Please clarify. What is it you'd
12 like to clarify, Dr. Paustenbach?
13 A. Maybe I'll just restate it. I
14 believe Brush Wellman generally believes that if one
15 complies with the 2 microgram standard all the time,
16 they believe that CBD would be prevented. That's
17 their working hypothesis. And the data contrary to
18 that are not available.
19 Q. Has someone at Brush Wellman told you
20 that that is their company position?
21 A. I don't think it's ever been told to
22 me as their company position.
23 Q. Has someone from Brush Wellman
24 expressed that to you in any way?
25 A. Yes.

1 Q. Who?
2 A. Marc.
3 Q. Marc Kolan?z?
4 A. Kolan?z, yes.
5 Q. When did he express that to you?
6 A. We've talked about it on a number of
7 occasions.
8 Q. Over the last two years?
9 A. Sure.
10 Q. Has anyone else at Brush Wellman told
11 you that?
12 A. I don't believe so.
13 Q. Now, has Marc Kolan?z provided you any
14 data upon which he contends that if the 2 microgram
15 standard is complied with all the time, all cases of
16 CBD will be prevented?
17 A. They're not able to provide that
18 information.
19 Q. So he hasn't provided you that data.
20 Correct?
21 A. The only data that he has provided --
22 and he didn't provide it but that he made me aware
23 of -- was the Cardiff data, which a vast majority of
24 the time has concentrations of total beryllium less
25 than 2 micrograms per cubic meter. That is, I

1 think, the only data set which strongly suggests
2 that CBD doesn't occur if you have that level of
3 control.
4 Q. That it does not occur?
5 A. That it does not occur.
6 Q. Are there cases of CBD at Cardiff?
7 A. Not that we know of.
8 Q. There have been no cases that you're
9 aware of?
10 A. No, sir.
11 MR. NOVA: Asked and answered.
12 BY MR. METZGER:
13 Q. Okay. How long has the Cardiff site
14 where those levels have been maintained been in
15 operation?
16 A. My recollection is it was in excess
17 of 20 years.
18 Q. And is it your belief that at all
19 times during the past 20 years, the Cardiff site has
20 not exceeded the 2 microgram standard?
21 A. I've already said -- I've already
22 answered that question. The vast majority of the
23 time, that is well in excess of 95 percent of the
24 time, they did not exceed the lapel samples over 2
25 micrograms per cubic meter.

1 Now, I'm going to say for the record
2 if we're going to drill down and have a very
3 detailed discussion, I'm going to go back to what I
4 said an hour ago, which is let's start talking about
5 2 micrograms per cubic meter, eight-hour versus
6 short-term, personal versus area, form, et cetera.
7 I'm not going to get caught into this broad sweeping
8 statement stuff. So we're going to have to have a
9 very specific deposition going forward. All right?
10 Q. All right. As you sit here today,
11 it's your belief that there have been no cases of
12 CBD at all out of Cardiff. Correct?
13 A. Yes.
14 Q. Is there any other beryllium
15 manufacturing site that you are aware of where there
16 have been no cases of CBD?
17 A. It's unclear to me that CBD has been
18 seen at the Delta site. There is one CBD. I doubt
19 that it's related to the site.
20 Q. Any other sites?
21 A. I know of no other sites where CBD
22 has not been reported.
23 Q. Now --
24 A. And that's my limited knowledge.
25 There may be thousands of people that have used

1 beryllium, but of the papers that I've read, I don't
2 know of any. There may be hundreds of users of
3 beryllium, but in the major published studies that
4 you have there, I think they all report CBD at some
5 dose at some time.
6 Q. Have you asked Brush Wellman whether
7 there have been any cases of CBD at Cardiff?
8 A. You understand Cardiff and
9 Brush Wellman --
10 MR. NOVA: It's a very specific question.
11 Answer them no matter how nonsensical they are,
12 please.
13 (Question read.)
14 THE WITNESS: Yes.
15 BY MR. METZGER:
16 Q. Whom did you ask?
17 A. Kolaniz.
18 Q. What did he tell you?
19 A. To the best of his knowledge, no.
20 Q. Did you ask anyone from the Cardiff
21 site whether there have been any CBD cases at
22 Cardiff?
23 A. Yes and no.
24 Q. Would you explain.
25 A. The person whom I asked I think was

1 the U.S. liaison to the Cardiff site; therefore, a
2 nonemployee with Cardiff.
3 Q. And who was that person?
4 A. Dr. Johnson.
5 Q. First name?
6 A. James.
7 Q. And what did Dr. Johnson tell you?
8 A. With respect to your question, he
9 said he knew of no cases of CBD at that facility.
10 Q. Did you ask anyone -- is there a
11 medical director at Cardiff?
12 A. There was a medical director at
13 Cardiff.
14 Q. Who was that?
15 A. I don't recall his name.
16 Q. Did you ask the medical director of
17 Cardiff if there were any cases of CBD there?
18 A. No.
19 Q. Did you ask anyone in industrial
20 hygiene or environmental health and safety at that
21 site whether there were any cases of CBD?
22 A. No.
23 Q. All right. Now, let's talk
24 definitions regarding compliance, which I understand
25 you want to do. Is it your belief that a company

1 that employs workers, and in the course of their
2 employment those workers are exposed to beryllium,
3 violates the standard if a worker is exposed to a
4 concentration of beryllium of 2.1 micrograms per
5 cubic meter of air on an eight-hour time-weighted
6 average over one day?
7 A. My understanding is they have not
8 violated the standard as we define compliance with
9 the standard.
10 Q. Why?
11 A. Because you don't have to maintain
12 concentrations under the standard every day, all the
13 time, but, rather, you are expected to do so as best
14 you can. And that's defined by the times when OSHA
15 actually does an inspection.
16 Q. Is it true that the standard requires
17 that no employee be exposed to a concentration of
18 beryllium greater than 2 micrograms per cubic meter
19 on an eight-hour time-weighted average basis for any
20 day?
21 A. The standard doesn't call for that.
22 Q. What is the basis for your opinion
23 that the standard does not call for that?
24 A. Because a large fraction of the
25 workplaces in America who attempt to meet the

1 standard -- and I'm presuming you're meaning the
2 OSHA standard because that's by definition what we
3 mean by standard. A large fraction of the
4 workplaces are unable all the time to be under the
5 OSHA guideline.
6 Q. And is it your opinion that those
7 employers who are unable to be under the OSHA
8 guideline at all times are not in violation of the
9 standard?
10 A. That's right.
11 Q. Have you ever asked anyone from OSHA
12 if they agree with your interpretation?
13 A. Of course.
14 Q. Who?
15 A. Numerous people.
16 Q. Name one.
17 A. Charlie Shields.
18 Q. Where is Charlie Shields?
19 A. He is in Chicago.
20 Q. And is he an OSHA compliance officer?
21 A. Yes.
22 9. And did Charlie Shields tell you that
23 if on a single day a worker is exposed to beryllium
24 at a concentration greater than the 2 microgram
25 standard on an eight-hour time-weighted average,

1 that the employer is not in violation?

2 A. No.

3 Q. Would you consider the employer to be
4 in violation? Strike that.

5 Let me ask you this: What exactly is
6 it that Charlie Shields has told you that leads you
7 to have the opinion that you do that an employer
8 need not be in compliance every day?

9 A. Because there's other confounding
10 factors with respect to compliance other than the
11 air concentration.

12 Q. What confounding factors are +you
13 referring to?

14 A. If you wear a respirator during a
15 large fraction of the day, sometimes, depending on
16 the chemical, you need not be under the 2, in this
17 case, microgram per cubic meter standard.

18 Q. What other confounding factors?

19 A. Sometimes engineering feasibility
20 doesn't allow you to reach it; so you use the best
21 available technology.

22 Q. You mean where engineering controls
23 cannot reduce the exposure level below 2 micrograms,
24 you use whatever technology is available and reduce
25 it to some level above the 2 microgram standard, and

1 a worker works in that environment?
2 A. Then you're expected, if it's a
3 routine situation, to have them wear respiratory
4 protective equipment.
5 Q. Any other confounding factors?
6 A. Well, again, we haven't defined the
7 2. Of course, short-term samples don't qualify with
8 respect to compliance to the eight-hour TWA.
9 Q. And by that do I understand what you
10 mean is that you would not consider a 15-minute
11 sample or a grab sample in determining whether an
12 employer is in compliance with the standard?,
13 A. With the eight-hour permissible
14 exposure limit, that's right.
15 Q. Of course. Is there a certain
16 sampling period that you yourself would consider to
17 be the minimum required in determining whether an
18 employer is complying with the 2 microgram standard?
19 A. I'm very awkward with this line of
20 questioning because you're intermingling industrial
21 hygiene practice with legal compliance. Legal
22 compliance is defined by OSHA during their time of
23 inspection.
24 Q. Let me ask you this: Would you
25 consider a one-hour sample that was above 2

1 micrograms to be an indication that the employer was
2 not in compliance?
3 A. No.
4 Q. A two-hour sample?
5 A. What kind of sample are we talking
6 about? Are you talking about an area sample?
7 MR. NOVA: Wait for a question here. You
8 can't both talk at the same time.
9 BY MR. METZGER:
10 Q. Let me ask you this: Are area
11 samples samples which can be used in determining
12 whether an employer is in compliance?
13 A. Not generally.
14 Q. What is your qualification?
15 A. If for some reason you are not able
16 to take a lapel sample that gives adequate
17 information, you can supply a series of area samples
18 with time in motion information.
19 Q. So it's your opinion that, generally
20 speaking, personal breathing zone samples are
21 required. Correct?
22 A. For which chemical?
23 Q. For beryllium.
24 A. That's what they prefer to use, yes.
25 Q. In your opinion, is that required to

1 determine whether an employer is in compliance?
2 A. No. It's not required.
3 Q. All right. And as far as personal
4 breathing zone sample, are you referring to the
5 lapel sampler or anything else?
6 A. There are personal breathing zone
7 samples that are not lapel samples.
8 Q. Can those be used?
9 MR. NOVA: Can they be used for what? The
10 question is vague.
11 BY MR. METZGER:
12 Q. Can those be used for determining
13 compliance with the beryllium 2 microgram standard?
14 A. If handled properly, there is a
15 history of using nonlapel but personal breathing
16 zone samples to determine compliance with the
17 guideline.
18 Q. And what type of samplers are you
19 referring to?
20 A. They're called fixed air head
21 samples.
22 Q. Now, considering only personal
23 breathing zone samples -- okay? -- personal
24 breathing zone air samples, is a one-hour sample
25 adequate to determine compliance with the 2

1 microgram standard?
2 A. No.
3 Q. Is there a certain minimum number of
4 hours that you consider the sample needs to be in
5 order to use it as part of a data set in determining
6 compliance?
7 A. Generally, for purposes of OSHA, one
8 requires a six-hour sample, and that would be a
9 lapel sample. In the year 2000, that's the kind of
10 expectation that's in an OSHA compliance setting.
11 Q. Do you know whether some OSHA
12 compliance officers would accept a five-hour
13 sample?
14 MR. NOVA: Do you know if some would?
15 THE WITNESS: I really can't answer that
16 question.
17 BY MR. METZGER:
18 Q. Is there any regulation that it needs
19 to be a six-hour sample as opposed to a five-hour
20 sample?
21 A. I don't recall what the field
22 officer's manual requires these days.
23 Q. But that is the source that you would
24 refer to?
25 A. When you have the field officer's

1 manual and his supervisor's opinion.
2 Q. A written opinion? Are you referring
3 to a written opinion of a supervisor?
4 A. I don't know how they communicate.
5 Q. Okay. Fair enough. All right. Now,
6 is it your opinion that an employer who exposes a
7 worker to beryllium at a concentration of 2.1
8 micrograms on an eight-hour time-weighted average
9 collected by a lapel sampler over a period of eight
10 hours, where the worker is not wearing a respirator,
11 is it your opinion that that employer is in
12 violation of the standard?
13 A. Technically he'd be in violation if
14 that sample were collected by an OSHA inspector.
15 Q. Well, the employer would be in
16 violation of the standard irrespective of whether it
17 was collected by an OSHA inspector. Correct?
18 A. No, if it was in this country. I
19 assume you mean violation and lack of compliance to
20 be a legal term. We don't have self-compliance in
21 this country.
22 Q. We don't?
23 A. We don't incriminate the employer by
24 taking our own samples and saying, "Hi. I'm out of
25 compliance. Therefore, please send me a fine."

1 That's not what we have in this country.
2 Q. I understand.
3 MR. NOVA: He understands; so just wait for
4 another question.
5 BY MR. METZGER:
6 Q. But whether the sample is taken by an
7 OSHA inspector or just by the company, that doesn't
8 change whether the employer is in compliance or out
9 of compliance. Correct?
10 MR. NOVA: Objection; asked and answered.
11 State it again.
12 THE WITNESS: I'd have to repeat what I
13 just told you a moment ago.
14 BY MR. METZGER:
15 Q. All right. That's fine. Have you
16 reviewed any of the data, the air monitoring data,
17 conducted by Rockwell, my client's employer?
18 A. What kind of data?
19 Q. The air monitoring data.
20 A. For?
21 Q. For beryllium for Mr. Gabaldon.
22 A. No.
23 Q. Now, other than articles published in
24 the literature, have you received any documents from
25 Brush Wellman, from its attorneys, dating from the

1 1950s?
2 A. I'm sure that I've received some
3 documents through either their attorneys or from
4 Brush Wellman from the 1950s. In fact, I gave you
5 one.
6 Q. Let me rephrase the question. Have
7 you received any documents authored by any
8 Brush Wellman employees dating from the 1950s?
9 A. I don't recall specifically.
10 Q. Have you received any documents
11 authored by any Brush Wellman employees dating from
12 the 1960s?
13 A. Yes.
14 Q. What are those?
15 A. I don't recall which ones. I've read
16 a large number of documents from the '60s involving
17 industrial hygiene at Brush Wellman.
18 Q. And have you brought those with you?
19 A. No.
20 Q. Why not?
21 A. They're not related to this case or
22 my opinions in this case.
23 Q. You're not basing your opinions on
24 any documents dating -- strike that.
25 Is it true that you are not basing

1 your opinions in this case on any documents authored
2 by any Brush Wellman employees from the 1960s other
3 than such as may have been marked as exhibits here
4 today?
5 A. I think that's correct.
6 Q. And just so it's also clear, is it
7 true that you're not basing your opinions in this
8 case on any documents authored by any Brush Wellman
9 employees from the 1950s, again other than any that
10 may be marked here as exhibits today?
11 A. I think that's fair.
12 Q. Are you basing your opinions in this
13 case on any documents that have been authored by
14 Brush Wellman employees dating from the 1970s other
15 than such as may be marked as exhibits here today?
16 A. I don't think so.
17 Q. Are you basing your opinions in this
18 case on any documents that have been authored by any
19 Brush Wellman employees from the 1980s other than
20 such as have been marked as exhibits here today?
21 A. I don't think so.
22 Q. And is it true that you are not
23 basing your opinions in this case on any documents
24 that have been authored by any Brush Wellman
25 employees from the 1940s other than such as may have

1 been marked here today?
2 A. I think that's correct.
3 Q. Are you able to tell me the date on
4 which Brush Wellman -- strike that.
5 Are you able to tell me the date on
6 which an employee of Brush Wellman first suspected
7 that the 2 microgram standard might not be
8 adequately protective of health?
9 THE WITNESS: Could you read that back.
10 (Question read.)
11 THE WITNESS: I don't know that a
12 Brush Wellman employee has ever written that, down;
13 so I can't answer.
14 BY MR. METZGER:
15 Q. Now, did you read the mediation brief
16 that Mr. Nova provided you, the mediation brief that
17 I wrote?
18 MR. NOVA: Did you read the mediation brief
19 that Mr. Metzger wrote?
20 THE WITNESS: Could you show it to me,
21 please.
22 MR. METZGER: All right. Let me withdraw
23 that question and ask you, since -- here we go.
24 Okay.
25 Q. You did read the order in the Faccio

1 case, which is the crime fraud order?
2 A. (Witness peruses document.)
3 I did read it.
4 Q. Okay. And I see that you highlighted
5 certain portions of it. Is that correct?
6 A. I'm not sure that I highlighted it or
7 somebody on the staff highlighted it.
8 Q. Either you or someone on your staff
9 highlighted certain portions of it. Correct?
10 A. Yes, sir.
11 Q. Did you request from Mr. Nova any of
12 the documents, historical documents, that were
13 referred to in this?
14 A. (Witness peruses document.)
15 Yes.
16 Q. Which documents did you request?
17 A. I requested the one by Eisenbud
18 regarding his evaluation of the city of Lorain.
19 Q. Had you read that before this time?
20 A. I didn't recall, but I wanted to make
21 sure I had it for this case.
22 Q. And did Mr. Nova provide that to you?
23 A. Somebody did.
24 Q. And did you read that?
25 A. Yes, sir.

1 Q. And when you read that, was that the
2 first time that you were reading it, or did you
3 recognize that you, in fact, had read that study
4 earlier?

5 A. It's hard to say because
6 Merrill Eisenbud talks about it in his other papers,
7 and it's talked about by Harriet Hardy, and I've
8 read about it for the last 30 years; so I don't know
9 when the first time is I read about it.

10 Q. Fair enough. What else did you ask
11 Mr. Nova for?

12 A. I asked to read the 1977 OSHA
13 hearings, either the summaries or something about
14 them.

15 Q. Yes.

16 A. I don't believe I've asked for
17 anything else as a result of reading this document.

18 Q. Okay. Now, looking at the mediation
19 brief, Exhibit 2 to which that is actually an
20 exhibit, did you highlight the sentence appearing on
21 Lines 24 and 25 of Page 5?

22 A. I don't recall.

23 Q. Okay. Did you note that that said
24 that in the 1970s ten secretaries at a Brush Wellman
25 plant who had never even worked with beryllium were

1 diagnosed with CBD?
2 A. I read that sentence.
3 Q. And do you have an opinion as to
4 whether those secretaries were exposed to beryllium
5 above the 2 microgram standard?
6 A. I don't have an opinion.
7 Q. Would you tell me what your opinion
8 is regarding the standard of care of an employer
9 whose workers are exposed to beryllium.
10 A. That's a very broad question. How do
11 you define "standard of care"?
12 Q. Well, more specifically, what an
13 employer is obligated to do with respect to
14 compliance with the 2 microgram standard, as you
15 understand it.
16 A. Which employees and over which period
17 of time are you referring?
18 Q. I'm referring to any employer who has
19 employed a worker who is exposed to beryllium on the
20 job at any time since the OSHA standard went into
21 effect until today.
22 MR. NOVA: Objection; overbroad, vague.
23 THE WITNESS: May I repeat the question as I
24 understand it?
25 MR. NOVA: No. If you don't understand it,

1 he can repeat it. Do you understand it?
2 THE WITNESS: I understand it to be too
3 broad to answer.
4 BY MR. METZGER:
5 Q. Okay. Has the OSHA standard changed
6 since it was implemented until today?
7 A. If you're referring to beryllium, no.
8 Q. And you're familiar with the
9 standard?
10 A. Yes.
11 Q. What is your opinion as to what the
12 standard of care is for an employer to comply with
13 that standard?
14 MR. NOVA: Objection; vague.
15 BY MR. METZGER:
16 Q. Do you have an opinion on that?
17 A. Are you talking about the
18 professional standard of care? Are you talking
19 about the legal standard of care? What's called for
20 in the standard itself? The standard of care has
21 several definitions.
22 Q. Well, do you consider that there is a
23 standard of care other than what is set forth in the
24 standard itself?
25 A. Sure.

1 Q. And what is your opinion of the
2 standard of care for an employer to meet with
3 respect to protecting the health of a worker who was
4 exposed to beryllium at its workplace?

5 MR. NOVA: Objection; vague, overbroad.

6 THE WITNESS: I'm not going to guarantee
7 that I'll get all dimensions of that standard of
8 care listed as we sit here today, but I'd be happy
9 to try to answer your question.

10 BY MR. METZGER:

11 Q. Please.

12 A. Generally, when you're exposed to
13 beryllium or similar chemicals, you tell employees
14 generally what the hazards are. You hand them
15 material safety data sheets and make them aware of
16 them. If there's medical monitoring that would be
17 helpful, you do whatever medical monitoring seems to
18 be appropriate. If air sampling gives insight as to
19 how or what one should do to minimize or restrict
20 exposure, you would do some industrial hygiene
21 monitoring.

22 You would generally tell them about
23 what classic industrial hygiene and cleanliness is
24 about, and you would try to equip them as best you
25 could with an understanding of the hazards and what

1 to look for to make sure that they protect
2 themselves. Provide personal protective equipment
3 as appropriate, explain to them how to use it as
4 appropriate, encourage them to use it.
5 I think those are the -- a broad
6 brush overview of what I consider the professional
7 standard of care with chemicals like beryllium.
8 Q. And when should an employee be
9 instructed to wear respiratory protection when the
10 employee is exposed to beryllium?
11 A. You generally have them wear it when
12 you think that the exposures are excessive as
13 defined by the following: That is, if that dose
14 that they are to receive is going to potentially
15 represent a significant contribution to the daily
16 dose that would be considered protective or
17 preventive of disease.
18 Q. Have you finished?
19 A. Yes.
20 Q. Oh, okay. All right. A worker
21 should not be wearing a respirator eight hours a
22 day. Correct?
23 MR. NOVA: Objection; vague, overbroad.
24 THE WITNESS: It's coming from left field.
25 You want to define what you mean by that? There are

1 certainly many industries where employees are
2 expected and need to wear respirators eight hours a
3 day.

4 BY MR. METZGER:

5 Q. A worker who is working with
6 beryllium as his regular job, should such a worker
7 be wearing a respirator eight hours a day?

8 MR. NOVA: Objection; vague, overbroad.

9 THE WITNESS: Does the question refer to
10 comfort, legal compliance, ethics, standard of
11 care? I don't know where you're going with this.

12 BY MR. METZGER:

13 Q. Well, okay. Should an employer
14 require a worker, say a beryllium grinder, to wear a
15 respirator eight hours a day when engineering
16 controls have been implemented in the workplace?

17 MR. NOVA: Objection; vague.

18 THE WITNESS: In the history of modern day
19 occupational health, it's expected that an employee
20 should wear a respirator as long as necessary to
21 keep his absorbed dose below that recommended by the
22 OSHA guideline or from the TLV, either one. He is
23 expected to wear a respirator -- he or she is
24 expected to wear a respirator that's protective.

25 If engineering controls have been

1 installed, and the best attempts have been made to
2 limit exposure but they are still inadequate to stay
3 below the guideline, in those cases they are
4 expected to wear a respirator as long as necessary
5 to protect their health.
6 BY MR. METZGER:
7 Q. Otherwise they're not expected to
8 wear a respirator. Is that correct?
9 MR. NOVA: Objection; vague, overbroad.
10 THE WITNESS: Otherwise it depends on the
11 decision of the management as to what level of
12 protection they want to encourage the workers to
13 comply with.
14 BY MR. METZGER:
15 Q. Now, I'd like you to assume for
16 purposes of my next question that the 2 microgram
17 standard is not preventing cases of CBD. Okay? Are
18 you with me?
19 MR. NOVA: Are you with him? I guess that's
20 a question. Are you with him?
21 THE WITNESS: If what you're asking me is
22 you want me to assume that compliance for 40 years
23 to 2 micrograms per cubic meter a day, eight hours a
24 day, 220 work days of the year, if I make those
25 assumptions and a person is not wearing a

1 respirator, that's a real dose, that you want me to
2 assume that it's not protective?
3 BY MR. METZGER:
4 Q. That wasn't my question, and I'm glad
5 that you asked that because I will now clarify it.
6 I'd like you to assume that it is
7 shown to scientific standards that a worker exposed
8 to beryllium for a single day at a concentration
9 less than the standard develops beryllium disease,
10 chronic beryllium disease. Assuming that, is it
11 your opinion that the standard should be changed?
12 A. No.
13 Q. Why not?
14 A. With respect to the TLVs, for
15 example, since 1944, it's been acknowledged that no
16 guideline will necessarily protect everyone; so it's
17 been implicit that we don't try to identify
18 guidelines that will protect everyone. Rather, we
19 try to protect the vast majority if possible.
20 Therefore, knowing what I know about
21 beryllium and assuming what you've said to be true,
22 one would have to conclude that the person was an
23 anomaly and that it would not have an impact on
24 agencies or consensus bodies to change that
25 guideline.

1 Q. Are the threshold limit values
2 designed to protect workers from the effects of
3 toxins that exert their toxic effects by immune
4 mediated mechanisms?
5 A. They try to.
6 Q. Was the standard for beryllium
7 established based on such an assumption?
8 A. My recollection is that in the early
9 documentations of the TLV for beryllium, the fact
10 that the immune system might be involved was
11 discussed and considered in their deliberations.
12 Q. When the standard was adopted, was it
13 arbitrary?
14 A. How are you using the term
15 "arbitrary"?
16 Q. I mean was the number arbitrarily
17 selected, the 2 microgram standard?
18 A. I think as I understand the word
19 "arbitrary," I'd have to say no.
20 Q. Was it based upon any scientific
21 data?
22 A. Sure.
23 Q. Was it based upon any epidemiologic
24 data?
25 A. Not in the traditional sense of

1 epidemiology. It would probably be considered case
2 report data.
3 Q. What case report data was it based
4 on?
5 A. Based on the experience in Lorain.
6 Q. Of which cases?
7 A. They were observing CBD in workers,
8 and they were observing CBD in some of the
9 community. That's considered case report data.
10 Q. I'd like you to assume that
11 beryllium actually causes chronic beryllium disease
12 at less than 2 micrograms per cubic meter on an
13 eight-hour time-weighted average basis in
14 approximately 10 percent of the exposed population.
15 A. After how many days of exposure like
16 that?
17 Q. I'm not concerned whether it's one
18 day or 100 days or 1,000 days for the purposes of my
19 question. I'd like you to assume that exposure to
20 beryllium causes CBD in 10 percent of the exposed
21 population who is exposed below 2 micrograms per
22 cubic meter on an eight-hour time-weighted average.
23 If that were true, is it your opinion that the
24 standard should be revised?
25 A. It would take a long answer to answer

1 that question as you presented it.
2 Q. Fine. Let's hear it.
3 A. If I was to assume that one day's
4 exposure to 2 micrograms per cubic meter of
5 beryllium total, beryllium of any form, caused 10
6 percent of those exposed to get CBD sometime later,
7 and if that number of people exposed was
8 statistically relevant, and assuming that was a
9 relatively random sampling of the population, not
10 somehow people we knew were genetically predisposed
11 to developing CBD, then I would say the standard
12 certainly would require revision.
13 Q. And it would require revision --
14 A. And by "standard" we're referring to
15 the current standard of 2 micrograms per cubic
16 meter, eight hours a day, 220 days a year for 40
17 years.
18 Q. What do you consider to be a
19 statistically relevant percentage of exposed workers
20 which should trigger a change in the standard?
21 A. For what chemical?
22 Q. The same scenario we're talking
23 about. You mentioned statistically relevant. I
24 asked you about 10 percent. You said statistically
25 relevant. I'm asking you: What do you mean by

1 that?
2 MR. NOVA: If you understand, answer it. If
3 you don't, tell him so.
4 THE WITNESS: Mr. Metzger, are you
5 referring to beryllium and the scenario we just
6 discussed?
7 BY MR. METZGER:
8 Q. Yes, exactly.
9 A. Surely if you had 100 employees that
10 were exposed and ten of them after one day's
11 exposure got CBD, I would think that would probably
12 require changing the standard for sure.
13 Q. Where do you draw the line for
14 statistically relevant in this context?
15 MR. NOVA: Objection; vague.
16 THE WITNESS: I draw the line as to what in
17 my professional judgment or the judgment of others
18 like me would be considered the sample size too
19 small upon which to render an opinion.
20 BY MR. METZGER:
21 Q. Is there a standard that you are
22 aware of in occupational health or if it's used by
23 OSHA in determining how many cases of diseases
24 should be allowed before a standard is tightened up?
25 A. That question makes no sense.

1 MR. NOVA: Then --
2 THE WITNESS: I'm going to go to the
3 bathroom.
4 MR. METZGER: We'll take a break.
5 THE WITNESS: Okay.
6 (A recess was taken.)
7 BY MR. METZGER:
8 Q. My question, Dr. Paustenbach, is: In
9 setting the TLVs, does the ACGIH employ any standard
10 regarding what percentage of exposed workers
11 suffered an adverse outcome in determining a TLV for
12 a substance?
13 A. No.
14 Q. Are you aware of a standard that is
15 applied by governmental agencies with respect to
16 carcinogenic agents?
17 A. You'll have to ask the question a
18 different way.
19 Q. In determining allowable exposures to
20 carcinogens, do any governmental agencies employ a
21 risk factor; for example, that if one in 100,000 or
22 one in a million people are predicted to get cancer,
23 we're going to regulate that?
24 A. There are risk criteria that have
25 been suggested or are used by the five or six

1 agencies of the U.S. Government.
2 Q. And are you familiar with them?
3 A. Yes.
4 Q. And what are those criteria?
5 A. By agency?
6 Q. By agency or generally, however you'd
7 like to tell me.
8 A. Well, first, it is a nonfixed
9 guideline. Second, let's be sure we're referring
10 only to cancer.
11 Q. Yes.
12 A. Third, the guideline or guidance has
13 varied over the last 30 years. And fourth, the
14 guidance has lots of nonscience in the final
15 decision as to what's acceptable and not acceptable
16 risk.
17 Q. What are the numbers of all those
18 references?
19 A. EPA considers in most cases, but not
20 all, one in 1,000 increased theoretical risk, one in
21 1,000, to be something that requires action. At one
22 in 10,000 increased risk, EPA tends to -- I think it
23 requires evaluation for action. At one in 1,000
24 and/or one in a million, it is normally considered
25 diminimus risk, that is too small to warrant action.

1 MR. NOVA: So that's the EPA.
2 THE WITNESS: Yes, sir.
3 MR. NOVA: This is a rolling question. Next
4 agency.
5 THE WITNESS: If you go to OSHA, OSHA has
6 historically considered the acceptable cancer risk
7 of a lifetime exposure at their PEL to be always
8 acceptable at one in 1,000 and implicitly acceptable
9 at one in 100 increased lifetime risk. And it would
10 appear everything at one in 10,000 or greater to be
11 diminimus or insignificant.
12 The next agency --
13 BY MR. METZGER:
14 Q. Excuse me. What about below one in
15 100?
16 A. Greater than. Is that what you mean
17 by "lower"? The risk is greater than one in 100?
18 Q. Yes.
19 A. If the lifetime risk is greater than
20 one in 100, it normally is proposed for evaluation
21 for rule making.
22 Q. May I just stop you because you've
23 answered my question. I realize you could go on
24 with other agencies.
25 A. You're done with the question?

1 Q. Yes.
2 A. Okay.
3 Q. Now, I'd like you to assume that over
4 a lifetime exposure, as OSHA defines lifetime
5 exposure and as you did earlier, 40 years, so many
6 days per year, eight hours per day, that at a
7 concentration of less than 2 micrograms per cubic
8 meter on an eight-hour time-weighted average for
9 beryllium causes CBD. Based on that assumption, do
10 you have an opinion as to whether the standard
11 should be revised?
12 A. I have personal views.
13 Q. I'm asking for an opinion as a
14 professional as opposed to your own personal
15 beliefs.
16 THE WITNESS: Could you read back the
17 question, please.
18 (Question read.)
19 THE WITNESS: In part the decision would
20 involve the definition of CBD. Currently, CBD is
21 defined in several different ways. But one
22 definition, the most common one, does not require
23 symptomatology. Therefore, my views about whether
24 or not the change would be necessary would involve a
25 stricter definition of CBD than what's normally

1 used.
2 BY MR. METZGER:
3 Q. Would you adopt an impairment-based
4 definition?
5 A. Are you asking me a question?
6 Q. I thought I did.
7 A. Would I suggest that an
8 impairment-based definition be used?
9 Q. Yes.
10 A. I think before one makes a decision
11 about how to change a guideline, you would want to
12 have both. You would want to have an
13 impairment-based CBD and then CBD based on whatever
14 indicator.
15 Q. Right. Okay. In other words,
16 something like a positive lymphocyte proliferation
17 test and impairment, not just sensitization?
18 A. Remember, some use 4 of 6 criteria.
19 Others require 5 of 6 criteria. There's just not
20 those two criteria that you mentioned.
21 Q. I understand. Now, with those
22 additional parameters, under the hypothetical that I
23 posed, should the standard be changed?
24 THE WITNESS: And you wouldn't mind reading
25 back that hypothetical, would you, Lyn.

1 (Question reread.)

2 THE WITNESS: I can't answer the question
3 that you've posed that way.

4 MR. METZGER: Let me rephrase it, then.

5 Q. Taking the definition of CBD as to
6 mean a positive finding of sensitization and some
7 physical impairment due to beryllium exposure, if a
8 person is exposed to beryllium at less than 2
9 micrograms per cubic meter on an eight-hour
10 time-weighted average over a lifetime as defined by
11 OSHA and as you've described it, should the standard
12 be changed?

13 A. That question can't be answered as
14 presented. You know, just for sake of the
15 afternoon, the reason it can't be answered that way
16 is we've already established this afternoon that we
17 don't know how important particle size is in
18 determining the likelihood of CBD. We don't know
19 what form of beryllium is relevant. We don't know
20 how much of the response is given by individual
21 genetic susceptibility. We don't know whether or
22 not there can be sensitization through oral intake,
23 which then makes the person more susceptible. We're
24 not quite sure of the role of dermal contact and its
25 ability to sensitize. We're not sure of the

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1 importance or possible importance of peak
2 exposures -- significant peak exposures to sensitize
3 and, therefore, change the timing of the disease or
4 the dose-response curve.

5 So it makes that question and so many
6 of the others you have asked the last couple hours
7 not fair to me and not fair to anybody else that
8 reads this transcript.

9 So, you know, let's not play with one
10 another any more this afternoon. Let's get right
11 down to what my opinions are and what you want to
12 know because I'm not going to answer any of these
13 broad questions.

14 Q. Let me ask you this: Is it your
15 opinion that all of the questions which you've just
16 answered need to be -- strike that.

17 Is it your opinion that all of the
18 questions which you have just posed need to be
19 answered before the standard should be changed?

20 A. I think it's very important to get a
21 handle on some of those questions before the
22 standard be changed. Otherwise, you could easily
23 change the standard and have no impact on disease.
24 In fact, I could describe a situation where disease
25 could easily go up if you mishandle setting the

1 standard improperly.

2 Q. Which questions, in your opinion,
3 need to be answered before the standard should be
4 changed?

5 A. Okay. There's no doubt we need to
6 understand if a particular form of beryllium is the
7 causative agent in CBD or if it is, in fact, only
8 one form of beryllium that's relevant. We need to
9 resolve that. Secondly, we need to determine what
10 particle size fraction, if any, is the driver with
11 respect to predicting the likelihood of CBD. Third,
12 we need to find out if CBD only occurs in people
13 that have the genetic predisposition. It's entirely
14 possible that only a certain kind of predisposed
15 person is going to get the disease. Those are the
16 three most important ones.

17 It's possible that the fourth one I'm
18 about to mention could end up being very important
19 as well, which is the ability to be sensitized
20 through one of several mechanisms, either dermal
21 contact, incidental oral uptake, or peak one-time or
22 two-time exposure.

23 Q. All right. And in your opinion,
24 although workers are developing CBD as the current
25 standard is being attempted to be complied with by

1 industry, all of these questions should be answered
2 before the standard is changed. Do I understand
3 that right?

4 A. No. I wouldn't --

5 MR. NOVA: You answered the question. He
6 doesn't understand it right. Wait for another
7 question.

8 THE WITNESS: Could you repeat the last two
9 sentences, please, the last exchange.

10 (Record read.)

11 MR. NOVA: There's no question pending.

12 BY MR. METZGER:

13 Q. In your opinion, Dr. Paustenbach, do
14 the questions which you've just posed need to be
15 answered before the standard should be changed, even
16 if it means that workers currently exposed to
17 beryllium in the occupational environment continue
18 to develop CBD?

19 A. I think I've answered that. I said
20 you don't have to answer all these questions. And
21 if your assumption is correct, that if the current
22 standard, even if complied with 100 percent of the
23 time, isn't providing the level of protection that
24 you want, it would be potentially foolhardy to make
25 a decision to lower the current guideline without

1 more understanding than we have today.

2 Q. Okay. Do the technological means
3 exist to prevent worker exposure to beryllium?

4 MR. NOVA: Objection; vague, overbroad.

5 THE WITNESS: I think it depends on what you
6 mean by the form of beryllium and the processing
7 step that you're referring to.

8 BY MR. METZGER:

9 Q. Do the technological means exist to
10 prevent a beryllium grinder from being exposed to
11 beryllium in doing his job?

12 A. I think so.

13 Q. And what such technological
14 mechanisms are there to do that?

15 A. You can use first-class glove boxes
16 with proper exceptional ventilation. You could use
17 robots. You could use some variation of those with
18 a person in a first-rate supplied air breathing
19 apparatus. There may even be ways to grind or mill
20 with a laser that would somehow minimize dust
21 levels. I think there's a number of technologies
22 that could be implemented.

23 Q. And if those technologies were
24 implemented and they were implemented successfully,
25 would that, in your opinion, be sufficient to

1 prevent CBD?
2 A. Well, you have to confirm the level
3 of control after you've implemented these control
4 measures, and we have to conclude that there aren't
5 such people that get CBD at incredibly low
6 concentrations.
7 Q. Is it your belief as a scientist
8 that the type of control measures that you've
9 described would likely reduce the prevalence of CBD
10 in beryllium-exposed workers?
11 A. Well, that would be true if I knew
12 what percent of the current at-risk employees were
13 involved in the kind of activity you're describing.
14 I don't know what percent of the population exposed
15 to beryllium has that kind of workday.
16 Q. Fair enough. Has Brush Wellman ever
17 recommended to any of its customers that they employ
18 the type of control methodologies that you've just
19 described?
20 A. Some of the controls that I described
21 have been recommended by Brush to its customers.
22 Q. Which of them?
23 MR. NOVA: Which customers or which control
24 measures?
25 BY MR. METZGER:

1 Q. Which control measures?

2 A. Well, I've seen publications that are
3 quite old, I believe even in the '50s, that talk
4 about use of glove boxes, high-velocity, low-volume
5 exhaust, exceptional respiratory protection,
6 et cetera. I don't recall the recommendation to
7 use robots.

8 Q. Which Brush Wellman publications are
9 you aware of that have recommended to its customers
10 that they use glove boxes when working with
11 beryllium?

12 A. Is this meant to be a segway to the
13 prior question, or is this a brand-new question?

14 Q. Well, apparently you have difficulty;
15 so let me restate it.

16 Can you identify for me any
17 Brush Wellman publications in which Brush Wellman
18 has recommended to its customers to whom it sells
19 beryllium for them to use that the customers should
20 have their workers do their jobs in glove boxes?

21 A. It's a different question than you
22 asked before. One was milling, and now it's working
23 with beryllium in glove boxes. All I can tell you
24 is that they have published papers and given
25 assistance to people wherein they describe these

1 general control measures. It's up to the actual
2 user to decide if they're applicable or pertinent to
3 the situation. Keep in mind some of the materials
4 have almost no beryllium in them; so it wouldn't
5 make much sense sometimes to apply these kind of
6 controls.

7 Q. Can you identify for me any document
8 in which Brush Wellman has recommended to its
9 customers that they have any of their workers use
10 glove boxes to prevent the occurrence of chronic
11 beryllium disease?

12 A. I don't know.

13 Q. Can you identify for me any
14 Brush Wellman document in which Brush Wellman has
15 recommended to any of its customers that they
16 provide a self-contained breathing apparatus to
17 their workers to prevent chronic beryllium disease?

18 A. I guess I'm awkward with the question
19 do I know of them ever recommending. Their MSDS
20 refers to the use, if not a recommended use, of
21 these control measures if they can't control the
22 exposures below 2. And all the way back into the
23 '50s, they have peer-reviewed articles which they
24 sent to, I guess, a number of their users, giving an
25 array of options available to them.

1 In the industrial hygiene community,
2 because we can't guess at all the potential uses and
3 users and products, all we can do and all we have
4 ever traditionally done is offer an array of options
5 they can choose from if they don't have what they
6 consider adequate control. So it's very hard to
7 answer those questions the way they're being
8 presented.

9 Q. Has Brush Wellman ever recommended to
10 any of its customers the use of total body
11 protection to prevent the occurrence of beryllium
12 disease in exposed workers?

13 A. I don't know.

14 Q. Has Brush Wellman ever had any of its
15 own workers in its own workplaces wear total body
16 protection to prevent CBD?

17 A. I don't think so.

18 Q. Has Brush Wellman ever had its
19 workers use glove boxes to prevent CBD?

20 A. Yes.

21 Q. In which operations?

22 A. There's a number of milling
23 operations at Elmore where they use glove boxes.

24 Q. Does that include grinding?

25 A. Yes.

1 Q. And since when has Brush Wellman
2 implemented the use of glove boxes at Elmore?
3 A. I don't know.
4 Q. How do you know that Brush Wellman is
5 having workers doing milling at Elmore use glove
6 boxes?
7 THE WITNESS: Can you repeat that.
8 (Question read.)
9 THE WITNESS: I saw that.
10 BY MR. METZGER:
11 Q. You took a tour of the site?
12 A. Yes.
13 Q. When?
14 A. I've taken two or three over the last
15 year.
16 Q. What sites have you visited?
17 A. Only Elmore and their headquarters.
18 Q. If Brush Wellman is having its own
19 workers doing milling do that job using glove boxes,
20 do you believe that Brush Wellman should be telling
21 its customers who do milling that they should be
22 doing likewise?
23 A. I think they should be doing what
24 I've said two or three times now. The tradition in
25 the business is to --

1 Q. Would you please answer my question.
2 MR. NOVA: Oh, wait a minute. You allow him
3 to finish his answers, or we're walking out of here.
4 MR. METZGER: Oh, my.
5 MR. NOVA: Do you understand?
6 MR. METZGER: Oh, my. The pointed finger
7 right at my face.
8 MR. NOVA: And you can record that for the
9 record. You will allow the witness to finish his
10 answers.
11 MR. METZGER: For the record, it appeared to
12 me that he was not being responsive. But if you
13 want him to make his statement before he answers the
14 question, that's fine.
15 Q. Proceed, Dr. Paustenbach. And if I
16 interrupted you, I do apologize.
17 MR. NOVA: With no sincerity whatsoever, the
18 record might reflect.
19 (Question read.)
20 THE WITNESS: The tradition in the business
21 is to share with the scientific community and your
22 suppliers techniques that you use to protect your
23 own employees. And typically you tell your
24 suppliers that if you find that you can't control
25 exposures to the current TLV or the current PEL,

1 then you might want to choose one of these options
2 to reduce exposures, and I think that's the
3 appropriate thing to do.
4 BY MR. METZGER:
5 Q. Do you know whether Brush Wellman has
6 told Rockwell that or Boeing that?
7 MR. NOVA: Object; compound.
8 THE WITNESS: I don't know what
9 correspondence that Brush Wellman had with Rockwell
10 or its predecessor or its descendants.
11 BY MR. METZGER:
12 Q. You've mentioned that there are
13 certain questions which you believe should be
14 answered before the standard should be changed.
15 A. (Nods head up and down.)
16 Q. Could you give me a time estimate for
17 how long you believe it would take researchers
18 funded by Brush Wellman to answer those questions?
19 A. I think it's directly dependent on
20 how much time -- well, a significant decision maker
21 would be the amount of resources you could put on
22 it.
23 Q. What amount of resources do you think
24 would need to be put on it to answer those
25 questions?

1 A. Substantial.
2 Q. How much?
3 A. What do you mean by "how much"? Are
4 we talking about money or people or time?
5 Q. Well, let's start with money. How
6 much?
7 A. To answer the question about the five
8 or six factors I mentioned to you, how much money
9 would it take to resolve them if they were
10 resolvable?
11 Q. Exactly.
12 A. Many millions.
13 Q. Approximately how many?
14 A. I would think between \$40- and
15 \$100 million.
16 Q. And is that a present value number?
17 A. Yes, sir.
18 Q. And would you tell me how long you
19 would anticipate this research would take to get the
20 answers that you want?
21 A. You kind of mischaracterized -- I
22 don't know if you mischaracterized it or not, but
23 the questions that I want answered I guess is a bit
24 strong. That the scientific community would
25 probably want answered?

1 Q. No. I'm not asking about the
2 scientific community because I don't think anyone
3 has appointed you to speak on behalf of the
4 scientific community in this case. You're rendering
5 your own opinions in this case.
6 MR. NOVA: Mr. Metzger, save the sarcasm and
7 insult, or this deposition is over.
8 MR. METZGER: Oh, I apologize, Mr. Nova.
9 Q. I'm just asking for your opinions for
10 what you want, because this is something that you
11 proposed.
12 THE WITNESS: Let's go back to where, I
13 attempted to answer his question about money.
14 (Record read.)
15 THE WITNESS: Mr. Metzger, what I'm
16 uncomfortable with here is the journey of the
17 questioning. Okay? I'm trying to give you an
18 honest answer about what a number of scientists --
19 I'm not speaking for them. I'll just say that
20 they've spoken for themselves in the literature that
21 I've shared with you today. A number of these
22 scientists and the Federal Government have said
23 these are important questions that deserve to be
24 resolved. Okay? And I attempted to answer that
25 broad question of yours as honestly as I could.

1 But then it took a turn as to what
2 does Dr. Paustenbach want, with the impression that
3 he had more information or had a special requirement
4 beyond that which the other scientists have in order
5 to resolve these questions that I put forward. I
6 don't want to give you the impression that I think
7 you have to answer definitively all these questions
8 before somebody needs to regulate beryllium
9 differently than they do today. I want you to
10 understand that we need to know more than we know
11 today.

12 If one was to try to understand those
13 questions, all of them, then I think you could spend
14 \$40- to \$100 million. I didn't say you had to have
15 them all done. I didn't say you had to spend all
16 \$40- to \$100 million before one could make an
17 informed decision.

18 BY MR. METZGER:

19 Q. I understand.

20 A. Now, that would probably give us -- I
21 would hope it would give us all the information we'd
22 need to make an informed decision about how to
23 regulate occupational exposure to beryllium. The
24 time frame over which that work would occur,
25 depending on how many pieces you want to understand

1 and can understand, could easily be four to ten
2 years.

3 Q. Okay. In your opinion, would any
4 epidemiologic studies need to be done to answer this
5 question?

6 A. I think epidemiologic studies today
7 could not in and of themselves answer many of these
8 questions. The exposure data are simply inadequate
9 to do that. And by "exposure" I don't mean the
10 number of samples. I mean the kind of data that's
11 been collected thus far.

12 Q. I understand. Could you tell me what
13 studies you would recommend to be done to answer the
14 questions that you've posed?

15 THE WITNESS: Counsel, is this within the
16 purview of this deposition?

17 MR. NOVA: He's paying for your time; so
18 it's enough within the purview.

19 THE WITNESS: So be it.

20 (Question read.)

21 THE WITNESS: To get a handle on the
22 question regarding which chemical form of beryllium
23 might be most important, one would look at the
24 various facilities that both manufacture and handle
25 each of the various forms. You would attempt to

1 find those that have exclusive exposure to one
2 form. You would characterize that chemically in the
3 air.
4 You would then measure the exposures
5 of the workers using both point source and area
6 sampling as well as personal lapel sampling. And as
7 best you could, you would try to reconstruct
8 exposure historically to understand a lifetime of
9 exposure to that form and, of course, the dose.
10 Then, assuming that the numbers of people are
11 adequate or, failing that, you could find other
12 cohorts with exclusive exposure to that form, you
13 could then conduct an epi study.
14 I don't know if enough data are
15 available today to do such a study in a satisfactory
16 way, but it's possible. You could, to help you
17 understand the importance of form, also do a series
18 of different in vitro and in vivo studies.
19 BY MR. METZGER:
20 Q. May I interrupt you briefly? Before
21 we get to the in vivo and in vitro studies, I'd like
22 to ask you a few things about the epi study that you
23 just mentioned. May I do that?
24 A. It's okay with me.
25 Q. What type of epi study would you

1 recommend? A prospective cohort study? What are
2 you talking about?

3 A. This is a researcher's wish list with
4 lots of money available is the way I'm answering the
5 question. You would do -- if you deemed that time
6 was important, then you would focus first on a
7 retrospective epi study, assuming that there's
8 enough people and they've been exposed for long
9 enough that you can understand the disease pattern.
10 You would look at both sensitization and pulmonary
11 function tests to make your decision if you didn't
12 have available clinical CBD information. If you
13 wished, you might choose to go forward and do a
14 prospective study on that cohort.

15 Q. All right. Let me ask a foundational
16 question. Do you have an opinion as to what the
17 range of the latency period is for CBD?

18 A. I can only tell you what's been
19 reported by the various physicians.

20 Q. What do you understand that to be?

21 A. Well, dependable numbers seem to be
22 as short as one year and as long as 30 or 40 years.

23 Q. With that variable latency period,
24 how many years do you envision the epi study, a
25 prospective study, would have to run to yield

1 statistically significant results?

2 A. It depends on the work fours because
3 none of them just started today. Opinions on that
4 have been offered by other researchers that have
5 already looked at existing cohorts. Some cohorts
6 you could probably get a good handle on where
7 they're at within the next ten years.

8 Q. In doing this study, do you believe
9 that you could include in the exposed group workers
10 who have at any time in the past been exposed above
11 2 micrograms on an eight-hour time-weighted average?

12 A. You'd include everybody. If they've
13 been exposed to 2 or more or 2 or less, it doesn't
14 make any difference.

15 Q. If you include in the exposed group
16 that you're following those who have at some point
17 in time been exposed to more than 2 micrograms per
18 eight-hour time-weighted average, how can you
19 determine when they develop CBD whether their CBD
20 was caused by those exposures or whether they were
21 caused by later exposures?

22 A. You do that through evaluating
23 different dosimetrics.

24 Q. Do you have an estimation as to how
25 many workers would have to be included in such an

1 epidemiologic study to achieve statistically
2 significant results?

3 A. It depends on the incidence and the
4 degree of exposure. Those two things dictate the
5 size of the population. If you have a small cohort
6 with really high exposure and a high incidence of
7 disease, it doesn't take a very big cohort.

8 Q. Do you have any estimation as to how
9 long such a prospective cohort study would have to
10 run?

11 A. I've answered that question. I
12 said --

13 MR. NOVA: Answer it again.

14 THE WITNESS: What I said was it depends on
15 how many years they have already been exposed. And
16 if that's already been for 30 years, you might be
17 able to answer the prospective piece of the study in
18 ten years. If you want a purely prospective study,
19 then, of course, again, it would depend on their
20 current dose; but assuming that they were only
21 exposed at the current PEL, that could very well be
22 a 40-year or 50-year study.

23 BY MR. METZGER:

24 Q. Okay. All right.

25 MR. NOVA: We need to take our lunch break

1 at some convenient stopping point.
2 THE WITNESS: Is it appropriate to ask you
3 how long you think this could go?
4 BY MR. METZGER:
5 Q. Absolutely. I think I'm almost done;
6 so if you want to push through, I think we could
7 push through.
8 A. I'd love to push through. Are you
9 thinking you'll be about done by 3:00, maybe?
10 Q. What time is it now?
11 A. 2:30.
12 Q. Oh, certainly.
13 A. In that case, can we take a
14 one-minute break?
15 Q. Of course.
16 (A recess was taken.)
17 BY MR. METZGER:
18 Q. I had asked you to tell me what
19 studies need to be done. What I'd like to do, if
20 it's agreeable with you so you can try to catch your
21 flight, Dr. Paustenbach, if you could just rattle
22 them off, generally the type of study. For example,
23 you mentioned in vitro, in vivo studies. Just tell
24 me generically all the different types of studies,
25 and that may be all I need to know.

1 A. Okay. On form, there may be some
2 in vitro and in vivo studies that could be done.
3 You know, the history of beryllium is that neither
4 of those studies tends to be very insightful just
5 because of the nature of the disease. But it's
6 possible that there have been some improvements
7 lately that we might get some insight on form and
8 toxicity from these kind of laboratory studies.

9 The next piece of form information is
10 morphology; so that would be the second category of
11 studies. This is the shape coupled with chemical
12 form. Some people believe that beryllium might be
13 acting like some of the other particles in that it
14 causes toxicity only when it's in a particular
15 shape. That's generally laboratory work to define
16 it, then coupled with field work to see if it's
17 there, and then coupled with epidemiology work to
18 see if there's a relationship between dose, form,
19 shape, and disease.

20 The third category would then be
21 particle size. This is probably the hardest
22 research to conduct. One would sample the workplace
23 air using cascade impactors or similar devices that
24 would allow you to understand very fine particles as
25 well as those up to five microns in size. The very

1 fine particles can be smaller than .01 microns in
2 diameter.

3 Here again, you would try to relate
4 that which is found in the workplace and that which
5 is found in the breathing zone with the chemical
6 process that's nearest the worker for the area
7 sample, and then you'd couple that with information
8 about disease. You can do that prospectively, only
9 prospectively coupled with an update, or you can
10 just do a pure prospective study.

11 The fourth kind of research would
12 involve genetic screening. Here you would have to
13 decide if you have a proper genetic marker for
14 predicting susceptibility to beryllium. There are a
15 number of markers out there that people have
16 suggested might work, and that research would simply
17 be ramped up. You would apply it to current
18 employees and, also, to new hires and then track the
19 new hires prospectively. Then you would probably,
20 after you understood the susceptibles in the current
21 population, look retrospectively to see what their
22 exposure has been and to see if they have some form
23 of disease today.

24 The next piece of research would
25 involve the importance of incidental uptake.

1 Normally we mean incidental uptake via the mouth;
2 that is, oral ingestion. That research is very
3 complicated and difficult to conduct and difficult
4 to interpret, but such research could be done.

5 The sixth category of research would
6 involve dermal contact and its role. Again,
7 difficult to conduct, difficult to interpret, but
8 might be significant.

9 The seventh area of research, then,
10 is finding a good biological monitor. This could be
11 urinary biological monitor, it could be a blood
12 monitor, it could be a component of the blood, it
13 could be a sputum sample, perhaps, but some 'sort of
14 biological monitor that tells you about either
15 exposure or response to exposure.

16 So I think that's the main lines of
17 research that one would want to conduct, each one
18 having an epi component. Of course on top of that
19 you could have just separate retrospective
20 epidemiology studies.

21 Q. Dr. Paustenbach, assuming that all of
22 the studies that you have just identified were done
23 as you believe they should be done, all the funding
24 and all the time and personnel that that would
25 entail, do you have an opinion as to what the

1 likelihood is that those studies would yield
2 sufficient information upon which to determine a
3 standard according to the criteria that you believe
4 are necessary?
5 A. Of course. Assuming that work was
6 conducted?
7 Q. Yes.
8 A. You'd have more information than we
9 usually have to set standards; so of course it would
10 be ample.
11 Q. What is the likelihood that such
12 studies would yield information which you believe
13 could be used to develop a standard? Do you believe
14 it's 100 percent?
15 A. Of course.
16 Q. Okay. Have you ever seen a document
17 which is a report of a medical meeting at Luckey,
18 Ohio, dated March 20 and 21 of 1951?
19 A. I'd have to see it physically.
20 MR. METZGER: It's been marked -- I'm not
21 going to attach these to the deposition, Peter, but
22 they are being identified with our exhibit numbers.
23 MR. NOVA: That means you produced them?
24 MR. METZGER: Yes. You've been provided
25 copies with these numbers on them. We've marked it

1 as Exhibit 7675. My question is --
2 MR. NOVA: If he's going to be asking you
3 questions about it, we'll mark it.
4 BY MR. METZGER:
5 Q. My question is: Have you ever seen
6 that document before?
7 A. (Witness peruses document.)
8 I'm not sure.
9 Q. You don't recall seeing it before?
10 A. That isn't what I said. I said I'm
11 just not sure. I don't recall. I don't recall if I
12 have or I haven't.
13 Q. Is it fair to say that your opinions
14 in this case are not based in any way on that
15 document?
16 A. I've said nothing today that reflects
17 anything I've read in this document.
18 Q. You will not be rendering any
19 opinions that are based on this document. Is that
20 correct?
21 A. I didn't say that. I think generally
22 people are allowed to render opinions as more
23 information is provided in the case.
24 Q. This isn't new information. It's
25 been around since 1951.

1 A. But if it's new to me, and I think
2 it's important to the case, and you ask me questions
3 about it in court, I think I'm allowed to testify
4 about it.
5 MR. NOVA: He's also allowed to testify
6 about what your experts say; so if they're going to
7 have some opinion about that document, he's going to
8 be testifying about it.
9 MR. METZGER: I doubt it, but we can all
10 have our opinions on that.
11 Q. My next question is: Have you seen
12 this document which is dated -- this document which
13 has been marked Exhibit 7676.
14 A. (Witness peruses document.)
15 MR. NOVA: We are going to need to mark
16 these as exhibits to this deposition.
17 MR. METZGER: All right. We'll copy them
18 and attach them.
19 MR. NOVA: Okay. The one that we talked
20 about, 3/21/51, is going to be next in order, which
21 is 42.
22 (A copy of the aforementioned
23 document, consisting of 28 pages, was
24 marked by the court reporter as
25 Plaintiffs' Exhibit+ 42 for identification;

1 bound separately.)
2 MR. NOVA: The document labeled "St. Clair
3 OnSite Box No. 128" will be 43.
4 (A copy of the aforementioned
5 document, consisting of six pages, was
6 marked by the court reporter as
7 Plaintiffs' Exhibit+ 43 for identification;
8 bound separately.)
9 BY MR. METZGER:
10 Q. Have you ever seen it before?
11 A. I don't recall having seen it.
12 Q. Thank you.
13 A. By the way, the document is not
14 complete.
15 Q. Thank you very much. Have you ever
16 seen any documents authored by a Dr. DeNardi? I'm
17 showing you Exhibit 7616. Have you seen that
18 before?
19 A. (Witness peruses document.)
20 I believe I have.
21 MR. NOVA: That document will be Exhibit 44
22 to this deposition.
23 (A copy of the aforementioned
24 document, consisting of two pages, was
25 marked by the court reporter as

1 Plaintiffs' Exhibit+ 44 for identification;
2 bound separately.)
3 BY MR. METZGER:
4 Q. Are any of your opinions in this case
5 based upon this document?
6 A. Yes.
7 Q. When did you see this document?
8 A. As I said, I believe I've seen it. I
9 do remember having read, if not in this document or
10 a similar document, the belief that in that time
11 frame, which I believe is the early '60s, middle
12 '60s, that it had been proposed that there may not
13 be a safe level of exposure for those that are
14 considered genetically susceptible.
15 Q. And do you agree with that opinion?
16 A. I think that's an overly broad
17 statement to say that no dose would be acceptable.
18 Q. Do you have any --
19 A. And it's illogical, too.
20 Q. Do you have any scientific evidence
21 which you believe establishes that there is a dose
22 which is safe?
23 MR. NOVA: Objection; vague, overbroad.
24 THE WITNESS: By what route and in what
25 situation?

1 BY MR. METZGER:
2 Q. Well, I believe we can refer to the
3 respiratory route. I don't care what the situation
4 is. Is there a dose which you believe is safe to be
5 inhaled of beryllium?
6 MR. NOVA: Objection; vague, overbroad.
7 THE WITNESS: Of course.
8 BY MR. METZGER:
9 Q. What is the dose?
10 A. We've been through this before. It's
11 been generally thought that for most people, if the
12 concentrations were kept below 2 micrograms +per
13 cubic meter during a working lifetime, that
14 certainly for those that aren't genetically
15 susceptible it was expected to be safe.
16 Q. All right. Do you believe that that
17 is a safe dose today?
18 A. As I said before, we don't know
19 enough to be able to answer that question today.
20 Q. All right. Can you give me any dose
21 that you believe today has been proven to be safe?
22 MR. NOVA: Objection; asked and answered.
23 THE WITNESS: I will repeat it. We've
24 generally thought, using classic industrial hygiene
25 and occupational health criteria, that unless you

1 were genetically susceptible, the chances were quite
2 high that you would not contract CBD if the
3 concentrations were kept below 2 micrograms per
4 cubic meter total beryllium. In spite of the fact I
5 don't think that's a great dosimetric, that's what
6 the data thus far and the belief in the industrial
7 hygiene community -- that's what it was.

8 BY MR. METZGER:

9 Q. I'm not asking you what has
10 historically been believed, and I'm not asking you
11 what the scientific community believes. I'm not
12 asking you any of those things.

13 What I'm asking you is: Are you able
14 to identify for me a dose of beryllium that you
15 believe is safe for persons who are genetically
16 susceptible to developing CBD?

17 A. I can't identify that dose today.

18 Q. I'm showing you what has been marked
19 as Exhibit 7620, and I'll ask you if you've ever
20 seen that document before.

21 MR. NOVA: That will be Exhibit 45 to this
22 deposition.

23 (A copy of the aforementioned
24 document, consisting of two pages, was
25 marked by the court reporter as

1 Plaintiffs' Exhibit+ 45 for identification;
2 bound separately.)
3 THE WITNESS: (Peruses document.)
4 I don't recall seeing it.
5 BY MR. METZGER:
6 Q. Thank you. I'm showing you what has
7 been marked as Exhibit 7621, which will be
8 Exhibit 46 to this deposition, and I'll ask you if
9 you've ever seen that before.
10 (A copy of the aforementioned
11 document, consisting of two pages, was
12 marked by the court reporter as
13 Plaintiffs' Exhibit+ 46 for identification;
14 bound separately.)
15 THE WITNESS: (Peruses document.)
16 I have seen it.
17 BY MR. METZGER:
18 Q. Are any of your opinions in this case
19 based in any way on that document?
20 A. My opinions in this case have
21 considered the correspondence that I am aware of
22 from Dr. Shima.
23 Q. That's not what I asked you. Are any
24 of your opinions in this case based on that
25 document?

1 MR. NOVA: Based on the two blank pieces of
2 paper as opposed to the text. I think that's what
3 he's saying.
4 MR. METZGER: No, Peter. My question is
5 what I'm asking you.
6 Q. Are any of your opinions --
7 MR. NOVA: I don't understand it; so I don't
8 want you answering a question that I don't even
9 understand.
10 MR. METZGER: Your objection is noted.
11 Q. My question is: Are any of your
12 opinions in this case based in any way on this
13 document? And I don't mean the paper. I mean the
14 contents of the document.
15 MR. NOVA: Asked and answered.
16 THE WITNESS: I read the letter, and I've
17 read the correspondence about Shima, and it's
18 incorporated in the opinions I've offered today.
19 BY MR. METZGER:
20 Q. So the answer is yes, is it?
21 A. I guess it's yes, based on what I've
22 said.
23 Q. That's all I'm asking. I'm showing
24 you what has been marked as Exhibit 7588. Have you
25 seen this document before?

1 A. Yes.
2 MR. NOVA: That's Exhibit 47 to this
3 deposition.
4 (A copy of the aforementioned
5 document, consisting of 26 pages, was
6 marked by the court reporter as
7 Plaintiffs' Exhibit+ 47 for identification;
8 bound separately.)
9 BY MR. METZGER:
10 Q. Are any of your opinions in this
11 case?
12 A. For sake of the record, the title is
13 "Beryllium Poisoning and Healthcare by S. Shima from
14 the Sangyo Igaku Journal 3(5), 14-22 (1980)."
15 Q. Are any of your opinions in this case
16 based on this document?
17 A. My opinions have incorporated what's
18 in that document.
19 Q. Are there any other documents that
20 you have based your opinions on in this case that
21 you haven't brought with you?
22 MR. NOVA: Is that an indication that he was
23 required to bring that document with him?
24 MR. METZGER: If it is a Brush Wellman
25 document that he's basing his opinions on, yes, he

1 was required to bring it to this deposition.

2 MR. NOVA: Are you implying that a document
3 written by Shima in a medical article in Japan is a
4 Brush Wellman document?

5 MR. METZGER: No, I'm not. I'm implying
6 that any documents on which he's basing his opinions
7 in this case do need to be brought to the deposition
8 and have been requested.

9 MR. NOVA: You brought them.

10 THE WITNESS: Mr. Metzger, maybe it's a
11 matter of lack of good communication. I told you at
12 the beginning what my opinions were. Okay?, I
13 shared the documents. Then you asked me a whole
14 series of questions outside that. We spent most of
15 the day on things that weren't related to that. Now
16 you're accusing me of not having shared all the
17 documents on the new issues that you've raised this
18 afternoon. That's the problem.

19 MR. NOVA: I can assure you that
20 Judge Watson will not believe that you have
21 deliberately withheld documents. I will assure you
22 that he will conclude the contrary; that the
23 tricksterism that Mr. Metzger is attempting to
24 perpetrate here in the document requests will not be
25 substantiated; so I don't want you to be worrying

1 about that.
2 BY MR. METZGER:
3 Q. Okay. Have you ever seen any
4 documents authored by Mr. Zenczak, Z-e-n-c-z-a-k?
5 MR. NOVA: The question is: Have you ever
6 seen any documents authored by him? You can answer
7 it off the top of your head. If you don't know,
8 tell him.
9 THE WITNESS: I'm not sure. It's very
10 similar in name to the man that wrote a lot about
11 ventilation control within the Brush Wellman
12 company.
13 BY MR. METZGER:
14 Q. Have you seen any data regarding
15 Autonetics?
16 A. I don't recall.
17 Q. All right. Have you spoken with
18 any other experts that have been engaged by
19 Brush Wellman in this case?
20 A. No.
21 Q. Have you completed all your work to
22 render your opinions in this case?
23 A. I've completed the work that I've
24 been asked to perform.
25 Q. Is there any literature upon which

1 you base your opinion that until recently the 2
2 microgram standard was generally considered to be
3 protective other than that which you brought with
4 you and which has been marked as exhibits today?
5 A. I don't think so.
6 Q. Are there any documents or
7 literature, other than that which you brought with
8 you and have been marked as exhibits today, upon
9 which you base your opinion that the currently
10 available information does not allow you to identify
11 a better occupational exposure limit than the 2
12 microgram standard?
13 A. Yes.
14 Q. What documents are those?
15 A. Those are the documents prepared by
16 the various authors that presented at the 1999 ACGIH
17 symposium.
18 Q. Anything else?
19 A. Yes.
20 Q. What else?
21 A. The article by Wambaugh that was
22 published earlier this year. W-a-m-b-a-u-g-h, I
23 believe.
24 Q. What article is that?
25 A. I don't recall the journal that it

1 was in. I think it was "Applied Occupational and
2 Environmental Hygiene."
3 Q. What was the subject?
4 A. Proposed occupational exposure limit
5 for beryllium.
6 Q. Are there any other articles upon
7 which you are basing your second opinion that you
8 haven't brought with you today?
9 MR. NOVA: I'm going to object.
10 Mischaracterizes the entire conduct of this
11 deposition.
12 THE WITNESS: And I don't need to say any
13 more. Is that right?
14 MR. NOVA: No.
15 BY MR. METZGER:
16 Q. Doctor?
17 MR. NOVA: He's not allowed to think,
18 Mr. Metzger?
19 MR. METZGER: I thought he interpreted you
20 as he didn't have to answer the question.
21 MR. NOVA: I think he interpreted the
22 opposite.
23 THE WITNESS: I have peer-reviewed some
24 papers for journals that, if accepted, may influence
25 my opinion.

1 BY MR. METZGER:
2 Q. What papers are these?
3 A. I can't disclose those. It's a
4 matter of professional courtesy. You can't do that.
5 Q. If you can't disclose them, you can't
6 rely on them for your opinions in this case.
7 A. I didn't say --
8 MR. NOVA: Wait for a question, please.
9 It's getting late, I know, but you need to wait for
10 a question that you understand.
11 BY MR. METZGER:
12 Q. Dr. Paustenbach, are you willing to
13 disclose those papers or not?
14 A. No.
15 MR. METZGER: Mr. Nova, may I have your
16 agreement that he will not be relying on these
17 papers for his opinions in this case?
18 MR. NOVA: This is Dr. Paustenbach's
19 deposition. It's not the time for agreements
20 between counsel. We can discuss that at a later
21 time.
22 MR. METZGER: Very well.
23 Q. Who are the authors of these studies?
24 A. I can't disclose that.
25 Q. What are the subjects --

1 MR. NOVA: Mr. Metzger is professing shock,
2 but you don't need to interpret the shock in how you
3 answer the question.
4 BY MR. METZGER:
5 Q. What are the subjects of these
6 studies?
7 A. I didn't say they were studies. I
8 said they were papers.
9 Q. What are the subjects of these
10 papers?
11 A. They talk about beryllium.
12 Q. What aspects of it?
13 A. Mr. Metzger, I am not going to
14 disclose anything about those papers. There's a
15 rich legal and professional history about not having
16 to disclose papers that one is reading that are in
17 review.
18 Q. Okay. How many such papers are
19 there?
20 A. Where?
21 Q. That you are presently reviewing for
22 publication.
23 A. Two.
24 Q. And for which journal are you
25 reviewing them?

1 A. I can't share that with you.
2 Q. You can't even tell me what journal?
3 MR. NOVA: Mr. Metzger is professing
4 disbelief and shock again, but don't allow that to
5 influence your answers. Mr. Metzger is disbelieving
6 and shocked often, as you can tell.
7 THE WITNESS: I can't tell you what
8 journal.
9 BY MR. METZGER:
10 Q. Are there any other papers or
11 articles or documents upon which you are basing any
12 of your opinions in this case other than those that
13 you have brought with you and have been marked as
14 exhibits and other than those that you just
15 identified?
16 A. Not to the best of my recollection.
17 Q. Have you told me all of your opinions
18 in this case?
19 A. I've answered your questions as
20 honestly and as completely as I know how.
21 Q. That's not what I've asked you. Have
22 you told me all of your opinions that you have
23 formed in this case?
24 A. I think I've covered the vast
25 majority of the opinions that I would have for this

1 case.

2 Q. Have you told me all of the opinions
3 that you have formed for this case?

4 A. Let me be clear. I'm not trying to
5 be evasive. I've not had anyone come to this point
6 in the deposition and ask that after having walked
7 through the many areas that we walked through. To
8 the best of my knowledge, given what I've been asked
9 to provide in the way of information in this case,
10 I've shared my opinions with you.

11 Q. In that case, we're done.

12 A. Thank you.

13 Q. Same stipulation from yesterday,
14 only that the court reporter will forward the
15 transcript to Dr. Paustenbach instead of yesterday's
16 witness?

17 MR. NOVA: Yes. That stipulation is fine.
18 Although I have reconsidered the documents and am
19 not willing to leave Dr. Paustenbach's originals
20 here with the assumption that your staff will
21 somehow mark on other copies of the documents and
22 attempt to duplicate the markings. I don't think
23 that that's a sufficiently reliable practice; so we
24 need to come to some agreement about the documents.

25 THE WITNESS: There's also doubles in

1 there --
2 MR. NOVA: I'm not concerned --
3 THE WITNESS: -- and stickies and all that
4 stuff.
5 MR. NOVA: Right. That's also part of the
6 problem.
7 MR. METZGER: Okay. What I'd like to do is
8 obtain copies of these, and what I proposed earlier
9 is since it is Sunday, and I don't have staff here
10 today, that my staff tomorrow morning begin copying
11 these and reproduce the highlightings and then that
12 I would bring you the originals to return to
13 Dr. Paustenbach at our next meeting, which I believe
14 is on Wednesday, I believe.
15 MR. NOVA: What your staff does with the
16 documents after they're copied we have no interest
17 in. So the documents can be left with the court
18 reporter and copied in the manner that the court
19 reporter normally does such things.
20 MR. METZGER: Well, then, all the documents
21 will be just left with the court reporter in her
22 custody.
23 MR. NOVA: Absolutely, as opposed to your
24 custody.
25 MR. METZGER: Sure.

1 (Discussion held off the record.)
2 MR. NOVA: Anything that is not marked as an
3 exhibit is not staying here.
4 MR. METZGER: Then we'll have to mark the
5 rest of those as exhibits. The only reason I want
6 those others is they have highlighting, and I want
7 to have a complete set of copies with highlighting.
8 There were some doubles that did not have any
9 highlighting, and those I returned to you. So if
10 you want, we'll just mark --
11 THE WITNESS: No. That's not true. That's
12 the problem. I don't know why you kept both sets.
13 MR. METZGER: We'll just have to mark the
14 doubles as exhibits. Fine.
15 THE WITNESS: That doesn't make sense.
16 MR. NOVA: Sure, it does. We have could
17 have a complete record of what they are.
18 THE WITNESS: Okay.
19 MR. METZGER: All right. There was a
20 double, so to speak, of Eisenbud's "The Standard for
21 Control of Chronic Beryllium Disease" with
22 highlighting on it. That will be the next exhibit,
23 which is 48. So this will be Exhibit 48.
24 (A copy of the aforementioned
25 document, consisting of seven pages, was

1 marked by the court reporter as
2 Plaintiffs' Exhibit+ 48 for identification;
3 bound separately.)
4 MR. METZGER: What I'd like to do regarding
5 your article is give you back the one which doesn't
6 have the highlighting and mark the one which does
7 have the highlighting as Exhibit 4. Is that
8 agreeable, Peter?
9 MR. NOVA: Yes.
10 MR. METZGER: All right. The copy of
11 Stokinger's piece in Patty's Volume II which has
12 highlighting on it will be Exhibit 49.
13 (A copy of the aforementioned
14 document, consisting of ten pages, was
15 marked by the court reporter as
16 Plaintiffs' Exhibit+ 49 for identification;
17 bound separately.)
18 BY MR. METZGER:
19 Q. Dr. Paustenbach, I'll just return
20 this one to you from Kreiss.
21 A. That's fine.
22 Q. A copy of the Kreiss article
23 "Machining Risk" which has highlighting on it will
24 be Exhibit 50. That's it. Okay?
25

1 (A copy of the aforementioned
2 document, consisting of ten pages, was
3 marked by the court reporter as
4 Plaintiffs' Exhibit+ 50 for identification;
5 bound separately.)
6 MR. METZGER: Same stipulation as yesterday,
7 other than the court reporter will forward the
8 transcript to Dr. Paustenbach rather than to
9 yesterday's witness?
10 MR. NOVA: Yes.
11 (It was stipulated that the court
12 reporter be relieved of her duties under
13 the Code and send the original transcript
14 to Dr. Paustenbach; that Dr. Paustenbach
15 will make any corrections on an errata
16 sheet, will forward a copy of the errata
17 sheet to both counsel, will sign the
18 transcript under penalty of perjury, and
19 will return it to Mr. Metzger; that if the
20 original transcript is not signed or is for
21 some reason lost, a certified copy may be
22 used with the full force and effect as the
23 original.)
24 (Proceedings concluded at 3:07 p.m.)
25 ***

DECLARATION

I hereby declare I am the deponent in the within matter; that I have read the foregoing deposition and know the contents thereof, and I declare that the same is true of my knowledge except as to the matters which are therein stated upon my information or belief, and as to those matters, I believe it to be true.

I declare under the penalties of perjury of the State of California that the foregoing is true and correct.

Executed this day of ,
2000, at , California.

Dennis James Paustenbach, Ph.D., DABT

