

FILED

12/07/2018

Ed Smith
CLERK OF THE SUPREME COURT
STATE OF MONTANA

Case Number: AC 17-0694

Exhibit D

IN THE ASBESTOS CLAIMS COURT

IN RE ASBESTOS LITIGATION, Cause No. AC-17-0694
 Consolidated Cases. THIS DOCUMENT RELATES TO
 Ralph Hutt v. Maryland Casualty
 Company, et al., Eighth Judicial
 District Court,
 Cause No. DDV-18-0175

DEPOSITION OF TERRY SPEAR, PH.D.

Taken at:

Nordhagen Court Reporting
 1734 Harrison Avenue
 Butte, Montana
 November 2, 2018
 9:30 a.m.

1 APPEARING TELEPHONICALLY:
 2 STEVEN T. WILLIAMS
 3 Attorney at Law
 4 Knight NiCastro, LLC
 5 401 North 31st Street, Suite 770
 6 Billings, Montana 59101
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

1 APPEARANCES OF COUNSEL:

2 FOR THE PLAINTIFF RALPH HUTT:

3 DUSTIN LEFRIDGE
 4 Attorney at Law
 5 McGARVEY HEBERLING SULLIVAN & LACEY
 6 345 First Avenue East
 7 Kalispell, Montana 59901
 8
 9

10 FOR THE DEFENDANT MARYLAND CASUALTY COMPANY:

11 EDWARD J. LONGOSZ, II, pro hac vice
 12 Attorney at Law
 13 ECKERT SEAMANS CHERIN & MERLLOTT, LLC
 14 1717 Pennsylvania Avenue, NW
 15 12th Floor
 16 Washington, D.C. 20006
 17
 18
 19

20 JOE SEIFERT
 21 Attorney at Law
 22 KELLER LAW FIRM, P.C.
 23 P.O. Box 598
 24 Helena, Montana 59624-0598
 25

1 INDEX

2 WITNESS:

Page:

3 TERRY SPEAR, Ph.D.

4 Examination by Mr. Longosz 5
 5 Examination by Mr. Leftridge 200
 6 Examination by Mr. Longosz 210
 7
 8
 9

10 E X H I B I T S

11 PAGE DESCRIPTION

12 211 Dr. Spear's flash drive
 13 (Exhibit number to be applied)
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

Page 5

1 TERRY SPEAR, PH.D.
 2 FRIDAY, NOVEMBER 2, 2018; BUTTE, MONTANA
 3 ---
 4 BE IT REMEMBERED THAT, pursuant to Notice, the
 5 Deposition of Terry Spear, Ph.D., was taken at the time
 6 and place and with the appearances of counsel hereinbefore
 7 noted before Candice L. Nordhagen, Court Reporter - Notary
 8 Public for the State of Montana.
 9 It was further stipulated and agreed by and between
 10 counsel for the respective parties that this deposition
 11 was taken pursuant to the Montana Rules of Civil
 12 Procedure.
 13
 14 The following proceedings were had:
 15
 16 TERRY SPEAR, Ph.D.,
 17 having been called as a witness by the
 18 Defendant, being first duly sworn, was
 19 examined and testified as follows:
 20
 21 EXAMINATION
 22 BY MR. LONGOSZ:
 23 Q. Good morning, Dr. Spear. Could you please
 24 state your name for the record and give us your address so
 25 we have it on the record?

Page 6

1 A. My name is Terry Spear, and my permanent
 2 address is 110 South Hauser, H-A-U-S-E-R. That's in
 3 Anaconda, Montana.
 4 (Telephonic interruption - Steve Williams has
 5 left the conference.)
 6 MR. LONGOSZ: I guess he'll join us back
 7 whenever.
 8 Q. (By Mr. Longosz) Okay. Dr. Spear, my name's
 9 Ed Longosz. I represent Maryland Casualty Company in the
 10 Hutt lawsuit.
 11 It's my understanding you've been identified as the
 12 an expert to give opinions with respect to Maryland
 13 Casualty to the Hutt lawsuit; is that correct?
 14 A. Yes.
 15 Q. You've been deposed before, I presume?
 16 A. Yes.
 17 Q. A couple times?
 18 A. A few times.
 19 (Telephonic interruption - Steve Williams has
 20 joined the conference.)
 21 Q. (By Mr. Longosz) What's "a few"?
 22 A. I don't know how many. Less than a hundred,
 23 maybe, I don't know.
 24 Q. More than 50?
 25 A. Probably. I don't know. I don't add them up.

Page 7

1 Q. In connection with those depositions, have you
 2 ever been deposed or given opinions directed at Maryland
 3 Casualty?
 4 A. Other than the affidavit in the Girard case,
 5 that's the only one that comes to mind.
 6 Q. And the Girard case affidavit you're referring
 7 to is the bankruptcy court affidavit; is that correct?
 8 A. Yes.
 9 Q. And that was many years ago, at least ten
 10 years ago?
 11 A. I think the early 2000s, if I remember right.
 12 Q. Other than that, have you given any testimony
 13 or any opinions directed at Maryland Casualty?
 14 A. Not that I believe, no.
 15 Q. The times that you've been deposed, were they
 16 related to what occurred in Libby, Montana?
 17 A. Yes, there and elsewhere.
 18 Q. Okay. Have you been deposed in any cases not
 19 involving W.R. Grace and the Libby Mine?
 20 A. Yes.
 21 Q. What other types of cases have you given
 22 testimony in other than the Libby cases?
 23 A. Oh, I don't know. I've been involved quite a
 24 bit with, I guess I'd call them, "asbestos product cases";
 25 I've been involved in nonasbestos cases. It's a long

Page 8

1 list.
 2 Q. Have you compiled a list like the Federal
 3 Court requires a list? Have you compiled any type of list
 4 of cases in which you've been either deposed or given
 5 courtroom testimony?
 6 A. I have, yes.
 7 Q. And if we make a request of Counsel, could you
 8 provide that without too much hassle?
 9 A. Sure.
 10 Q. Okay. What was the nature of your testimony
 11 in those cases? Were you testifying, for example, were
 12 you testifying as an industrial hygienist?
 13 A. Yes.
 14 Q. Okay. Is that the only area in which you were
 15 testifying or have you gone outside of that area to
 16 testify?
 17 A. No, regarding asbestos, it's just been as an
 18 industrial hygienist.
 19 Q. Nonasbestos cases, have you testified in areas
 20 other than asbestos?
 21 A. Oh, I've testified in like construction
 22 accidents and things like that.
 23 Q. Okay. In those types of cases, have you
 24 testified as an industrial hygienist?
 25 A. Well, as a safety and health professional, I

Pages 5 to 8

Page 9

1 guess is the way I'd phrase it.
 2 Q. Are you an OSHA expert?
 3 A. I don't know what an "OSHA expert" is.
 4 Q. Do you know what OSHA is?
 5 A. I know what OSHA is.
 6 Q. Okay. Have you ever qualified as an expert in
 7 OSHA?
 8 A. I don't know.
 9 Q. Have you ever given opinions with respect to
 10 OSHA?
 11 A. Yeah, probably many times.
 12 Q. Okay. And have you been retained and provided
 13 courtroom testimony as an expert on OSHA?
 14 A. Well, I believe I've given courtroom testimony
 15 in cases related to accidents that involve standards and
 16 different things like that of OSHA, sure.
 17 Q. Okay. Now, OSHA is not applicable to the Hutt
 18 case; is that correct?
 19 A. Well, I wouldn't agree with that totally, no.
 20 Q. Okay. Well, what year did OSHA come into
 21 existence?
 22 A. 1970-71.
 23 Q. Okay. And what year was Mr. Hutt working at
 24 the W.R. Grace facility?
 25 A. In '68 and '69.

Page 10

1 Q. Okay. So OSHA came into existence after
 2 Mr. Hutt was working in the W.R. Grace facility; is that
 3 correct?
 4 A. Yes.
 5 Q. Is it going to be your testimony that OSHA
 6 applies to the Hutt case?
 7 A. Well, OSHA applies to, you know, workplace
 8 standards when it went into effect in the early '70s, and
 9 Maryland Casualty was still insuring W.R. Grace, you know,
 10 into the 1972-73 time frame.
 11 Q. But OSHA would not apply to Maryland Casualty
 12 in the '68 to '69 time frame because OSHA didn't come into
 13 existence then; is that correct?
 14 A. Yes.
 15 Q. So you cannot render any opinions in this case
 16 that Maryland Casualty violated any OSHA standards in 1968
 17 and '69; is that correct?
 18 A. Well, again, the standards that came into play
 19 in the 1971-72 time frame of OSHA, they required that we
 20 inform workers, monitor workers that are potentially
 21 exposed to asbestos, and we provide training and education
 22 and change of clothes, and different things like that. So
 23 in that time frame, that's what applied.
 24 Q. In the '70s?
 25 A. Yeah, after OSHA went into effect.

Page 11

1 Q. Okay. Well, none of the OSHA standards
 2 applied in 1968 and '69; is that correct?
 3 A. No.
 4 Q. No, it's not correct or it is correct?
 5 A. No, OSHA wasn't in existence in '69.
 6 Q. Now, OSHA was directed at the employer,
 7 correct?
 8 A. Yes.
 9 Q. OSHA was not directed at anybody that was not
 10 an employer, correct?
 11 A. No, it had employer responsibilities, worker
 12 responsibilities, so, yeah, employer.
 13 Q. And your understanding in this case is that
 14 Maryland Casualty was not the employer, correct?
 15 A. They were the insurer, yes.
 16 Q. They were only the insurer. They were not the
 17 employer, correct?
 18 A. Correct.
 19 Q. Okay. Have you ever worked for an insurance
 20 company?
 21 A. I have not.
 22 Q. Have you ever provided advice to an insurance
 23 company?
 24 A. I don't believe so.
 25 Q. Have you ever constructed an industrial

Page 12

1 hygiene program on behalf of an insurance company for an
 2 employer?
 3 A. No.
 4 Q. Have you constructed an industrial hygiene
 5 program for an employer?
 6 A. Well, yes, I was an industrial hygienist for
 7 EG&G Idaho, so I certainly constructed an industrial
 8 hygiene program and did all the things industrial
 9 hygienists do, sure.
 10 Q. So who were you an industrial hygienist for?
 11 I didn't catch the name.
 12 A. It was a company called "EG&G Idaho,
 13 Incorporated." And I don't know what EG&G is. It stands
 14 for three names that I can't pronounce.
 15 Q. When were you employed by -- EEG?
 16 A. EG&G.
 17 Q. EG&G. We could give a funky acronym for it,
 18 couldn't we? What did they call themselves?
 19 A. I don't know. It was referred to as "EG&G,
 20 Incorporated."
 21 Q. Okay, EG&G.
 22 A. (Nodding head affirmatively.)
 23 Q. When were you employed by EG&G?
 24 A. It would have been '80 to '83, I think, in
 25 that time frame.

Pages 9 to 12

Page 13

1 Q. Okay. And what did EG&G do? What was its
2 manufacturing process?
3 A. Well, at that time, they were the prime
4 contractor for the Idaho National Engineering Laboratory
5 near Idaho Falls, Idaho. So, you know, they oversaw the
6 work at the Idaho National Lab.
7 Q. So they were not a manufacturer of any
8 product?
9 A. I don't know what they did outside of the
10 Idaho National Lab. They very well could have been. I
11 don't know what they did. But at the National Lab, they
12 basically oversaw the contract, and then DOE is the
13 oversight, and just to comply with all of the safety and
14 health regulations, environmental regulations.
15 Q. So what was their business? You said oversaw
16 it. Explain to me, if I walked in and I asked you for the
17 Reader's Digest of what they do, explain it to me.
18 A. Well, they basically -- they held the contract
19 to make sure that the proper facilities were provided to
20 the employees at the Idaho National Lab, including the
21 professional staff. And, again, DOE was kind of the
22 overseer of these National Labs.
23 Q. Okay.
24 A. So they basically had to respond to DOE in
25 terms of how they were conducting the business at the

Page 15

1 Q. So have you ever been employed by a
2 manufacturing facility to provide any type of industrial
3 hygiene program?
4 A. Well, yeah, in the late '70s, I worked for a
5 short time, a summer, at the Anaconda copper smelter in
6 Anaconda as an industrial hygienist.
7 Q. You said you worked there summers?
8 A. It was a summer before I went off to graduate
9 school.
10 Q. So it was after you received -- your
11 undergraduate degree was in biology, or something?
12 A. Yeah, I received my undergraduate degree in
13 microbiology. And then after I was out of school for a
14 couple years, then I came back to school at Montana Tech
15 and I spent a year taking courses in the occupational
16 safety and health degree program in the late '70s.
17 Q. So during the summer in the '70s, did you put
18 together any type of industrial hygiene safety program for
19 Anaconda Copper?
20 A. At that time, I don't believe I had input into
21 the program. I basically went out and had seen what the
22 workplace was and what they were doing and if they were
23 complying with the appropriate safety and health
24 standards.
25 Q. And the appropriate safety and health

Page 14

1 Idaho National Lab.
2 Q. So what does the Idaho National Lab do?
3 A. Well, basically, it's a nuclear research
4 facility. So at one time, that's where they trained all
5 the naval submarine operators. They had nuclear reactors,
6 research reactors, and they would run tests on reactors
7 and different things like that.
8 Q. Did you put together an industrial hygiene and
9 safety plan for this Industrial National Lab?
10 A. Yeah, when I went to work at the lab, you were
11 assigned to an area. I was assigned to what was called
12 "test reactor area," so that was my responsibility to look
13 at the industrial hygiene at that lab at the test reactor
14 area.
15 Q. And in that connection, since it was in 1980
16 to '83, you would have been primarily following or you
17 would have been following OSHA standards; is that correct?
18 A. Well, that's a good question. Since it was a
19 government facility operated by DOE, it was mainly the DOE
20 that we were responding to.
21 Q. Well, did you use OSHA standards or not in
22 connection with your work?
23 A. Oh, yeah, we used OSHA standards.
24 Q. Okay.
25 A. We used lots of different standards.

Page 16

1 standards at that time was OSHA, correct?
2 A. Yes, in part. Again, we rely on consensus and
3 OSHA standards.
4 Q. But the workplace in the 1970s was driven by
5 OSHA, and OSHA was the standard that had to be followed by
6 employers on behalf of employees, correct?
7 A. Yes.
8 Q. Just to close the loop here, can you think of
9 any other times when you were called upon by any
10 manufacturing facility, mining facility or otherwise, like
11 a W.R. Grace, to provide industrial hygiene advice or put
12 together a program for them?
13 A. Yeah, I provided industrial hygiene services
14 to, well, for example, the foundry in Anaconda, AFFCO
15 foundry; the local mine here, Montana Resources, we work
16 with them and help them, you know, basically do industrial
17 hygiene; I've done some consulting on the side, non
18 litigation where I've consulted for construction
19 companies, other mining companies, different things like
20 that.
21 Q. Okay. You said you provided services for the
22 foundry. When was that?
23 A. Oh, it's been ongoing for years. I'm still
24 doing it.
25 Q. And what's the nature of that work?

Page 17

1 A. Well, basically, going out there and helping
 2 them conduct sampling for different materials, whether it
 3 be silica, manganese, different metals; helping them write
 4 programs; helping them devise their personal protective
 5 program, respirators, things like that.
 6 Q. When did you start doing that for the foundry?
 7 A. That's a good question. It probably was, I'm
 8 guessing, sometime in the mid '80 time frame, maybe.
 9 Q. Did you provide that service by contract?
 10 A. No, it was pretty much pro bono work. You
 11 know, they hire our students. We had student internships,
 12 they'd work out there. We've had students do graduate
 13 research projects out there. So it's mainly working with
 14 them through our students, and also working with them
 15 without students. But I've never charged them a fee. I
 16 think they've donated to the Montana Tech Foundation for
 17 our work.
 18 Q. Was there any type of scope of work that was
 19 devised for you to help the foundry? Did you have a scope
 20 of work of what their expectations were?
 21 A. It depended on what they needed done. If they
 22 needed some monitoring, we would do that. If they needed
 23 help on their program for respirators or their safety
 24 program or health program, we would do that.
 25 Q. Did they utilize --

Page 18

1 A. We helped them devise some educational
 2 programs for their employees, yeah.
 3 Q. And that's all driven by OSHA, correct?
 4 1980s, it's driven by OSHA?
 5 A. Well, OSHA would have been part of what we
 6 tried to comply with, yes.
 7 Q. Did they have a safety individual?
 8 A. No.
 9 Q. Okay.
 10 A. Well, they had a consultant who would come in
 11 every so often, but they never had a permanent, full-time
 12 safety person there that I'm aware of.
 13 Q. And you know that W.R. Grace had a full-time
 14 safety person in the 1960s; is that correct?
 15 A. No, I'd just seen the records where they
 16 recommended, Maryland Casualty recommended that they hire
 17 a full-time safety persons. That was in '79 -- or that
 18 was in '71.
 19 Q. So are you telling me today under oath that
 20 you didn't see any records to indicate that W.R. Grace had
 21 a full-time safety person?
 22 A. They might have had a corporate guy back in
 23 Cambridge.
 24 Q. Well, what's your understanding of who
 25 Mr. Kostic is?

Page 19

1 A. I don't know what his safety responsibilities
 2 were.
 3 Q. What's your understanding of his title?
 4 A. I don't know.
 5 Q. How long have you been kind of looking at the
 6 W.R. Grace literature and looking at all the records and
 7 studying W.R. Grace's operation?
 8 A. Over 20 years.
 9 Q. In the 20 years you've been doing it, you
 10 don't know what Mr. Kostic does or doesn't do at the mine
 11 during the 1960s?
 12 A. I know he's designed, he's tried to help
 13 design their controls and work with their ventilation.
 14 Yeah, I've read all the different things he did, the test
 15 on the stacks and things like that, sure.
 16 Q. And he was their safety person, wasn't he,
 17 in-house?
 18 A. I guess.
 19 Q. You would agree with me, right, that he was
 20 their safety person, in-house safety person?
 21 A. I guess I never saw it described that way, but
 22 maybe he was.
 23 Q. What's your understanding of who Lovick was?
 24 A. He was a plant manager, I believe.
 25 Q. What do you know about him and his background?

Page 20

1 A. Well, I read all his depositions.
 2 Q. So what do those depositions tell you about
 3 Mr. Lovick?
 4 A. I don't remember what they tell me. I'd have
 5 to review his depositions. I haven't reviewed them for
 6 this case.
 7 Q. And you've read all of his depositions over
 8 the last 20 years; is that correct?
 9 A. I've read, I believe, every deposition he's
 10 given. I don't know, there may be some I missed. I don't
 11 know.
 12 Q. Did you review any Kostic depositions?
 13 A. I don't believe so.
 14 Q. Okay.
 15 A. Not that I remember.
 16 Q. Who was the plant manager during the 1960s at
 17 W.R. Grace?
 18 A. Bleich, I believe.
 19 Q. What do you know about Mr. Bleich?
 20 A. Well, I read his depositions, and I believe he
 21 was an engineer.
 22 Q. Do those depositions tell you anything about
 23 his experience with respect to the operation?
 24 A. I mean, I've read what he said in the
 25 different reports that W.R. Grace submitted or published,

Pages 17 to 20

Page 21

1 you know, their internal documents, where he would give
 2 summaries of dust conditions, and things like that, yeah.
 3 He's the one who said that he thinks they could get a "5
 4 count" in the town of Libby.
 5 Q. When did he say that?
 6 A. Pardon?
 7 Q. When did he say that?
 8 A. I think it would have been in the '69 time
 9 frame, if I remember right.
 10 Q. Actually talking about "5 count," what is it,
 11 ppm, parts per million, the 5 count you're talking about?
 12 A. No, it's million particles per cubic foot.
 13 Q. Okay. That 5 count in the town of Libby, you
 14 saw lots of documents that suggest that the people at
 15 W.R. Grace didn't want the 5 count in the plant; is that
 16 correct?
 17 MR. LEFTRIDGE: Objection; form, foundation.
 18 Q. (By Mr. Longosz) Did you see those documents?
 19 A. I don't ever -- I don't understand your
 20 question.
 21 Q. Okay. Have you seen documents where
 22 W.R. Grace subscribed to the 10 count recommended by the
 23 State of Montana in the Libby facility?
 24 A. Yeah, it was 10 count, 12 count, I mean,
 25 different recommendations based on the percentage of

Page 22

1 asbestos that Wake was recommending, sure.
 2 Q. Right. And, in fact, Maryland Casualty
 3 recommended a 5 count; is that correct?
 4 A. Yeah, part of Maryland Casualty explained to
 5 Kostic or one of the people, I forget the name, that the
 6 TLV of 5 million particles per cubic foot prohibited the
 7 consideration of mixtures of dust, so it's basically all
 8 dust. If it's asbestos containing, it's 5 million
 9 particles per cubic foot.
 10 And then he also said in one of his memos that they
 11 want to use the authoritative TLV, they don't want to
 12 devise their own from the insurance company. And then it
 13 turns out that they ended up using a higher million
 14 particle per cubic foot than the TLV.
 15 Q. So W.R. Grace rejected Maryland Casualty's
 16 recommendation; is that correct?
 17 A. I don't know if they rejected it. They
 18 referred them to what the State was saying, and then they
 19 asked Maryland Casualty to rely on what the State was
 20 saying. And so then Maryland Casualty agreed they would
 21 not refer to the 5 million particles per cubic foot again.
 22 Q. Well, actually, W.R. Grace said they weren't
 23 going to follow the 5 count that Maryland Casualty
 24 recommended; is that correct?
 25 There's ample documentation to show it. You've read

Page 23

1 it, right?
 2 MR. LEFTRIDGE: Objection; form and
 3 foundation.
 4 THE WITNESS: Yeah, I know that they were
 5 relying on Maryland Casualty to devise their dust control
 6 program. And then they knew they weren't going to, Grace
 7 knew they weren't going to be able to reach the 5 count,
 8 so then they apparently worked out something with Maryland
 9 Casualty where they would not use that TLV of 5 million
 10 particles per cubic foot.
 11 Q. (By Mr. Longosz) How do you know that they
 12 worked out something with Maryland Casualty?
 13 A. Because the documents say -- what do the
 14 documents say?
 15 Q. Show me the document. Show me the document
 16 that says that Maryland Casualty subscribed to anything
 17 greater than a 5 count and said that's okay. There's no
 18 document that says that, is there?
 19 A. That Maryland Casualty -- they did not
 20 recommend 5 million particles per cubic foot later on in
 21 their work there, no.
 22 Q. Have you read any Johns-Manville documents in
 23 connection with your review of this case?
 24 A. I've read the document where the Grace
 25 officials went over to the Johns-Manville facility, yes.

Page 24

1 Q. And where Johns-Manville came to the Grace
 2 facility?
 3 A. Yes.
 4 Q. Okay. And that was during that '68-'69 time
 5 frame, correct?
 6 A. Yes.
 7 Q. Okay. And Maryland Casualty was not invited
 8 to any of those meetings; is that correct?
 9 A. That, I don't know.
 10 Q. Well, you saw the documents. Maryland
 11 Casualty was not copied on any of the documents that came
 12 out of those meetings, correct?
 13 A. Yeah, I didn't see Maryland Casualty when they
 14 went to Lompoc, no.
 15 Q. And you didn't see Maryland Casualty being
 16 copied on the results of the Lompoc visit, correct?
 17 A. I don't know. I'd have to look and see who
 18 was copied on what. You know, I don't remember.
 19 Q. Well, if I were to tell you they weren't
 20 copied, you would agree with me, right?
 21 A. If you're saying so, I guess I'd have to agree
 22 with you. But like I say, I don't pay a great deal of
 23 attention to who's copied on what.
 24 Q. You don't care who's copied on what?
 25 A. Yeah, I care, but it's like I'm reading the

Pages 21 to 24

Page 25

1 report and I want to find out what the reports are saying.
 2 Q. Right. But isn't it important for people to
 3 be aware of what is going on in the facility so that they
 4 can give appropriate recommendations or advice?
 5 A. Sure.
 6 Q. And by the 1960s, 1968-69 time frame, W.R.
 7 Grace was, essentially, keeping Maryland Casualty out of
 8 loop and rejecting their advice and going to
 9 Johns-Manville and others for advice; is that right?
 10 MR. LEFTRIDGE: Objection; form, foundation.
 11 THE WITNESS: Yeah, I don't know if they were
 12 rejecting Maryland Casualty's advice or not. I believe
 13 that they were searching for a good way to control the
 14 dust and they weren't getting the advice from Maryland
 15 Casualty. That's how I interpret it.
 16 Q. (By Mr. Longosz) Right. So 1968 and '69 when
 17 Mr. Hutt was employed at this facility, they searched
 18 elsewhere and went to Johns-Manville for advice, right?
 19 A. They went to see what their plant was like
 20 over there in Lompoc, yeah.
 21 Q. And in looking at that, what did they learn
 22 about the Johns-Manville plant?
 23 A. They learned about how dust is controlled at
 24 the Johns-Manville plant, including ventilation and vacuum
 25 systems and personal cleaning and training, and different

Page 26

1 things like that. That's what they learned.
 2 Q. And did W.R. Grace in the 1968-69 time frame
 3 bring any of that learning back to Libby to utilize in
 4 connection with its operation?
 5 A. Well, they published in their internal
 6 documents, yeah, they talked about going to Lompoc:
 7 Here's how we control the dust.
 8 Q. But did they take that information and then
 9 apply it to the W.R. Grace facility?
 10 A. Well, they didn't apply vacuum systems, they
 11 didn't apply personal cleaning, they didn't do training,
 12 yeah.
 13 Q. And all of that as the employer is within
 14 their control to do; isn't that correct?
 15 A. Yes.
 16 Q. So did any of those visits to the
 17 Johns-Manville facility talk about warning signs or
 18 signage?
 19 A. They didn't talk about warning signs. They
 20 talked about education of the worker, training.
 21 Q. Okay. And do you know whether Johns-Manville
 22 at Lompoc was employing any signage for its workers?
 23 A. I don't know. I know Johns-Manville put their
 24 warning label on asbestos insulation in 1964. I don't
 25 know what signage they had at the Lompoc mill. It didn't

Page 27

1 mention it in the Grace report.
 2 Q. Did you do any research to understand what
 3 Johns-Manville had at the Lompoc mill in terms of signage?
 4 A. I did not. I just read the report.
 5 Q. Would you say the Lompoc mill was state of the
 6 art in that time frame?
 7 A. It was state of the art for dust control, yes.
 8 Q. Okay.
 9 A. And worker protection for the dust.
 10 Q. So the W.R. Grace individuals went to a
 11 state-of-the-art facility in 1968-69 and understood what
 12 state of the art was for controlling dust in a
 13 manufacturing facility; is that correct?
 14 A. Yes, they went to the Lompoc facility and
 15 looked at how they were controlling dust.
 16 Q. And with that, with that visit, it's your
 17 understanding that W.R. Grace ignored what was going on at
 18 Lompoc and did not apply that to Libby; is that correct?
 19 A. I don't know what they applied, like I say.
 20 Q. Let's go back to some of your background.
 21 Have you ever authored a safety plan for a manufacturing
 22 facility?
 23 A. Well, I believe I've already discussed
 24 devising safety plans for AFFCO and helping Montana
 25 Resources, and things like that, yeah.

Page 28

1 Q. But that's it, right?
 2 A. Yeah, Montana Tunnels over there by Basin, I
 3 did some consulting for them, looked at their program.
 4 Q. I'm not talking looking at their program, I'm
 5 talking about from the ground up developing and writing a
 6 safety plan for a manufacturing facility. Have you ever
 7 done that?
 8 A. No. My authorship of writing a program would
 9 have been at EG&G, which was not a manufacturing facility,
 10 I assume.
 11 Q. One question: You consider yourself an
 12 industrial hygienist, right?
 13 A. Yes.
 14 Q. Do you consider yourself a risk engineer?
 15 A. I'm not an engineer.
 16 Q. Okay. Do you consider yourself a
 17 loss-prevention specialist or engineer?
 18 A. No. My title is "industrial." That would be
 19 working as an industrial hygienist for my entire career.
 20 Q. Do you know the backgrounds of any of the
 21 Maryland Casualty individuals who participated in loss
 22 control services under the workers' compensation policy at
 23 the Libby facility?
 24 A. Well, my understanding in reading the
 25 documents is that Maryland Casualty had an accident

Pages 25 to 28

Page 29

1 prevention division, which Park was the head. And he just
2 gave descriptions of how he went to school under -- or
3 went to a class with this person under Harvard, or
4 something like that.

5 And then they also had the engineering section,
6 Smits, and the name of the other guy, I forget. And then
7 they had the inspectors, Walker and Baker. So they had a
8 team which would go to different facilities, including
9 Libby, to do their inspections and reports.

10 Q. Under the workers' compensation policy,
11 correct?

12 A. I assume, yeah.

13 Q. Okay. Do you know if any of those individuals
14 were industrial hygienists like yourself?

15 A. Well, Park was.

16 Q. Where did you see or read that Park was an
17 industrial hygienist?

18 A. It says right in -- can I refer to my report?

19 Q. Absolutely. Anytime you need to, you can
20 refer to your report, Dr. Spear.

21 A. This is back to front.

22 Q. Give us the page if you're going to refer to
23 it.

24 A. Well, on page 10 of my report, I refer to
25 Mr. Park, who was the supervisor, that he's the one most

Page 30

1 prominent in the Maryland Casualty documents. He was an
2 industrial hygienist. And I refer to Exhibits 66 and 42.

3 Q. And 66 and 42 are --

4 A. In the Spear exhibits.

5 Q. -- what we knew, previously knew as the Spear
6 exhibits. I know we're trying to put together a common
7 exhibit book, but I'll look at the Spear Exhibits 66 and
8 42.

9 It refers here that Larry Park was a supervisor. I
10 don't see where it says he's an industrial hygienist or
11 gives any background with respect to his education or
12 background in industrial hygiene or that he calls himself
13 out as an industrial hygienist.

14 A. Yeah, he's referring to the ACGIH and the
15 TLVs.

16 Q. Right.

17 A. "We have based our standards in regards to
18 dust in Libby."

19 Q. Based on that, right? But it doesn't say he's
20 an industrial hygienist, does it?

21 A. Let me read it, please. Yeah, I think what I
22 was referring to earlier was just: "I have had the
23 benefit of associating with Dr. Sayers of the Bureau of
24 Mines," the authority on asbestos.

25 So he was working with Anna, however you pronounce

Page 31

1 her name, Dr. Anna B-A-E-T-J-E-R, John Hopkins School of
2 Medicine.

3 (Quoted as read): "And having completed her
4 course in industrial hygiene at the University, it is
5 still my feeling that as engineering progresses, in our
6 country, these optimum standards will not only be met, but
7 possibly exceeded.

8 "In 1938, when I took the course under Dr." -
9 I won't pronounce her name - "many of the standards as
10 listed by ACGIH were the same as they are today, and very
11 few of them are being met industrially. Today, I am
12 gratified to see that many of them are not only being met
13 but exceeded.

14 "From attending local meetings of the American
15 Industrial Hygiene Association, Washington-Baltimore
16 Section, I can assure you that modern means of sampling
17 are conducive to even greater progress in future years."

18 Q. He talked to an industrial hygienist, but
19 you've seen nowhere in any of the documents where he's
20 holding himself out to be an industrial hygienist like
21 yourself; is that correct?

22 A. Well, I see he's referring to taking a course
23 in industrial hygiene --

24 Q. Sure.

25 A. -- and going to industrial hygiene

Page 32

1 conferences.

2 Q. Right.

3 A. I don't know. I didn't see his resume, so I
4 don't know.

5 Q. You haven't, okay, thank you.

6 Dr. Spear, now, are you a certified industrial
7 hygienist?

8 A. No.

9 Q. What is a certified industrial hygienist?

10 A. A certified industrial hygienist is someone
11 who has a four-year, I think, experience level working as
12 an industrial hygienist, and then sits for what's called
13 an "exam," a comprehensive exam.

14 Q. It's like we hear about doctors being board
15 certified is your certification in your profession; is
16 that correct?

17 A. It's a certification, yes.

18 Q. And you never took it upon yourself to become
19 certified?

20 A. No, I focused on obtaining my Ph.D. since I
21 was in academia.

22 Q. Well, if you wanted to be certified, you could
23 go do that tomorrow; is that correct?

24 A. I could.

25 Q. But you'd have to take a test and have to meet

Pages 29 to 32

Page 33

1 all the requirements of that profession, correct?

2 A. Yeah. You know, from '85 on, I've been

3 working primarily in aerosol research, so I kind of

4 focused on that, and I got less involved with other

5 aspects of industrial hygiene like physical hazards or

6 noise or things like that.

7 Q. Are you going to be providing opinions in this

8 case that discuss the standard of care of certified

9 industrial hygienists?

10 A. I'm going to be discussing the standards of

11 care in the field of industrial hygiene, yes.

12 Q. Are you aware of whether anybody at Maryland

13 Casualty who was providing loss prevention for the

14 company, for Maryland Casualty during the time frame, the

15 1960 time frame that we're talking about here, was a

16 certified industrial hygienist?

17 A. I don't know.

18 Q. Are you aware of anybody, any individuals at

19 Maryland Casualty who were either at the site or providing

20 input regarding any of the responses to any of the

21 programs at the site - the "site" being the Libby site -

22 was a certified industrial hygienist?

23 A. I never read any of that, I don't know.

24 Q. Are you aware of whether anybody at Maryland

25 Casualty held themselves out as an industrial hygienist?

Page 34

1 A. I never saw it in any of the records, no.

2 Q. Casualty have you ever performed

3 loss-prevention inspections or services for any

4 manufacturing facility?

5 A. Again, I performed industrial hygiene

6 services. I don't know however you phrase the word "loss

7 prevention." I'm an industrial hygienist.

8 Q. Do you know what loss-prevention services are?

9 A. Yeah, many of our students that have graduated

10 from Montana Tech go to work in the insurance industry,

11 sure, as loss prevention professionals.

12 Q. And you are not a loss-prevention

13 professional, correct?

14 A. I never went to work for an insurance company

15 as a loss-prevention professional, no.

16 Q. Okay. And you do not provide loss-prevention

17 services for any manufacturing facilities; is that

18 correct?

19 A. No, I provide industrial hygiene services.

20 Q. I understand you provide industrial hygiene

21 services. I'm asking about loss-prevention services. You

22 have never and don't provide loss-prevention services for

23 manufacturing facilities; is that correct?

24 A. Like I say, I've gone in, I make

25 recommendations, prescribe controls for industrial

Page 35

1 hazards. And, hopefully, that will reduce their losses.

2 But I don't know, I don't know if it's loss prevention or

3 not.

4 Q. Okay. And you've never provided

5 risk-engineering inspection or services for a

6 manufacturing facility; is that correct?

7 A. Do you want to define "risk engineering"?

8 Q. Well, do you know what that is?

9 A. Well, I certainly define -- I certainly go in

10 and establish risk and tell people how we can minimize or

11 eliminate that risk.

12 Q. Okay.

13 A. I'm not an engineer.

14 Q. Okay. So you view that as part of your

15 industrial hygiene background to go and identify risk and

16 give advice as to how to reduce that risk?

17 A. Sure.

18 Q. Okay. Do the people that you give that advice

19 to, the entities you give advice to, follow your advice

20 all the time?

21 A. Well, we make recommendations and then follow

22 up on those recommendations to see if they've complied.

23 Q. But it's up to them to either comply or not

24 comply and to follow your recommendations or not. You'd

25 agree with that, right?

Page 36

1 A. Well, generally, yeah. If we have an imminent

2 danger-danger situation, then if you're following the code

3 of ethics of industrial hygiene, then you have to make

4 sure you inform people of an imminent danger situation,

5 even though you have to maintain confidentiality of your

6 work.

7 Q. Again, that's the code of ethics of an

8 industrial hygienist, correct?

9 A. Right.

10 Q. But it's up to the employer to either follow

11 your recommendations or not; isn't that correct?

12 A. Yes.

13 Q. You have no statutory control or any control

14 to make that employer follow your recommendations,

15 correct?

16 A. No. You try to give them the most

17 comprehensive recommendation and explain why they're

18 necessary, and then expect them to comply, I guess.

19 Q. It's up to them to comply or not comply,

20 correct?

21 A. Generally, yes.

22 Q. Do you know whether cost factors come into

23 whether there's compliance or noncompliance with one's

24 recommendations?

25 A. I'm sure there are.

Page 37

1 Q. And that's on the employer to decide whether
 2 they want to spend the money to comply with those
 3 recommendations or not; is that correct?
 4 A. Right, but it doesn't cost a lot of money to
 5 put up a sign.
 6 Q. I don't believe my question asked about a
 7 sign, did it?
 8 A. Well, that's part of loss.
 9 Q. No, my question didn't ask about a sign, did
 10 it?
 11 A. No.
 12 Q. Okay. My question related to cost, and it is
 13 up to the employer as to whether they want to spend that
 14 money or not to follow a recommendation, correct?
 15 A. Yes.
 16 Q. Back in the 1968-69 time frame, what was
 17 Johns-Manville recommending with respect to signage at its
 18 manufacturing facilities?
 19 A. I never researched, I don't know that.
 20 Q. Have you researched to understand what any
 21 asbestos-manufacturing facility did in 1968 and '69 with
 22 respect to signage?
 23 A. Well, I know that Johns-Manville, as I already
 24 said, they had a warning on their insulation, which
 25 basically said: Asbestos dust, avoid breathing the dust;

Page 38

1 and if you cannot use ventilation, make sure you protect
 2 yourself.
 3 And then in the Morrell court decision, the Court
 4 ruled that that was -- they called it "black humor,"
 5 meaning that it was a joke, that it wasn't providing
 6 adequate warning. So in terms of their plants, I don't
 7 know, I just know about their product.
 8 Q. Well, I'm asking about plants. So you don't
 9 know about their plants?
 10 A. I don't.
 11 Q. And do you know about any plant,
 12 asbestos-manufacturing plant, that provided signage in the
 13 plant for its employees in the 1968-69 time frame?
 14 A. No, not as I sit here today, I couldn't come
 15 up with one.
 16 Q. So if the industry -- if you can't come up
 17 with anything that the industry is doing, what dictated to
 18 the industry the standard of care in 1968 and '69 for
 19 signage in manufacturing facilities,
 20 asbestos-manufacturing facilities?
 21 A. Well, I don't know about an
 22 asbestos-manufacturing facility, but any facility where
 23 you have dust --
 24 Q. My question is asbestos manufacturing. You
 25 don't know?

Page 39

1 A. I know what Westinghouse is talking about what
 2 they were doing for warning their employees in my report.
 3 Q. In 1968-69?
 4 A. Well, it was earlier than that.
 5 Q. But my question went to: Do you know what any
 6 asbestos-manufacturing facilities were doing in the
 7 1968-69 time period with respect to warning signs?
 8 A. Not in a plant on a product.
 9 Q. Have you ever put together guidelines and
 10 practices for an insurance company on how to perform
 11 risk-engineering inspections or loss-prevention
 12 inspections?
 13 A. For an insurance company?
 14 Q. Yes.
 15 A. No.
 16 Q. Have you ever reviewed any guidelines and
 17 practices for performing those inspections by insurance
 18 companies?
 19 A. I don't believe so.
 20 Q. Do you have any knowledge about the internal
 21 operating procedure of Maryland Casualty with respect to
 22 loss-prevention services under a workers' compensation
 23 policy in the 1960s?
 24 A. My knowledge would come from the reports, you
 25 know, and how they describe -- how they had their teams

Page 40

1 set up with Park the head, and then the engineers and the
 2 inspectors, and how they were going to design a
 3 comprehensive industrial hygiene program.
 4 MR. LONGOSZ: Could you read back the
 5 question, please?
 6 (The record was read by the court reporter as
 7 follows:
 8 "QUESTION: Do you have any knowledge about
 9 the internal operating procedure of Maryland Casualty with
 10 respect to loss-prevention services under a workers'
 11 compensation policy in the 1960s?")
 12 Q. (By Mr. Longosz) Can you answer that question?
 13 MR. LEFTRIDGE: Objection; asked and answered.
 14 THE WITNESS: Yeah, I mean, they talk about
 15 what they were going to do and what they were going to --
 16 they helped write a safety program or they wrote a safety
 17 program for W.R. Grace.
 18 Q. (By Mr. Longosz) Why do you interject "safety
 19 program"? I asked you whether you know about the internal
 20 operating procedures of how to go about doing loss
 21 control/risk prevention at Maryland Casualty. That was my
 22 question. Do you know that?
 23 A. Well, other than --
 24 Q. "Yes" or "no."
 25 A. Other than the fact that they talk about

Pages 37 to 40

Page 41

1 insuring against asbestosis, I don't know if there's a
 2 specific policy, no.
 3 Q. Have you reviewed the workers' compensation
 4 policy in this case?
 5 A. I've looked through the Hutt exhibits and read
 6 through the policy, yeah.
 7 Q. So you've reviewed the actual workers'
 8 compensation policy for this case?
 9 A. I believe it was in the very first part of the
 10 Hutt exhibits, I think. I'd have to go look and look at
 11 it.
 12 Q. What Hutt exhibits are you talking about?
 13 A. Just the list of what was called "Hutt." It
 14 was a PDF document and it just had -- it was numbered
 15 pages.
 16 Q. Bates numbers down at the bottom?
 17 A. Yeah.
 18 Q. Okay. In terms of the insurance policy, do
 19 you remember what it said with respect to any type of loss
 20 prevention, risk-engineering services, or inspections that
 21 were performed at W.R. Grace?
 22 MR. LEFTRIDGE: Objection; form.
 23 THE WITNESS: Yeah, I reviewed what they were
 24 going to -- they, basically, set up, devised a safety
 25 program. Then they did inspections three or four times a

Page 42

1 year. And then they left a copy of that report with W.R.
 2 Grace, and then they brought a copy back to their home
 3 office, and then they sent service letters relating to
 4 their recommendations. They had a time frame for Rupp - I
 5 think it was Rupp - some of these other guys to respond to
 6 those recommendations. That's how they handled the
 7 inspections.
 8 Q. Well, maybe I'll ask the question again. Do
 9 you recall what was defined in the insurance policy as to
 10 what the scope of the work and inspections was to be at
 11 the W.R. Grace facility?
 12 A. I don't remember.
 13 Q. Okay. And, certainly, what you just described
 14 was not described in the insurance policy as the scope of
 15 work for the inspections; is that correct?
 16 MR. LEFTRIDGE: Objection; form, foundation.
 17 THE WITNESS: Yeah, I don't know if I
 18 understand your question.
 19 Q. (By Mr. Longosz) Did you read the insurance
 20 policy?
 21 A. I looked through the insurance policy, yeah.
 22 Q. Did the insurance policy define the scope of
 23 work that was to be done with respect to inspections at
 24 the W.R. Grace facility?
 25 A. I'd have to review it again.

Page 43

1 Q. Do you recall whether it did or didn't?
 2 A. I'd have to review it again.
 3 Q. Did you take that in consideration in
 4 connection with the opinions you're giving here today as
 5 to what the scope of work of Maryland Casualty was at the
 6 site?
 7 A. I took into consideration what they were
 8 saying in their documents to Grace, and what they were
 9 going to do in terms of developing a comprehensive
 10 industrial hygiene program. That's what I considered.
 11 Q. Okay. So, really, the consideration for your
 12 opinions in this case is derived from that, what you call
 13 the "comprehensive safety plan"; is that right?
 14 A. No, what they called the "comprehensive safety
 15 program."
 16 Q. Well, does it say "comprehensive safety
 17 program"?
 18 A. It says "comprehensive industrial hygiene
 19 program," yes.
 20 Q. Okay. And that program was to be for all
 21 facilities or just Libby?
 22 A. No, it was for other facilities. They were
 23 looking at Wilder, Kentucky, and different places like
 24 that, sure.
 25 Q. Right.

Page 44

1 A. They were trying to get into look at South
 2 Carolina, or wherever the other facilities were. I don't
 3 remember all of them.
 4 Q. Have you seen any documentation that the plan
 5 was accepted and implemented by W.R. Grace?
 6 A. The safety program?
 7 Q. Yes, sir.
 8 A. Yes.
 9 Q. Please show me that documentation.
 10 A. I would have to review this whole thing.
 11 Yeah, there was an Exhibit 32 that shows agreement on the
 12 program that was dated November 2, 1964.
 13 Q. This is Exhibit No. 32, you said?
 14 A. Well, yeah, Exhibit 32 shows the agreement on
 15 the program.
 16 Q. Well, that's incorrect. Exhibit 32 says:
 17 "Last Friday, October 30, Mr. Gerlinger met with Mr. Rupp
 18 and Mr. MacArthur and it is my understanding came to final
 19 agreement on a format for the proposed Zonolite Division
 20 Safety Program."
 21 It didn't say the safety program was accepted, it
 22 didn't say it was going to be implemented. It was the
 23 format for the program.
 24 A. Yeah.
 25 Q. You're taking liberties with that, aren't you,

Pages 41 to 44

Page 45

1 sir?

2 A. No, sir.

3 Q. Well, read into the record what it says.

4 A. "Last Friday, October 30, Mr. Gerlinger met

5 with Mr. Rupp and Mr. MacArthur and it is my understanding

6 came to final agreement on a format for the proposed

7 Zonolite Division Safety Program. Mr. Gerlinger is now in

8 the process of preparing this program for submission to

9 your people in Baltimore. It should be in your hands by

10 the end of this week."

11 Q. Okay. So my question is: That's the format

12 of the program, it's not acceptance. There's no final

13 program and no acceptance of that program contained within

14 that letter; is that correct?

15 A. Yeah, this is the format.

16 Q. Okay. So show me the document which says that

17 that program was accepted and implemented by W.R. Grace.

18 A. Yeah, that's what I reference in my report was

19 that Exhibit 32.

20 Q. Okay. So you have seen no records and no

21 documentation that the program that you reference was

22 accepted and implemented by W.R. Grace; is that correct?

23 A. Well, it refers to Bates numbers, the next

24 numbers at the Bates stamp sequence after 31. Then it

25 says (quoted as read):

Page 46

1 "Grace implemented the Maryland Casualty

2 safety program and the documents show that in many

3 instances Grace cooperated with the program and their

4 recommendations."

5 Q. That's what you say in your report. What I'm

6 asking you is: Did you see any evidence in any of the

7 many records you reviewed and the 20 years of history you

8 have with the W.R. Grace facility where Grace specifically

9 accepted, finally accepted and implemented that program?

10 MR. LEFTRIDGE: Objection to form; asked and

11 answered.

12 THE WITNESS: Yeah, that's what I saw was this

13 agreement on the format. And then based on the

14 inspections they were doing, Grace was attempting to

15 follow their recommendations and they were cooperating,

16 etc., etc. There's lots of records pertaining to that.

17 Q. (By Mr. Longosz) But there's no record and

18 there's no document, you would agree with me, that shows

19 that W.R. Grace accepted and implemented the Maryland

20 Casualty proposed plan, correct?

21 MR. LEFTRIDGE: Objection; asked and answered.

22 THE WITNESS: Yeah, I mean, like I say, this

23 is what I relied on was the fact that they agreed to a

24 format, and then they went about trying to institute this

25 program. I guess I haven't seen this document you're

Page 47

1 referring to.

2 Q. (By Mr. Longosz) No one has seen it so that's

3 why I'm asking you.

4 A. All right.

5 Q. Okay. So, then, the second question from that

6 is: Can you show me documents where W.R. Grace

7 specifically refers to the following of this program?

8 A. Well, there's a document where Mr. Rupp is

9 talking to Nelson saying that Maryland Casualty is

10 formulating a program for dust control at the facility.

11 Q. Okay, formulating. So show me a document, if

12 it exists, to support your opinions that W.R. Grace and

13 Maryland Casualty were subscribing to a program.

14 A. Well, my opinion, based on reading the

15 documents --

16 Q. Not "opinion," I want fact. My question's

17 fact. I'm sorry to interrupt, but my question is fact.

18 MR. LEFTRIDGE: Excuse me, Mr. Longosz, please

19 offer the courtesy of Mr. Speare being able to answer.

20 MR. LONGOSZ: I will. I apologize.

21 Q. (By Mr. Longosz) Do you understand my

22 question?

23 A. Yes. I mean, reading the documents, my

24 opinion is that they formulated this plan, and then they

25 went through a series of inspections over the years and

Page 48

1 made recommendations to W.R. Grace.

2 Q. There is no document that exists after the

3 formulation of the plan that shows that the plan actually

4 went into existence for implementation; is that correct?

5 A. I don't know if there is or there isn't a

6 document like that.

7 Q. Okay. And you have not seen such a document?

8 A. I don't remember as I sit here today.

9 Q. And with respect to any of the inspections and

10 follow-up by Maryland Casualty, did you see Maryland

11 Casualty referring to any particular sections of this

12 proposed plan that were being followed?

13 A. Well, they were referring to dust control and

14 ventilation and cyclones and things like that.

15 Q. But they were not referring to a plan,

16 correct?

17 A. Well, they were referring to the fact that

18 they were trying to engineer the dust, like they say in

19 their documents.

20 Q. Again, there's no document that talks about

21 and refers to their inspections back to this proposed

22 plan, is there?

23 MR. LEFTRIDGE: Objection; form, asked and

24 answered.

25 THE WITNESS: Yeah, I don't think I saw when

Pages 45 to 48

Page 49

1 they referred back to the plan. They referred to
 2 recommendations as to what they should be doing.
 3 Q. (By Mr. Longosz) Okay. Now, with respect to
 4 this plan, I'm trying to understand just in sort of an
 5 encapsulated way the areas that you're testifying. I'm
 6 looking at the summary of opinions on page 4 of your
 7 report.
 8 A. Okay.
 9 Q. So is it correct to say that one opinion is
 10 that you take issue with the plan that was formulated, is
 11 that correct, proposed plan?
 12 A. Their safety program, yes.
 13 Q. And we'll tease out some specifics, but what
 14 is it in particular that you don't like about this
 15 proposed plan?
 16 A. Well, specifically, I mean, they knew at the
 17 time that dust, asbestos dust was the principal hazard and
 18 that workers were sick because of the exposure to
 19 asbestos. And, consequently, their safety program never
 20 mentioned "asbestos."
 21 It talked about training in housekeeping and
 22 something else, but it never really mentioned any training
 23 as to how to protect so that the workers could protect
 24 themselves from the dust. The respirator program was
 25 essentially nonexistent that I could see.

Page 50

1 Q. So I'm just trying to understand. What was
 2 not in the proposed plan? You're saying that the proposed
 3 plan did not mention "asbestos."
 4 A. Didn't mention "asbestos."
 5 Q. Okay. But it did mention "dust control"?
 6 A. Yes.
 7 Q. Okay. So it is your view that the plan should
 8 have mentioned "dust control" and should have had the
 9 magic word "asbestos" in it, the plan?
 10 A. That was the main hazard, yeah. It should
 11 have. "How do we control asbestos?"
 12 Q. Okay. But you would agree with me that as of
 13 the time of the proposed plan, W.R. Grace knew that there
 14 was asbestos in the dust.
 15 A. W.R. Grace knew and the State of Montana knew,
 16 and Maryland Casualty had those reports.
 17 Q. Did Maryland Casualty have those reports in
 18 1963 when it took over the risk?
 19 A. Well, they should have had them. I don't know
 20 if they had them or not. The reports were starting in '56
 21 and '59. I would hope that they would have had those
 22 reports by that time.
 23 Q. Let me clarify your answer here. Did you see
 24 any evidence that Maryland Casualty was provided with any
 25 of those reports in 1963 when it took over the workers'

Page 51

1 compensation?
 2 A. Well, they referred to the reports in their,
 3 some of their correspondence. I don't remember the dates
 4 when they did it.
 5 Q. Well, at any time while preparing this
 6 proposed plan, did Maryland Casualty have the benefit of
 7 the state reports?
 8 A. At any time?
 9 Q. While preparing the plan, the proposed plan in
 10 1963-64, did Maryland Casualty have the benefit of those
 11 state reports?
 12 A. I don't have specific information when they
 13 say the state reports. I would hope they'd have them
 14 initially, but -- (pause.)
 15 Q. And you would hope that W.R. Grace would have
 16 provided them to them, correct?
 17 A. Well, I'm sure that they could have gone to
 18 the State of Montana and got them themselves, but I don't
 19 know.
 20 Q. But you would have hoped that the employer,
 21 W.R. Grace, would have provided all the information it had
 22 to Maryland Casualty; is that correct?
 23 A. Well, they say in the Maryland Casualty
 24 documents that they were provided all the information they
 25 needed from Mr. Rupp to develop the safety program.

Page 52

1 That's what it says, so I assume that's the state reports.
 2 Q. Okay. So you don't know.
 3 A. It says they were provided all the information
 4 they need to develop the safety program.
 5 Q. And you don't know what "all" means. You
 6 don't know what information was provided to Maryland
 7 Casualty, do you?
 8 MR. LEFRIDGE: Objection; argumentative.
 9 Q. (By Mr. Longosz) "Yes" or "no"? You don't
 10 know, do you?
 11 A. Well, like I said, I mean, they were
 12 inspecting the sites. They knew.
 13 Q. Dr. Spear, my question is simple: Have you
 14 seen any evidence that Maryland Casualty was provided with
 15 the state reports in 1963 or '64 when it took over the
 16 workers' comp and started preparing this proposed draft
 17 safety plan?
 18 A. Well, the evidence I have is that they had the
 19 information they needed to put together this safety
 20 program.
 21 Q. And you don't know what information that was.
 22 A. Apparently, they knew what was going on at the
 23 Libby operations.
 24 Q. Do you know what information was provided to
 25 them?

Pages 49 to 52

Page 53

1 A. Specifically?
 2 Q. Right.
 3 A. No.
 4 Q. So just to be clear, you take issue with the
 5 fact that while "dust" and "dust control" was mentioned in
 6 this proposed plan, the word "asbestos" was not; is that
 7 correct?
 8 A. That's one of them, yes.
 9 Q. Okay. And you also acknowledged that W.R.
 10 Grace at the time of the proposed plan knew that asbestos
 11 was in the dust, correct?
 12 A. Yes.
 13 Q. So what's the second issue?
 14 A. Again, the training just talked about training
 15 associated with housekeeping. It didn't talk about
 16 training pertaining to really specific dust hazards.
 17 Again, it didn't prescribe respiratory protection that
 18 would have been adequate for sure.
 19 Q. So the plan talked about training, but in your
 20 view, it should have talked about -- part of that training
 21 should have been about dust hazards?
 22 A. Yes.
 23 Q. Do you know what training with respect to
 24 housekeeping was provided by W.R. Grace in the 1963-64-65
 25 time frame?

Page 54

1 A. That was provided by W.R. Grace?
 2 Q. Yes, sir.
 3 A. Other than the fact that they had poor
 4 housekeeping, apparently, they didn't provide any
 5 training.
 6 Q. Well, where do you derive the basis for that
 7 statement that they had no training?
 8 A. Well, because I saw no evidence that they did.
 9 Any of the workers I've talked to, No. 1, didn't receive
 10 any training in terms of asbestos or any other kinds of
 11 controls for dust. I've never talked to a worker yet who
 12 was trained on this stuff.
 13 Q. Have you made any inquiry with respect to W.R.
 14 Grace regarding what W.R. Grace provided in terms of
 15 training to its workers in the 1960s?
 16 A. That inquiry was interviewing workers and
 17 talking to them about their work and what they knew and
 18 how they were trained. Yeah, that's the inquiry I did.
 19 Q. Okay. Did you ever inquire of W.R. Grace
 20 regarding what their training program was for workers in
 21 the 1960s?
 22 A. Did I inquire of W.R. Grace?
 23 Q. Yes, sir.
 24 A. No, I never talked to W.R. Grace.
 25 Q. Okay. Did you ever look for or look at any

Page 55

1 W.R. Grace documents to understand what their training
 2 program was for workers in the 1960s?
 3 A. Well, I've looked through a lot of W.R. Grace
 4 documents. I saw no reference to training.
 5 Q. Did you ever make a request through the 20
 6 years that you've been doing this to W.R. Grace for
 7 information concerning the training program that W.R.
 8 Grace had for workers in the 1960s?
 9 A. Did I make a request of W.R. Grace?
 10 Q. Yes, sir.
 11 A. No.
 12 Q. Did you ever request that a request should be
 13 made of W.R. Grace to understand what training that they
 14 were doing for workers in the 1960s?
 15 A. Yeah, I requested that I be provided with
 16 documents from W.R. Grace, which I was. I looked through
 17 thousands of documents on W.R. Grace and don't recall
 18 seeing anything on training.
 19 Q. Do you have any understanding of what the
 20 unions were saying about dust in the 1960s at the Libby
 21 facility?
 22 A. Well, I know that there were requests from
 23 Bundrock, or whoever the person was, to get more
 24 information on the dust and things like that. I haven't
 25 seen any specific union meeting records or anything.

Page 56

1 Q. Did you ever make any inquiry regarding
 2 information from union meetings regarding the dust at the
 3 Libby facilities?
 4 A. As I said, provide me with information
 5 pertaining to W.R. Grace and the union and everything
 6 else, sure.
 7 Q. Okay. And were you provided with information
 8 about what the union was saying at their union meetings
 9 regarding dust at the Libby facility?
 10 A. There were probably some things that referred
 11 to union meetings. I don't remember specifically what
 12 they said.
 13 Q. Did you go and interview any union leaders to
 14 find out what they were telling their union members and
 15 employees about the dust at W.R. Grace?
 16 A. Well, I've interviewed workers who were in the
 17 union, had to be in the union, and they never received
 18 information from the union.
 19 Q. Okay. Do you know whether the union had any
 20 knowledge of asbestos in the dust at the W.R. Grace
 21 facility?
 22 A. I think they were inquiring as to what was in
 23 the dust.
 24 Q. In the 1960s?
 25 A. Well, I don't remember the time frame of that

Pages 53 to 56

Page 57

1 letter.
 2 Q. And who did they make the inquiry of?
 3 A. I thought it was made to Grace, but I don't
 4 remember specifically.
 5 Q. Did Grace respond to that inquiry?
 6 A. I don't know.
 7 Q. Do you know whether the union ever told any of
 8 its members that there was asbestos in the dust at W.R.
 9 Grace?
 10 A. Well, they never told Mr. Hutt.
 11 Q. I didn't ask about Mr. Hutt. My question is:
 12 Do you know if the union told any of its members that
 13 there was asbestos in the dust at W.R. Grace?
 14 A. Not that I'm aware of.
 15 Q. Mr. Hutt actually said that he went to union
 16 meetings but he doesn't remember anything about what they
 17 talked about at the union meetings.
 18 A. Right, I think he said he went to the union
 19 meetings once in a while.
 20 Q. So you don't know whether they told Mr. Hutt
 21 or not because you don't know whether he was at a meeting
 22 when they talked about asbestos, if they did, in the dust
 23 at W.R. Grace, correct?
 24 A. What Mr. Hutt said was he was never told that
 25 there was asbestos, and that it was farm dust, and like

Page 58

1 hundreds of other workers were told the same thing: "It's
 2 nontoxic, it's not going to hurt you."
 3 Q. Did Mr. Hutt tell you that?
 4 A. Yeah.
 5 Q. Did you interview Mr. Hutt?
 6 A. Yeah.
 7 Q. When did you interview Mr. Hutt?
 8 A. I don't know, within the summer sometime,
 9 July, I think.
 10 Q. Did you take notes of the interview?
 11 A. Yeah, I take notes on the phone. Dr. Hart and
 12 I interviewed him together.
 13 Q. You didn't see him personally, you took them
 14 on the phone?
 15 A. Right.
 16 Q. Dr. Hart and you were together in one location
 17 and he was on the phone in another?
 18 A. Correct.
 19 Q. Do you have the notes?
 20 A. Well, I transcribed the notes and sent them to
 21 Dustin, and then they just go right into the report.
 22 Q. Did you destroy the notes?
 23 A. Yeah, I can't, usually can't read my scribbled
 24 notes. That's why I've got to do it right away when I
 25 understand what the guy was saying, yeah.

Page 59

1 Q. But the case was in litigation. You knew
 2 that?
 3 A. Right.
 4 Q. And you didn't preserve your notes?
 5 A. I may have scribbled notes, I don't know. I
 6 know that my procedure is to do an interview, then
 7 transcribe them so everything is fresh so that I have a
 8 readable copy, and then that's what I work off of.
 9 Q. But as you sit here today, you don't know
 10 whether you have your notes or not?
 11 A. I don't remember physically. You know, I've
 12 got thousands of interviews with people and which ones I
 13 could find, I don't know.
 14 Q. Just so for organizational purposes, do you
 15 keep like a folder or a file particular to a case?
 16 A. Yes.
 17 Q. Okay. So it would be easy for you to go look
 18 in the Hutt file to see whether your notes of Mr. Hutt's
 19 interview are in there because that's specific to this
 20 case?
 21 A. Sure, I'd be happy to look.
 22 Q. Okay. You didn't look before today?
 23 A. Like I say, I provided the transcribed notes
 24 that went into my report.
 25 Q. Well, the transcribed notes are in your

Page 60

1 report.
 2 A. Right.
 3 Q. Okay. Do you remember any specifics of your
 4 conversation with Mr. Hutt or are you going by what you
 5 transcribed in your report?
 6 A. Yeah, it's right in my report.
 7 Q. As you sit here before me today, do you
 8 remember the conversation you had with Mr. Hutt?
 9 A. Yes.
 10 Q. Okay. So can you tell me specifically what
 11 Mr. Hutt told you on that day, what questions you asked
 12 him and what he told you?
 13 A. Yeah, you know, my point of doing an interview
 14 is to get, basically, their entire work history --
 15 Q. Okay.
 16 A. -- in addition to and separate from the W.R.
 17 Grace facility.
 18 Q. Did you find that Mr. Hutt was a good
 19 historian?
 20 A. Oh, he wasn't too bad. I've had a lot worse.
 21 Q. Okay. So he was able to give you, as far as
 22 you were concerned as the expert here, a good work
 23 history?
 24 A. I think so.
 25 Q. Okay. Where did Mr. Hutt live when he worked

Pages 57 to 60

Page 61

1 in Libby?

2 A. He lived in Troy.

3 Q. How far is Troy?

4 A. Oh, it's down the road about probably ten

5 miles, maybe, from Libby.

6 Q. Would you suggest that Mr. Hutt had any

7 exposure outside of just his 18 months in the Libby mine,

8 community exposure?

9 The fact that he lived ten miles, or so, from Libby,

10 would he have had exposure through the environment?

11 A. Oh, it's possible. You know, he also said

12 that he at one time got bags of vermiculite that he put

13 into his garden.

14 Q. Right.

15 A. Sure.

16 Q. What is the radius that you consider to be a

17 community exposure radius?

18 A. For Libby?

19 Q. Yeah.

20 A. I know Troy is an operable unit just like

21 Libby and some of the other ones are, so we know that

22 there was insulation there; that they used it in their

23 houses, some people did. So there was contamination from

24 traffic and things like that, so, yeah.

25 Q. How about airborne contamination like in the

Page 62

1 wood or trees, that sort of thing?

2 A. Well, I mean, there was contamination, you

3 know, that went out, I guess, within 18 miles from the

4 mine in all directions. You know, it's been found in bark

5 of trees, Flower Creek, which is the opposite side of

6 Libby, so, yeah.

7 Q. So he's within that 18 miles?

8 A. Probably close, yeah.

9 Q. Would you say that Mr. Hutt had any community

10 exposure or exposure outside of the mine?

11 A. I think you just asked me about community

12 exposure. I said, "It's possible."

13 Q. Okay. So we talked about it never mentioned

14 "asbestos." We talked about they had talked about a

15 training program but it wasn't specified what that program

16 should be, correct?

17 A. Right.

18 Q. Okay.

19 A. Can I see a copy of the safety program,

20 Exhibit 30?

21 Q. Oh, sure.

22 A. I'll spend some more time on it to refresh my

23 memory.

24 MR. LONGOSZ: Can we go off the record and

25 take a quick break?

Page 63

1 (A brief recess was taken.)

2 BY MR. LONGOSZ:

3 Q. So, Dr. Spear, we were looking at this

4 proposed safety plan which is marked in the common exhibit

5 book MCE-036.

6 A. Right.

7 Q. So you have that in front of you. So we were

8 talking about the plan never mentioned "asbestos," and we

9 went and talked about dust and those sorts of things.

10 The second thing is that it talked about training,

11 but it didn't specify the type of training, correct, the

12 safety plan?

13 A. Yes.

14 Q. Okay. Then the third thing that I have in my

15 notes is "respirators." Does the safety plan talk about

16 respirators?

17 A. It mentions "respirators." Prior to that, now

18 that I've had a chance to review, you know, their safety

19 program did not include, basically, work practice

20 controls. I mean, that's what we do in industrial hygiene

21 is we start with the hierarchy of controls, engineering

22 controls, and then in combination with administrative

23 controls, which would include prohibition of

24 dust-disturbing activities like brooms or air hoses. They

25 never ever addressed that issue because Mr. Hutt was still

Page 64

1 using air hoses and brooms when he was working there.

2 Well, they talk about control dust, but they didn't

3 really have a very adequate control for dust such as using

4 baghouses instead of cyclones.

5 Let me just look real quick here -- (perusing

6 document.) Their safety program did address or mention

7 requiring employees to shower before going home, but they

8 never ever enforced that, and we know that Grace never did

9 have a shower facility.

10 Q. So the employer, W.R. Grace, never enforced

11 that?

12 A. It was never mentioned in any of the Maryland

13 Casualty inspection reports, either.

14 Q. Well, Maryland Casualty was only there, at

15 best, four times a year.

16 A. Right.

17 Q. There was no expectation they'd be there more

18 than that, and that W.R. Grace was there every day,

19 correct?

20 A. Right.

21 Q. And W.R. Grace did not -- it is up to W.R.

22 Grace to enforce the safety plan, correct, implement it

23 and enforce it as the employer?

24 A. Yes, based on recommendations of their

25 insurer, who was devising the industrial hygiene program.

Pages 61 to 64

Page 65

1 And it was never referred to, again, in any inspection
 2 reports.
 3 Q. Can you show me where it says "industrial
 4 hygiene" in the safety plan? It doesn't say an
 5 "industrial hygiene plan," does it?
 6 A. Well, they were designing a comprehensive
 7 safety program, which includes a comprehensive industrial
 8 hygiene program. That's what they said they were going to
 9 do.
 10 Q. But what I'm asking you is: MCE-036 does not
 11 mention an industrial hygiene program. The title of it is
 12 "Safety Program and Organization." Isn't that the title?
 13 A. Yes.
 14 Q. Okay. So with that title, that sets up safety
 15 committees, correct?
 16 A. Correct.
 17 Q. And within that under safety committees, it
 18 sets up a management committee, correct?
 19 A. Right.
 20 Q. So the management committee has individuals on
 21 it such as the manager, system manager, it has
 22 superintendents, department heads, it also has employees
 23 that are supposed to sit on the safety committee or
 24 management committee, correct?
 25 A. Yes.

Page 66

1 Q. And because it was unionized, Maryland
 2 Casualty in the proposal suggested that unions should be
 3 invited to serve on the committee as well, right?
 4 A. It does mention the union there, yeah.
 5 Q. Do you know whether W.R. Grace -- and no
 6 Maryland Casualty people were on this management
 7 committee, correct?
 8 A. No. They reported to -- you know, Maryland
 9 Casualty made the recommendations and then provided
 10 service letters based on their recommendations.
 11 Q. But Maryland Casualty was not on the
 12 management committee.
 13 A. I didn't see them on the management committee.
 14 Q. Okay. And they were not contemplated to be on
 15 the management committee because they didn't have any
 16 management or control authority over this facility; is
 17 that right?
 18 A. They were developing the industrial hygiene --
 19 Grace didn't have an industrial hygienist, and they were
 20 relying on Maryland Casualty to provide industrial hygiene
 21 services. The documentation is very clear.
 22 Q. Dr. Spear, I'll ask the court reporter to read
 23 back the question, and if you could answer my question.
 24 A. I'm trying to answer your question.
 25 Q. Listen to the question. Maybe we're having a

Page 67

1 disconnect here.
 2 MR. LONGOSZ: But if you could read back the
 3 question.
 4 (The record was read by the court reporter as
 5 follows:
 6 "QUESTION: And they were not contemplated to
 7 be on the management committee because they didn't have
 8 any management or control authority over this facility; is
 9 that right?")
 10 Q. (By Mr. Longosz) "Yes" or "no"?
 11 A. I'm not going to answer a yes-or-no question.
 12 The documents say that this company was relying on our
 13 recommendations. This is a risk that needs our
 14 recommendations, so feel free to make recommendations. So
 15 that's what I take to mean Grace was relying on Maryland
 16 Casualty regarding their industrial hygiene program.
 17 Q. Dr. Spear, again, who managed the Libby
 18 facility? Who managed it on a daily basis from an
 19 operational standpoint?
 20 A. It was Grace.
 21 Q. Okay. Who controlled all aspects of the W.R.
 22 Grace facility day to day?
 23 A. It was W.R. Grace's facility looking for
 24 outside support to help them in industrial hygiene.
 25 Q. Dr. Spear, again, who controlled the

Page 68

1 operations of the W.R. Grace facility day to day?
 2 A. W.R. Grace.
 3 Q. On page 2, No. 5, it says the management
 4 safety committee. Do you know whether W.R. Grace ever set
 5 up a management safety committee?
 6 A. We're on page 2?
 7 Q. Yes, sir.
 8 A. I do not read where they established a
 9 management committee or not.
 10 Q. Okay. Then it talks about an operating safety
 11 committee. Who is to be on the operating safety
 12 committee?
 13 A. It says (quoted as read): "The manager or
 14 assistant manager shall immediately appoint in writing,
 15 with copy of a personnel file, an operating safety
 16 committee consisting of a member of the management
 17 committee to serve as chairman and six foremen or
 18 supervisors."
 19 Q. Maryland Casualty is not part of this
 20 operating safety committee; is that correct?
 21 A. Well, it doesn't mention Maryland Casualty,
 22 no.
 23 Q. Okay. And with respect to the operating
 24 safety committee, if we could look at page 3.
 25 A. Okay.

Pages 65 to 68

Page 69

1 Q. It says: "Members of the operating safety
2 committee shall have the authority and responsibility to
3 notify the foreman in charge of any emergency arising out
4 of any unsafe acts or conditions."

5 Would you say working with high levels of dust and
6 asbestos in dust is an unsafe act or condition?

7 A. It's an unsafe condition, yes.

8 Q. And do you see anywhere where W.R. Grace, as
9 part of this safety plan and as part of the operating
10 safety committee, notified the foreman in charge of such
11 unsafe acts or conditions?

12 A. That specifically, no.

13 Q. And do you take issue with the fact that it's
14 a good practice to have a management committee and a
15 safety committee as part of your safety program? Is that
16 correct?

17 A. I think safety committees are common, yes.

18 Q. Okay. So on page 5, letter "D," Zonolite
19 Division Monthly Report (quoted as read):

20 "Zonolite Division monthly accident report
21 will be submitted monthly to the home office with
22 permanent local office review for review of safety
23 committees or other recognized authority."

24 Did the Zonolite division provide a monthly accident
25 report to its home office?

Page 70

1 A. I have to read that real carefully, please.

2 Q. Sure.

3 A. (Perusing document) -- I don't know if they
4 did or they didn't.

5 Q. Looking at page 6, Accident Analysis, it talks
6 about the management of the safety committee again.

7 A. Yes.

8 Q. Do you agree that that's a good practice to
9 have the management safety committee and the operating
10 committee looking at and reporting those items?

11 A. As I said, committees are common. It depends
12 on how active they are and how long well they work, but --
13 (pause.)

14 Q. So it's a good practice to include committees
15 within a safety program. You would agree with that,
16 right?

17 A. Yeah, it's common.

18 Q. Okay. Is it common to see accident
19 investigations as part of an accident analysis as part of
20 a safety program?

21 A. Yes.

22 Q. Again, did you see any evidence in the records
23 that W.R. Grace was fulfilling all of the items that were
24 outlined in this proposed safety program, safety program
25 and organization?

Page 71

1 A. Well, I read the inspection reports, the
2 service reports. There were outstanding recommendations
3 that weren't followed. I read different things.

4 Q. I'm looking at page 16, IX.

5 A. Sixteen.

6 Q. Actually, before that, I apologize, let's
7 start at page 12, VII. There's a section that talks about
8 safety standards and rules and procedures. Do you see
9 that?

10 A. Yes.

11 Q. And that would be part of any safety program,
12 correct?

13 A. It would, yes.

14 Q. Okay. And contained within an appropriate
15 safety program would be things enumerated here like
16 electrical wiring and grounding; inflammable storage and
17 handling; transportation and storage and use of
18 explosives; manless elevator skips; cranes, derricks, and
19 hoists; head, eye, and respiratory equipment; exhaust
20 systems; sanitation; fired and unfired pressure vessels;
21 controlled safety devices. All that is appropriately
22 included under the safety standards of rules and
23 procedures, correct?

24 A. Yes, the sanitation is one of them.

25 Q. And, then, continuing on, No. 3 talks about:

Page 72

1 "Standards and codes of applicable national advisory or
2 local controlling agencies such as the following will be
3 applied."

4 You would agree that the U.S. Department of Health,
5 U.S. Department of the Interior, Bureau of Mines, State
6 Departments of Labor, Mines, or Health or others existing
7 as applicable; local fire or health departments as
8 applicable; National Board of Fire Underwriters and
9 American Standards Association are all appropriate
10 standards and codes to be applied.

11 A. Yes, as well as general principles of
12 industrial hygiene.

13 Q. Well, it says: "Standards and codes of
14 applicable national advisory or local controlling agencies
15 such as the following will be applied."

16 A. Yes. And if we just look at 5 on page 14.

17 Q. On page 15?

18 A. Fourteen.

19 Q. All right.

20 A. This is where it talks about safety rules
21 enforcement become a regular part of the safety program
22 and organization will include, but not limited to, and
23 then it just talks about use of personal protective
24 equipment for special emergency operations as eye
25 protection, welding. So it doesn't talk about respirators

Pages 69 to 72

Page 73

1 in that section.

2 Q. Yeah, it talks about respirators before that,
3 though. There is a lot of correspondence and many
4 recommendations made by Maryland Casualty for the use of
5 respirators, correct?

6 A. Well, there were reports stating that they did
7 not -- yeah, they recommended posting a sign, they also
8 recommended posting a warning sign for overhead hazard, a
9 Maryland Casualty sign.

10 Q. I'm talking about respirators.

11 A. Right, I'm just talking about their
12 recommended signage.

13 Q. I didn't ask about signage, I asked about
14 respirators.

15 A. Yeah, they recommended posting signs. They
16 said workers weren't wearing their respirators and that
17 went on into 1970s.

18 Q. Right. And W.R. Grace wasn't enforcing that
19 recommendation; is that correct?

20 A. Yeah, the safety program didn't really
21 include, well, if you're going to provide respirators, we
22 have to, No. 1, provide the respirator selected based on
23 the hazard; and we have to have training on how to use the
24 respirator; we have to explain why we're using the
25 respirator, why we need it; then we go through a fit

Page 75

1 A. Well, no, because it wasn't required. I mean,
2 they didn't make it mandatory in all areas where dust was
3 present and they also didn't explain why they needed
4 respirators.

5 In other words, why is a worker going to wear a
6 respirator if he doesn't know what the hazard is, you
7 know? It's pretty hard to get him to wear it. That's the
8 point.

9 Q. So W.R. Grace was not telling the worker why
10 he needed to wear a respirator; therefore, W.R. Grace was
11 not enforcing that recommendation, correct?

12 A. And neither was Maryland Casualty.

13 Q. Well, Maryland Casualty could not enforce the
14 recommendation because they didn't have any control or
15 enforcement power in the mine or in the facility, correct?

16 A. No, but they could have posted warnings.

17 Q. Maryland Casualty could not post warnings
18 because Maryland Casualty, again, does not have any
19 control over the facility, correct?

20 A. Then why did they post warnings for overhead
21 hazard?

22 Q. And you're not asking me the question, I'm
23 asking you the question. And the question is: Maryland
24 Casualty had no control over that facility on an
25 operational basis day to day to make employees wear

Page 74

1 testing to make sure that they're fit; and then we have a
2 program to make sure that everybody's following the rules
3 with regard to respirators. Yeah, that wasn't in the
4 safety program.

5 Q. It wasn't in the safety program, but Maryland
6 Casualty, on a consistent basis, told W.R. Grace that they
7 needed to have respirators and all employees needed to
8 wear respirators, correct?

9 A. I don't remember seeing that.

10 Q. You don't remember seeing any correspondence
11 or recommendations from Maryland Casualty?

12 A. Yeah, the respirators weren't being worn and
13 they recommended posting signs.

14 Q. Right.

15 A. The respirators were not mandatory in the
16 first floor of the dry mill, they weren't mandatory
17 anywhere.

18 Q. According to Grace. Grace was not following
19 Maryland Casualty's recommendation for respirators. You
20 agree with me on that, don't you?

21 A. Maryland Casualty didn't recommend that
22 respirators be mandatory in dusty operations.

23 Q. So when they, on a consistent basis, told W.R.
24 Grace, "You need to have your employees wear respirators,"
25 that's not mandatory?

Page 76

1 respirators; is that correct?

2 MR. LEFTRIDGE: Objection; form.

3 Q. (By Mr. Longosz) "Yes" or "no"?

4 A. They may not have had control, but they
5 recommended warnings for overhead hazards with their
6 signs.

7 Q. Maryland Casualty also recommended that
8 employees wear respirators, and that recommendation was
9 not followed by Grace, correct?

10 A. Yeah, they said workers need respirators, but
11 they weren't being --

12 Q. And Grace was not following that
13 recommendation, correct?

14 A. Well, according to the records, then --

15 Q. Grace was not following that recommendation.

16 A. Kujawa said that they all had respirators and
17 they would put them in respirators. So, apparently, they
18 were attempting to follow the recommendations.

19 Q. But Maryland Casualty would go back there on
20 its quarterly inspection and see workers without
21 respirators and tell W.R. Grace that employees have to
22 wear respirators, right?

23 A. Yeah, there were some reports that said the
24 workers were wearing respirators, other reports said they
25 weren't wearing respirators.

Pages 73 to 76

Page 77

1 Q. Right.
 2 A. So when they told that to Kujawa, I believe,
 3 he said, "We will get these people in respirators."
 4 Q. Do you know what type of respirator Maryland
 5 Casualty recommended?
 6 A. I don't. That's part of the problem.
 7 Q. You didn't see anywhere in any of the records
 8 or any of the documents the type of respirator that
 9 Maryland Casualty was recommending. Is that your
 10 testimony?
 11 A. If I saw it, I don't remember specifically
 12 what it was.
 13 Q. Did you see it?
 14 A. I never saw any reference to the specific type
 15 of respirator in the safety program.
 16 Q. Did you see any reference to the type of
 17 respirator that the workers should be wearing in any of
 18 the documentation, Maryland Casualty's documentation, that
 19 you reviewed?
 20 A. Not that I remember seeing.
 21 Q. Okay. Did you talk to Mr. Hutt about the type
 22 of respirator he was wearing?
 23 A. Yeah, he said "dust mask."
 24 Q. Okay.
 25 A. Like almost all the workers said they had, a

Page 78

1 paper mask.
 2 Q. A paper mask?
 3 A. (Nodding head affirmatively.)
 4 Q. And that's not adequate, correct?
 5 A. In my opinion, no.
 6 Q. No. It should have been something that was
 7 more to filter out the dust.
 8 A. It should have been what they saw when they
 9 did the Lompoc visit, and they provided them with the
 10 respirator that they were using for their vehicles. And
 11 something like that could have been used in the skip shack
 12 or the transfer point because you have a worker in a
 13 specific location, positive-pressure respirators.
 14 Q. So knowing that, did W.R. Grace come back and
 15 implement that respirator type of application in 1968 and
 16 '69 after it came back from Lompoc?
 17 A. I never saw that they did.
 18 Q. What's that?
 19 A. I never saw that they did, no.
 20 Q. And it would have been appropriate if W.R.
 21 Grace provided that type of respirator to Mr. Hutt,
 22 correct?
 23 A. Yeah. They were relying on Maryland Casualty
 24 to give them advice on what they should be using and it
 25 was never provided by Maryland Casualty.

Page 79

1 Q. Again, really, Dr. Spear, I don't need the
 2 editorial. I need you to answer the question.
 3 MR. LONGOSZ: I'll have madam reporter read
 4 back the question.
 5 (The record was read by the court reporter as
 6 follows:
 7 "QUESTION: And it would have been appropriate
 8 if W.R. Grace provided that type of respirator to Mr.
 9 Hutt, correct?")
 10 THE WITNESS: It would have been appropriate,
 11 did you say? Yes.
 12 Q. (By Mr. Longosz) Did W.R. Grace ever come back
 13 to Maryland Casualty, as far as you know, and ask Maryland
 14 Casualty to provide a more detailed program other than
 15 what was proposed?
 16 A. Not that I saw.
 17 Q. Okay. Did W.R. Grace ever suggest that they
 18 did not know how to implement the proposed program?
 19 A. The obvious reference I saw to that is when
 20 they had the meeting with one of the Maryland Casualty
 21 inspectors and they talked about the safety program. And
 22 Grace said that we've been doing all this stuff and
 23 they're waiting for recommendations, or something like
 24 that.
 25 Q. So the answer is "no," that other than what

Page 80

1 you just described, there was no suggestion by W.R. Grace
 2 that they needed other advice as to how to implement
 3 specifics, or specific advice regarding each one of the
 4 categories in the safety program; is that correct?
 5 A. That W.R. Grace needed more advice?
 6 Q. Specifics, that they needed anything more
 7 specific than what they already got in the safety program.
 8 A. I never saw that.
 9 Q. Okay. So we talked about they had no mention
 10 of asbestos, the training, housekeeping, and respirators.
 11 What else in the safety program, in your view, was
 12 missing?
 13 A. No mention of work practices, how do we keep
 14 the dust down, whether it be using -- prohibiting sweeping
 15 and the use of air hoses.
 16 Q. That wasn't in the proposed safety program,
 17 but it certainly was in recommendations that were made on
 18 a consistent basis by Maryland Casualty to W.R. Grace.
 19 A. What?
 20 Q. About the sweeping, the air hoses, and all
 21 that, they said, "Don't do that." They told them to use
 22 vacuums or other --
 23 A. They recommended using vacuums or having a
 24 vacuum system --
 25 Q. Right.

Pages 77 to 80

Page 81

1 A. -- in their safety program, and then there was
 2 one report where they were going to install a vacuum on
 3 one floor of the dry mill, yeah.
 4 Q. Okay. So what else is not included?
 5 A. And, then, the training, we're getting on page
 6 21, again, it talks about accident investigation; it talks
 7 about training to include human relations, communications.
 8 It doesn't mention any health training. It just doesn't
 9 mention anything of how to train these people to keep the
 10 dust down so that they aren't exposing themselves.
 11 Q. Well, management at W.R. Grace knew that you
 12 need to keep the dust down; is that correct?
 13 A. Conceivably, yes.
 14 Q. Well, specifically, yes, correct?
 15 A. Yeah, they were told by Wake that they needed
 16 to keep the dust down.
 17 Q. And, internally, they told themselves they
 18 need to keep the dust down, correct?
 19 A. Yes, "We need to improve working conditions."
 20 Q. Yeah.
 21 A. Correct.
 22 Q. So what else?
 23 A. Well, 25, dust control, personal protection,
 24 work atmosphere with specific contaminants below the
 25 threshold limit value and nuisance dust below the maximum

Page 82

1 level allowable concentrations are required by the -- I
 2 meant to say American Conference of Governmental
 3 Industrial Hygienists will be maintained at all times, and
 4 then air discharged into the outer atmosphere will be
 5 controlled at these same limits.
 6 And we know that that was never, never accomplished,
 7 and it pertains directly to the recommendations of
 8 Maryland Casualty because they did not require. They use
 9 the cyclone. You know, cyclones are going to spin out the
 10 large particles, and the little particles are going to
 11 stay in the airstream and go out into the atmosphere.
 12 So, normally, like they did at Lompoc, you're going
 13 to use a cyclone to get rid of the big particles, and
 14 you're going to go into a filter baghouse to eliminate
 15 small particles. It was never ever recommended.
 16 Q. But W.R. Grace knew that they could have done
 17 that, correct, because they went to Lompoc and they saw
 18 that --
 19 A. Well, they knew it in the late '60s, yeah, but
 20 it never was recommended by Maryland Casualty. That's all
 21 I'm saying.
 22 Q. Okay.
 23 A. So their engineering controls didn't work for
 24 trying to clean the air.
 25 Q. It didn't work.

Page 83

1 A. Didn't work.
 2 Q. So are you saying that the air, the quality
 3 and the amount of dust did not go down over the years
 4 while Maryland Casualty was doing loss control at that
 5 facility?
 6 A. Yes.
 7 Q. I was looking at page 13 of your report. Do
 8 you see that little bar graph there?
 9 A. Yes.
 10 Q. So in 1962 before Maryland Casualty took over
 11 the workers' compensation policy, do you see how high that
 12 bar is?
 13 A. Yeah.
 14 Q. Okay. So '63, it's lower; '64, it's lower;
 15 '67, it's lower; '68, it springs up a little bit. So are
 16 you saying that that -- and you did this, right, this is
 17 your work?
 18 A. Right.
 19 Q. Okay. So you're saying that that doesn't
 20 reflect a reduction in the amount of dust, dust samples
 21 that were at the Libby facility?
 22 A. Yeah, that's showing a reduction, but then in
 23 '69, they're talking about the dust is getting worse. And
 24 then I've got to find my reference to when I looked at all
 25 those reports.

Page 84

1 Yeah, again, if you go to page 33, you can see that
 2 there's spikes and there's very little decrease in the
 3 dust. If you look at the chart on page 34, you know, you
 4 can see the dust level as being, essentially, high the
 5 whole time.
 6 And then when I looked at their dust sampling from
 7 '65 to -- where is that part on my report -- I just looked
 8 at all the samples in the dry mill. So on page 34, just
 9 looking at the Maryland Casualty dust sampling - I didn't
 10 include the '64 one because there was limited data - but
 11 '65 through '69, this was the average levels in the dry
 12 mill. Okay. So it's 10.2, 9.8, 9.5, 10.6, and then 26.1,
 13 respectively, for the years '65 to '69. So, to me, the
 14 dust is not going down.
 15 Q. So what that tells us is that Grace felt that
 16 it was maintaining that 10 or below except for the one
 17 spike, correct?
 18 You said the dust levels were, what, ten? Nine?
 19 You just read them off.
 20 A. Yeah. Yeah, they were never at the 5 million
 21 particles per cubic foot.
 22 Q. Of course, because W.R. Grace said that they
 23 weren't going to do that, right?
 24 A. They were relying on what Wake said when he
 25 miscalculated the TLV --

Pages 81 to 84

Page 85

1 Q. Okay.
 2 A. -- and then Maryland Casualty did the same
 3 thing.
 4 Q. No, Maryland Casualty told them it should be
 5 five. And there's correspondence and pushback by W.R.
 6 Grace that said, "We're not going to do that."
 7 You would agree with me?
 8 MR. LEFTRIDGE: Counsel, you seem to be
 9 testifying and misstating the record.
 10 MR. LONGOSZ: I'm not misstating the record.
 11 I can assure you, I'm not misstating the record.
 12 Q. (By Mr. Longosz) Go ahead, Dr. Spear.
 13 A. Park explained to them the correct use of the
 14 TLV. And he said, "We're not going to make up a limit --
 15 we're going to use the authoritative TLV of 5 million
 16 particles per cubic foot," and then they gave that up.
 17 They said, "Well, we'll just go with whatever Grace is
 18 going to do and we don't care if we have sick workers."
 19 Q. Show me the document that says, "We don't care
 20 if we have sick workers."
 21 A. Well, the point is that --
 22 Q. No, no. I want to know. You testified here
 23 on the record that Maryland Casualty said, "We don't care
 24 if we have sick workers." Show me where that document is.
 25 A. There's no document.

Page 86

1 Q. Okay.
 2 A. They didn't say that.
 3 Q. All right. And consistently through the years
 4 and through the recommendations, Maryland Casualty has
 5 always said, "Five is the number."
 6 And, consistently, W.R. Grace said, "No, it's 10,
 7 and we're going to comply with 10, not 5."
 8 Would you agree with me?
 9 A. Maryland Casualty gave them the correct TLV.
 10 And then they said, "We will not give that limit any
 11 longer."
 12 Q. Show me the document.
 13 A. Where they said that?
 14 Q. Yes.
 15 A. So on page 32, we were talking about the TLVs
 16 on my report. So MCC acknowledges that in 1964, the
 17 correct interpretation of the ACGIH standard for measuring
 18 dust containing asbestos, and it was 5 million particles
 19 per cubic foot.
 20 Q. Okay.
 21 A. And, then, this recommendation was reiterated
 22 in 1960 in a letter to W.R. Grace. And Maryland Casualty
 23 stated (quoted as read):
 24 "The recommendation was to 'maintain a goal of
 25 controlling dust concentration at the breathing level to a

Page 87

1 maximum of 5 million particles per cubic foot," and
 2 that's Hutt 62.
 3 "Grace wrote back to MCC stating that they
 4 were adhering to the state standards and that 'you
 5 continue to measure our performance against a different
 6 standard.'
 7 "MCC wrote back, noting that the ACGIH had set
 8 the standards for dust containing asbestos and this was
 9 the basis of their recommendations. However, in June
 10 1966, Maryland Casualty stated that because the State
 11 requirements had been met in controlling the dust, 'it was
 12 agreed that no further reference to our recommendations is
 13 necessary at this time.'"
 14 So that's --
 15 Q. Go on.
 16 A. (Quoted as read): "Maryland Casualty stated
 17 'State of Montana public health official has approved a
 18 maximum allowable concentration of 10 million particles
 19 per cubic foot of air as present planned threshold, but at
 20 the same time stated that 5 million particles per cubic
 21 foot should be a management goal and therefore continue to
 22 strive for such control.'"
 23 And I believe that Wake used 12 million particles
 24 per cubic foot, not 10, but I would have to review all
 25 those documents again.

Page 88

1 Q. And Wake is for the State, correct?
 2 A. Yes. And MCC-1864 says 10. They talk about
 3 repairing the leaky cyclones and they'll achieve that 5
 4 million particles per cubic foot.
 5 Q. Can you look at -- do you have the MCE book?
 6 Can you look at MCE-074?
 7 A. Okay.
 8 Q. Have you reviewed that document before?
 9 A. Yes.
 10 Q. You've seen that document. And that's from
 11 W.R. Grace --
 12 A. Yes.
 13 Q. -- and that's to Mr. Bleich. Even though it's
 14 spelled B-L-E-I-C-H, it's pronounced "Bleich," correct?
 15 A. That's how I pronounce it.
 16 Q. It seems like a common pronunciation. There's
 17 a "cc" on this letter to a Stewart, to a Kujawa, and to
 18 Lovick, all W.R. Grace employees, correct?
 19 A. Let's see -- yes.
 20 Q. And in a very sophisticated manner, there's a
 21 discussion on here which talks about the threshold limit
 22 values. It talks about Mr. Park writing about those
 23 values. It talks about the State of Montana, Mr. Wake
 24 that you mentioned and his view of the world.
 25 And then it goes on to say in the second-to-last

Pages 85 to 88

Page 89

1 paragraph, W.R. Grace goes on to say:
 2 "I can see no reason for further limitation on
 3 us. Mr. Park's recommendations are unreasonable and
 4 impossible and unnecessary."
 5 And that's the W.R. Grace view of the world; is that
 6 correct?
 7 A. That's what it says in that reference. Can I
 8 read the entire document?
 9 Q. You may.
 10 A. (Perusing document) -- yeah, they just
 11 mentioned on that second paragraph that they conned
 12 Mr. Walker out of a copy of a letter or we would never
 13 have known any results.
 14 Q. It goes on to say that the samples analysis by
 15 Maryland Casualty are worthless. They like to do their
 16 own samples and analysis. And they didn't want to follow
 17 and they didn't follow Maryland Casualty's samples and
 18 analysis, correct?
 19 He's saying they're worthless, correct?
 20 A. He said they were worthless, yeah.
 21 Q. And you'd agree with me that the ACGIH in 1966
 22 and certainly in 1963 was calling for 5?
 23 A. Yes.
 24 Q. Okay.
 25 A. Of asbestos containing dust.

Page 90

1 Q. And, in fact, it was calling for 5 in 1968 and
 2 '69; is that correct?
 3 A. Yes. And then they talked about the
 4 percentage of the dust, 40 percent. And then they're
 5 talking about the safe -- the dividing line between safe
 6 and unsafe conditions, the range at which controls should
 7 be set. So that's what the TLV was, was really a control
 8 limit. It was really knowing that it wasn't a fine line
 9 between safe and healthful. In fact, many people were
 10 criticizing the TLV.
 11 Q. But, in fact, what this letter tells you is
 12 that W.R. Grace set, for their own purposes, voluntarily
 13 set the standards at 10 and weren't going to follow the 5
 14 and saw no reason to follow Mr. Park's recommendation at
 15 the 5 limit; is that right?
 16 A. Yes.
 17 Q. Let's go back to the report. Is there
 18 anything else in it? We're talking about the safety plan
 19 now. We have sort of these points here that you're
 20 bringing up. Is there any other points that you want to
 21 bring up relative to that safety plan?
 22 A. Going back to my -- yeah, regarding the change
 23 rooms or the sanitation, you know, they just said workers
 24 should shower before going home, but they made no
 25 recommendations on establishing a change house or anything

Page 91

1 like that.
 2 Q. Again, this is a general guideline, and you
 3 don't even know whether W.R. Grace implemented or followed
 4 through on the recommendations that were made in
 5 connection with the safety plan; is that correct?
 6 A. With regard to?
 7 Q. The showers, for example.
 8 A. They never, they never installed showers, no.
 9 Q. Okay.
 10 A. Or a change house.
 11 Q. A safety plan is only as good as the
 12 implementation by the employer; is that correct?
 13 A. Well, it's as good as the implementation and
 14 the specificity of it, yeah, what has to be done.
 15 Q. Well, my question is: The safety plan is only
 16 as good as the implementation by the employer, correct?
 17 A. Yes, and the --
 18 Q. You could have a 60-page safety plan that
 19 tells you what you should do every minute of every hour of
 20 every day, and unless the employer implements that, that
 21 safety plan is useless, correct?
 22 A. Yeah, you've got to have engineering,
 23 education, and enforcement, the three Es of safety.
 24 That's what we used to talk about in the old days.
 25 Q. Right.

Page 92

1 A. You've got to have engineering, you've got to
 2 have education of the workers, and then enforcement.
 3 Q. And the employer needs to do that.
 4 A. Yeah, it has to be in the safety program.
 5 Q. The employer needs to do all of those items,
 6 correct?
 7 A. Yes.
 8 Q. Okay. Do you know whether W.R. Grace followed
 9 any of the guidelines or proposed recommendations of the
 10 safety plan and implemented them?
 11 A. Well, according to Maryland Casualty, they
 12 did.
 13 Q. Well, according to what you've reviewed, and
 14 you've reviewed many W.R. Grace documents over the last 20
 15 years, can you tell me what items of this proposed safety
 16 plan were actually followed by W.R. Grace and
 17 implemented?
 18 A. I can tell you that Maryland Casualty was
 19 stating in their reports that Grace was generally
 20 cooperative in meeting Maryland Casualty's
 21 recommendations. We can look at Exhibits 42, 53, 56, 59.
 22 All recommendations were complied with. That's in 60, 70,
 23 78 exhibits, all recommendations complied with. Exhibit
 24 91 is the same. Exhibit No. 110, good job; No. 119,
 25 housekeeping, okay. So, yeah, Grace was complying with or

Pages 89 to 92

Page 93

1 trying to comply with Maryland Casualty's recommendations.
 2 Q. Now, my question goes to the safety plan. You
 3 keep talking about recommendation and you've cherry-picked
 4 certain documents for your report.
 5 I want to go back to my original question. Did you
 6 do an analysis as to whether W.R. Grace was in compliance
 7 with the implementation of the safety plan?
 8 A. Well, the safety plan addressed safety and
 9 health at the W.R. Grace facility. So, yeah, they
 10 basically installed guards, they had a guard man over the
 11 electrical installations and different things like that.
 12 So, yeah, they were complying with these recommendations
 13 in the safety program.
 14 Q. So is it your testimony that all the
 15 recommendations in the safety program were complied with
 16 by W.R. Grace?
 17 A. All of them? No, I didn't say that. I
 18 said they --
 19 Q. Okay. Which ones were not? Did you do an
 20 analysis to understand which ones were complied with and
 21 which ones were not?
 22 A. I didn't. I just read their reports as to
 23 what were recommended.
 24 Q. All right. Because you keep talking
 25 "recommended." The recommendations that you're talking

Page 94

1 about are recommendations made when a Maryland Casualty
 2 loss-control person comes to the site once a quarter and
 3 sees certain things and makes recommendations. Those
 4 recommendations are not linked. Nowhere in those letters
 5 does it says it's recommendations based on the safety
 6 plan, or it doesn't even mention a safety plan; is that
 7 correct?
 8 MR. LEFTRIDGE: Objection; form, foundation.
 9 Q. (By Mr. Longosz) That's a long question. I'll
 10 break it down. You would agree with me that Maryland
 11 Casualty went there on a quarterly basis?
 12 A. Yes.
 13 Q. Okay. And in connection with those visits,
 14 they would make recommendations based on what they saw,
 15 correct?
 16 A. Yes.
 17 Q. And none of those recommendations referenced
 18 any specifics contained within the proposed safety plan;
 19 is that correct?
 20 A. Well, the recommendations pertained to like --
 21 I guess we can talk about the safety items and the
 22 electrical. That's addressed in that page you read to me
 23 about all of the fire and the different things that are
 24 covered in that section. So whether it specifically
 25 referenced the safety program, not that I saw.

Page 95

1 Q. Okay.
 2 A. But it made recommendations of things out of
 3 the safety program.
 4 Q. But you saw nowhere in any recommendation
 5 letter or any write-up by Maryland Casualty individual
 6 that talked about the proposed safety plan, correct?
 7 A. Not that I remember.
 8 Q. Okay. And you saw nothing since around 1964
 9 when this proposed safety plan was being developed and
 10 drafted of any more reference to the safety plan after
 11 that point in time by W.R. Grace; is that correct?
 12 A. I don't remember if I did or not, actually.
 13 Q. You saw nothing from W.R. Grace accepting a
 14 final version of a safety plan; is that correct?
 15 A. Yeah, we talked about that. I referenced the
 16 formulation of the plan.
 17 Q. Right. We talked about formulation, but you
 18 saw nothing accepted in a final version, correct?
 19 A. Yeah, I could only reference what I saw.
 20 Q. But just to make for completeness, you didn't
 21 see anything referencing a formalization and acceptance of
 22 the safety plan, right?
 23 MR. LEFTRIDGE: Objection; asked and answered.
 24 THE WITNESS: Yeah, I mean, if I do, I don't
 25 remember it.

Page 96

1 Q. (By Mr. Longosz) Did you make inquiry as to
 2 whether the safety plan was utilized in connection with
 3 any other facilities, any other W.R. Grace facilities
 4 throughout the country?
 5 A. I just remember reading where Park was talking
 6 about the safety plan at South Carolina wherever it was,
 7 and referring to, kind of used that as a guide. That's
 8 all I remember.
 9 Q. It was a different safety plan?
 10 A. I never saw the safety plan.
 11 Q. Okay. Are safety plans a living document?
 12 A. Sure.
 13 Q. Okay.
 14 A. They should be updated and based on the level
 15 of hazard and level of compliance, etc., etc., sure.
 16 Q. So after being provided with this proposed
 17 safety plan, did you see any evidence that W.R. Grace
 18 attempted to update or upgrade the safety plan?
 19 A. I never saw any evidence of them doing that or
 20 of Maryland Casualty recommending that they do it.
 21 Q. My question is: Did you see any evidence of
 22 W.R. Grace updating the safety plan?
 23 A. Not that I remember.
 24 Q. Okay. Did you see any evidence of W.R. Grace
 25 requesting Maryland Casualty or anyone else outside of

Pages 93 to 96

Page 97

1 Maryland Casualty to update the safety plan?
 2 A. Just in terms of the TLV, I guess, would be
 3 the only thing, what they're going to comply with.
 4 Q. Did you see any evidence in any of the records
 5 you reviewed of W.R. Grace looking to other, whether it be
 6 entities such as Johns-Manville, or other engineering
 7 firms to engineer any of the Libby risk?
 8 A. Just on the visit to the Lompoc.
 9 Q. That's the only thing you remember seeing?
 10 A. As I sit here today, yes.
 11 Q. Do you recall seeing any evidence or records
 12 where Maryland Casualty recommended that W.R. Grace
 13 contact or look elsewhere for engineering assistance?
 14 A. Well, they recommended in the safety program
 15 they're going to incorporate the Bureau of Mines and their
 16 knowledge on this issue of mining and dust, yeah, so that
 17 would be a place to go.
 18 Q. Okay. Other than that, did you see anywhere
 19 in any of the records that Maryland Casualty recommended
 20 to W.R. Grace that it look elsewhere for engineering
 21 assistance?
 22 A. Not that I remember.
 23 Q. Did the Bureau of Mines do a study of the W.R.
 24 Grace facility?
 25 A. They did in the beginning of the '70s, yeah.

Page 98

1 Q. And you saw no reference to the Bureau of
 2 Mines doing anything prior to the '70s?
 3 A. Not that I remember.
 4 Q. Did you look at in the 1960s any literature to
 5 ascertain what the Bureau of Mines were recommending for
 6 signage in the mines?
 7 A. For signage, no. I've reviewed their
 8 recommendations for the respirators.
 9 Q. Did you look at any other sources or any
 10 sources, for that matter, in the 1960s for recommendation
 11 of a signage at manufacturing facilities such as this?
 12 A. I've looked at lots of recommendations for
 13 warnings and signs by the National Safety Council and what
 14 these different people were saying about what they were
 15 doing in their facilities. Westinghouse, I think we can
 16 go to that section.
 17 Q. Sure. This was back in the 1960s?
 18 A. Right.
 19 Q. You talked about Westinghouse. Was the
 20 National Safety Council giving recommendations as to what
 21 type of signage was required --
 22 A. Yes, they were.
 23 Q. -- in the W.R. Grace facility?
 24 A. They were recommending how we should
 25 adequately warn workers. Let me read if I can.

Page 99

1 Q. Sure.
 2 A. I know that they were recommending warnings
 3 back in the Merewether days in England. They don't
 4 specifically refer to signage. Yeah, when I get into the
 5 warning literature is really on page 50.
 6 So warnings should never be used as a substitute for
 7 a safeguard if the latter can be devised or a hazard
 8 eliminated. Well, we know that the hazard wasn't
 9 eliminated at Libby.
 10 So the signs should point to dangers which cannot
 11 reasonably be eliminated by engineering improvements.
 12 Again, they were never able to control the dust and we
 13 needed to warn the workers.
 14 Q. You saw where Maryland Casualty told W.R.
 15 Grace that, for example, respirators were not a substitute
 16 for controlling dust, correct?
 17 A. I don't remember seeing that. You'd have to
 18 point me to a specific. I've read a lot of documents.
 19 Q. You would agree that respirators are not a
 20 substitute for controlling the dust; is that correct?
 21 A. No, they are not. They're the least preferred
 22 method of control because we have to rely on the worker.
 23 Yeah, we need to go with engineering controls,
 24 administrative controls, keeping the dust wet. I never
 25 saw any recommendations pertaining to using wet methods

Page 100

1 other than, I think, one pertaining to the haul roads
 2 from Maryland Casualty, and then respirators would be the
 3 last control.
 4 Q. You saw references where Maryland Casualty
 5 went to, on their quarterly visit, went to the site and
 6 saw holes and equipment not working properly and told W.R.
 7 Grace about that, correct?
 8 A. Yes. And I was going to read my section on
 9 warning. I don't think I had a chance to answer.
 10 Q. I'm sorry, go ahead.
 11 A. I mean, there was, you know, American Standard
 12 "Specification for Industrial Accident Prevention Signs."
 13 It recommends "Danger" signs in red, "Caution" signs in
 14 yellow.
 15 Then we get into the Manufacturing Chemists'
 16 Association, National Paint and Lacquer Association where
 17 they're recommending warnings which apply to users of
 18 products as well as people that are using the products.
 19 So there were lots of guidance as to warnings and
 20 what the words should say on a warning, and this is going
 21 back to the 1940s.
 22 Q. But what I'm asking for is: What was the
 23 standard in the manufacturing industry? We talked about
 24 this, particularly with respect to asbestos and dust, and
 25 who was using what, what signs and where. But you don't

Page 101	Page 103
<p>1 know and you haven't looked at that, correct?</p> <p>2 A. Yeah, I mean, warnings are warnings.</p> <p>3 Q. Okay.</p> <p>4 A. They apply. We have to warn using the</p> <p>5 guidance of these professional organizations. And the</p> <p>6 Manufacturing Chemists' Association was the first one that</p> <p>7 devised the L-1 manual. It basically said we needed to</p> <p>8 warn and it gave the proper signage.</p> <p>9 There were specific companies recommending warning,</p> <p>10 but again, it doesn't specify what the sign should say.</p> <p>11 Any warning would be better than no warning, I guess.</p> <p>12 Q. Could you look at MCE-107.</p> <p>13 A. MCE-107?</p> <p>14 Q. Yeah, that's in that booklet there.</p> <p>15 A. Okay.</p> <p>16 Q. Do you recall seeing that document?</p> <p>17 A. Yeah. Can I read it?</p> <p>18 Q. Sure. That's a document, just for the record,</p> <p>19 dated January 5, 1968, correct?</p> <p>20 A. Yes.</p> <p>21 Q. It's from Peter Kostic, W.R. Grace, safety</p> <p>22 engineer to the Zonolite/W.R. Grace home office person,</p> <p>23 R.W. Sterrett; is that correct?</p> <p>24 A. Did you say "safety engineer"?</p> <p>25 Q. Well, you said Kostic was a safety --</p>	<p>1 Q. Okay. And in that connection, and Johns --</p> <p>2 W.R. Grace met with Johns-Manville research and</p> <p>3 engineering representative in developing an industrial</p> <p>4 hygiene survey?</p> <p>5 A. Yeah, on a specific part?</p> <p>6 Q. No. I'm just saying you read it, correct?</p> <p>7 A. Right.</p> <p>8 Q. Am I correct in summarizing what that is?</p> <p>9 A. Yeah, they met with JM.</p> <p>10 Q. Right.</p> <p>11 A. I don't know exactly what you said.</p> <p>12 Q. Well, you would agree with me that it says the</p> <p>13 purpose of the meeting was to discuss dust problems and</p> <p>14 controls at Zonolite, more specifically at Libby, correct?</p> <p>15 A. Yes.</p> <p>16 Q. And, in fact, there was a recommendation that</p> <p>17 W.R. Grace and Libby, or W.R. Grace, conduct an industrial</p> <p>18 hygiene survey of Libby, correct?</p> <p>19 A. Yes.</p> <p>20 Q. Do you know whether W.R. Grace ever conducted</p> <p>21 an industrial hygiene survey at Libby pursuant to that</p> <p>22 recommendation?</p> <p>23 A. Whether W.R. Grace did?</p> <p>24 Q. Yes.</p> <p>25 A. Specifically, no.</p>
Page 102	Page 104
<p>1 A. Well, I think you said that. I'm not sure</p> <p>2 what he did, but -- (pause.)</p> <p>3 Q. Well, I thought originally -- okay.</p> <p>4 You don't know what Kostic did? After 20 years of</p> <p>5 studying W.R. Grace, you don't know what Kostic did?</p> <p>6 A. Well, I know that they recommended they have a</p> <p>7 full-time safety guy at the plant, so I assume they didn't</p> <p>8 have one.</p> <p>9 Q. Well, was Kostic the full-time safety guy?</p> <p>10 A. (Shaking head negatively.)</p> <p>11 Q. You don't know?</p> <p>12 A. No.</p> <p>13 Q. Okay.</p> <p>14 A. (Perusing document) -- okay.</p> <p>15 Q. Okay. You've seen that document before,</p> <p>16 correct?</p> <p>17 A. Yeah.</p> <p>18 Q. And that's a document, an internal Grace</p> <p>19 document, that talks about their visit to the</p> <p>20 Johns-Manville facility, correct?</p> <p>21 A. Yes.</p> <p>22 Q. And it's follow-up discussion or</p> <p>23 recommendations relative to talking with the</p> <p>24 Johns-Manville people, correct?</p> <p>25 A. Yes.</p>	<p>1 Q. And this is in 1968, January 5, 1968, where</p> <p>2 the recommendation to it by one of its industry people or</p> <p>3 company in the industry where they're seeking advice</p> <p>4 suggested to W.R. Grace that it conduct an industrial</p> <p>5 hygiene survey at Libby?</p> <p>6 A. Yeah. Grace was collecting their own samples</p> <p>7 at Libby throughout the time, and then they were using</p> <p>8 their results. Maryland Casualty was collecting samples</p> <p>9 at Libby, and then relying on their own sampling as well</p> <p>10 as W.R. Grace's sampling.</p> <p>11 Q. But this specific internal recommendation at</p> <p>12 W.R. Grace was that they do an industrial hygiene survey</p> <p>13 to be done as soon as possible at Libby.</p> <p>14 A. Yes.</p> <p>15 Q. Was that ever done by W.R. Grace, do you know?</p> <p>16 A. Well, I know they were collecting samples.</p> <p>17 Q. Sir, my question is: Do you know whether an</p> <p>18 industrial hygiene survey was done as soon as possible at</p> <p>19 Libby pursuant to this internal recommendation of Grace?</p> <p>20 A. I don't know.</p> <p>21 Q. Was there any reference in this takeaway from</p> <p>22 the Grace facility where discussions would -- strike that.</p> <p>23 Was there any recommendation as a takeaway from the</p> <p>24 discussions with Johns-Manville that signage should be put</p> <p>25 up or any kind of warnings should be put up in the W.R.</p>

Page 105	Page 107
<p>1 Grace facility, Libby facility?</p> <p>2 A. Well, after, they recommended that employees</p> <p>3 should be informed regarding the consequences of inhaling</p> <p>4 dust particles and the complications.</p> <p>5 Q. And it says that in here, right?</p> <p>6 A. Yes. Cancer, it mentions "cancer."</p> <p>7 Q. So as of January 5, 1968, W.R. Grace was</p> <p>8 advised by its counterpart, Johns-Manville, and</p> <p>9 specifically was internally advising that employees should</p> <p>10 be advised; is that correct?</p> <p>11 A. Yeah. They weren't advised that by Maryland</p> <p>12 Casualty. That's the point of industrial hygiene.</p> <p>13 Q. Well, the point is in 1968, W.R. Grace knew,</p> <p>14 or at least had a recommendation, that they should be</p> <p>15 telling its employees about the dust and the dangers of</p> <p>16 the dust; is that correct?</p> <p>17 A. Yes. They should have been telling their</p> <p>18 employees when they took over in '63.</p> <p>19 Q. And we're looking at Mr. Hutt who was employed</p> <p>20 from '68 to '69. And prior to Mr. Hutt's employment in</p> <p>21 1968, W.R. Grace was told that by Johns-Manville and knew</p> <p>22 that it should be advising its employees about the dangers</p> <p>23 of the dust, correct?</p> <p>24 A. Yeah. They weren't told that by Maryland</p> <p>25 Casualty who did the industrial hygiene program.</p>	<p>1 they knew about it from Johns-Manville, correct?</p> <p>2 MR. LEFTRIDGE: Objection; form.</p> <p>3 Q. (By Mr. Longosz) "Yes" or "no"?</p> <p>4 A. Yeah, they never informed Mr. Hutt, I know</p> <p>5 that.</p> <p>6 Q. Okay.</p> <p>7 A. Nobody did.</p> <p>8 MR. LONGOSZ: I think this is probably a good</p> <p>9 place to take our lunch break.</p> <p>10 (The lunch recess was taken from</p> <p>11 12:15 p.m. to 1:15 p.m.)</p> <p>12 BY MR. LONGOSZ:</p> <p>13 Q. Dr. Spear, we're on the record again. I hope</p> <p>14 you enjoyed your lunch break.</p> <p>15 A. Yes.</p> <p>16 Q. Okay. You have the common exhibit book.</p> <p>17 Could you look at Common Exhibit 060? It just 60 there.</p> <p>18 A. So 60?</p> <p>19 Q. Yeah, 60. And for the record, could you</p> <p>20 identify what that exhibit is?</p> <p>21 A. It's the United States Department of the</p> <p>22 Interior, Bureau of Mines, Health and Safety Activity;</p> <p>23 Health and Safety Inspection Report, Zonolite Strip Mine</p> <p>24 and Mill, Zonolite Division, W.R. Grace & Company;</p> <p>25 February 1-3, 1965.</p>
Page 106	Page 108
<p>1 MR. LONGOSZ: Read back the question.</p> <p>2 Q. (By Mr. Longosz) Sir, can you answer my</p> <p>3 question and not editorialize? Answer my question.</p> <p>4 A. I'm trying to answer your question.</p> <p>5 Q. Did I ask you about Maryland Casualty in the</p> <p>6 question? Did I?</p> <p>7 A. No. We're talking about education of</p> <p>8 employees --</p> <p>9 Q. No, no.</p> <p>10 A. -- and that's what industrial hygiene is.</p> <p>11 Q. Listen to my question.</p> <p>12 A. All right.</p> <p>13 (The record was read by the court reporter as</p> <p>14 follows:</p> <p>15 "QUESTION: And we're looking at Mr. Hutt who</p> <p>16 was employed from '68 to '69. And prior to Mr. Hutt's</p> <p>17 employment in 1968, W.R. Grace was told that by</p> <p>18 Johns-Manville and knew that it should be advising its</p> <p>19 employees about the dangers of the dust, correct?")</p> <p>20 THE WITNESS: Yes, Mr. Hutt was told nothing</p> <p>21 by anybody, whether it be --</p> <p>22 Q. (By Mr. Longosz) My statement is correct, that</p> <p>23 W.R. Grace knew about and was recommended by</p> <p>24 Johns-Manville to tell its employees about the dangers of</p> <p>25 the dust, and they failed to do that in 1968, although</p>	<p>1 Q. That inspection was done at the Libby</p> <p>2 facility, correct?</p> <p>3 A. Yes.</p> <p>4 Q. Okay. And that was an inspection that was</p> <p>5 performed by the Bureau of Mines, correct?</p> <p>6 A. Correct.</p> <p>7 Q. Okay. And it was a reinspection of the Libby</p> <p>8 Mine. There was a prior inspection before that based on</p> <p>9 the introduction; is that correct?</p> <p>10 The introduction suggests that there was an</p> <p>11 inspection October 1961. Do you see that?</p> <p>12 A. (Perusing document) -- October 9-11, 1961,</p> <p>13 yeah.</p> <p>14 Q. Right. And this was a reinspection after that</p> <p>15 inspection. Do you see that?</p> <p>16 A. Yes.</p> <p>17 Q. "This report and recommendations are based on</p> <p>18 an inspection made on February...this is the second</p> <p>19 reinspection of this mine."</p> <p>20 There may have been one in between, but this was a</p> <p>21 subsequent inspection to that, correct?</p> <p>22 A. Yes, that's what it says.</p> <p>23 Q. Have you reviewed this document in connection</p> <p>24 with your opinions in this case?</p> <p>25 A. Well, I've reviewed all the Grace documents at</p>

Page 109	Page 111
<p>1 one time or another. I don't specifically know if I</p> <p>2 reviewed this document for the case or not.</p> <p>3 Q. And this was an inspection done by a</p> <p>4 government entity and totally independent third-party</p> <p>5 sources; is that correct?</p> <p>6 A. By the Bureau of Mines, I believe.</p> <p>7 Q. Right. And the Bureau of Mines is a</p> <p>8 government entity that is familiar with mining operations;</p> <p>9 is that correct?</p> <p>10 A. Yes.</p> <p>11 Q. And it's familiar with what goes on during a</p> <p>12 mining operation, correct?</p> <p>13 A. Well, I guess it depends on what mining</p> <p>14 operation, but they're the Bureau of Mines so they deal</p> <p>15 with mining.</p> <p>16 Q. Okay. And the W.R. Grace facility deals with</p> <p>17 mining, correct?</p> <p>18 A. Yes.</p> <p>19 Q. And the Bureau of Mines did a safety</p> <p>20 inspection, health and safety inspection of the Libby</p> <p>21 facility, correct?</p> <p>22 A. From this report, yes.</p> <p>23 Q. And this report was not shared with Maryland</p> <p>24 Casualty as far as you can see; is that right?</p> <p>25 A. I don't know if it was or it wasn't. I don't</p>	<p>1 Q. And it also talks about that Kujawa and Lovick</p> <p>2 served personally on the committee. Do you see that as</p> <p>3 well?</p> <p>4 A. Yes.</p> <p>5 Q. Do you see any recommendations or any</p> <p>6 discussion about dust in the facility?</p> <p>7 A. It just talks about two large fans installed</p> <p>8 in the mill and exhausting.</p> <p>9 Q. Do you see any recommendations or any</p> <p>10 suggestions of the lack of signage in the facility or</p> <p>11 warnings?</p> <p>12 A. Let me finish looking at it. Yeah, it just</p> <p>13 has recommendations on the bottom of page 6. It talks</p> <p>14 about a handrail, and then drill holes, explosives,</p> <p>15 electricity, and illumination.</p> <p>16 And it just says under "General Health and Safety":</p> <p>17 "All persons employed at this facility should wear</p> <p>18 protective footwear." And that's the end of the</p> <p>19 recommendations.</p> <p>20 Q. Under "General Health and Safety," it also</p> <p>21 says that "protective hats were worn by all employees.</p> <p>22 Respirators and eye protection were used where needed."</p> <p>23 The Bureau of Mines viewed that respirators were</p> <p>24 used where needed. Do you see that?</p> <p>25 A. Where are you at?</p>
Page 110	Page 112
<p>1 see any copies on it.</p> <p>2 Q. You see no copy of the report going to</p> <p>3 Maryland Casualty; is that correct?</p> <p>4 A. No.</p> <p>5 Q. And you haven't seen any documentation that</p> <p>6 suggests that this report was sent to anybody in Maryland</p> <p>7 Casualty; is that correct?</p> <p>8 A. I have not.</p> <p>9 Q. In terms of the report itself, it talks about</p> <p>10 a variety of items categories. It talks about surface.</p> <p>11 It talks about fire hazards and firefighting equipment.</p> <p>12 It talks about storage and use of explosives. It talks</p> <p>13 about loading, hauling, and drilling. It talks about</p> <p>14 electricity and illumination. It also talks about general</p> <p>15 health and safety. Do you see that?</p> <p>16 A. Yes, on page 5.</p> <p>17 Q. And it makes recommendations based on general</p> <p>18 health and safety. Do you see the recommendations?</p> <p>19 A. It's talking about what it observed, yeah, on</p> <p>20 page 5.</p> <p>21 Q. Right. And it also on page 5 talks about that</p> <p>22 there is a safety committee of 12 employees who</p> <p>23 represented all departments that was organized and</p> <p>24 functioning at the Libby facility, correct?</p> <p>25 A. Yes.</p>	<p>1 Q. On page under "General Health and Safety," the</p> <p>2 fourth paragraph.</p> <p>3 A. Yeah, protective hats. Yeah, this is on page</p> <p>4 5, okay.</p> <p>5 Q. Yeah. Let's go to MCE-77, if we could.</p> <p>6 A. Okay.</p> <p>7 Q. And, then, identifying this document, this is</p> <p>8 a March 28, 1966 document from Mr. Park to a variety of</p> <p>9 people at W.R. Grace; is that correct?</p> <p>10 A. Yes.</p> <p>11 Q. It discusses Mr. Walker, who is a safety</p> <p>12 representative from Maryland Casualty, visiting the</p> <p>13 operations and providing certain recommendations.</p> <p>14 A. Yes.</p> <p>15 Q. In this letter, it talks about maintaining a</p> <p>16 goal of controlling dust concentration at the breathing</p> <p>17 level in the mill to a maximum of 5 million particles per</p> <p>18 cubic foot of air. Do you see?</p> <p>19 A. Yes.</p> <p>20 Q. So as of March 28, 1966, Maryland Casualty was</p> <p>21 maintaining its recommendation that the dust levels should</p> <p>22 be at 5 million parts per cubic foot of air.</p> <p>23 A. Yes, and then they refer to reviewing counts</p> <p>24 in the State of Montana in 1956, '59, and '62, right.</p> <p>25 Q. Right. And this letter does not suggest any</p>

Page 113

1 deviation from that 5 number or goal, correct?

2 A. This document references the 5. Let me read

3 it -- (perusing document.) Yeah, it references the 5

4 without referring to any literature pertaining to the

5 inadequacy of the TLV.

6 Q. It references the 5 and does not suggest that

7 any number less than 5 should be maintained in the

8 facility, correct?

9 A. Yeah, it references 5 million particles per

10 cubic foot.

11 Q. Then let's look at page 2. Mr. Park goes on

12 to say:

13 "We are pleased to learn that the total

14 severity frequency rates for this plant are the lowest

15 they have been in the last five years. This indicates the

16 effectiveness of your," meaning Grace's, "safety program."

17 Do you see that reference?

18 A. Yes.

19 Q. It also says: "Continued emphasis upon

20 employee education and closer supervision to establish

21 safe work habits can be expected to further reduce

22 accident frequency and severity."

23 This was a suggestion/recommendation made by

24 Maryland Casualty to W.R. Grace.

25 A. Yes.

Page 114

1 Q. And it also asks for Grace's cooperation in

2 making this recommendation effective. Do you see that?

3 A. I do. And it's talking education, it's

4 talking about severity and frequency rates for accidents.

5 Q. Let's look at No. 88, MCE-88. While the

6 condition of that document isn't all that great, it

7 probably came off microfiche or some other thing, we can

8 at least take a look at that. And we know that this is a

9 letter sent to Mr. Bleich, the manager at the Libby

10 facility, a letter sent by Mr. Wake to Mr. Bleich as of

11 February 9, 1967. Do you see that?

12 A. Yes.

13 Q. Mr. Wake is with the Montana State Board of

14 Health. Do you see that?

15 A. Yes.

16 Q. Have you seen this letter before?

17 A. Yes.

18 Q. Okay. And this was a report of a partial

19 industrial hygiene study done at the Libby facility,

20 correct?

21 A. Yep.

22 Q. And this was done by the State of Montana in

23 1967.

24 A. Yes.

25 Q. And the reason for this was to ascertain

Page 115

1 whether the Libby mill was in compliance with the previous

2 recommendations made by the State; is that correct?

3 A. Yes.

4 Q. The State of Montana suggests that the dust in

5 the mill had been reduced substantially from previous

6 periods. Do you see that?

7 A. That's what it says, yes.

8 Q. And that's based on samples taken at that time

9 and a review at that time in 1967; is that right?

10 A. Right. And then if you look at the counts --

11 Q. We're going to -- I'm not asking you a

12 question there, sir.

13 A. Well, I --

14 Q. I asked my question. Let's go to 105.

15 A. Well, it's part of the --

16 Q. Let's go to 105.

17 A. It's part of the report.

18 MR. LEFTRIDGE: Excuse me, Mr. Longosz, would

19 you please let --

20 MR. LONGOSZ: You see, this is part of the

21 problem, and I think you need to instruct the witness that

22 I'm asking the questions. And you can cross-examine him,

23 you can redirect him. But I'm asking questions, and so

24 many times during this deposition, he decides he's going

25 to editorialize relative to the question.

Page 116

1 THE WITNESS: You called my attention to the

2 report.

3 MR. LEFTRIDGE: Mr. Longosz, you're asking

4 about a particular document. And there are aspects --

5 MR. LONGOSZ: I asked him --

6 MR. LEFTRIDGE: Please let me finish. There

7 are aspects of the document that are relevant to his

8 answer in putting his answer into context including pages

9 of that same document. We would appreciate it if you

10 allowed Dr. Spear, in order to be able to answer your

11 question completely and thoroughly, to reference aspects

12 of that document as well as other aspects of other

13 documents that put his answer and your question into

14 perspective.

15 Q. (By Mr. Longosz) Have it your way. If you

16 want to editorial with respect to -- you answered my

17 question.

18 A. I want to refer to the whole report that was

19 provided by Mr. Wake. Okay?

20 Q. Sure.

21 A. If you look at the concentration on the last

22 page, the concentration, you see that we have a 14, 11.2,

23 7.2 - and I can't read all of them - 20, and 25. So

24 there's really one sample that's below the TLV in that

25 whole mix. That's the full report, just so we get it in

Pages 113 to 116

Page 117	Page 119
<p>1 the record.</p> <p>2 Q. The report references TLV levels compared to</p> <p>3 the prior report. Does it reference that in what you've</p> <p>4 just read to me? Can you compare that to what the State</p> <p>5 of Montana previously found?</p> <p>6 A. Well, if I called up the 64 and the different</p> <p>7 samples, I could, yeah, but this is just giving the</p> <p>8 results based on this 1967 report, and they said they were</p> <p>9 lower than they were previously.</p> <p>10 Q. Okay.</p> <p>11 A. All over the limit, all over the TLV.</p> <p>12 Q. I didn't ask you whether they were over the</p> <p>13 limit or not. I asked you whether they were lower than</p> <p>14 the prior report. And that's what that references; is</p> <p>15 that correct?</p> <p>16 A. It says right in the document they were, they</p> <p>17 were lower.</p> <p>18 Q. Right. And they certainly were above the 5</p> <p>19 TLV that Maryland Casualty had recommended, correct?</p> <p>20 A. They are all above that, yes.</p> <p>21 Q. Okay. Let's go to 105. Have you seen this</p> <p>22 document before?</p> <p>23 A. Yes.</p> <p>24 Q. Where did you see this document?</p> <p>25 A. Probably as part of the Grace exhibits. I</p>	<p>1 A. Yes, it mentions some instructions.</p> <p>2 Q. Have you reviewed this document carefully to</p> <p>3 ascertain whether W.R. Grace had adequate instructions for</p> <p>4 their employees?</p> <p>5 A. Well, I've reviewed many W.R. Grace documents</p> <p>6 and they did not have adequate instructions. It's</p> <p>7 recommending a Dustfoe respirator without instructing as</p> <p>8 to why or when it should be worn. I mean, it's pretty</p> <p>9 general.</p> <p>10 Q. Well, we know from documents we reviewed this</p> <p>11 morning that a respirator should be worn at all times,</p> <p>12 correct?</p> <p>13 A. Well, they should be worn anywhere if we are</p> <p>14 exposed to dust, yes, that they're in high concentrations,</p> <p>15 particularly if there's dust clouds.</p> <p>16 Q. We also know that employees were not wearing</p> <p>17 the respirators like they should have been; is that</p> <p>18 correct?</p> <p>19 A. Yeah, what I know is that Lynch and the Public</p> <p>20 Health Service in 1968 basically said that the respirator</p> <p>21 program was inadequate and workers were wearing unimproved</p> <p>22 respirators.</p> <p>23 Q. Okay.</p> <p>24 A. That's what I have to go on.</p> <p>25 Q. Would you consider the Dustfoe 66 an</p>
Page 118	Page 120
<p>1 have seen this document, though.</p> <p>2 Q. I'm sorry?</p> <p>3 A. I said I've seen this document.</p> <p>4 Q. What is this document?</p> <p>5 A. It's Construction Projects Division, W.R.</p> <p>6 Grace, Departmental Safety Instruction, Service --</p> <p>7 something. I can't read all of it.</p> <p>8 Q. Service Department?</p> <p>9 A. Service Department.</p> <p>10 Q. So this is the Departmental Safety</p> <p>11 Instructions. Is that what it says?</p> <p>12 A. Yes.</p> <p>13 Q. So this is instructions that W.R. Grace has</p> <p>14 for specifics of safety consideration instructions to</p> <p>15 their employees; is that correct?</p> <p>16 A. It says safety, Departmental Safety</p> <p>17 Instruction, Service Department. That's what it says.</p> <p>18 Q. So earlier, were you saying that there were no</p> <p>19 safety instructions or safety specifics regarding what an</p> <p>20 employee should be told or not told in the facility?</p> <p>21 A. Is what I was saying is that there were no</p> <p>22 instructions to avoid creating dust and being exposed to</p> <p>23 asbestos.</p> <p>24 Q. Okay. But W.R. Grace did have safety</p> <p>25 instructions which are in Exhibit No. 105.</p>	<p>1 appropriate respirator for this facility?</p> <p>2 A. The Dustfoe was a BOM-approved respirator, I</p> <p>3 believe, yes.</p> <p>4 Q. Okay.</p> <p>5 A. This is talking about painting. It's not</p> <p>6 talking about dust.</p> <p>7 Q. Okay. Let's go to the next exhibit, 106. Is</p> <p>8 Would you tell us what this document is?</p> <p>9 A. This is a document --</p> <p>10 Q. Who's it addressed to?</p> <p>11 A. It's addressed to all employees.</p> <p>12 Q. And who's it from?</p> <p>13 A. From E.D. Lovick.</p> <p>14 Q. And Lovick is the W.R. Grace, what was he,</p> <p>15 plant manager?</p> <p>16 A. Yes, I believe so.</p> <p>17 Q. And what's the subject of this?</p> <p>18 A. Safety and safety equipment.</p> <p>19 Q. Does this memo to all employees tell employees</p> <p>20 that respirators must be worn?</p> <p>21 A. It says in certain areas on certain jobs.</p> <p>22 Yeah, it says certain areas of the operations require the</p> <p>23 respirators be worn, and then it talks about safety</p> <p>24 glasses and eye protection.</p> <p>25 Q. So this is, at least, one memo to all</p>

Page 121	Page 123
<p>1 employees advising them that respirators must be worn, 2 correct? 3 A. I don't see a date on it, but maybe there 4 isn't one, I don't know. 5 Q. Let's look at 106.1. 6 A. Okay. 7 Q. Have you seen this document before? 8 A. Yes. 9 Q. And this rule is for the use of respirators? 10 A. Yes. 11 Q. And this is a document that was January 1, 12 1968? 13 A. Yeah, it looks like '68. 14 Q. Okay. So this document would have covered the 15 time while Mr. Hutt was working in the facility or at 16 least came to work in the facility in 1968? 17 A. Yes. Let me read the document. 18 Q. Sure. 19 A. It's a hard one to read. 20 Q. I think if you look at the last -- it's three 21 pages. If you look at the third page, it looks like 22 there's a translation, so to speak. 23 A. Okay. May I read that, please? 24 Q. Yeah. 25 A. (Perusing document) -- I believe regarding a</p>	<p>1 Q. And do you agree that the Montana Safety 2 Standards cover the general situation regarding protection 3 against dust, fumes, mist, vapors, and gases? 4 A. Well, yes. And if you're referring to, you 5 know, the dust standard, it wasn't the appropriate 6 standard, so -- (pause.) 7 Q. Again, Dr. Spear, my question is: Do you 8 agree that the Montana Safety Standards cover the general 9 situation regarding protection against dust, fumes, mist, 10 vapors, and gases? "Yes" or "no." 11 A. I can't answer it "yes" or "no." 12 Q. Okay. Are you conversant with the Montana 13 Safety Standards in 1968? 14 A. I have reviewed them in the past, yes. 15 Q. Do you know what they say? Can you tell me 16 today what they say? 17 A. I'd be happy to review them with you. 18 Q. Can you tell me today specifically what the 19 Montana Safety Standards say with respect to dust in 1968? 20 A. I haven't looked at it in awhile, no. 21 Q. Okay. The rule here also, this document also 22 says that every employee received a copy of these general 23 standards, meaning the Montana Safety Standards. Do you 24 see that? 25 A. Where are you at?</p>
Page 122	Page 124
<p>1 document like this on respirators -- 2 Q. I didn't ask a question, but if you want to 3 comment, go ahead. There's no question pending. 4 A. Yeah, I mean, to recommend respirators without 5 having a program that tells you, you know, why you need 6 them -- this does say a specific type of respirator but 7 doesn't provide any fit testing. 8 Conceivably, if you're in a dust cloud and you're 9 wearing a half-mask respirator, you could very well be in 10 a concentration that was overwhelming the respirator. So 11 we select respirators based on the concentration the 12 worker is in. So that's my only criticism on this is it 13 just provides no guidance as to how do we use the 14 respirator. 15 Q. Okay. So looking at this document, do you 16 agree that the Montana Safety Standards should be followed 17 by employees and employers? 18 A. Are we on the same document? 19 Q. Yes, sir. 20 A. Then ask the question again. I lost you on 21 that one. 22 Q. Without looking at the document, do you 23 believe that in 1968 employers and employees should have 24 followed the Montana Safety Standards? 25 A. Yes.</p>	<p>1 Q. The very first paragraph. 2 A. That every employee, question mark, received, 3 question mark, a copy of these general standards, and 4 copies are available in the office. 5 Q. You see that, right? 6 A. Yes. 7 Q. So this is educational material that's 8 provided to an employee, correct? 9 A. Well, it's, yeah, referencing the standards. 10 I mean, again, we have to know why we're using a 11 respirator. 12 Q. Well, do you think it's good practice to 13 provide employees with the state safety standards as part 14 of the educational program? 15 A. Yes. 16 Q. Okay. Is there any question that respirators 17 were being used at the W.R. Grace facility in 1968 because 18 of dust? 19 A. Well, there were reports that they weren't 20 wearing respirators in every location. 21 Q. Let me ask it this way: Is it your opinion 22 that the dust in the Libby facility was -- that there was 23 a lot of dust there? 24 A. My opinion is that there was a lot of high 25 concentrations of dust which contained high levels of</p>

Page 125

1 asbestos. Yes, that's my opinion.
 2 Q. Okay. My question to you is: Is it your
 3 opinion that there's a lot of dust in the Libby, Montana
 4 site? "Yes" or "no."
 5 A. At the W.R. Grace facility?
 6 Q. Yes, sir.
 7 A. Yes.
 8 Q. Okay. If you were an employee in 1968 and saw
 9 the dust or worked in the dust environment and you were
 10 told to wear a respirator, would you wear a respirator?
 11 A. Well, I would probably try, and that's what
 12 their workers said. Mr. Hutt tried to wear a respirator
 13 and he couldn't. It would plug up. That's what all the
 14 workers told me. They didn't know why they needed one.
 15 Q. So let's answer my question now, Dr. Spear.
 16 A. I just did.
 17 Q. If you were a worker in the W.R. Grace
 18 facility, seeing the dust that was there, would you wear a
 19 respirator? "Yes" or "no."
 20 A. I would try to wear a respirator, yes.
 21 Q. Okay. Would it matter to you what was in the
 22 dust?
 23 A. It would matter to me a great deal what was in
 24 the dust. If I knew that it was a carcinogen, I would
 25 definitely want to be very diligent about wearing a

Page 127

1 A. No.
 2 Q. Okay. A Dustfoe 66 is an actual respirator
 3 that does a lot more than a paper mask, doesn't it?
 4 A. It would be more protective than a paper mask,
 5 yeah.
 6 Q. Okay. And --
 7 A. But again, it's a half-mask respirator with a
 8 cartridge on the front.
 9 Q. Right.
 10 A. It's limited in the concentration that it can
 11 protect against.
 12 Q. Mr. Hutt never said that he wore a Dustfoe 66,
 13 correct?
 14 A. No.
 15 Q. Okay. And you saw correspondence in the
 16 documents where W.R. Grace said that they gave
 17 respirators, not paper masks, to employees; is that
 18 correct?
 19 A. I believe I have seen that document. I also
 20 saw the document from Lynch and the Public Health Service
 21 that said workers were using unapproved respirators.
 22 Q. Who gave the workers the unapproved
 23 respirators?
 24 A. I don't know.
 25 Q. Okay.

Page 126

1 respirator.
 2 Q. But if there wasn't a carcinogen and you saw
 3 that dust, you wouldn't care whether you wore a respirator
 4 or not. Is that your testimony?
 5 A. If I was told that the dust was a farm dust or
 6 nontoxic, it's not going to hurt you, then there's a
 7 chance I wouldn't have worn a respirator, yeah.
 8 Q. Okay. If I was told as a matter of employment
 9 and I received the literature that we just went through
 10 that respirators must be worn, would you still refuse to
 11 wear a respirator?
 12 A. Again, I would try to wear a respirator and
 13 follow the rules, but if I couldn't wear it because it
 14 plugged up, then I guess I couldn't wear it.
 15 Q. Did Mr. Hutt talk about a D-foe 66 plugging
 16 up?
 17 A. He didn't talk about a specific type. He said
 18 he wore a dust mask and that he wore it when he was in the
 19 dry mill, because he said he didn't wear one in the skip
 20 shack or the transfer point. And he said that he tried to
 21 wear it and it would plug up, so he couldn't wear it.
 22 Q. As a paper mask.
 23 A. That's what he said.
 24 Q. Okay. A paper mask is not a Dustfoe 66,
 25 correct?

Page 128

1 A. Hutt said that he saw one worker wearing a
 2 respirator, and that worker went down to the hardware
 3 store and bought one.
 4 Q. Who said that?
 5 A. Hutt.
 6 Q. But I'm not talking about Mr. Hutt, Dr. Spear.
 7 I'm talking about workers in that facility being told by
 8 W.R. Grace to wear respirators.
 9 A. Well, re-ask your question, then.
 10 Q. My question is: You saw in the documents,
 11 documents where W.R. Grace said that they gave respirators
 12 to all their employees, correct?
 13 A. I've seen those documents.
 14 Q. Okay. And the respirator was the Dustfoe 66
 15 which was recommended by Maryland Casualty, correct?
 16 A. You know, whether or not they gave them all
 17 Dustfoe 66, I don't know.
 18 Q. Okay.
 19 A. I can only testify to what Mr. Hutt said.
 20 Q. With respect to him.
 21 A. Right.
 22 Q. And he said that W.R. Grace did not give him a
 23 respirator but a paper mask, correct?
 24 A. He said he was given a paper mask and said he
 25 could wear that if he wanted to, yeah. That's what he

Pages 125 to 128

Page 129	Page 131
<p>1 testified to, and other workers have testified to the same</p> <p>2 thing.</p> <p>3 Q. When did those other workers work at the Grace</p> <p>4 facility that you keep talking about?</p> <p>5 A. All sorts of time frames.</p> <p>6 Q. Well, did any of those workers work during</p> <p>7 1968-69?</p> <p>8 A. I'm sure they did, yes. I can't remember --</p> <p>9 Q. No, I want to know specifically: What worker</p> <p>10 worked during 1968 and '69 when Mr. Hutt was there? Give</p> <p>11 me the name.</p> <p>12 A. I can't given you a specific name of who</p> <p>13 worked when. I just know I interviewed workers in person</p> <p>14 up at Libby.</p> <p>15 Q. Did any of the workers that you interviewed</p> <p>16 wear a Dustfoe 66?</p> <p>17 A. I believe there could have been some workers</p> <p>18 that wore a Dustfoe 66. Other ones said they wore paper</p> <p>19 masks. I don't remember who specifically, but -- (pause.)</p> <p>20 Q. Now, this rules for use of respirators that</p> <p>21 was given out by W.R. Grace to its employees --</p> <p>22 A. Which one were we on again?</p> <p>23 Q. It's 106.1.</p> <p>24 A. Yes.</p> <p>25 Q. Okay. You would agree with this, that, No. 1:</p>	<p>1 operating machines"?</p> <p>2 Do you agree that it should be mandatory that</p> <p>3 respirators be worn in the dry mill?</p> <p>4 A. Yes.</p> <p>5 Q. Do you believe that it is mandatory that</p> <p>6 respirators should be worn in the skip area?</p> <p>7 A. It says in the skip area while sweeping or</p> <p>8 cleaning.</p> <p>9 Q. Do you agree with that?</p> <p>10 A. Yes.</p> <p>11 Q. Okay. Do you agree that it's mandatory that</p> <p>12 respirators be worn in the laboratory while grinding,</p> <p>13 crushing, or applying samples?</p> <p>14 A. Yes, if we enforce it, and they're using a</p> <p>15 good respirator, and they know why they're wearing it, and</p> <p>16 they're fit-tested.</p> <p>17 Q. Do you agree that it should be mandatory that</p> <p>18 respirators be worn in the rotary drill while drilling?</p> <p>19 A. Yes, under the same stipulations.</p> <p>20 Q. Do you agree that it's mandatory that</p> <p>21 respirators be worn while employed in the secondary drill</p> <p>22 while drilling?</p> <p>23 A. Yes.</p> <p>24 Q. Do you agree that it's mandatory, that it</p> <p>25 should be mandatory that respirators be worn while</p>
Page 130	Page 132
<p>1 "It is mandatory that respirators be worn while regularly</p> <p>2 or temporarily employed in certain specific areas or on</p> <p>3 certain specific jobs."</p> <p>4 Do you agree with that statement?</p> <p>5 A. It says that, yes.</p> <p>6 Q. Do you agree with that statement?</p> <p>7 A. Well, it says it's mandatory. I don't know if</p> <p>8 they enforced it or not.</p> <p>9 Q. Do you agree with that statement?</p> <p>10 A. I agree that that's what it says, yes.</p> <p>11 Q. Do you agree that it would be mandatory in an</p> <p>12 industrial setting such as this that respirators be worn</p> <p>13 while regularly or temporarily employed in certain</p> <p>14 specified areas or on certain specific jobs?</p> <p>15 A. I believe that it should be, yes.</p> <p>16 Q. Okay.</p> <p>17 A. Then you have to enforce it.</p> <p>18 Q. And that's up to the employer to enforce; is</p> <p>19 that correct?</p> <p>20 A. It's up to who?</p> <p>21 Q. The employer.</p> <p>22 A. Yes.</p> <p>23 Q. Number 2, do you agree with the statement</p> <p>24 that: "It is mandatory that respirators be worn while</p> <p>25 employed in the following areas or in the following</p>	<p>1 employed operating these trucks while loading or dumping</p> <p>2 materials?</p> <p>3 A. Yes. Again, under the same stipulations that</p> <p>4 we know why we're wearing them, and they're approved</p> <p>5 respirators, and they know the hazards, you bet.</p> <p>6 Q. So your testimony is you should allow the</p> <p>7 employee to decide whether it should be mandatory to wear</p> <p>8 these respirators or not?</p> <p>9 A. No, that's not. My testimony is to require</p> <p>10 respirators without doing an evaluation of whether or not</p> <p>11 they're effective against the concentrations of dust and</p> <p>12 not educating the workers, then you're providing a false</p> <p>13 sense of security to the workers.</p> <p>14 In other words, you know, it could be, essentially,</p> <p>15 they're overloading a respirator and they're not really</p> <p>16 being protected when they think they are.</p> <p>17 Q. Well, what does the word "mandatory" mean to</p> <p>18 you?</p> <p>19 A. It means it's required.</p> <p>20 Q. Okay. Do you believe it's mandatory that</p> <p>21 respirators be worn at the loading dock while using this</p> <p>22 machinery to move material?</p> <p>23 A. I would hope that they were worn at the</p> <p>24 loading dock because it was extremely dusty according to</p> <p>25 Maryland Casualty.</p>

Page 133

1 Q. My question is: Do you agree that it's
2 mandatory that respirators be worn at the loading dock?
3 A. Yes.
4 Q. Do you agree that it is mandatory that
5 respirators be worn at the Zonolite station while cleaning
6 cars or during loading?
7 A. Yes, if they enforce it.
8 Q. Do you agree that it's mandatory that
9 respirators be worn at the export dock while cleaning
10 cars, loading trucks, or backing?
11 A. Yes, if they enforce it.
12 Q. Well, "mandatory" means what? What is the
13 definition of "mandatory"?
14 A. It means it's required.
15 Q. Okay.
16 A. But that doesn't mean they've enforced that
17 requirement. There's record after record saying they
18 weren't wearing respirators.
19 Q. Number 3: "It is mandatory that respirators
20 be worn while employed in the following job
21 classifications when working as designated in Paragraph
22 2."
23 Do you agree that it is mandatory for respirators to
24 be worn for all of these job classifications that are here
25 "A" through "N"?

Page 134

1 A. Yes, under the previous stipulation that I've
2 already talked about.
3 Q. Well, in other words, it's required for all
4 employees to wear respirators when they're working at any
5 of those job classifications, correct?
6 A. If they're trained and they know why they're
7 wearing it, yes.
8 Q. My question to you, sir, is -- okay. So if
9 they were not trained and they don't know why they're
10 wearing it, then the employee should ignore the mandatory
11 requirement to wear the respirator. Is that your
12 testimony?
13 A. No. The testimony is that they -- basically,
14 it's much harder to enforce the rules if a worker doesn't
15 know what the hazards are.
16 Q. Okay. Let's look at 119.
17 A. Okay, 119.
18 Q. Would you identify for the record what this
19 document is?
20 A. It's a State of Montana, State Department of
21 Health, September 4, 1968, to Mr. Bleich from Mr. Wake.
22 It's a report of an Industrial Hygiene Study conducted by
23 Mr. J.R. Lynch and Kronoveter.
24 Q. And who was this sent to?
25 A. Well, it's to Mr. Bleich.

Page 135

1 Q. And Mr. Bleich is the manager of the Libby
2 mine?
3 A. Correct.
4 Q. And you don't see any indication that this
5 report was sent to Maryland Casualty, do you?
6 A. I don't.
7 Q. Okay.
8 A. This is the one where he's talking about the
9 respirators.
10 Q. What is the date of this report?
11 A. September 4, 1968.
12 Q. It has a general category and then it talks
13 about dust exposure on page 2?
14 A. Yes.
15 Q. It talks about the threshold limit value on
16 page 2 as well?
17 A. Yes.
18 Q. Okay. Does it talk about -- what TLV does it
19 suggest be followed?
20 A. Well, it's talking about if there's different
21 minerals present. On that page, I believe you're on
22 page 2 --
23 Q. Yes.
24 A. (Quoted as read): "However, since a
25 significant amount of tremolite asbestos is present, the

Page 136

1 asbestos is a major health hazard and the asbestos TLV
2 will be governing. The present accepted TLV for asbestos
3 containing dust is 5 million particles per cubic foot. In
4 applying this TLV, all the dust is counted, not just the
5 fibers, and no correction is made for the asbestos content
6 of the dust.
7 "A new tentative asbestos TLV of 2 million
8 particles per cubic foot or 12 fibers per cc longer than 5
9 micrometers per cc" - that must be a typo - "have been
10 proposed to replace the 5 million particle per cubic foot
11 TLV, based on the conclusion that 5 million particle per
12 cubic foot may not be low enough to protect the health of
13 the workers."
14 That's what it says.
15 Q. The 2 was never put into existence, was it?
16 It was a recommendation that was never followed, correct?
17 A. No, I believe it was the emergency temporary
18 standard that first went into effect, that it was 12
19 fibers per cc or 2 million particles per cubic foot, and
20 then it went right into the OSHA standard of 5.
21 Q. So it never went into effect and was never
22 accepted before it went into the OSHA standard; is that
23 correct?
24 A. It was in effect at the initial emergency
25 temporary standards, is my understanding.

Pages 133 to 136

Page 137	Page 139
<p>1 Q. When was that?</p> <p>2 A. 1971.</p> <p>3 Q. Right.</p> <p>4 A. The very first one.</p> <p>5 Q. Are you a member, by the way, of the American</p> <p>6 Industrial Hygiene Association?</p> <p>7 A. I am.</p> <p>8 Q. Okay. You are a member. And are you a member</p> <p>9 of the American -- strike that.</p> <p>10 Page 4, there's recommendations.</p> <p>11 A. Okay.</p> <p>12 Q. And part of the recommendations is that:</p> <p>13 "Bureau of Mines approved respirators should be provided</p> <p>14 for all intermittent hazardous operations where local</p> <p>15 exhaust is not practical. They should be regularly</p> <p>16 maintained and their proper use should be enforced."</p> <p>17 Do you see that?</p> <p>18 A. Yes. And, then, may I read the rest of the</p> <p>19 report real quick?</p> <p>20 Q. Sure.</p> <p>21 A. (Perusing document) -- under Controls, it</p> <p>22 talks about:</p> <p>23 "Dump trucks churned up a cloud of dust from</p> <p>24 the road dirt which contained some tremolite. Although</p> <p>25 the seriousness of the exposure is doubtful, the use of a</p>	<p>1 document nor provided it as far as you can see, correct?</p> <p>2 A. Not that I can see.</p> <p>3 Q. Okay. This document refers to an individual</p> <p>4 from Johns-Manville conducting an industrial hygiene</p> <p>5 survey of the Libby operations; isn't that correct?</p> <p>6 A. Yes.</p> <p>7 Q. And this was a survey and advice asked for by</p> <p>8 W.R. Grace; is that correct?</p> <p>9 A. Let me look at it, please. (Perusing</p> <p>10 document) -- yeah, it says at our request, okay.</p> <p>11 Q. Okay. And, then, looking at this, the very</p> <p>12 first section here is R.D. Hindmarch from J-M. That's</p> <p>13 Johns-Manville. I guess that's his industrial hygiene</p> <p>14 survey.</p> <p>15 A. Yes.</p> <p>16 Q. Then looking at page 2, he noted certain</p> <p>17 conditions at the facility. Do you see that?</p> <p>18 A. Yeah, you know, he's talking about quantity of</p> <p>19 tremolite in the whole dust ranged from 12 to 23 percent.</p> <p>20 That's the percentage of tremolite based on the threshold</p> <p>21 limit values for tremolite of 5 million particles per</p> <p>22 cubic foot. It would indicate that this value would be</p> <p>23 applicable to your operation.</p> <p>24 Of the 47 samples collected, dust counts in 13 of</p> <p>25 the samples, 5 million particle per cubic foot threshold,</p>
Page 138	Page 140
<p>1 binder on the road would be beneficial."</p> <p>2 "A detailed listing of the improvements</p> <p>3 necessary is not possible because of the number and</p> <p>4 variety of the machines."</p> <p>5 And then it recommended a tightening up of all the</p> <p>6 hoods, a combination of smaller hood openings, increased</p> <p>7 airflow should be obtained such that control velocities of</p> <p>8 at least 200 feet per minute result at all openings.</p> <p>9 The respirator program in the mill was not effective</p> <p>10 since the respirators were not of an approved type and</p> <p>11 were not being worn by all employees.</p> <p>12 So that's it.</p> <p>13 Q. So let's look at Exhibit MCE-120.</p> <p>14 A. Okay.</p> <p>15 Q. Could you identify that document for us?</p> <p>16 A. It's a Personal and Confidential to R.M.</p> <p>17 Vining from Peter Kostic, dated October 7, 1968: "Dust</p> <p>18 Controls - Zonolite Libby."</p> <p>19 Q. Okay. This is an internal W.R. Grace</p> <p>20 document?</p> <p>21 A. Yes.</p> <p>22 Q. And it's from Kostic to a variety of other</p> <p>23 people at Grace; is that correct?</p> <p>24 A. Yes.</p> <p>25 Q. And Maryland Casualty was not copied with this</p>	<p>1 the highest counts were shown in samples collected on the</p> <p>2 second floor of the dry mill.</p> <p>3 Q. I was actually referring to page 2 where it</p> <p>4 says: "During the survey the following conditions were</p> <p>5 noted."</p> <p>6 And he notes various conditions of dust at the</p> <p>7 facility.</p> <p>8 A. Visible dust, yes.</p> <p>9 Q. Okay. So then we go to the next person -- and</p> <p>10 also he mentions in here that on "D," you see "D": "Use</p> <p>11 of brooms and air hoses for cleaning purposes (instead of</p> <p>12 vacuum cleaners.)"</p> <p>13 Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. It would be your recommendation that vacuum</p> <p>16 cleaners should be used rather than brooms and air hoses?</p> <p>17 A. It says: "During the survey the following" --</p> <p>18 Q. No, my question is: Is that your</p> <p>19 recommendation?</p> <p>20 A. We want to use vacuums instead of air hoses or</p> <p>21 brooms. And this says:</p> <p>22 "During the survey the following conditions</p> <p>23 were noted: Use of brooms and air hoses for cleaning</p> <p>24 purposes (instead vacuum of cleaners.)"</p> <p>25 So they were not using vacuum cleaners.</p>

Page 141	Page 143
<p>1 Q. Right. And it would be your recommendation to 2 use vacuum cleaners, right? Would it be your 3 recommendation to use vacuum cleaners, sir? 4 A. They're saying -- 5 Q. No, no. 6 A. Yes, sir. 7 Q. Again, Dr. Spear, would it be Dr. Spear's 8 recommendation to use vacuum cleaners rather than brooms 9 and air hoses? 10 A. That is the recommendation of industrial 11 hygiene, and they were not doing this. This is what they 12 noted. You seem to be confused. 13 Q. No, I'm not confused, Doctor. 14 A. Okay, well -- 15 Q. And if you need to take a break, let me know. 16 My question to you is: Would Dr. Spear recommend to 17 use vacuums rather than air hoses and brooms? "Yes" or 18 "no." 19 A. Yes. 20 Q. Okay. And Johns-Manville is suggesting they 21 should be using vacuums rather than air hoses and brooms, 22 correct? 23 A. Yes. They should be using vacuums instead of 24 air hoses and brooms. 25 Q. And W.R. Grace, as of October 7, 1968, has</p>	<p>1 "Local exhaust ventilation is used extensively 2 in the dry mill but that it is not sufficiently effective, 3 that a tightening-up of all exhaust hoods is required, 4 that a combination of smaller hood openings and increased 5 air flow should be obtained such that control velocities 6 of at least 200 fpm result at all openings, and that this 7 is a matter of detailed hood redesign, increased system 8 capacity and continuous maintenance." 9 Do you see that? 10 A. Yes. And that was the -- 11 Q. And he's telling W.R. Grace that they need to 12 do that. 13 A. That was the intent of the safety program, to 14 design-engineer the dust out, correct. 15 Q. And, apparently, W.R. Grace was not doing 16 that; is that true? 17 A. In my opinion, Maryland Casualty was not 18 making appropriate recommendations to engineer the dust 19 out. Their recommendations were not effective. They 20 didn't specify the volume there. We got the 21 state-of-the-art Lompoc mill we could go by, and they 22 didn't do it. They recommended the wrong air cleaning. 23 They were dispersing the dust throughout the area around 24 the dry mill instead of trying to collect it in the 25 baghouse with some other device.</p>
Page 142	Page 144
<p>1 this recommendation and knows it should be using vacuum 2 cleaners instead of air hoses and brooms, correct? 3 A. Yes. 4 Q. Okay. Now, we have J.R. Lynch, I presume from 5 HEW. That was another survey done at this facility? 6 A. Yes. 7 Q. And he talks about different things that he 8 saw at the facility, correct? 9 A. Yeah, let me look at it real quick. 10 Q. Sure. 11 A. It talks about the amount of asbestos present 12 and some major health hazards, and that tremolite is 13 equally toxic. Okay. 14 Q. Looking at page 3, the last sentence of the 15 first paragraph, Mr. Lynch says: 16 "In general" - this is what he's telling W.R. 17 Grace - "In general," Lynch says, "the dry mill poses a 18 serious hazard to the health to the health of the workers 19 and some other areas are of doubtful safety." 20 Do you see that? 21 A. Yes. 22 Q. And he's telling W.R. Grace that, correct? 23 A. Yes. 24 Q. He also, the next paragraph, says, notes that 25 the:</p>	<p>1 So, yeah, I mean, that's what they say, they were 2 going to provide a comprehensive industrial hygiene 3 program so that we could engineer the dust out of the 4 plant. 5 Q. Are you done? 6 A. Yes. 7 Q. Okay. Now let's go back to my question. My 8 question is: As of October 7, 1968, W.R. Grace received 9 recommendations from Mr. Lynch, an outside source, telling 10 them exactly what the problems were and exactly what they 11 should do to fix those problems; is that correct? 12 A. Yes. 13 Q. Okay. Now, Mr. Lynch also, in the next 14 paragraph, says: 15 "The respirator program in the mill was not 16 effective since the respirators were not of an approved 17 type and were not being worn by all employees." 18 Do you see that? 19 A. Yes. 20 Q. And this is the writer of this document, 21 Mr. Kostic, saying that he does not comprehend Mr. Lynch's 22 reasoning on this (quoted as read): 23 "Since only Bureau of Mines approved 24 respirators were stocked and issued while I was there some 25 two weeks before, and as a matter of fact I was issued and</p>

Page 145	Page 147
<p>1 I wore a mine safety D-Foe respirator which has Bureau of 2 Mines' approval." 3 Do you see that? 4 A. Yeah, "Dustfoe." 5 Q. Okay. 6 A. You said something different. Yeah, that's 7 what he says. 8 Q. He also says: "The only conclusion to be 9 drawn is that he might have seen one or two employees 10 wearing respirators that they have obtained elsewhere." 11 A. That's where the enforcement comes in. 12 Q. And the enforcement is on the part of W.R. 13 Grace, the employer, correct? 14 A. Yeah, part of W.R. Grace. 15 Q. So then we have another comment here by a W.D. 16 Nordin - Zonolite Libby. Do you know who that individual 17 is? 18 A. Not off the top of my head. 19 Q. You see the recommendation section, the 20 internal recommendation section? 21 A. Let me look at this whole thing real quick. 22 Q. I'm looking at page 4 where it says 23 "Recommendations," if you could turn to that, please. 24 A. May I read the start of the document -- 25 Q. No, turn to page 4 where it says</p>	<p>1 workers know why they're wearing the respirator, sure. 2 Q. And if the workers don't know why they're 3 wearing the respirator, you do not approve of enforcement 4 of approved respirators; is that your testimony? 5 A. I don't believe it's proper and best 6 industrial hygiene to allow workers to rely on respirators 7 when they don't know why they're wearing them. That's 8 all. 9 Q. So what you're saying is that if I don't tell 10 the worker why he's wearing the respirator, I should not 11 allow the worker to use the respirator? 12 A. No, it's going to be harder to enforce it. 13 And it's going to be a lot easier to get them to wear the 14 respirators when they know why they're wearing them. 15 That's the point. 16 Q. Okay. But if it's mandatory, it's mandatory, 17 and they should wear it if it's required, correct? 18 A. Yeah, they should. 19 Q. The enforcement, the education is necessary 20 for the enforcement. 21 A. Yes. 22 Q. Okay. So other than that, do you agree with 23 all of the recommendations that he is making? 24 A. Yeah, he's referring to the skip operator's 25 enclosure as dust-tight as possible. It would be nice if</p>
Page 146	Page 148
<p>1 "Recommendations." 2 A. -- so I know what I'm reading. 3 MR. LONGOSZ: We'll take a break. 4 (A brief recess was taken.) 5 BY MR. LONGOSZ: 6 Q. Dr. Spear, did you get a chance to read the 7 entire document? 8 A. I did. 9 Q. I'd like to direct your attention to page 4, 10 the heading where it says "Recommendations." 11 A. Yes. 12 Q. So these are recommendations being made to the 13 inner people at W.R. Grace by Peter Kostic based on 14 feedback he got from Johns-Manville, HEW, and his own 15 internal people at Libby, correct? 16 A. Yes. 17 Q. And he lists six different recommendations. 18 Do you see that? 19 A. I do, yes. 20 Q. And the first recommendation -- well, all the 21 recommendations, do you agree with the recommendations 22 that he is suggesting that W.R. Grace employ at the Libby 23 facility? 24 A. Well, again, I agree with the enforcing, you 25 know, the use of approved respirators as long as the</p>	<p>1 it was under positive pressure. I'm not sure what he's 2 referring to by "dust-tight." 3 And then, yeah, we want to keep from sweeping and 4 using compressed air, and we want to use vacuums - I 5 certainly agree with that - and, then, tightening up the 6 exhaust system and recommending a specific velocity. 7 Q. And, then, are you looking at No. 6? 8 A. Yes. 9 Q. Okay. And the note that he's making is that 10 he suggests that they need to, W.R. Grace needs to talk to 11 their central engineering department and have them check 12 with manufacturers as to capacity of existing equipment. 13 Do you see that? 14 A. Yes. 15 Q. Okay. And this is the one where he says 16 (quoted as read): "We've been invited by Johns-Manville 17 to visit their Lompoc, California operation." 18 A. Yes. 19 Q. And this came out in October 7 of 1968? 20 A. Yes. 21 Q. That that was time when Mr. Hutt was at the 22 facility, correct? 23 A. Yes. 24 Q. You see the next one is Exhibit 121. 25 A. Yes.</p>

Page 149	Page 151
<p>1 Q. And what is this document?</p> <p>2 A. It's a Department of Health, Education, and</p> <p>3 Welfare, Public Health Service, October 17, 1968. It's to</p> <p>4 Ben Wake, who's with the State of Montana, from Jeremiah</p> <p>5 Lynch, Public Health Service.</p> <p>6 Q. This is another report from the department,</p> <p>7 this is another report from Montana -- this is from Lynch</p> <p>8 to Ben Wake at the State Department of Health in Montana,</p> <p>9 correct?</p> <p>10 A. Right.</p> <p>11 Q. And it's basically giving them the results</p> <p>12 from their survey of the W.R. Grace facility, correct?</p> <p>13 A. Yes.</p> <p>14 Q. And in connection with that public --</p> <p>15 Department of Health, Education, and Welfare, HEW survey,</p> <p>16 was any of that information on here sent to Maryland</p> <p>17 Casualty?</p> <p>18 A. I don't see anybody copied on it, so I don't</p> <p>19 know.</p> <p>20 Q. And you've certainly seen no information to</p> <p>21 suggest it was sent to Maryland Casualty; is that correct?</p> <p>22 A. No.</p> <p>23 Q. Okay. Would you look at 124, please?</p> <p>24 A. Okay. Do you want me to identify it?</p> <p>25 Q. Yes, if you would identify it, please.</p>	<p>1 Q. (By Mr. Longosz) Yes, sir.</p> <p>2 A. I don't believe so, no.</p> <p>3 Q. Let's look at 135. Could you identify this</p> <p>4 document for us?</p> <p>5 A. It's Personal and Confidential to R.M. Vining</p> <p>6 from R.E. Schneider. The subject is: In situ and</p> <p>7 Environmental Dust Control for Libby Vermiculite Mining</p> <p>8 and Expanding Operations.</p> <p>9 And then there's Grace people copied in on it, I</p> <p>10 believe.</p> <p>11 Q. And you see no Maryland Casualty people copied</p> <p>12 on it; is that correct?</p> <p>13 A. Not that I recognize, no.</p> <p>14 Q. And this is the result of the visit to the</p> <p>15 Johns-Manville facility when we're talking about Lompoc,</p> <p>16 California?</p> <p>17 A. Yeah. Can I look at this one?</p> <p>18 Q. Sure.</p> <p>19 A. (Perusing document) -- he's talking about we</p> <p>20 should be concerned with the obligation to our employees,</p> <p>21 namely permitting them to work -- "permitting them to</p> <p>22 perform their services under working conditions which we</p> <p>23 have good reason to believe are hazardous." And then they</p> <p>24 recommended testing and monitoring.</p> <p>25 Do you want me to refer to a specific part?</p>
Page 150	Page 152
<p>1 A. It's October 31, 1968, and it's from Earl</p> <p>2 Lovick to Ben Wake, referring to Lynch's report.</p> <p>3 Q. And they received it. And it goes on to state</p> <p>4 that -- in Paragraph 2, it says:</p> <p>5 "We have been and are continuing to improve</p> <p>6 conditions over the entire operation. We do not</p> <p>7 understand the statement that our respiratory program is</p> <p>8 not effective, since the respirators are not of an</p> <p>9 approved type."</p> <p>10 It goes on to talk about the two respirators that</p> <p>11 they're using. And he talks about:</p> <p>12 "These respirators are furnished to all</p> <p>13 employees working in areas where we have found exposure to</p> <p>14 be high. It is mandatory they be worn in these areas, and</p> <p>15 we try to strictly enforce this rule."</p> <p>16 Do you see that?</p> <p>17 A. Yes.</p> <p>18 Q. Do you see any recommendation from either the</p> <p>19 State Public Health Service or from Johns-Manville</p> <p>20 regarding education programs for the use of respirators</p> <p>21 and programs that should be provided to employees?</p> <p>22 MR. LEFTRIDGE: Objection; form.</p> <p>23 THE WITNESS: Yeah, so did I see any</p> <p>24 recommendations regarding education pertaining to</p> <p>25 respirators?</p>	<p>1 Q. I will. The question is that this references</p> <p>2 the visit to Lompoc, California, correct?</p> <p>3 A. Yes.</p> <p>4 Q. Okay. And --</p> <p>5 A. It also references the New Yorker article that</p> <p>6 talked about the different hazards with asbestos.</p> <p>7 Q. All right. And this is written and circulated</p> <p>8 within W.R. Grace, where W.R. Grace is specifically</p> <p>9 concerned with respect to the working conditions, the</p> <p>10 hazardous working conditions of the workers; is that</p> <p>11 correct?</p> <p>12 A. Yes.</p> <p>13 Q. And it also talks about the fact that as we</p> <p>14 gather, meaning W.R. Grace, "continue to gather</p> <p>15 information as to potential hazards at Libby and elsewhere</p> <p>16 in Zonolite, we must be concerned about our moral</p> <p>17 obligations to our employees. Current evidence dictates</p> <p>18 we must take prompt action."</p> <p>19 And that's a directive internal to W.R. Grace,</p> <p>20 correct?</p> <p>21 A. Where did you read that part?</p> <p>22 Q. On the last paragraph.</p> <p>23 A. (Perusing document) -- that's what it says.</p> <p>24 Q. And in this, in this report, the cover letter</p> <p>25 is asking for authorization to proceed with the program</p>

Page 153	Page 155
<p>1 outlined in the report. And that program would be an 2 expenditure of money for testing and monitoring that Grace 3 would have to expend; is that correct? 4 A. Yes. 5 Q. So it was up to Grace to decide whether they 6 wanted to spend the money to make the conditions less 7 hazardous for its workers; is that correct? 8 A. Yes. 9 Q. So looking at this report from Lompoc, I will 10 refer to page 3. If you want to look through the report, 11 that's fine, before we get started. 12 A. Yeah, so I don't get lost. 13 Q. Okay. Just to get some context, okay. Just 14 take a minute to look through it and then we can have some 15 questions. 16 A. All right, I've got my report where I refer to 17 that and then I've got the documents. 18 Q. I was going to go page 3 of the report, 19 please, where it talks about the "Visit to Johns-Manville 20 Lompoc, California Mine and Mill." 21 A. Okay. 22 Q. It appears from this report halfway down the 23 page that the mine and mill was visited, JM's - and 24 Johns-Manville I'll refer to "JM" as it is here in the 25 report - JM's mine and mill visit was on November 19,</p>	<p>1 A. We're talking about silica, I think, with that 2 statement, right. 3 Q. Regardless, it was, 5 was the marker being 4 used. 5 A. For this example, yeah. 6 Q. Looking at page 5, they reviewed the dust 7 control at the mine and the facility, correct? 8 A. Yes. 9 Q. They also looked at preventive maintenance of 10 what they do with respect to their equipment? 11 A. Yes, they did. 12 Q. They looked at the safety record of the 13 individuals, No. 3? 14 A. Yeah, the lost-time accidents. 15 Q. And they also looked at the production 16 efficiency. 17 A. Correct. 18 Q. In terms of the mill, they looked at the mill 19 at the Lompoc facility, and they looked at how it was 20 maintained. Do you see that? 21 A. Yeah, they say it's similar to Libby, so they 22 don't describe what the mill was or how it operated. 23 Q. Okay. 24 A. But, yeah. So you're on the next page? 25 Q. Yeah, on page 7. And just looking through it,</p>
Page 154	Page 156
<p>1 1968. Do you see that? 2 A. Yes. 3 Q. And that was during Mr. Hutt's employment; is 4 that correct? 5 A. Yes. 6 Q. And the people from the W.R. Grace that 7 attended was this R.E. Schneider, Pete Kostic, F.W. Eaton, 8 and R.J. Kujawa. Do you see that? 9 A. Yes. 10 Q. And then two individuals, a plant manager and 11 a manager of plant engineering, from JM was there as well. 12 A. I see that, yes. 13 Q. And it appears that they took a tour of the 14 facility. Do you see that? 15 A. Yes. 16 Q. On page 4, they talk about, the first full 17 paragraph, starting with: "The material mined has a 18 silica content ranging in particular size from 1 to 25 19 microns." 20 A. Yes. 21 Q. And in it, it says: "Although the California 22 State Health Department has established a TLV of 20 mppcf, 23 JM's TLV is 5." 24 A. Yes. 25 Q. Okay.</p>	<p>1 it talks about the baghouse operations. It also talks, 2 more importantly, down at the bottom paragraph, about: 3 "Considerable design goes into each dust 4 collection system, and through the years specific air 5 flows and face velocities have been established for 6 different phases of dust collection." 7 Do you see that? 8 A. Yes. 9 Q. On page 8, it talks about the vacuum system? 10 A. Yes. 11 Q. And in the last sentence, in particular, it 12 says: "All cleaning is done by vacuum; the use of dust 13 promoting brooms is discouraged." 14 A. Correct. 15 Q. It also talks about the bagging operation, 16 No. 3, correct? 17 A. It does talk about the bagging operation. 18 (Perusing document) -- okay. 19 Q. On page 9, on No. 4, it talks about bulk 20 loading. "Box cars are bulk loaded inside a warehouse" -- 21 A. Yeah, before I -- 22 Q. Sure. 23 A. Just on the bagging, you know, this is where I 24 was referring to earlier where it talks about cycloning it 25 into a baghouse.</p>

Page 157	Page 159
<p>1 Q. Right.</p> <p>2 A. So we're clear. I'm sorry for interrupting.</p> <p>3 Q. No, that's okay. What they did here was they</p> <p>4 noticed that the Johns-Manville facility had a system</p> <p>5 where the dust was passed through cyclones and then into</p> <p>6 an open baghouse.</p> <p>7 A. Right, to clean the air.</p> <p>8 Q. And on page 9, they talk about the</p> <p>9 bulk-loading section and then they talk about personal</p> <p>10 cleaning stations.</p> <p>11 A. Yes.</p> <p>12 Q. Are you aware of whether W.R. Grace ever</p> <p>13 adopted any of the things that they saw at or any of the</p> <p>14 types of preventative maintenance, dust control, personal</p> <p>15 cleaning stations, bulk-loading operations? Did they</p> <p>16 adopt any of those operations that Johns-Manville was</p> <p>17 using?</p> <p>18 A. They did not use vacuums. They did not have</p> <p>19 vacuums for cleaning. They didn't have baghouses. So in</p> <p>20 the time frame that we're talking about, I don't believe</p> <p>21 so.</p> <p>22 Q. Do you know if W.R. Grace ever adopted any of</p> <p>23 the items they saw at the Johns-Manville facility?</p> <p>24 A. You know, I don't know specifically. I'd have</p> <p>25 to go back and look at some of their documents on what</p>	<p>1 for Establishing Required Changes." This is what was</p> <p>2 being recommend by the W.R. Grace writer; is that correct?</p> <p>3 A. Yes.</p> <p>4 Q. Okay. So the first area is Monitoring, and</p> <p>5 under No. 1, Personnel. And what it says here is:</p> <p>6 "Dust monitoring at Libby is done by an</p> <p>7 Engineering Department technician on a monthly basis. He</p> <p>8 should continue to do the monitoring there."</p> <p>9 So we know that Libby had an engineering department,</p> <p>10 and a technician was doing monitoring for dust.</p> <p>11 A. Yeah, it says that there.</p> <p>12 Q. Okay. And then it talks about on page 11:</p> <p>13 "Monitoring at our expanding plants throughout the country</p> <p>14 will be conducted by Cambridge Engineering."</p> <p>15 Cambridge Engineering is the W.R. Grace Engineering;</p> <p>16 is that correct?</p> <p>17 A. Yes.</p> <p>18 Q. So W.R. Grace was doing its own engineering;</p> <p>19 is that correct?</p> <p>20 A. Well, they're doing monitoring through the</p> <p>21 engineering, yeah. They do, occasionally, spot checking</p> <p>22 at Libby for evaluating the efficiency of the equipment.</p> <p>23 Yes, okay.</p> <p>24 Q. All right. And then No. 2 is the Type Test</p> <p>25 and Equipment, and it talks about what they have in place</p>
Page 158	Page 160
<p>1 they actually put in in later years.</p> <p>2 Q. You do know in later years that they actually</p> <p>3 rebuilt the facility, I think, in 1972 or '73?</p> <p>4 A. They put in a wet mill --</p> <p>5 Q. Right.</p> <p>6 A. -- which started construction in the early</p> <p>7 '70s, and then it really went online about 1975, my</p> <p>8 understanding is. And then they still had some use of the</p> <p>9 dry mill, but I don't remember specifically what they did</p> <p>10 with the dry mill.</p> <p>11 Q. Do you recall seeing references that even back</p> <p>12 in the 1960s, '64 to '66, they were talking about putting</p> <p>13 in a wet mill and there was an expectation that the</p> <p>14 facility would be changed even back then but the money</p> <p>15 just didn't come?</p> <p>16 A. Yeah, they were talking about it a long time.</p> <p>17 Q. Okay. You see where it talks about training?</p> <p>18 A. Yeah.</p> <p>19 Q. So they reviewed or at least understood what</p> <p>20 Johns-Manville was doing with respect to training?</p> <p>21 A. Yeah, they were talking about establishing a</p> <p>22 training program for their operators, 60 hours of</p> <p>23 classroom training, then they can move up to different pay</p> <p>24 scales. Yeah, I see that.</p> <p>25 Q. So let's look at Rome Numeral III, "Program</p>	<p>1 at Libby?</p> <p>2 A. Let me read it real quick.</p> <p>3 Q. That's fine.</p> <p>4 A. (Perusing document) -- yeah, they were trying</p> <p>5 to get switched over to the filter method.</p> <p>6 Q. Of monitoring?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. Then it talks about, No. 3, the</p> <p>9 frequency of monitoring, how frequently they should be</p> <p>10 monitored so they could keep up to date.</p> <p>11 A. Yes.</p> <p>12 Q. It talks about control measures, Section B on</p> <p>13 page 12?</p> <p>14 A. Okay, let me read that part.</p> <p>15 Q. Sure.</p> <p>16 A. (Perusing document) -- yeah, it recommends</p> <p>17 filter units on the vehicles.</p> <p>18 Q. And what they're doing is trying to keep the</p> <p>19 dust levels down, so they're looking at ways to do that,</p> <p>20 particularly in the Libby mill, and looking at things such</p> <p>21 as - and I'm looking at page 13(a):</p> <p>22 "Evaluate total requirement for the mills and</p> <p>23 transfer points. Points to be covered are optimum face</p> <p>24 velocities of hoods, total CFM, hood design and dust</p> <p>25 collection equipment (cyclones, bag houses, scrubbers,</p>

Page 161	Page 163
<p>1 etc.)"</p> <p>2 A. Yes.</p> <p>3 Q. So they're tuned into all these things and</p> <p>4 they know they have to look and evaluate those things and</p> <p>5 come up with solutions to better control the dust.</p> <p>6 A. Yes, the dust was not controlled.</p> <p>7 Q. At any point in this, the recommendations</p> <p>8 section, is there any reference to or suggestion that they</p> <p>9 looked to Maryland Casualty to make any recommendations in</p> <p>10 that regard?</p> <p>11 A. Well, no, but they are responding. They were</p> <p>12 being recommended ventilation controls by Maryland</p> <p>13 Casualty. It's not referenced in this document, but --</p> <p>14 (pause.)</p> <p>15 Q. So there's a cost section on page 14. Do you</p> <p>16 see those line items in areas that are being suggested?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. And this was a program being suggested</p> <p>19 by their own internal engineering department. Do you see</p> <p>20 the estimated costs of this program?</p> <p>21 A. Yeah, way at the very bottom there?</p> <p>22 Q. Yeah, of 14. It's one, two, three, and</p> <p>23 then --</p> <p>24 A. I see that.</p> <p>25 Q. So is it your opinion that these items should</p>	<p>1 MR. LEFTRIDGE: Thanks.</p> <p>2 MR. LONGOSZ: I'm not sure, I know this is</p> <p>3 Spear 85, and I'm not sure if it's in the common book.</p> <p>4 I'll show it to Counsel here. We can go off the record</p> <p>5 for a second.</p> <p>6 (Off-the-record discussion.)</p> <p>7 Q. (By Mr. Longosz) You're looking at what's down</p> <p>8 at the bottom marked Exhibit 85, which is a letter from</p> <p>9 John F. Murphy to Peter Kostic dated March 29, 1966.</p> <p>10 MR. LONGOSZ: If Counsel is in agreement, we</p> <p>11 will give it an MCE common exhibit number, but not today,</p> <p>12 not knowing where we're going to pick up, but at least we</p> <p>13 have identified in the record No. 85 and we can come to an</p> <p>14 agreement on a common exhibit number.</p> <p>15 MR. LEFTRIDGE: Sounds good.</p> <p>16 Q. (By Mr. Longosz) Have you had an opportunity</p> <p>17 to review this document?</p> <p>18 A. Yes.</p> <p>19 Q. Have you seen this document before?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. Did you review it in connection with</p> <p>22 your opinions in this case?</p> <p>23 A. I believe I did, yes.</p> <p>24 Q. Okay. And it's an internal Grace document</p> <p>25 summarizing a variety of a timeline of items and</p>
Page 162	Page 164
<p>1 be items that W.R. Grace should implement in 1968 as a</p> <p>2 result of their review of their status at the facility?</p> <p>3 A. They needed to implement whatever controls</p> <p>4 they could to reduce the dust levels below hazardous</p> <p>5 levels.</p> <p>6 Q. And he attaches for consumption to management</p> <p>7 of W.R. Grace this New Yorker article that came out in</p> <p>8 October 12 of 1968 --</p> <p>9 A. Yes.</p> <p>10 Q. -- talking about the magic mineral.</p> <p>11 A. And the health hazards of asbestos.</p> <p>12 Q. So, certainly, at that point in time,</p> <p>13 everybody at W.R. Grace knew of the hazards of asbestos in</p> <p>14 1968 when Mr. Hutt started his employment at Grace; is</p> <p>15 that correct?</p> <p>16 A. They were informed about the health hazards of</p> <p>17 asbestos in 1956 by Wake.</p> <p>18 Q. All right.</p> <p>19 A. So from '56 on, and this is just adding some</p> <p>20 additional information.</p> <p>21 Q. Okay.</p> <p>22 MR. LEFTRIDGE: Sorry for this late</p> <p>23 interjection. I just want to add an objection to that</p> <p>24 last question to form as to "everybody."</p> <p>25 MR. LONGOSZ: Sure.</p>	<p>1 correspondence and reports relating to the dust problem at</p> <p>2 the Libby facility; is that correct?</p> <p>3 A. Yes.</p> <p>4 Q. In that document, let's look at page 4, if you</p> <p>5 would. The entry for 2/15/66.</p> <p>6 A. Page 4?</p> <p>7 Q. The date of 2/15/66. Do you see that?</p> <p>8 A. Yes.</p> <p>9 Q. Looking at the last sentence of that entry?</p> <p>10 A. I see that.</p> <p>11 Q. It says: "As to a total concentration of 5</p> <p>12 mppcf, there seems to be a discrepancy in our thinking on</p> <p>13 this figure."</p> <p>14 The thinking meaning Maryland Casualty is using 5</p> <p>15 and either the state or W.R. Grace is using a higher</p> <p>16 number; is that correct?</p> <p>17 A. Yeah, let me look at that whole thing to keep</p> <p>18 it in context. (Perusing document) -- the dust count is</p> <p>19 just shown to a level that is as good as present equipment</p> <p>20 can maintain.</p> <p>21 Q. That's W.R. Grace talking, that management at</p> <p>22 Libby seemed to feel that the total dust count is shown to</p> <p>23 a level that is as good as present equipment can maintain,</p> <p>24 right?</p> <p>25 A. Yes.</p>

<p style="text-align: right;">Page 165</p> <p>1 Q. So in terms of the "discrepancy in our 2 thinking," is the discrepancy between W.R. Grace and 3 Maryland Casualty in terms of thinking about whether it's 4 5 or 10. You agree with that, right? 5 A. Well, the reference is "Park" up above, so -- 6 yeah, I guess I can't say for sure who the discrepancy is 7 with. 8 Q. Well, consistent through all the documents and 9 things you've read, there's been discrepancy of thinking 10 between W.R. Grace and Maryland Casualty regarding the 11 figure to use, correct? 12 A. Yes. Maryland Casualty went with the higher 13 number. 14 Q. Maryland Casualty went with the lower number, 15 5; W.R. Grace went with the higher number, 10. 16 A. Right. So, then, Maryland Casualty would not 17 further recommend 5. Yeah, that's what happened. 18 Q. Maryland Casualty recommended 5; W.R. Grace 19 wanted 10; is that correct? "Yes" or "no"? 20 A. Initially, yes, and then it went up. 21 Q. According to what you say you read. 22 A. Yes. 23 Q. But you can't point me to that document? 24 A. They would not refer to the 5 million 25 particles per cubic foot again. That's what the document</p>	<p style="text-align: right;">Page 167</p> <p>1 Q. I couldn't find it in there. If it is in 2 there, we'll cross-reference it. If you could look at 3 that document and let us know if you've seen that one 4 before. 5 A. I've seen it before and I'll read it. 6 Q. Okay. 7 A. (Perusing document.) 8 MR. LEFTRIDGE: Is this not MCE-83? 9 MR. LONGOSZ: Thank you. It is. 10 Q. (By Mr. Longosz) Dr. Spear, why don't you look 11 at MCE-83. It's the same document, we believe, but for 12 clarity, why don't we look at MCE-83. That way we're 13 looking at the same document. 14 MR. LONGOSZ: Thanks, Dustin. 15 THE WITNESS: (Perusing document) -- okay. 16 Q. (By Mr. Longosz) Have you had a chance to 17 review that document? 18 A. Yeah. Eighty-three, right? 19 Q. Yes. 20 A. Yeah. 21 Q. What's the date of that document? 22 A. It is 7/25/66. 23 Q. And this is a tour of the facility on one of 24 the quarterly visits by W.E. Walker from Maryland 25 Casualty?</p>
<p style="text-align: right;">Page 166</p> <p>1 says. 2 Q. And what year was that? 3 A. God, what year was it -- it would have been 4 in, let's see, I've got it right under this, I think. I 5 already read this part. 6 Q. I think we read those documents earlier in the 7 deposition, right? And that's what we're referring to. 8 A. We did read this. 9 Q. Right. 10 A. And so Grace wrote back, and then Maryland 11 Casualty wrote back knowing that what the standard was, 12 the ACGIH: 13 This was the basis for the recommendation. 14 However, in June 1966, Maryland Casualty stated that 15 because the State requirement had been met, it was agreed 16 that no further reference to our previous recommendation 17 is necessary at this point. 18 So that's all I was referring to. 19 Q. Okay. So let's put that document aside. I'm 20 going to show you a document. And I don't have a Bates 21 number on it, but I have an MCC number that we can make 22 into a common exhibit. I'll give you a copy. The Bates 23 No. is MCC-h001858. The date of the document is 7/25/66. 24 I'm going to show that document to you. 25 A. It's not in here, then?</p>	<p style="text-align: right;">Page 168</p> <p>1 A. Yes. 2 Q. It's recording his impressions of what he saw 3 at the facility; is that true? 4 A. Yes, talking about the inspection. 5 Q. And a copy of this form was left with 6 Mr. Bleich, the plant manager. That's what it says in the 7 first paragraph, correct? 8 A. Yes. 9 Q. He goes on to talk about that of the nine 10 previous recommendations submitted, there are four 11 outstanding which should receive priority in being 12 completed. Do you see that? 13 A. Yes. 14 Q. So he's looking for compliance from W.R. 15 Grace, which wasn't happening; is that correct? 16 A. Yes. He said only 7, No. 7, has been done. 17 Q. And it goes on to say in that paragraph: "It 18 was understood from local management that money had been 19 allocated to extend the discharge from dust collector 20 system." 21 Do you see that? 22 A. Yes. 23 Q. The next paragraph talks about the fact that 24 Mr. Kujawa, the mill superintendent, flatly makes the 25 statement that because these 11044 weren't supplied, this</p>

Page 169

1 form, they were not going to meet any of the
 2 recommendations.
 3 A. Yes.
 4 Q. Even though he knew about the recommendations,
 5 he's just saying, "We're not going to do it." Is that
 6 your understanding?
 7 A. That he's not going to do it.
 8 Q. Yeah. "By his statement they are not going to
 9 overhaul the dust collection system even though the money
 10 has been appropriated, unless specifically ordered to do
 11 so from their home office," meaning W.R. Grace's home
 12 office.
 13 Do you see that?
 14 A. Yes.
 15 Q. So, again, W.R. Grace is not going to do any
 16 work on the dust collection system unless it's ordered to
 17 do some from their headquarters. That's what Mr. Kujawa
 18 was saying.
 19 A. Yeah.
 20 Q. Okay. (Quoted as read): "Mr. Kujawa made the
 21 statement that our recommendations regarding total
 22 allowable dust concentrations based on the American
 23 Conference of Industrial Hygienists established threshold
 24 limits was now out the window.
 25 "He states (and I quote) 'A new threshold

Page 171

1 exposures is."
 2 That's Mr. Walker writing on behalf of Maryland
 3 Casualty; is that correct?
 4 A. That's what he says, yeah.
 5 Q. Let's look at 9 -- 90, I'm sorry. Just for
 6 the record, identifying this, this is MCE-90, which is a
 7 form that's filled out by, in this case, by Mr. Joe E.
 8 Baker from Maryland Casualty on his visit to the facility
 9 in April, on April 27, 1967, correct?
 10 A. Yes.
 11 Q. All right. If you want to take a quick look
 12 at that and familiarize yourself.
 13 A. If I may -- (perusing document.)
 14 Q. Have you finished reading it?
 15 A. Yes.
 16 Q. This is a report of the tour of the mine and
 17 the mill, and the tour was done with Mr. Kujawa. That's
 18 what it says in the first sentence, right?
 19 A. Yes.
 20 Q. If we can go to the next page, there's
 21 reference to readings that were taken by W.R. Grace.
 22 Actually, it's a continuation from the bottom of the first
 23 page to the second page, which says:
 24 "The dust problem does not seem any better or
 25 worse. Readings this time taken April 11, 1967 were," and

Page 170

1 limit value has been established by the aforementioned
 2 group to cover tremolite ore.' Any official publication
 3 of this would be appreciated, by this writer."
 4 So as of July 1966, Kujawa is not going to follow
 5 the recommended limit of 5; is that correct?
 6 A. Yeah, that's what it says there.
 7 Q. And then it goes on to say - I'm looking at
 8 the next page, page 2 --
 9 A. Hang on one second.
 10 Q. Sure.
 11 A. Okay.
 12 Q. I guess he had Mr. Bleich, the plant manager,
 13 sign that Form 11044 which we know provides
 14 recommendations to acknowledge the receipt of same.
 15 Do you see that?
 16 A. Yes.
 17 Q. Okay. And, then: "Mr. Lovick, who is plant
 18 engineer and personnel manager, remains friendly and I
 19 believe would be cooperative if he could. As for the
 20 other local management, they class us all as 'arm chair
 21 generals.' This is a tough assignment and I felt at the
 22 meeting of 5-19-66 that this was on its way to smoothing
 23 out, but now I have my doubts. This inspector will keep
 24 the pressure on and try my best, their inter-company
 25 politics are of no concern to me, but their improvement of

Page 172

1 then he goes through those readings.
 2 A. Yes. They are 7.9, 9.6, 10.7, 5.9, 14.4,
 3 14.6, and 6.4.
 4 Q. So 5 of those readings out of the 7 were at
 5 the 10 -- well, 10.7, but essentially at 10 or under, and
 6 2 readings were above 10; is that correct?
 7 A. Yeah, all of them were above the ACGIH TLV of
 8 5 --
 9 Q. Correct.
 10 A. -- and then we had one, two, three, four of
 11 them above their so-called "new limit."
 12 Q. They had 3 above the new limits: 10.7 being
 13 above; but 2 significantly above, 14.4 and 14.6, correct?
 14 A. Three of them above, yes.
 15 Q. Yeah.
 16 A. To me, 10.7 is significant because of the
 17 toxicity of asbestos.
 18 Q. Okay. So looking at this, they talk about
 19 different things. It does say here that:
 20 "I understand from both Mr. Kujawa and also
 21 Mr. Lovick that the extension of the duct has been
 22 canceled by the home office."
 23 So that was the duct we were talking about financing
 24 in the prior correspondence, correct?
 25 A. Yes.

Pages 169 to 172

Page 173

1 Q. Okay.
 2 A. And I found this document interesting as I was
 3 reading in the Maryland Casualty documents. And it's
 4 pointing out that we have men showing a worsening of
 5 condition when it includes people who don't work in the
 6 dry mill. Even a man who works in the lab and is wearing
 7 a respirator, he's getting worse.
 8 Q. Okay.
 9 A. And then it should give evidence that the dust
 10 in the mill is causing trouble. And he says:
 11 "I think if we could actually show that men
 12 are facing an exposure, we would have more chance of
 13 getting somewhere."
 14 And that is their job as providing the industrial
 15 hygiene program was to show W.R. Grace that these men are
 16 facing an exposure.
 17 Q. And that's what they're doing, and W.R. Grace
 18 just won't acknowledge it and ignores the recommendations
 19 on a consistent basis.
 20 A. Yeah, he said: "If we could show." I don't
 21 know how they're showing them.
 22 Q. Well, they're showing them. They're providing
 23 this information and they're showing them, and just W.R.
 24 Grace won't acknowledge that there's a problem.
 25 MR. LEFTRIDGE: Objection; argumentative.

Page 174

1 THE WITNESS: These are measurements in the
 2 dry mill.
 3 Q. (By Mr. Longosz) Sure.
 4 A. Okay. We're talking about the exposure coming
 5 from the stack that's vented outside and contaminating the
 6 rest of the area where these people are exposed. That's
 7 what we're talking about.
 8 Q. So looking at the next paragraph, the Maryland
 9 Casualty individual who was at the site said:
 10 "I believe that the design of the exhaust
 11 system is faulty and that the velocity is too great for
 12 the cyclones thereby allowing the overflow of dust."
 13 Do you see that?
 14 A. Yes.
 15 Q. And he goes on to state that "they have,"
 16 meaning Grace, "has had engineering on this exhaust, with
 17 the thought of putting up a stack, moving fan and running
 18 of the duct. The stack would cost" - and they give a
 19 cost: \$6,750 to \$7,000; the fan, \$9,150; and running
 20 duct, \$6,270:
 21 "Home office seems to feel that the
 22 expenditure would not be in reason with the results, as
 23 they have been convinced by locals that dust from exhaust
 24 is not detrimental."
 25 A. Yes.

Page 175

1 Q. So while the Maryland Casualty person has
 2 pointed out these issues, W.R. Grace won't acknowledge
 3 them, won't accept them, and even though they've done
 4 their own engineering on it, won't do it.
 5 MR. LEFTRIDGE: Objection; form, foundation,
 6 argumentative.
 7 Q. (By Mr. Longosz) That's what he's saying.
 8 A. Well, the first -- a couple things. Number 1,
 9 the engineering using the cyclones, they weren't using
 10 state-of-the-art with the baghouses, so it doesn't matter
 11 what they put on if the cyclone is going to create
 12 contamination to the outside atmosphere. And so from that
 13 standpoint, the engineering was faulty to begin with, and
 14 Maryland Casualty could not engineer the risk like they
 15 claimed they could.
 16 Q. Did you see any evidence where Maryland
 17 Casualty provided or suggested they would provide an
 18 engineer and ductwork and motors in any other area, to go
 19 in there and to provide duct engineering, electrical
 20 engineering, fan engineering, exhaust engineering? "Yes"
 21 or "no."
 22 A. Yes.
 23 Q. Okay. Show me exactly where a Maryland
 24 Casualty engineer went to the site, an engineer in that
 25 way, went to the site to make those recommendations?

Page 176

1 A. Well, Schneider was an engineer, or whatever
 2 his name was, and he went to the site. Do I have the name
 3 right?
 4 I mean, so if you look at page 29 of my report: "In
 5 1964, Maryland Casualty engaged their safety engineers,
 6 'Please have the Maryland casualty safety engineers
 7 contact Frank Rupp of Zonolite...as to what course of
 8 action is recommended in regard to the possible Workmen's
 9 Compensation problem at Libby."
 10 "The dust problem has been referred to our
 11 Engineering Division and they in conjunction with our
 12 Medical Division are presently formulating a plan for
 13 control and prevention."
 14 That's Exhibit 16. The previous one was Exhibit 13.
 15 "The subsequent outline of the Safety Program
 16 stated that 'the aim in the program will be to see that
 17 everything practical is done to control dust, protect the
 18 personnel who are exposed to dust which cannot be
 19 controlled" - which is proper industrial hygiene if you do
 20 it - "and follow through with periodic x-rays to discover
 21 incidence of lung damage or fibrous growth," Exhibit 18.
 22 Q. So your entire, your entire opinions are
 23 premised on the fact that Maryland Casualty was contracted
 24 for and the scope of its work was to provide industrial
 25 engineering for this facility in the classic sense that

Pages 173 to 176

Page 177	Page 179
<p>1 you described, correct?</p> <p>2 A. May I go on?</p> <p>3 Q. No, just answer my question first.</p> <p>4 A. Yes.</p> <p>5 Q. Okay.</p> <p>6 A. (Quoted as read): "Maryland Casualty stated</p> <p>7 that the safety program would cover the 'entire Zonolite</p> <p>8 operation in all faces of prevention and control of dust</p> <p>9 conditions...The contemplated program will be most</p> <p>10 comprehensive covering all phases of accident prevention</p> <p>11 as well as industrial hygiene."</p> <p>12 And that's Exhibit 23.</p> <p>13 Q. Okay. And we know now that W.R. Grace failed</p> <p>14 to follow most, if not almost all, recommendations made by</p> <p>15 Maryland Casualty; is that correct?</p> <p>16 A. You may know that, I don't.</p> <p>17 Q. The records speak for themselves, in other</p> <p>18 words.</p> <p>19 A. The documents say that they complied, they</p> <p>20 followed this, sometimes they didn't follow this, so --</p> <p>21 Q. And sometimes they wouldn't spend the money to</p> <p>22 follow this?</p> <p>23 A. Right.</p> <p>24 Q. Yeah. And full compliance is absolutely</p> <p>25 necessary in order to maintain an appropriate level of</p>	<p>1 A. Yeah, they were given those.</p> <p>2 Q. Okay. So would you agree with me --</p> <p>3 MR. LONGOSZ: I'm sorry, Dustin. Have you</p> <p>4 seen this?</p> <p>5 Would you mind making a copy of this?</p> <p>6 (Off-the-record discussion.)</p> <p>7 Q. (By Mr. Longosz) Dr. Spear, I'm going to show</p> <p>8 you what is marked previously as Exhibit 110. And</p> <p>9 likewise with respect to this one, we'll integrate it and</p> <p>10 give it an MCE number.</p> <p>11 Just for today's purposes, it shows an exhibit</p> <p>12 sticker of 110 down at the bottom, correct?</p> <p>13 A. Yes.</p> <p>14 Q. And could you identify this document, the date</p> <p>15 and the individuals?</p> <p>16 A. It looks like an R.M. Vining to Peter Kostic,</p> <p>17 with two people copied in, dated August 20, 1968.</p> <p>18 Q. It looks like it's signed by Kostic down at</p> <p>19 the bottom, so it's probably a memo, look at the bottom,</p> <p>20 probably from Peter Kostic to R.M. Vining with the others</p> <p>21 copied in. Does that --</p> <p>22 A. I see Peter Kostic's name at the bottom, yeah.</p> <p>23 Q. All right.</p> <p>24 A. I don't know.</p> <p>25 Q. And none of these people are Maryland Casualty</p>
Page 178	Page 180
<p>1 control on a manufacturing facility; is that correct?</p> <p>2 A. But we would certainly like to have full</p> <p>3 compliance, but whether or not that's realistic, I don't</p> <p>4 know.</p> <p>5 Q. Well, if the safety of the workers is at</p> <p>6 stake, nothing short, you would recommend that nothing</p> <p>7 short of full compliance is required?</p> <p>8 A. Is what I would recommend is, since we're on</p> <p>9 this topic, is that --</p> <p>10 Q. Can you answer my question? And then you can</p> <p>11 tell me, you can fill in the blanks.</p> <p>12 A. Yeah. I would recommend full compliance. If</p> <p>13 there's a reason why we cannot comply, in other words,</p> <p>14 protect personnel who are exposed to dust which cannot be</p> <p>15 controlled -- so, in other words, that's where we get into</p> <p>16 education. Engineering wasn't working. We knew we had a</p> <p>17 toxic dust. TLV is not protective.</p> <p>18 So that's why we have to warn the worker and provide</p> <p>19 all these other controls: Personal protection, change</p> <p>20 houses, sanitation. It goes on and on and on just like my</p> <p>21 report describes.</p> <p>22 Q. It does. And W.R. Grace knew about every</p> <p>23 single one of those controls in 1968 by the time Mr. Hutt</p> <p>24 became an employee at W.R. Grace, didn't they?</p> <p>25 MR. LEFTRIDGE: Objection; form.</p>	<p>1 people, and you have no reason to believe that this was</p> <p>2 provided to Maryland Casualty.</p> <p>3 A. I don't know.</p> <p>4 Q. At least from the document.</p> <p>5 A. I guess.</p> <p>6 Q. Okay. And you haven't seen any document that</p> <p>7 suggests that Maryland Casualty received this August 20,</p> <p>8 1968 letter.</p> <p>9 A. No.</p> <p>10 Q. You wanted to look at it before I ask a couple</p> <p>11 questions?</p> <p>12 A. May I, please?</p> <p>13 Q. Yes.</p> <p>14 A. (Perusing document) -- I've read it.</p> <p>15 Q. Have you reviewed this?</p> <p>16 A. Yes.</p> <p>17 Q. Now, in connection with this, this refers to</p> <p>18 the discussion with Johns-Manville, the Department of</p> <p>19 Environmental Control, correct?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. In that connection, it all talks about</p> <p>22 HEW conducting studies of the Manville records and</p> <p>23 facility, correct?</p> <p>24 A. Yes.</p> <p>25 Q. And we saw a reference in a prior exhibit to</p>

Page 181	Page 183
<p>1 HEW doing a study of the W.R. Grace facility, correct?</p> <p>2 A. Yes.</p> <p>3 Q. And here it talks about, and looking halfway</p> <p>4 down the page, if you look at the statement made by</p> <p>5 Mr. Kostic to others at W.R. Grace, it says: "These</p> <p>6 activities have presented no problems to JM" - referring</p> <p>7 to the HEW activities.</p> <p>8 Do you see that?</p> <p>9 A. Yes.</p> <p>10 Q. "They are not kept under wraps but rather</p> <p>11 employees are informed of what's going on."</p> <p>12 Do you see that?</p> <p>13 A. Yes.</p> <p>14 Q. Okay.</p> <p>15 A. He's referring to JM, correct?</p> <p>16 Q. Yes.</p> <p>17 A. Okay.</p> <p>18 Q. But this was in August 20, 1968. Mr. Kostic,</p> <p>19 knowing that JM informed employees of what was going on</p> <p>20 knew that at least one other company, manufacturing</p> <p>21 facility, informed employees of what was going on at their</p> <p>22 facility, correct?</p> <p>23 A. Yes.</p> <p>24 Q. And, certainly, there was no reason for W.R.</p> <p>25 Grace not to inform employees at the W.R. Grace facility</p>	<p>1 minus, that were documents I presume you reviewed in</p> <p>2 connection with this case.</p> <p>3 We've talked about a bunch of documents here. Are</p> <p>4 there any other documents that you can think of that we</p> <p>5 didn't cover or blocks of documents that you reviewed, or</p> <p>6 are you using your body of knowledge of things that you've</p> <p>7 looked at through the years?</p> <p>8 A. Well, no, I've reviewed the Spear exhibits</p> <p>9 that were in the initial --</p> <p>10 Q. Yeah.</p> <p>11 A. -- and then I reviewed the Grace common</p> <p>12 exhibits, and then the Hutt exhibits.</p> <p>13 Q. Okay.</p> <p>14 A. And I've also got medical records and Hutt's</p> <p>15 deposition.</p> <p>16 Q. You've reviewed Hutt's deposition?</p> <p>17 A. I did.</p> <p>18 Q. Okay. And you also were able to speak to</p> <p>19 Mr. Hutt?</p> <p>20 A. On the phone, yeah.</p> <p>21 Q. Right. Did you speak with anybody else in</p> <p>22 connection with formulating your opinions in this case,</p> <p>23 other than lawyers, but any outside industrial hygienist,</p> <p>24 or certified industrial hygienist, or anybody of that</p> <p>25 nature to assist you?</p>
Page 182	Page 184
<p>1 as to what was going on; is that correct?</p> <p>2 A. Well, they didn't inform them. I don't know</p> <p>3 how --</p> <p>4 Q. My question is: There's no reason for them</p> <p>5 not to inform employees at the W.R. Grace facility, the</p> <p>6 Libby facility, of what was going on?</p> <p>7 A. There was every reason to inform them, yes.</p> <p>8 Q. Okay. And they knew that there was every</p> <p>9 reason to inform them as of August 20, 1968, if not</p> <p>10 before, correct?</p> <p>11 A. Yeah, it would have been before, yes.</p> <p>12 Q. Okay.</p> <p>13 A. When they were described the toxicity from Ben</p> <p>14 Wake to them.</p> <p>15 Q. Right. And Mr. Hutt certainly, during the</p> <p>16 time Mr. Hutt was employed at the Libby facility, they had</p> <p>17 every reason to inform the employees of what was going on</p> <p>18 at the Libby mine, correct?</p> <p>19 A. Yes. Mr. Hutt was not informed.</p> <p>20 MR. LONGOSZ: Let's take five.</p> <p>21 (A brief recess was taken.)</p> <p>22 BY MR. LONGOSZ:</p> <p>23 Q. Let me ask you a few questions about your</p> <p>24 review, just so I understand what you did review. I had a</p> <p>25 book called "Spear Exhibits," 100-or-so exhibits, plus or</p>	<p>1 A. No.</p> <p>2 Q. I know you have literature that you've</p> <p>3 reviewed through the years. Is there any particular</p> <p>4 article or piece of literature that you're specifically</p> <p>5 relying upon in connection with your opinions for this</p> <p>6 case?</p> <p>7 A. Specifically, you know, I think the</p> <p>8 bibliography in my report is pretty extensive.</p> <p>9 Q. Right.</p> <p>10 A. And, then, certainly, that is in addition to</p> <p>11 my body of literature that I have been accumulating over</p> <p>12 the last 30 years, which I have in my office. And so,</p> <p>13 yeah, I just read a lot of literature.</p> <p>14 Q. I just wanted to know if there's any --</p> <p>15 sometimes with certain cases, there's specific situations.</p> <p>16 Somebody can say, "Oh, yeah, I've kind of pulled this one</p> <p>17 off the shelf or this one off the shelf," specifically, as</p> <p>18 opposed to, obviously, the compendium of things you've</p> <p>19 looked at through the years and put in your bibliography.</p> <p>20 A. I don't think I could point to anything.</p> <p>21 Q. Okay. Have you, in connection with your</p> <p>22 opinions, reviewed any practices, procedures, best</p> <p>23 practices for loss-control people, such as Mr. Park back</p> <p>24 in the 1960s, on behalf of a workers' compensation</p> <p>25 carrier?</p>

Page 185	Page 187
<p>1 A. I have not. I review standard practices all 2 the time in industrial hygiene, but not specific to what 3 you're saying there.</p> <p>4 Q. Okay. And then have you talked with or 5 consulted with any individuals from insurance companies 6 that would know what the standard risk-engineering or 7 loss-prevention services would have been pursuant to a 8 workers' compensation policy back in the 1960s?</p> <p>9 A. I have not.</p> <p>10 Q. Okay. Did you independently conduct a risk 11 engineering survey -- strike that.</p> <p>12 Did you independently prepare an engineering survey 13 of the W.R. Grace facility in the 1960s?</p> <p>14 A. Did I prepare an engineering survey?</p> <p>15 Q. Yes.</p> <p>16 A. I guess I don't know what you mean by 17 "engineering survey."</p> <p>18 Q. Okay. Did you sit down and prepare what 19 should have been, if you were going to be an industrial 20 hygienist in your profession, certified industrial 21 hygienist -- well, you're not certified, so an industrial 22 hygienist in your profession, did you sit down and prepare 23 an industrial hygiene program for the W.R. Grace facility 24 in the 1960s?</p> <p>25 A. I have not. I've, you know, read over all</p>	<p>1 state-of-the-art equipment, this equipment should have 2 been in that facility, this equipment would have had this 3 output, and this equipment would have collected this 4 amount of dust. You didn't do that?</p> <p>5 A. I didn't go through that process, no.</p> <p>6 Q. Did you take what was being done at Lompoc 7 facility for JM and translate to how that could have been 8 implemented at the Libby facility?</p> <p>9 A. Well, by "translate," yeah, the mills were 10 similar, so it would have meant putting in a much higher 11 air volume and putting in cleaning stations and all of the 12 things talked about in that Lompoc. But I didn't, other 13 than the way I describe it in my report.</p> <p>14 Q. Before seeing that Lompoc report by Grace or 15 summary by Grace, were you aware of the Lompoc facility?</p> <p>16 A. Yes, I read about the Lompoc a long time ago.</p> <p>17 Q. Did you make any cost assessment as to what it 18 would have cost W.R. Grace in the 1960s - 1968, '67, '68, 19 '69 - to the W.R. Grace Libby facility with the same 20 equipment that was at Lompoc?</p> <p>21 A. I did not.</p> <p>22 Q. Did you conduct or prepare any cost benefit 23 analysis for the purposes of this case?</p> <p>24 A. I did not.</p> <p>25 Q. Now, it's my understanding that you have given</p>
Page 186	Page 188
<p>1 their documents over the years and even for this case. A 2 lot of them just draw conclusions based on the way they 3 were describing the engineering and the controls.</p> <p>4 Q. Did you take the time to, from an engineering 5 standpoint, to ascertain the types of equipment that 6 should have been in the W.R. Grace facility to control 7 dust?</p> <p>8 A. Well, yes, I reviewed what they were talking 9 about with the Lompoc mill and the different types of 10 controls that would be used, yes.</p> <p>11 Q. Okay. So did you write down specifically 12 exactly what equipment, the manufacturer, the output of 13 each piece of equipment that would control dust in the 14 W.R. Grace facility in 1960s?</p> <p>15 A. Well, I wrote down in my report that they 16 should have used, basically, more cfm, more control 17 velocity, control volume of air, and that they should have 18 used baghouses as opposed to just having a cyclone, which 19 isn't effective for small particles, particularly 20 asbestos. So that's what I wrote in my report.</p> <p>21 Q. Okay.</p> <p>22 A. I didn't do any separate write-up besides 23 that.</p> <p>24 Q. So it's just generally that stuff, but you 25 didn't do a specific: Use this, this was the</p>	<p>1 testimony or had opinions prior to this case, the Hutt 2 case, against a variety of entities, including W.R. Grace 3 and including the State of Montana; is that correct?</p> <p>4 A. Yes.</p> <p>5 Q. And, specifically, you talked about W.R. 6 Grace's culpability and liability for what they did or 7 didn't do at the Libby facility; is that correct?</p> <p>8 A. Yes.</p> <p>9 Q. Likewise, with respect to the State of 10 Montana, you talked about their liability and culpability 11 for what they did or didn't do relating to the W.R. Grace 12 facility, is that correct, in Libby?</p> <p>13 A. Yes.</p> <p>14 Q. I presume you would stand by each and every 15 one of those opinions to this day regarding the opinions 16 you gave at that point in time; is that correct?</p> <p>17 So in other words, any opinions that you gave, 18 either by report or by sworn deposition, you'd stand by 19 those opinions.</p> <p>20 A. Yes.</p> <p>21 Q. And those opinions traversed various areas, 22 including education programs for workers, and saying that 23 W.R. Grace was deficient in providing proper education for 24 workers at the facility, for example?</p> <p>25 A. That would be part of it, yes.</p>

Page 189	Page 191
<p>1 Q. You also gave opinions that W.R. Grace did not 2 have a proper respirator program at the Libby facility; is 3 that correct? 4 A. Yes. 5 Q. You also gave opinions that W.R. Grace failed 6 to properly control the dust at the Libby facility. 7 A. Yes. 8 Q. You also gave opinions that the TLVs, or at 9 least the values that they were using, were incorrect at 10 the Libby facility; is that correct? 11 A. Yes. 12 Q. And all of those opinions, in your view, led 13 to them being negligent in the way in which they 14 manufactured, mined, and addressed worker safety; is that 15 correct? 16 A. Well, repeat that one more time. Sorry, I got 17 a little lost. 18 Q. Okay. The violation of all those things - the 19 respirator program, the education program, the failure to 20 control dust, and the TLV value - all contributed to W.R. 21 Grace's negligence in properly protecting the worker. 22 A. Yes. Whether or not that covers everything of 23 what I talked about in those previous reports since I 24 don't have it. 25 Q. At least those four areas?</p>	<p>1 was supposed to read something. 2 Q. Do you hold the opinion that W.R. Grace, 3 through the 1960s, had an inadequate and was in violation 4 of industrial standards, including housekeeping, 5 maintenance, ventilation capacity, and exhaust air 6 cleaning? 7 A. Yes. 8 Q. And it's your opinion that W.R. Grace had 9 proper dust control available and it was feasible at that 10 time, correct? 11 A. Yes. 12 Q. Did you conduct any proper dust control 13 feasibility studies that you can point me to in the 1960s 14 that you performed? 15 A. No. 16 Q. It's your opinion that W.R. Grace's measures 17 for protection of workers and their family members from 18 toxic dust was inadequate and in violation of industrial 19 hygiene standards? 20 A. Yes. 21 Q. And it's your opinion that W.R. Grace knew or 22 should have known how to properly control dust at the 23 facility; is that correct? 24 A. Well, if they didn't know, they should have 25 sought help, which is, I believe, what they were getting</p>
Page 190	Page 192
<p>1 A. Yes. 2 Q. And there may be more? 3 A. There could be. 4 Q. Now, you also are aware that Zonolite owned 5 that facility prior to Grace purchasing it in 1962-63, 6 correct? 7 A. Right. 8 Q. And Grace inherited the Zonolite operation, 9 correct? 10 A. They bought it. 11 Q. So they inherited what was there. 12 A. I guess. They bought it; I don't know what 13 they inherited. 14 Q. So you have the opinion with respect to W.R. 15 Grace that up until the early -- at least through the 16 1960s, that dust control at the Libby facility was 17 inadequate and in violation of industrial hygiene 18 standards including housekeeping, maintenance, ventilation 19 capacity, and exhaust air cleaning; is that correct? 20 A. Are you reading off an affidavit or are you 21 just reading notes? 22 Q. I'm asking you that question. 23 A. Are these your notes? 24 Q. Do you hold that opinion? 25 A. Yeah, one more time. Sorry, I don't know if I</p>	<p>1 out of Maryland Casualty. 2 Q. Well, it's been your opinion, and you still 3 hold the opinion, that W.R. Grace knew or should have 4 known what the standards for proper industrial hygiene 5 were in the W.R. Grace facilities in the 1960s. 6 A. Yes. 7 Q. And their failure, W.R. Grace's failure to 8 understand what those standards were and comply with them 9 was a violation of industrial hygiene standards; is that 10 correct? 11 A. Yes. 12 Q. Irrespective of what Maryland Casualty may or 13 may not have told Grace or what Maryland Casualty's advice 14 was to Grace, Grace had an independent responsibility, as 15 the employer, to assure that proper industrial hygiene 16 standards were complied with. You'd agree with that? 17 A. Yes. 18 Q. You'd also agree that W.R. Grace knew and 19 should have been well aware of occupational medicine, 20 industrial hygiene literature in the 1960s. 21 A. Yes. 22 Q. You would also agree with me that W.R. Grace 23 acted irresponsibly for many years with respect to the 24 mining and milling operation in Libby. 25 A. Yes.</p>

Page 193

1 Q. You would also agree with me that the W.R.
 2 Grace company can inform itself by searching literature
 3 and conducting studies as to proper industrial hygiene
 4 considerations?
 5 A. Can inform itself?
 6 Q. That W.R. Grace can inform itself by searching
 7 literature or conducting studies as to proper industrial
 8 hygiene compliance.
 9 A. Yeah, any company had a responsibility to
 10 search the literature and see what they're saying about
 11 toxins and what the controls are, sure.
 12 Q. And you would agree with me that the central
 13 principles of industrial hygiene through the literature
 14 are to study, to warn, and to protect the workers; is that
 15 correct?
 16 A. Yes. We have to study it, we have to warn the
 17 workers, and we have to protect the workers, sure.
 18 Q. And you would agree with me that W.R. Grace
 19 had the responsibility for warning its workers with
 20 respect to any hazards in the W.R. Grace facility, the
 21 Libby facility.
 22 A. W.R. Grace and Maryland Casualty, yes.
 23 Q. My question is that: W.R. Grace had the
 24 responsibility to warn and to protect its workers in the
 25 Libby facility?

Page 194

1 MR. LEFTRIDGE: Objection; asked and answered.
 2 THE WITNESS: They had responsibility, the
 3 State of Montana had a responsibility, and so did Maryland
 4 Casualty.
 5 Q. (By Mr. Longosz) You just told me, you told me
 6 long ago that W.R. Grace had the responsibility to its own
 7 workers, and it was the sole responsibility of W.R. Grace
 8 to its workers; is that correct? Because it's the
 9 employer.
 10 A. Yes, but they're relying on industrial hygiene
 11 service.
 12 Q. You'd agree with me that W.R. Grace's conduct
 13 in this case -- well, strike that.
 14 In none of your opinions prior to today and in this
 15 Hutt case have you ever mentioned Maryland Casualty, nor
 16 have you ever pointed to Maryland Casualty as advising or
 17 providing advice to W.R. Grace or recommendations; is that
 18 correct?
 19 A. Yeah, I mean, I've written the affidavit in
 20 Girard that was against Maryland Casualty, I believe.
 21 Q. Of all the depositions and all the opinions
 22 that you have given, okay, through the years, the last 20
 23 years, you have never given a deposition, you have never
 24 written a report that implicates Maryland Casualty in any
 25 of these cases arising out of the Libby mine; is that

Page 195

1 correct?
 2 MR. LEFTRIDGE: Objection; asked and answered.
 3 THE WITNESS: Yeah, I don't, know. I've given
 4 opinions that pertain to Maryland Casualty in the Girard
 5 case, if that's the right name, yeah. Not whether or
 6 not --
 7 Q. (By Mr. Longosz) That's it, but you've never
 8 mentioned W.R. Grace, you've never mentioned -- strike
 9 that.
 10 You had never mentioned Maryland Casualty in any
 11 opinion or in any case arising out of the Libby mine that
 12 you've given testimony; is that correct? "Yes" or "no."
 13 MR. LEFTRIDGE: Objection; asked and answered.
 14 THE WITNESS: With all the depositions I've
 15 given, I can't make a blanket statement, I mean.
 16 Q. (By Mr. Longosz) Do you recall any instances
 17 where you have, in a deposition, mentioned Maryland
 18 Casualty as providing any type of industrial hygiene
 19 services to W.R. Grace?
 20 A. I could not recall any sitting right here
 21 today, but I've given a lot of depositions.
 22 Q. Can you remember any opinion or report that
 23 you've written in any of these cases with respect to W.R.
 24 Grace where you have indicated that Maryland Casualty had
 25 any input regarding recommendations to W.R. Grace?

Page 196

1 A. I couldn't point to a specific example. I
 2 don't know if I did or I didn't.
 3 Q. I'm trying to understand what your opinions
 4 are with respect to the State. What opinions did you have
 5 with respect to the State of Montana?
 6 A. That they failed to inform the workers and the
 7 public about the toxic exposures to Libby amphibole
 8 asbestos.
 9 Q. And how and when were they to notify the
 10 workers and the community about the toxic exposure?
 11 A. The same way we would describe providing
 12 warning in my report, you know: Flyers, leaflets,
 13 pamphlets. And Wake, essentially, attempted to get his
 14 inspection reports made public, and then he was
 15 erroneously told by the attorney general that he could not
 16 release those reports.
 17 Q. So what you're saying is that the State of
 18 Montana should have provided warnings in the Libby
 19 facility?
 20 A. Yes.
 21 Q. Separate and apart from W.R. Grace?
 22 A. Yes. In conjunction with, since Grace wasn't
 23 doing it.
 24 Q. Does the State have any statutory power or
 25 statutory control over the W.R. Grace facility?

Page 197

1 A. I mean, I don't know if that's a legal
 2 question. I know that, based on the Orr decision, I
 3 believe that they concluded that they had --
 4 Q. Well, I'm not asking you -- okay, let me
 5 phrase it another way.
 6 Are you aware of whether in the 1960s the State of
 7 Montana had any enforcement power relative to the W.R.
 8 Grace Libby facility?
 9 MR. LEFTRIDGE: Objection; calls for a legal
 10 conclusion.
 11 THE WITNESS: Yeah, I mean, like I say, I just
 12 know what transpired in the Orr decision.
 13 Q. (By Mr. Longosz) I don't want to know about
 14 the Orr decision. I want to know what you know about any
 15 of the State of Montana's enforcement power in the 1960s,
 16 if you know.
 17 MR. LEFTRIDGE: Same objection.
 18 THE WITNESS: Yeah, I don't know. I mean,
 19 typically, you know, at that time, the states did not have
 20 enforcement. They had to be invited into places. But
 21 whether or not that applied, I don't know. I don't know
 22 if it's a legal conclusion or not.
 23 Q. (By Mr. Longosz) Well, let me ask you this:
 24 You have not surveyed the literature nor the statutes to
 25 understand whether the State had the enforcement power in

Page 198

1 the 1960s; is that correct?
 2 A. Well, I've looked at literature. I don't know
 3 if I've looked at the statutes or not. I could have, but
 4 I don't remember.
 5 Q. Do you know if there's any entity other than
 6 W.R. Grace itself that could shut down the Libby
 7 operations to enact safety considerations in the mine?
 8 A. Well, I believe in my state case that you're
 9 talking about, I opine that they had the power to shut
 10 them down because they had done so at the phosphate plant
 11 and different places.
 12 Q. You'd agree with me, and it's your opinion,
 13 that the State could have immediately initiated an
 14 industrial hygiene program to remove the asbestos hazard,
 15 prevent further asbestos-related disease, and conducted a
 16 public information campaign to disseminate pertinent
 17 information to workers, their families, and the general
 18 community?
 19 A. Yeah, they recommended an industrial hygiene
 20 program. Along those lines, I don't know if Wake had the
 21 access to the health records that were present at
 22 Zonolite, the sick workers.
 23 Q. Have you ever spoken with any of the
 24 management personnel? You've spoken with workers. Have
 25 you ever spoken with any of the management personnel at

Page 199

1 the W.R. Grace facility?
 2 A. I don't believe so.
 3 Q. Do you have records of the individuals you
 4 spoke with who worked at the facility?
 5 A. Oh, I'm sure I have records. I could have
 6 records somewhere. I don't know.
 7 Q. Have you reviewed any of those specific
 8 records for the time frame 1968 to 1969 when Mr. Hutt was
 9 working at W.R. Grace, any co-workers, any co-worker
 10 records during that '68 to '69 time period?
 11 A. No.
 12 Q. I'm just going to review my notes.
 13 Have we, through your report or your testimony, have
 14 we covered all the opinions, at least at this point in
 15 time, that you can remember that you will be called upon
 16 to testify to?
 17 Obviously, if there's anything else that comes up,
 18 you'll let us know in supplement. But either your report
 19 or your testimony, if we combine those two, will that be
 20 the opinions you tend to render at the trial in this
 21 matter?
 22 A. At this time, yeah.
 23 Q. Okay. That's all I have.
 24 MR. LEFTRIDGE: Give us 10 minutes.
 25 (A brief recess was taken.)

Page 200

1 THE WITNESS: I pass the witness.
 2 BY MR. LEFTRIDGE:
 3 Q. Dr. Spear, I just have a few questions for
 4 you. One of the first things we were talking about this
 5 morning, Mr. Longosz had a line of questions regarding
 6 OSHA in the 1970s and some of the standards of the
 7 industrial hygiene standards associated with OSHA.
 8 Can you describe to us the basis of industrial
 9 hygiene knowledge and practices pre OSHA. Where does that
 10 information come from?
 11 A. Well, it really comes from the literature. I
 12 mean, industrial hygiene became part of the Public Health
 13 Service back in like 1914, or something like that. The
 14 original industrial hygienists were guys like Bloomfield
 15 who were engineers. They were performing industrial
 16 hygiene doing surveys, writing reports, and then it
 17 evolved over time.
 18 So, you know, the basic principles of industrial
 19 hygiene have been pretty consistent over the many, many
 20 years. I mean, obviously, our knowledge changes about the
 21 principles, but, you know, the principles are the same.
 22 Q. And even after OSHA came into effect, would
 23 those basic principles of industrial hygiene still be
 24 applicable?
 25 A. Yes.

Pages 197 to 200

Page 201	Page 203
<p>1 Q. There was also an extensive discussion this</p> <p>2 morning regarding whether or not Maryland Casualty</p> <p>3 provided industrial hygiene services versus whether or not</p> <p>4 they were providing loss prevention analysis.</p> <p>5 Based upon your review of the records, did Maryland</p> <p>6 Casualty embark on providing an industrial hygiene</p> <p>7 program?</p> <p>8 MR. LONGOSZ: Objection; form, foundation.</p> <p>9 Go ahead.</p> <p>10 THE WITNESS: Yes.</p> <p>11 Q. (By Mr. Leftridge) Let me direct you to a few</p> <p>12 exhibits. If we could turn to MCE-22. I don't recall if</p> <p>13 we looked at this one this morning, but this is a letter</p> <p>14 of 1964 from Park to Trimmer; is that correct?</p> <p>15 A. Yes.</p> <p>16 Q. And on page 1 in Paragraph 3, we're talking</p> <p>17 about the development of the program. It states: "We are</p> <p>18 particularly interested at this time in the industrial</p> <p>19 hygiene portion of that program."</p> <p>20 Do you see that?</p> <p>21 A. Yes.</p> <p>22 Q. What is the significance of that in your</p> <p>23 opinion?</p> <p>24 MR. LONGOSZ: Objection; form.</p> <p>25 THE WITNESS: Well, that, you know, they</p>	<p>1 A. Yes.</p> <p>2 Q. So they're saying that Grace will be well</p> <p>3 prepared to plan for the future by close observation of</p> <p>4 industrial hygiene practices which are established?</p> <p>5 A. Correct.</p> <p>6 Q. What is the significance of that sentence to</p> <p>7 you?</p> <p>8 A. Well, that they were formulating a plan for</p> <p>9 industrial hygiene controls to control lung disease and</p> <p>10 prevent asbestosis.</p> <p>11 Q. So Mr. Park is recommending or referring to</p> <p>12 the best industrial hygiene practices. Is that your</p> <p>13 understanding?</p> <p>14 A. Yes.</p> <p>15 Q. And I'll turn your attention to MCE-73. And</p> <p>16 this is a document to Mr. Rupp at W.R. Grace written by</p> <p>17 Park, is that correct, from Maryland Casualty?</p> <p>18 A. Yes.</p> <p>19 Q. And on page 2 at the very top, it's talking</p> <p>20 about the million particles per cubic foot in the TLV. Do</p> <p>21 you see that?</p> <p>22 A. Yeah, let me read the that.</p> <p>23 Q. It's on the first page, it's talking about --</p> <p>24 A. Yeah, it's talking about it at the bottom of</p> <p>25 the first page.</p>
Page 202	Page 204
<p>1 recognize, Maryland Casualty recognized the fact that</p> <p>2 there was a significant health hazard in the facility, and</p> <p>3 so they were, basically, doing the industrial hygiene</p> <p>4 portion to, I assume, control it.</p> <p>5 Q. And that would be the industrial hygiene</p> <p>6 portion of that safety program?</p> <p>7 A. Yes.</p> <p>8 Q. If I could direct your attention to MCE-81.</p> <p>9 This is a letter from Park of Maryland Casualty to</p> <p>10 Taggart, I believe; is that correct?</p> <p>11 A. Yeah. Yeah, attention Mr. Taggart from Park.</p> <p>12 It's dated June 1, 1966. The very bottom of the second</p> <p>13 page going to the top of the third page, do you see where</p> <p>14 it says that (quoted as read):</p> <p>15 "I believe you will be prepared to plan for</p> <p>16 future operations in this area and that your employees in</p> <p>17 this operation can be assured freedom from asbestosis by</p> <p>18 close observation of the Industrial Hygiene Practices</p> <p>19 which are established?"</p> <p>20 Do you see that?</p> <p>21 A. Yes, I think it says: "I believe you will be</p> <p>22 well prepared." It's hard to see the "well," but --</p> <p>23 (pause.)</p> <p>24 Q. Yeah. And was Trimmer an employee of W.R.</p> <p>25 Grace?</p>	<p>1 Q. ACGIH and TLV standards?</p> <p>2 A. Yes. He's explaining that these limits are</p> <p>3 based on the best available information.</p> <p>4 Q. And on the top of page 2, it says, regarding</p> <p>5 the TLV standard:</p> <p>6 "They are intended for use in the field of</p> <p>7 industrial hygiene and should be interpreted and applied</p> <p>8 only by persons trained in this field."</p> <p>9 A. Yes, that's what it says.</p> <p>10 Q. And then on page 3, and the paragraph labeled</p> <p>11 No. 5, we're talking about the threshold limit value.</p> <p>12 A. Yes. It says: "The levels are applicable</p> <p>13 only for exposure to a single substance. In the case of</p> <p>14 exposure to mixtures, the effect may be increased or</p> <p>15 decreased, and controls should be based on a specific</p> <p>16 situation."</p> <p>17 Q. So they're talking about the TLV of 5 million</p> <p>18 particles per cubic foot?</p> <p>19 A. Yes.</p> <p>20 Q. Then it says: "This is the evaluation upon</p> <p>21 which Mr. Walker has made his recommendation."</p> <p>22 Do you see that?</p> <p>23 A. Yes. I'm reading that next sentence, yes.</p> <p>24 Q. So this letter from Mr. Park says the TLV</p> <p>25 values should only be intended for the use of industrial</p>

Page 205	Page 207
<p>1 hygiene and interpreted and applied by persons trained in</p> <p>2 this field. And then later on, he says that Mr. Walker</p> <p>3 has made the recommendations of 5 million particles per</p> <p>4 cubic foot.</p> <p>5 A. Yes, I see that.</p> <p>6 Q. What is the significance of these statements</p> <p>7 to you?</p> <p>8 MR. LONGOSZ: Objection to form.</p> <p>9 THE WITNESS: Well, that they were industrial</p> <p>10 hygienists and they were with industrial hygiene in making</p> <p>11 the recommendations.</p> <p>12 Q. (By Mr. Leftridge) Does it continue to be your</p> <p>13 position that Maryland Casualty was offering</p> <p>14 recommendations in the field of industrial hygiene?</p> <p>15 A. Yes.</p> <p>16 Q. We also talked this morning, and</p> <p>17 Mr. Longosz asked you to point to a specific document in</p> <p>18 which W.R. Grace accepted the safety program. Do you</p> <p>19 recall that line of questioning?</p> <p>20 A. Yes.</p> <p>21 Q. And at the time, you pointed to a particular</p> <p>22 document regarding the formulation of the plan.</p> <p>23 A. Correct.</p> <p>24 Q. And you weren't able to identify any specific</p> <p>25 document that said we accept, "we," W.R. Grace, accept</p>	<p>1 safety program that we were looking at earlier, wasn't the</p> <p>2 only time that Maryland Casualty made recommendations to</p> <p>3 Grace; is that right?</p> <p>4 A. That's correct.</p> <p>5 Q. Then, in fact, there were recommendations</p> <p>6 being made in correspondence as well as inspection</p> <p>7 reports. Is that your understanding?</p> <p>8 A. Yes.</p> <p>9 Q. There was a lot of talk today about the</p> <p>10 threshold limit value of 5 million particles per cubic</p> <p>11 foot.</p> <p>12 A. Yes.</p> <p>13 Q. And you were asked questions about the</p> <p>14 recommendations from Maryland Casualty, the TLV</p> <p>15 recommended by the State, the TLV advocated for by W.R.</p> <p>16 Grace. Do you remember all of that?</p> <p>17 A. Yes.</p> <p>18 Q. Is it your opinion that 5 million particles</p> <p>19 per cubic foot of air was sufficient to protect the health</p> <p>20 of workers?</p> <p>21 A. No. It's my opinion that the TLV of 5 million</p> <p>22 particles per cubic foot was, basically, an engineering</p> <p>23 number to try to meet. And I believe it's so stated by</p> <p>24 the ACGIH, that their limit was not intended as a safe</p> <p>25 line between safe and not safe.</p>
Page 206	Page 208
<p>1 Maryland Casualty's plan; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. Were there any indications in your review of</p> <p>4 the records, other than a document of formal acceptance,</p> <p>5 that demonstrates to you that W.R. Grace was attempting to</p> <p>6 carry out the recommendations of Maryland Casualty?</p> <p>7 A. Yes.</p> <p>8 Q. Which ones?</p> <p>9 A. Well, I could go through and try to pick out</p> <p>10 specific documents, but the documents were Maryland</p> <p>11 Casualty's recommending specific controls, whether it be</p> <p>12 pertaining to the ventilation system, or specific controls</p> <p>13 relating to the respirators in use, or posting signs for</p> <p>14 respirators, or posting signs for head protection.</p> <p>15 Yeah, so the indication is that they were</p> <p>16 recommending that certain controls be implemented.</p> <p>17 Q. So the actions of W.R. Grace adhering to some</p> <p>18 of the recommendations of Maryland Casualty indicates to</p> <p>19 you that there was de facto acceptance of their plan?</p> <p>20 MR. LONGOSZ: Objection to form.</p> <p>21 THE WITNESS: Well, yes, and plus the Maryland</p> <p>22 Casualty documents, basically, state that, you know, "This</p> <p>23 risk is relying on us" - I don't know that those are the</p> <p>24 exact words - "to provide them with recommendations."</p> <p>25 Q. (By Mr. Leftridge) And just to be clear, the</p>	<p>1 And, you know, there's no limit that could be really</p> <p>2 classed as being safe or unsafe for every worker, so the</p> <p>3 idea is to design the controls so that we can reduce the</p> <p>4 dust to the extent possible and feasible.</p> <p>5 Q. The recommended standard of 5 mppcf, that</p> <p>6 would apply to dust containing 1 percent asbestos and also</p> <p>7 apply to dust containing 40 percent asbestos; is that</p> <p>8 correct?</p> <p>9 A. Yes, that's correct. And I think I pointed</p> <p>10 out in my report that - in fact, we read that in one of</p> <p>11 these exhibits today - that somebody referred to the</p> <p>12 asbestos in the textile mills as being all asbestos, and</p> <p>13 we know that they weren't.</p> <p>14 It was usually a small percentage, anywhere from 5</p> <p>15 percent to 25 percent. They had cotton dust and different</p> <p>16 things in the textile mills. And, then, at W.R. Grace, we</p> <p>17 had, you know, anywhere from 20 to 40 to 80 percent, I</p> <p>18 think, at times, reported that way.</p> <p>19 Q. So is it your opinion that in the development</p> <p>20 of engineering controls, an industrial hygienist or an</p> <p>21 engineer should take into account the percentage of</p> <p>22 asbestos inside the dust when developing what a safe level</p> <p>23 should be?</p> <p>24 A. Again, yeah, in my opinion, it would be.</p> <p>25 You'd have to consider the type of dust, the percentage of</p>

Page 209	Page 211
<p>1 toxic constituents, including the asbestos, and design the</p> <p>2 controls accordingly. And if the controls don't work,</p> <p>3 then we have to make sure we use other controls such as</p> <p>4 training the worker, providing work practice controls, and</p> <p>5 personal protective equipment.</p> <p>6 Q. There was some questions regarding W.R. Grace</p> <p>7 and whether or not they had the sole responsibility as the</p> <p>8 employer to conduct a number of activities at the mill.</p> <p>9 Do you recall those questions?</p> <p>10 A. Yes.</p> <p>11 Q. And is it your testimony that W.R. Grace had</p> <p>12 the sole responsibility to provide warnings to employees?</p> <p>13 MR. LONGOSZ: Objection; asked and answered.</p> <p>14 THE WITNESS: No.</p> <p>15 Q. (By Mr. Leftridge) Dr. Spear, you provided a</p> <p>16 very extensive expert report in this case. And after a</p> <p>17 very long deposition today, going over many of those</p> <p>18 documents that you cite, as well as your report itself,</p> <p>19 was there anything in the deposition today that changed</p> <p>20 any of the expert opinions that you rendered in your</p> <p>21 report?</p> <p>22 A. No.</p> <p>23 MR. LEFTRIDGE: I have no further questions.</p> <p>24 MR. LONGOSZ: I just have one or two</p> <p>25 follow-ups.</p>	<p>1 hygiene program" that you can recall?</p> <p>2 A. Not that I can recall.</p> <p>3 MR. LONGOSZ: I have no further questions.</p> <p>4 (Off-the-record discussion.)</p> <p>5 MR. LONGOSZ: In response to the deposition</p> <p>6 notice, Dr. Spear brought his flash drive of documents</p> <p>7 that we are submitting as an exhibit to this deposition.</p> <p>8 We'll mark it as the next common exhibit</p> <p>9 number when we go back and finalize the list.</p> <p>10 (The document concluded at</p> <p>11 approximately 4:45 p.m.)</p> <p>12</p> <p>13 * * * * *</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
Page 210	Page 212
<p>1 BY MR. LONGOSZ:</p> <p>2 Q. Looking at, again, Exhibit No. MCE-36, do you</p> <p>3 see that?</p> <p>4 A. Yes.</p> <p>5 Q. The title of it is "Safety Program and</p> <p>6 Organization," correct?</p> <p>7 A. Yes.</p> <p>8 Q. The title of it is not "Industrial Hygiene</p> <p>9 Program," correct?</p> <p>10 A. That's not the title.</p> <p>11 Q. Okay. Anywhere contained within this, either</p> <p>12 its scope, its introduction, or any of the pages contained</p> <p>13 within this, does it talk about an industrial hygiene</p> <p>14 program?</p> <p>15 A. Well, it talks about things that pertain to an</p> <p>16 industrial hygiene program.</p> <p>17 Q. That's not my question. My question is: Do</p> <p>18 you see the words "industrial hygiene program" contained</p> <p>19 anywhere in this document?</p> <p>20 A. Now I have to look at the whole thing again.</p> <p>21 Q. You can look at the whole thing again, but I</p> <p>22 can tell you that it doesn't.</p> <p>23 A. Yeah, I didn't look at every word when I --</p> <p>24 Q. Let me ask you this way: Did you see anywhere</p> <p>25 in this document where it contained the words "industrial</p>	<p>1 STATE OF MONTANA)</p> <p>2 :</p> <p>3 County of Silver Bow)</p> <p>4</p> <p>5 I, Candice L. Nordhagen, Court Reporter - Notary</p> <p>6 Public in and for the County of Silver Bow, State of</p> <p>7 Montana, do hereby certify:</p> <p>8</p> <p>9 That the witness in the foregoing deposition, Terry</p> <p>10 Spear, Ph.D., was by me first duly sworn according to law</p> <p>11 in the foregoing cause; that the deposition was then taken</p> <p>12 before me at the time and place herein named; that the</p> <p>13 deposition was reported by me in machine shorthand and</p> <p>14 later transcribed by computer, and that the foregoing two</p> <p>15 hundred eleven (211) pages contain a true record of the</p> <p>16 witness, all done to the best of my skill and ability.</p> <p>17 IN WITNESS WHEREOF, I have hereunto set my hand and</p> <p>18 affixed my notarial seal this ____ day of _____,</p> <p>19 2018.</p> <p>20</p> <p>21</p> <p>22 _____</p> <p>23 Candice L. Nordhagen</p> <p>24 Notary Public for the State of</p> <p>25 Montana residing at Butte,</p> <p>Montana. My commission</p> <p>(NOTARIAL SEAL) expires October 26, 2020.</p>

Page 213

1 DEPOSITION OF: TERRY SPEAR, Ph.D.
2 DEPOSITION DATE: NOVEMBER 2, 2018
3 IN RE: ASBESTOS LITIGATION, HUTT vs. MARYLAND
CASUALTY COMPANY

4
5 COURT REPORTER: CANDICE L. NORDHAGEN

6 I have read my deposition and make the following
7 corrections or additions:

8 PAGE # LINE CORRECTION
9
10
11
12
13
14
15
16
17
18
19
20
21

22 Signed under penalty of perjury this _____ day
23 of _____, _____.

24 _____
25 Terry Spear, Ph.D.

Page 213

A	53:9	104:3 139:7	agreement	93:6,20 187:23
a.m 1:25	acknowledges	192:13 194:17	44:11,14,19	201:4
ability 212:15	86:16	advised 105:8	45:6 46:13	Anna 30:25 31:1
able 23:7 47:19	acronym 12:17	105:10,11	163:10,14	answer 40:12
60:21 99:12	act 69:6	advising 105:9	ahead 85:12	47:19 50:23
116:10 183:18	acted 192:23	105:22 106:18	100:10 122:3	66:23,24 67:11
205:24	action 152:18	121:1 194:16	201:9	79:2,25 100:9
absolutely 29:19	176:8	advisory 72:1,14	aim 176:16	106:2,3,4
177:24	actions 206:17	advocated	air 63:24 64:1	116:8,8,10,13
AC-17-0694 1:3	active 70:12	207:15	80:15,20 82:4	123:11 125:15
academia 32:21	activities 63:24	aerosol 33:3	82:24 83:2	177:3 178:10
accept 175:3	181:6,7 209:8	AFFCO 16:14	87:19 112:18	answered 40:13
205:25,25	Activity 107:22	27:24	112:22 140:11	46:11,21 48:24
acceptance	acts 69:4,11	affidavit 7:4,6,7	140:16,20,23	95:23 116:16
45:12,13 95:21	actual 41:7	190:20 194:19	141:9,17,21,24	194:1 195:2,13
206:4,19	127:2	affirmatively	142:2 143:5,22	209:13
accepted 44:5	add 6:25 162:23	12:22 78:3	148:4 156:4	anybody 11:9
44:21 45:17,22	adding 162:19	affixed 212:17	157:7 186:17	33:12,18,24
46:9,9,19	addition 60:16	aftermentioned	187:11 190:19	106:21 110:6
95:18 136:2,22	184:10	170:1	191:5 207:19	149:18 183:21
205:18	additional	agencies 72:2,14	airborne 61:25	183:24
accepting 95:13	162:20	ago 7:9,10	airflow 138:7	Anytime 29:19
access 198:21	additions 213:6	187:16 194:6	airstream 82:11	apart 196:21
accident 28:25	address 5:24 6:2	agree 9:19 19:19	al 1:6	apologize 47:20
69:20,24 70:5	64:6	24:20,21 35:25	allocated 168:19	71:6
70:18,19 81:6	addressed 63:25	46:18 50:12	allow 132:6	apparently 23:8
100:12 113:22	93:8 94:22	70:8,15 72:4	147:6,11	52:22 54:4
177:10	120:10,11	74:20 85:7	allowable 82:1	76:17 143:15
accidents 8:22	189:14	86:8 89:21	87:18 169:22	appearances 2:1
9:15 114:4	adequate 38:6	94:10 99:19	allowed 116:10	5:6
155:14	53:18 64:3	103:12 122:16	allowing 174:12	APPEARING
accomplished	78:4 119:3,6	123:1,8 129:25	American 31:14	3:1
82:6	adequately	130:4,6,9,10	72:9 82:2	appears 153:22
account 208:21	98:25	130:11,23	100:11 137:5,9	154:13
accumulating	adhering 87:4	131:2,9,11,17	169:22	applicable 9:17
184:11	206:17	131:20,24	amount 83:3,20	72:1,7,8,14
ACGIH 30:14	administrative	133:1,4,8,23	135:25 142:11	139:23 200:24
31:10 86:17	63:22 99:24	146:21,24	187:4	204:12
87:7 89:21	adopt 157:16	147:22 148:5	amphibole	application
166:12 172:7	adopted 157:13	165:4 179:2	196:7	78:15
204:1 207:24	157:22	192:16,18,22	ample 22:25	applied 4:13
achieve 88:3	advice 11:22	193:1,12,18	Anaconda 6:3	10:23 11:2
acknowledge	16:11 25:4,8,9	194:12 198:12	15:5,6,19	27:19 72:3,10
170:14 173:18	25:12,14,18	agreed 5:9 22:20	16:14	72:15 197:21
173:24 175:2	35:16,18,19,19	46:23 87:12	analysis 70:5,19	204:7 205:1
acknowledged	78:24 80:2,3,5	166:15	89:14,16,18	applies 10:6,7

apply 10:11 26:9 26:10,11 27:18 100:17 101:4 208:6,7 applying 131:13 136:4 appoint 68:14 appreciate 116:9 appreciated 170:3 appropriate 15:23,25 25:4 71:14 72:9 78:20 79:7,10 120:1 123:5 143:18 177:25 appropriated 169:10 appropriately 71:21 approval 145:2 approve 147:3 approved 87:17 132:4 137:13 138:10 144:16 144:23 146:25 147:4 150:9 approximately 211:11 April 171:9,9,25 area 8:14,15 14:11,12,14 131:6,7 143:23 159:4 174:6 175:18 202:16 areas 8:19 49:5 75:2 120:21,22 130:2,14,25 142:19 150:13 150:14 161:16 188:21 189:25 argumentative 52:8 173:25 175:6 arising 69:3	194:25 195:11 arm 170:20 art 27:6,7,12 article 152:5 162:7 184:4 asbestos 1:1,3 7:24 8:17,20 10:21 22:1,8 26:24 30:24 37:25 38:24 49:17,19,20 50:3,4,9,11,14 53:6,10 54:10 56:20 57:8,13 57:22,25 62:14 63:8 69:6 80:10 86:18 87:8 89:25 100:24 118:23 125:1 135:25 136:1,1,2,5,7 142:11 152:6 162:11,13,17 172:17 186:20 196:8 198:14 208:6,7,12,12 208:22 209:1 213:3 asbestos-man... 37:21 38:12,20 38:22 39:6 asbestos-related 198:15 asbestosis 41:1 202:17 203:10 ascertain 98:5 114:25 119:3 186:5 aside 166:19 asked 13:16 22:19 37:6 40:13,19 46:10 46:21 48:23 60:11 62:11 73:13 95:23 115:14 116:5	117:13 139:7 194:1 195:2,13 205:17 207:13 209:13 asking 34:21 38:8 46:6 47:3 65:10 75:22,23 100:22 115:11 115:22,23 116:3 152:25 190:22 197:4 asks 114:1 aspects 33:5 67:21 116:4,7 116:11,12 assessment 187:17 assigned 14:11 14:11 assignment 170:21 assist 183:25 assistance 97:13 97:21 assistant 68:14 associated 53:15 200:7 associating 30:23 Association 31:15 72:9 100:16,16 101:6 137:6 assume 28:10 29:12 52:1 102:7 202:4 assure 31:16 85:11 192:15 assured 202:17 atmosphere 81:24 82:4,11 175:12 attaches 162:6 attempted 96:18 196:13 attempting	46:14 76:18 206:5 attended 154:7 attending 31:14 attention 24:23 116:1 146:9 202:8,11 203:15 attorney 2:5,13 2:21 3:3 196:15 August 179:17 180:7 181:18 182:9 authored 27:21 authoritative 22:11 85:15 authority 30:24 66:16 67:8 69:2,23 authorization 152:25 authorship 28:8 available 124:4 191:9 204:3 Avenue 1:22 2:7 2:15 average 84:11 avoid 37:25 118:22 aware 18:12 25:3 33:12,18 33:24 57:14 157:12 187:15 190:4 192:19 197:6 awhile 123:20	27:20 29:21 37:16 40:4 42:2 48:21 49:1 66:23 67:2 76:19 78:14,16 79:4 79:12 87:3,7 90:17,22 93:5 98:17 99:3 100:21 106:1 144:7 157:25 158:11,14 166:10,11 184:23 185:8 200:13 211:9 background 19:25 27:20 30:11,12 35:15 backgrounds 28:20 backing 133:10 bad 60:20 bag 160:25 bagging 156:15 156:17,23 baghouse 82:14 143:25 156:1 156:25 157:6 baghouses 64:4 157:19 175:10 186:18 bags 61:12 Baker 29:7 171:8 Baltimore 45:9 bankruptcy 7:7 bar 83:8,12 bark 62:4 based 21:25 30:17,19 46:13 47:14 64:24 66:10 73:22 94:5,14 96:14 108:8,17 110:17 115:8 117:8 122:11
---	--	---	---	---

136:11 139:20	174:10 180:1	booklet 101:14	148:17 151:16	33:8 41:4,8
146:13 169:22	191:25 194:20	bottom 41:16	152:2 153:20	43:12 59:1,15
186:2 197:2	197:3 198:8	111:13 156:2	154:21	59:20 108:24
201:5 204:3,15	199:2 202:10	161:21 163:8	call 7:24 12:18	109:2 163:22
basic 200:18,23	202:15,21	171:22 179:12	43:12	171:7 183:2,22
basically 13:12	207:23	179:19,19,22	called 5:17	184:6 186:1
13:18,24 14:3	Ben 149:4,8	202:12 203:24	12:12 14:11	187:23 188:1,2
15:21 16:16	150:2 182:13	bought 128:3	16:9 32:12	194:13,15
17:1 22:7	beneficial 138:1	190:10,12	38:4 41:13	195:5,11 198:8
37:25 41:24	benefit 30:23	Bow 212:2,5	43:14 116:1	204:13 209:16
60:14 63:19	51:6,10 187:22	Box 2:23 156:20	117:6 182:25	cases 1:4 7:18,21
93:10 101:7	best 64:15 147:5	break 62:25	199:15	7:22,24,25 8:4
119:20 134:13	170:24 184:22	94:10 107:9,14	calling 89:22	8:11,19,23
149:11 186:16	203:12 204:3	141:15 146:3	90:1	9:15 184:15
202:3 206:22	212:15	breathing 37:25	calls 30:12 197:9	194:25 195:23
207:22	bet 132:5	86:25 112:16	Cambridge	casualty 1:5
Basin 28:2	better 101:11	brief 63:1 146:4	18:23 159:14	2:11 6:9,13 7:3
basis 54:6 67:18	161:5 171:24	182:21 199:25	159:15	7:13 10:9,11
74:6,23 75:25	bibliography	bring 26:3 90:21	campaign	10:16 11:14
80:18 87:9	184:8,19	bringing 90:20	198:16	18:16 22:2,4
94:11 159:7	big 82:13	brooms 63:24	canceled 172:22	22:19,20,23
166:13 173:19	Billings 3:6	64:1 140:11,16	cancer 105:6,6	23:5,9,12,16
200:8	binder 138:1	140:21,23	Candice 5:7	23:19 24:7,11
Bates 41:16	biology 15:11	141:8,17,21,24	212:4,22 213:4	24:13,15 25:7
45:23,24	bit 7:24 83:15	142:2 156:13	capacity 143:8	25:15 28:21,25
166:20,22	black 38:4	brought 42:2	148:12 190:19	30:1 33:13,14
beginning 97:25	blanket 195:15	211:6	191:5	33:19,25 34:2
behalf 12:1 16:6	blanks 178:11	bulk 156:19,20	carcinogen	39:21 40:9,21
171:2 184:24	Bleich 20:18,19	bulk-loading	125:24 126:2	43:5 46:1,20
believe 7:14	88:13,14 114:9	157:9,15	care 24:24,25	47:9,13 48:10
9:14 11:24	114:10 134:21	bunch 183:3	33:8,11 38:18	48:11 50:16,17
15:20 19:24	134:25 135:1	Bundrock 55:23	85:18,19,23	50:24 51:6,10
20:9,13,18,20	168:6 170:12	Bureau 30:23	126:3	51:22,23 52:7
25:12 27:23	blocks 183:5	72:5 97:15,23	career 28:19	52:14 64:13,14
37:6 39:19	Bloomfield	98:1,5 107:22	carefully 70:1	66:2,6,9,11,20
41:9 77:2	200:14	108:5 109:6,7	119:2	67:16 68:19,21
87:23 109:6	board 32:14	109:14,19	Carolina 44:2	73:4,9 74:6,11
120:3,16	72:8 114:13	111:23 137:13	96:6	74:21 75:12,13
121:25 122:23	body 183:6	144:23 145:1	carrier 184:25	75:17,18,24
127:19 129:17	184:11	business 13:15	carry 206:6	76:7,19 77:5,9
130:15 131:5	BOM-approved	13:25	cars 133:6,10	78:23,25 79:13
132:20 135:21	120:2	Butte 1:23 5:2	156:20	79:14,20 80:18
136:17 147:5	bono 17:10	212:23	cartridge 127:8	82:8,20 83:4
151:2,10,23	book 30:7 63:5		case 7:4,6 9:18	83:10 84:9
157:20 163:23	88:5 107:16		10:6,15 11:13	85:2,4,23 86:4
167:11 170:19	163:3 182:25		20:6 23:23	86:9,22 87:10
		C		
		California		

87:16 89:15	212:10	check 148:11	clouds 119:15	63:4 69:17
92:11,18 94:1	causing 173:10	checking 159:21	co-worker 199:9	70:11,17,18
94:11 95:5	Caution 100:13	Chemists'	co-workers	88:16 107:16
96:20,25 97:1	cc 88:17 136:8,9	100:15 101:6	199:9	107:17 163:3
97:12,19 99:14	136:19	CHERIN 2:14	code 36:2,7	163:11,14
100:2,4 104:8	central 148:11	cherry-picked	codes 72:1,10,13	166:22 183:11
105:12,25	193:12	93:3	collect 143:24	211:8
106:5 109:24	certain 93:4	churned 137:23	collected 139:24	communicatio...
110:3,7 112:12	94:3 112:13	circulated 152:7	140:1 187:3	81:7
112:20 113:24	120:21,21,22	cite 209:18	collecting 104:6	community 61:8
117:19 128:15	130:2,3,13,14	Civil 5:11	104:8,16	61:17 62:9,11
132:25 135:5	139:16 184:15	claimed 175:15	collection 156:4	196:10 198:18
138:25 143:17	206:16	CLAIMS 1:1	156:6 160:25	comp 52:16
149:17,21	certainly 12:7	clarify 50:23	169:9,16	companies
151:11 161:9	35:9,9 42:13	clarity 167:12	collector 168:19	16:19,19 39:18
161:13 164:14	80:17 89:22	class 29:3	combination	101:9 185:5
165:3,10,12,14	117:18 148:5	170:20	63:22 138:6	company 1:6
165:16,18	149:20 162:12	classed 208:2	143:4	2:11 6:9 11:20
166:11,14	178:2 181:24	classic 176:25	combine 199:19	11:23 12:1,12
167:25 171:3,8	182:15 184:10	classifications	come 9:20 10:12	22:12 33:14
173:3 174:9	certification	133:21,24	18:10 36:22	34:14 39:10,13
175:1,14,17,24	32:15,17	134:5	38:14,16 39:24	67:12 104:3
176:5,6,23	certified 32:6,9	classroom	78:14 79:12	107:24 181:20
177:6,15	32:10,15,19,22	158:23	158:15 161:5	193:2,9 213:3
179:25 180:2,7	33:8,16,22	clean 82:24	163:13 200:10	compare 117:4
192:1,12	183:24 185:20	157:7	comes 7:5 94:2	compared 117:2
193:22 194:4	185:21	cleaners 140:12	145:11 199:17	compendium
194:15,16,20	certify 212:6	140:16,24,25	200:11	184:18
194:24 195:4	cfm 160:24	141:2,3,8	coming 174:4	compensation
195:10,18,24	186:16	142:2	comment 122:3	28:22 29:10
201:2,6 202:1	chair 170:20	cleaning 25:25	145:15	39:22 40:11
202:9 203:17	chairman 68:17	26:11 131:8	commission	41:3,8 51:1
205:13 206:6	chance 63:18	133:5,9 140:11	212:24	83:11 176:9
206:18,22	100:9 126:7	140:23 143:22	committee 65:18	184:24 185:8
207:2,14 213:3	146:6 167:16	156:12 157:10	65:20,23,24	compiled 8:2,3
Casualty's 22:15	173:12	157:15,19	66:3,7,12,13	completed 31:3
25:12 74:19	change 10:22	187:11 190:19	66:15 67:7	168:12
77:18 89:17	90:22,25 91:10	191:6	68:4,5,9,11,12	completely
92:20 93:1	178:19	clear 53:4 66:21	68:16,17,20,24	116:11
192:13 206:1	changed 158:14	157:2 206:25	69:2,10,14,15	completeness
206:11	209:19	close 16:8 62:8	70:6,9,10	95:20
catch 12:11	changes 159:1	202:18 203:3	110:22 111:2	compliance
categories 80:4	200:20	closer 113:20	committees	36:23 93:6
110:10	charge 69:3,10	clothes 10:22	65:15,17 69:17	96:15 115:1
category 135:12	charged 17:15	cloud 122:8	69:23 70:11,14	168:14 177:24
cause 1:3,8	chart 84:3	137:23	common 30:6	178:3,7,12

193:8	conclusion	183:2,22 184:5	contained 45:13	50:11 53:5
complications	136:11 145:8	184:21	71:14 94:18	64:2,3 66:16
105:4	197:10,22	conned 89:11	124:25 137:24	67:8 75:14,19
complied 35:22	conclusions	consensus 16:2	210:11,12,18	75:24 76:4
92:22,23 93:15	186:2	consequences	210:25	81:23 83:4
93:20 177:19	condition 69:6,7	105:3	containing 22:8	90:7 99:12,22
192:16	114:6 173:5	consequently	86:18 87:8	100:3 138:7
comply 13:13	conditions 21:2	49:19	89:25 136:3	143:5 151:7
18:6 35:23,24	69:4,11 81:19	consider 28:11	208:6,7	155:7 157:14
36:18,19,19	90:6 139:17	28:14,16 61:16	contaminants	160:12 161:5
37:2 86:7 93:1	140:4,6,22	119:25 208:25	81:24	176:13,17
97:3 178:13	150:6 151:22	Considerable	contaminating	177:8 178:1
192:8	152:9,10 153:6	156:3	174:5	180:19 186:6
complying 15:23	177:9	consideration	contamination	186:13,16,17
92:25 93:12	conductive 31:17	22:7 43:3,7,11	61:23,25 62:2	189:6,20
comprehend	conduct 17:2	118:14	175:12	190:16 191:9
144:21	103:17 104:4	considerations	contemplated	191:12,22
comprehensive	185:10 187:22	193:4 198:7	66:14 67:6	196:25 202:4
32:13 36:17	191:12 194:12	considered	177:9	203:9
40:3 43:9,13	209:8	43:10	content 136:5	control.' 87:22
43:14,16,18	conducted	consistent 74:6	154:18	control/risk
65:6,7 144:2	103:20 134:22	74:23 80:18	context 116:8	40:21
177:10	159:14 198:15	165:8 173:19	153:13 164:18	controlled 25:23
compressed	conducting	200:19	continuation	67:21,25 71:21
148:4	13:25 139:4	consistently	171:22	82:5 161:6
computer	180:22 193:3,7	86:3,6	continue 87:5,21	176:19 178:15
212:13	conference 6:5	consisting 68:16	152:14 159:8	controlling
Conceivably	6:20 82:2	Consolidated	205:12	27:12,15 72:2
81:13 122:8	169:23	1:4	Continued	72:14 86:25
concentration	conferences	constituents	113:19	87:11 99:16,20
86:25 87:18	32:1	209:1	continuing	112:16
112:16 116:21	Confidential	constructed	71:25 150:5	controls 19:13
116:22 122:10	138:16 151:5	11:25 12:4,7	continuous	34:25 54:11
122:11 127:10	confidentiality	construction	143:8	63:20,21,22,23
164:11	36:5	8:21 16:18	contract 13:12	82:23 90:6
concentrations	confused 141:12	118:5 158:6	13:18 17:9	99:23,24
82:1 119:14	141:13	consultant 18:10	contracted	103:14 137:21
124:25 132:11	conjunction	consulted 16:18	176:23	138:18 161:12
169:22	176:11 196:22	185:5	contractor 13:4	162:3 178:19
concern 170:25	connection 7:1	consulting 16:17	contributed	178:23 186:3
concerned 60:22	14:15,22 23:23	28:3	189:20	186:10 193:11
151:20 152:9	26:4 43:4 91:5	consumption	control 23:5	203:9 204:15
152:16	94:13 96:2	162:6	25:13 26:7,14	206:11,12,16
concerning 55:7	103:1 108:23	contact 97:13	27:7 28:22	208:3,20 209:2
concluded 197:3	149:14 163:21	176:7	36:13,13 47:10	209:2,3,4
211:10	180:17,21	contain 212:14	48:13 50:5,8	conversant

123:12	53:7,11 57:23	146:15 147:17	cotton 208:15	Creek 62:5
conversation	58:18 62:16	148:22 149:9	Council 98:13	criticism 122:12
60:4,8	63:11 64:19,22	149:12,21	98:20	criticizing 90:10
convinced	65:15,16,18,24	151:12 152:2	counsel 2:1 5:6	cross-examine
174:23	66:7 68:20	152:11,20	5:10 8:7 85:8	115:22
cooperated 46:3	69:16 71:12,23	153:3,7 154:4	163:4,10	cross-reference
cooperating	73:5,19 74:8	155:7,17	count 21:4,10,11	167:2
46:15	75:11,15,19	156:14,16	21:13,15,22,24	crushing 131:13
cooperation	76:1,9,13 78:4	159:2,16,19	21:24 22:3,23	cubic 21:12 22:6
114:1	78:22 79:9	162:15 164:2	23:7,17 164:18	22:9,14,21
cooperative	80:4 81:12,14	164:16 165:11	164:22	23:10,20 84:21
92:20 170:19	81:18,21 82:17	165:19 168:7	counted 136:4	85:16 86:19
copied 24:11,16	84:17 85:13	168:15 170:5	counterpart	87:1,19,20,24
24:18,20,23,24	86:9,17 88:1	171:3,9 172:6	105:8	88:4 112:18,22
138:25 149:18	88:14,18 89:6	172:9,13,24	country 31:6	113:10 136:3,8
151:9,11	89:18,19 90:2	177:1,15 178:1	96:4 159:13	136:10,12,19
179:17,21	91:5,12,16,21	179:12 180:19	counts 112:23	139:22,25
copies 110:1	92:6 94:7,15	180:23 181:1	115:10 139:24	165:25 203:20
124:4	94:19 95:6,11	181:15,22	140:1	204:18 205:4
copper 15:5,19	95:14,18 99:16	182:1,10,18	County 212:2,5	207:10,19,22
copy 42:1,2 59:8	99:20 100:7	188:3,7,12,16	couple 6:17	culpability
62:19 68:15	101:1,19,23	189:3,10,15	15:14 175:8	188:6,10
89:12 110:2	102:16,20,24	190:6,9,19	180:10	Current 152:17
123:22 124:3	103:6,8,14,18	191:10,23	course 31:4,8,22	cyclone 82:9,13
166:22 168:5	105:10,16,23	192:10 193:15	84:22 176:7	175:11 186:18
179:5	106:19,22	194:8,18 195:1	courses 15:15	cyclones 48:14
corporate 18:22	107:1 108:2,5	195:12 198:1	court 1:1,7,21	64:4 82:9 88:3
correct 6:13 7:7	108:6,9,21	201:14 202:10	5:7 7:7 8:3	157:5 160:25
9:18 10:3,13	109:5,9,12,17	203:5,17	38:3,3 40:6	174:12 175:9
10:17 11:2,4,4	109:21 110:3,7	205:23 207:4	66:22 67:4	cycloning
11:7,10,14,17	110:24 112:9	208:8,9 210:6	79:5 106:13	156:24
11:18 14:17	113:1,8 114:20	210:9	212:4 213:4	
16:1,6 18:3,14	115:2 117:15	correction 136:5	courtesy 47:19	D
20:8 21:16	117:19 118:15	213:8	courtroom 8:5	D 4:1 69:18
22:3,16,24	119:12,18	corrections	9:13,14	140:10,10
24:5,8,12,16	121:2 124:8	213:6	cover 123:2,8	D-foe 126:15
26:14 27:13,18	126:25 127:13	correspondence	152:24 170:2	145:1
29:11 31:21	127:18 128:12	51:3 73:3	177:7 183:5	D.C 2:17
32:16,23 33:1	128:15,23	74:10 85:5	covered 94:24	daily 67:18
34:13,18,23	130:19 134:5	127:15 164:1	121:14 160:23	damage 176:21
35:6 36:8,11	135:3 136:16	172:24 207:6	199:14	danger 36:4
36:15,20 37:3	136:23 138:23	cost 36:22 37:4	covering 177:10	100:13
37:14 42:15	139:1,5,8	37:12 161:15	covers 189:22	danger-danger
45:14,22 46:20	141:22 142:2,8	174:18,19	cranes 71:18	36:2
48:4,16 49:9	142:22 143:14	187:17,18,22	create 175:11	dangers 99:10
49:11 51:16,22	144:11 145:13	costs 161:20	creating 118:22	105:15,22

data 84:10	65:22 72:4,5	40:2 156:3	156:6 158:23	107:24 118:5
date 121:3	107:21 118:8,9	160:24 174:10	172:19 186:9	176:11,12
135:10 160:10	118:17 134:20	208:3 209:1	198:11 208:15	dock 132:21,24
164:7 166:23	148:11 149:2,6	design-engineer	Digest 13:17	133:2,9
167:21 179:14	149:8,15	143:14	diligent 125:25	Doctor 141:13
213:2	154:22 159:7,9	designated	direct 146:9	doctors 32:14
dated 44:12	161:19 180:18	133:21	201:11 202:8	document 1:4
101:19 138:17	Departmental	designed 19:12	directed 7:2,13	23:15,15,18,24
163:9 179:17	118:6,10,16	designing 65:6	11:6,9	41:14 45:16
202:12	departments	destroy 58:22	directions 62:4	46:18,25 47:8
dates 51:3	72:6,7 110:23	detailed 79:14	directive 152:19	47:11 48:2,6,7
day 60:11 64:18	depended 17:21	138:2 143:7	directly 82:7	48:20 64:6
67:22,22 68:1	depends 70:11	detrimental	dirt 137:24	70:3 85:19,24
68:1 75:25,25	109:13	174:24	discharge	85:25 86:12
91:20 188:15	deposed 6:15	develop 51:25	168:19	88:8,10 89:8
212:17 213:22	7:2,15,18 8:4	52:4	discharged 82:4	89:10 96:11
days 91:24 99:3	deposition 1:17	developed 95:9	disconnect 67:1	101:16,18
DDV-18-0175	5:5,10 20:9	developing 28:5	discouraged	102:14,15,18
1:8	115:24 166:7	43:9 66:18	156:13	102:19 108:12
de 206:19	183:15,16	103:3 208:22	discover 176:20	108:23 109:2
deal 24:22	188:18 194:23	development	discrepancy	112:7,8 113:2
109:14 125:23	195:17 209:17	201:17 208:19	164:12 165:1,2	113:3 114:6
deals 109:16	209:19 211:5,7	deviation 113:1	165:6,9	116:4,7,9,12
decide 37:1	212:8,10,12	device 143:25	discuss 33:8	117:16,22,24
132:7 153:5	213:1,2,5	devices 71:21	103:13	118:1,3,4
decides 115:24	depositions 7:1	devise 17:4 18:1	discussed 27:23	119:2 120:8,9
decision 38:3	20:1,2,5,7,12	22:12 23:5	discusses 112:11	121:7,11,14,17
197:2,12,14	20:20,22	devised 17:19	discussing 33:10	121:25 122:1
decrease 84:2	194:21 195:14	41:24 99:7	discussion 88:21	122:15,18,22
decreased	195:21	101:7	102:22 111:6	123:21 127:19
204:15	derive 54:6	devising 27:24	163:6 179:6	127:20 134:19
Defendant 2:11	derived 43:12	64:25	180:18 201:1	137:21 138:15
5:18	derricks 71:18	dictated 38:17	211:4	138:20 139:1,3
deficient 188:23	describe 39:25	dictates 152:17	discussions	139:10 144:20
define 35:7,9	155:22 187:13	different 9:16	104:22,24	145:24 146:7
42:22	196:11 200:8	10:22 14:7,25	disease 198:15	149:1 151:4,19
defined 42:9	described 19:21	16:19 17:2,3	203:9	152:23 156:18
definitely	42:13,14 80:1	19:14 20:25	dispersing	160:4,16
125:25	177:1 182:13	21:25 25:25	143:23	161:13 163:17
definition	describes 178:21	29:8 43:23	disseminate	163:19,24
133:13	describing 186:3	71:3 87:5	198:16	164:4,18
degree 15:11,12	DESCRIPTI...	93:11 94:23	District 1:7	165:23,25
15:16	4:11	96:9 98:14	dividing 90:5	166:19,20,23
demonstrates	descriptions	117:6 135:20	division 29:1	166:24 167:3,7
206:5	29:2	142:7 145:6	44:19 45:7	167:11,13,15
department	design 19:13	146:17 152:6	69:19,20,24	167:17,21

171:13 173:2	160:18 173:17	dust 21:2 22:7,8	157:14 159:6	ECKERT 2:14
179:14 180:4,6	181:1 196:23	23:5 25:14,23	159:10 160:19	Ed 6:9
180:14 203:16	200:16 202:3	26:7 27:7,9,12	160:24 161:5,6	editorial 79:2
205:17,22,25	donated 17:16	27:15 30:18	162:4 164:1,18	116:16
206:4 210:19	doubtful 137:25	37:25,25 38:23	164:22 168:19	editorialize
210:25 211:10	142:19	47:10 48:13,18	169:9,16,22	106:3 115:25
documentation	doubts 170:23	49:17,17,24	171:24 173:9	educating
22:25 44:4,9	Dr 4:12 5:23 6:8	50:5,8,14 53:5	174:12,23	132:12
45:21 66:21	29:20 30:23	53:5,11,16,21	176:10,17,18	education 10:21
77:18,18 110:5	31:1,8 32:6	54:11 55:20,24	177:8 178:14	26:20 30:11
documents 21:1	52:13 58:11,16	56:2,9,15,20	178:17 186:7	91:23 92:2
21:14,18,21	63:3 66:22	56:23 57:8,13	186:13 187:4	106:7 113:20
23:13,14,22	67:17,25 79:1	57:22,25 63:9	189:6,20	114:3 147:19
24:10,11 26:6	85:12 107:13	64:2,3 69:5,6	190:16 191:9	149:2,15
28:25 30:1	116:10 123:7	75:2 77:23	191:12,18,22	150:20,24
31:19 43:8	125:15 128:6	78:7 80:14	208:4,6,7,15	178:16 188:22
46:2 47:6,15	141:7,7,16	81:10,12,16,18	208:22,25	188:23 189:19
47:23 48:19	146:6 167:10	81:23,25 83:3	dust-disturbing	educational 18:1
51:24 55:1,4	179:7 200:3	83:20,20,23	63:24	124:7,14
55:16,17 67:12	209:15 211:6	84:3,4,6,9,14	dust-tight	EDWARD 2:12
77:8 87:25	draft 52:16	84:18 86:18,25	147:25 148:2	EEG 12:15
92:14 93:4	drafted 95:10	87:8,11 89:25	Dustfoe 119:7	effect 10:8,25
99:18 108:25	draw 186:2	90:4 97:16	119:25 120:2	136:18,21,24
116:13 119:5	drawn 145:9	99:12,16,20,24	126:24 127:2	200:22 204:14
119:10 127:16	drill 111:14	100:24 103:13	127:12 128:14	effective 114:2
128:10,11,13	131:18,21	105:4,15,16,23	128:17 129:16	132:11 138:9
153:17 157:25	drilling 110:13	106:19,25	129:18 145:4	143:2,19
165:8 166:6	131:18,22	111:6 112:16	Dustin 2:4 58:21	144:16 150:8
173:3 177:19	drive 4:12 211:6	112:21 115:4	167:14 179:3	186:19
183:1,3,4,5	driven 16:4 18:3	118:22 119:14	dusty 74:22	effectiveness
186:1 206:10	18:4	119:15 120:6	132:24	113:16
206:10,22	dry 74:16 81:3	122:8 123:3,5		efficiency
209:18 211:6	84:8,11 126:19	123:9,19	E	155:16 159:22
DOE 13:12,21	131:3 140:2	124:18,22,23	E 4:1,10 171:7	EG&G 12:7,12
13:24 14:19,19	142:17 143:2	124:25 125:3,9	E.D 120:13	12:13,16,17,19
doing 15:22	143:24 158:9	125:9,18,22,24	Earl 150:1	12:21,23 13:1
16:24 17:6	158:10 173:6	126:3,5,5,18	earlier 30:22	28:9
19:9 38:17	174:2	132:11 135:13	39:4 118:18	Eighth 1:6
39:2,6 40:20	duct 172:21,23	136:3,4,6	156:24 166:6	Eighty-three
46:14 49:2	174:18,20	137:23 138:17	207:1	167:18
55:6,14 60:13	175:19	139:19,24	early 7:11 10:8	either 8:4 33:19
79:22 83:4	ductwork	140:6,8 143:14	158:6 190:15	35:23 36:10
96:19 98:2,15	175:18	143:18,23	easier 147:13	64:13 150:18
132:10 141:11	duly 5:18 212:9	144:3 151:7	East 2:7	164:15 188:18
143:15 158:20	Dump 137:23	155:6 156:3,6	easy 59:17	199:18 210:11
159:10,18,20	dumping 132:1	156:12 157:5	Eaton 154:7	electrical 71:16

93:11 94:22 175:19 electricity 110:14 111:15 elevator 71:18 eleven 212:14 eliminate 35:11 82:14 eliminated 99:8 99:9,11 embark 201:6 emergency 69:3 72:24 136:17 136:24 emphasis 113:19 employ 146:22 employed 12:15 12:23 15:1 25:17 105:19 106:16 111:17 130:2,13,25 131:21 132:1 133:20 182:16 employee 113:20 118:20 123:22 124:2,8 125:8 132:7 134:10 178:24 202:24 employees 13:20 16:6 18:2 38:13 39:2 56:15 64:7 65:22 74:7,24 75:25 76:8,21 88:18 105:2,9 105:15,18,22 106:8,19,24 110:22 111:21 118:15 119:4 119:16 120:11 120:19,19 121:1 122:17 122:23 124:13 127:17 128:12 129:21 134:4	138:11 144:17 145:9 150:13 150:21 151:20 152:17 181:11 181:19,21,25 182:5,17 202:16 209:12 employer 11:6 11:10,11,12,14 11:17 12:2,5 26:13 36:10,14 37:1,13 51:20 64:10,23 91:12 91:16,20 92:3 92:5 130:18,21 145:13 192:15 194:9 209:8 employers 16:6 122:17,23 employing 26:22 employment 105:20 106:17 126:8 154:3 162:14 enact 198:7 encapsulated 49:5 enclosure 147:25 ended 22:13 enforce 64:22,23 75:13 130:17 130:18 131:14 133:7,11 134:14 147:12 150:15 enforced 64:8 64:10 130:8 133:16 137:16 enforcement 72:21 75:15 91:23 92:2 145:11,12 147:3,19,20 197:7,15,20,25 enforcing 73:18	75:11 146:24 engaged 176:5 engineer 20:21 28:14,15,17 35:13 48:18 97:7 101:22,24 143:18 144:3 170:18 175:14 175:18,24,24 176:1 208:21 engineering 13:4 29:5 31:5 35:7 63:21 82:23 91:22 92:1 97:6,13 97:20 99:11,23 103:3 148:11 154:11 159:7,9 159:14,15,15 159:18,21 161:19 174:16 175:4,9,13,19 175:20,20,20 176:11,25 178:16 185:11 185:12,14,17 186:3,4 207:22 208:20 engineers 40:1 176:5,6 200:15 England 99:3 enjoyed 107:14 entire 28:19 60:14 89:8 146:7 150:6 176:22,22 177:7 entities 35:19 97:6 188:2 entity 109:4,8 198:5 entry 164:5,9 enumerated 71:15 environment 61:10 125:9	environmental 13:14 151:7 180:19 equally 142:13 equipment 71:19 72:24 100:6 110:11 120:18 148:12 155:10 159:22 159:25 160:25 164:19,23 186:5,12,13 187:1,1,2,3,20 209:5 erroneously 196:15 Es 91:23 essentially 25:7 49:25 84:4 132:14 172:5 196:13 establish 35:10 113:20 established 68:8 154:22 156:5 169:23 170:1 202:19 203:4 establishing 90:25 158:21 159:1 estimated 161:20 et 1:6 ethics 36:3,7 evaluate 160:22 161:4 evaluating 159:22 evaluation 132:10 204:20 everybody 162:13,24 everybody's 74:2 evidence 46:6 50:24 52:14,18	54:8 70:22 96:17,19,21,24 97:4,11 152:17 173:9 175:16 evolved 200:17 exact 206:24 exactly 103:11 144:10,10 175:23 186:12 exam 32:13,13 Examination 4:4,5,6 5:21 examined 5:19 example 8:11 16:14 91:7 99:15 155:5 188:24 196:1 exceeded 31:7 31:13 Excuse 47:18 115:18 exhaust 71:19 137:15 143:1,3 148:6 174:10 174:16,23 175:20 190:19 191:5 exhausting 111:8 exhibit 4:13 30:7 44:11,13 44:14,16 45:19 62:20 63:4 92:23,24 107:16,17,20 118:25 120:7 138:13 148:24 163:8,11,14 166:22 176:14 176:14,21 177:12 179:8 179:11 180:25 210:2 211:7,8 exhibits 30:2,4,6 30:7 41:5,10 41:12 92:21,23
---	--	---	--	--

117:25 182:25 182:25 183:8 183:12,12 201:12 208:11 existence 9:21 10:1,13 11:5 48:4 136:15 existing 72:6 148:12 exists 47:12 48:2 expanding 151:8 159:13 expect 36:18 expectation 64:17 158:13 expectations 17:20 expected 113:21 expend 153:3 expenditure 153:2 174:22 experience 20:23 32:11 expert 6:12 9:2 9:3,6,13 60:22 209:16,20 expires 212:24 explain 13:16,17 36:17 73:24 75:3 explained 22:4 85:13 explaining 204:2 explosives 71:18 110:12 111:14 export 133:9 exposed 10:21 118:22 119:14 174:6 176:18 178:14 exposing 81:10 exposure 49:18 61:7,8,10,17 62:10,10,12 135:13 137:25	150:13 173:12 173:16 174:4 196:10 204:13 204:14 exposures 171:1 196:7 extend 168:19 extension 172:21 extensive 184:8 201:1 209:16 extensively 143:1 extent 208:4 extremely 132:24 eye 71:19 72:24 111:22 120:24 <hr/> F F 163:9 F.W 154:7 face 156:5 160:23 faces 177:8 facilities 13:19 29:8 34:17,23 37:18 38:19,20 39:6 43:21,22 44:2 56:3 96:3 96:3 98:11,15 192:5 facility 9:24 10:2 14:4,19 15:2 16:10,10 21:23 23:25 24:2 25:3,17 26:9,17 27:11 27:13,14,22 28:6,9,23 34:4 35:6 37:21 38:22,22 42:11 42:24 46:8 47:10 55:21 56:9,21 60:17 64:9 66:16	67:8,18,22,23 68:1 75:15,19 75:24 83:5,21 93:9 97:24 98:23 102:20 104:22 105:1,1 108:2 109:16 109:21 110:24 111:6,10,17 113:8 114:10 114:19 118:20 120:1 121:15 121:16 124:17 124:22 125:5 125:18 128:7 129:4 139:17 140:7 142:5,8 146:23 148:22 149:12 151:15 154:14 155:7 155:19 157:4 157:23 158:3 158:14 162:2 164:2 167:23 168:3 171:8 176:25 178:1 180:23 181:1 181:21,22,25 182:5,6,16 185:13,23 186:6,14 187:2 187:7,8,15,19 188:7,12,24 189:2,6,10 190:5,16 191:23 193:20 193:21,25 196:19,25 197:8 199:1,4 202:2 facing 173:12,16 fact 22:2 40:25 46:23 47:16,17 47:17 48:17 53:5 54:3 61:9 69:13 90:1,9	90:11 103:16 144:25 152:13 168:23 176:23 202:1 207:5 208:10 facto 206:19 factors 36:22 failed 106:25 177:13 189:5 196:6 failure 189:19 192:7,7 Falls 13:5 false 132:12 familiar 109:8 109:11 familiarize 171:12 families 198:17 family 191:17 fan 174:17,19 175:20 fans 111:7 far 60:21 61:3 79:13 109:24 139:1 farm 57:25 126:5 faulty 174:11 175:13 feasibility 191:13 feasible 191:9 208:4 February 107:25 108:18 114:11 Federal 8:2 fee 17:15 feedback 146:14 feel 67:14 164:22 174:21 feeling 31:5 feet 138:8 felt 84:15 170:21 fibers 136:5,8,19	fibrous 176:21 field 33:11 204:6 204:8 205:2,14 figure 164:13 165:11 file 59:15,18 68:15 fill 178:11 filled 171:7 filter 78:7 82:14 160:5,17 final 44:18 45:6 45:12 95:14,18 finalize 211:9 finally 46:9 financing 172:23 find 25:1 56:14 59:13 60:18 83:24 167:1 fine 90:8 153:11 160:3 finish 111:12 116:6 finished 171:14 fire 72:7,8 94:23 110:11 fired 71:20 firefighting 110:11 FIRM 2:22 firms 97:7 first 2:7 5:18 41:9 74:16 101:6 124:1 136:18 137:4 139:12 142:15 146:20 154:16 159:4 168:7 171:18,22 175:8 177:3 200:4 203:23 203:25 212:9 fit 73:25 74:1 122:7 fit-tested 131:16
---	--	---	---	--

five 85:5 86:5 113:15 182:20	85:16 86:19 87:19,21,24 88:4 112:18,22 113:10 136:3,8 136:10,12,19 139:22,25 165:25 203:20 204:18 205:4 207:11,19,22	17:16 21:17 23:3 25:10 42:16 94:8 175:5 201:8	funky 12:17 furnished 150:12 further 5:9 87:12 89:2 113:21 165:17 166:16 198:15 209:23 211:3	179:10 199:24 given 7:2,12,21 8:4 9:9,14 20:10 128:24 129:12,21 179:1 187:25 194:22,23 195:3,12,15,21
fix 144:11 flash 4:12 211:6 flatly 168:24 floor 2:16 74:16 81:3 140:2 flow 143:5 Flower 62:5 flows 156:5 Flyers 196:12 focused 32:20 33:4 folder 59:15 follow 22:23 35:19,21,24 36:10,14 37:14 46:15 76:18 89:16,17 90:13 90:14 126:13 170:4 176:20 177:14,20,22 follow-up 48:10 102:22 follow-ups 209:25 followed 16:5 48:12 71:3 76:9 91:3 92:8 92:16 122:16 122:24 135:19 136:16 177:20 following 5:14 14:16,17 36:2 47:7 72:2,15 74:2,18 76:12 76:15 130:25 130:25 133:20 140:4,17,22 213:5 follows 5:19 40:7 67:5 79:6 106:14 foot 21:12 22:6,9 22:14,21 23:10 23:20 84:21	foot,' 87:1 footwear 111:18 foregoing 212:8 212:10,13 foreman 69:3,10 foremen 68:17 forget 22:5 29:6 form 21:17 23:2 25:10 41:22 42:16 46:10 48:23 76:2 94:8 107:2 150:22 162:24 168:5 169:1 170:13 171:7 175:5 178:25 201:8,24 205:8 206:20 formal 206:4 formalization 95:21 format 44:19,23 45:6,11,15 46:13,24 formulated 47:24 49:10 formulating 47:10,11 176:12 183:22 203:8 formulation 48:3 95:16,17 205:22 found 62:4 117:5 150:13 173:2 foundation	foundry 16:14 16:15,22 17:6 17:19 four 41:25 64:15 168:10 172:10 189:25 four-year 32:11 Fourteen 72:18 fourth 112:2 fpm 143:6 frame 10:10,12 10:19,23 12:25 17:8 21:9 24:5 25:6 26:2 27:6 33:14,15 37:16 38:13 42:4 53:25 56:25 157:20 199:8 frames 129:5 Frank 176:7 free 67:14 freedom 202:17 frequency 113:14,22 114:4 160:9 frequently 160:9 fresh 59:7 Friday 5:2 44:17 45:4 friendly 170:18 front 29:21 63:7 127:8 fulfilling 70:23 full 116:25 154:16 177:24 178:2,7,12 full-time 18:11 18:13,17,21 102:7,9 fumes 123:3,9 functioning 110:24	future 31:17 202:16 203:3 <hr/> G <hr/> garden 61:13 gases 123:3,10 gather 152:14 152:14 general 72:11 91:2 110:14,17 111:16,20 112:1 119:9 123:2,8,22 124:3 135:12 142:16,17 196:15 198:17 generally 36:1 36:21 92:19 186:24 generals.' 170:21 Gerlinger 44:17 45:4,7 getting 25:14 81:5 83:23 173:7,13 191:25 Girard 7:4,6 194:20 195:4 give 5:24 6:12 12:17 21:1 25:4 29:22 35:16,18,19 36:16 60:21 78:24 86:10 128:22 129:10 163:11 166:22 173:9 174:18	gives 30:11 giving 43:4 98:20 117:7 149:11 glasses 120:24 go 27:20 29:8 32:23 34:10 35:9,15 40:20 41:10 56:13 58:21 59:17 62:24 73:25 76:19 82:11,14 83:3 84:1 85:12,17 87:15 90:17 93:5 97:17 98:16 99:23 100:10 112:5 115:14 115:16 117:21 119:24 120:7 122:3 140:9 143:21 144:7 153:18 157:25 163:4 171:20 175:18 177:2 187:5 201:9 206:9 211:9 goal 86:24 87:21 112:16 113:1 God 166:3 goes 88:25 89:1 89:14 93:2 109:11 113:11 150:3,10 156:3 168:9,17 170:7 172:1 174:15 178:20 going 10:5 17:1

22:23 23:6,7	20:17,25 21:15	103:17,17,20	191:8,21 192:3	165:6 170:12
25:3,8 26:6	21:22 22:15,22	103:23 104:4,6	192:5,13,14,14	180:5 185:16
27:17 29:22	23:6,24 24:1	104:12,15,19	192:18,22	190:12
31:25 33:7,10	25:7 26:2,9	104:22 105:1,7	193:2,6,18,20	guessing 17:8
40:2,15,15	27:1,10,17	105:13,21	193:22,23	guidance 100:19
41:24 43:9	40:17 41:21	106:17,23	194:6,7,17	101:5 122:13
44:22 52:22	42:2,11,24	107:24 108:25	195:8,19,24,25	guide 96:7
58:2 60:4 64:7	43:8 44:5	109:16 112:9	196:21,22,25	guideline 91:2
65:8 67:11	45:17,22 46:1	113:24 117:25	197:8 198:6	guidelines 39:9
73:21 75:5	46:3,8,8,14,19	118:6,13,24	199:1,9 202:25	39:16 92:9
81:2 82:9,10	47:6,12 48:1	119:3,5 120:14	203:2,16	guy 18:22 29:6
82:12,14 84:14	50:13,15 51:15	124:17 125:5	205:18,25	58:25 102:7,9
84:23 85:6,14	51:21 53:10,24	125:17 127:16	206:5,17 207:3	guys 42:5
85:15,18 86:7	54:1,14,14,19	128:8,11,22	207:16 208:16	200:14
90:13,22,24	54:22,24 55:1	129:3,21	209:6,11	
97:3,15 100:8	55:3,6,8,9,13	138:19,23	Grace's 19:7	H
100:20 110:2	55:16,17 56:5	139:8 141:25	67:23 104:10	H 4:10
115:11,24	56:15,20 57:3	142:17,22	113:16 114:1	H-A-U-S-E-R
126:6 144:2	57:5,9,13,23	143:11,15	169:11 188:6	6:2
147:12,13	60:17 64:8,10	144:8 145:13	189:21 191:16	habits 113:21
153:18 163:12	64:18,21,22	145:14 146:13	192:7 194:12	hac 2:12
166:20,24	66:5,19 67:15	146:22 148:10	graduate 15:8	half-mask 122:9
169:1,5,7,8,15	67:20,22 68:1	149:12 151:9	17:12	127:7
170:4 175:11	68:2,4 69:8	152:8,8,14,19	graduated 34:9	halfway 153:22
179:7 181:11	70:23 73:18	153:2,5 154:6	graph 83:8	181:3
181:19,21	74:6,18,18,24	157:12,22	gratified 31:12	hand 212:16
182:1,6,17	75:9,10 76:9	159:2,15,18	great 24:22	handled 42:6
185:19 199:12	76:12,15,21	162:1,7,13,14	114:6 125:23	handling 71:17
202:13 209:17	78:14,21 79:8	163:24 164:15	174:11	handrail 111:14
good 5:23 14:18	79:12,17,22	164:21 165:2	greater 23:17	hands 45:9
17:7 25:13	80:1,5,18	165:10,15,18	31:17	Hang 170:9
60:18,22 69:14	81:11 82:16	166:10 168:15	grinding 131:12	happened
70:8,14 91:11	84:15,22 85:6	169:15 171:21	ground 28:5	165:17
91:13,16 92:24	85:17 86:6,22	173:15,17,24	grounding	happening
107:8 124:12	87:3 88:11,18	174:16 175:2	71:16	168:15
131:15 151:23	89:1,5 90:12	177:13 178:22	group 170:2	happy 59:21
163:15 164:19	91:3 92:8,14	178:24 181:1,5	growth 176:21	123:17
164:23	92:16,19,25	181:25,25	guard 93:10	hard 75:7
governing 136:2	93:6,9,16	182:5 183:11	guards 93:10	121:19 202:22
government	95:11,13 96:3	185:13,23	guess 6:6 7:24	harder 134:14
14:19 109:4,8	96:17,22,24	186:6,14	9:1 19:18,21	147:12
Governmental	97:5,12,20,24	187:14,15,18	24:21 36:18	hardware 128:2
82:2	98:23 99:15	187:19 188:2	46:25 62:3	Harrison 1:22
Grace 7:19 9:24	100:7 101:21	188:11,23	94:21 97:2	Hart 58:11,16
10:2,9 16:11	101:22 102:5	189:1,5 190:5	101:11 109:13	Harvard 29:3
18:13,20 19:6	102:18 103:2	190:8,15 191:2	126:14 139:13	hassle 8:8

hats 111:21 112:3	150:19 154:22 162:11,16	169:11 172:22 174:21	79:9 87:2 105:19 106:15	202:3,5,18 203:4,9,12
haul 100:1	198:21 200:12	hood 138:6	106:20 107:4	204:7 205:1,10
hauling 110:13	202:2 207:19	143:4,7 160:24	121:15 125:12	205:14 210:8
Hauser 6:2	healthful 90:9	hoods 138:6	126:15 127:12	210:13,16,18
hazard 49:17	hear 32:14	143:3 160:24	128:1,5,6,19	211:1
50:10 73:8,23	HEBERLING	hope 50:21	129:10 148:21	hygienist 8:12
75:6,21 96:15	2:6	51:13,15	162:14 178:23	8:18,24 12:6
99:7,8 136:1	held 13:18 33:25	107:13 132:23	182:15,16,19	12:10 15:6
142:18 198:14	Helena 2:24	hoped 51:20	183:12,19	28:12,19 29:17
202:2	help 16:16 17:19	hopefully 35:1	188:1 194:15	30:2,10,13,20
hazardous	17:23 19:12	Hopkins 31:1	199:8 213:3	31:18,20 32:7
137:14 151:23	67:24 191:25	hoses 63:24 64:1	Hutt's 59:18	32:9,10,12
152:10 153:7	helped 18:1	80:15,20	105:20 106:16	33:16,22,25
162:4	40:16	140:11,16,20	154:3 183:14	34:7 36:8
hazards 33:5	helping 17:1,3,4	140:23 141:9	183:16	66:19 183:23
35:1 53:16,21	27:24	141:17,21,24	hygiene 12:1,4,8	183:24 185:20
76:5 110:11	hereinbefore 5:6	142:2	14:8,13 15:3	185:21,22
132:5 134:15	hereunto 212:16	hour 91:19	15:18 16:11,13	208:20
142:12 152:6	HEW 142:5	hours 158:22	16:17 30:12	hygienists 12:9
152:15 162:11	146:14 149:15	house 90:25	31:4,15,23,25	29:14 33:9
162:13,16	180:22 181:1,7	91:10	33:5,11 34:5	82:3 169:23
193:20	hierarchy 63:21	housekeeping	34:19,20 35:15	200:14 205:10
he'll 6:6	high 69:5 83:11	49:21 53:15,24	36:3 40:3	
head 12:22 29:1	84:4 119:14	54:4 80:10	43:10,18 63:20	I
40:1 71:19	124:24,25	92:25 190:18	64:25 65:4,5,8	Idaho 12:7,12
78:3 102:10	150:14	191:4	65:11 66:18,20	13:4,5,5,6,10
145:18 206:14	higher 22:13	houses 61:23	67:16,24 72:12	13:20 14:1,2
heading 146:10	164:15 165:12	160:25 178:20	103:4,18,21	idea 208:3
headquarters	165:15 187:10	human 81:7	104:5,12,18	identified 6:11
169:17	highest 140:1	humor 38:4	105:12,25	163:13
heads 65:22	Hindmarch	hundred 6:22	106:10 114:19	identify 35:15
health 8:25	139:12	212:14	134:22 137:6	107:20 134:18
13:14 15:16,23	hire 17:11 18:16	hundreds 58:1	139:4,13	138:15 149:24
15:25 17:24	historian 60:19	hurt 58:2 126:6	141:11 144:2	149:25 151:3
72:4,6,7 81:8	history 46:7	Hutt 1:5 2:3	147:6 173:15	179:14 205:24
87:17 93:9	60:14,23	6:10,13 9:17	176:19 177:11	identifying
107:22,23	hoists 71:19	9:23 10:2,6	185:2,23	112:7 171:6
109:20 110:15	hold 190:24	25:17 41:5,10	190:17 191:19	ignore 134:10
110:18 111:16	191:2 192:3	41:12,13 57:10	192:4,9,15,20	ignored 27:17
111:20 112:1	holding 31:20	57:11,15,20,24	193:3,8,13	ignores 173:18
114:14 119:20	holes 100:6	58:3,5,7 59:18	194:10 195:18	II 2:12
127:20 134:21	111:14	60:4,8,11,18	198:14,19	III 158:25
136:1,12	home 42:2 64:7	60:25 61:6	200:7,9,12,16	illumination
142:12,18,18	69:21,25 90:24	62:9 63:25	200:19,23	110:14 111:15
149:2,3,5,8,15	101:22 169:11	77:21 78:21	201:3,6,19	immediately

68:14 198:13 imminent 36:1,4 implement 64:22 78:15 79:18 80:2 162:1,3 implementation 48:4 91:12,13 91:16 93:7 implemented 44:5,22 45:17 45:22 46:1,9 46:19 91:3 92:10,17 187:8 206:16 implements 91:20 implicates 194:24 important 25:2 importantly 156:2 impossible 89:4 impressions 168:2 improve 81:19 150:5 improvement 170:25 improvements 99:11 138:2 in-house 19:17 19:20 inadequacy 113:5 inadequate 119:21 190:17 191:3,18 incidence 176:21 include 63:19,23 70:14 72:22 73:21 81:7 84:10 included 71:22 81:4	includes 65:7 173:5 including 13:20 25:24 29:8 116:8 188:2,3 188:22 190:18 191:4 209:1 incorporate 97:15 Incorporated 12:13,20 incorrect 44:16 189:9 increased 138:6 143:4,7 204:14 independent 109:4 192:14 independently 185:10,12 indicate 18:20 139:22 indicated 195:24 indicates 113:15 206:18 indication 135:4 206:15 indications 206:3 individual 18:7 95:5 139:3 145:16 174:9 individuals 27:10 28:21 29:13 33:18 65:20 154:10 155:13 179:15 185:5 199:3 industrial 8:12 8:18,24 11:25 12:4,6,7,8,10 14:8,9,13 15:2 15:6,18 16:11 16:13,16 28:12 28:18,19 29:14 29:17 30:2,10 30:12,13,20	31:4,15,18,20 31:23,25 32:6 32:9,10,12 33:5,9,11,16 33:22,25 34:5 34:7,19,20,25 35:15 36:3,8 40:3 43:10,18 63:20 64:25 65:3,5,7,11 66:18,19,20 67:16,24 72:12 82:3 100:12 103:3,17,21 104:4,12,18 105:12,25 106:10 114:19 130:12 134:22 137:6 139:4,13 141:10 144:2 147:6 169:23 173:14 176:19 176:24 177:11 183:23,24 185:2,19,20,21 185:23 190:17 191:4,18 192:4 192:9,15,20 193:3,7,13 194:10 195:18 198:14,19 200:7,8,12,14 200:15,18,23 201:3,6,18 202:3,5,18 203:4,9,12 204:7,25 205:9 205:10,14 208:20 210:8 210:13,16,18 210:25 industrially 31:11 industry 34:10 38:16,17,18 100:23 104:2,3	inflammable 71:16 inform 10:20 36:4 181:25 182:2,5,7,9,17 193:2,5,6 196:6 information 26:8 51:12,21 51:24 52:3,6 52:19,21,24 55:7,24 56:2,4 56:7,18 149:16 149:20 152:15 162:20 173:23 198:16,17 200:10 204:3 informed 105:3 107:4 162:16 181:11,19,21 182:19 inhaling 105:3 inherited 190:8 190:11,13 initial 136:24 183:9 initially 51:14 165:20 initiated 198:13 inner 146:13 input 15:20 33:20 195:25 inquire 54:19,22 inquiring 56:22 inquiry 54:13,16 54:18 56:1 57:2,5 96:1 inside 156:20 208:22 inspecting 52:12 inspection 35:5 64:13 65:1 71:1 76:20 107:23 108:1,4 108:8,11,15,18 108:21 109:3	109:20,20 168:4 196:14 207:6 inspections 29:9 34:3 39:11,12 39:17 41:20,25 42:7,10,15,23 46:14 47:25 48:9,21 inspector 170:23 inspectors 29:7 40:2 79:21 install 81:2 installations 93:11 installed 91:8 93:10 111:7 instances 46:3 195:16 institute 46:24 instruct 115:21 instructing 119:7 Instruction 118:6,17 instructions 118:11,13,14 118:19,22,25 119:1,3,6 insulation 26:24 37:24 61:22 insurance 11:19 11:22 12:1 22:12 34:10,14 39:10,13,17 41:18 42:9,14 42:19,21,22 185:5 insurer 11:15,16 64:25 insuring 10:9 41:1 integrate 179:9 intended 204:6 204:25 207:24 intent 143:13
--	--	---	---	--

inter-company 170:24	investigation 81:6	130:3,14	knew 23:6,7	62:3,4 63:18
interested 201:18	investigations 70:19	Joe 2:20 171:7	30:5,5 49:16	64:8 66:5,8
interesting 173:2	invited 24:7	John 31:1 163:9	50:13,15,15	68:4 70:3 75:6
Interior 72:5	66:3 148:16	Johns 103:1	52:12,22 53:10	75:7 77:4
107:22	197:20	Johns-Manville	54:17 59:1	79:13,18 82:6
interject 40:18	involve 9:15	23:22,25 24:1	81:11 82:16,19	82:9 84:3
interjection 162:23	involved 7:23,25	25:9,18,22,24	105:13,21	85:22 90:23
intermittent 137:14	33:4	26:17,21,23	106:18,23	91:3 92:8 99:2
internal 21:1	involving 7:19	27:3 37:17,23	107:1 125:24	99:8 100:11
26:5 39:20	Irrespective	97:6 102:20,24	162:13 169:4	101:1 102:4,5
40:9,19 102:18	192:12	103:2 104:24	178:16,22	102:6,11
104:11,19	irresponsibly	105:8,21	181:20 182:8	103:11,20
138:19 145:20	192:23	106:18,24	191:21 192:3	104:15,16,17
146:15 152:19	issue 49:10 53:4	107:1 139:4,13	192:18	104:20 107:4
161:19 163:24	53:13 63:25	141:20 146:14	Knight 3:4	109:1,25 114:8
internally 81:17	69:13 97:16	148:16 150:19	know 6:22,23,25	119:10,16,19
105:9	issued 144:24,25	151:15 153:19	7:23 9:3,4,5,8	121:4 122:5
internships 17:11	issues 175:2	153:24 157:4	10:7,9 12:13	123:5,15
interpret 25:15	items 70:10,23	157:16,23	12:19 13:5,9	124:10 125:14
interpretation 86:17	92:5,15 94:21	158:20 180:18	13:11 16:16	127:24 128:16
interpreted 204:7 205:1	110:10 157:23	join 6:6	17:11 18:13	128:17 129:9
interrupt 47:17	161:16,25	joined 6:20	19:1,4,10,12	129:13 130:7
interrupting 157:2	162:1 163:25	joke 38:5	19:25 20:10,11	131:15 132:4,5
interruption 6:4	IX 71:4	Judicial 1:6	20:19 21:1	132:14 134:6,9
6:19	J	July 58:9 170:4	22:17 23:4,11	134:15 139:18
interview 56:13	J 2:12	June 87:9	24:9,17,18	141:15 145:16
58:5,7,10 59:6	J-M 139:12	166:14 202:12	25:11 26:21,23	146:2,25 147:1
59:19 60:13	J.R 134:23	K	26:23,25 27:19	147:2,7,14
interviewed 56:16 58:12	142:4	Kalispell 2:8	28:20 29:13	149:19 156:23
129:13,15	January 101:19	keep 59:15	30:6 32:3,4	157:22,24,24
interviewing 54:16	104:1 105:7	80:13 81:9,12	33:2,17,23	158:2 159:9
interviews 59:12	121:11	81:16,18 93:3	34:6,8 35:2,2,8	161:4 163:2
introduction 108:9,10	Jeremiah 149:4	93:24 129:4	36:22 37:19,23	167:3 170:13
210:12	JM 103:9	148:3 160:10	38:7,7,9,11,21	173:21 177:13
	153:24 154:11	160:18 164:17	38:25 39:1,5	177:16 178:4
	181:6,15,19	170:23	39:25 40:19,22	179:24 180:3
	187:7	keeping 25:7	41:1 42:17	182:2 184:2,7
	JM's 153:23,25	99:24	48:5 50:19	184:14 185:6
	154:23	KELLER 2:22	51:19 52:2,5,6	185:16,25
	job 92:24 133:20	Kentucky 43:23	52:10,21,24	190:12,25
	133:24 134:5	kept 181:10	53:23 55:22	191:24 195:3
	173:14	kind 13:21 19:5	56:19 57:6,7	196:2,12 197:1
	jobs 120:21	33:3 96:7	57:12,20,21	197:2,12,13,14
		104:25 184:16	58:8 59:5,6,9	197:14,16,18
		kinds 54:10	59:11,13 60:13	197:19,21,21
			61:11,20,21	198:2,5,20

199:6,18	Labs 13:22	114:5 115:14	104:19 105:1	list 8:1,2,3,3
200:18,21	LACEY 2:6	115:16 117:21	108:1,7 109:20	41:13 211:9
201:25 206:22	lack 111:10	120:7 121:5	110:24 114:9	listed 31:10
206:23 208:1	Lacquer 100:16	125:15 134:16	114:19 115:1	Listen 66:25
208:13,17	large 82:10	138:13 144:7	124:22 125:3	106:11
knowing 78:14	111:7	151:3 158:25	129:14 135:1	listing 138:2
90:8 163:12	Larry 30:9	164:4 166:4,19	138:18 139:5	lists 146:17
166:11 181:19	late 15:4,16	171:5 182:20	145:16 146:15	literature 19:6
knowledge	82:19 162:22	letter 45:14 57:1	146:22 151:7	98:4 99:5
39:20,24 40:8	law 2:5,13,21,22	69:18 86:22	152:15 155:21	113:4 126:9
56:20 97:16	3:3 212:9	88:17 89:12	159:6,9,22	184:2,4,11,13
183:6 200:9,20	lawsuit 6:10,13	90:11 95:5	160:1,20 164:2	192:20 193:2,7
known 89:13	lawyers 183:23	112:15,25	164:22 182:6	193:10,13
191:22 192:4	leaders 56:13	114:9,10,16	182:16,18	197:24 198:2
knows 142:1	leaflets 196:12	152:24 163:8	187:8,19 188:7	200:11
Kostic 18:25	leaky 88:3	180:8 201:13	188:12 189:2,6	litigation 1:3
19:10 20:12	learn 25:21	202:9 204:24	189:10 190:16	16:18 59:1
22:5 101:21,25	113:13	letters 42:3	192:24 193:21	213:3
102:4,5,9	learned 25:23	66:10 94:4	193:25 194:25	little 82:10 83:8
138:17,22	26:1	level 32:11 82:1	195:11 196:7	83:15 84:2
144:21 146:13	learning 26:3	84:4 86:25	196:18 197:8	189:17
154:7 163:9	led 189:12	96:14,15	198:6	live 60:25
179:16,18,20	left 6:5 42:1	112:17 164:19	Libby. 176:9	lived 61:2,9
181:5,18	168:5	164:23 177:25	liberties 44:25	living 96:11
Kostic's 179:22	Leftridge 2:4	208:22	likewise 179:9	LLC 2:14 3:4
Kronoveter	4:5 21:17 23:2	levels 69:5 84:11	188:9	loaded 156:20
134:23	25:10 40:13	84:18 112:21	limit 81:25	loading 110:13
Kujawa 76:16	41:22 42:16	117:2 124:25	85:14 86:10	132:1,21,24
77:2 88:17	46:10,21 47:18	160:19 162:4,5	88:21 90:8,15	133:2,6,10
111:1 154:8	48:23 52:8	204:12	117:11,13	156:20
168:24 169:17	76:2 85:8 94:8	liability 188:6	135:15 139:21	local 16:15
169:20 170:4	95:23 107:2	188:10	170:1,5 172:11	31:14 69:22
171:17 172:20	115:18 116:3,6	Libby 7:16,19	204:11 207:10	72:2,7,14
	150:22 162:22	7:22 21:4,13	207:24 208:1	137:14 143:1
L	163:1,15 167:8	21:23 26:3	limitation 89:2	168:18 170:20
L 5:7 212:4,22	173:25 175:5	27:18 28:23	limited 72:22	locals 174:23
213:4	178:25 194:1	29:9 30:18	84:10 127:10	location 58:16
L-1 101:7	195:2,13 197:9	33:21 43:21	limits 82:5	78:13 124:20
lab 13:6,10,11	197:17 199:24	52:23 55:20	169:24 172:12	Lompoc 24:14
13:20 14:1,2,9	200:2 201:11	56:3,9 61:1,5,7	204:2	24:16 25:20
14:10,13 173:6	205:12 206:25	61:9,18,21	line 90:5,8	26:6,22,25
label 26:24	209:15,23	62:6 67:17	161:16 200:5	27:3,5,14,18
labeled 204:10	legal 197:1,9,22	83:21 97:7	205:19 207:25	78:9,16 82:12
Labor 72:6	let's 27:20 71:6	99:9 103:14,17	213:8	82:17 97:8
laboratory 13:4	88:19 90:17	103:18,21	lines 198:20	143:21 148:17
131:12	112:5 113:11	104:5,7,9,13	linked 94:4	151:15 152:2

153:9,20	72:16 84:3	174:8 181:3	127:20 134:23	69:14 70:6,9
155:19 186:9	88:5,6 92:21	207:1 210:2	142:4,15,17	81:11 87:21
187:6,12,14,15	97:13,20 98:4	looks 121:13,21	144:9,13 149:5	162:6 164:21
187:16,20	98:9 101:12	179:16,18	149:7	168:18 170:20
long 7:25 19:5	107:17 113:11	loop 16:8 25:8	Lynch's 144:21	198:24,25
70:12 94:9	114:5,8 115:10	loss 28:21 33:13	150:2	manager 19:24
146:25 158:16	116:21 121:5	34:6,11 35:2		20:16 65:21,21
187:16 194:6	121:20,21	37:8 40:20	M	68:13,14 114:9
209:17	134:16 138:13	41:19 83:4	MacArthur	120:15 135:1
longer 86:11	139:9 142:9	201:4	44:18 45:5	154:10,11
136:8	145:21 149:23	loss-control 94:2	machine 212:12	168:6 170:12
Longosz 2:12	151:3,17	184:23	machinery	170:18
4:4,6 5:22 6:6	153:10,14	loss-prevention	132:22	mandatory
6:8,9,21 21:18	157:25 158:25	28:17 34:3,8	machines 131:1	74:15,16,22,25
23:11 25:16	161:4 164:4,17	34:12,15,16,21	138:4	75:2 130:1,7
40:4,12,18	167:2,10,12	34:22 39:11,22	madam 79:3	130:11,24
42:19 46:17	171:5,11 176:4	40:10 185:7	magic 50:9	131:2,5,11,17
47:2,18,20,21	179:19 180:10	losses 35:1	162:10	131:20,24,25
49:3 52:9	181:4 210:20	lost 122:20	main 50:10	132:7,17,20
62:24 63:2	210:21,23	153:12 189:17	maintain 36:5	133:2,4,8,12
67:2,10 76:3	looked 27:15	lost-time 155:14	86:24 164:20	133:13,19,23
79:3,12 85:10	28:3 41:5	lot 37:4 55:3	164:23 177:25	134:10 147:16
85:12 94:9	42:21 55:3,16	60:20 73:3	maintained 82:3	147:16 150:14
96:1 106:1,2	83:24 84:6,7	99:18 124:23	113:7 137:16	manganese 17:3
106:22 107:3,8	98:12 101:1	124:24 125:3	155:20	manless 71:18
107:12 115:18	123:20 155:9	127:3 147:13	maintaining	manner 88:20
115:20 116:3,5	155:12,15,18	184:13 186:2	84:16 112:15	manual 101:7
116:15 146:3,5	155:19 161:9	195:21 207:9	112:21	manufactured
151:1 162:25	183:7 184:19	lots 14:25 21:14	maintenance	189:14
163:2,7,10,16	198:2,3 201:13	46:16 98:12	143:8 155:9	manufacturer
167:9,10,14,16	looking 19:5,6	100:19	157:14 190:18	13:7 186:12
174:3 175:7	25:21 28:4	Lovick 19:23	191:5	manufacturers
179:3,7 182:20	43:23 49:6	20:3 88:18	major 136:1	148:12
182:22 194:5	63:3 67:23	111:1 120:13	142:12	manufacturing
195:7,16	70:5,10 71:4	120:14 150:2	making 114:2	13:2 15:2
197:13,23	83:7 84:9 97:5	170:17 172:21	143:18 147:23	16:10 27:13,21
200:5 201:8,24	105:19 106:15	low 136:12	148:9 179:5	28:6,9 34:4,17
205:8,17	111:12 122:15	lower 83:14,14	205:10	34:23 35:6
206:20 209:13	122:22 139:11	83:15 117:9,13	man 93:10 173:6	37:18 38:19,24
209:24 210:1	139:16 142:14	117:17 165:14	managed 67:17	98:11 100:15
211:3,5	145:22 148:7	lowest 113:14	67:18	100:23 101:6
look 14:12 24:17	153:9 155:6,25	lunch 107:9,10	management	178:1 181:20
30:7 41:10,10	160:19,20,21	107:14	65:18,20,24	Manville 180:22
44:1 54:25,25	163:7 164:9	lung 176:21	66:6,12,13,15	March 112:8,20
59:17,21,22	167:13 168:14	203:9	66:16 67:7,8	163:9
64:5 68:24	170:7 172:18	Lynch 119:19	68:3,5,9,16	mark 124:2,3

211:8	128:15 132:25	166:23	measurements	99:3
marked 63:4	135:5 138:25	MCE 88:5	174:1	MERLLOTT
163:8 179:8	143:17 149:16	163:11 179:10	measures	2:14
marker 155:3	149:21 151:11	MCE-036 63:5	160:12 191:16	met 31:6,11,12
Maryland 1:5	161:9,12	65:10	measuring	44:17 45:4
2:11 6:9,12 7:2	164:14 165:3	MCE-074 88:6	86:17	87:11 103:2,9
7:13 10:9,11	165:10,12,14	MCE-107	medical 176:12	166:15
10:16 11:14	165:16,18	101:12,13	183:14	metals 17:3
18:16 22:2,4	166:10,14	MCE-120	medicine 31:2	method 99:22
22:15,19,20,23	167:24 171:2,8	138:13	192:19	160:5
23:5,8,12,16	173:3 174:8	MCE-22 201:12	meet 32:25	methods 99:25
23:19 24:7,10	175:1,14,16,23	MCE-36 210:2	169:1 207:23	microbiology
24:13,15 25:7	176:5,6,23	MCE-73 203:15	meeting 55:25	15:13
25:12,14 28:21	177:6,15	MCE-77 112:5	57:21 79:20	microfiche
28:25 30:1	179:25 180:2,7	MCE-81 202:8	92:20 103:13	114:7
33:12,14,19,24	192:1,12,13	MCE-83 167:8	170:22	micrometers
39:21 40:9,21	193:22 194:3	167:11,12	meetings 24:8	136:9
43:5 46:1,19	194:15,16,20	MCE-88 114:5	24:12 31:14	microns 154:19
47:9,13 48:10	194:24 195:4	MCE-90 171:6	56:2,8,11	mid 17:8
48:10 50:16,17	195:10,17,24	McGARVEY	57:16,17,19	miles 61:5,9
50:24 51:6,10	201:2,5 202:1	2:6	member 68:16	62:3,7
51:22,23 52:6	202:9 203:17	mean 20:24	137:5,8,8	mill 26:25 27:3,5
52:14 64:12,14	205:13 206:1,6	21:24 40:14	members 56:14	74:16 81:3
66:1,6,8,11,20	206:10,18,21	46:22 47:23	57:8,12 69:1	84:8,12 107:24
67:15 68:19,21	207:2,14 213:3	49:16 52:11	191:17	111:8 112:17
73:4,9 74:5,11	mask 77:23 78:1	62:2 63:20	memo 120:19,25	115:1,5 126:19
74:19,21 75:12	78:2 126:18,22	67:15 75:1	179:19	131:3 138:9
75:13,17,18,23	126:24 127:3,4	95:24 100:11	memory 62:23	140:2 142:17
76:7,19 77:4,9	128:23,24	101:2 119:8	memos 22:10	143:2,21,24
77:18 78:23,25	masks 127:17	122:4 124:10	men 173:4,11,15	144:15 153:20
79:13,13,20	129:19	132:17 133:16	mention 27:1	153:23,25
80:18 82:8,20	material 124:7	144:1 176:4	50:3,4,5 64:6	155:18,18,22
83:4,10 84:9	132:22 154:17	185:16 194:19	65:11 66:4	158:4,9,10,13
85:2,4,23 86:4	materials 17:2	195:15 197:1	68:21 80:9,13	160:20 168:24
86:9,22 87:10	132:2	197:11,18	81:8,9 94:6	171:17 173:6
87:16 89:15,17	matter 98:10	200:12,20	mentioned	173:10 174:2
92:11,18,20	125:21,23	meaning 38:5	49:20,22 50:8	186:9 209:8
93:1 94:1,10	126:8 143:7	113:16 123:23	53:5 62:13	milling 192:24
95:5 96:20,25	144:25 175:10	152:14 164:14	63:8 64:12	million 21:11,12
97:1,12,19	199:21	169:11 174:16	88:24 89:11	22:6,8,13,21
99:14 100:2,4	maximum 81:25	means 31:16	194:15 195:8,8	23:9,20 84:20
104:8 105:11	87:1,18 112:17	52:5 132:19	195:10,17	85:15 86:18
105:24 106:5	MCC 86:16 87:3	133:12,14	mentions 63:17	87:1,18,20,23
109:23 110:3,6	87:7 166:21	meant 82:2	105:6 119:1	88:4 112:17,22
112:12,20	MCC-1864 88:2	187:10	140:10	113:9 136:3,7
113:24 117:19	MCC-h001858	measure 87:5	Merewether	136:10,11,19

139:21,25 165:24 203:20 204:17 205:3 207:10,18,21 mills 160:22 187:9 208:12 208:16 mind 7:5 179:5 mine 7:19 16:15 19:10 61:7 62:4,10 75:15 107:23 108:8 108:19 135:2 145:1 153:20 153:23,25 155:7 171:16 182:18 194:25 195:11 198:7 mined 154:17 189:14 mineral 162:10 minerals 135:21 mines 30:24 72:5,6 97:15 97:23 98:2,5,6 107:22 108:5 109:6,7,14,19 111:23 137:13 144:23 Mines' 145:2 minimize 35:10 mining 16:10,19 97:16 109:8,12 109:13,15,17 151:7 192:24 minus 183:1 minute 91:19 138:8 153:14 minutes 199:24 miscalculated 84:25 missed 20:10 missing 80:12 misstating 85:9 85:10,11 mist 123:3,9	mix 116:25 mixtures 22:7 204:14 modern 31:16 money 37:2,4,14 153:2,6 158:14 168:18 169:9 177:21 monitor 10:20 monitored 160:10 monitoring 17:22 151:24 153:2 159:4,6 159:8,10,13,20 160:6,9 Montana 1:23 2:8,24 3:6 5:2 5:8,11 6:3 7:16 15:14 16:15 17:16 21:23 27:24 28:2 34:10 50:15 51:18 87:17 88:23 112:24 114:13,22 115:4 117:5 122:16,24 123:1,8,12,19 123:23 125:3 134:20 149:4,7 149:8 188:3,10 194:3 196:5,18 197:7 212:1,6 212:23,24 Montana's 197:15 monthly 69:19 69:20,21,24 159:7 months 61:7 moral 152:16 morning 5:23 119:11 200:5 201:2,13 205:16	Morrell 38:3 motors 175:18 move 132:22 158:23 moving 174:17 mppcf 154:22 164:12 208:5 Murphy 163:9 <hr/> N N 4:1 133:25 name 5:24 6:1 12:11 22:5 29:6 31:1,9 129:11,12 176:2,2 179:22 195:5 name's 6:8 named 212:11 names 12:14 national 13:4,6 13:10,11,20,22 14:1,2,9 72:1,8 72:14 98:13,20 100:16 nature 8:10 16:25 183:25 naval 14:5 near 13:5 necessary 36:18 87:13 138:3 147:19 166:17 177:25 need 29:19 52:4 73:25 74:24 76:10 79:1,2 81:12,18,19 99:23 115:21 122:5 141:15 143:11 148:10 needed 17:21,22 17:22 51:25 52:19 74:7,7 75:3,10 80:2,5 80:6 81:15 99:13 101:7	111:22,24 125:14 162:3 needs 67:13 92:3 92:5 148:10 negatively 102:10 negligence 189:21 negligent 189:13 neither 75:12 Nelson 47:9 never 17:15 18:11 19:21 32:18 33:23 34:1,14,22 35:4 37:19 49:19,22 54:11 54:24 56:17 57:10,24 62:13 63:8,25 64:8,8 64:10,12 65:1 77:14 78:17,19 78:25 80:8 82:6,6,15,20 84:20 89:12 91:8,8 96:10 96:19 99:6,12 99:24 107:4 127:12 136:15 136:16,21,21 194:23,23 195:7,8,10 new 136:7 152:5 162:7 169:25 172:11,12 NiCastro 3:4 nice 147:25 nine 84:18 168:9 Nodding 12:22 78:3 noise 33:6 non 16:17 nonasbestos 7:25 8:19 noncompliance 36:23	nonexistent 49:25 nontoxic 58:2 126:6 Nordhagen 1:21 5:7 212:4,22 213:4 Nordin 145:16 normally 82:12 North 3:5 notarial 212:17 212:24 Notary 5:7 212:4,23 note 148:9 noted 5:7 139:16 140:5,23 141:12 notes 58:10,11 58:19,20,22,24 59:4,5,10,18 59:23,25 63:15 140:6 142:24 190:21,23 199:12 notice 5:4 211:6 noticed 157:4 notified 69:10 notify 69:3 196:9 noting 87:7 November 1:24 5:2 44:12 153:25 213:2 nuclear 14:3,5 nuisance 81:25 number 4:13 86:5 113:1,7 130:23 133:19 138:3 163:11 163:14 164:16 165:13,14,15 166:21,21 175:8 179:10 207:23 209:8 211:9
--	---	--	---	--

numbered 41:14	162:8 212:24	68:25 69:18	159:12,23	202:17
numbers 41:16	Off-the-record	70:18 71:14	160:8,14	operational
45:23,24	163:6 179:6	77:21,24 79:17	161:18 162:21	67:19 75:25
Numeral 158:25	211:4	80:9 81:4	163:21,24	operations
NW 2:15	offer 47:19	82:22 83:14,19	166:19 167:6	52:23 68:1
	offering 205:13	84:12 85:1	167:15 169:20	72:24 74:22
O	office 42:3 69:21	86:1,20 88:7	170:11,17	109:8 112:13
oath 18:19	69:22,25	89:24 91:9	172:18 173:1,8	120:22 137:14
objection 21:17	101:22 124:4	92:8,25 93:19	174:4 175:23	139:5 151:8
23:2 25:10	169:11,12	94:13 95:1,8	177:5,13 179:2	156:1 157:15
40:13 41:22	172:22 174:21	96:11,13,24	180:6,21	157:16 198:7
42:16 46:10,21	184:12	97:18 101:3,15	181:14,17	202:16
48:23 52:8	official 87:17	102:3,13,14,15	182:8,12	operator's
76:2 94:8	170:2	103:1 107:6,16	183:13,18	147:24
95:23 107:2	officials 23:25	108:4,7 109:16	184:21 185:4	operators 14:5
150:22 162:23	Oh 7:23 8:21	112:4,6 114:18	185:10,18	158:22
173:25 175:5	14:23 16:23	116:19 117:10	186:11,21	opine 198:9
178:25 194:1	60:20 61:4,11	117:21 118:24	189:18 194:22	opinion 47:14
195:2,13 197:9	62:21 184:16	119:23 120:4,7	197:4 199:23	47:16,24 49:9
197:17 201:8	199:5	121:6,14,23	210:11	78:5 124:21,24
201:24 205:8	okay 6:8 7:18	122:15 123:12	old 91:24	125:1,3 143:17
206:20 209:13	8:10,14,23 9:6	123:21 124:16	once 57:19 94:2	161:25 190:14
obligation	9:12,17,20,23	125:2,8,21	one's 36:23	190:24 191:2,8
151:20	10:1 11:1,19	126:8,24 127:2	ones 59:12 61:21	191:16,21
obligations	12:21 13:1,23	127:6,15,25	93:19,20,21	192:2,3 195:11
152:17	14:24 16:21	128:14,18	129:18 206:8	195:22 198:12
observation	18:9 20:14	129:25 130:16	ongoing 16:23	201:23 207:18
202:18 203:3	21:13,21 23:17	131:11 132:20	online 158:7	207:21 208:19
observed 110:19	24:4,7 26:21	133:15 134:8	open 157:6	208:24
obtained 138:7	27:8 28:16	134:16,17	openings 138:6	opinions 6:12
143:5 145:10	29:13 32:5	135:7,18 137:8	138:8 143:4,6	7:2,13 9:9
obtaining 32:20	34:16 35:4,12	137:11 138:14	operable 61:20	10:15 33:7
obvious 79:19	35:14,18 37:12	138:19 139:3	operated 14:19	43:4,12 47:12
obviously	41:18 42:13	139:10,11	155:22	49:6 108:24
184:18 199:17	43:11,20 45:11	140:9 141:14	operating 39:21	163:22 176:22
200:20	45:16,20 47:5	141:20 142:4	40:9,20 68:10	183:22 184:5
occasionally	47:11 48:7	142:13 144:7	68:11,15,20,23	184:22 188:1
159:21	49:3,8 50:5,7	144:13 145:5	69:1,9 70:9	188:15,15,17
occupational	50:12 52:2	147:16,22	131:1 132:1	188:19,21
15:15 192:19	53:9 54:19,25	148:9,15	operation 19:7	189:1,5,8,12
occurred 7:16	56:7,19 59:17	149:23,24	20:23 26:4	194:14,21
October 44:17	59:22 60:3,10	152:4 153:13	109:12,14	195:4 196:3,4
45:4 108:11,12	60:15,21,25	153:13,21	139:23 148:17	199:14,20
138:17 141:25	62:13,18 63:14	154:25 155:23	150:6 156:15	209:20
144:8 148:19	65:14 66:14	156:18 157:3	156:17 177:8	opportunity
149:3 150:1	67:21 68:10,23	158:17 159:4	190:8 192:24	163:16

opposed 184:18 186:18	71:2 168:11	176:4 181:4	115:15,17,20	158:23
opposite 62:5	overflow 174:12	201:16 202:13	117:25 124:13	PDF 41:14
optimum 31:6 160:23	overhaul 169:9	202:13 203:19	137:12 145:12	penalty 213:22
order 116:10 177:25	overhead 73:8 75:20 76:5	203:23,25	145:14 151:25	pending 122:3
ordered 169:10 169:16	overloading 132:15	204:4,10 213:8	152:21 160:14	Pennsylvania 2:15
ore. 170:2	oversaw 13:5,12 13:15	pages 41:15 116:8 121:21	166:5 188:25	people 21:14 22:5 25:2
organization 65:12 70:25	overseer 13:22	210:12 212:14	200:12	35:10,18 36:4
72:22 210:6	oversight 13:13	Paint 100:16	partial 114:18	45:9 59:12
organizational 59:14	overwhelming 122:10	painting 120:5	participated 28:21	61:23 66:6
organizations 101:5	owned 190:4	pamphlets 196:13	particle 22:14 136:10,11	77:3 81:9 90:9
organized 110:23	<hr/> P <hr/>	paper 78:1,2 126:22,24	139:25	98:14 100:18
original 93:5 200:14	P.C 2:22	127:3,4,17	particles 21:12 22:6,9,21	102:24 104:2
originally 102:3	p.m 107:11,11 211:11	128:23,24	23:10,20 82:10	112:9 138:23
Orr 197:2,12,14	P.O 2:23	129:18	82:10,13,15	146:13,15
OSHA 9:2,3,4,5 9:7,10,13,16	page 4:2,11 29:22,24 49:6	paragraph 89:1 89:11 112:2	84:21 85:16	151:9,11 154:6
9:17,20 10:1,5	68:3,6,24	124:1 133:21	86:18 87:1,18	173:5 174:6
10:7,11,12,16	69:18 70:5	142:15,24	87:20,23 88:4	179:17,25
10:19,25 11:1	71:4,7 72:16	144:14 150:4	105:4 112:17	180:1 184:23
11:5,6,9 14:17	72:17 81:5	152:22 154:17	113:9 136:3,8	percent 90:4 139:19 208:6,7
14:21,23 16:1	83:7 84:1,3,8	156:2 168:7,17	136:19 139:21	208:15,15,17
16:3,5,5 18:3,4	86:15 94:22	168:23 174:8	165:25 186:19	percentage 21:25 90:4
18:5 136:20,22	99:5 110:16,20	201:16 204:10	203:20 204:18	139:20 208:14
200:6,7,9,22	110:21 111:13	Pardon 21:6	205:3 207:10	208:21,25
outer 82:4	112:1,3 113:11	Park 29:1,15,16 29:25 30:9	207:18,22	perform 39:10 151:22
outline 176:15	116:22 121:21	40:1 85:13	particular 48:11 49:14 59:15	performance 87:5
outlined 70:24 153:1	135:13,16,21	88:22 96:5	116:4 154:18	performed 34:2 34:5 41:21
output 186:12 187:3	135:22 137:10	165:5 184:23	156:11 184:3	108:5 191:14
outside 8:15 13:9 61:7	139:16 140:3	201:14 202:9	205:21	performing 39:17 200:15
62:10 67:24	142:14 145:22	202:11 203:11	particularly 100:24 119:15	period 39:7 199:10
96:25 144:9	145:25 146:9	203:17 204:24	160:20 186:19	periodic 176:20
174:5 175:12	153:10,18,23	Park's 89:3 90:14	201:18	periods 115:6
183:23	154:16 155:6	part 16:2 18:5 22:4 35:14	parties 5:10	perjury 213:22
outstanding	155:24,25	37:8 41:9	parts 21:11 112:22	permanent 6:1 18:11 69:22
	156:9,19 157:8	53:20 68:19	pass 200:1	permitting 151:21,21
	159:12 160:13	69:9,9,15	passed 157:5	person 18:12,14
	160:21 161:15	70:19,19 71:11	pause 51:14 70:13 102:2	
	164:4,6 170:8	72:21 77:6	123:6 129:19	
	170:8 171:20	84:7 103:5	161:14 202:23	
	171:23,23		pay 24:22	

18:21 19:16,20 19:20 29:3 55:23 94:2 101:22 129:13 140:9 175:1 personal 17:4 25:25 26:11 72:23 81:23 138:16 151:5 157:9,14 178:19 209:5 personally 58:13 111:2 personnel 68:15 159:5 170:18 176:18 178:14 198:24,25 persons 18:17 111:17 204:8 205:1 perspective 116:14 pertain 195:4 210:15 pertained 94:20 pertaining 46:16 53:16 56:5 99:25 100:1 113:4 150:24 206:12 pertains 82:7 pertinent 198:16 perusing 64:5 70:3 89:10 102:14 108:12 113:3 121:25 137:21 139:9 151:19 152:23 156:18 160:4 160:16 164:18 167:7,15 171:13 180:14 Pete 154:7 Peter 101:21 138:17 146:13 163:9 179:16	179:20,22 Ph.D 1:17 4:3 5:1,5,16 32:20 212:9 213:1,24 phases 156:6 177:10 phone 58:11,14 58:17 183:20 phosphate 198:10 phrase 9:1 34:6 197:5 physical 33:5 physically 59:11 pick 163:12 206:9 piece 184:4 186:13 place 5:6 97:17 107:9 159:25 212:11 places 43:23 197:20 198:11 PLAINTIFF 2:3 plan 14:9 27:21 28:6 43:13 44:4 46:20 47:24 48:3,3 48:12,15,22 49:1,4,10,11 49:15 50:2,3,7 50:9,13 51:6,9 51:9 52:17 53:6,10,19 63:4,8,12,15 64:22 65:4,5 69:9 90:18,21 91:5,11,15,18 91:21 92:10,16 93:2,7,8 94:6,6 94:18 95:6,9 95:10,14,16,22 96:2,6,9,10,17 96:18,22 97:1 176:12 202:15 203:3,8 205:22	206:1,19 planned 87:19 plans 27:24 96:11 plant 19:24 20:16 21:15 25:19,22,24 38:11,12,13 39:8 102:7 113:14 120:15 144:4 154:10 154:11 168:6 170:12,17 198:10 plants 38:6,8,9 159:13 play 10:18 please 5:23 30:21 40:5 44:9 47:18 70:1 115:19 116:6 121:23 139:9 145:23 149:23,25 153:19 176:6 180:12 pleased 113:13 plug 125:13 126:21 plugged 126:14 plugging 126:15 plus 182:25 206:21 point 60:13 75:8 78:12 85:21 95:11 99:10,18 105:12,13 126:20 147:15 161:7 162:12 165:23 166:17 184:20 188:16 191:13 196:1 199:14 205:17 pointed 175:2 194:16 205:21 208:9	pointing 173:4 points 90:19,20 160:23,23 policy 28:22 29:10 39:23 40:11 41:2,4,6 41:8,18 42:9 42:14,20,21,22 83:11 185:8 politics 170:25 poor 54:3 portion 201:19 202:4,6 poses 142:17 position 205:13 positive 148:1 positive-press... 78:13 possible 61:11 62:12 104:13 104:18 138:3 147:25 176:8 208:4 possibly 31:7 post 75:17,20 posted 75:16 posting 73:7,8 73:15 74:13 206:13,14 potential 152:15 potentially 10:20 power 75:15 196:24 197:7 197:15,25 198:9 ppm 21:11 practical 137:15 176:17 practice 63:19 69:14 70:8,14 124:12 209:4 practices 39:10 39:17 80:13 184:22,23 185:1 200:9	202:18 203:4 203:12 pre 200:9 preferred 99:21 premised 176:23 prepare 185:12 185:14,18,22 187:22 prepared 202:15 202:22 203:3 preparing 45:8 51:5,9 52:16 prescribe 34:25 53:17 present 75:3 87:19 135:21 135:25 136:2 142:11 164:19 164:23 198:21 presented 181:6 presently 176:12 preserve 59:4 pressure 71:20 148:1 170:24 presume 6:15 142:4 183:1 188:14 pretty 17:10 75:7 119:8 184:8 200:19 prevent 198:15 203:10 preventative 157:14 prevention 29:1 33:13 34:7,11 35:2 40:21 41:20 100:12 176:13 177:8 177:10 201:4 preventive 155:9 previous 115:1,5 134:1 166:16 168:10 176:14 189:23
---	--	--	--	--

previously 30:5 117:5,9 179:8	products 100:18 100:18	173:15 176:15 176:16 177:7,9	48:12,21 49:11 49:15 50:2,2	51:16,21,24 52:3,6,14,24
primarily 14:16 33:3	profession 32:15 33:1 185:20,22	185:23 189:2 189:19,19	50:13 51:6,9 52:16 53:6,10	53:24 54:1,14 55:15 56:7
prime 13:3	professional 8:25 13:21	198:14,20 201:7,17,19	63:4 70:24 79:15,18 80:16	59:23 66:9 78:9,21,25
principal 49:17	34:13,15 101:5	202:6 205:18 207:1 210:5,9	92:9,15 94:18 95:6,9 96:16	79:8 96:16 116:19 124:8
principles 72:11 193:13 200:18	professionals 34:11	210:14,16,18 211:1	136:10 protect 38:1	137:13 139:1 150:21 175:17
prior 63:17 98:2 105:20 106:16	program 12:1,5 12:8 15:3,16	programs 17:4 18:2 33:21	49:23,23 127:11 136:12	180:2 196:18 201:3 209:15
108:8 117:3,14 172:24 180:25	15:18,21 16:12 17:5,23,24,24	150:20,21 188:22	176:17 178:14 193:14,17,24	provides 122:13 170:13
188:1 190:5 194:14	23:6 28:3,4,8 40:3,16,17,19	progress 31:17 progresses 31:5	207:19 protected	providing 33:7 33:13,19 38:5
priority 168:11	41:25 43:10,15 43:17,19,20	prohibited 22:6 prohibiting	132:16 protecting	112:13 132:12 173:14,22
pro 2:12 17:10	44:6,12,15,20 44:21,23 45:7	80:14 prohibition	189:21 protection 27:9	188:23 194:17 195:18 196:11
probably 6:25 9:11 17:7	45:8,12,13,13 45:17,21 46:2	63:23 projects 17:13	53:17 72:25 81:23 111:22	201:4,6 209:4 public 5:8 87:17
56:10 61:4 62:8 107:8	46:3,9,25 47:7 47:10,13 49:12	118:5 prominent 30:1	120:24 123:2,9 178:19 191:17	119:19 127:20 149:3,5,14
114:7 117:25 125:11 179:19	49:19,24 51:25 52:4,20 54:20	promoting 156:13	206:14 protective 17:4	150:19 196:7 196:14 198:16
179:20	55:2,7 62:15 62:15,19 63:19	prompt 152:18 pronounce	72:23 111:18 111:21 112:3	200:12 212:5 212:23
problem 77:6 115:21 164:1	64:6,25 65:7,8 65:11,12 67:16	12:14 30:25 31:9 88:15	127:4 178:17 209:5	publication 170:2
171:24 173:24 176:9,10	69:15 70:15,20 70:24,24 71:11	pronounced 88:14	provide 8:8 10:21 15:2	published 20:25 26:5
problems 103:13 144:10	71:15 72:21 73:20 74:2,4,5	pronunciation 88:16	16:11 17:9 34:16,19,20,22	pulled 184:16 purchasing
144:11 181:6	77:15 79:14,18 79:21 80:4,7	proper 13:19 101:8 137:16	54:4 56:4 66:20 69:24	190:5 purpose 103:13
procedure 5:12 39:21 40:9	80:11,16 81:1 92:4 93:13,15	147:5 176:19 188:23 189:2	73:21,22 79:14 122:7 124:13	purposes 59:14 90:12 140:11
59:6	94:25 95:3 97:14 105:25	191:9,12 192:4 192:15 193:3,7	144:2 175:17 175:19 176:24	140:24 179:11 187:23
procedures 40:20 71:8,23	113:16 119:21 122:5 124:14	properly 100:6 189:6,21	178:18 206:24 209:12	pursuant 5:4,11 103:21 104:19
184:22	138:9 143:13 144:3,15 150:7	191:22 proposal 66:2	provided 9:12 11:22 13:19	185:7 pushback 85:5
proceed 152:25	152:25 153:1 158:22,25	proposed 44:19 45:6 46:20	16:13,21 35:4 38:12 50:24	put 14:8 15:17 16:11 26:23
proceedings 5:14	161:18,20			
process 13:2 45:8 187:5				
product 7:24 13:8 38:7 39:8				
production 155:15				

30:6 37:5 39:9 52:19 61:12 76:17 104:24 104:25 116:13 136:15 158:1,4 166:19 175:11 184:19 putting 116:8 158:12 174:17 187:10,11	177:3 178:10 182:4 190:22 193:23 197:2 210:17,17 question's 47:16 questioning 205:19 questions 60:11 115:22,23 153:15 180:11 182:23 200:3,5 207:13 209:6,9 209:23 211:3 quick 62:25 64:5 137:19 142:9 145:21 160:2 171:11 quite 7:23 quote 169:25 quoted 31:3 45:25 68:13 69:19 86:23 87:16 135:24 144:22 148:16 169:20 177:6 202:14	14:6 read 19:14 20:1 20:7,9,20,24 22:25 23:22,24 27:4 29:16 30:21 31:3 33:23 40:4,6 41:5 42:19 45:3,25 58:23 66:22 67:2,4 68:8,13 69:19 70:1 71:1,3 79:3,5 84:19 86:23 87:16 89:8 93:22 94:22 98:25 99:18 100:8 101:17 103:6 106:1,13 113:2 116:23 117:4 118:7 121:17 121:19,23 135:24 137:18 144:22 145:24 146:6 148:16 152:21 160:2 160:14 165:9 165:21 166:5,6 166:8 167:5 169:20 177:6 180:14 184:13 185:25 187:16 191:1 202:14 203:22 208:10 213:5 readable 59:8 Reader's 13:17 reading 24:25 28:24 47:14,23 96:5 146:2 171:14 173:3 190:20,21 204:23 readings 171:21 171:25 172:1,4 172:6	real 64:5 70:1 137:19 142:9 145:21 160:2 realistic 178:3 really 43:11 49:22 53:16 64:3 73:20 79:1 90:7,8 99:5 116:24 132:15 158:7 200:11 208:1 reason 89:2 90:14 114:25 151:23 174:22 178:13 180:1 181:24 182:4,7 182:9,17 reasonably 99:11 reasoning 144:22 rebuilt 158:3 recall 42:9 43:1 55:17 97:11 101:16 158:11 195:16,20 201:12 205:19 209:9 211:1,2 receipt 170:14 receive 54:9 168:11 received 15:10 15:12 56:17 123:22 124:2 126:9 144:8 150:3 180:7 recess 63:1 107:10 146:4 182:21 199:25 recognize 151:13 202:1 recognized 69:23 202:1 recommend 23:20 74:21 122:4 141:16	159:2 165:17 178:6,8,12 recommendati... 22:16 36:17 37:14 73:19 74:19 75:11,14 76:8,13,15 86:21,24 90:14 93:3 95:4 98:10 103:16 103:22 104:2 104:11,19,23 105:14 112:21 114:2 136:16 140:15,19 141:1,3,8,10 142:1 145:19 145:20 146:20 150:18 166:13 166:16 204:21 recommendati... 21:25 25:4 34:25 35:21,22 35:24 36:11,14 36:24 37:3 42:4,6 46:4,15 48:1 49:2 64:24 66:9,10 67:13,14,14 71:2 73:4 74:11 76:18 79:23 80:17 82:7 86:4 87:9 87:12 89:3 90:25 91:4 92:9,21,22,23 93:1,12,15,25 94:1,3,4,5,14 94:17,20 95:2 98:8,12,20 99:25 102:23 108:17 110:17 110:18 111:5,9 111:13,19 112:13 115:2 137:10,12
Q				
qualified 9:6 quality 83:2 quantity 139:18 quarter 94:2 quarterly 76:20 94:11 100:5 167:24 question 14:18 17:7 21:20 28:11 37:6,9 37:12 38:24 39:5 40:5,8,12 40:22 42:8,18 45:11 47:5,17 47:22 52:13 57:11 66:23,23 66:24,25 67:3 67:6,11 75:22 75:23,23 79:2 79:4,7 91:15 93:2,5 94:9 96:21 104:17 106:1,3,3,4,6 106:11,15 115:12,14,25 116:11,13,17 122:2,3,20 123:7 124:2,3 124:16 125:2 125:15 128:9 128:10 133:1 134:8 140:18 141:16 144:7,8 152:1 162:24	R R.D 139:12 R.E 151:6 154:7 R.J 154:8 R.M 138:16 151:5 179:16 179:20 R.W 101:23 radius 61:16,17 Ralph 1:5 2:3 range 90:6 ranged 139:19 ranging 154:18 rates 113:14 114:4 re-ask 128:9 reach 23:7 reactor 14:12,13 reactors 14:5,6			

143:18,19	133:17 134:18	113:2,3,6,9	130:13 137:15	207:16
144:9 145:23	155:12 163:4	117:2,14 152:1	regulations	REMEMBER...
146:1,10,12,17	163:13 171:6	152:5 158:11	13:14,14	5:4
146:21,21	212:14	referencing	reinspection	remove 198:14
147:23 150:24	recording 168:2	95:21 124:9	108:7,14,19	render 10:15
161:7,9 168:10	records 18:15	referred 12:19	reiterated 86:21	199:20
169:2,4,21	18:20 19:6	22:18 49:1,1	rejected 22:15	rendered 209:20
170:14 173:18	34:1 45:20	51:2 56:10	22:17	repairing 88:3
175:25 177:14	46:7,16 55:25	65:1 176:10	rejecting 25:8	repeat 189:16
194:17 195:25	70:22 76:14	208:11	25:12	replace 136:10
205:3,11,14	77:7 97:4,11	referring 7:6	related 7:16	report 25:1 27:1
206:6,18,24	97:19 177:17	30:14,22 31:22	9:15 37:12	27:4 29:18,20
207:2,5,14	180:22 183:14	47:1 48:11,13	RELATES 1:4	29:24 39:2
recommended	198:21 199:3,5	48:15,17 96:7	relating 42:3	42:1 45:18
18:16,16 21:22	199:6,8,10	113:4 123:4	164:1 188:11	46:5 49:7
22:3,24 73:7,8	201:5 206:4	140:3 147:24	206:13	58:21 59:24
73:12,15 74:13	red 100:13	148:2 150:2	relations 81:7	60:1,5,6 69:19
76:5,7 77:5	redesign 143:7	156:24 166:7	relative 90:21	69:20,25 81:2
80:23 82:15,20	redirect 115:23	166:18 181:6	102:23 115:25	83:7 84:7
93:23,25 97:12	reduce 35:1,16	181:15 203:11	197:7	86:16 90:17
97:14,19 102:6	113:21 162:4	refers 30:9	release 196:16	93:4 107:23
105:2 106:23	208:3	45:23 47:7	relevant 116:7	108:17 109:22
117:19 128:15	reduced 115:5	48:21 139:3	relied 46:23	109:23 110:2,6
138:5 143:22	reduction 83:20	180:17	rely 16:2 22:19	110:9 114:18
151:24 161:12	83:22	reflect 83:20	99:22 147:6	115:17 116:2
165:18 170:5	refer 22:21	refresh 62:22	relying 23:5	116:18,25
176:8 198:19	29:18,20,22,24	refuse 126:10	66:20 67:12,15	117:2,3,8,14
207:15 208:5	30:2 99:4	regard 74:3 91:6	78:23 84:24	134:22 135:5
recommending	112:23 116:18	161:10 176:8	104:9 184:5	135:10 137:19
22:1 37:17	151:25 153:10	regarding 8:17	194:10 206:23	149:6,7 150:2
77:9 96:20	153:16,24	33:20 54:14,20	remains 170:18	152:24 153:1,9
98:5,24 99:2	165:24	56:1,2,9 67:16	remember 7:11	153:10,16,18
100:17 101:9	reference 45:18	80:3 90:22	20:4,15 21:9	153:22,25
119:7 148:6	45:21 55:4	105:3 118:19	24:18 41:19	171:16 176:4
203:11 206:11	77:14,16 79:19	121:25 123:2,9	42:12 44:3	178:21 184:8
206:16	83:24 87:12	150:20,24	48:8 51:3	186:15,20
recommends	89:7 95:10,19	165:10 169:21	56:11,25 57:4	187:13,14
100:13 160:16	98:1 104:21	188:15 195:25	57:16 59:11	188:18 194:24
record 5:24,25	113:17 116:11	200:5 201:2	60:3,8 74:9,10	195:22 196:12
40:6 45:3	117:3 161:8	204:4 205:22	77:11,20 95:7	199:13,18
46:17 62:24	165:5 166:16	209:6	95:12,25 96:5	208:10 209:16
67:4 79:5 85:9	171:21 180:25	Regardless	96:8,23 97:9	209:18,21
85:10,11,23	referenced	155:3	97:22 98:3	reported 66:8
101:18 106:13	94:17,25 95:15	regards 30:17	99:17 129:8,19	208:18 212:12
107:13,19	161:13	regular 72:21	158:9 195:22	reporter 5:7
117:1 133:17	references 100:4	regularly 130:1	198:4 199:15	40:6 66:22

67:4 79:3,5 106:13 212:4 213:4 reporting 1:21 70:10 reports 20:25 25:1 29:9 39:24 50:16,17 50:20,22,25 51:2,7,11,13 52:1,15 64:13 65:2 71:1,2 73:6 76:23,24 83:25 92:19 93:22 124:19 164:1 189:23 196:14,16 200:16 207:7 represent 6:9 representative 103:3 112:12 represented 110:23 request 8:7 55:5 55:9,12,12 139:10 requested 55:15 requesting 96:25 requests 55:22 require 82:8 120:22 132:9 required 10:19 75:1 82:1 98:21 132:19 133:14 134:3 143:3 147:17 159:1 178:7 requirement 133:17 134:11 160:22 166:15 requirements 33:1 87:11 requires 8:3 requiring 64:7 research 14:3,6	17:13 27:2 33:3 103:2 researched 37:19,20 residing 212:23 Resources 16:15 27:25 respect 6:12 9:9 20:23 30:11 37:17,22 39:7 39:21 40:10 41:19 42:23 48:9 49:3 53:23 54:13 68:23 100:24 116:16 123:19 128:20 152:9 155:10 158:20 179:9 188:9 190:14 192:23 193:20 195:23 196:4,5 respective 5:10 respectively 84:13 respirator 49:24 73:22,24,25 75:6,10 77:4,8 77:15,17,22 78:10,15,21 79:8 119:7,11 119:20 120:1,2 122:6,9,10,14 124:11 125:10 125:10,12,19 125:20 126:1,3 126:7,11,12 127:2,7 128:2 128:14,23 131:15 132:15 134:11 138:9 144:15 145:1 147:1,3,10,11 173:7 189:2,19 respirators 17:5 17:23 63:15,16	63:17 72:25 73:2,5,10,14 73:16,21 74:3 74:7,8,12,15 74:19,22,24 75:4 76:1,8,10 76:16,17,21,22 76:24,25 77:3 78:13 80:10 98:8 99:15,19 100:2 111:22 111:23 119:17 119:22 120:20 120:23 121:1,9 122:1,4,11 124:16,20 126:10 127:17 127:21,23 128:8,11 129:20 130:1 130:12,24 131:3,6,12,18 131:21,25 132:5,8,10,21 133:2,5,9,18 133:19,23 134:4 135:9 137:13 138:10 144:16,24 145:10 146:25 147:4,6,14 150:8,10,12,20 150:25 206:13 206:14 respiratory 53:17 71:19 150:7 respond 13:24 42:5 57:5 responding 14:20 161:11 response 211:5 responses 33:20 responsibilities 11:11,12 19:1 responsibility	14:12 69:2 192:14 193:9 193:19,24 194:2,3,6,7 209:7,12 rest 137:18 174:6 result 138:8 143:6 151:14 162:2 results 24:16 89:13 104:8 117:8 149:11 174:22 resume 32:3 retained 9:12 review 20:5,12 23:23 42:25 43:2 44:10 63:18 69:22,22 87:24 115:9 123:17 162:2 163:17,21 167:17 182:24 182:24 185:1 199:12 201:5 206:3 reviewed 20:5 39:16 41:3,7 41:23 46:7 77:19 88:8 92:13,14 97:5 98:7 108:23,25 109:2 119:2,5 119:10 123:14 155:6 158:19 180:15 183:1,5 183:8,11,16 184:3,22 186:8 199:7 reviewing 112:23 rid 82:13 right 7:11 19:19 21:9 22:2 23:1 24:20 25:2,9	25:16,18 28:1 28:12 29:18 30:16,19 32:2 35:25 36:9 37:4 43:13,25 47:4 53:2 57:18 58:15,21 58:24 59:3 60:2,6 61:14 62:17 63:6 64:16,20 65:19 66:3,17 67:9 70:16 72:19 73:11,18 74:14 76:22 77:1 80:25 83:16,18 84:23 86:3 90:15 91:25 93:24 95:17,22 98:18 103:7,10 105:5 106:12 108:14 109:7 109:24 110:21 112:24,25 115:9,10 117:16,18 124:5 127:9 128:21 136:20 137:3 141:1,2 149:10 152:7 153:16 155:2 157:1,7 158:5 159:24 162:18 164:24 165:4 165:16 166:4,7 166:9 167:18 171:11,18 176:3 177:23 179:23 182:15 183:21 184:9 190:7 195:5,20 206:1 207:3 risk 28:14 35:7 35:10,11,15,16 50:18 67:13 97:7 175:14
---	--	---	--	--

185:10 206:23 risk-engineeri... 35:5 39:11 41:20 185:6 road 61:4 137:24 138:1 roads 100:1 Rome 158:25 rooms 90:23 rotary 131:18 rule 121:9 123:21 150:15 ruled 38:4 rules 5:11 71:8 71:22 72:20 74:2 126:13 129:20 134:14 run 14:6 running 174:17 174:19 Rupp 42:4,5 44:17 45:5 47:8 51:25 176:7 203:16	63:4,12,15,18 64:6,22 65:4,7 65:12,14,17,23 68:4,5,10,11 68:15,20,24 69:1,9,10,15 69:15,17,22 70:6,9,15,20 70:24,24 71:8 71:11,15,21,22 72:20,21 73:20 74:4,5 77:15 79:21 80:4,7 80:11,16 81:1 90:18,21 91:5 91:11,15,18,21 91:23 92:4,10 92:15 93:2,7,8 93:8,13,15 94:5,6,18,21 94:25 95:3,6,9 95:10,14,22 96:2,6,9,10,11 96:17,18,22 97:1,14 98:13 98:20 101:21 101:24,25 102:7,9 107:22 107:23 109:19 109:20 110:15 110:18,22 111:16,20 112:1,11 113:16 118:6 118:10,14,16 118:16,19,19 118:24 120:18 120:18,23 122:16,24 123:1,8,13,19 123:23 124:13 142:19 143:13 145:1 155:12 176:5,6,15 177:7 178:5 189:14 198:7	202:6 205:18 207:1 210:5 sample 116:24 samples 83:20 84:8 89:14,16 89:17 104:6,8 104:16 115:8 117:7 131:13 139:24,25 140:1 sampling 17:2 31:16 84:6,9 104:9,10 sanitation 71:20 71:24 90:23 178:20 saw 19:21 21:14 24:10 34:1 46:12 48:25 54:8 55:4 77:11,14 78:8 78:17,19 79:16 79:19 80:8 82:17 90:14 94:14,25 95:4 95:8,13,18,19 96:10,19 98:1 99:14,25 100:4 100:6 125:8 126:2 127:15 127:20 128:1 128:10 142:8 157:13,23 168:2 180:25 Sayers 30:23 saying 22:18,20 24:21 25:1 43:8 47:9 50:2 55:20 56:8 58:25 82:21 83:2,16,19 89:19 98:14 103:6 118:18 118:21 133:17 141:4 144:21 147:9 169:5,18	175:7 185:3 188:22 193:10 196:17 203:2 says 23:16,18 29:18 30:10 43:18 44:16 45:3,16,25 52:1,3 65:3 68:3,13 69:1 72:13 85:19 88:2 89:7 94:5 103:12 105:5 108:22 111:16 111:21 113:19 115:7 117:16 118:11,16,17 120:21,22 123:22 130:5,7 130:10 131:7 136:14 139:10 140:4,17,21 142:15,17,24 144:14 145:7,8 145:22,25 146:10 148:15 150:4 152:23 154:21 156:12 159:5,11 164:11 166:1 168:6 170:6 171:4,18,23 173:10 181:5 202:14,21 204:4,9,12,20 204:24 205:2 scales 158:24 Schneider 151:6 154:7 176:1 school 15:9,13 15:14 29:2 31:1 scope 17:18,19 42:10,14,22 43:5 176:24 210:12 scribbled 58:23	59:5 scrubbers 160:25 seal 212:17,24 SEAMANS 2:14 search 193:10 searched 25:17 searching 25:13 193:2,6 second 47:5 53:13 63:10 89:11 108:18 140:2 163:5 170:9 171:23 202:12 second-to-last 88:25 secondary 131:21 section 29:5 31:16 71:7 73:1 94:24 98:16 100:8 139:12 145:19 145:20 157:9 160:12 161:8 161:15 sections 48:11 security 132:13 see 18:20 21:18 24:13,15,17 25:19 29:16 30:10 31:12,22 32:3 35:22 46:6 48:10 49:25 50:23 58:13 59:18 62:19 66:13 69:8 70:18,22 71:8 76:20 77:7,13,16 83:8,11 84:1,4 88:19 89:2 95:21 96:17,21 96:24 97:4,18 108:11,15
S				
S 4:10 safe 90:5,5,9 113:21 207:24 207:25,25 208:2,22 safeguard 99:7 safety 8:25 13:13 14:9 15:16,18,23,25 17:23 18:7,12 18:14,17,21 19:1,16,20,20 27:21,24 28:6 40:16,16,18 41:24 43:13,14 43:16 44:6,20 44:21 45:7 46:2 49:12,19 51:25 52:4,17 52:19 62:19				

109:24 110:1,2 110:15,18 111:2,5,9,24 112:18 113:17 114:2,11,14 115:6,20 116:22 117:24 121:3 123:24 124:5 135:4 137:17 139:1,2 139:17 140:10 140:13 142:20 143:9 144:18 145:3,19 146:18 148:13 148:24 149:18 150:16,18,23 151:11 154:1,8 154:12,14 155:20 156:7 158:17,24 161:16,19,24 164:7,10 166:4 168:12,21 169:13 170:15 174:13 175:16 176:16 179:22 181:8,12 193:10 201:20 202:13,20,22 203:21 204:22 205:5 210:3,18 210:24 seeing 55:18 74:9,10 77:20 97:9,11 99:17 101:16 125:18 158:11 187:14 seeking 104:3 seen 15:21 18:15 21:21 31:19 44:4 45:20 46:25 47:2 48:7 52:14 55:25 88:10 102:15 110:5	114:16 117:21 118:1,3 121:7 127:19 128:13 145:9 149:20 163:19 167:3,5 179:4 180:6 sees 94:3 SEIFERT 2:20 select 122:11 selected 73:22 sense 132:13 176:25 sent 42:3 58:20 110:6 114:9,10 134:24 135:5 149:16,21 sentence 142:14 156:11 164:9 171:18 203:6 204:23 separate 60:16 186:22 196:21 September 134:21 135:11 sequence 45:24 series 47:25 serious 142:18 seriousness 137:25 serve 66:3 68:17 served 111:2 service 17:9 42:3 66:10 71:2 118:6,8,9 118:17 119:20 127:20 149:3,5 150:19 194:11 200:13 services 16:13 16:21 28:22 34:3,6,8,17,19 34:21,21,22 35:5 39:22 40:10 41:20 66:21 151:22 185:7 195:19	201:3 set 40:1 41:24 68:4 87:7 90:7 90:12,13 212:16 sets 65:14,18 setting 130:12 severity 113:14 113:22 114:4 shack 78:11 126:20 Shaking 102:10 shared 109:23 shelf 184:17,17 short 15:5 178:6 178:7 shorthand 212:12 show 22:25 23:15,15 44:9 45:16 46:2 47:6,11 65:3 85:19,24 86:12 163:4 166:20 166:24 173:11 173:15,20 175:23 179:7 shower 64:7,9 90:24 showers 91:7,8 showing 83:22 173:4,21,22,23 shown 140:1 164:19,22 shows 44:11,14 46:18 48:3 179:11 shut 198:6,9 sick 49:18 85:18 85:20,24 198:22 side 16:17 62:5 sign 37:5,7,9 73:7,8,9 101:10 170:13 signage 26:18,22	26:25 27:3 37:17,22 38:12 38:19 73:12,13 98:6,7,11,21 99:4 101:8 104:24 111:10 signed 179:18 213:22 significance 201:22 203:6 205:6 significant 135:25 172:16 202:2 significantly 172:13 signs 26:17,19 39:7 73:15 74:13 76:6 98:13 99:10 100:12,13,13 100:25 206:13 206:14 silica 17:3 154:18 155:1 Silver 212:2,5 similar 155:21 187:10 simple 52:13 single 178:23 204:13 sir 44:7 45:1,2 54:2,23 55:10 68:7 104:17 106:2 115:12 122:19 125:6 134:8 141:3,6 151:1 sit 38:14 48:8 59:9 60:7 65:23 97:10 185:18,22 site 33:19,21,21 33:21 43:6 94:2 100:5 125:4 174:9	175:24,25 176:2 sites 52:12 sits 32:12 sitting 195:20 situ 151:6 situation 36:2,4 123:2,9 204:16 situations 184:15 six 68:17 146:17 Sixteen 71:5 size 154:18 skill 212:15 skip 78:11 126:19 131:6,7 147:24 skips 71:18 small 82:15 186:19 208:14 smaller 138:6 143:4 smelter 15:5 Smits 29:6 smoothing 170:22 so-called 172:11 sole 194:7 209:7 209:12 solutions 161:5 somebody 184:16 208:11 soon 104:13,18 sophisticated 88:20 sorry 47:17 100:10 118:2 157:2 162:22 171:5 179:3 189:16 190:25 sort 49:4 62:1 90:19 sorts 63:9 129:5 sought 191:25 Sounds 163:15 source 144:9
---	---	--	---	---

sources 98:9,10 109:5	53:1 56:11 57:4 60:10	100:23 123:5,6 136:18,20,22	154:22 164:15 166:15 174:15	131:19 132:3
South 6:2 44:1 96:6	69:12 77:11 81:14 94:24	166:11 185:1,6 204:5 208:5	188:3,9 194:3 196:4,5,17,24	stocked 144:24
speak 121:22 177:17 183:18	99:4 103:14,25 105:9 109:1	standard.' 87:6 standards 9:15	197:6,15,25 198:8,13	storage 71:16,17
183:21	123:18 129:9 129:19 152:8	10:8,16,18 11:1 14:17,21	206:22 207:15 212:1,5,23	110:12
Spear 1:17 4:3 5:1,5,16,23 6:1	157:24 158:9 169:10 184:4,7	14:23,25 15:24 16:1,3 30:17	state-of-the-art 27:11 143:21	store 128:3
6:8 29:20 30:4 30:5,7 32:6	184:17 186:11 188:5	31:6,9 33:10 71:8,22 72:1,9	175:10 187:1 stated 86:23	Street 3:5
52:13 63:3 66:22 67:17,25	Specification 100:12	72:10,13 87:4 87:8 90:13	87:10,16,20 166:14 176:16	strictly 150:15
79:1 85:12 107:13 116:10	specificity 91:14 specifics 49:13	122:16,24 123:2,8,13,19	177:6 207:23 statement 54:7	strike 104:22
123:7 125:15 128:6 141:7,16	60:3 80:3,6 94:18 118:14	123:23,23 124:3,9,13	106:22 130:4,6 130:9,23 150:7	137:9 185:11
146:6 163:3 167:10 179:7	118:19 specified 62:15	136:25 190:18 191:4,19 192:4	155:2 168:25 169:8,21 181:4	194:13 195:8
182:25 183:8 200:3 209:15	130:14 specify 63:11	192:8,9,16 200:6,7 204:1	195:15 statements	Strip 107:23
211:6 212:9 213:1,24	101:10 143:20 spelled 88:14	standpoint 67:19 175:13	205:6 states 107:21	strive 87:22
Spear's 4:12 141:7	spend 37:2,13 62:22 153:6	186:5 stands 12:13	169:25 197:19 201:17	student 17:11
Speare 47:19 special 72:24	177:21 spent 15:15	start 17:6 63:21 71:7 145:24	stating 73:6 87:3 92:19	students 17:11
specialist 28:17 specific 41:2	spike 84:17 spikes 84:2	started 52:16 153:11 158:6	station 133:5 stations 157:10	17:12,14,15
51:12 53:16 55:25 59:19	spin 82:9 spoke 199:4	162:14 starting 50:20	157:15 187:11 status 162:2	34:9
77:14 78:13 80:3,7 81:24	spoken 198:23 198:24,25	154:17 state 5:8,24	statutes 197:24 198:3	studies 180:22
99:18 101:9 103:5 104:11	spot 159:21 springs 83:15	21:23 22:18,19 27:5,7,12	statutory 36:13 196:24,25	191:13 193:3,7
122:6 126:17 129:12 130:2,3	stack 174:5,17 174:18	50:15 51:7,11 51:13,18 52:1	stay 82:11 Sterrett 101:23	study 97:23
130:14 148:6 151:25 156:4	stacks 19:15 staff 13:21	52:15 72:5 87:4,10,17	Steve 6:4,19 STEVEN 3:2	114:19 134:22
184:15 185:2 186:25 196:1	stake 178:6 stamp 45:24	88:1,23 112:24 114:13,22	Stewart 88:17 sticker 179:12	181:1 193:14
199:7 204:15 205:17,24	stand 188:14,18 standard 16:5	115:2,4 117:4 124:13 134:20	stipulated 5:9 stipulation	193:16
206:10,11,12 specifically 46:8	33:8 38:18 86:17 100:11	134:20 149:4,8 150:3,19	134:1 stipulations	studying 19:7
47:7 49:16				102:5

sufficient 207:19	67:24	157:4 168:20	63:10 79:21	150:11 152:13
sufficiently 143:2	supposed 65:23 191:1	169:9,16	80:9 90:3 95:6	153:19 156:1,1
suggest 21:14	sure 8:9 9:16	174:11 206:12	95:15,17 98:19	156:9,15,19,24
61:6 79:17	12:9 13:19	systems 25:25	100:23 134:2	158:17 159:12
112:25 113:6	19:15 22:1	26:10 71:20	152:6 183:3	159:25 160:8
135:19 149:21	25:5 31:24	T	185:4 187:12	160:12 168:23
suggested 66:2	34:11 35:17	T 3:2 4:10	188:5,10	180:21 181:3
104:4 161:16	36:4,25 38:1	Taggart 202:10	189:23 205:16	210:15
161:18 175:17	43:24 51:17	202:11	talking 21:10,11	team 29:8
suggesting	53:18 56:6	take 26:8 32:25	28:4,5 33:15	teams 39:25
141:20 146:22	59:21 61:15	43:3 49:10	39:1 41:12	tease 49:13
suggestion 80:1	62:21 70:2	53:4 58:10,11	47:9 54:17	Tech 15:14
161:8	74:1,2 96:12	62:25 67:15	63:8 73:10,11	17:16 34:10
suggestion/rec...	96:15 98:17	69:13 107:9	83:23 86:15	technician 159:7
113:23	99:1 101:18	114:8 141:15	90:5,18 93:3	159:10
suggestions	102:1 116:20	146:3 152:18	93:24,25 96:5	Telephonic 6:4
111:10	121:18 129:8	153:14 171:11	102:23 106:7	6:19
suggests 108:10	137:20 142:10	182:20 186:4	110:19 114:3,4	TELEPHONI...
110:6 115:4	147:1 148:1	187:6 208:21	120:5,6 128:6	3:1
148:10 180:7	151:18 156:22	takeaway	128:7 129:4	tell 20:2,4,22
Suite 3:5	160:15 162:25	104:21,23	135:8,20	24:19 35:10
SULLIVAN 2:6	163:2,3 165:6	taken 1:19 5:5	139:18 151:15	58:3 60:10
summaries 21:2	170:10 174:3	5:11 63:1	151:19 155:1	76:21 92:15,18
summarizing	193:11,17	107:10 115:8	157:20 158:12	106:24 120:8
103:8 163:25	199:5 209:3	146:4 171:21	158:16,21	120:19 123:15
summary 49:6	surface 110:10	171:25 182:21	162:10 164:21	123:18 147:9
187:15	survey 103:4,18	199:25 212:10	168:4 172:23	178:11 210:22
summer 15:5,8	103:21 104:5	talk 26:17,19	174:4,7 186:8	telling 18:19
15:17 58:8	104:12,18	40:14,25 53:15	198:9 200:4	56:14 75:9
summers 15:7	139:5,7,14	63:15 64:2	201:16 203:19	105:15,17
superintendent	140:4,17,22	72:25 77:21	203:23,24	142:16,22
168:24	142:5 149:12	88:2 91:24	204:11,17	143:11 144:9
superintendents	149:15 185:11	94:21 126:15	talks 48:20	tells 84:15 90:11
65:22	185:12,14,17	126:17 135:18	68:10 70:5	91:19 122:5
supervision	surveyed 197:24	148:10 150:10	71:7,25 72:20	temporarily
113:20	surveys 200:16	154:16 156:17	72:23 73:2	130:2,13
supervisor	sweeping 80:14	157:8,9 168:9	81:6,6 88:21	temporary
29:25 30:9	80:20 131:7	172:18 207:9	88:22,23	136:17,25
supervisors	148:3	210:13	102:19 110:9	ten 7:9 61:4,9
68:18	switched 160:5	talked 26:6,20	110:10,11,12	84:18
supplement	sworn 5:18	31:18 49:21	110:12,13,14	tend 199:20
199:18	188:18 212:9	53:14,19,20	110:21 111:1,7	tentative 136:7
supplied 168:25	system 65:21	54:9,11,24	111:13 112:15	terms 13:25 27:3
support 47:12	80:24 143:7	57:17,22 62:13	120:23 135:12	38:6 41:18
	148:6 156:4,9	62:14,14 63:9	135:15 137:22	43:9 54:10,14
			142:7,11	97:2 110:9

155:18 165:1,3	27:25 33:6	121:20 161:22	82:3 115:24	204:4
Terry 1:17 4:3	48:14 55:24	172:10,14	119:11 208:18	topic 178:9
5:1,5,16 6:1	56:10 61:24	threshold 81:25	title 19:3 28:18	total 113:13
212:8 213:1,24	63:9 71:3,15	87:19 88:21	65:11,12,14	160:22,24
test 14:12,13	93:11 94:3,23	135:15 139:20	210:5,8,10	164:11,22
19:14 32:25	95:2 142:7	139:25 169:23	TLV 22:6,11,14	169:21
159:24	157:13 160:20	169:25 204:11	23:9 84:25	totally 9:19
testified 5:19	161:3,4 165:9	207:10	85:14,15 86:9	109:4
8:19,21,24	172:19 175:8	tightening 138:5	90:7,10 97:2	tough 170:21
85:22 129:1,1	183:6 184:18	148:5	113:5 116:24	tour 154:13
testify 8:16	187:12 189:18	tightening-up	117:2,11,19	167:23 171:16
128:19 199:16	200:4 208:16	143:3	135:18 136:1,2	171:17
testifying 8:11	210:15	time 5:5 10:10	136:4,7,11	town 21:4,13
8:12,15 49:5	think 7:11 12:24	10:12,19,23	154:22,23	toxic 142:13
85:9	16:8 17:16	12:25 13:3	172:7 178:17	178:17 191:18
testimony 7:12	21:8 30:21	14:4 15:5,20	189:20 203:20	196:7,10 209:1
7:22 8:5,10	32:11 41:10	16:1 17:8 21:8	204:1,5,17,24	toxicity 172:17
9:13,14 10:5	42:5 48:25	24:4 25:6 26:2	207:14,15,21	182:13
77:10 93:14	56:22 57:18	27:6 33:14,15	TLVs 30:15	toxins 193:11
126:4 132:6,9	58:9 60:24	35:20 37:16	86:15 189:8	traffic 61:24
134:12,13	62:11 69:17	38:13 39:7	today 18:19	train 81:9
147:4 188:1	98:15 100:1,9	42:4 49:17	31:10,11 38:14	trained 14:4
195:12 199:13	102:1 107:8	50:13,22 51:5	43:4 48:8 59:9	54:12,18 134:6
199:19 209:11	115:21 121:20	51:8 53:10,25	59:22 60:7	134:9 204:8
testing 74:1	124:12 132:16	56:25 61:12	97:10 123:16	205:1
122:7 151:24	155:1 158:3	62:22 84:5	123:18 163:11	training 10:21
153:2	166:4,6 173:11	87:20 95:11	194:14 195:21	25:25 26:11,20
tests 14:6	183:4 184:7,20	104:7 109:1	207:9 208:11	49:21,22 53:14
textile 208:12,16	202:21 208:9	115:8,9 121:15	209:17,19	53:14,16,19,20
thank 32:5	208:18	129:5 148:21	today's 179:11	53:23 54:5,7
167:9	thinking 164:12	157:20 158:16	told 57:7,10,12	54:10,15,20
Thanks 163:1	164:14 165:2,3	162:12 171:25	57:20,24 58:1	55:1,4,7,13,18
167:14	165:9	178:23 182:16	60:11,12 74:6	62:15 63:10,11
they'd 17:12	thinks 21:3	185:2 186:4	74:23 77:2	73:23 80:10
51:13 64:17	third 63:14	187:16 188:16	80:21 81:15,17	81:5,7,8
thing 44:10 58:1	121:21 202:13	189:16 190:25	85:4 99:14	158:17,20,22
62:1 63:10,14	third-party	191:10 197:19	100:6 105:21	158:23 209:4
85:3 97:3,9	109:4	199:8,10,15,22	105:24 106:17	transcribe 59:7
114:7 129:2	thoroughly	200:17 201:18	106:20 118:20	transcribed
145:21 164:17	116:11	205:21 207:2	118:20 125:10	58:20 59:23,25
210:20,21	thought 57:3	212:11	125:14 126:5,8	60:5 212:13
things 8:22 9:16	102:3 174:17	time.' 87:13	128:7 192:13	transfer 78:12
10:22 12:8	thousands 55:17	timeline 163:25	194:5,5 196:15	126:20 160:23
14:7 16:19	59:12	times 6:17,18	tomorrow 32:23	translate 187:7
17:5 19:14,15	three 12:14	7:15 9:11 16:9	top 145:18	187:9
21:2 26:1	41:25 91:23	41:25 64:15	202:13 203:19	translation

121:22 transpired 197:12 transportation 71:17 traversed 188:21 trees 62:1,5 tremolite 135:25 137:24 139:19 139:20,21 142:12 170:2 trial 199:20 tried 18:6 19:12 125:12 126:20 Trimmer 201:14 202:24 trouble 173:10 Troy 61:2,3,20 trucks 132:1 133:10 137:23 true 143:16 168:3 212:14 try 36:16 125:11 125:20 126:12 150:15 170:24 206:9 207:23 trying 30:6 44:1 46:24 48:18 49:4 50:1 66:24 82:24 93:1 106:4 143:24 160:4 160:18 196:3 tuned 161:3 Tunnels 28:2 turn 145:23,25 201:12 203:15 turns 22:13 two 111:7 144:25 145:9 150:10 154:10 161:22 172:10 179:17 199:19 209:24 212:13 type 8:3 15:2,18	17:18 41:19 63:11 77:4,8 77:14,16,21 78:15,21 79:8 98:21 122:6 126:17 138:10 144:17 150:9 159:24 195:18 208:25 types 7:21 8:23 157:14 186:5,9 typically 197:19 typo 136:9 <hr/> U <hr/> U.S 72:4,5 unapproved 127:21,22 undergraduate 15:11,12 understand 21:19 27:2 34:20 37:20 42:18 47:21 49:4 50:1 55:1 55:13 58:25 93:20 150:7 172:20 182:24 192:8 196:3 197:25 understanding 6:11 11:13 18:24 19:3,23 27:17 28:24 44:18 45:5 55:19 136:25 158:8 169:6 187:25 203:13 207:7 understood 27:11 158:19 168:18 Underwriters 72:8 unfired 71:20 unimproved	119:21 union 55:25 56:2,5,8,8,11 56:13,14,17,17 56:18,19 57:7 57:12,15,17,18 66:4 unionized 66:1 unions 55:20 66:2 unit 61:20 United 107:21 units 160:17 University 31:4 unnecessary 89:4 unreasonable 89:3 unsafe 69:4,6,7 69:11 90:6 208:2 update 96:18 97:1 updated 96:14 updating 96:22 upgrade 96:18 use 14:21 22:11 23:9 38:1 71:17 72:23 73:4,23 80:15 80:21 82:8,13 85:13,15 110:12 121:9 122:13 129:20 137:16,25 140:10,20,23 141:2,3,8,17 146:25 147:11 148:4 150:20 156:12 157:18 158:8 165:11 186:25 204:6 204:25 206:13 209:3 useless 91:21 users 100:17	usually 58:23 208:14 utilize 17:25 26:3 utilized 96:2 <hr/> V <hr/> v 1:5 vacuum 25:24 26:10 80:24 81:2 140:12,15 140:24,25 141:2,3,8 142:1 156:9,12 vacuums 80:22 80:23 140:20 141:17,21,23 148:4 157:18 157:19 value 81:25 135:15 139:22 170:1 189:20 204:11 207:10 values 88:22,23 139:21 189:9 204:25 vapors 123:3,10 variety 110:10 112:8 138:4,22 163:25 188:2 various 140:6 188:21 vehicles 78:10 160:17 velocities 138:7 143:5 156:5 160:24 velocity 148:6 174:11 186:17 vented 174:5 ventilation 19:13 25:24 38:1 48:14 143:1 161:12 190:18 191:5 206:12	vermiculite 61:12 151:7 version 95:14,18 versus 201:3 vessels 71:20 vice 2:12 view 35:14 50:7 53:20 80:11 88:24 89:5 189:12 viewed 111:23 VII 71:7 Vining 138:17 151:5 179:16 179:20 violated 10:16 violation 189:18 190:17 191:3 191:18 192:9 Visible 140:8 visit 24:16 27:16 78:9 97:8 100:5 102:19 148:17 151:14 152:2 153:19 153:25 171:8 visited 153:23 visiting 112:12 visits 26:16 94:13 167:24 volume 143:20 186:17 187:11 voluntarily 90:12 vs 213:3 <hr/> W <hr/> W.D 145:15 W.E 167:24 W.R 7:19 9:24 10:2,9 16:11 18:13,20 19:6 19:7 20:17,25 21:15,22 22:15 22:22 25:6 26:2,9 27:10
--	--	---	--	--

41:21 42:1,11	139:8 141:25	114:10,13	Washington	75:5,7,10,25
42:24 44:5	142:16,22	116:19 134:21	2:17	76:8,22 111:17
45:17,22 46:8	143:11,15	149:4,8 150:2	Washington-...	125:10,10,12
46:19 47:6,12	144:8 145:12	162:17 182:14	31:15	125:18,20
48:1 50:13,15	145:14 146:13	196:13 198:20	wasn't 11:5	126:11,12,13
51:15,21 53:9	146:22 148:10	walked 13:16	19:16 38:5	126:14,19,21
53:24 54:1,13	149:12 152:8,8	Walker 29:7	60:20 62:15	126:21 128:8
54:14,19,22,24	152:14,19	89:12 112:11	73:18 74:3,5	128:25 129:16
55:1,3,6,7,9,13	154:6 157:12	167:24 171:2	75:1 80:16	132:7 134:4,11
55:16,17 56:5	157:22 159:2	204:21 205:2	90:8 99:8	147:13,17
56:15,20 57:8	159:15,18	want 21:15	109:25 123:5	wearing 73:16
57:13,23 60:16	162:1,7,13	22:11,11 25:1	126:2 168:15	76:24,25 77:17
64:10,18,21,21	164:15,21	35:7 37:2,13	178:16 196:22	77:22 119:16
66:5 67:21,23	165:2,10,15,18	47:16 85:22	207:1	119:21 122:9
68:1,2,4 69:8	168:14 169:11	89:16 90:20	way 9:1 19:21	124:20 125:25
70:23 73:18	169:15 171:21	93:5 116:16,18	25:13 49:5	128:1 131:15
74:6,23 75:9	173:15,17,23	122:2 125:25	116:15 124:21	132:4 133:18
75:10 76:21	175:2 177:13	129:9 140:20	137:5 161:21	134:7,10
78:14,20 79:8	178:22,24	148:3,4 149:24	167:12 170:22	145:10 147:1,3
79:12,17 80:1	181:1,5,24,25	151:25 153:10	175:25 186:2	147:7,10,14
80:5,18 81:11	182:5 185:13	162:23 171:11	187:13 189:13	173:6
82:16 84:22	185:23 186:6	197:13,14	196:11 197:5	week 45:10
85:5 86:6,22	186:14 187:18	wanted 32:22	208:18 210:24	weeks 144:25
88:11,18 89:1	187:19 188:2,5	128:25 153:6	ways 160:19	welding 72:25
89:5 90:12	188:11,23	165:19 180:10	we'll 49:13	Welfare 149:3
91:3 92:8,14	189:1,5,20	184:14	85:17 146:3	149:15
92:16 93:6,9	190:14 191:2,8	warehouse	167:2 179:9	went 10:8,25
93:16 95:11,13	191:16,21	156:20	211:8	14:10 15:8,21
96:3,17,22,24	192:3,5,7,18	warn 98:25	we're 30:6 33:15	23:25 24:14
97:5,12,20,23	192:22 193:1,6	99:13 101:4,8	66:25 68:6	25:18,19 27:10
98:23 99:14	193:18,20,22	178:18 193:14	73:24 81:5	27:14 29:2,3
100:6 101:21	193:23 194:6,7	193:16,24	85:6,14,15	34:14 39:5
102:5 103:2,17	194:12,17	warning 26:17	86:7 90:18	46:24 47:25
103:17,20,23	195:8,19,23,25	26:19,24 37:24	105:19 106:7	48:4 57:15,18
104:4,10,12,15	196:21,25	38:6 39:2,7	106:15 107:13	59:24 62:3
104:25 105:7	197:7 198:6	73:8 99:5	115:11 124:10	63:9 73:17
105:13,21	199:1,9 202:24	100:9,20 101:9	132:4 151:15	82:17 94:11
106:17,23	203:16 205:18	101:11,11	155:1 157:2,20	100:5,5 126:9
107:24 109:16	205:25 206:5	193:19 196:12	163:12 166:7	128:2 136:18
112:9 113:24	206:17 207:15	warnings 75:16	167:12 169:5	136:20,21,22
118:5,13,24	208:16 209:6	75:17,20 76:5	174:4,7 178:8	158:7 165:12
119:3,5 120:14	209:11	98:13 99:2,6	201:16 204:11	165:14,15,20
124:17 125:5	waiting 79:23	100:17,19	we've 17:12	175:24,25
125:17 127:16	Wake 22:1	101:2,2 104:25	79:22 148:16	176:2
128:8,11,22	81:15 84:24	111:11 196:18	183:3	weren't 22:22
129:21 138:19	87:23 88:1,23	209:12	wear 74:8,24	23:6,7 24:19

25:14 71:3	129:18,18	127:22 128:7	131:21,25	34:9 36:1
73:16 74:12,16	145:1	129:1,3,6,13	132:21,23	40:14 41:6,17
76:11,25 84:23	work 13:6 14:10	129:15,17	133:2,5,9,20	41:23 42:17,21
90:13 105:11	14:22 16:15,25	132:12,13	133:24 138:11	44:11,14,24
105:24 124:19	17:10,12,17,18	136:13 142:18	144:17 150:14	45:15,18 46:12
133:18 168:25	17:20 19:13	147:1,2,6	worse 60:20	46:22 48:25
175:9 205:24	23:21 34:10,14	152:10 153:7	83:23 171:25	50:10 54:18
208:13	36:6 42:10,15	178:5 188:22	173:7	55:15 58:4,6
Westinghouse	42:23 43:5	188:24 191:17	worsening 173:4	58:11,23,25
39:1 98:15,19	54:17 59:8	193:14,17,17	worthless 89:15	60:6,13 61:19
wet 99:24,25	60:14,22 63:19	193:19,24	89:19,20	61:24 62:6,8
158:4,13	70:12 80:13	194:7,8 196:6	wouldn't 9:19	66:4 70:17
WHEREOF	81:24 82:23,25	196:10 198:17	126:3,7 177:21	73:2,7,15,20
212:16	83:1,17 113:21	198:22,24	wraps 181:10	74:3,12 76:10
Wilder 43:23	121:16 129:3,6	207:20	write 17:3 40:16	76:23 77:23
Williams 3:2 6:4	151:21 169:16	workers' 28:22	186:11	78:23 81:3,15
6:19	173:5 176:24	29:10 39:22	write-up 95:5	81:20 82:19
window 169:24	209:2,4	40:10 41:3,7	186:22	83:13,22 84:1
wiring 71:16	worked 11:19	50:25 52:16	writer 144:20	84:20,20 89:10
witness 4:2 5:17	15:4,7 23:8,12	83:11 184:24	159:2 170:3	89:20 90:22
23:4 25:11	60:25 125:9	185:8	writing 28:5,8	91:14,22 92:4
40:14 41:23	129:10,13	working 9:23	68:14 88:22	92:25 93:9,12
42:17 46:12,22	199:4	10:2 17:13,14	171:2 200:16	95:15,19,24
48:25 79:10	worker 11:11	28:19 30:25	written 152:7	97:16,25 99:4
95:24 106:20	26:20 27:9	32:11 33:3	194:19,24	99:23 101:2,14
115:21 116:1	54:11 75:5,9	64:1 69:5	195:23 203:16	101:17 102:17
150:23 167:15	78:12 99:22	81:19 100:6	wrong 143:22	103:5,9 104:6
174:1 194:2	122:12 125:17	121:15 133:21	wrote 40:16	105:11,24
195:3,14	128:1,2 129:9	134:4 150:13	87:3,7 166:10	107:4,19
197:11,18	134:14 147:10	151:22 152:9	166:11 186:15	108:13 110:19
200:1,1 201:10	147:11 178:18	152:10 178:16	186:20	111:12 112:3,3
201:25 205:9	189:14,21	199:9	<hr/>	112:5 113:3,9
206:21 209:14	208:2 209:4	Workmen's	X	117:7 119:19
212:8,15,16	workers 10:20	176:8	X 4:1,10	120:22 121:13
wood 62:1	10:20 26:22	workplace 10:7	x-rays 176:20	121:24 122:4
word 34:6 50:9	49:18,23 54:9	15:22 16:4	<hr/>	124:9 126:7
53:6 132:17	54:15,16,20	works 173:6	Y	127:5 128:25
210:23	55:2,8,14	world 88:24	yeah 9:11 10:25	139:10,18
words 75:5	56:16 58:1	89:5	11:12 14:10,23	142:9 144:1
100:20 132:14	73:16 76:10,20	worn 74:12	15:4,12 16:13	145:4,6,14
134:3 177:18	76:24 77:17,25	111:21 119:8	18:2 19:14	147:18,24
178:13,15	85:18,20,24	119:11,13	21:2,24 22:4	148:3 150:23
188:17 206:24	90:23 92:2	120:20,23	23:4 24:13,25	151:17 153:12
210:18,25	98:25 99:13	121:1 126:7,10	25:11,20 26:6	155:5,14,21,24
wore 126:3,18	119:21 125:12	130:1,12,24	26:12 27:25	155:25 156:21
126:18 127:12	125:14 127:21	131:3,6,12,18	28:2 29:12	158:16,18,21
			30:14,21 33:2	

158:24 159:11	45:7 69:18,20	134:16,17	197:15 198:1	1969 199:8
159:21 160:4	69:24 103:14	12 21:24 71:7	1961 108:11,12	1970-71 9:22
160:16 161:21	107:23,24	87:23 110:22	1962 83:10	1970s 16:4 73:17
161:22 164:17	133:5 138:18	136:8,18	1962-63 190:5	1970sand 200:6
165:6,17	145:16 152:16	139:19 160:13	1963 50:18,25	1971 137:2
167:18,20	176:7 177:7	162:8	52:15 89:22	1971-72 10:19
169:8,19 170:6	190:4,8 198:22	12:15 107:11	1963-64 51:10	1972 158:3
171:4 172:7,15	Zonolite/W.R	121 148:24	1963-64-65	1972-73 10:10
173:20 177:24	101:22	124 149:23	53:24	1975 158:7
178:12 179:1		12th 2:16	1964 26:24	1980 14:15
179:22 182:11	0	13 83:7 139:24	44:12 86:16	1980s 18:4
183:10,20	060 107:17	176:14	95:8 176:5	
184:13,16	1	13(a) 160:21	201:14	2
187:9 190:25	1 54:9 73:22	135 151:3	1965 107:25	2 1:24 5:2 44:12
193:9 194:19	121:11 129:25	14 72:16 116:22	1966 87:10	68:3,6 113:11
195:3,5 197:11	154:18 159:5	161:15,22	89:21 112:8,20	130:23 133:22
197:18 198:19	175:8 201:16	14.4 172:2,13	163:9 166:14	135:13,16,22
199:22 202:11	202:12 208:6	14.6 172:3,13	170:4 202:12	136:7,15,19
202:11,24	1-3 107:25	15 72:17	1967 114:11,23	139:16 140:3
203:22,24	1:15 107:11	16 71:4 176:14	115:9 117:8	150:4 159:24
206:15 208:24	10 21:22,24	17 149:3	171:9,25	170:8 172:6,13
210:23	29:24 84:16	1717 2:15	1968 10:16 11:2	203:19 204:4
year 9:20,23	86:6,7 87:18	1734 1:22	25:16 37:21	213:2
15:15 42:1	87:24 88:2	18 61:7 62:3,7	38:18 78:15	2/15/66 164:5,7
64:15 166:2,3	90:13 165:4,15	176:21	90:1 101:19	20 19:8,9 20:8
years 7:9,10	165:19 172:5,5	19 153:25	104:1,1 105:7	46:7 55:5
15:14 16:23	172:6 199:24	1914 200:13	105:13,21	92:14 102:4
19:8,9 20:8	10.2 84:12	1938 31:8	106:17,25	116:23 154:22
31:17 46:7	10.6 84:12	1940s 100:21	119:20 121:12	179:17 180:7
47:25 55:6	10.7 172:2,5,12	1956 112:24	121:16 122:23	181:18 182:9
83:3 84:13	172:16	162:17	123:13,19	194:22 208:17
86:3 92:15	100-or-so	1960 33:15	124:17 125:8	200 4:5 138:8
102:4 113:15	182:25	86:22	129:10 134:21	143:6
156:4 158:1,2	105 115:14,16	1960s 18:14	135:11 138:17	20006 2:17
183:7 184:3,12	117:21 118:25	19:11 20:16	141:25 144:8	2000s 7:11
184:19 186:1	106 120:7	25:6 39:23	148:19 149:3	2018 1:24 5:2
192:23 194:22	106.1 121:5	40:11 54:15,21	150:1 154:1	212:18 213:2
194:23 200:20	129:23	55:2,8,14,20	162:1,8,14	2020 212:24
yellow 100:14	11 159:12	56:24 98:4,10	178:23 179:17	21 81:6
Yep 114:21	171:25	98:17 158:12	180:8 181:18	210 4:6
yes-or-no 67:11	11.2 116:22	184:24 185:8	182:9 187:18	211 4:12 212:14
Yorker 152:5	110 6:2 92:24	185:13,24	199:8	23 139:19
162:7	179:8,12	186:14 187:18	1968-69 25:6	177:12
	11044 168:25	190:16 191:3	26:2 27:11	25 81:23 116:23
Z	170:13	191:13 192:5	37:16 38:13	154:18 208:15
Zonolite 44:19	119 92:24	192:20 197:6	39:3,7 129:7	26 212:24

26.1 84:12	104:1 105:7	119:25 126:15	88 114:5
27 171:9	110:16,20,21	126:24 127:2	
28 112:8,20	112:4,17,22	127:12 128:14	9
29 163:9 176:4	113:1,2,3,6,7,9	128:17 129:16	9 114:11 156:19
	117:18 136:3,8	129:18 158:12	157:8 171:5
3	136:10,11,20	67 83:15 187:18	9-11 108:12
3 68:24 71:25	139:21,25	68 9:25 10:12	9,150 174:19
133:19 142:14	154:23 155:3,6	83:15 105:20	9.5 84:12
153:10,18	164:11,14	106:16 121:13	9.6 172:2
155:13 156:16	165:4,15,17,18	187:18 199:10	9.8 84:12
160:8 172:12	165:24 170:5	68-'69 24:4	9:30 1:25
201:16 204:10	172:4,8 204:11	69 9:25 10:12,17	90 171:5
30 44:17 45:4	204:17 205:3	11:2,5 21:8	91 92:24
62:20 184:12	207:10,18,21	25:16 37:21	
31 45:24 150:1	208:5,14	38:18 78:16	
31st 3:5	5-19-66 170:22	83:23 84:11,13	
32 44:11,13,14	5.9 172:2	90:2 105:20	
44:16 45:19	50 6:24 99:5	106:16 129:10	
86:15	53 92:21	187:19 199:10	
33 84:1	56 50:20 92:21		
34 84:3,8	162:19	7	
345 2:7	59 50:21 92:21	7 138:17 141:25	
	112:24	144:8 148:19	
4	59101 3:6	155:25 168:16	
4 49:6 134:21	59624-0598 2:24	168:16 172:4	
135:11 137:10	598 2:23	7,000 174:19	
145:22,25	59901 2:8	7.2 116:23	
146:9 154:16		7.9 172:2	
156:19 164:4,6	6	7/25/66 166:23	
4:45 211:11	6 70:5 111:13	167:22	
40 90:4 208:7,17	148:7	70 92:22	
401 3:5	6,270 174:20	70s 10:8,24 15:4	
42 30:2,3,8	6,750 174:19	15:16,17 97:25	
92:21	6.4 172:3	98:2 158:7	
47 139:24	60 92:22 107:17	71 18:18	
	107:18,19	73 158:3	
5	158:22	770 3:5	
5 4:4 21:3,10,11	60-page 91:18	78 92:23	
21:13,15 22:3	60s 82:19	79 18:17	
22:6,8,21,23	62 87:2 112:24		
23:7,9,17,20	63 83:14 105:18	8	
68:3 69:18	64 52:15 83:14	8 156:9	
72:16 84:20	84:10 117:6	80 12:24 17:8	
85:15 86:7,18	158:12	208:17	
87:1,20 88:3	65 84:7,11,13	83 12:24 14:16	
89:22 90:1,13	66 30:2,3,7	85 33:2 163:3,8	
90:15 101:19		163:13	