

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

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| UNITED STATES OF AMERICA, |) | |
| |) | |
| Plaintiff, |) | |
| |) | |
| v. |) | Civil Action |
| |) | No. 99-CV-02496 (GK) |
| PHILIP MORRIS USA INC., |) | |
| f/k/a PHILIP MORRIS INC., <u>et al.</u> , |) | Next scheduled court appearance: |
| |) | Trial (ongoing) |
| Defendants. |) | |

WRITTEN DIRECT TESTIMONY

OF

MICHAEL L. WATKINS, Ph.D.

Submitted by the United States Pursuant to Order #471

1 **Q: Please state your name for the record.**

2 A: Michael Lee Watkins.

3 **Q: Is this the first time you have ever testified at trial in a smoking and health lawsuit?**

4 A: Yes.

5 **Q: Were you deposed in this case on May 8 and 9, 2002?**

6 A: Yes.

7 **Q: Is that the only time you have given testimony in a lawsuit related to smoking and**
8 **health?**

9 A: Yes.

10 **Q: I want to start today by taking the Court through your educational and employment**
11 **background. Please briefly summarize your educational background, beginning with**
12 **college.**

13 A: I attended college at James Madison University, and received a Bachelor of Science and
14 Physics in 1982. After that, I attended Auburn University and received a Master's degree in
15 Physics in 1985. From 1989-1992, I took courses at Virginia Commonwealth University while
16 working at Philip Morris. Then I received my Ph.D. from William & Mary in 1999 from the
17 applied science department with a specialty in non-destructive evaluation.

18 **Q: What is non-destructive evaluation?**

19 A: In general terms it's the study of the physics related to the interaction of materials and
20 structures to various energy forms, in order to investigate the structures in a material and gain
21 information about the structures in a material or a process.

22 **Q: Did your work in non-destructive evaluation focus on a particular area of study?**

23 A: Yes. My particular area focused on heat transfer and the processes associated with the

1 generation and transfer of heat.

2 **Q: Please briefly summarize your post-college employment that relates to your**
3 **educational training.**

4 A: I was a graduate teaching assistant and laboratory assistant in physics at Auburn
5 University. Subsequent to obtaining a Master's from Auburn, I worked at Red Stone Arsenal.
6 Red Stone Arsenal is a U.S. Army installation in Huntsville, Alabama. I was working with a
7 group called the Directed Energy Directorate. My primary involvement was studying the
8 dielectric or electrical insulation properties of materials. After I left Red Stone Arsenal, I taught
9 calculus and non-calculus based physics courses at Columbus College in Columbus, Georgia for
10 one academic year. Following that year, I worked as a contract employee at Philip Morris for
11 about six months and became a full Philip Morris employee at Philip Morris Incorporated in
12 Richmond, Virginia, in October of 1987.

13 **Q: Dr. Watkins, how long did you work at Philip Morris?**

14 A: About 15 years, until January 2002.

15 **Q: Please take the Court through the positions you held with Philip Morris, beginning**
16 **with your first position in October 1987.**

17 A: I believe it was called an associate scientist. They had different associate scientist levels
18 at that time, A and B. I don't recall which one I was. I was in a group called combustion physics
19 within the Research & Development Department. There was an effort to begin working on a
20 reduced harm product involving carbonation heat sources or carbon heat sources. I was brought
21 in to work on the thermal characterization of that combustion process. In the course of that work,
22 I also interfaced with some of the manufacturers of the prototype heat sources.

23 **Q: How long did you work as an associate scientist in that combustion physics group?**

1 A: Six months to a year. Then I was promoted to the next associate scientist level for a
2 couple of years. Somewhere in there I transferred into a new project and that was called Project
3 Beta. Beta later evolved into the Accord Project.

4 **Q: What was the nature of your work for Project Beta?**

5 A: Project Beta was essentially a project that was looking at using an electrical heat source
6 versus combusting heat source such as carbon to transfer heat and flavor from material in
7 tobacco. Other than the heat source being different, some of the heat transfer issues and
8 characterization of that heat transfer were similar, and required the same types of skill and
9 understanding of those processes.

10 **Q: How long did you work on Project Beta?**

11 A: I started in the 1989 or 1990 time frame. I worked on the essence of that project until I
12 left to go back to the College of William & Mary to pursue my Ph.D. Along the way the project
13 name was changed to Accord.

14 **Q: In the course of the approximately seven years that you worked on the Accord
15 project, did the substance of your working responsibilities change?**

16 A: My responsibility level changed. I was promoted a couple of times by the time I left the
17 Accord project. I assumed more responsibility of training employees and supervising employees.
18 I also assumed more responsibility in the terms of responsibility for developing laboratories,
19 identifying and purchasing equipment, working with outside vendors, developing experimental
20 designs, writing reports, and providing presentations to management.

21 **Q: Can you describe further the nature of your work designing experiments for Philip
22 Morris during that time period?**

23 A: Yes. As an example, one of the things we wanted to understand was how to optimize the

1 heat transfer. You have limited energy in the battery and you want to optimize the heat transfer
2 from the heater to generate the aerosol, so that the smoke would be acceptable to the smokers.
3 So we looked at variations in the geometry of the heater to study that heat transfer. We would
4 use various techniques. One technique would be to use a laser to scatter or intercept laser light as
5 the aerosol evolved. That would give you some measure of the rate that the aerosol was evolving
6 as well as the volume of the aerosol. So we would look at some of the design parameters in that
7 way. We also wanted to quantify certain characteristics of the heater in the tobacco, what
8 temperatures were involved, what were the temperature distributions. Those were examples of
9 the experiments we would do.

10 **Q: Did you also give scientific presentations describing your research and work while**
11 **working on the Accord project?**

12 A: Yes.

13 **Q: To whom did you deliver such presentations?**

14 A: I gave presentations at the team level for general technical discussion and information
15 sharing. I had given presentations to vendors. Sanyo Electronics was an example. We were
16 working with them to develop the lighter electronic components. I also gave presentations to the
17 business team that had been developed for the Accord product. I gave presentations to the
18 Scientific Advisory Board for the Accord program as well.

19 **Q: You testified that in 1999 you obtained your Ph.D. from William & Mary. Were**
20 **you working at Philip Morris during the period of time that you pursued your Ph.D.?**

21 A: I was not, but remained a Philip Morris employee. I returned to Philip Morris after
22 receiving my Ph.D. Upon my return I was assigned to a group headed by Mr. Tim Beene. It was
23 a group that was looking into new technology and assessing new technologies for the company

1 and for potential licenses.

2 **Q: And how long did you work in that group?**

3 A: Approximately a year and a half. After that I moved into the Banded Paper Program.

4 That occurred in roughly January of 2000, and I was moved to that program to be a project leader
5 for the Non-Destructive Evaluation Technology and Methods team.

6 **Q: How many people worked under you in the Non-Destructive Evaluation project
7 within the Banded Paper Program?**

8 A: I only had two when I first started. Part of my job was to develop a team to achieve our
9 business goals.

10 **Q: What were the business goals of the Banded Paper Program?**

11 A: The business goal of the Banded Paper Project was to develop and implement a reduced
12 ignition propensity cigarette utilizing the banded paper technology that Philip Morris had
13 developed.

14 **Q: What is “banded paper?”**

15 A: “Banded paper” to most of the industry is a generic term. It refers to applying some band
16 of cellulosic material or paper material that typically has less air permeability for purposes of
17 controlling air flow, on top of a conventional tobacco paper. Philip Morris had developed a
18 specific technique to achieve that.

19 **Q: Was Philip Morris’s banded paper technology patented?**

20 A: Yes.

21 **Q: Was Philip Morris seeking to license its patented banded paper technology to other
22 tobacco companies?**

23 A: Yes.

1 **Q: What is the intended effect of banded paper on a burning cigarette?**

2 A: The major effect, by design, is that the coal is starved of oxygen. The coal shrinks and it
3 reduces the amount of radiated flux, or energy, that is available to be transmitted to the materials
4 that the cigarette might come in contact with. Along with that, the combustion process changes
5 and there are many results from that.

6 **Q: What do you mean by “reduced ignition propensity”?**

7 A: By that I mean a cigarette that is less likely to ignite or start a fire if it comes into contact
8 with an ignitable material.

9 **Q: Whom did you report to when you became a project leader in the Banded Paper**
10 **Program?**

11 A: I was actually assigned to the project before there was a director. I was assigned to report
12 to Mr. Tyrone Murray.

13 **Q: Is Mr. Murray a scientist?**

14 A: No. He is an engineer.

15 **Q: Does he have any scientific training, to your knowledge?**

16 A: Not that I’m aware of. I know he trained as an engineer.

17 **Q: How many project leaders were there within the Banded Paper Program?**

18 A: When I first started, I believe there were three – myself, Mr. Tony Phan and Mr. Michael
19 Hawkins.

20 **Q: What were you doing as project leader for NDE technology?**

21 A: My initial charge was to develop the infrastructure in order to assess the banded paper
22 products and develop, if possible, a method that Philip Morris would be able to look at the
23 cigarette as it’s combusting and make some assessment of its propensity to ignite soft

1 furnishings.

2 **Q: How long did it take to develop the infrastructure?**

3 A: It took us about a year to get the laboratory in place and to get people on board and
4 trained.

5 **Q: After that period, what was your responsibility as project leader?**

6 A: Well, actually before the laboratory was finished in October of 2000, Philip Morris had
7 launched PaperSelect on Merit, PaperSelect being the name for the banded paper. I believe that
8 product was launched in September. Quickly after that, my primary focus was to assess and
9 determine the mechanism related to a phenomenon that had been noticed or reported by
10 consumers called coal drop off.

11 **Q: What is coal drop off?**

12 A: It's when the coal or the burning end of the cigarette dislodges from the unburned tobacco
13 and falls off.

14 **Q: Is coal drop off different from the cigarette ash that people tap off cigarettes?**

15 A: It is.

16 **Q: Can you describe the difference?**

17 A: Ash is what is left from the tobacco and paper after it is finished burning. It is lightweight
18 and flaky and cool. The coal is actively burning and hot.

19 A more technical description would be that the material in the ash is essentially depleted
20 of organics, so you have just the mineral components that are left. Since you don't have any
21 organics, it's not undergoing combustion, so typically ash will not provide any heat to anything
22 as it falls off.

23 Coal drop off, as we discovered in banded paper, is actually where the strands of the

1 tobacco rod that attach the burning coal to the tobacco rod pull out away from the rod. So you
2 literally have burning material that falls off.

3 **Q: You stated that banded paper was a generic term within the industry. When**
4 **Banded Paper Merit was introduced, were there other cigarettes on the market from Philip**
5 **Morris or other tobacco companies that used banded paper?**

6 A: I'm not aware of any that were on the market.

7 **Q: At the time of your deposition in May 2002, had Philip Morris utilized the banded**
8 **paper on any other brands of its cigarettes?**

9 A: I'm not aware that they had.

10 **Q: I will generally refer in my questioning to the banded paper Merit product that was**
11 **introduced as the Banded Paper Merit, and to coal drop off as CDO. Was CDO a**
12 **phenomenon unique to the Banded Paper Merit?**

13 A: No, coal drop off occurs in all cigarettes.

14 **Q: Why then were you assigned to look at CDO for the Banded Paper Merit?**

15 A: Because smokers had reported this occurrence at a higher frequency for Banded Paper
16 Merit cigarettes. People within Philip Morris had also noticed this and made comments about it.

17 **Q: What was Philip Morris's concern about CDO for the Banded Paper Merit?**

18 A: The concern was that the rates reported by consumers were much higher and that because
19 it was higher, there was a possibility that people would be caught off guard.

20 **Q: What do you mean by "caught off guard"?**

21 A: The idea was that consumers are used to a certain frequency of coals being dislodged and
22 dealing with that potential hazard, but if it occurred more frequently, it would surprise them.

23 **Q: Is CDO potentially dangerous?**

1 A: Based on what smokers had told me, I had the impression that it was dangerous. I had
2 a discussion with Ms. Cindy Hayes, who is a long time researcher with Philip Morris. She had
3 participated in a study that was done with Philip Morris employees to look at implementing
4 design changes to improve the cigarettes. She did make the statement that she felt they were
5 dangerous. In one instance, she had been driving her car and a coal blew off because she had the
6 window partially down and blew in her backseat. She pulled off the road because she was
7 concerned or perceived that it might be a danger and didn't want it laying back there. It's not
8 unreasonable to assume that it could be dangerous. Whether it is in terms of its ignition
9 propensity, I don't know.

10 **Q: Did you receive the information about these rates and contents of consumer**
11 **complaints about coal drop off directly?**

12 A: Yes. At one point, at least, that information was provided to the project leaders that were
13 working on that problem.

14 **Q: I have provided you with U.S. Exs. 20,538 and 23,006. Have you seen these**
15 **documents before?**

16 A: I have seen the first. As to the second, the types of comments in the document look
17 familiar. I can't recall if I have seen this specific document.

18 **Q: The first document, U.S. Ex. 20,538, a December 4, 2000 email to several people,**
19 **including you, from William Warwick, titled "Merit Banded Paper Update 12/4/2000"**
20 **states that the number of complaints for CDO for Banded Paper Merit were, in December**
21 **2000, "over 28 times normal levels" and that "86% of consumers are reporting the drop**
22 **offs as frequent events." Do you see that?**

23 A: Yes.

1 **Q: The second document, U.S. Ex. 23,006, is titled “Consumer Description.” What is**
2 **that document?**

3 A: It contains reports of the substance of complaints about Merit Banded Paper, especially
4 CDO.

5 **Q: Are these two exhibits the types of documentation of CDO for the Banded Paper**
6 **Merit that you received after its market introduction in September 2000?**

7 A: Yes.

8 **Q: Did Philip Morris continue to sell non-banded Merit cigarettes after it began**
9 **marketing the Banded Paper Merit?**

10 A: From my understanding, the way in which they introduced the product was, at the
11 manufacturing end, to start producing the banded product so at any given time there were both
12 products in the market until you saturated the market. But I’m not aware that after starting
13 production of Merit PaperSelect cigarettes that they switched back.

14 **Q: Do you know when the transition to the Banded Paper Merit was complete?**

15 A: My impression from seeing market penetration charts is that it took many months after
16 the introduction to saturate the market.

17 **Q: At that period of time when you were assigned to investigate CDO in Banded Paper**
18 **Merit, what else, if anything, were you working on beside developing an alternative ignition**
19 **propensity test?**

20 A: Those were my main day-to-day responsibilities.

21 **Q: How was your time allocated between your two main responsibilities?**

22 A: It was made pretty clear that the coal drop off was the priority. As it turned out, from a
23 technical standpoint, the types of investigations that were to be conducted overlapped somewhat

1 in addressing both issues.

2 **Q: How was it communicated that it was a priority?**

3 A: The first thing that I recall happening was that Mr. Murray mentioned that reports from
4 consumers had gone up substantially. Shortly after that, I was asked by Dr. Cliff Lilly to
5 determine how we might identify the mechanisms.

6 **Q: Who is Dr. Lilly?**

7 A: At one time he was the Philip Morris USA Research Fellow. He may have been the Vice
8 President of Technology during this period.

9 **Q: What did you do in response to that request?**

10 A: We spent a couple to four weeks investigating coal drop off of the Merit with banded
11 paper, doing some simple experiments.

12 **Q: Did you communicate your results of these initial experiments?**

13 A: Yes. On, I believe it was October 9, 2000, I gave a special presentation to a group,
14 which included some senior management, to describe what we thought we needed to do to
15 characterize coal drop off and understand the underlying mechanism involved.

16 **Q: What made you understand that the CDO issue was a priority?**

17 A: From my discussions with Mr. Murray, as well as Mr. Urs Nyffeler and Dr. Cliff Lilly.
18 They were in the October 9th meeting.

19 **Q: Who is Mr. Nyffeler?**

20 A: At that time I believe Mr. Nyffeler was the Vice President of R&D.

21 **Q: What was the substance of your presentation about?**

22 A: There were a couple of issues. One was the coal drop off but another item had been
23 noticed and this was a phenomenon called flare-up. Flare-up typically occurred where, if as was

1 the case with banded paper, a cigarette extinguished and someone attempted to relight it. There
2 would be a flaring up, a flame actually coming off the end of the cigarette. So there was some
3 interest in that.

4 What I did was describe the techniques that we would use to investigate those. I outlined
5 that we would look at the thermal variation of the coal as it moved toward the band and through
6 the band. We would use a technique called “intrapuff” that allowed you to look at real time data
7 related to the chemistry that was being evolved. We would look at that chemistry if you puffed
8 outside of a band, and in and around the band. We also had started doing some experiments with
9 Magnetic Resonance Imaging, or MRI. This technique allowed us to investigate the volatile
10 evolution. We presented preliminary MRI data at that meeting. We also discussed ideas for
11 inducing CDO in the lab.

12 **Q: What was the preliminary data that you presented?**

13 A: Essentially what looked to be occurring at that time was that as the coal approached the
14 band, the oxygen available to the back of the coal, which fuels the tobacco and allows it to
15 combust, is cut off. So the coal begins to starve. As it starves, the temperature goes down. The
16 gases that attempt to escape through the paper tend to condense on the paper. So you have
17 volatiles that are condensing in and around the band that are combustible in nature. The coal
18 starts to elongate or tunnel. I believe Dr. Lilly referred to it as “tunneling,” which was the first
19 time that I heard that term but it’s very accurate, it starts to tunnel under and through the band. In
20 this way, the change in the shape of the coal, and the build-up of volatiles that are available upon
21 relighting to cause a flame, are related.

22 **Q: What plan as to how you should proceed, if any, came out of that meeting?**

23 A: What came out of that meeting was that we would continue to develop the techniques.

1 This was a preliminary investigation. We would continue to develop the techniques and do more
2 testing to identify whether what we observed was related to what the consumers were reporting.
3 Because at this point they were relatively disconnected, other than examples we had seen people
4 lighting a cigarette at a table or something.

5 **Q: Who else in the Banded Paper Program was investigating CDO besides your NDE**
6 **group?**

7 A: In the November 2000 time frame, Mr. Phan was also assigned to start doing tests to try
8 to measure the differences between cigarettes with the Merit PaperSelect bands and cigarettes
9 without them.

10 There was also an effort to conduct a cost-benefit or risk analysis associated with the coal
11 drop off in the marketplace.

12 **Q: How did your CDO investigation differ from the work being done on CDO by Mr.**
13 **Phan?**

14 A: It was different in two ways. One, he was using a methodology that had been developed
15 in the late 50's, early 60's and that Philip Morris had abandoned about six years before because
16 that method was not particularly useful in discerning differences in CDO rates of cigarettes.

17 **Q: Before we get to the second way in which Mr. Phan's approach differed from yours,**
18 **can you briefly describe the methodology being used by Mr. Phan?**

19 A: The methodology involved lining up a series of cigarettes in a smoking machine. They
20 were lit and then they were puffed at some frequency. At a different frequency they were raised
21 in the smoking machine with a cam lift, then were allowed to drop and hit a strike plate. So it
22 was sometimes referred to as a "drop test" or "impact test." As they came down upon the plate,
23 the coals would sometimes drop off. The technician would take note of how many coals dropped

1 off per how many cigarettes were smoked.

2 **Q: Dr. Watkins, I have provided U.S. Ex. 45,547, a manual titled “Determination of**
3 **Coal Removal” and dated July 1997. Have you ever seen this document before?**

4 A: Yes.

5 **Q: What is it?**

6 A: It is the manual that describes how to operate the impact test machine.

7 **Q: Looking at page 5 of 8, Bates number ending in 1285. What does the bolded box**
8 **labeled “CAUTION” say?**

9 A: It states: “Caution: Avoid contact with hot coals. During testing, coals that fall off
10 usually land in the ashtray beneath the cigarettes; however, there are instances where coals land
11 outside the ashtray.”

12 **Q: How did you learn that the method Mr. Phan was using had been abandoned**
13 **because it was not useful in discerning differences in CDO between cigarettes?**

14 A: That’s what I was told.

15 **Q: By whom?**

16 A: I think I first heard that from Mr. Hector Alonso and it was repeated on different
17 occasions by Ms. Judy Smith. I believe that at one time she was the manager of the product
18 testing laboratory that was using that method. She may have been there when they stopped using
19 it.

20 **Q: Who is Hector Alonso?**

21 A: Hector Alonso was Ty Murray’s boss.

22 **Q: Was it explained to you why the methodology that Mr. Phan began to use in late**
23 **2000 was not considered effective?**

1 A: Yes. The belief by those that had used it and been involved with trying to interpret the
2 data was that there was a lot of “noise.” In other words, if you tried to replicate results, it was
3 difficult to do. There also was a lack of correlation with design parameters that people thought
4 would cause a difference in the coal drop off frequency. Part of my charge was to evaluate that
5 methodology.

6 They started using it and then concurrently we were evaluating how appropriate it was
7 relative to what consumers were experiencing. The best analogy that I can think of is the bumper
8 test for cars. They typically test bumpers on cars at five miles an hour because at five miles an
9 hour, you can see differences in the performance of those bumpers. If you took cars and you ran
10 the bumpers into walls at 50 miles an hour, all bumpers would fail.

11 The results from the test Mr. Phan was using looked something like that. One, you got
12 very high coal drop off rates, typically on the order of 30 to 50 percent, which we knew was not
13 representative of complaints or consumer data. And two, there were very small differences in
14 designs of cigarettes in the performance in terms of coal drop off frequency.

15 **Q: Do you know whether the problems that you described with the methodology were**
16 **known to or communicated to Mr. Phan?**

17 A: Yes. I believe he was aware of that. I mentioned it to him on several occasions. In fact, I
18 had recommended also on many occasions a technique that might have reduced the amount of
19 noise associated with that measurement. That would be to take some standard or reference
20 cigarette and always include that in the group that was being tested.

21 That’s a standard technique in many scientific experiments in which you have an internal
22 standard. I was never successful in getting him to adopt that methodology.

23 **Q: When you explained your concerns with the methodology to Mr. Phan, what was his**

1 **response?**

2 A: His response was that he had been told that he had to perform this test.

3 **Q: Did he tell you who had told him to perform the test?**

4 A: Mr. Murray.

5 **Q: Did Mr. Phan ever express an opinion about the validity of the test to you?**

6 A: At times he was concerned. He was also aware of the concerns of people that had used it
7 in the past.

8 **Q: Do you know whether those concerns were communicated to Mr. Murray?**

9 A: Yes. On a few occasions we had meetings, the three of us, and Mr. Phan would indicate
10 the problems that he had with it.

11 **Q: What was the second aspect in which Mr. Phan's work on CDO differed from
12 yours?**

13 A: His experimental designs tended to be parametric in nature. In other words, looking at
14 variations in design and measuring CDO for different designs using the drop test. My team's
15 investigations were mechanistic in nature. What we wanted to do first was establish that CDO
16 was a real phenomenon and understand the underlying mechanism.

17 **Q: Did the drop-test research of Mr. Phan's group contribute to your group's NDE
18 research on CDO?**

19 A: Their visual observations, the way the coals fell off of the marketed Merit with banded
20 paper during the drop test were consistent with observations in the NDE group. The weakness of
21 doing a parametric design for mechanistic studies is that you can end up with a performance of a
22 combination of parameters for design but if you don't understand the underlying dynamics, you
23 can actually introduce an unintended result. I thought I was brought onto the project was to

1 insure that Philip Morris minimized the possibility of having an unintended consequence by
2 doing careful science.

3 **Q: What was your understanding that you were brought on the project for that**
4 **purpose based on?**

5 A: I based that understanding on discussions that I had with Urs Nyffeler and Dr. Cliff Lilly
6 in late December of 1999 early January of 2000.

7 **Q: During this time period, was anyone outside of Philip Morris aware that this CDO**
8 **investigation was going on, to your knowledge?**

9 A: I don't recall. We did contract with Dr. David Axelson who had done the MRI work. He
10 was under contract with us. So technically, he was outside the company.

11 **Q: When Mr. Phan conducted his tests using the drop test or impact test that you**
12 **described, did you learn what the results were?**

13 A: Yes.

14 **Q: How?**

15 A: It would typically be in discussions or presentations.

16 **Q: What were the results?**

17 A: Generally he did not see a big difference in CDO between the PaperSelect and the Merit
18 that was in the market before the PaperSelect. I was told by Mr. Phan it was not a significant
19 difference.

20 **Q: Did anyone share the data with you?**

21 A: Yes. I had seen the plots at various times.

22 **Q: What was your interpretation of the data?**

23 A: There was different data over different periods of time, but my feeling, and it was

1 supported by comments from other researchers, was that it was difficult to say there was any
2 difference. It was consistent with previous assessments of that methodology and the usefulness
3 of it.

4 **Q: What was your belief, if any, as to the reason why Mr. Phan's testing did not show**
5 **any differences in CDO between the Merit with banded paper and the Merit without?**

6 A: It's essentially a sampling issue. The best description is something like this: the bands
7 occur on the cigarette at particular locations. So if there is a higher propensity for coals to drop
8 off in the vicinity of a band and the cigarette is burning down and you cause the impact to occur a
9 random points on the cigarette rod, you are less likely to cause the impact at a point where the
10 cigarette is more susceptible to CDO. In regions where you have no band, the cigarette is
11 probably going to look like a cigarette with no bands, if you look at a bunch of statistics.

12 So in effect the drop test dilutes the results of the propensity to have a coal drop off in a
13 band or around a band.

14 **Q: So while Mr. Phan was using the drop test methodology, what was the track on**
15 **which your NDE group was proceeding?**

16 A: We were continuing to investigate using the MRI work to characterize the volatile
17 evolution. We were doing thermography to characterize the heat generation within the cigarette.
18 We were using the intrapuff technique to look at the differences in chemistry in and around the
19 band and outside of the band. The reason for that is that is indicative of the combustion process.
20 We were also using a relatively low frequency and low excitation or low force technique to
21 mechanically stimulate the cigarette at specific locations, as I mentioned around the band and
22 outside of the bands.

23 **Q: Why were you using multiple techniques to investigate the mechanism responsible**

1 **for CDO in the Banded Paper Merit?**

2 A: The reason we were using all of these different techniques is because they all provided
3 data that independently assessed mechanisms relevant to CDO. So if we had seen anything in
4 any of these techniques that would have been at odds with some of the others, it would have been
5 a clue that we didn't quite understand what was going on.

6 **Q: How did these methodologies you were experimenting with differ from Mr. Phan's**
7 **work?**

8 A: The techniques we employed to test the mechanistic information were specifically
9 designed to evaluate the strength of the coal adhesion to the cigarette rod in and around the band,
10 and in a region where there was no band, of the same cigarette.

11 **Q: What results did you obtain with the thermal imaging tests that you were running?**

12 A: The thermal imaging showed us the general shape of the coal as it burned down the
13 length of the cigarette. It also provided us with a measure of the flux, which is the measure of
14 the energy that is released into the environment by radiation from the cigarette coal. The specific
15 data indicated that indeed the coal flux was modulated as you went through the band per the
16 design, so that you would provide less energy to any material it would come into contact with. It
17 also gave us a measure of the rate at which the coal burned down the length of the rod.

18 **Q: How if at all was that information relevant to the CDO issue?**

19 A: What it was consistent with is that as the coal approached the band, it would slow down
20 and as it got into the band, it would tunnel. The result of the tunneling was that as it reached
21 through to the back of the band, you would tend to get an acceleration of the coal. So if the coal
22 did not extinguish in the band, it would actually be rapidly regenerated. That rate of regeneration
23 would involve a lot of the supporting material. What you tended to get was an elongation of the

1 coal that was different from what you would typically see outside of a band. So you ended up
2 with an elongated coal being supported by a surface area. Just the weight of that coal and the fact
3 that you had more material being involved was consistent with the coal having a tendency to drop
4 off at that point in the combustion.

5 **Q: What did you learn from the MRI technique?**

6 A: The MRI provided real-time data similar to the thermography. It provided a three-
7 dimensional set of data that showed the generation of the volatile materials associated with flare-
8 up. That data was consistent with the combustion activity that we saw.

9 **Q: What was the intrapuff work you did as it related to CDO?**

10 A: The intrapuff work was developed by Mr. Jim Lyons-Hart, a scientist working for me.
11 What it used was a Fourier transform infrared spectroscopy, or FTIR, to analyze the smoke as the
12 smoke is being produced.

13 Most analysis typically done within the industry involves capturing some smoke or
14 integrating it on some filter pad or something like that, then analyzing the net results. This
15 technique is particularly advantageous because it allows you to look at differences in different
16 parts of the cigarette during each puff.

17 **Q: How long had Mr. Lyons-Hart worked for Philip Morris?**

18 A: I believe 22 years.

19 **Q: What were the results of the intrapuff test with respect to the CDO investigation?**

20 A: The results that he found that related to the composition and the chemistry of the smoke
21 were consistent with the thermal data that we had indicating the type of combustion going on as
22 well as the MRI.

23 **Q: When did you first communicate some of the results of these different experimental**

1 **approaches to anybody?**

2 A: I believe, I'm not sure which meeting, either the meeting on October 9th or October 25th.
3 Between those two different meetings it was presented to the audience that was there.

4 **Q: What was the October 25, 2000 meeting?**

5 A: That was a follow up. That was a presentation to the R&D senior staff, basically Mr.
6 Nyffeler's direct reports. Somewhere in there, there was a change because, I don't remember the
7 date, Jack Nelson was involved but he went to Philip Morris International. Typically, Dr. Cliff
8 Lilly, Dr. Dick Cox, usually if the project leaders were presenting as I was presenting, some of
9 the other directors might be in there. The actual audience varied a little bit. Mr. Murray was
10 in that meeting. In fact, I would have reviewed my presentation with him before presenting it.

11 **Q: Was there anyone else from Philip Morris management in Richmond, other than**
12 **Mr. Nyffeler, who kept track of the work that you were doing on CDO?**

13 A: Yes. Mr. Hector Alonso, Ty Murray's boss and also Dr. Cliff Lilly. Those were the
14 people I probably communicated with most frequently regarding our research activities.

15 **Q: How did you communicate the work of the Banded Paper Program with Mr. Alonso**
16 **and Dr. Lilly?**

17 A: It was somewhat informal. I had met on several occasions with particularly Mr. Alonso
18 and Dr. Lilly at times. Dr. Lilly had always been someone who enjoyed having technical
19 discussions. I would come by and just let him know how things were going. He seemed to enjoy
20 that.

21 **Q: At that October 25, 2000 meeting, what information did you present about the CDO**
22 **investigation?**

23 A: By that meeting I would have presented the intrapuff data, MRI data, and the available

1 thermal data at that particular time.

2 **Q: When was the first time that you expressed that CDO posed a potential safety**
3 **concern with respect to the Banded Paper Merit cigarettes?**

4 A: I think the first time would have been in or about October of 2000 when I gave the first
5 presentations where we were going to investigate the mechanism.

6 **Q: What was your perception of the reaction to your presentation about CDO at the**
7 **October 25 meeting?**

8 A: With the added data, there was significant concern that an attempt to reduce the risk of
9 ignition propensity might actually have resulted in creating a higher risk. In fact, Mr. Murray
10 specifically said that at one point. That that was a concern he had.

11 **Q: What at this point did your research results indicate could likely be a mechanism**
12 **responsible for increased CDO in the Banded Paper Merit?**

13 A: Our information was consistent with the view that the bands, which are intended to
14 contribute to the reduced ignition propensity, could also contribute to CDO.

15 **Q: Did you continue to do work related to CDO after the October 25th meeting?**

16 A: Yes.

17 **Q: When did you start utilizing the fourth experimental methodology you identified as**
18 **part of your CDO investigation, the low level excitation?**

19 A: I believe it was in early 2001.

20 **Q: Please describe the low level excitation procedure.**

21 A: Yes. We used a unit, called an Eriez shaker, that was “off the shelf” that was essentially
22 an industrial vibration unit that was designed for various applications. We created a fixture to
23 hold cigarettes in the same manner that they were held in the drop test. This allowed the

1 cigarette to be mechanically shaken at various locations either inside or outside of a band. That's
2 the way we investigated the coal and the tendency of the coal to fall off at different regions.

3 **Q: What do you mean when you say the excitation was "low level"?**

4 A: Low level was a qualitative term, in that the vibration was low relative to the force
5 imparted by the drop test.

6 **Q: Did the NDE group test any cigarettes in this low level excitation procedure other
7 than the Banded Paper Merit?**

8 A: Yes. We also did tests with the Merit cigarette that was in the market prior to the banded
9 cigarette.

10 **Q: Did you personally conduct the testing on the Eriez low level shaker machine?**

11 A: No.

12 **Q: Who did actually perform those tests?**

13 A: Danielle Crawford and Carri Hehl.

14 **Q: Were they the ones most familiar with the actual tests run?**

15 A: Yes.

16 **Q: They reported the results to you?**

17 A: Yes.

18 **Q: What were the results from that work?**

19 A: Over several months of work using this excitation, we eventually found out that there was
20 roughly a seven times greater likelihood that the coal of the Merit with banded paper would drop
21 off in and about the band than the rate of coal drop off with the non-banded Merit.

22 **Q: Did they run a variety of tests using different cigarettes and different excitation
23 procedures?**

1 A: Yes.

2 **Q: Were there instances in which they reported to you that the outcomes of particular**
3 **tests were scientifically suspect?**

4 A: Yes.

5 **Q: Why were some of the test runs unreliable?**

6 A: We had some issues with the vibration unit. It wasn't designed to be used at such a high
7 cycle, so one of the things we were doing was trying to get a stable platform, which we
8 eventually did.

9 **Q: Throughout this time, did the consumer complaints about CDO with the Banded**
10 **Paper Merit continue?**

11 A: Yes, although the number of people calling in and complaining specifically about the coal
12 drop off started to be significantly reduced toward the very end of the year and the beginning in
13 the spring.

14 **Q: How if at all did the drop in call-in complaints affect the attitude among the heads**
15 **of the Banded Paper Program toward the CDO issue?**

16 A: The interest in coal drop off as a priority of the Banded Paper Program had abated
17 somewhat because of the inconclusive results from the drop tests and the fall in call-in
18 complaints.

19 **Q: Had the design of the Banded Paper Merit changed at all from the time of its**
20 **market introduction in September 2000?**

21 A: I am not aware of any product changes that were made.

22 **Q: Would you have been aware of any design changes to Banded Paper Merit if they**
23 **were made?**

1 A: I think I would have been because I was on the Design Review Board, which was a board
2 set up to specifically review changes and the rationale for any changes in the design of a product
3 would go to the market. There were some discussions about changes but I don't know whether
4 they were ever implemented.

5 During that period of time I know that one change that occurred was that the pamphlet
6 that came with the product had been stopped. I don't know exactly when.

7 **Q: What do you mean by the "pamphlet" had been stopped?**

8 A: It was a pamphlet that described the intent of the bands and sort of gave a description, in
9 layman's terms, of why the product change had been made. It was within the packing.
10 Eventually that was no longer included.

11 **Q: What information was provided in the package pamphlet, or onsert?**

12 A: The thing that sticks out in my mind was the marketing description that the bands act like
13 "speed bumps" so that when the coal goes through, they slow down. And that the intent was to
14 reduce the ignition propensity relative to certain fabrics that had been tested. So it was a means
15 to inform the consumers as to the purpose of adding these bands.

16 I believe it also stated that smokers should handle the cigarettes the same as they would
17 handle cigarettes without bands.

18 **Q: I have shown you U.S. Ex. 77,910 for review. Is this the material that you just**
19 **described that was originally provided with the Banded Paper Merit?**

20 A: Yes.

21 **Q: During the time that Philip Morris was providing the onsert with the Banded Paper**
22 **Merit, was the content of that onsert changed?**

23 A: I don't know.

1 **Q: Did you continue your investigation into the CDO problem into the Spring of 2001?**

2 A: Yes.

3 **Q: Can you describe the work that you were doing?**

4 A: We were again trying to collect more data to support our preliminary data and we were
5 also trying to fix one of the machines that had broken down and develop a stable platform.

6 **Q: Were you doing any other work to measure CDO?**

7 A: We were doing the work with the thermal imaging, using the other techniques that we
8 had. We were working fairly hard to design experiments that would parallel each other so that
9 we could fit the data together and the pieces of the puzzle.

10 **Q: Did Philip Morris undertake any work to improve the way of measuring CDO?**

11 A: Yes. Since we had successfully been able to replicate coal drop off at a banded region in
12 the laboratory for the first time, my team initiated an effort, I believe it was March of 2001, to
13 look at the ergonomics of how consumers handled the cigarettes. Because of the frequency of
14 events, we wanted to develop a technique that would replicate that mechanically so that we could
15 do more experiments and understand some of the dynamic forces involved. So that was different
16 from the old drop test.

17 There was no validation or proven relevance of the old technique to what was going on
18 out in the field. It was important for us to understand what the consumers were experiencing and
19 why.

20 **Q: What did the work to develop techniques to examine the ergonomics and dynamics
21 of consumer use of cigarettes involve?**

22 A: We contracted with an outside company and also worked quite closely with a
23 subcontractor of theirs who was a specialist in vibration measurement and analysis. His name

1 was Mr. Jim Parr. He had a lot of experience, including working with Philip Morris, and worked
2 for Seeward Marine, which does a lot of work with the military.

3 The overall scope was to first try to understand the dynamics of people handling
4 cigarettes. So several measurements were made concerning people tapping cigarettes and the
5 accelerations involved in that. We also put together a data acquisition system, hardware and
6 software, to monitor people's motions and actually developed a special assembly that people
7 would use. We got volunteers to actually handle cigarettes just to get a baseline on the types of
8 accelerations that people generate when they're handling a cigarette. I considered this a priority
9 over continuing to invest time and effort in Eriez shaker units.

10 **Q: How did you make those measurements in the ergonomic studies?**

11 A: They are studies where we applied sensors and accelerometers to smokers' hands and
12 arms to try and find out what types of forces they generated in the smoking process.

13 **Q: Did you have to get approval to conduct the testing that you thought was the best
14 way to approach the coal drop off problem?**

15 A: No. I did have to get approval to initiate the contract and the money in place. After
16 providing a summary of the intent of the work, that was reviewed by management.

17 **Q: Was there any other work undertaken to obtain new CDO testing capabilities?**

18 A: Yes. In the fall of 2001 there was a decision made to pursue using up-to-date hardware
19 and software to perform the drop test. That was another effort.

20 **Q: What was the impact of the decision to pursue an updated version of the drop test
21 on your investigation?**

22 A: It took resources from our ability to develop a smoker-based test.

23 **Q: You indicated earlier that in October 2000 you made a presentation to the Research**

1 **and Development senior staff. Did you continue to make presentations as the CDO**
2 **investigation progressed?**

3 A: Yes, frequently. They were typically on the order of once every six to eight weeks.

4 **Q: What were the presentations about?**

5 A: They would typically cover various phases of the project that we were involved in.

6 **Q: You earlier testified that, using one of the investigations techniques – the shaker**
7 **machine – people in the NDE group got results showing a 7:1 ratio of CDO around the**
8 **bands of the Merit Banded Paper versus the non-banded Merit. Can you explain that**
9 **further?**

10 A: On two tests, two different Eriez shakers, resulted in a 7:1 ratio in the frequency of CDO
11 as the coal burned into the band, compared to the frequency of CDO in the non-banded Merit.

12 **Q: Did your group present the results of your research?**

13 A: Yes. My group presented that at a directorate meeting about the middle of July of 2001.
14 We presented all the different types of techniques and data that went into identifying and really
15 showing, I felt, that there was a causal relationship between the coal dynamics resulting from
16 using a band and the tendency of the coal to drop off.

17 **Q: Who was at the directorate meeting in July 2001?**

18 A: The whole staff that reported to either Mr. Murray or his project leaders. So Mr. Phan
19 was there. In fact, I sat beside Mr. Murray and Mr. Phan was either on one side or the other. I'm
20 not sure whether Michael Hawkins was there or not. But all the people involved in the
21 development and assessment of the product were there, the product developers.

22 **Q: Who presented the results from the shaker testing?**

23 A: Danielle Crawford and Carri Hehl.

1 **Q: What did you do after the presentation on CDO at the directorate meeting?**

2 A: The next day I had a senior staff meeting. I presented essentially the same information at
3 that meeting. I felt comfortable at that time that the data was fairly conclusive that there was a
4 mechanistic reason for the coals to fall off.

5 **Q: Was there still information about the problem that you did not yet have?**

6 A: The thing that we didn't have at that time was a relationship between those laboratory
7 tests and understanding how that related to what was going on with consumers. In other words,
8 that 7:1, the relevance of that with the smoking population, was not clear at that point.

9 **Q: Was there a discussion at the directorate meeting about the impact of the band?**

10 A: There was a lot of interest in, well, this looks to be in contrast to the data from the coal
11 drop off machine. That was sort of obvious to everybody because Mr. Robert Smith gave a
12 presentation from Mr. Phan's group that described some of the work that he had done with the
13 drop machine. The obvious thing was there didn't seem to be a big difference between CDO
14 rates for banded and non-banded Merit in that test. Over the next several days, there was a lot of
15 discussion about why. That's when I pointed out that by the method in the drop test you were
16 essentially sampling the cigarette rod at regions where the bands weren't. So you would expect a
17 dilution of the frequency if this mechanism was in place. Fundamentally the difference between
18 my group's and Mr. Phan's group's results were consistent. The drop test was not capable of
19 differentiating where the CDO occurred, in the vicinity of the band or away from a band.

20 **Q: Did you discuss this with Mr. Phan and Mr. Smith?**

21 A: Yes. I spent a lot of time trying to communicate and help them understand my
22 perspective and also get their feedback on it, to see what they thought.

23 **Q: What was their feedback?**

1 A: My impression was that there was some resistance to the idea that the bands were
2 causally related. At that point Mr. Phan had enough information that showed that there wasn't a
3 difference, that I believe he had started to believe that there wasn't a big difference and there
4 wasn't a causal relationship. Mr. Murray exhibited the same attitude.

5 **Q: What effect if any did Mr. Murray's perspective have on your work?**

6 A: There was pressure from Ty to my group to do other types of tests, as opposed to looking
7 at this mechanism more clearly and working on the ergonomic study. Also, the argument was
8 made that call-in consumer complaints are going down and we haven't changed the product;
9 therefore, it's probably not the bands.

10 The argument was that the initial increase of consumer complaints was related to the fact
11 that there had been a packaging change. So consumers were more aware and they would tend to
12 perceive a change in performance when maybe one didn't really exist. These types of arguments
13 were used to support the idea that there was not a real difference in the bands causing coal drop
14 off.

15 **Q: Were you pushing to use your shaker test as the new standard method to evaluate**
16 **CDO frequency instead of the old drop test?**

17 A: No. In fact, I wanted to move on and develop the test based on smoker motions.

18 **Q: Did Mr. Murray indicate how he preferred your investigation to proceed?**

19 A: Mr. Murray's preference was to create a lot of different samples and asked us to test them
20 all without clearly stating the experimental the hypotheses to be tested, the experimental design,
21 or the diagnostics to be used, or verifying the sample construction. The charge of my group from
22 a scientific standpoint was to investigate the underlying mechanisms. That typically involves a
23 consideration of the analytical methods. I eventually convinced Mr. Murray and Mr. Phan to go

1 through this process.

2 **Q: Were Mr. Murray and Mr. Phan identifying various parameters to test?**

3 A: Yes. Actually at this point we were requesting various samples to evaluate various design
4 parameters by the different NDE techniques.

5 **Q: What were the tests that you were using?**

6 A: We were using thermal imaging, the MRI, and we were using the vibrational testing. The
7 specific analysis of the data tended to take a little bit longer than collecting it.

8 **Q: Did Mr. Murray ever express a preference for one of the different approaches you
9 and Mr. Phan were pursuing?**

10 A: Yes. There was a clear indication at times that Mr. Murray preferred the matrix or
11 shotgun approach. There are appropriate statistical methods employed for systems involving
12 multiple variables. They did not indicate these methods were being used. We had a discussion at
13 one point in August in which he expressed his concern about work progressing like he wanted it
14 to.

15 **Q: How did you respond to Mr. Murray's expressed preference for Mr. Phan's
16 approach to the CDO investigation?**

17 A: In August 2001, I offered and did convene a meeting between my team and Mr. Phan's
18 team. The idea was to address questions of what experimental design makes sense.

19 **Q: What was the outcome of that meeting?**

20 A: We spent about three hours in that meeting and came up with an experimental design. I
21 documented that and gave Mr. Murray a copy of the hypotheses that we developed. Mr. Phan
22 was in agreement at the meeting. He reviewed that document and let me know it looked okay. In
23 fact, he thanked me and said that it was a good meeting to have and he felt good that we had gone

1 through that process. So I think that was an important connection there between how we did our
2 work.

3 **Q: What were your hypotheses for how to alter the design to address CDO in Banded**
4 **Paper Merit?**

5 A: We wanted to test two hypotheses. One was that if the Merit PaperSelect that was
6 currently on the market, if the base paper coresta was changed, would it improve the coal drop
7 off in the marketplace.

8 **Q: What do you mean by “base paper” and “coresta”?**

9 A: Base paper is the base cigarette paper that in the manufacturing process the bands are
10 applied to. “Coresta” is a standard unit used to measure the ability of air to flow through paper.

11 **Q: What is the meaning of a paper with a higher coresta number?**

12 A: The higher the coresta number, the easier it is for air to pass through the paper.

13 **Q: How did the base paper for the non-banded paper compare to that of banded**
14 **paper?**

15 A: The base paper for the non-banded Merit cigarettes, at least the Merit 100 Ultra Lights,
16 which we were specifically looking at because it had the highest level of coal drop off, was I
17 believe about a 35 coresta unit. When they placed bands on the paper and introduced it as
18 PaperSelect, the base paper was as high as 85 coresta so air traveled more freely. That was, in
19 my understanding from cigarette designers, to maintain the same type of total burn time. Since
20 the cigarette burns more slowly in the band, there was a design change that was made to decrease
21 the permeability outside of the band.

22 So the thought was maybe it was that part of the design change that created the difference.
23 So we wanted to do a test where we looked at that to see if that made a difference.

1 **Q: What was your second hypothesis for how to alter the design of the Banded Paper**
2 **Merit to reduce CDO?**

3 The other thing we wanted to look into was the potential to change the width of the band,
4 the band geometry. This was something that I felt strongly about. Because the bands appeared to
5 be causally related to coal drop off, I wanted to find out the sensitivity in terms of a design agent.

6 **Q: Dr. Watkins, I have shown you U.S. Ex. 77,647 for review. What is this document?**

7 A: It is the September 28, 2001 memorandum I wrote titled “Project Update – Investigations
8 of Coal Drop Off Mechanisms and Evaluation Practices.”

9 **Q: On page 6 of the memorandum, there is a discussion of “Next Steps in the**
10 **Mechanistic Investigation of Coal Drop Off.” Does that section identify the two hypotheses**
11 **you have just explained?**

12 A: Yes.

13 **Q: Did people in the Banded Paper Program conduct tests to assess the hypotheses?**

14 A: Yes. We did.

15 **Q: Let’s take them one at a time. With respect to the issue of base paper porosity, what**
16 **were the results of the research?**

17 A: There were two sets of results. One set was generated by Mr. Phan’s group. Mr. Smith
18 actually wrote a report.

19 As for the results from our group, the power modulation varied as we had expected.
20 However, there was a lot of scatter indicating poor control of the power output with the design
21 target. I actually got Dr. Jason Isaac to develop a model relating the relative dependence of the
22 power output on the base paper and band geometry. Dr. Lilly liked this model because it also
23 related to the factors influencing ignition propensity. The results of Dr. Axelson’s MRI were not

1 available until after I left the company. Part of the exercise was to verify the fabrication of the
2 cigarettes in the test. I had asked Mr. Lyons-Hart to get with Mr. Smith and verify that the
3 samples were fabricated per the experimental design. At first Mr. Smith would not provide the
4 information. Eventually Mr. Lyons-Hart got some of the information. Mr. Lyons-Hart was very
5 concerned that factors known to influence CDO were not controlled for and that the validity of
6 the experiments could have been compromised. This was consistent with the high level of scatter
7 seen in the thermal data. I was never shown the results generated by Mr. Phan's group. This
8 would have been the report that Mr. Murray, in the November 2001 banded paper directorate
9 meeting, said that I would not get to see.

10 **Q: What were the results of your shaker testing?**

11 A: If I recall correct, by that time the unit we had been using to generate coal drop off had
12 broken down and we had to replace it with a new one. So the new machine presented an
13 opportunity to replicate one of the older tests we had done. We actually replicated and got a
14 6.5:1 ratio. That's always in science a nice thing to do. If you use a completely different
15 instrument and you get a very similar result, it supports the results that you obtained.

16 **Q: Did anyone besides yourself contribute to the study design and methodology for the**
17 **NDE group's testing with the Eriez shaker machine?**

18 A: Yes. Brad Reynolds, a quality engineer in the Banded Paper Program.

19 **Q: What were the results of the test with a cigarette with altered width of the bands?**

20 A: I don't recall that we saw a big difference with the band variation.

21 **Q: Did you and Mr. Phan's group freely exchange the results of your different**
22 **investigations?**

23 A: I did not feel that Mr. Phan's group was being very forthcoming with its research data.

1 Once I found out from Mr. Murray that Mr. Smith had generated a report, I asked Mr. Murray if I
2 could have a copy of that report. He told me that I would not receive a copy of it, which I found
3 strange.

4 Mr. Murray also told me that he was not interested in seeing a report from my team,
5 which had set up studies on the same cigarette samples that were tested by Mr. Phan on the drop
6 machine. In a directorate meeting in November of 2001, he said he wanted to use the September
7 28 report that I had issued and Mr. Smith's new report to generate some recommendations of
8 implementation of an improvement for coal drop off, and to make that recommendation to Dave
9 Beran.

10 **Q: Who is Dave Beran?**

11 A: He was the Senior Vice President of Operations in Richmond.

12 **Q: At that directorate meeting, who was present?**

13 A: From my team it was Jim Lyons-Hart, I believe Danielle Crawford was there, Justin
14 Jones, and I believe Jason Isaac. Justin and Jason were contract employees. There may have
15 been some others there from my team.

16 Michael Hawkins was there. It's an easy meeting to remember because he showed a
17 video that was from the book "Who Moved My Cheese." It was a video related to team building.
18 I believe Nancy Stephens was there. Mr. Smith was there.

19 **Q: Did Mr. Murray explain why he wouldn't show you a copy of Mr. Smith's report?**

20 A: No. He indicated that he wanted a chance to look it over, but he also indicated that he
21 would make his recommendation based on the draft that Mr. Smith had prepared for him. He
22 didn't indicate that there would be a final report or that I would see a final or the draft that he
23 currently had. He gave me no explanation.

1 **Q: Did Mr. Murray explain why he was not interested in your team's report on the**
2 **same cigarette samples that Mr. Phan and Mr. Smith had tested?**

3 A: No.

4 **Q: Did you talk to anyone outside the Banded Paper Program about your team's**
5 **results?**

6 A: Yes. I had talked to Dr. Cliff Lilly and he had been very supportive and appreciative. In
7 fact, he said the invention disclosure on improving CDO and banded paper was one of the best
8 technical papers that he had seen in a while in terms of describing the phenomenon and the
9 investigation. With that support I went ahead and issued a report, an official report to Mr.
10 Murray. I told him the reason I was doing that was because I felt it was important to
11 communicate this not only to management but to the rest of people in the program so that they
12 would understand what was going on and improve communication.

13 **Q: What was Mr. Murray's reaction to your September 28, 2001 report, which is U.S.**
14 **Ex. 77,647?**

15 A: He looked at it for a few days. He said he would get back to me. I didn't hear anything,
16 so I went to his office. I said what do you think, are there any issues? He again said, well, I'm
17 not sure I feel comfortable. He would use that term frequently.

18 I said I would like to discuss specifics that if they need to be corrected, we can do that.
19 He never really said anything else about it. Prior to a meeting with some of his peers a few
20 weeks later, he asked me to essentially take that report and turn it into a draft by putting "draft"
21 on it. I complied with his request and gave him that version. He made copies and asked me to
22 distribute to the people at that meeting when we met with some of his peers.

23 **Q: Was the document that you marked draft identical in substance to the one that you**

1 **had provided to Mr. Murray?**

2 A: Yes. Per his request I didn't change anything. I just put draft on it. I kept both
3 documents, a copy in my desk, copies of both documents.

4 **Q: What difference, if any, was there about your report if it said "draft" on it?**

5 A: My understanding from our document retention policy is that if I had generated that draft,
6 it was a "transient" document and I needed to keep a copy of it, but people who received a
7 transient document like that would not have to keep a copy. Mr. Murray also would often
8 request that our presentations contain "draft" on them even up to the point of doing a
9 presentation in a meeting. Which people found confounding, because once you're in a meeting
10 doing a presentation, how can it be a draft? And other members in the project would repeat that
11 often.

12 **Q: What do you mean when you say that draft documents were "transient?"**

13 A: That is a classification in the records management system that was in the process of being
14 put in place at Philip Morris.

15 **Q: What is another type of document in the records management system?**

16 A: A "primary" document. A primary document would be a document that would be
17 permanently placed. We didn't really have a mechanism in place to do that. So during the
18 course of my work, I just made sure I kept copies of my documents available for audit when I
19 was audited by the internal team.

20 **Q: Dr. Watkins, getting back to the two design hypotheses that your group tested,**
21 **namely the base paper coresta and the band width you described, how did the results of**
22 **those tests affect your review of the CDO problem?**

23 A: I did not see any evidence that those design changes would have significantly changed the

1 coal drop off in the market. After all, we did not have a consumer relevant CDO method.

2 **Q: How if at all was this information you had at this point about CDO relevant to the**
3 **real-world CDO phenomenon?**

4 A: We did not have a direct connection between the laboratory experiments and what
5 consumers did.

6 **Q: In 2001, did you report your work and the research on CDO to people outside the**
7 **Banded Paper Program?**

8 A: Yes. I gave a presentation some time in October 2001 to a research forum. It was a
9 forum that had been developed at Philip Morris, and I believe this was the first one. This
10 involved everyone from my grade level and higher in Research, Development, and Engineering
11 in Richmond. And some people possibly that worked outside of Richmond. There were maybe a
12 hundred people or so at these meetings. I was asked to give a presentation on the work that we
13 had done to identify this mechanism of coal drop off and also to discuss what we knew about the
14 way we would want to test this versus the old drop test.

15 **Q: Dr. Watkins, I have provided you JD-053392, a document titled “Coal Drop Off**
16 **Mechanisms: Banded Paper Cigarettes. Nondestructive Evaluation Technology and**
17 **Methods” for your review. What is this document?**

18 A: It is the slides for the October 2001 presentation that I made at the Philip Morris R,D &E
19 Forum.

20 **Q: Did you prepare the slides yourself?**

21 A: Yes, I assembled these slides from information provided by various people in the Banded
22 Paper directorate.

23 **Q: Had the other scientists in your NDE group seen the data or the presentation**

1 **previously?**

2 A: Yes.

3 **Q: Did any of them express concern about the information contained in the**
4 **presentation about the results of the various NDE techniques utilized in the CDO**
5 **investigation?**

6 A: No.

7 **Q: Did you also review your presentation with any of your superiors prior to giving it?**

8 A: Yes. I reviewed it in a separate meeting with Mr. Nyffeler, Mr. Alonso, and Dr. Lilly.

9 **Q: Did they give you any feedback on this presentation?**

10 A: Yes. They did. They wanted me to emphasize that based on the literature search we had
11 done and the assessment of the drop technique, that it was not a valid method for assessing coal
12 drop off. That there was no evidence to indicate it was an appropriate test. I asked them if they
13 wanted me to discuss the ergonomic studies that we were doing, because that was sort of a
14 natural thing to ask – if this isn't the test that seems right, what are you doing to develop a new
15 one? They asked me not to.

16 **Q: Did they say anything to you about the quality of the presentation or the scientific**
17 **research you were to present at the RD&E forum?**

18 A: They were complimentary, particularly for our using multiple techniques to uncover the
19 mechanism associated with CDO near the bands, instead of relying on one method.

20 **Q: Did they give a reason for not wanting you to discuss the ergonomic test?**

21 A: No.

22 **Q: After you presented your work at the October 2001 RD&E Forum, did any of your**
23 **supervisors or managers comment on your presentation?**

1 A: Yes. The day after the presentation Mr. Murray asked me to come down to his office. He
2 told me that prior to presenting this to the New York audience that he had some concerns. One
3 of the concerns was that I had a digital image showing a misformed coal, typically a condition
4 that in our experimental studies would be a precursor to the coal falling off. He asked me not to
5 present that photograph. He also said that he was concerned about the statements that I had made
6 concerning the lack of validity of the drop test. So I told him that I understood his concerns.

7 **Q: Did Mr. Murray provide an explanation for his concerns on either of the two points**
8 **that you have just raised?**

9 A: No. Nothing that I can recall.

10 **Q: Did you make changes to your presentation based on Mr. Murray's expressed**
11 **concerns?**

12 A: No. I did not.

13 **Q: Why not?**

14 A: Because the misformed coal was an important factor related to CDO, and others –
15 including Mr. Nyffeler, Mr. Alonso, and Dr. Lilly – thought the question of the validity or
16 invalidity of the drop test was also an important point.

17 **Q: Did your presentation to the R&D forum in October discuss the methodology or**
18 **results obtained from the drop test?**

19 A: Yes. It showed a plot where some parameters had been varied with the design and the
20 frequency of coal drop off had been measured. It had error bars around those results showing the
21 scatter.

22 Essentially the agreement that everyone had is that it was not very conclusive. Certainly
23 not conclusive enough to warrant a direction in design change or an ability to see a significant

1 difference in the banded versus the non-banded product.

2 **Q: Did you communicate some of your conclusions about the invalidity of the drop test**
3 **and the other vibration/shaker testing at the RD&E forum?**

4 A: Yes.

5 **Q: What was Mr. Murray referring to when he raised concerns regarding your**
6 **presentation to the “New York audience?”**

7 A: On November 20, 2001, I made a presentation in New York to Philip Morris’s senior
8 management team.

9 **Q: During your employment at Philip Morris, how frequently did you make such**
10 **presentations to Philip Morris’s senior management?**

11 A: That was the first and last time I made a presentation of that nature.

12 **Q: What was the scope of the presentation as it was described to you?**

13 A: The essence of the message was to acknowledge the issue of coal drop off. Apparently –
14 and I’m assuming this based on the interest in it – there was an awareness that this was an issue.
15 Mr. Nyffeler wanted to ensure senior management that we were investigating this using sound
16 scientific efforts and that we were bringing to bear the technology and the resources that we had
17 available to understand it, so that we could then make a business decision commensurate with
18 understanding the problem.

19 **Q: Who traveled with you to New York, and how did you get there?**

20 A: I met Dave Beran and Mr. Nyffeler early the morning of the 20th at the Philip Morris
21 USA hangar at the Richmond airport. We boarded the company jet and went to Teterboro
22 Airport. Landed in Teterboro and took a vehicle to the Park Avenue office, the headquarters of
23 Philip Morris.

1 **Q: What was the structure of your presentation?**

2 A: Mr. Nyffeler introduced me, introduced the issue I would be talking about, and then I
3 gave the talk. I used transparencies and an overhead projector. It lasted about 45 minutes. After
4 the talk there might have been one or two very minor questions. Fairly soon after the talk, Mike
5 Szymanczyk asked Mr. Nyffeler what he was going to do or what strategy was in place to handle
6 the coal drop off problem.

7 **Q: Was your New York presentation similar to the presentation you made at the**
8 **October RD&E forum?**

9 A: Yes.

10 **Q: Who was present in New York for your presentation to senior management?**

11 A: I didn't recognize most of the people. The names I recall because they were people fairly
12 high up at Philip Morris. Mike Szymanczyk was there.

13 **Q: Who is Mr. Szymanczyk?**

14 A: At the time, I believe he was CEO of Philip Morris.

15 **Q: During the New York meeting, did you communicate why you were investigating**
16 **CDO?**

17 A: Yes. I did. Early in the presentation, I had a graphic that listed a couple of the
18 complaints. They were bullet points. The complaint of coal drop off had a red font. I did that
19 for emphasis. I said the reason that we're doing this work is because coal drop off, of all the
20 complaints, is a situation which has a potential to cause harm to smokers.

21 **Q: Had you made similar statements in previous presentations of your work?**

22 A: Yes. I had mentioned that at the R&D forum. No one questioned that or gave me
23 feedback saying that that was inappropriate to say. I repeated that in New York.

1 **Q: Did you articulate to senior management what the harm to smokers would likely be?**

2 A: Yes. The potential for burn.

3 **Q: I have provided you JD-053389, a series of slides or images titled “Coal Drop Off**
4 **Mechanisms: Banded Paper Cigarettes” with a footer reading “PM USA RD&E Senior**
5 **Team Update, November 20, 2001.” Is this the presentation you gave to Philip Morris’s**
6 **New York management?**

7 A: Yes.

8 **Q: On page 24 of JD-053389, Bates number ending in 6809, the last point in the**
9 **“Summary” slide states: “It can not be assumed that the current methodologies are**
10 **indicative of the frequency or nature of CDO experienced by consumers.” Did you raise**
11 **that point at the New York meeting?**

12 A: Yes.

13 **Q: You testified that after your talk, Mr. Szymanczyk inquired of Mr. Nyffeler as to**
14 **what the company was doing to respond to the CDO problem. Were you present for that**
15 **discussion?**

16 A: Yes.

17 **Q: How did Mr. Nyffeler respond to Mr. Szymanczyk’s question?**

18 A: Mr. Nyffeler essentially said that we were going to solve the problem by changing the
19 base paper, which was a strategy based on what we had learned that we were going to try. He
20 said that he felt that approach would solve the problem and that it would not interfere with any of
21 the scheduling of launching the next brand with banded paper.

22 **Q: Do you know what “launch schedule” Mr. Nyffeler was referring to?**

23 A: I believe the schedule that Mr. Murray had for rolling out various brands with the banded

1 paper. I don't recall the details of the schedule but it was revised every once in a while.

2 **Q: Do you know whether the schedule called for launching banded paper versions of**
3 **other brands of cigarettes?**

4 A: Yes. At one point, in fact in the spring of 2001, Benson & Hedges with banded paper
5 was slated to be launched. My understanding is they were within a day or two of actually
6 launching that product, they had made the paper, had it at the sites to put on machines and it was
7 abruptly cancelled.

8 **Q: For the entire time you were with the Banded Paper Program, did anyone else from**
9 **the Banded Paper Program ever make a presentation to Philip Morris's senior**
10 **management on CDO?**

11 A: Not that I am aware of.

12 **Q: Dr. Watkins, did you ever give presentations about banded paper outside of Philip**
13 **Morris?**

14 A: Yes. I had made a presentation at the CORESTA Congress in Lisbon, Portugal, in
15 October 2000. I also made a presentation at a CORESTA meeting in China in the first part of
16 September 2001.

17 **Q: Did you discuss your research on CDO in your September 2001 presentation in**
18 **China?**

19 A: No.

20 **Q: Why not?**

21 A: I was specifically asked that I not present information on coal drop off, so I did not.

22 **Q: Who asked you not to present CDO information?**

23 A: I don't remember. It was in the context of the Manuscript Review Board, or MRB. The

1 MRB reviewed all requests to present or publish research outside of Philip Morris.

2 **Q: Why was Philip Morris concerned that you not discuss coal drop off outside of**
3 **Philip Morris?**

4 A: I believe they were concerned because it indicated a potential barrier to having this
5 effectively accepted in the marketplace. Also because there had been some reports publicly
6 posted on the Internet. Also, in the Fall of 2001 Mr. Murray had shown me a misformed coal
7 that Philip Morris had received from a smoker. He indicated that the consumer was considering
8 some litigation against PM because of either personal or property damage. He also noted it was
9 similar to the shapes of coals that tended to fall off in our experimental work, making that
10 connection.

11 **Q: Were there other papers or research you planned to present outside of Philip Morris**
12 **related to your work in the Banded Paper Program?**

13 A: Yes. A presentation would have occurred in the first week in April 2002 in Orlando at
14 the Thermo Sense conference.

15 **Q: Were you permitted to include all aspects of your work on banded paper in the**
16 **paper for that conference?**

17 A: No. I was told that if I removed any references to ignition propensity, that it would be
18 okay to present the paper.

19 **Q: Who told you that references to ignition propensity had to be removed from your**
20 **presentation materials?**

21 A: Mr. Alonso and Dr. Lilly.

22 **Q: When were you told to remove references to ignition propensity?**

23 A: At a meeting sometime in December 2001.

1 **Q: Did Mr. Alonso and Dr. Lilly tell you why?**

2 A: They said that ignition propensity was a very sensitive topic and that with the various
3 litigations going on, they preferred that I not present or talk about ignition propensity in the
4 public domain.

5 **Q: Do you know how much money Philip Morris had invested in its banded paper
6 technology while you were at Philip Morris?**

7 A: While I was there, I believe the commercialization upgrade for the paper plant alone was
8 on the order of 65 million dollars. I don't know what monies were spent before and since. But it
9 was on that order. I don't know the cost for the various marketing and support activities.

10 **Q: Dr. Watkins, after you returned from your presentation at the New York office did
11 you receive any further feedback on your presentation?**

12 A: No.

13 **Q: Did you continue to work on CDO at that time?**

14 A: Yes. What we wanted to do by the end of 2001 was develop a functional specification for
15 an apparatus that would evaluate or induce coal drop off using motions similar to those that
16 people generate.

17 **Q: In seeking to obtain information about how people handle cigarettes, are you aware
18 of whether Philip Morris conducted any research or experiments with people handling the
19 banded paper cigarettes?**

20 A: Yes. Dr. Melissa Jeltima was involved in what is referred to as a diary panel study. That
21 is a study where a group – I believe there were about 20 smokers in her study– smoked cigarettes
22 in a blind format. Meaning that they were given cigarettes not knowing the exact design. They
23 smoked the Merit cigarettes that were in the market prior to introducing banded paper. They

1 smoked the banded paper product that was currently in the market, and they smoked the modified
2 banded product that had the decreased coresta base paper that had been under discussion and that
3 Mr. Nyffeler mentioned on several occasions, one of which was at the meeting in New York.

4 I knew Dr. Jeltima was doing this work from discussions I had with her. I had
5 encouraged the engineer working for me to discuss that with her so we could potentially
6 coordinate our efforts.

7 **Q: Was Dr. Jeltima in a different area of the R&D Department from you?**

8 A: Yes. She was in the product evaluation department. She reported to Ms. Judy Smith.

9 **Q: Was Ms. Smith also aware of your research to investigate Banded Paper Merit
10 CDO?**

11 A: Yes. Ms. Judy Smith is the individual that had been at one of the meetings where I had
12 reviewed my results and she had actually complimented me on the quality. She had used the
13 drop machine years before and appreciated the problem. So Dr. Jeltima was in that group.

14 **Q: Do you know how long Dr. Jeltima's study ran?**

15 A: My impression was that it lasted a month or two.

16 **Q: What to your knowledge was the primary purpose of Dr. Jeltima's study?**

17 A: The purpose was to find out or get feedback from smokers that was related to coal drop
18 off and whether these various designs exhibited different coal drop off in a controlled manner
19 because the consumer information was just coming in from out of the field. There were obvious
20 questions that we have talked about before as to how to interpret that. But with a controlled
21 population of people and controlling the different designs they were using, you could get a better
22 handle on differences.

23 **Q: Do you know what the results were of Dr. Jeltima's study?**

1 A: Yes. I stopped by and discussed the preliminary results with Dr. Jeltima. I didn't know
2 she had finished the study but she said the data had been collected. I was actually in her office
3 and we sat down. I asked her what the ratio was for the Merit that was previously in the market
4 and the Merit that is now in the market when you look at the frequency of CDO. She had some
5 numbers and she had her calculator. She made that calculation. I believe her number that she
6 came up with was a ratio of 6.5:1.

7 **Q: Can you please clarify the meaning of Dr. Jeltima's ratio of 6.5:1?**

8 A: What that meant is the number of coal drop offs for the banded Merit cigarette was
9 approximately seven times greater than the Merit cigarette without bands that was sold prior to
10 the introduction of the Banded Paper Merit.

11 **Q: How did you respond to Dr. Jeltima's calculation from her data?**

12 A: I looked at her in almost amazement. I said, do you realize that this is the same ratio
13 we're getting with our low level excitation? I said that's a really important result because it
14 indicates that we might be on to a technique that would give us insight into how cigarettes
15 perform out in the field.

16 **Q: How did Dr. Jeltima respond to what you told her?**

17 A: She said that is really good. She said they were preliminary results but that she should be
18 issuing a report fairly soon. I asked her when she issued the report, if she would give me a copy
19 of it. She said that she would. That she felt it was good for us to share the information.

20 **Q: Did you ever try to figure out quantitative scope of CDO for Banded Paper Merit,**
21 **assuming the CDO frequency observed by you and related by Dr. Jeltima is accurate for**
22 **Banded Paper Merit in the commercial marketplace?**

23 A: Yes. I don't recall the exact calculation but I did actually sit down and ask myself that

1 question. If you assume about a million Merit smokers and they each smoke a pack a day,
2 you've got 20 million cigarettes that are smoked per day.

3 If you have five to seven coal drop offs per 3,500 cigarettes per day, you can multiply that
4 out and it indicates that you are looking at about 36,000 coal drop offs per day for the band
5 product versus about one-sixth or one-seventh, so about 5,000-6,000 per day for the non-banded
6 product.

7 It starts to give you an idea at least for Merit. One of the concerns I had was that down
8 the road, if you introduce this to a really high volume cigarette, the numbers would be that much
9 greater. So that was something that I think we needed to consider.

10 **Q: Why did you estimate one million Merit smokers?**

11 A: It was based on presentations I had seen about the market share. I believe it might be a
12 little bit less than that but it was sort of an order of magnitude estimation.

13 **Q: When did your conversation with Dr. Jeltima about her results occur?**

14 A: Early December 2001.

15 **Q: Did you discuss Dr. Jeltima's findings with your supervisors in the Banded Paper
16 Program?**

17 A: Yes. Within a few days, certainly a week or two, I had a meeting with Mr. Alonso. It
18 turned out that Dr. Lilly was in the room as well. I took the opportunity to tell them that some
19 preliminary results had been communicated to me and I thought it was a very favorable outcome
20 in terms of us understanding and having a tool possibly to really improve the product using some
21 of the techniques that we were developing in our laboratory.

22 **Q: Did you have ongoing discussions with Dr. Jeltima, or anyone who worked with her,
23 on this study about the results?**

1 A: Yes. I put one of her assistants in contact with the engineer that was working with me
2 and suggested that they collaborate where possible. My objective was to develop the most
3 appropriate test to help the company and that's what I thought was important to do.

4 **Q: Did Dr. Jeltima's research examine the hypothesis that the lower coresta base sheet
5 could solve the CDO problem for the Banded Paper Merit?**

6 A: Yes. Based on Dr. Jeltima's results that she shared with me, she saw a comparable coal
7 drop off frequency. One of the participants that I had spoken to, Cindy Hayes, also mentioned
8 that she did not think that it had solved the problem, based on her personal experience with
9 smoking the cigarettes. In fact, she made the comment that, for some reason and she didn't know
10 whether it was related to the design change or not, that change actually resulted in more coals
11 sort of half way falling off, so you ended up with a coal drop off, a burning coal that had fallen
12 off and the cigarette still being lit. Now you had two combusting sources instead of one. That
13 seemed to concern her.

14 **Q: When you say the cigarettes that Dr. Jeltima had used in her test didn't show an
15 improvement, what cigarettes were those?**

16 A: Those were the cigarettes that we had discussed as a potential fix that Mr. Nyffeler had
17 mentioned in the R&D forum and had mentioned to Mr. Szymanczyk that they were going to try
18 – by decreasing the coresta value or increasing the weight of the base sheet and creating a smaller
19 difference in the porosity inside the band and outside of the band, that it would moderate coal
20 drop off. And that was the attempt.

21 **Q: Had you done work previously to consider whether the change in the base paper
22 affected CDO around the band?**

23 A: We had first seen in the thermal data a change in that transition. There were some tests

1 run on this low amplitude, vibration, low excitation vibration unit with no significant difference,
2 from what I was told.

3 **Q: Do you know when those tests were conducted?**

4 A: Sometime in the fall of 2001.

5 **Q: Do you know who had performed that test?**

6 A: Danielle Crawford and Ms. Carri Hehl had been involved with the excitation inducing the
7 coal drop off.

8 **Q: So were your experimental findings consistent with Dr. Jeltima's findings as to
9 whether changing the base paper decreased CDO in banded cigarettes?**

10 A: My impression was that they were consistent – that a lower coresta base paper did not
11 significantly help the coal drop off problem by reducing it.

12 **Q: Did your work related to ergonomic measurement of smokers result in creation of
13 an alternate methodology?**

14 A: I don't know. I left the company before that was resolved.

15 **Q: When did you leave the company?**

16 A: January 30, 2002.

17 **Q: Why did you leave the company?**

18 A: I was terminated.

19 **Q: What was the reason given for your termination?**

20 A: That I was insubordinate and that I had not adhered to the chain of command and that my
21 values were not consistent with those of the company.

22 **Q: Did Dr. Jeltima present any of her work on CDO at one of the RD&E forums?**

23 A: Yes. At the December 13, 2001 RD&E forum, Dr. Jeltima presented the results of a

1 study that she was involved with looking at the attitudes and behaviors of Merit smokers. They
2 actually had a call-back study where they called consumers so that they were not relying on the
3 consumer to decide whether they were going to provide the information or not.

4 **Q: What results did Dr. Jeltima present at that RD&E forum?**

5 A: What she found was while the number of consumers calling in and having complaints
6 was going down, the reported complaints in coal drop off actually continued to go up early after
7 the introduction of the PaperSelect. Then it leveled off at an elevated rate above the cigarettes
8 that were not banded. Her conclusion that she drew was that coal drop off differences in these
9 two brands was a real phenomenon and that it had stabilized at a rate that was showing a constant
10 difference in the performance of the two products.

11 **Q: Was that the first that you had learned of this data?**

12 A: Yes. It was.

13 **Q: Did your CDO research come up during that December 13, 2001 RD&E forum?**

14 A: Yes. Urs Nyffeler acknowledged me at the R&D forum where Dr. Jeltima gave the talk.
15 After one of the speakers, a person in the audience asked, if this coal drop off is apparently a real
16 phenomenon, what are we going to do as a company to address it? Mr. Nyffeler asked if I was in
17 the audience and I raised my hand. He said because of the excellent work by Mike, we
18 understand what's going on and we know how to fix it. We're going to proceed, we're going to
19 make the change that was indicated by the work and that would address the problem.

20 **Q: What did you understand to be the "change" that Mr. Nyffeler was referring to?**

21 A: At that point I believe he was referring to that change in the base paper that our initial
22 report indicated may help alleviate coal drop off.

23 **Q: After the December 2001 forum where Dr. Jeltima made her presentation and Mr.**

1 **Nyffeler acknowledged your work, did you continue to work on the CDO issue?**

2 A: No.

3 **Q: Why not?**

4 A: Because I had a meeting right after that forum. In that meeting it was announced that I
5 was no longer going to be working for Banded Paper or working with the issues related to
6 banded paper; and that the senior research person assigned to me was no longer going to be
7 working on that either.

8 **Q: Who communicated this information to you?**

9 A: Mr. Bill Keen gave a presentation. The meeting involved Mr. Murray, Dr. Bob Fenner,
10 Mr. Tim Sherwood, Mr. Grier Fleischhauer, and myself. Mr. Keen announced that, effective
11 immediately, I would be reporting to Mr. Fleischhauer. And that Mr. Tim Sherwood would be
12 reporting to Mr. Murray.

13 **Q: Who was the senior research person who you were told was no longer going to be**
14 **working on banded paper?**

15 A: Jim Lyons-Hart.

16 **Q: What explanation was given for the organizational changes?**

17 A: The reason given was to help leverage resources that we had to address other reduced
18 harm products.

19 Mr. Murray had met with me the late afternoon of the 12th, the day before this December
20 13 meeting. At this time the NDE group had an open request on my part for another scientist
21 because I felt we were understaffed. Mr. Murray indicated to me that there was an opportunity to
22 expand the work scope and leverage the laboratory and the personnel that we had developed to
23 address other reduced harm products. He indicated that there would be another scientist coming

1 over to help out.

2 **Q: After discussing the NDE group staffing with Mr. Murray the previous day, what**
3 **was your reaction to hearing of your reassignment?**

4 A: I was surprised when the reorganization was stated that essentially I was no longer
5 working on banded paper and that effectively Mr. Sherwood would be reporting to Mr. Murray,
6 because all of the assets and the resources to do the SCoR work were in the banded paper lab. So
7 some things concerned me and seemed strange.

8 **Q: Did you know Mr. Sherwood?**

9 A: I knew him to see him.

10 **Q: Was he a Philip Morris employee?**

11 A: Yes.

12 **Q: Is he a scientist?**

13 A: Yes. I believe he has a BS in physics and he may have a Master's in physics. I'm not
14 sure.

15 **Q: Did he take over your responsibilities and title?**

16 A: Yes, within a few weeks to a month.

17 **Q: What was his background in non-destructive evaluation?**

18 A: I wasn't familiar with any background he had in that area. He did indicate to me after
19 several discussions that he didn't feel he had an appropriate background. He was concerned
20 about trying to do that, the level of work with the background that he did have. He mentioned
21 that to at least two other people.

22 **Q: What department was Mr. Fleischhauer in?**

23 A: He was in the Applied and Innovative Technology group that was headed by Mr. Keen.

1 **Q: What happened after that December 13 meeting at which you were reassigned?**

2 A: Just after the meeting Mr. Fleischhauer stood up and shook Dr. Howell's hand and mine
3 and said it's good to have you on board, I look forward to working with you. I had worked with
4 Mr. Fleischhauer before and we got along very well. I told him that we had a lot of work to do
5 and discussions that we needed to have.

6 **Q: Did you understand there to be any issue with your performance that had prompted**
7 **the reassignment?**

8 A: No.

9 **Q: Were you told when that reassignment or transfer was to take effect?**

10 A: In the December 13 meeting, I was told the changes were effective immediately.

11 **Q: What did you do after you learned you and Mr. Lyons-Hart had been reassigned?**

12 A: The next day on the 14th I called my team together and said Jim and I have been
13 reassigned to a new project. Part of our effort is going to be to define what that project is and
14 how we're going to utilize the resources we currently have. I anticipate that most of you will be
15 involved.

16 **Q: Were there any meetings about the realignment that included the broader Banded**
17 **Paper Program?**

18 A: Yes, that afternoon Mr. Murray called a meeting. He stated that Jim and I had been
19 reassigned. We had new assignments.

20 **Q: After the December meeting where you were informed of the transfer, did you do**
21 **any further work on banded paper at all?**

22 A: Very limited because my new assignment was to define the work scope for this new team
23 and determine the resources that we needed to embark on this new piece of work. My

1 involvement was limited to helping people still working on banded paper if they approached me
2 with questions. I also spent time describing, for Mr. Sherwood, the type of work I thought he
3 needed to do that would best help transition the resources and capabilities. There had been some
4 work we hadn't really gotten around to because of not having the extra scientist that we needed.
5 I thought that he should be working on that.

6 **Q: Did you have any discussions with Mr. Sherwood about CDO research?**

7 A: Yes. I had at least three meetings with Mr. Sherwood prior to Mr. Murray's request for a
8 project review meeting on January 10, 2001. At the December 13 meeting, when the
9 reorganization was announced, I offered to meet with Mr. Sherwood. The next day we met
10 briefly and decided to continue our discussions on December 18th. I believe we met in my
11 office. We discussed the various activities in the NDE group. On January 7, 2001, I asked Mr.
12 Sherwood if he was available to meet and continue our discussion regarding transition issues. He
13 agreed and met later that day in the R&D tour - T building. We discussed CDO and transition
14 issues at each of these. Mr. Murray had asked me to have a meeting on January 10th to review
15 the work that had been going on in my project. So we discussed it there. I also gave him a tour
16 of the lab, where we talked about different types of work that was going on.

17 **Q: How long was that January 10th meeting?**

18 A: It was about four hours long. From approximately 9:00 to 1:00.

19 **Q: Was the meeting about CDO exclusively?**

20 A: No. It was a review of the NDE group's work.

21 **Q: At that January 10 meeting, was there any discussion about the bases for concern**
22 **about CDO?**

23 A: Yes. Mr. Murray stated that his biggest concern was that the coal drop off would result in

1 people switching brands and that we would lose market share. I replied to that and told him
2 specifically that my biggest concern was that there was a potential for harm that people were not
3 aware of.

4 **Q: After that January 10 meeting, did you get any further information about whom**
5 **you were reporting to?**

6 A: Yes.

7 **Q: I have provided U.S. Ex. 77,642 for your review. Have you seen this before?**

8 A: Yes. I was out sick for several days with a doctor's excuse, so I did not receive it the day
9 he sent it. I saw it after I returned to work.

10 **Q: This January 14, 2002 email to you from Mr. Murray states:**

11 **Called a meeting today and officially communicated that Tim**
12 **Sherwood would be leading the Banded Paper NDE Project effective**
13 **immediately and that all BP personnel report to Tim. Also**
14 **communicated that you would be reporting to SCoR and spending**
15 **100% of your time developing project plans and resource**
16 **requirements and that the SCoR project would be staffed after this**
17 **activity is completed.**

18 **What did you interpret this to mean as far as where in the Philip Morris Research &**
19 **Development Department you were assigned?**

20 A: This was at least the third time it had been stated that I was reassigned. It was first stated
21 at the December 13, 2001 meeting at which Mr. Murray was present. He stated it again at a
22 Banded Paper directorate meeting on December 18, 2001.

23 **Q: At some point after the December 13 and December 14 meetings, did you meet with**

1 **Mr. Murray to discuss your employment at Philip Morris?**

2 A: Yes. On January 8, 2002, I met with Mr. Murray and a representative of human resources
3 and I was issued a verbal warning for insubordination. That is what Mr. Murray called it.

4 **Q: What was the basis for the verbal reprimand?**

5 A: Not returning Mr. Murray's calls.

6 **Q: Did you know at that point the reason why Mr. Murray had been trying to reach**
7 **you?**

8 A: I believe in one of his messages he mentioned that he wanted to meet to discuss allocation
9 of resources for my new project and my old project.

10 **Q: Were you prepared to discuss allocation of resources for your new assignment?**

11 A: No.

12 **Q: Why not?**

13 A: Because I had been talking with Mr. Fleischhauer and Mr. Keen trying to define the
14 objectives of my project. I was trying to get a handle on exactly what the nature of my new job
15 would be because that drives the resource requirements. It was not until January 7 that I had
16 agreement from Mr. Fleischhauer and Mr. Keen. This said, I did offer, through a phone
17 conversation with Connie O'Donnell on December 20, to meet with Mr. Murray on December
18 21, 2001, since I knew it was unlikely we would both be in the office during the holidays. She
19 checked with him and said he would not be available, he had scheduled a vacation day for the
20 21st.

21 **Q: Do you remember when Mr. Murray had communicated that to you?**

22 A: It was only in a voice mail. From December 13th until the January 8th meeting, we never
23 spoke directly to each other.

1 **Q: Do you remember where in this series of messages he provided that explanation?**

2 A: No. I do recall it was when I was on vacation and I had told the secretary I would be on
3 vacation.

4 **Q: At the time of the January meeting with Mr. Murray and Mr. Pugh, had you begun**
5 **your duties working under Mr. Fleischhauer?**

6 A: Yes. I had started developing plans, talking to people to assess availability of space. I
7 had also confirmed the plans with Mr. Fleischhauer and Mr. Keen.

8 **Q: At that time, were you spending all of your time working on the new project to**
9 **which you had been assigned?**

10 A: Most of it. There was a report that came out that Mr. Parr had provided on his assessment
11 of the vibration analysis that I had been waiting on. I did take his report and distribute that
12 report. I distributed it to Mr. Murray, Mr. Alonso, and Dr. Lilly.

13 **Q: What was that report?**

14 A: That report basically was Mr. Parr's opinion confirming that the nature and characteristics
15 of the drop test were not relevant to what they were finding out people actually did, or the
16 excitations people exerted on cigarettes in which coals dropped off. His recommendation was
17 that it didn't make a lot of sense to continue to invest time and effort in that.

18 **Q: I have provided you with U.S. Ex. 77,636 and JE-045741. Are these, respectively,**
19 **the January 17, 2002 cover memo you wrote when you circulated the Parr report, and the**
20 **Parr report itself?**

21 A: Yes.

22 **Q: You just mentioned that the company was continuing to work with the drop test**
23 **methodology. What was that work that continued while you were still there?**

1 A: In the fall of 2001, it was decided by Mr. Murray to proceed with development of an
2 updated drop test machine based on the old machine.

3 **Q: Did that occur in a different project group from your NDE section?**

4 A: Yes. That was the responsibility of Mr. Phan's group with Mr. Robert Smith working for
5 him.

6 **Q: When you were transferred to work for Mr. Fleischhauer, did your position within
7 the R&D hierarchy change?**

8 A: I was still a senior research scientist. The thing that was different from a structural
9 standpoint is that in my position with Mr. Murray, I reported to a director level. When I was
10 moved into Mr. Fleischhauer's group, Mr. Fleischhauer reported to a director. Mr. Fleischhauer
11 was effectively a project leader. Then I would have a group underneath him. So there was no
12 change in grade level, but structurally I was one step removed in the chain of command.

13 **Q: Were you assigned a new office when you were transferred to, under Mr.
14 Fleischhauer?**

15 A: Eventually. I was told that I would be moving very soon and that Mr. Sherwood would
16 be coming over very soon. As things worked out, at some point in time I was told to not report
17 back to the facility where I was located. I never returned to that office.

18 **Q: When and by whom were you told never to return to that facility?**

19 A: I was told January 25th by Mr. Murray.

20 **Q: How did that come about?**

21 A: I received a page from Mr. Murray's secretary asking me to report at 11:15 to his office.

22 **Q: What were you doing when you received the page about the meeting with Mr.
23 Murray?**

1 A: I was in a meeting with Mr. Fleischhauer and Jim Lyons-Hart. We were discussing some
2 of the plans for the new project. We started discussing some of the transition issues.

3 **Q: What happened at the 11:15 meeting with Mr. Murray?**

4 A: I walked into Mr. Murray's office and Mr. Pugh was sitting there. I sat down with him.
5 Mr. Murray informed me that there had been an investigation initiated and that he felt I was
6 disrupting the work in the NDE laboratory and holding up progress in his program. We
7 discussed things in generalities. I tried to get some specifics. I wanted to know what his concern
8 was. He never gave me anything specific.

9 **Q: What was your reaction to Mr. Murray telling you that an investigation had been**
10 **initiated?**

11 A: I took very seriously the fact that they were investigating something I had apparently done
12 that they did not disclose to me. They were asking me to not return to my office, to leave the
13 building. This was on a Friday. I was told to report on Monday to the building where Mr.
14 Fleischhauer had his office.

15 **Q: Did you subsequently learn whether anyone else had had a similar meeting with Mr.**
16 **Murray?**

17 A: Yes. Mr. Murray had also arranged for Mr. Lyons-Hart to come and have a meeting right
18 behind mine.

19 **Q: Did you learn what Mr. Lyons-Hart had been told by Mr. Murray?**

20 A: Yes. Mr. Lyons-Hart was given the same direction.

21 **Q: The following Monday, did you report to the area you had been told to go to?**

22 A: Yes. I went to the E building, which is over in the R&D complex across the street.

23 **Q: What happened when you arrived there?**

1 A: We went and met Mr. Fleischhauer. He said, I don't have an office for you or anything
2 but there are some cubicles that are available at the other end of the building. He showed us to
3 that area. There were cubicles with no phones, no computers. Basically just a chair. He said I
4 guess you'll have to use these in the meantime. That's where I was for the next three days.

5 **Q: Did you have any further contact with Mr. Murray?**

6 A: Yes. On Wednesday, I received a message when I got back from lunch. Mr.
7 Fleischhauer's secretary said there was a message from Mr. Murray that I was to be at a meeting
8 at 4:00 or 4:30.

9 **Q: What happened at that meeting?**

10 A: When I reported to Mr. Murray's office, I went in and sat down and he told me that there
11 had been several meetings about my performance and that the decision had been made to
12 terminate me. He asked me for my credit card and my phone. I think my phone was actually in
13 my car, so I gave it to the security person. But I obliged to the things they asked me to do and I
14 left and I went home.

15 **Q: Did he provide any explanation when he said there were meetings about your**
16 **performance?**

17 A: No. He just used the general terms that I had been insubordinate and essentially not
18 followed the chain of command.

19 **Q: Did Mr. Murray or anyone else explain what was characterized as your disruption**
20 **or interference with the work of the NDE project?**

21 A: Mr. Murray alluded to the work that was going on and to the laboratory. I don't think I
22 had been in the laboratory for about a week or so. Nothing really specific. He asked me if I
23 "abided by" Tim Sherwood being made the new project leader.

1 **Q: How did you respond?**

2 A: I wanted to find out what particular behavior he was talking about. So I questioned him
3 on what he meant by “abided” or what type of behavior from me he was looking for. I said I
4 understand that you have made that decision and I have offered my assistance in technical
5 questions. I did not feel that he was interested in resolving anything based on the discussions
6 that I had with him. He gave me no information on things that I could correct.

7 **Q: Was there discussion about your performance or the quality of your work?**

8 A: I did bring up that I felt that part of this was related to my research. Mr. Murray stated
9 that he agreed with all my research, that this obviously had nothing to do with that but it was the
10 way I did my work.

11 **Q: How did you respond to Mr. Murray firing you?**

12 A: I was surprised when Mr. Murray actually terminated me, because I assumed that I wasn’t
13 working for him during that period, since I had been reassigned.

14 **Q: Between the January 10th meeting and the January 25th meeting, had you had any
15 contact with members of the NDE team on the Banded Paper project?**

16 A: Very minimal. I don’t recall that we had any meetings after the 10th. On occasion they
17 would come and ask me some questions. Mr. Sherwood called a meeting, I forget the exact date
18 but he called a meeting of the group sometime after the 11th when he had been announced. My
19 team members came to me and asked me to go to the meeting. I told them that I didn’t think it
20 was appropriate, not being their project leader anymore, but that if Mr. Sherwood thought I
21 should be in the meeting, I would be glad to attend and provide whatever information or help that
22 I could. So I was not in attendance at that meeting.

23 **Q: Did you have any contact with Mr. Nyffeler, Mr. Alonso, or other senior people with**

1 **whom you had communicated after sending them the report from Mr. Parr?**

2 A: No. I did request a meeting with Mr. Nyffeler sometime in mid-January when I felt
3 things were getting a little bit out of hand. I didn't feel that I could effectively communicate and
4 get information from Mr. Murray. I set up a meeting with Mr. Nyffeler. That meeting would
5 have been a day or two after I was terminated. When I was asked to leave my office at the
6 meeting of the 25th, I had just put together a memo to Mr. Nyffeler stating my concerns. I
7 mailed that to him because I had a sense at that point that I might not be able to have that meeting
8 with him but I felt he needed to have this information.

9 **Q: Did you show the memorandum to anyone before sending it to Mr. Nyffeler?**

10 A: I did show it to Mr. Lyons-Hart.

11 **Q: Why?**

12 A: I wanted to find out from him whether it also clearly reflected his sentiment related to the
13 importance of the issue and taking the step to go see Mr. Nyffeler. I also thought it was
14 important to get someone to witness the letter.

15 **Q: What was Mr. Lyons-Hart's response to the memorandum?**

16 A: He agreed with what I had written and that it was appropriate to go see someone at a
17 higher level in the company to make clear my concerns.

18 **Q: Dr. Watkins, I am showing you U.S. Ex. 77,665. Do you recognize this to be the**
19 **January 23, 2002 memorandum you sent to Mr. Nyffeler?**

20 A: Yes.

21 **Q: In the first paragraph of your memorandum you state, "I feel that it is my**
22 **responsibility to bring to light important issues regarding the quality of experimental**
23 **investigation associated with the internal evaluation of banded paper product and**

1 **prototypes.” What “important issues” were you referring to?**

2 A: The most important issue was coal drop off and the fact that coal drop off was something
3 that we were not investigating effectively. Mr. Phan’s group was continuing to use the old coal
4 drop off machine. I felt those resources were better utilized by working on a coal drop off
5 technique and method that reflected what users would do with the cigarette. I was also
6 concerned that Mr. Murray was requesting various types of experiments, trying to design
7 experiments that would take up resources that I felt we should reserve for understanding the
8 mechanism and better understanding the solution to the Merit cigarette that was out in the
9 marketplace versus the prototype cigarette.

10 **Q: Anything else?**

11 A: I was concerned about the treatment of some of the data from Mr. Phan’s group and also
12 the lack of willingness to share that information. I felt, to get to do the quality science, that we
13 needed to freely discuss and share those results – such as the results that were in the memo from
14 Mr. Smith to Mr. Murray regarding the experimental design to look at modifications of the
15 banded paper to reduce coal drop off.

16 **Q: The next sentence states:**

17 **Prior to bringing these issues directly to you I have invested**
18 **significant time and effort discussing them with Ty Murray. I do not**
19 **take these issues lightly. Unfortunately, he has failed to take concrete**
20 **steps to address these issues.**

21 **What steps do you believe Mr. Murray should have taken that he failed to take?**

22 A: I believe he should have informed management that this coal drop off was related to the
23 bands; that he support my position that we should invest our resources in developing a technique

1 for measuring coal drop off that was related to the ergonomics of smokers; that he specifically
2 recommended that we warn consumers about this hazard and that he make that recommendation.

3 **Q: In the next paragraph of your memorandum, you state, “As you are aware, my**
4 **team’s efforts discovered the fundamental mechanisms responsible for the increased CDO**
5 **in banded paper cigarettes.” What fundamental mechanisms are you referring to in there?**

6 A: I’m referring to the mechanism by which the coal changes shape as it progresses into the
7 band, elongates and creates a situation where the interface between the coal and the unburned
8 tobacco rod is weakened and may become dislodged upon mechanical excitation. I made this
9 comment in the context of Mr. Nyffeler acknowledging and agreeing with this mechanism as
10 discussed at the presentations I made.

11 **Q: You also state that in the paragraph:**

12 **What you probably do not know is the cost incurred as a result of**
13 **conducting these scientific studies and documenting our conclusions.**

14 **As the evidence mounted and the acceptance of the conclusions**
15 **became more widespread my work environment deteriorated**
16 **significantly.**

17 **What is the “cost incurred” to which you referred in those sentences?**

18 A: I believe that the environment encumbered us from effectively doing the work to better
19 understand coal drop off. It certainly placed undue pressure on my team in trying to do that
20 work.

21 **Q: How?**

22 A: Shortly after we had drawn some of these conclusions, Mr. Murray began complaining
23 about the team not cooperating and he requested that we perform specific experiments that he

1 wanted to have done. When I questioned the scientific value of those experiments, he
2 characterized that as being uncooperative. This was a source of what I referred to as a
3 deteriorating work environment. I specifically told him on one occasion that I felt he was
4 creating an environment in which it was difficult to do good science.

5 **Q: When had you told Mr. Murray that he was making it difficult to do good science?**

6 A: I mentioned that to him a couple of times but on September 13th at a meeting involving
7 Mr. Lyons-Hart and Danielle Crawford, we discussed the issue.

8 **Q: Your memorandum continues in the second paragraph:**

9 **Ty began to characterize my systematic experimental activities and**
10 **recommendations as uncooperative and disruptive. He also asserted**
11 **that our team was not communicating our results. The facts do not**
12 **support this contention. I believe that Ty has retaliated against me as**
13 **a result of my research findings.**

14 **In your view was there any basis for Mr. Murray's statement that your research activities**
15 **were uncooperative and disruptive?**

16 A: No, I don't believe so.

17 **Q: Why did you believe Mr. Murray characterized your research activities and**
18 **recommendations as "uncooperative and disruptive?"**

19 A: He tended to have an issue with any result that reflected negatively on Banded Paper. Mr.
20 Murray did not want me to report the results indicating that the banded paper design resulted in
21 elevated rates of CDO. He indicated he did not like the way I was documenting what I was
22 documenting,

23 **Q: When you say that Mr. Murray indicated that he did not like the way you were**

1 **documenting what you were documenting, what did you understand him to be referring**
2 **to?**

3 A: For example, at one point he asked me to remove data from a monthly report that I
4 provided, but did not offer to discuss whether he disagreed with the data or what the issues were.
5 Generally, he seemed concerned about putting things in writing.

6 **Q: Were there other instances in which you observed Mr. Murray's approach to**
7 **recording the documentation of the work in the Banded Paper Program?**

8 A: Yes. I recall very vividly a meeting that we had in the spring of 2001 to discuss
9 specifications for the banded paper. There was an engineer that was making some notes on a
10 piece of paper that the agenda was on. Mr. Murray looked over at the engineer and he said, "You
11 know you need to be careful what you are documenting there, what you're writing, because
12 you're creating a record." The engineer, Mr. Brad Reynolds, said, "Yes, I know I'm creating a
13 record."

14 Mr. Murray sort of smirked and – in all deference to Ollie North – Mr. Murray said,
15 "Well, I believe in the Ollie North philosophy of records retention."

16 **Q: What did you interpret his remark to mean?**

17 A: I think anyone over about 25 or 30 would interpret that as meaning that if you had a
18 problem with a document, it might be okay to destroy it.

19 **Q: What was your reaction to Mr. Murray's comment?**

20 A: I couldn't believe he would say that. It was consistent with his attitude toward
21 documentation but to say it in front of people that were working for him, I thought had a
22 disregard for retaining documentation.

23 **Q: You indicated that in one instance Mr. Murray asked you to remove data from**

1 **reports. Can you explain that further?**

2 A: Yes. I provided a report to him and he said he was going to remove it, it would not be
3 included and it would not be included in his future reports to management. He asked me not to
4 include it in future reports.

5 **Q: What was the data at issue?**

6 A: The data was from some of the testing that we had been doing with an external contractor
7 on full scale testing of Merit cigarettes with and without bands and Marlboro cigarettes with and
8 without bands.

9 **Q: Dr. Watkins, did you refuse to disclose results of your testing?**

10 A: No, I did not.

11 **Q: Turning back to U.S. Ex. 77,665, the January 23, 2002 memoranda to Mr. Nyffeler,**
12 **in the third paragraph you state, “I am concerned as to the merit of several activities for**
13 **which resources have been allocated.” What are the activities you are referring to there?**

14 A: One of the activities was the coal drop off machine that was being built based on the old
15 methodology. The other activity was using that data and the analysis of that data and designing
16 experiments by changing more parameters than one at a time.

17 **Q: What was your concern about the way the CDO research was being conducted?**

18 A: My major concern was that the experiments were not being designed in a way that made
19 sense to me, nor could members of the cigarette development team explain the hypothesis and
20 design of their experiments.

21 **Q: Did you receive any response from Mr. Nyffeler, or meet with him?**

22 A: No.

23 **Q: What did you intend to tell Mr. Nyffeler if you had gotten the opportunity to meet**

1 **with him?**

2 A: My intention, if I had the opportunity to meet with Mr. Nyffeler, was to specifically let
3 him know that, based on the information I was aware of, that the company needed to take steps to
4 protect the public. And I felt that my attempts to communicate and my initiative to make this
5 known to, at least my boss was meeting with retaliation.

6 **Q: At the time you were transferred out of the Banded Paper Program, had you**
7 **completed development of a validated scientific methodology for investigating CDO?**

8 A: No.

9 **Q: During the time you were at Philip Morris, in your view had the CDO problem been**
10 **fixed for Banded Paper Merit?**

11 A: No. I don't believe so.

12 **Q: Are the results from your research and the research of others of which you are**
13 **aware that occurred while you were at Philip Morris consistent with the scientific**
14 **hypothesis that the bands in the Banded Paper Merit are mechanically related to the**
15 **phenomenon of CDO?**

16 A: Yes, I believe it's the cause of the increased coal drop off seen with the Merit cigarettes
17 as a result of adding the banded paper. In other words, the change in reported coal drop off by
18 consumers as well as the observations in laboratory testing I believe is significantly related to the
19 banded paper and the mechanism that I have described.

20 **Q: Dr. Watkins, why do you believe you were terminated by Philip Morris?**

21 A: I believe – based on my prior promotions and performance information that I had up to
22 the time we generated data questioning or data supporting the band as causing coal drop off to
23 increase – that it was related to the fact that I spoke out and was an advocate of making some

1 business decision at a minimum to at least warn people that this product had this increased
2 propensity for CDO, so they would be aware of it and let them make the decision being informed
3 consumers.

4 **Q: Thank you, Dr. Watkins.**

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