EXHIBIT 3

FILED UNDER SEAL

IN THE CIRCUIT COURT
TWENTIETH JUDICIAL CIRCUIT
ST. CLAIR COUNTY, ILLINOIS

- -

DIANA HOFFMANN, individually and as Independent Administrator of the Estate of THOMAS R. HOFFMANN, Deceased, et al.,
Plaintiffs,

v.

SYNGENTA CROP PROTECTION, LLC, et al.,
Defendants.

Case No.: 17-L-517

- -

February 27, 2020
8:31 a.m.

VIDEO DEPOSITION of
DR. CLIVE CAMPBELL, held at the offices of Kirkland & Ellis LLP, located at 30 St. Mary Axe, London EC3A 8AF, United Kingdom, before Chanelle Malliff, Accredited Court Reporter of the United Kingdom and Europe.

C O N F I D E N T I A L

APPEARANCES

Attorneys for the Plaintiffs:
KOREIN TILLERY, LLC
One U.S. Bank Plaza
505 N. 7th Street, Suite 3600
St. Louis, MO 63101
(314) 241-4844
By: Stephen M. Tillery
stillery@koreintillery.com
John Craig
jcraig@koreintillery.com
Rosemarie Fiorillo
rfiorillo@koreintillery.com

WALKUP, MELODIA, KELLY & SCHOENBERGER
650 California Street, 26th Floor
San Francisco, CA 94108
(415) 981-7210
By: Michael A. Kelly
mkelly@walkuplawoffice.com

Attorneys for the Defendants and Witness:
KIRKLAND & ELLIS LLP
1301 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 389-5267
By: Ragan Naresh
ragan.naresh@kirkland.com

Attorneys for the Chevron Defendant:
HUSCH BLACKWELL LLP
190 Carondelet Plaza, Suite 600
St. Louis, MO 63105
(314) 480-1927
By: Joseph C. Orlet
joseph.orlet@huschblackwell.com

Also Present:
Nicole Graham, paralegal, Korein Tillery
Mark Smith, in-house, Syngenta
Phil Viner, Videographer, Veritext

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PROCEEDINGS

(8:31 a.m.)

MR. NARESH: In which case, good morning. The date is February 27. The year is 2020. The time of commencement this morning is 8:32 a.m. We are here in London at the offices of Kirkland & Ellis at 30 St Mary Axe for the deposition of Mr. Clive Campbell in the matter of Diana Hoffmann, individually and as Independent Administrator of the Estate of Thomas R. Hoffmann, deceased, et al versus Syngenta Crop Protection LLC, et al. The case is pending In The Circuit Court, Twentieth Judicial Circuit, Saint Claire County, Illinois. The case number is 17-L-517.

Could I please ask counsel to state their names for the record, their firms and whom they represent.

MR. TILLERY: For the plaintiffs, Stephen Tillery of the law firm of Korein Tillery, St. Louis, Missouri.

THE VIDEOGRAPHER: And on this side we have with you.

MR. TILLERY: John Craig, Nicole Graham, Rosemarie Fiorillo from the same firm.

MR. KELLY: Michael Kelly, Walkup, Melodia, Kelly & Schoenberger, representing the California

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plaintiffs.
MR. NARESH: Ragan Naresh, Kirkland & Ellis, representing the Syngenta defendants.
MR. SMITH: Mark Smith, Syngenta.
MR. ORLET: Joe Orlet, Husch Blackwell, Chevron.
THE VIDEOGRAPHER: Thank you very much. Your videographer today is Phil Viner, and your certified court reporter is Ms. Chanelle Malliff, both of Veritext. Could I please ask Ms. Malliff to swear the witness.

CLIVE CAMPBELL

having been sworn testified as follows:
MR. TILLERY: Before we begin with the deposition we should announce a stipulation that the deposition is being taken pursuant to Illinois practice rules and the Supreme Court Rule 206 provides that other statements need to be made by the videographer. We have stipulated prior to the deposition that the compliance with all of the details of what the videographer must state on the record are not necessary. So the plaintiff stipulates.
MR. NARESH: That's fine with Syngenta.
MR. ORLET: That's fine.
MR. TILLERY: For the record I'll note this

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is a deposition of an adverse party or agent so I'll be conducting it in accordance with Section 2-1102 of the Illinois Code of Civil Procedure 735 ILCS 5/ 2-1102.
MR. NARESH: And we will mark the deposition as confidential under the protective order and we'll reserve the right to read and sign.
EXAMINATION BY MR. TILLERY:
Q. Would you state your name, please?
A. Clive George Campbell.
Q. What is your date of birth?
A. 15 August 1959.
Q. And what is your home address?
A. Nelkenweg 17, 4104 Oberwil, Switzerland.
Q. And your business address?
A. Syngenta Crop Protection AG, Rosentalstraase 67, 4058 Basel, Switzerland.
Q. And how long have you been employed there?
A. Since 2001.
Q. Can you tell me when you graduated from school?
A. 1982, June.
Q. And just generally what are your degrees? What was your study?
A. May I correct, that was when I finished medical school and my -- I studied medicine.

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Q. So let's start and just tell me after your preparatory school, first college and up through the completion of your education, if you would recite those on the record?
A. After finishing school I went to the University of Leeds and studied medicine for five years. I qualified in 1982. I undertook a preregistration house year as it's called in the U.K. and was fully registered as a medical practitioner in 1983. Between 1983 and 1990 I qualified as a general practitioner. In 1990 restarted training as an occupational physician. I finished occupational medicine training in 1998. And I have practised as an occupational physician since then. I was practising as a trainee between 1992 and 1998.
Q. And from 1983 to 1990 did you practice as a doctor?
A. Absolutely. I was what you might call general practice training. I finished general practice training in 1987 and was a general practitioner from 1987 until 1990.
Q. And from 1998 to 2000 in the training position?
A. 1992 --
Q. 1992 to 1998 where were you a trainee?

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A. I was a trainee at what was then Zeneca Agrochemicals.
Q. So a predecessor corporation of the company you're with?
A. Correct.
Q. And the name of the company changed when Syngenta was created?
A. That is correct.
Q. And when did you move to Switzerland?
A. 2001.
Q. And has your job title changed over the years at Syngenta?
A. No, not since 2001.
Q. What were your duties preceding that from your work at Zeneca?
A. Within Zeneca I was the site occupational physician for three Agrochemical sites in the U.K. until 1998 where I became the principal medical officer.
Q. When you say site officer, what does that mean?
A. The doctor on a specific location.
Q. You were a plant doctor?
A. Plant, if you prefer it.
Q. Right. And you were a person who took care

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of employees who were working at that plant?
A. Yes.
Q. Did you provide onsite medicine care for them, or did you co-ordinate it with third party practicing physicians or hospitals?
A. Initially it was the former. More latterly I had to use third parties. So once I became the principal medical officer we had third party support for the sites.
Q. And so for the record then you moved out of the plant doctor positions into what role?
A. The role is called principal medical officer. It was the senior medical officer of a business.
Q. So you went from a plant doctor to that job directly; correct?
A. Yes.
Q. And that was in 2001?
A. That was in 1998 for Zeneca. And then the role became the chief medical officer for Syngenta.
Q. Where were you stationed physically in 1998?
A. Fernhurst in Surrey.
Q. And what facility was that for Zeneca?
A. That was the Zeneca Agrochemicals headquarters.
Q. Were your duties and responsibilities

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generally the same as they are today at that time?
A. No, in reference to being the site or plant medical officer I would have a local hands-on clinical role. When I became the principal medical officer they would be very similar to the role that I have now.
Q. And since 2001 has your job responsibility changed at Syngenta?
A. It's not formally changed.
Q. Did you ever work at a plant where paraquat was manufactured?
A. Manufactured, no.
Q. How many facilities when you started with Zeneca manufactured paraquat?
A. In 1992 it was Widnes and Bayport.
Q. Bayport, Texas?
A. Yes.
Q. When you were -- you told me you were the principal medical officer from basically 2001. Is that limited to any particular areas or a global position?
A. It's a global position limited to occupational medicine.
Q. Could you explain your responsibility in your position?
A. My role would essentially be one of establishing policy, establishing the necessary

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standards, looking at compliance, assisting with the management of compliance and helping provide support to meet the standards.
Q. And how do you interact with other departments of Syngenta?
A. My position sits within the health safety and environment, or HSE department, so directly we work together with the safety and environmental teams. We would be advisers to the line management.
Q. So how are you kept abreast of scientific studies, reports about different chemicals?
A. I work with an occupational toxicologist who is part of my team and they regularly interact with the toxicology departments and the regulatory departments to make sure that we are aware of information.
Q. As a matter of fact it would be very important that you're made aware of all of the results of studies, findings, et cetera that would potentially impact on your area of practice?
A. Certainly the conclusions thereof.
Q. What products were manufactured at the plants that you worked at as a plant doctor?
A. I worked at three plants. Fernhurst was an office block.
Q. I'm sorry, I didn't hear you, sir.

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A. I mentioned I worked at three plants as a site doctor. The first one, Fernhurst, was an office block. The second one, Jealott's Hill, was research and development. The third one was Yalding, which manufactured a number of suspension concentrate products, a number of insecticidal products and it also formulated Gramoxone from paraquat.
Q. How long did you work there?
A. From '92 to '98. I attended there one day a week as the site physician.
Q. Does the U.K. have any statutory or regulatory occupational health and safety rules?
MR. NARESH: Objection. Answer if you can.
A. Yes, it does.
BY MR. TILLERY:
Q. And you're familiar with those?
A. I was certainly very familiar with them in the 1990s when I was working practically.
Q. And you understand that the U.S. has similar rules, right?
MR. NARESH: Objection to form. Go ahead and answer.
A. I'm aware that the United States has rules in a similar area.
BY MR. TILLERY:

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Q. When was the first time that you had any particular knowledge of paraquat?
A. In 1992.
Q. And as chief medical officer has it been important for you to familiarize yourself with all the aspects that you can about paraquat?
A. I like to keep abreast of all toxicological information.
Q. Do you actively do that?
A. Through my colleague that I mentioned.
Q. Could you tell me in preparation for this deposition who you spoke to?
A. I spoke to Rebecca Fitzpatrick.
Q. Who is she?
A. She is a lawyer from Kirkland & Ellis.
Q. You spoke to her in Basel?
A. Yes.
Q. And when was that?
A. Last week.
Q. Last week?
A. Last week.
Q. Was that the first time you'd spoken to anybody about this case?
A. Other than being informed I was to be provide a deposition.

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Q. Have you given a deposition before?
A. No.
Q. Have you testified in a hearing or trial before?
A. No.
Q. Have you talked to anybody since?
A. Just at the start of the week I spoke with Mr. Holmstead.
Q. Would you spell his name on the record?
A. I'll try. H-O-L-M-S-T-E-A-D.
Q. And who is he?
A. He's a lawyer from Kirkland & Ellis.
Q. Where did you speak to him?
A. Here.
Q. And how long have you been here?
A. Since Tuesday.
Q. And today is Thursday?
A. Thursday.
Q. So you haven't spoken to anybody but those two lawyers from Kirkland & Ellis?
A. And Mr. Smith.
Q. And Mr. Smith, who you understand is also a lawyer?
A. Yes.
Q. So has there been any employee or former

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employee of Syngenta you have spoken to?
A. I have spoken to Mr. McRorie, who is the occupational hygienist who works with me. And Ms. Walker, who is the occupational toxicologist who works with me.
Q. And could you tell me when, where and how long those conversations took place?
A. Monday of this week was Mr. McRorie in Basel for about 15 minutes, and Ms. Walker on the preceding Friday for about 10 minutes.
Q. What were the purpose or purposes of those conversations?
A. I wanted to establish with them what the latest hygiene monitoring results were from manufacturing facilities and -- in the case of Mr. McRorie. And to ask Ms. Walker to obtain for me the most current ACGIH occupational or TLV for paraquat.
Q. Did they give you that information.
A. They did.
Q. Have you spoken to any outside consultants of Syngenta in preparation for the deposition?
A. Other than those mentioned, no.
Q. Who are the ones you mentioned? I thought those were employees of Syngenta?

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A. No, Mr. Holmstead --
Q. Oh no, those are lawyers. Forgetting the lawyers, have you spoken to anyone else?
A. No --
Q. Well let's make it channeled and broad to make sure we get everybody. Has there been anybody else that you've spoken to about this deposition other than you've cited on the record?
A. No.
Q. Have you done any other preparation for the deposition other than speaking to these people?
A. No.
Q. What do you understand your role to be here?
A. To provide information as to the controls in place in manufacture and formulation of paraquat products.
Q. Did you understand you were speaking as the corporate representative for both Syngenta Crop Protection LLC and Syngenta AG?
A. Yes.
Q. For purposes of this deposition when I refer to Syngenta, will you understand that I mean both Syngenta AG, and Syngenta Crop Protection LLC?
A. Yes, I understand that.
Q. We can have that understanding?

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A. Yes.
Q. And you understand your role is that you are speaking as those corporations would answering questions that I ask; okay?
A. Yes.
Q. When was the first time that you learned anything about paraquat or knew about it?
A. The first time I heard of paraquat was as a house med, a junior hospital doctor.
Q. When?
A. 1982.
Q. And what were the circumstances by which you heard of it?
A. It was a patient who had deliberately ingested the product.
Q. Did the patient survive?
A. No.
Q. And how long did it take to kill the patient, the paraquat?
A. Something in the region of 5 days.
Q. Did you care for the patient during that period?
A. In part.
Q. Was the patient hospitalized during that period?

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A. Yes.
Q. And it was an intentional taking of paraquat, right?
A. It was.
Q. How much was ingested?
A. I don't recall.
Q. Did you understand that only a very small amount of paraquat is lethal if ingested?
A. At that time I did not.
Q. You know that now, don't you?
A. I do know that now.
Q. Do you understand it's a teaspoon or so of it that would kill a person?
MR. NARESH: I'll object to the scope. Go ahead and answer.
BY MR. TILLERY:
Q. Do you know that?
A. I know that a teaspoon is -- it's slightly more than a teaspoon. A teaspoon is usually survivable.
Q. So a teaspoon and a half you wouldn't want to take?
A. I wouldn't.
Q. And dare say you'd never take a tablespoon, right?

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A. I would strongly discourage anyone from taking any.
Q. Any of it. Because it -- what does it do? What's the mode of action by which it kills people?
MR. NARESH: Objection to the scope.
A. It's acutely toxic. Primarily it affects the renal or kidney function initially. In large doses it will lead to multi-organ failure and death. In intermediate doses it may lead to the development of respiratory or lung fibrosis.
Q. Which also causes death?
A. Which is fatal.
Q. And do you know why it moves to the lungs?
A. I understand -- I do know why.
Q. Why?
MR. NARESH: Object to scope. Go ahead and answer.
BY MR. TILLERY:
Q. It's preliminary information.
A. It is specifically taken into the respiratory epithelial cells.
Q. It's attracted to oxygen-rich environments, isn't it?
MR. NARESH: Objection to scope.
BY MR. TILLERY:

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Q. You knew that?
A. It's not so attracted to them, it is more effective in them.
Q. Which is another way of saying the same thing?
MR. NARESH: Objection to form.
A. It's not quite the same thing.
BY MR. TILLERY:
Q. It certainly does more damage in those areas, would you agree with that?
A. I think that is a fair statement.
Q. Now after that experience and your introduction to paraquat as a physician, what was your next contact let's say or knowledge of this chemical?
A. That was in 1992 when I became the site occupational physician at Yalding.
Q. How is it that you had some contact there?
A. That facility formulated Gramoxone products from paraquat.
Q. And what was your any action with or knowledge of paraquat?
A. I worked with the site operatives to ensure that the product was well-handled and there was -- exposure was well-controlled in the workplace.
Q. That's it? Any more? Did you make

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recommendations for example about personal protective equipment?
A. We assisted with the workplace, or as it was called then health risk assessment, and in the health risk assessment we established whether personal protective equipment was needed.
Q. Did you do that yourself or did you just contribute as part of the team?
A. I contributed as part of the team.
Q. Who was the ultimate decision-maker regarding that issue at that time?
A. I would be the adviser. The facility manager would have been the ultimate decision-maker. But I would have expected them to follow my advice.
Q. Because you were a medical doctor and giving advice from that direction; correct?
A. Yes.
Q. Now what did you know about paraquat's chemical characteristics before you were first employed by Syngenta or its predecessors?
A. Very little, if any.
Q. What did you know about paraquat's herbicidal mode of action before you were first employed by Syngenta or any of its predecessors?
A. Nothing.

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Q. What did you know about paraquat's toxicity to humans or other animals before you were first employed by Syngenta or any of its predecessors?
A. Other than it was toxic, nothing.
Q. And you're talking about being ingested and causing toxicity from your experience as a physician?
A. That was my only prior experience.
Q. Taking care of a patient who died from ingestion of paraquat; correct?
A. Yes, that is correct.
Q. And did you have any further contact with paraquat after that 1982 experience as a physician until you started working at Syngenta?
A. No, I had no contact.
Q. When I say Syngenta, I also mean to include all of the Syngenta entities that were corporate predecessors back to ICI Limited. You understand that?
A. I do understand that.
Q. And are you prepared to address my questions with respect to those time periods as well?
A. I am.
Q. And you were informed that that would be within the scope of this deposition; correct?
A. I was informed.
Q. Do you understand that Syngenta designated

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you to testify for them on certain topics?
A. I do understand.
Q. And they gave you those topics to look at, right?
A. I received an e-mail.
Q. Okay. During the deposition when I refer to "designated topics" will you understand that to mean the topics that counsel told you that you would need to address in the deposition?
A. I will.
Q. And again, I think we touched upon this, do you understand in testifying for Syngenta on the designated topics you're required to answer not based on the information known or available to you personally, not only that, but also based on information or reasonably available to Syngenta. Do you understand that?
A. I understand.
Q. All right. And did you take that into account in preparing for the deposition?
A. I did.
Q. And are you prepared to testify on the designated topics based on information known or reasonably available to Syngenta?
A. I believe I am.

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Q. You believe that your preparation has given you sufficient information to testify for Syngenta on the designated topics?
A. I believe so.
Q. You understand that there's a line of corporate successors, predecessors that go all the way back to ICI and to the beginning of this product paraquat, you understand that, right?
A. I do understand that.
Q. And the scope of the deposition encompasses that period to the beginning?
A. Yes, so I understand it.
Q. For both Syngenta Crop Protection LLC and Syngenta AG; correct?
A. Yes.
Q. The sequence of redox reactions that transforms paraquat cation to paraquat radical and paraquat radical back to paraquat cation is an example of what's called redox cycling, isn't it?
MR. NARESH: Object to the scope. This was the subject of extensive testimony over the last several days from a different witness who was specifically designated for these topics.
MR. TILLERY: For the court, it's a preliminary question. Just a few preliminary questions

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on this topic because I have to understand the witness's knowledge and understanding of this and this will relate directly to his line of topics.

MR. NARESH: If you're asking the witness in his personal capacity whether he has understanding about the properties of paraquat, I don't have a problem with that. But if you're asking for corporate testimony on that, you received that on these topics already.

MR. TILLERY: Well we can take that up later, but I am entitled to find out preliminarily what he knows about this.

MR. NARESH: That's fine as long as it's in his individual capacity.

MR. TILLERY: I dispute that, but we can argue about it later. Could you read the question back to him, please?

(Record read.)

A. This is not my specific area of expertise, although in my understanding of paraquat toxicity I am aware that that is the case.

BY MR. TILLERY:

Q. And do you understand that it is redox cycling that causes the herbicide paraquat to be effective as a plant killer?

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MR. NARESH: Can I have a standing objection?

MR. TILLERY: Yes, you can.

A. I'm afraid I'm less knowledgeable about the herbicidal mode of action of paraquat.

BY MR. TILLERY:

Q. I didn't understand you, sir. I didn't hear you.

A. How it works as a herbicide is not my topic area of expertise.

Q. Well whether it's your topic area, as a physician, as a matter of fact the chief physician in the entire Syngenta operation, how many people are employed by Syngenta?

MR. NARESH: I'll object to the attorney commentary preceding the question.

BY MR. TILLERY:

Q. How many people are employed by Syngenta?

MR. NARESH: Object to the scope.

A. 28,000.

BY MR. TILLERY:

Q. And you're the chief physician for 28,000 people; correct?

A. Correct.

Q. And you're the worldwide registrant for paraquat, right?

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MR. NARESH: Objection to the scope.

BY MR. TILLERY:

Q. Correct, the company is?

A. To the best of my knowledge, yes.

Q. Now in that context can you tell me what redox cycling is?

A. It is the cycling of reduction and oxidation of producing free radicals which are toxic to cells.

Q. So the cycle of reduction of paraquat cation to paraquat radical in one redox reaction and the oxidation of paraquat radical back to paraquat cation in a second redox reaction will continue if both a reductant to participate in the first reaction and O2 to participate in the second reaction are present; correct?

MR. NARESH: Objection; scope.

A. That is my understanding.

BY MR. TILLERY:

Q. And paraquat has a very high potential to undergo redox cycling in the presence of a suitable reductant and oxygen, doesn't it?

MR. NARESH: Objection; scope.

A. That is my understanding.

BY MR. TILLERY:

Q. Now for purposes of your job in understanding

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how to give advice to users and employees of Syngenta who come in contact with this chemical, did you understand that redox cycling, as I have just stated and asked you about, will go on in the presence of a suitable reductant and oxygen, it will just keep cycling? Did you know that?

A. I was aware of that.

Q. And if you didn't have a full and complete understanding you had people to go to, didn't you, in the organization of Syngenta?

A. There are people who I would go to.

Q. And if you had a question about paraquat, who would you go to?

A. I'd go to what's currently called the product safety department.

Q. And who would be the head of that?

A. Steve Maund is the current head. Phil Botham was the prior head.

Q. You call Mr. Botham or Mr. Maund and you'd ask them questions. Have you ever done that about paraquat?

A. I've not actively sought that out.

Q. Okay. So have you ever called them at any time in the period that you've been the worldwide physician for Syngenta and asked them about redox

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cycling properties of paraquat?
A. I have had it explained to me by an expert in the area. Not those two people.
Q. Who was the person who explained it to you?
A. Dr. Wilks.
Q. When? When was that done?
A. When? This would be in the mid-90s.
Q. And what was the circumstance by which you asked about paraquat's redox cycling properties?
A. I wanted to understand the mode of action of a number of chemicals that Syngenta or then Zeneca was producing or working with, and paraquat was one of them.
Q. So you understood then, I presume, that a very small amount of paraquat once entering an oxygen-rich environment can continue redox cycling properties; you understood that?
A. Yes, I did understand that.
Q. And do you know in terms of physiology, which would fit right in your expertise, correct, do you know that dopamine metabolism in the substantia nigra creates an oxygen-rich environment?
MR. NARESH: Object to the form, foundation and scope.
A. I did not know that.

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BY MR. TILLERY:
Q. Do you know what the substantia nigra is?
A. I do know what the substantia nigra --
Q. What is it?
A. It's a part of the brain.
Q. Do you know what it does?
A. It produces dopamine.
Q. And do you know if it reaches a certain level -- strike that. Is the brain an oxygen-rich environment generally?
MR. NARESH: Objection to the scope.
A. Relatively I think.
BY MR. TILLERY:
Q. I mean, in terms of other organ systems, does the brain generate or use a large amount of oxygen?
A. I have to say I'm not entirely sure relative to other organs.
Q. Now how long do you believe that the basic principles of paraquat's redox cycling have been known?
MR. NARESH: Objection to scope.
A. I don't know how long they've been known.
BY MR. TILLERY:
Q. And in terms of the amount of paraquat that can cause redox cycling in a mammalian species, was that something that you have tried to quantify in terms

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of making suggestions or decisions about the type of protective equipments or warnings about exposure to the chemical?
A. That's not been a key end-point of concern.
Q. You've never factored that in?
A. It's never been the end-point that we've been concerned about.
Q. Well can you tell me, has it ever been evaluated at all by Syngenta to your knowledge at least in the department that you're affiliated with?
A. It's not an end-point that we've been concerned about in setting exposure limits.
Q. And is there a reason you've not taken into account the amount of paraquat that causes redox cycling?
A. Because that's not the end-point that we have been concerned about in the studies that we have used.
Q. What is the end-point you're concerned about?
A. The key ones are -- would be carcinogenicity; it's not a carcinogen. It would be reproductive toxicity, repotoxicity --
Q. I'm having trouble hearing you, sir. One would be carcinogenicity and it doesn't cause cancer to your knowledge, right?
A. Correct.

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Q. Okay. What's the next one?
A. It would be reproductive toxicity.
Q. And to your knowledge it doesn't influence or affect reproductive toxicity; correct?
A. Correct.
Q. Okay. And what else?
A. Genotoxicity.
Q. And to your knowledge it doesn't cause an alteration of DNA, or do you know?
A. It's not genotoxic.
Q. It's not a genotoxic chemical, okay. Anything else?
A. Then we would be looking at the acute toxicity then in terms of median lethal dose.
Q. Any other end-points?
A. Those would be the key ones.
Q. Are there any others you've considered with respect to paraquat?
A. Those are the key ones in setting the occupational exposure limit.
Q. And did you consider the neurotoxicity of paraquat?
A. There is no neurotoxicity in the studies that were presented to me.
Q. So would you answer my question though. I have

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you ever considered neurotoxicity of paraquat in establishing those exposure limits?
A. As I said, neurotoxicity is a study that we considered the end-point of, yes.
Q. You did consider neurotoxicity?
A. Yes.
Q. So you studied neurotoxicity because you knew paraquat was neurotoxic, right?
MR. NARESH: Objection to form.
A. I did not study neurotoxicity, the toxicology department studied the neurotoxicity. It's a standard and required investigation and it showed no neurotoxicity.
BY MR. TILLERY:
Q. Okay, so what did your understanding or knowledge of neurotoxicity do in terms of establishing exposure limits?
A. We used a no effect level to establish an occupational exposure limit.
Q. And from your perspective then there's no neurotoxic aspect to worry about in terms of paraquat, right?
A. From the toxicity studies there is no neurotoxic end-point.
Q. And which toxicity studies are you

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referring to?
A. Standard neurotox studies.
Q. And did you establish those exposure limits?
A. The exposure limits -- we have established an exposure limit very -- well, in 2012. Before that we used the ACGIH or the U.K. HSE limit.
Q. And those were standard neurotoxicity limits? What are those standards?
A. Those are occupational exposure limits.
Q. For paraquat?
A. Yes, for paraquat.
Q. And then you established your own in 2012?
A. Yes, we did.
Q. Were you responsible for establishing those limits?
A. In 2012, as part of a team, yes.
Q. And who was on your team?
A. Myself, Mr. Ledgerwood, Mr. McRorie and Dr. Botham.
Q. And were the exposure limits based on acute toxicity?
A. They were based on respiratory toxicity.
Q. So they were based upon the inhalation of paraquat, right?
A. They were based upon the inhalation of

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extremely fine particles of paraquat which are improbable in the real -- in real world exposure but are required for toxicity studies.
Q. And which studies did you use to establish those levels in 2012?
A. We used inhalation toxicity studies that had been generated by internal and external experts.
Q. Which ones is what I'm asking?
A. I'm afraid I do not remember the name of the study authors.
Q. And which ones had been generated internally?
A. And when you say which ones, I'm sorry --
Q. Which of the studies had been generated internally that you relied on?
A. Which -- in --
Q. When you say inhalation studies you relied upon came from inside the company and outside the company, I'm trying to ask you which ones were generated within the company that you relied upon?
A. I cannot recall the names of the authors at this point in time.
Q. Do you remember anything about the studies?
A. I remember the end-points which was the key --
Q. You remember the results, right?

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A. (Witness nods).
Q. Do you remember anything about the external studies?
A. The same. It was the results.
Q. Were any of those studies chronic long-term inhalation studies?
A. They were not all acute but they were not long-term either. They were short-term but not single dose.
Q. So when you say short-term, what does that mean? How long were these studies?
A. They would run for weeks.
Q. Oh, weeks. How many weeks?
A. I'm afraid I do not remember the details of the studies at this point in time.
Q. Did you ever consider chronic long-term exposure studies?
A. I personally have not. That would be a decision for the toxicology department.
Q. Can you explain what the TLV standard was that you referenced earlier in the deposition?
A. The TLV stands for threshold limit value. It's set by the ACGIH. It's a non-regulatory standard usually quoted as a time weighted average.
Q. And which regulatory standard in which

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country established that TLV?
A. TLV is specifically something that is produced by the ACGIH in the United States.
Q. In the United States?
A. Yes.
Q. So we're clear, the exposure limits you said never took into account chronic long-term exposure to paraquat; is that a correct statement?
A. No, that is an incorrect statement.
Q. Okay, so which studies then, which were chronic long-term exposure studies, did you rely on?
A. The long-term exposure studies for carcinogenicity --
Q. For carcinogenicity.
A. And for neurotoxicity, and for -- for the long-term exposure studies.
Q. And which ones were those?
A. They would be two-year rat and/or mouse studies.
Q. Two year -- I'm having trouble hearing you. If you keep your voice up just a little bit. They were two year what?
A. Rat studies or mouse studies.
Q. Okay, and when was that study done or those studies done?

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A. I don't recall the exact dates of the studies.
Q. And who did those?
A. They would have been done by what is now called product safety.
Q. And were they published? Were the results published anywhere?
A. The results -- we're getting a little beyond my area of expertise. This is the area of toxicology and regulatory science.
Q. Yeah, what I'm trying to find out is you relied, in establishing a threshold limit, on some studies. What I'm trying to find out is who did them, what were the circumstances, what were the design protocols. Can you answer any of those questions?
A. I can say that the studies were done to GLP and they were satisfactory for the regulatory bodies who registered the product.
Q. And do you know anything else that you can share with us on this record about the studies, where they were done, how long they took?
A. I am not the best person to answer those questions.
Q. So do you know for example how long the animals were exposed to paraquat?

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A. The studies go for a standard -- they have a standard protocol that I am aware of and they would have been -- a two-year study would be two years.
Q. And how many animals were involved?
A. That is a level of detail that I am unaware of. I would use the study output.
Q. Do you know how the paraquat was administered to them?
A. I do not know how it was administered.
Q. What were the end-points that they were looking for or generated by the studies?
A. Depending on the type of study it would be cancer, or neurotoxicity, or reprotoxicity.
Q. Let's just talk about neurotoxicity for a moment. Do you know those studies?
A. Not in detail. I'm not a toxicologist.
Q. Is there anything else you know about those that you relied upon in setting the exposure limits?
A. As a panel we involved an expert. That expert helped advise us on the value of those studies and we used the numerical end-points to design or to determine the relevant no effect level and therefore the occupational exposure limit.
Q. Okay, so we're clear, you actually saw a long-term exposure study using paraquat yourself,

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right? That's what you're telling me? Because I'm just going to represent something to you on the record. That your company, and we've gone through significant discovery, has never produced to us, and I'll represent this to you, what we have determined to be a long-term paraquat exposure study through respiration. We've not seen that. And what I'm trying to do is get the details from you. If you have that study or you're aware of it we'd like to know the details of it?
MR. NARESH: So I'll object to the form of the question.
A. I know that the studies of -- that I'm talking about were not by inhalation.
BY MR. TILLERY:
Q. I thought we started this whole line by inhalation studies? So you didn't do an inhalation study?
A. We're talking about acute inhalation studies that were done in as early as the 1960s.
Q. Okay, acute inhalation.
A. Yes.
Q. So you're familiar with studies in the '60s, right?
A. Yes.
Q. Now I thought I'd asked you it, but

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apparently we disconnected here a bit. I thought I asked you if, when you established these threshold limits, if you relied on chronic exposure studies and long-term exposure studies of paraquat from a respiratory standpoint?
A. In which case I apologize. I thought you were referring to long-term studies by any route.
Q. Which means carcinogenicity or anything else with different end-points, right?
A. Yes.
Q. That's what you were answering?
A. I was answering with reference to long-term studies which were certainly almost -- so they would be certainly by the oral route.
Q. Now, just so we know then and we're clear, if you're relying on long-term studies of as you say the oral route, which are those studies?
A. The ones that I have mentioned previously.
Q. Do you remember when they were done?
A. No sir.
Q. And you're talking about the feeding of rats or mice foods -- food that has been laced with paraquat?
A. It's talking about dosing animals orally, yeah.

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Q. Okay, so you dose the animals and then do it for some period of time and then after you've -- a period of time they're sacrificed and analyzed; correct?
A. That is what is done by the toxicology experts. It's not my personal field.
Q. Now let's move into a different realm and talk about inhalation toxicology, okay? Are you aware of any long-term inhalation study of paraquat?
A. I am not aware of any.
Q. And you certainly didn't use any in establishing exposure limits, did you?
A. We did not.
Q. And you're not aware of Syngenta ever having conducted one either, are you?
A. I am not aware personally.
Q. How many of the 1960 studies did you look at?
MR. NARESH: Objection to the form. Can you clarify when? In 2012 or for preparation for today?
MR. TILLERY: Any time in his association with Syngenta.
A. I have not personally reviewed those studies.
BY MR. TILLERY:
Q. Okay, you've just been made aware of the results of them?

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A. That is correct.
Q. And being made aware of them means somebody from the toxicology department sent you an e-mail or a letter or a phone call telling you what the results were, right?
A. Specifically that's not precisely what happened.
Q. How did it happen?
A. My colleague, who is an expert in toxicology, collated those results into a paper for us to review in preparation for producing the OEL.
Q. If you knew that paraquat was neurotoxic, if you'd been aware of the neurotoxicity of paraquat, would that have altered the approach you took on establishing threshold limits?
A. We have no evidence to suggest that paraquat is neurotoxic.
MR. TILLERY: I move to strike your response answer as non-responsive. Read the question back to him?
(Record read.)
MR. NARESH: And I'll object to the form of the question.
BY MR. TILLERY:
Q. Can you answer, sir?

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A. We were not aware -- we are not aware that paraquat is neurotoxic.
Q. Okay, had you been made aware that it was, okay I'm just asking you to assume that, had you been made aware of it, would that have influenced or altered your exposure limits?
A. It would depend hugely on whether it was material to the limit.
Q. You referenced in the deposition OEL, is that what you said?
A. Yes.
Q. Is that an occupational exposure limit?
A. It is.
Q. And what is the definition of an occupational exposure limit?
A. That is a limit that a worker can be exposed -- safely exposed to for 8 hours a day for 50 weeks a year for a working lifetime.
Q. Now how were you informed of the results of ongoing studies about paraquat?
A. Through conversations with members of the product safety team.
Q. And who would those people have been?
A. Principally Dr. Botham and Mr. Cook.
Q. If they became aware of studies showing the

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neurotoxicity of paraquat you would have expected to be made aware of them, right?
A. Had they found anything I would expect them to tell me, if it is relevant to the worker.
Q. Because it would be relative to your understanding of the neurotoxic effects, right?
A. It would be relevant to the whole safety of the product or process.
Q. And that's something that you think is essential for your job to be made aware of all that information, right? Would you agree with me?
A. I think it's really -- it's important that we are aware of any hazard that might materially affect how we handle a product in manufacture.
Q. Particularly if such studies impacted warnings about paraquat or worker safety or anything of that, that would be something you'd want to be made aware of, right?
A. I would expect to be informed of anything that might materially affect the --
Q. Now, were you made aware of studies showing that paraquat gets into the brain of humans who ingest it?
A. Yes, I was aware of that.
Q. From the 1960s?

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A. More recent than that I recall.
Q. Okay. Were you made of any strike that. Were you made aware of any autopsy studies showing that it got into the brain of people who ingested it?
A. I specifically was not.
Q. Okay. Were you made aware of any studies performed by Dr. Louise Marks in the early 2000s studying the neurotoxicity of paraquat?
A. I'm afraid I'm not aware of it by that name.
Q. So you're not aware of any mouse studies being performed at CTL, 2003, 2004 involving paraquat by Dr. Louise Marks, the reviewer being Dr. Nicholas Sturgess, they never sent those to you?
A. Not specifically by those names, I'm afraid I don't know.
Q. Well, what is it that you got made aware of? I really would like to just get to it. Your counsel has asked to shorten the dep to 3 o'clock. If we co-operate and work together. If you just please try to answer my questions. Do you understand those studies or not?
A. I do not.
Q. Okay. Have you ever been made aware of any studies done during that time period, let's say between 2002 and 2007 by Dr. Louise Marks, an employee of

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Syngenta, were you ever made aware where she was the principal investigator?
A. The difficulty in answering you honestly is that I do not -- if you can tell me the nature or the substance of those studies I might be able to help.
Q. There were stereology studies of mouse injection, intraperitoneal injection of paraquat?
A. I apologize. I am aware of those studies. I did not know they were performed by Dr. Marks.
Q. And what was your -- strike that. When were you made aware of the studies?
A. It would be almost certainly as they were reported.
Q. Okay. What is your understanding of the results of those studies?
A. The studies by Dr. Marks I believe showed that at extremely high -- highly toxic doses of paraquat by a highly unrepresentative route of exposure that there was loss of the ability to find some cells in the substantia nigra.
Q. What were the doses that you understood were used?
A. The doses were close to the median lethal dose.
Q. Well what would that be?

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A. The actual dose -- I'm afraid that's a level of detail I don't know.
Q. Well what would the lethal dose be?
A. In the range of 50 milligrams per kilogram.
Q. Did you understand that that's what she used? Is that what they told you?
A. That's what they told me.
Q. Just of the lethal dose, right?
A. That's what I understood the --
Q. Okay. And namely the dose was so high that it was basically on the threshold of killing the animals; correct?
A. That was my understanding.
Q. So that an explanation for the findings of loss of dopaminergic neurons was due to acute toxicity or systemic toxicity. Did you understand that?
A. I understood that the -- that the findings were in association with an extremely toxic -- an extremely high dose of paraquat, that's what I understood.
Q. And you thought that -- that's -- in most mouse studies that would be roughly 50 milligrams per kilogram of paraquat intraperitoneally; correct?
A. That would be correct as I understand it.
Q. You said you were made aware of the Marks

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studies as they were reported. When was that?
A. It would be in the mid-2000s.
Q. And who made the report to you or made you aware of the results?
A. That would be Dr. Smith at the time.
Q. And did you participate in the decision to not report those findings to the USCPA?
MR. NARESH: Objection to the form; scope.
A. I had no involvement in any regulatory decision. My only involvement was as an occupational physician.
BY MR. TILLERY:
Q. Did you ever get a copy of the actual report of the study?
A. No sir.
Q. Did you ever ask for one?
A. No sir.
Q. Did you ever think that would be important to the performance of your job duties in oversight of worker safety at the Syngenta plants?
A. The results of those studies were not considered of any relevance to the occupational setting where we're talking about exposures --
Q. At such high levels?
A. It's not -- we would not expect -- would not

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allow exposures anything near those levels, anything remotely near those levels.
Q. Okay. So, what levels would you consider to be environmentally relevant?
A. If we're talking the workplace environment then we have an occupational exposure limit of 0.01 milligrams per meter cubed now.
Q. Do you ever use intraperitoneal injection studies to establish occupational exposure limits?
A. No.
Q. What types of studies do you limit your reference to for purposes of establishing what you refer to as OELs?
A. We would consider any regulatory study that was performed.
Q. A regulatory study being one that was performed by Syngenta for purposes of sending to a regulatory body?
A. That would be correct.
Q. Did you ever think about using those in the published literature, peer review journals?
A. We rely on our internal regulatory documents for the setting of our OELs.
Q. Did you ever read a study by McCormack in 2002 regarding paraquat neurotoxicity?

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A. I did not.
Q. Did you ever read a study in 2002, 2003 by DiMonte regarding paraquat toxicity?
A. I did not.
Q. Did you even know who those researchers are?
A. I have heard of the latter.
Q. DiMonte?
A. Yes.
Q. How have you heard of him?
A. I've heard his work mentioned by our colleagues in product safety.
Q. Do you know what he concluded or findings he made?
A. I do not. I have ...
Q. So is it safe to say that you never incorporated any of Dr. Louise Marks' studies into any aspect of your job, in terms of either establishing occupational exposure limits or making recommendations about such; correct?
A. Those studies were not considered relevant to the setting of occupational exposure limits.
Q. So the answer to my question would be clearly "yes" you never considered them and never used them?
A. We did not use those.
Q. Do you know how many studies Dr. Marks did?

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A. I do not.
Q. Do you know if the replicability of the study would enhance its reliability?
MR. NARESH: Objection to the form. Scope.
A. I am not a toxicology expert.
BY MR. TILLERY:
Q. Well, let me ask you, isn't it a fairly general statement that applies to medical doctors in a laboratory or to scientists, other scientists, that repeating test results or replicability of test results is sort of a fundamental notion or tenet of science; you understand that?
MR. NARESH: Objection to scope. You can answer if you know.
A. It would seem sensible.
BY MR. TILLERY:
Q. Were you ever told by Dr. Smith, you said who informed you of results -- he did, correct?
A. He did.
Q. Did Dr. Smith or anyone else at Syngenta ever tell you that Dr. Marks conducted a study to rule out general toxicity for the loss of dopaminergic neurons she found with paraquat?
A. Not specifically. I have no recollection of that.

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Q. And had she done such a study would that have been important to you to know?
A. I think the key for us would be what the doses were and where they were relevant to the workplace, and my understanding is that the doses were highly irrelevant to the workplace.
Q. I move to strike your answer as unresponsive would you read my question back to the witness, please.
(Record read.)
A. I'm sorry, that's not the question I remember.
MR. NARESH: Do you need to hear it again?
A. Yes, please.
BY MR. TILLERY:
Q. And read the one before that, please.
(Record read.)
A. Were such a study done and were it done at representative doses then it would be important to know. If it were at unrepresentative doses it would not affect the exposure limit.
Q. So you wouldn't care? You wouldn't care about knowing about it one way or another, right?
A. That's not what I said.
Q. Well let me just ask you. As the chief medical officer of Syngenta worldwide, is that

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something you would have wanted to know about?
MR. NARESH: Objection: asked and answered.
A. Say again, I'm sorry?
MR. NARESH: I was just objecting. Go ahead and answer if you remember the question.
A. I would be interested in the results of any studies per se. The question as to whether it would alter the occupational exposure limit is different I think.
BY MR. TILLERY:
Q. But you never know if you don't hear about it, right?
A. I don't know what I don't know.
Q. That's right. So if you're shielded from that information you can't really give an adequate use or explanation of that information, right?
A. I don't have any recollection of being shielded from any information.
Q. Well would you agree with me that the free flow of scientific information, the sharing of scientific information is essential to the advancement of science? General. This is a general proposition.
A. Generally speaking that would sound sensible.
Q. Did you ever inform Syngenta employees about the neurotoxic potential of paraquat?

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A. It was never considered of any practical relevance to Syngenta employees to inform people of the neurotoxic.
Q. I move to strike your answer as unresponsive. Would you read back the question, please.
(Record read.)
A. We have a population of ex-ICI/Zeneca workers who were the subject of a long-term follow-up, and in that population, because of their involvement, we did inform them of the outcome of a Widnes study that we did which looked at the potential for Parkinson's disease to have occurred in them.
Q. So you informed the people at which facility or facilities about the neurotoxic effects of paraquat?
MR. NARESH: Objection to the form. That's a different question than you previously asked.
BY MR. TILLERY:
Q. Well that's the question I asked before, I hope you were answering.
MR. NARESH: No, it's not.
BY MR. TILLERY:
Q. You weren't answering that question, sir?
MR. NARESH: No, you were asking -- your prior question was about neurotoxic potential --
MR. TILLERY: Are you objecting to something

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or not? Are you making an objection? If you're not then you know what you should do right now, you know what I suggest you do?
MR. NARESH: Steve, I suggest you ask your question.
MR. TILLERY: I was asking one.
BY MR. TILLERY:
Q. Now, do you want this read back to you?
A. Please?
(Record read.)
A. In terms of neurotoxic effects of paraquat, we have not identified that there are any neurotoxic effects relevant to workers so we have not informed any workers thereof.
BY MR. TILLERY:
Q. And has that been the case to your knowledge from the beginning of the usage or manufacture of paraquat up until today's date?
A. I think that is correct. Just we have not made any representations to workers about neurotoxicity of paraquat because there is none -- no concern in the --
Q. Whether you have concerns or not, I'm trying to get an answer to my question. Let's start over. If you want to venture those topics, you can with counsel.

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What I'm looking for are direct answers to my direct questions. From -- start over, okay?
From the beginning of the time that any Syngenta corporate predecessors, which would be ICI, started the production of paraquat and the sale of paraquat throughout the world, up until let's say this morning, have you ever informed any of your workers about the neurotoxic potential of paraquat?
A. We have made no such representation.
Q. During that same period of time from the beginning of production, manufacture, sale, distribution of paraquat, I think first in 1962 in this country, until today, have you ever told users, consumers, farmers who use paraquat of any neurotoxic potential of paraquat?
MR. NARESH: Object to the scope.
A. I'm afraid I am unaware as to what has gone on with stewardship activities.
BY MR. TILLERY:
Q. With what?
A. End-user activities, any --
Q. Okay, you don't know anything about end-user warnings?
A. I don't know about end-user warnings.
Q. Only plant?

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A. Correct.
Q. Okay. Did you ever tell any people who whether employees or anybody else who mixed, loaded or applied paraquat anything different about the neurotoxic potential of paraquat than what you told the people who bought it?
MR. NARESH: I'll object to the scope to the extent it's beyond the workers, which is the scope of today.
BY MR. TILLERY:
Q. Let me start over and reframe the question. Did you ever tell people who worked at your plants producing the chemical paraquat anything about neurotoxic effects that was different than what you told people who bought the paraquat from you?
MR. NARESH: Same objection.
A. I don't know -- I cannot answer the question in terms of the end-users and what they have been told.
BY MR. TILLERY:
Q. Did you ever tell people who worked in plants in the production of anything different about the neurotoxic effect of paraquat than you may have told people who mixed, loaded and applied it at research facilities or field trials?
A. We have never told anyone any different.

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Q. So that means whether or not they were involved in any aspect of production or any aspect of testing, mixing, applying it at research facilities or test fields, they've never been informed that the chemical is potentially neurotoxic; correct?
A. They have not been informed of any concern about neurotoxicity.
Q. Who made the decision to -- regarding that -- strike that question. Who made the decision not to tell them?
A. I'm not sure I can answer that question helpfully.
Q. You didn't make that decision I guess?
A. More to the point, there was never -- it was never considered there was anything to tell therefore we didn't tell anybody anything.
Q. Who at the Syngenta company decides what warnings about toxicity of substances are given to employees at Syngenta facilities?
A. The key document would be the material safety data sheet and that's produced by a group within Syngenta who write those material safety data sheets.
Q. And where is that group located?
A. It's located in Basel.
Q. What is the name of the group?

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A. The material safety data -- or, the safety data sheet team.
Q. The safety data sheet team?
A. Correct.
Q. And they decide what warnings are given to employees?
A. They decide what goes on the safety data sheet. The safety data sheet is a key tool in communicating hazard.
Q. Does the safety data sheet contain the information that should be supplied to employees?
A. It contains information that should be supplied to employees.
Q. Are there any other warnings to employees beyond the safety data sheets?
A. The key process for managing workplace hazards is the workplace risk assessment which now is replaced what we used to call the health risk assessment. In this process we identify the workplace hazards, who can be affected, what the controls are, what the current controls are, what other controls may be needed, and as part of the output we decide what hazard information needs to be communicated. So this is done on the basis of hazard information, as in the safety data sheet, and local controls currently in

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place, the local situation.
Q. How are the workplace hazards and the information about controls communicated to employees?
A. It depends on the facility. Sometimes it is with the safety data sheet. Often it's with warning labels and/or descriptions of controls that must be employed during the use of the or the production of the product.
Q. We had talked about telling employees about neurotoxicity and you told me that you'd never done that. I'm going to expand that topic a little bit for the next question, okay?
Have you ever given Syngenta employees any warnings about long-term exposure to paraquat spray or mist?
A. When it comes to that sort of use that would be handled using the product label if people are using the product.
Q. I'm talking about employees.
A. I realize, but as the product is a registered pesticide the key communication tool for that group would be the product label.
Q. So in other words, whatever the restrictions or recommendations or warnings were to the end-user, were equally applicable to your plant workers?

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A. I was talking about people using it as a product, as a herbicide. The plant workers are involved in the manufacture of that herbicide.
Q. Right, and what I'm trying to find out is what did you -- what warnings or instructions did you give them about long-term exposure to paraquat spray or mist whether or not you believe it's neurotoxic?
A. Yeah, I'm just -- our plant workers, by which I take it you mean the people who manufacture, formulate --
Q. I'm talking about the people that you employ, who are in your facilities who make paraquat?
A. Who make paraquat. They would not be exposed to a spray mist in any way, shape or form.
Q. And the -- including the manufacturing, formulation, packaging --
A. Mm-hmm.
Q. -- they would never be exposed to a spray mist?
A. They would not.
Q. Okay. And there would be no reason because they were never exposed to tell them anything about that, right?
A. We would not need to tell them how to manage spraying.

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Q. Did you ever consider the potential routes of exposure to your plant workers who make paraquat from the chemical?
A. Yes, we would do that. We do do that.
Q. What are they?
A. Well the key -- the only viable route of exposure would be ingestion, and ingestion is managed by not allowing eating, drinking or smoking in the workplace because paraquat product -- because paraquat is highly water soluble, not volatile, and very poorly absorbed through the skin, the potential for exposure in the manufacturing facility is now virtually nil.
Q. So you understand that just licking your lips creates the potential for airborne dust of paraquat to become absorbed into the body, right? Did you know that?
A. I think the point I was making is that there is no opportunity for it to get on your lips for you to lick them in the workplace, unless you deliberately contaminate yourself. Which is, again, not possible with the processes involved.
Q. When you say the processes involved, what do you mean?
A. The manufacture of paraquat is now an entirely closed process and the output is paraquat in

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solution, which is then moved to a formulation facility in solution where it is then formulated into the final product.
Q. Are the potential routes of exposure in formulation and packaging facilities different than manufacturing facilities of the active ingredient?
A. Broadly they're very similar.
Q. Is there any difference?
A. There are more people involved in the formulation -- in formulation and filling and packing than in manufacture, which is largely an automated process now.
Q. How long have you had a closed system in paraquat manufacturing?
A. A very long time.
Q. Explain to me again, if you wouldn't mind, what a closed manufacturing system is?
A. In terms of paraquat this would mean that the raw materials are moved into the manufacturing process vessels from external tanks by pumps. The process, the manufacturing process takes place inside the vessels, and the final product is what effectively comes out of the end of the product -- the end of the process, I apologize, into a drum or a tanker.
Q. So effectively you prevent exposure to your

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employees of the active ingredient?
A. We -- the process would do that, yes.
Q. And you said that's been in existence for a very long time. How long?
A. Certainly the LTS process that was run in Widnes in the '80s, that in Bayport that was run in the '90s and early 2000s, and the two new manufacturing processes -- I say "new". The two processes in Huddersfield and Nantong would be relatively closed.
Q. So is any employee directly exposed to the finished product in the open air?
A. There is some drum filling. There is some tanker filling. But again, the product is in solution. It's not volatile. The skin is a very effective barrier, so the likelihood of systemic exposure is extremely low. In fact very low.
Q. What I'm trying to get at is you make the effort to make sure that your employees are not exposed to the active ingredient; correct?
A. We make the effort to make sure that all employees of all products within Syngenta are not exposed. It's a general principle that we would adopt.
Q. And on what studies do you base your conclusion that skin is a very effective barrier for paraquat?

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A. I'm basing this on information received from our toxicology colleagues.
Q. What did they tell you?
A. They told us that skin -- that a very small amount of paraquat is absorbed in studies.
Q. Through the skin?
A. Through the skin.
Q. So you don't have to really be concerned about it if it's just exposure to the skin, right?
A. I don't have to be concerned about a systemic absorption. I mean clearly we'd want it washed off the skin as quickly as possible. That would be standard practice for any chemical exposure.
Q. Has anyone in your toxicology department ever made you aware of dermal studies of exposure routes of paraquat?
A. I've been -- as I have mentioned before, I've been given the outcome of those studies.
Q. Which? For dermal exposure?
A. For der -- for absorption.
Q. Dermal absorption. And paraquat coming in contact with the skin and then being absorbed in the system; what do you understand happens when that occurs?
A. My understanding -- the question I think

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you're asking is, how much paraquat is absorbed through the skin?
Q. No, I'm asking you the physiology involved of what happens when paraquat winds up on your skin? Do you understand if it can get into your body?
A. My understanding is a very, very small amounts.
Q. What does that mean? What is a -- is that a scientific term "very, very small"?
A. My understanding is it's something around about a 3 percent absorption rate.
Q. 3 percent absorption rate. Is that what you you've used and relied upon in terms of formulating your exposure limits?
A. The exposure limits are set primarily for the protection of exposure by inhalation. That's the standard --
Q. We're talking dermal exposure now.
A. I'm sorry, I thought you were asking me about the exposure limits.
Q. Yeah, so they've only been inhalation exposure limits?
A. Exposure limits -- it is normal, it is standard that exposure limits are set for controlling exposure by inhalation.

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Q. So you've not even factored dermal exposure in your occupational exposure limits?
A. That would not be correct.
Q. So how have you considered them?
A. We know that the dermal median lethal dose is very high and that the material is toxic by ingestion, or moderately toxic by ingestion. So we know that if we were working to an exposure limit for inhalation, and we're using baseline personal protective equipment, that there is no risk from the -- exposure by the dermal route in the workplace.
Q. What clothing or equipment has been required of Syngenta employees when they're working around the active ingredient in a manufacturing or formulation plant of Syngenta's?
A. We would use standard or baseline workwear which would be an overall or a coverall, safety steel toecap boots, mainly for mechanical hazards. Light eye protection or safety glasses. There would be an expectation of wearing gloves if you're involved in getting into the process. And a hard hat is standard workwear in Syngenta. That is standard for all chemicals -- for all chemicals that we handle.
Q. Can you explain to me the plant processes and equipment at the Widnes plant and at Huddersfield that

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have been implemented to make workers safety with respect to paraquat?
A. So I think I need to start by saying they're two quite moderately different processes, and Widnes of course had some very different processes in the past. So talking about Huddersfield, which is the current plant.
Q. Sorry, talking about what?
A. Huddersfield. Talking about Huddersfield, which is our currently operating plant in the U.K., the standard workwear there would be coverall, light eye protection, gloves, boots and helmet. The process is otherwise only -- well the only time a worker would come into contact with the process is in the area of sampling where -- would be in sampling, and additional protection would be used there in the form of a face shield.
Q. Any respirators required?
A. Respirators are not required -- they're not required in this process.
Q. In manufacturing?
A. In manufacturing facilities.
Q. Of paraquat?
A. In the manufacturing of paraquat in Huddersfield.

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Q. And have they ever been used?
A. Respirators have been used -- or I say respirators. Respiratory protection has been used in the past, in the early processes for the manufacturing of paraquat, yes.
Q. And when you say the "past" and "early", can you affix some dates to those times?
A. Sure. In the original manufacturing process by the high temperature sodium method, which was employed in the very early '60s. '62 to '64 give or take, then respiratory protection was required there.
Q. At that time in '61?
A. In that early time period of yeah '62 to '64 when the HTS program.
Q. And that was around paraquat?
A. That was around the generation of 4,4'-bipyridyl and its final methylation into paraquat.
Q. And you said '62 through what period, '64?
A. '62 to '64 was when the high temperature sodium plant was operating. Between '62 and about '66 there was an additional -- an alternative process called MAG, which again respiratory protection was employed in the manufacturing process at times. And from '66 onwards the low temperature sodium process was employed at Widnes. And certainly by the '80s that

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process was such that the respiratory protection was not required.
Q. What date was a respirator disregarded or not required?
A. I don't have that information specifically as to when.
Q. But it was in the '80s?
A. It's certainly by the '80s it wasn't.
Q. Okay. So from '62 to '80 you think a respirator was required, roughly in that period?
A. I have seen evidence that the process of methylation as it's called, the methylation of 4,4'-bipyridyl, a resp -- I say a respirator, it's a dust mask that is employed in that process.
Q. And I was going to ask you that. When you use a respirator during these periods of time, '62 to '80 in that period, was there a change in the type of actual mask or respirator that was used?
A. I have seen evidence that it was proposed. I don't know the outcome or the decision that was made.
Q. So you don't know what they were actually using?
A. I don't know specifically what -- which of the two types they were using.
Q. Well, what were the two types?

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A. Just in the heat of the moment I've forgotten the names, but they're effectively filter -- non-powered filter masks.
Q. A non-powered filter mask?
A. Yes.
Q. Could you describe that on the record?
A. I'll do my best. I would call it is dust mask that is form fitting. If I can give a contemporaneous example?
Q. Of course.
A. It's the sort of mask of its day that is now being recommended for people protecting themselves against the coronavirus.
Q. Okay. That gives us a poignant point of reference. So that type of mask is what you think they were using as one alternative possibility?
A. Yes.
Q. And what was the other one?
A. A similar version and I'm afraid it's probably an essentially similar type of masks that we're looking at difference in supply rather than difference in performance.
Q. Were they ever using canisters, respirator canisters, do you know what those are?
A. I do know what they are. I cannot give you

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an equivocal answer that would be clear and honest so I don't know specifically.
Q. Do you know of any use of canisters by Syngenta employees working around paraquat in any capacity?
A. I'm aware that in certain facilities where they break into filling vessels they occasionally choose to wear that sort of -- I think canister is -- I would use the word cartridge now, if that's okay, the smaller plastic version of a canister.
Q. Do they use cartridges today?
A. Occasionally.
Q. Where?
A. I've seen them in use in Nantong in the formulation area. And in a number of other facilities where the filling vessel is stopped and opened.
Q. Talking about Thailand?
A. That would be another example where I have seen it in the past.
Q. What was the chemical exposure risk that was required -- that required the use of a mask?
A. From our workplace risk assessment or health risk assessment we would establish that this was not required for this activity and that the operator of the facility chose to employ this in what we would call

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secondary protection or secondary prevention.
Q. How long have cartridge respirators been required or available to Syngenta employees working around paraquat?
MR. NARESH: Object to the form.
A. Those types of respiratory protection has been available for many years and therefore it's potentially available to Syngenta/ICI/Zeneca employees.
BY MR. TILLERY:
Q. And by that I mean made available to the company -- strike that. By that I mean made available to the employees by the company. Do you understand that?
A. Yes, I understand your question. They have been made available for -- they have been available for all of the duration that paraquat has been manufactured. The workplace risk assessment indicates that are not required as primary prevention.
Q. And how often are they used?
A. It would be for occasional -- if I can just say our practice and our process would say that the use of PPE is to be avoided and control should be by other means where possible. For occasional or non-routine tasks PPE is allowed to be employed and may be part of the control process there.

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Q. Are you aware of warnings or instructions to end-users of a product and what goes on the label of paraquat containers?
A. I am aware of the label in the U.S.
Q. Are you aware of there being any difference in what Syngenta has warned or recommended on labels of its paraquat products from what it requires of its employees in Syngenta's paraquat manufacturing plants?
MR. NARESH: Object to the scope. You can answer if you can.
A. I think -- sorry. Our operators manufacture, formulate, fill and pack any and all of those every day of their working lives. Should there be an unusual occurrence we would say that the use of PPE is allowed. So I think there is some similarity as with the person who uses paraquat occasionally as a product, or uses Gramoxone should I say occasionally as a product.
BY MR. TILLERY:
Q. Do you have any understanding as to whether employees of Syngenta manufacturing plants potential exposure to paraquat by any route of exposure is different than that from what is anticipated of the users, end-users of the chemical?
MR. NARESH: Same objection.
A. My understanding would be the key difference

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would be that of time, as in the simple amount of time that a manufacturing worker is working in manufacturing, formulation, fill or pack, as in all the time as opposed to an end-user who would use it occasionally.
BY MR. TILLERY:
Q. So in general terms would you believe that your plant workers have greater exposure to paraquat in the manufacturing process than the typical or usual farmer end-user?
A. I think there is a greater potential for exposure, yes.
Q. You said at Syngenta the use of personal protective equipment is to be avoided, right?
A. The use of personal protective equipment as the primary means of control of exposure is to be avoided, yes.
Q. And why is that?
A. Because personal protective equipment is uncomfortable, particularly if you're going to use it all day and every day. It needs a lot of careful managing and it's not as effective as the use of -- the employment of engineering controls where they're available.
Q. In other words using an automated system or

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systems to prevent exposure versus using or relying on personal protective equipment to prevent exposure; correct?
A. The former is preferable for routine and repeated activities.
Q. So let's go back to Widnes from the beginning of the early '60s during production up until the time you became the director of the medical division, okay, that period of time.
MR. NARESH: Stephen, we've been going for about an hour and a half.
MR. TILLERY: We can take a break.
THE VIDEOGRAPHER: In which case, we will go off the record at 10:19.
(Break taken.)
THE VIDEOGRAPHER: We are back on the record as of 10:41. This is now media 2 in the deposition of Mr. Clive Campbell. You may continue.
BY MR. TILLERY:
Q. So we were discussing the Widnes plant and you're familiar with the operations of the Widnes plant?
A. I've never been to the Widnes plant during its operation because it closed in 1995 and at that stage I was the site physician for Yalding.

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Q. So how did you get your information about the Widnes plant?
A. That facility at the time was operated by a part of ICI Zeneca called the fine chemical manufacturing organization and it -- so I spoke with their medical officer to find out what was going on there.
Q. And that medical officer is who?
A. That at the time was a gentleman called Magnus Taylor, Dr. Magnus Taylor. T-A-Y-L-O-R.
Q. And is he still employed in a similar capacity?
A. Unfortunately he's deceased.
Q. And what was his role at the Widnes plant?
A. He was a principal medical officer for that group, the fine chemical manufacturing organization.
Q. During the period of time that the Widnes plant first started making paraquat?
A. No, he was younger than that. So he was -- he would be a contemporary of mine at that stage.
Q. So do you know when he started at the Widnes plant?
A. I do not. He was already employed there -- he was already employed in the fine chemical manufacturing organization, not specifically at the

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Widnes plant when I started in 1992.
Q. So is he the person you relied upon for your knowledge about Widnes plant operations?
A. I acquired my knowledge from a number of sources. One, as I mentioned, was through the medical side. The other was through occupational hygiene colleagues from the fine chemical manufacturing organization.
Q. Who were they?
A. And I'm going to -- I am going to remember. I'm forgetting the name just in the heat of the moment. Can I come back to that or shall I --
Q. No, of course you can. If you think of a name later, please tell us. And who else?
A. And the population who had worked at Widnes had been -- had been and remained the subject of that medical surveillance program, and that population was handed over to me by Dr. Taylor. But the population had been the subject of some epidemiological work by Dr. Paddle and so he was able to give me some information about the history of that work -- of that work site.
Q. And who is Dr. Paddle?
A. Dr. Paddle is the now retired or therefore was the head of the ICI epidemiology unit.

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Q. So you pieced together your understanding of operations through the discussions with these people?
A. With these people and by reviewing a number of documents that had been provided to me about the history of the manufacturing process.
Q. So you understood the equipment that was used, the engineering type equipment and other safety equipment used?
A. I would say I understood how it was described and how it was named without actually -- never having physically seen it.
Q. Was it closed by the time you started?
A. It was closed by the time I stopped being site physician. So it closed in 1995.
Q. So it operated from what years, please?
A. Widnes as in terms -- if I may restrict this to paraquat, which is the level of my knowledge -- operated from the early 1960s, so 1961/2. 1962 to '64 there was a batch operation --
Q. And let's stop there, if you don't mind. Explain what you mean by '62 to '64 it was a batch operation?
A. Yes. If I may contrast it with a continuous operation. A continuous operation runs essentially all the time. Whereas a batch operation is started, it

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stops, it restarts again, and stops.
Q. Is that the only distinction?
A. Between a batch and a continuous operation?
Q. Yes.
A. That's, to the best of my knowledge that's the key difference.
Q. Okay. So it may be a day shift or two shifts, and then close or close on the weekends. But a continuous operation of the equipment would continue 7 days a week, 24 hours a day?
A. Certainly continuous operation would be 7 days a week, 24 hours a day. A batch operation may run for a week or two weeks and then stop for a period of time and then run. It may be longer than just a day or just a week.
Q. Understood. All right. Were the facilities the same? In other words, the equipment used for manufacturing, the methods for manufacturing the same from '62 up through '64?
A. I think the key point is that they were distinctly different.
Q. Different in the equipment use?
A. In the equipment and indeed the process.
Q. Okay, then if you wouldn't mind, please, educate us about the difference. So you've talked to

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us about '62 to '64. How is that equipment -- what equipment was used by Syngenta in that process?
A. The process was called high temperature sodium process. It employed the use of solvents at greater than 0 degrees.
Q. What? Greater than what degrees?
A. Zero. So I think you might imagine from the name "high temperature sodium" that there were concerns with this about the process safety as well as the process efficiency. I have read that the high temperature sodium process was only around about 40 to 60 percent efficient in converting the raw materials to 4,4'-bipyridyl.
Q. What was the raw material?
A. Pyridine. The low temperature sodium temperature by contrast works at below, operates below 0 degrees Celsius, runs continuously, and has a much higher efficiency in terms of the conversion of the raw materials into 4,4'-bipyridyl.
Q. Is there any other difference in the plant? What about the equipment being used?
A. As I mentioned, I never saw that equipment. In fact, I was very young. Even I was very young in 1962. So it has been described to me as being different.

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Q. How different? Please tell me?
A. In the sense that it has been told it was less specifically designed, and it was more a process that was -- it was perhaps slightly more, can I say embryonic, or younger in its design process.
Q. You're talking between '62 and '64?
A. Correct, yes.
Q. And you said embryonic in that it was the initiation of the manufacturing process?
A. It was the first of a larger scale operations.
Q. All right. Now, earlier in the deposition you described that there were manufacturing techniques made to minimize contact with a chemical to employees, right? When did those efforts first develop?
A. The first significant improvement was with the development or launching of the low temperature sodium process in 1966. So this process was, as I mentioned, much more efficient in terms of the production and it also certainly -- because it was more efficient in producing 4,4'-bipyridyl, the key intermediate, it means that there was considerably less unwanted byproducts in that process. So that definitely improved the risk to workers from those potential byproducts. Sorry not -- the potential risk

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to workers from those byproducts.
Q. I think we may have missed two years. I think you were talking '62 to '64. What about '64 to '66? And then I'll come back and ask you specifics about the equipment differences.
A. Okay. Between '64 and '66 there was another process that was -- which is referred to as MAG, M-A-G, which I think from my reading was very little, not much of an improvement on the HTS process. But it is -- it was more of a continuous process.
Q. All right. So far we've used pretty general statements to describe these processes and what I want to do is come back and talk about specifics. But I'd like to get through the differences in the plant, and then come back to these.
So we've talked about '62 to '64, '64 to '66. And then the low temperature changes to the plant in '66.
Were there any significant engineering changes or process changes between '66 and the late '90s when the plant stopped producing paraquat?
A. What I can tell you is that in 1982 when a population of the workforce was examined because of the development of skin conditions, it was determined that by then the exposure to paraquat -- anything but

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paraquat in that plant was considered to be low. And if I may reflect, I think that is not '82 I think that is '88. I apologize.
Q. So I'm trying to understand how that answers my question. I'm trying to get you to explain the differences in engineering processes between 1966 and the time that the plant closed?
A. Sure. I think I understand the question. I'm not sure that I actually have the information about the process.
Q. So as far as you know there was no difference between the process, between 1966 and the time that the plant closed?
A. What I can say is that the concept of the process was the same, the low temperature sodium process. I think it likely, but again this is just from experience of working in the corporation, I think it likely that as things were changed they were changed with better and improved versions as the plant developed between those time periods.
Q. But you don't know specifically what it was?
A. But what I can't tell you is on this day they changed this pump for that pump.
Q. So in terms of changes in the plant to control worker exposure, that's what I'm really focused

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on. Was there any difference in terms of exposure to the chemicals after the plant changed to a low temperature plant?
A. I think -- just to be clear, they are two distinctly different plants. It's not -- it's not that we changed -- we modified one to the other. The high temperature sodium plant use was discontinued, and the low temperature sodium plant that was started in 1966 was effectively a distinctly different and new plant.
Q. It was a completely different facility?
A. Yes.
Q. So you didn't just repair or alter or modify the high temperature batch plant, you started off with a new building and a new processing unit?
A. That is correct.
Q. And that would be in what year again for clarification?
A. That would be in 1966 when the low temperature sodium plant was produce --
Q. Okay, and tell me where they were located?
A. They were all located on the Widnes site.
Q. Okay, so when we're talking from '62 to '66 the batch plant, is that what you referred to it as?
A. It's probably easiest to describe it as the HTS or high temperature sodium plant.

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Q. HT --
A. HTS, high temperature sodium.
Q. And that plant discontinued in 1964 or 1966?
A. That plant stopped being used to manufacture bipyridyl in 1964. It was used for the final step, the step that's described as quaternization until 1966.
Q. Well what plant was manufacturing --
A. That was the MAG.
Q. So there was yet a third plant?
A. I think I mentioned it earlier, but there is -- there was a plant between 1964 and 1966 in fact 1967 called the MAG or M-A-G plant.
Q. And where was it located?
A. They were all located on the Widnes site.
Q. With the beginning of production in 1966 with a low temperature method, was the MAG plant discontinued?
A. It was. All the manufacture was moved on to the LTS. And I think --
Q. And the LTS plant was using the same type of equipment but a different methodology, or was it using different equipment?
A. As I said, I am not entirely au fait with the actual process engineering activities. I know it was a new plant.

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Q. Well, here's what I'm focused on is worker exposures.
A. Yes.
Q. And what I'd like you to do is detail for me the methods taken to reduce worker exposures to the active ingredient paraquat, and I want you to tell me the differences, if there are any, between those plants moving from 1962 forward? Can you do that, sir?
A. I will do my very best. The key concern in 1964 was twofold. One was the plant was inefficient. And two, that inefficiency led to the generation of materials that were, it turned out, were detrimental to the health of the workforce.
Q. And how were they detrimental?
A. That material was called -- there were tars or they were described as tarry byproducts, and at the end of a significantly long investigation they were identified as being the cause of some aktinic or solar keratosis on the skins of those workers.
Q. And can you be more specific about what this byproduct is?
A. Actually, no. They were -- those, they were probably based on bipyridyls or terpyridyls but they were never actually quantified. I think the key reason was that it did not happen with the LTS plant.

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Q. Right. So do you know how the byproduct would cause any exposure to plant workers?
A. The byproduct was, again by reading records, was visible on the surfaces of the plant.
Q. The surfaces of the plant?
A. I don't think it was all over it, but it was described as "tarry residues" that were on the facility.
Q. And this wasn't something that had the same chemical structure as paraquat?
A. Absolutely was not. It was a byproduct of 4,4'-bipyridyl production, which as you know is the precursor to the final step of paraquat.
Q. And what happens from creating the -- strike that. What is the next step -- we'll come back to the plants -- in the process of creating paraquat?
A. It's a process that's called methylation where methyl chloride is added to 4,4'-bipyridyl resulting in the production of paraquat.
Q. And where was that done at that time?
A. That was done up until 1966 on the old HTS plant between '64 and '66, and then from '66 onwards it is part of the LTS process.
Q. The '64 to '66, was that low temperature process as well or high temperature?

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A. That was -- sorry, it was called MAG but it was not low temperature.
Q. So it was high temperature as well?
A. Certainly in terms of the occupational health issues related to the tarry byproducts it wasn't perceived as being any better.
Q. So from '62 to '64 at a high temperature batch plant, and that was the HTS facility, from '64 to '66 it was the MAG, yet another building?
A. Another facility.
Q. Another facility at the same location?
A. They're all closely located on the Widnes plant.
Q. And that was low temperature?
A. Sorry, MAG --
Q. Or high temperature, MAG temperature was high?
A. MAG was closer to HTS than it was to LTS.
Q. Can you tell me the difference?
A. The specific temperatures I'm afraid I don't know but it was -- I'm describing what I have read in those reports.
Q. And then from '66 on, it was low temperature processing?
A. Yes.

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Q. All right. Now talk to me about specific equipment that was used? Can you tell me the equipment that was used to reduce worker exposure?
A. I mean, even back in the 1960s the idea would be to reduce exposure by engineering means, where possible, by making sure the process did not expose the worker. I'm aware that in addition to the usual and expected workwear for operators at that time the use of some form of respiratory protection, more like the N95 mask but it was called --
Q. What kind of mask?
A. The coronavirus type mask. In addition -- it was a similar thing from the 1960s. That was used in the methylation or quaternization process. Sorry, methylation, quaternization --
Q. In other words, the actual creation of paraquat?
A. Yes, in that activity led to the handling of the 4,4'-bipyridyl to generate the paraquat.
Q. And how long did the workers wear those masks, how many years?
A. I'm aware that -- I have information to say that they were wearing them in the '60s. I know that they were no longer considered to be required -- well, by '66 the new process was in place and actually there

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was a more controlled process for quaternization. So it was more contained, the quaternization process.
Even back in the '60s formulation, fill and pack did not require respiratory protection. All other overalls, gloves et cetera was. Maintenance, which is an activity which is relatively less controlled, it's an infrequent occasional -- well, yeah occasional activity, it's a non-routine activity, then respiratory protection was required for that.
Q. So from years did personal protective equipment cease being used, if it did?
A. The only personal protective equipment that ceased being used would be the respiratory protection. All other workwear and any protection to protect against splashing would have continued to be worn.
Q. And what would those have been?
A. Apron and face shield.
Q. And coveralls?
A. Sorry, that was on top of your -- in addition to your --
Q. So let's talk about all of them, if we can.
A. Okay. The standard workwear would be coverall --
Q. To cover all parts of your body?
A. Overall, coverall.

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Q. Over your clothes?
A. It would be instead of your clothes. You'd be required to change out of your personal clothes.
Q. And what kind of coveralls were these?
A. Heavy cotton, twill.
Q. And these were long sleeved?
A. Long sleeved.
Q. And gloves?
A. And gloves.
Q. What kind of gloves?
A. They would be rubber gloves in the '60s.
Q. And boots?
A. Exactly.
Q. What kind of boots?
A. Steel toecapped boots which would be chemical resistant as well.
Q. Chemical resistant boots. And then what kind of face shield?
A. I'm going to say perspex. I don't specifically know what the material that was employed in the '60s was. Certainly any that I have seen have been perspex.
Q. As you have described this personal protective equipment, what years was that used?
A. That was used back in the '60s and for any

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activities that have involved decanting of finished product. Because the paraquat final product as it comes out of the LTS plant is a water-based solution. The paraquat is highly polar, it's dissociated in the water. It's completely non-volatile. So the key concern would be getting -- if the material, can I use the word glooped or surged or splashed the operator and that's really what we're trying to protect against with that equipment.
Q. And that included the face mask, all of the rest of the equipment?
A. For those activities that could happen.
Q. And that continued on until the end of production at the Widnes plant?
A. Yes, and -- yes, it did.
Q. All right. Was there ventilation in all of the plants?
A. I have not heard that there was or wasn't. I would be speculating.
Q. So you don't know one way or another?
A. I don't know for sure one way or the other. I would be speculating, I apologize.
Q. Now in 1966 you said in the low temperature plant that was built they used techniques or methods to contain the chemical to the very end in terms of

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quaternization, right?
A. Yes.
Q. And explain that, please?
A. The LTS plant could and in fact did produce 4,4'-bipyridyl which was put into drums and shipped around the globe for local quaternization. But the point is that it was also possible to methylate the 4,4'-bipyridyl to produce the paraquat without putting it into drums.
Q. And what did you do with it then if it wasn't in drums? Where did you put it after it was produced?
A. It would go into the next stage of the production for methylation.
Q. Into methylation?
A. Yes. Or the other term that is used is quaternization.
Q. And what percentage of it during that production period went through that process?
A. I'm afraid I don't know that specific.
Q. And how many employees were involved in that quaternization process?
A. I'm not certain. I think it is in the 10s, not higher than that.
Q. 10 people?
A. That sort of order of magnitude.

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Q. And that's when the product became paraquat; right?
A. Yes, that is the quaternization process.
Q. Exactly. And before that how many -- before that stage of the process how many employees were involved?
A. I -- my understanding is that the employees were involved in all of the process rather than it being they were involved in particular steps of it.
Q. I'm sorry, I did not hear you, sir. I apologize.
A. My understanding is that the group of employees were involved in the production from start to finish rather than being employed in specific steps of the process.
Q. So the same people followed it all the way through?
A. That's my understanding.
Q. And how many people did it take to run the 1966 LTS plant?
A. My recollection is not entirely clear. I think it is in the tens rather than the hundreds or a single digit number of people.
Q. Single digit group of people?
A. I think it's probably more than single digit.

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Q. Oh, more than single digits.
A. Yeah.
Q. But maybe 10 or 20 people?
A. That's my recollection, but we would have to look up the information to give you a precise answer.
Q. And that plant terminated on what year?
A. The LTS?
Q. LTS.
A. It finally finished production in 1995.
Q. And was there from 1966 to 1995 any significant change to impact worker exposures?
A. I have no specific knowledge of what that would be. My experience of ICI and Zeneca is that where a better version of the existing equipment exists it would be replaced over time.
Q. Was there any difference in terms of the use of personal protective equipment at any other time from which you've told me?
A. The only thing that I have already told you is that the opportunity or the risk of exposure in 1988 was considered low compared with preceding -- compared with historical times.
Q. Historical times?
A. Historical '60s, '70s.
Q. Are you saying that the '66 plant was better

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in terms of worker exposure than the '64 plant or '62 plant?
A. I think that is -- yes. I think that's correct.
Q. So the techniques or production methods that were used, were however we described them, that contained the material until the very last stage and including the last stage in the LTS plant was significantly better in terms of exposure to the active ingredient than preceding two plants?
A. I think that is the case.
Q. Do you know what it was that was different that made the risk of exposure to paraquat by 1988 low compared to 1966?
A. Specifically not, I'm afraid. I do not know what the process changes were, if any, in that time.
Q. And you don't know that it wasn't the same exact in 1966?
A. I don't know that. I know that it was considered -- I know that exposure was considered to have been medium risk in the period between '66 and 68.
Q. But you don't know why it changed?
A. I'm sorry, I'm not aware of the process changes.
Q. In 1966 the workers at the Widnes plant wore

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personal protective equipment so their exposure was low at that time compared to earlier production facility in 1962; correct?
A. I think there was personal protective equipment worn in the earlier times.
Q. As well?
A. I don't think -- I've not seen anything to suggest that PPE was not employed in the earlier plants, that the earlier plants were just less good.
Q. Yeah, in terms of the temperature, the high temperature was an issue and then eliminating the high temperature, eliminating the MAG sort of as you said, intermediate temperature processing and the byproduct efficiency going up so that you weren't exposing them to whatever this other chemical byproduct was; correct?
A. Yes, that's -- I thought you were suggesting that PPE was not employed in the earlier.
Q. But it was?
A. But it was, so that's not the reason for the improved --
Q. It was the improvements in the plant itself, in the byproduct of the production?
A. That's my understanding.
Q. The primary difference being you went from a very high temperature to a low temperature; isn't that

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correct?
A. That is correct, and it improved process efficiency as well as safety. And the environmental impact as well.
Q. And so as of 1966 even though the LTS plant itself had -- strike that.
We talked earlier in the deposition about neurotoxicity and warnings. What warnings, if any, did you give your plant workers who worked around paraquat?
A. Paraquat is considered acutely toxic so very clearly we needed to make sure that the workers were not putting themselves at risk of inhalation and/or ingestion of the product. In addition, we mentioned it has an adverse impact on the skin. It's an irritant and it's effectively could stick to the eye, so we needed to make sure workers did not get it in their eye. If they got it on their skin they were to wash immediately. And clearly we were not allowing eating, drinking or smoking on the workplace, and there was a requirement to wear the PPE that we have mentioned.
Q. And why did you not want them smoking, drinking or eating on the premises?
A. Well as I mentioned, because paraquat is such a polar molecule in solution with a very low vapour pressure, and the risk of inhalation is actually almost

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non-existent, the key route of exposure that -- the key theoretical route of exposure would be oral or by ingestion. And so we would not want people putting contaminated cigarette ends in their mouths, nor drinking from potentially contaminated glasses or eating food that may have been contaminated in the workplace. So eating, drinking and -- well, I mean to be honest smoking on a manufacturing facility is very wrong for so many reasons, as well as ingestion, but that was the given reason at the time.

Q. Was there any specific paraquat related training for employees?

A. I don't know for sure. I'm sorry, I don't know for sure what was given in the 1960s, '70s, or '80s.

Q. Is there today?

A. Every facility now has training on the use of the equipment and that would include the hazards of any material that is used within it.

Q. So in other words there's nothing that's paraquat specific in terms of training?

A. Well in answering your question I am struggling to think of anything that would be paraquat specific. But the hazards of paraquat, as they're understood, would be communicated to the workforce.

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Q. And how would that happen, sir?

A. If we're talking about now, I can say that here we use pictograms. We use short version safety data sheets. And of course a specific trainer-led interventions.

Q. Effectively you just have a team leader in a production facility sit down and talk to them?

A. Would be an example.

Q. Has that training or instruction changed over time while you've been at Syngenta or predecessors?

A. I don't believe it's changed much in the past few years, to the best of my knowledge. I mean, it would be fair to say there are changes sometimes in formulation. If the formulation changes the training may or may not change.

Q. Taking into account the nature of the various paraquat monitoring -- strike that. Taking into account the nature of the various paraquat manufacturing processes and the personal protective equipment that was used along with each of those different processes, was there any period from 1962 through the closing of the Widnes plant when workers at the Widnes plant had any meaningful levels of exposure to paraquat?

A. The evidence that we have, that I have seen,

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indicates that there was some hygiene monitoring undertaken, and those results do show that paraquat was detected in those samples.

Q. What samples would those be?

A. They would be static monitoring samples taken over -- static monitoring samples taken at various places. I can't say for sure where.

Q. Are these air monitoring samples?

A. I'm sorry, static air monitoring samples.

Q. And do you know the levels and what the reports were?

A. I remember that the levels were considered to be well below the regulatory limit at the time.

Q. And is that the source of information you have about potential exposure?

A. That's part of the source. The other would be the job description of the person.

Q. Could you tell me how the job description would help you answer that question?

A. Yes. An operator would be considered to have a higher potential for exposure than a shift leader for example, or a maintenance operative/operator would be considered to have a higher potential than an office worker. So those are the sorts of things that we would use to help.

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Q. How would an office worker be exposed?

A. Well I think the answer is it's almost -- it's highly improbable that they would.

Q. Was there ever any effort undertaken to determine if certain employees of different parts of the plant had different levels of exposure?

A. More recently, by which I mean between '83 and '93, I'm aware that there were certain employees who had what is called personal monitoring or personal air sampling.

Q. When the plant closed how many people were employed there?

A. When the plant closed the cohort of people who had worked in --

Q. No, I don't mean the cohort of people who had worked there.

A. Okay.

Q. How many people worked there?

A. My recollection is that it was around about 200.

Q. So at some point you told me it had tens of people. When did that number change?

A. Yeah, I understand your question. We're talking about the people who are working -- who were working in the Widnes plant or who had worked on the

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Widnes plant in the period '88 to '93. It was around about 200. Each shift -- the shifts would be smaller. So I think when I'm talking about the smaller number, this would be shifts of people.

Q. So the tens, or you said 10 to 20, would be a shift of workers?

A. On reflection I think that's correct.

Q. Okay. So there may be 10 to 20 people working per shift, and how many shifts were there?

A. I have seen the figure six.

Q. Six shifts in a week?

A. A shift being a group of workers, rather than a time period, if I'm clear.

Q. Okay, so could you break that down for me? You're talking about doing different assignments in the process?

A. What I think I'm trying to say is that we have -- there would be six shifts, six groups of workers, I think is my recollection from reading the paper some time ago, each containing for the sake of discussion 30 people. So 3 x 6 is 18 -- 180 or so people working in the plant plus maintenance et cetera.

Q. So how many of these shifts work at the same time?

A. One.

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Q. One shift. So how do you make six shifts work? Explain that to me?

A. I'm afraid I can't tell you precisely how the shift pattern works, but it includes holidays and obviously it's a 24-hour plant so three shifts a day. Some shifts on downtime. Some shifts on holiday.

Q. So do you know how many hours a week a person who was assigned to the Widnes plant worked?

A. I do not know. I could only infer.

Q. What did you infer?

A. My inference would be that in that time period a standard working week in ICI would be 40 hours.

Q. So there were six shifts. And I'm a little confused about your shifts, how six different shifts of 30 people all working 40 hours. So what time did they report to work?

A. I'm afraid I don't know the shift pattern.

Q. You're saying if it's a continuous plant, it's working 7-days a week, they work swing shifts or different shifts assigned and they work 8 hours. So the three shifts would cover five days, and then you'd have coverage on a weekend if it's a continuous plant, right?

A. And some shifts would be on holiday.

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Q. I see. Okay.

A. I don't recall what the shift -- in fact I never knew what the shift handover times were.

Q. Was there ever any air sampling in the '60s?

A. What I can say that I know is that there were -- there was air sampling done, and now I recall the answer to that is to the best of my knowledge I have no evidence of the results of those. '73 is when I think I have information.

Q. '83?

A. '73.

Q. '73 you have air sampling information?

A. There's some air sampling information from the time period of '73.

Q. And what were the air sampling results in '73?

A. I'm afraid I don't recall the exact numbers. I do know the conclusion was that they were compliant with the occupational exposure limit.

Q. And what about any personal air sampling equipment? Do you understand what I mean by that?

A. I do. As I mentioned earlier, we were aware that there were static samples, so not personal samples.

Q. Right, in a fixed location in the plant?

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A. Exactly.

Q. Okay.

A. That's what we have information of there being in the '70s. In the time period more recently then we have evidence of personal sampling. And the results were all considered comfortably inside the occupational exposure limit of that time.

Q. Was there ever an air sampling result that was above that threshold limit?

A. I cannot tell you that for sure. I think it would be surprising if there wasn't.

Q. You indicated to me earlier that paraquat inhalation is not an issue in the plant because paraquat is not volatile, remember?

A. In manufacturing formulation, fill and pack, in our risk assessments we have established that there is no risk of inhalation because of the --

Q. So workers were not subject to paraquat spray mist because of the manufacturing process, remember you telling me that?

A. In -- yes, this is absolutely correct.

Q. Then why was air monitoring undertaken for paraquat as Widnes?

A. I think it's -- we're talking here about a plant that is producing tens of millions of litres a

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year. So in a completely non-breakdown situation the paraquat is well contained. I would be surprised if there weren't some spills or seepages or drips that would lead to the paraquat leaving the process, in obviously very small amounts that were not clearly recognized, and therefore it would be sensible to monitor for that and the results showed very little.

MR. TILLERY: Let's go off the record for a couple of minutes.

THE VIDEOGRAPHER: Off the record at 11:38.

(Break taken.).

THE VIDEOGRAPHER: We are back on the record as of 11:52. This is now media 3. You may continue.

BY MR. TILLERY:

Q. Could you mark this as Exhibit 1, please.

(Exhibit 1 marked for identification.)

The reporter has handed you an exhibit marked number 1. Could you take a look at that and familiarize yourself with it, please?

A. Thank you.

Q. If you take a look at the bottom right-hand corner it says SYNG. Do you see that in the bottom right-hand corner of the document?

A. Yes.

Q. And then PQ-03721769?

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A. Yes.

Q. That's a Bates number, and that indicate that your counsel gave us this document in production in this lawsuit. Okay?

A. (Deponent nods.)

Q. And the title of this document is:

"The toxicity of paraquat and handling precautions during manufacture."

A. Yes.

Q. The date of the document is August 8, 1972. And who would RDW be?

A. I'm afraid I do not know who RDW is.

Q. BKM?

A. I could surmise that's could be Brian Mountfield.

Q. And who is that?

A. If it is Brian Mountfield he was the occupational hygiene lead for ICI.

Q. And that time period would correspond with that, wouldn't it?

A. It could do.

Q. And this document is talking about the toxicity of paraquat, isn't it, in the manufacturing process?

A. And the handling precautions.

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Q. And if you go to the middle of the first page it says:

"Inhalation of dust particles causes nose bleeding but this ceases on removal from exposure."

Do you see that?

A. Yes.

Q. "Contact of the solid with the mucous membrane of the lips will cause soreness and, in some cases, blister formations."

Do you see that?

A. Mm-hmm.

Q. "The presence of dust particles is perhaps the major hazard in the manufacture and formulation of paraquat and can be reduced by careful attention to cleanliness and avoidance of spillages at all stages in the operation."

Do you have any reason to dispute that that was the state of affairs at the plant in 1972?

A. I can see no reason to dispute what this gentleman has written.

Q. All right. Then if you go down a little further it says protective clothing to be worn. Do you see that?

A. I do.

Q. "The following should always be worn". In

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quaternization, that's the part you described in the deposition where the actual paraquat is assembled methylized, right?

A. Correct, yes.

Q. All right, so let's look at what has to be worn there:

"Overalls, a full-face respirator fitted with a canister filter to trap dust particles ..."

Right?

A. Mm-hmm.

Q. "... rubber or PVC gloves and apron, rubber boots."

Now that is not what you told me before, is it?

A. I think I mentioned the need for a respirator. I didn't recall the need for an apron or rubber boots.

Q. What about the canister filter? They were wearing canister filters during quaternization at that time, weren't they?

A. It looks that way.

Q. Okay, so that's a significant difference in terms of what you call the coronavirus mask, isn't it?

A. It is different from the coronavirus mask.

Q. In fact it's much, much more protective,

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isn't it, sir?
A. I think it is somewhat more protective rather than "much, much more".
Q. Were you aware of this? Had anybody ever given you this document before?
A. If I have seen it I have not recalled that.
Q. All right. And in "Formulation" it says:
"A full face shield, overalls, rubber or PVC gloves and apron and rubber boots."
Right?
A. Yes, it says that.
Q. And then "Filling and packaging", it says:
"Eye protection (goggles or face shield), overalls, rubber or PVC gloves, rubber boots."
Right?
A. That's what it says, yes.
Q. And then in "Plant maintenance", people who are just working in the plant:
"Technicians carrying out maintenance on the plant should wear overalls, rubber or PVC gloves and a full-face respirator fitted with a canister filter to trap fine dust particles."
Correct?
A. That's what it says.
Q. And you weren't aware that they were doing

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that, were you?
A. I think I've given you my view what I thought was the situation. And this is going back to 1972, which is quite early in production.
Q. And it may be that the source of your information, hearing it from different people orally and the hearsay on hearsay might have been a little bit of a problem. Would you agree with me?
A. I can only know what I've heard.
Q. And what you read here?
A. And now what I read here.
Q. And I'm representing to you that Mr. Naresh gave me that document. All right? I'm telling you that.
A. Yes.
Q. I don't want you to think that I've handed you something I made up. This was given to me by Syngenta, okay?
A. I have no reason to doubt you, sir.
Q. All right, thank you. Now let's look at the next exhibit. We'll call this one number 2.
(Exhibit 2 marked for identification.)
Take your time and familiarize yourself with it.
A. Okay.

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Q. Okay. This is a document that's dated September 10, 1968, correct? Upper right-hand corner, sir.
A. Yes.
Q. And it's a Syngenta number 03720397; is that correct?
A. Yes.
Q. And it's signed by the works manager, right, do you see that?
A. I do.
Q. And who is the works manager's signature? I can't make it out.
A. I would conclude, from looking at the document, it would be the J.K. Pitts in the top right corner.
Q. And this is from Widnes, correct? Do you see that?
A. It's from Widnes, yes.
Q. And it's to J.C. Gage, Industrial Hygiene Research Laboratories, Alderley Park, right?
A. Correct.
Q. And copies to K.P. Whitehead, T.D. Browne, D.V. Greenwood, and Dr. P.B. Dransfield. Three of those individuals appear to be doctors, right?
A. Doctors of some sort.

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Q. Doctor, yes, of some sort. Do you know any of them?
A. No.
Q. This pre-dates you?
A. I'm afraid --
Q. Because it was a year before you were born, right? Or, no, it wasn't. 10 years.
A. I was 9 at this time.
Q. Okay, 9. Let's look at that first paragraph. "I.H.R.L." what is that?
A. Looking at the address at the top I would conclude it's the Industrial Hygiene Research Laboratories.
Q. And the subject matter of this memo, this six paragraph memo, is "NOSE BLEEDS" right?
A. Correct.
Q. And this says that I.H.R.L., which is Industrial Hygiene Research Laboratories, that's for Syngenta; correct?
A. That is correct.
Q. At that time it was ICI; it's now called Syngenta?
A. Correct.
Q. "... will investigate the performance of the Filta-Safe respirators that we are currently using on

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the Paraquat plant, and will also investigate the performance of the Martindale pad type dust mask."

Do you see that?

A. I do see that.

Q. What was the Filta-Safe respirator?

A. Filta-Safe to the best of my knowledge is a brand or a manufacturer.

Q. Okay. Did you know they were using these respirators?

A. No, I thought they were using the dust mask as stated there.

Q. And it turns out that the information on this topic was also incorrect that you had received, wasn't it?

A. Well this does refer to the type of mask I mentioned.

Q. To one of them at least?

A. Yes.

Q. And then it says:

"I.H.R.L. will look into the possibility of establishing what quantity of paraquat is needed to produce nose bleeds. If possible I.H.R.L. will establish the particle size."

So people were having nose bleeds working around it, weren't they?

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A. It would appear so from this memo --

Q. Were you aware of that?

A. I mean, I was certainly aware that working in -- working with paraquat can lead to nose bleeds.

Q. Were you aware that at the Widnes plant that we just spent a great deal of time talking about, despite wearing these respirators the employees were having nose bleeds?

A. I was not aware of that.

Q. And do you know what the means of access into the brain by paraquat includes? In other words the transport mechanism, do you know all the methods?

A. I can't for sure say I know all the methods.

Q. Well let me ask you this. Do you understand the olfactory bulb to be one of the routes of exposure?

A. I have heard that.

Q. And you've heard that because you breath in the particles of paraquat, it goes into the olfactory bulb, and has direct route to the substantia nigra portion of the brain. Were you aware of that, sir?

A. I'm aware of that theoretically.

Q. Theoretically? As a matter of human physiology do you know any reason why that won't happen?

A. What I mean is we know that very small

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amounts of paraquat can cause nose bleeds.

Q. And we also talked about this morning about the redox cycling properties of paraquat and how very small amounts of them can cause harm, remember?

A. I do remember.

Q. Do you know how much paraquat is necessary if it travels through your nose, gets in through the olfactory bulb, into the substantia nigra, to cause a redox cycling cascade? Do you know what that is?

A. I do not.

Q. Have you ever seen any such research at any time at Syngenta that would address that question?

A. I have not seen that research.

Q. Mark this as Exhibit 3.

(Exhibit 3 marked for identification.)

And this is a document marked as Plaintiff's Exhibit 3. SYNG-PQ-03750512. I believe this is a document that came through your office?

A. It is.

Q. Did you write it, sir, or edit it?

A. I edited this with help from a number of others.

Q. And it's entitled "Paraquat - The Occupational Health Experience in Bangpoo". Is that a manufacturing facility in Thailand?

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A. It's a formulation, fill and pack.

Q. A formulation plant. I'm sorry, I misspoke. In Thailand?

A. In Thailand, yes, correct.

Q. Did you visit the plant?

A. I have visited the plant in the past.

Q. The top of this says:

"Edited by: - Dr Clive Campbell, Head of Occupational Health and Syngenta Chief Medical Officer", doesn't it, and this document says, quoting:

"This document is intended to provide a summary of the occupational health experience for workers in Syngenta's paraquat formulation facility in Bangpoo, Thailand. Syngenta operate control strategies at all facilities."

And the next sentence says:

"Local health risk assessments have confirmed that targeted health surveillance is not justified or required for workers involved in the manufacture of paraquat or the production and packaging of paraquat formulations."

Is that what it says?

A. It is what it says.

Q. And then under "Background", 1.1, second paragraph:

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"Syngenta operates two paraquat dichloride manufacturing facilities globally. The Ammonia Cyanide process is operated at sites in Huddersfield, UK and Nantong, China. Previously, Syngenta operated a paraquat manufacturing facilities in Widnes, UK and Bayport, USA using Low Temperature Sodium (LTS) process. These were closed when the site at Huddersfield, UK came on stream."

And then under number "1.2 Paraquat formulation and packaging locations":

"Syngenta formulate and pack paraquat end-use products at a number of facilities globally including the facility at Bangpoo."

Have I read and recited those correctly, sir?

A. As far as I recollect.

Q. Let's go to the 2.1, third paragraph:

"The risk assessments carried out have confirmed that no routine monitoring or targeted health surveillance is justified or required for paraquat, or any other synthesis component during the synthesis of paraquat."

Is that what it says?

A. It is what it says.

Q. And then on the top of the second page it says:

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"For the past 20 years Syngenta has used a process of health risk assessment (HRA) to identify risks to health and enable them to be adequately managed. At Bangpoo site the processes of transferring the paraquat into the storage vessels, formulating the final product and its filling/packing have all been subject of HRA. These assessments demonstrate that the risk of chronic exposure is negligible, with baseline PPE."

Which stands for?

A. Personal protective equipment.

Q. "This would consist of long sleeved overalls, safety glasses, safety shoes, helmet, and nitrile gloves. For drum emptying, a chemical resistant overall and face shield are also employed to reduce the risk from acute exposure."

If you go to the third paragraph:

"The health risk assessments have confirmed that targeted health surveillance is not justified or required for workers involved in the production and packing of paraquat formulations."

Correct?

A. (Deponent nods).

Q. And did that mean that you suspended the health care risk assessments at those facilities?

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A. The health risk assessment is an activity that goes on repeatedly. So we do a health risk assessment and then it should be repeated at regular intervals, or certainly if anything changes. It's the health risk assessment.

(Counsel change seats.)

MS. FIORILLO: Rosemarie Fiorillo for the plaintiffs.

MR. NARESH: Are we switching attorneys?

MS. FIORILLO: Yes.

MR. TILLERY: Just for one topic.

MR. NARESH: Well, I don't agree to that.

MR. TILLERY: It's a different topic.

MR. NARESH: I don't agree to that at all. If you wanted to do this, you needed to give us notice of this.

MR. TILLERY: A corporate designee topic we can do it if it's a different topic.

MR. NARESH: We have never discussed this. You have never given us notice of this. I don't agree to this.

MR. TILLERY: Well, are you telling me you're not going to let him answer questions?

MR. NARESH: Look, there's a one lawyer -- I can't have five different people objecting.

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MR. TILLERY: I agree with you in a standard deposition. I agree with that. I am fully aware of it and I totally agree and consent and stipulate that that is the rule.

MR. KELLY: And may I just say for Illinois --

MR. NARESH: I wouldn't have a problem with California lawyers asking questions.

MR. KELLY: Well, I'm not suggesting -- sorry, I just wanted that on the record.

MR. NARESH: I do object to switching attorneys in the middle of a deposition from two attorneys from the same firm. I don't agree with that.

MR. TILLERY: And what I'm suggesting is on a different topic, a completely different topic in a corporate designee dep.

MR. NARESH: I don't agree to it. Steve, I think you should continue your deposition. This is your deposition.

MR. TILLERY: So are you telling me he won't answer if she asks questions --

MR. NARESH: You should ask your questions.

MR. TILLERY: Well she's going to ask them, so are you telling me --

MR. NARESH: Are you not prepared to ask the

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questions?
MR. TILLERY: No, no, I'm ready --
MR. NARESH: Then please proceed.
MR. TILLERY: -- but she's smarter than I am.
MR. NARESH: Look, there's plenty of people smarter than me that could be defending this deposition, but here I am. So please, proceed.
MR. TILLERY: So just so we're clear, are you telling me that the dep will be suspended if she asks the questions? Because otherwise if it is, we can take it up with the court.
MR. NARESH: Look, what I think you need to do is if you're going to switch attorneys in the middle of a topic you need to --
MR. TILLERY: And we're not. No, no, no, no, we're not doing that. Just so you know, I want to make clear, we're not doing that. She's talking about something -- a totally different topic than me. Nothing that I have spoken about so far.
MR. NARESH: What topic? So let's define the parameters on the record of what are your topics and what are Ms. Fiorillo's topic?
MR. TILLERY: Well, she's talking about only one topic, and I am talking about the rest, and the only topic she's addressing is the epidemiology study

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of Widnes --
MR. NARESH: So here's -- okay.
MR. TILLERY: The epidemiology study that he coauthored.
MR. NARESH: All right. So here's the condition on which I am willing to proceed is if -- what I will not allow to happen is for you to now --
MR. TILLERY: Do more questions on this --
MR. NARESH: Correct -- no, no, I think you should do whatever you are going to do, and then hand it off to Ms. Fiorillo, and then the deposition is over. What I do not agree to is a tag team where you tag out, and Ms. Fiorillo tags in, and then you tag back in. So --
MR. TILLERY: Okay, I understand. That's fine. We'll agree to that. She can go forward.
MR. NARESH: So my understanding, just so we're clear, is your role in the deposition for today is now over, and it's Ms. Fiorillo and only Ms. Fiorillo for the rest of the day?
MR. TILLERY: Right, that's correct.
MR. NARESH: Okay, with that condition I'm fine proceeding.
MR. TILLERY: Proceed.
MR. NARESH: And let's take a break in about

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15, 20 minutes anyway for lunch.
MR. TILLERY: Okay, sure.
EXAMINATION BY MS. FIORILLO:
Q. Rosemarie Fiorillo for the plaintiffs.
(Exhibit 4 marked for identification.)
I've handed you Exhibit 4. If you would be so kind as to read the title. Can you please read the title on the record?
A. I just have. You mean read it out loud?
Q. Yes, read it out loud. I'm sorry.
A. "Mortality from Parkinson's disease and other causes among a workforce manufacturing paraquat: a retrospective cohort study."
Q. And who are the authors?
A. Myself, and Dr. John Tomenson.
Q. And who is Dr. Tomenson?
A. Dr. Tomenson is an epidemiologist.
Q. Is he a Syngenta consultant?
A. He is a Syngenta consultant.
Q. And is he a paid Syngenta consultant?
A. He is a paid Syngenta consultant.
Q. And was this study published in 2011?
A. Yes, it was published in 2011.
Q. And what was your position in 2011?
A. I was in the same position that I'm in now.

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Q. And can you tell me the name of the journal that this study was published in?
A. BMJ Open.
Q. And what does it mean to be published in a peer reviewed journal?
A. Sorry, can you clarify that question for me.
Q. Yes. Are you familiar with peer reviewed journals?
A. I am.
Q. And what does that mean?
A. It means that the document, the subsequent publication, has been reviewed by a number of people who have given a view as to the value or otherwise of the publication.
Q. And is BMJ Open a peer reviewed journal?
A. It is.
Q. Do scientists have to pay to have their studies published in BMJ?
MR. NARESH: Objection to the scope. If you know.
A. They do not.
BY MS. FIORILLO:
Q. Well, I am going to represent to you that according to -- did Syngenta have to pay to have this study published in BMJ?

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A. To the best of my knowledge, no.
Q. I'm going to represent to you that according to BMJ's website it says the authors are asked to pay article publishing charges on acceptance. Did you know that?
MR. NARESH: Objection: form. Go ahead.
A. I am -- I was not aware that this was part of the process, now you mention it.
BY MS. FIORILLO:
Q. Before this study was published in BMJ was it rejected by three journals?
A. It was rejected by a number of journals. I don't know how many off the top of my head.
Q. I'm going to hand you Exhibit 5.
(Exhibit 5 marked for identification.)
One of the journals it was rejected by was the journal of Environmental Health Perspectives, is that right?
A. Sorry, may I read this?
Q. Yes. I'm sorry.
Again, and I will direct you to the bottom of page 5 and the top of page 6. So the study was rejected by the journal of Environmental Health Perspectives; is that right?
A. It is.

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Q. And just for clarity, I'm going to refer to the study that you coauthored as "the mortality study"; okay?
A. Okay.
Q. And the mortality study was also rejected by the International Archives of Occupational and Environmental Health, is that right? Also on page 5.
A. That is correct.
Q. And it was also rejected by the journal of Occupational and Environmental Medicine, noted on page 4; is that right?
A. Yes, that is right.
Q. And if you wouldn't mind keeping that document handy because I am going to refer to it in the future.
Please go back to the mortality study. If you would read on the record the first two sentences under "INTRODUCTION"?
A. "A large body of epidemiological literature exists concerning the relationship between pesticides and Parkinson's disease, mainly studies which have used a case -- control design. Interest has focused on paraquat (PQ) in part because of its structural similarity to 1 methyl-4-phenylpyridine (MPP-), a metabolite of 1-methyl-4-phenyl-1, 2, 3, 6

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tetrahydropyridine (MPTP)."
Q. The study was conducted because there were no studies on the incidence of Parkinson's among paraquat production workers; is that right?
A. There were no studies -- there are no studies on the paraquat production workers.
Q. So this is the first of its kind?
A. It is, to the best of my knowledge.
Q. In addition, if we turn to page 1, it says that:
"Personal monitoring results were indicative that the exposure of a PQ production worker on a daily basis was at least comparable with that of a PQ sprayer or mixer/loader."
Is that right?
A. So in "Key messages"?
Q. The Results section?
A. I'm sorry, which page are we on now?
Q. Page 1, "Results".
A. I'm really sorry, I don't see -- in the abstract.
Q. In the abstract, I'm sorry.
A. Yes, I see that.
Q. Because at least according to this, production workers would have similar exposure to those

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of paraquat sprayers, mixers or loaders?
A. It says indicative that exposure of PQ workers on a daily basis was "at least comparable" to that of "PQ sprayer or mixer/loader".
Q. So they're comparable?
A. It says "at least comparable".
Q. But this study is a mortality study; is that right?
A. This study is a mortality study.
Q. So that means you were measuring the number of people who died from Parkinson's that had been exposed to paraquat?
A. It's actually looking at the number of people within the cohort who have died.
Q. Right, within the cohort at the Widnes plant who died from Parkinson's disease?
A. From any disease.
Q. Is Parkinson's one of them?
A. And Parkinson's is one of them.
Q. But the title does say "Mortality from Parkinson's disease". It does say other causes but that was one of them, right?
A. It clearly is looking at people who have died of all diseases, which includes looking at people who have died with Parkinson's disease.

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Q. And the study focused on the years at the Widnes plant from 1961 through 1995; correct?
A. It looked at that cohort, had been identified.
Q. And the original -- the cohort was chosen as part of an investigation into why people were suffering from skin lesions; is that right?
A. The original cohort was put together to review those skin lesions I mentioned earlier in the day.
Q. And that study was performed by Dr. Paddle?
A. The original study was performed by Dr. Paddle, correct.
Q. And the study cohort consisted of all workers who had ever been associated with the production of 4,4'-bipyridyl or its subsequent conversion by quaternization to paraquat; is that right?
A. That is correct.
Q. And 4,4'-bipyridyl is a precursor to paraquat; right?
A. It is.
Q. So it's not actually paraquat yet?
A. It's not yet paraquat.
Q. Okay. And as you mentioned earlier, the quaternization is the final step to actually making

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paraquat; is that right?
A. That is correct.
Q. And that includes methylating the pyridine rings?
A. It includes methylation, or quaternization, of the 4,4'-bipyridyl.
Q. So some of the people who participated in this study within the plant weren't necessarily exposed to paraquat?
A. I think it's as I mentioned earlier, most of the operators worked in all areas, so it is unlikely anyone was specifically unexposed to the paraquat.
Q. Okay but we don't know -- so you're saying -- excuse me. There are four plants within Widnes; is that right?
MR. NARESH: Objection to form.
BY MS. FIORILLO:
Q. Four different facilities within the Widnes plant?
A. There had been four different facilities within the Widnes plant by the time it closed.
Q. So does this study take into account where specifically those people were?
A. This study allows the opportunity to look at potential for exposure by -- including considerations

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of which plant people have worked in.
Q. But they all didn't work in the final quaternization plant; is that right?
A. Quaternization is part of the production of paraquat, so I've no reason to believe that there are groups of workers who simply didn't take part in that process.
Q. At some point in time you're saying?
A. As part of the process of manufacturing paraquat.
Q. Does 4,4'-bipyridyl have the same toxicological profile as paraquat?
A. I have no reason to think it does.
Q. We had mentioned the four plants. One was the high temperature sodium plant; is that right?
A. One of the plants is the high temperature sodium plant, yes.
Q. And that was used from 1961 to 1969, according to this study; is that correct?
A. It was used for quaternization latterly. It was used as a manufacturing facility till about '64.
Q. And the magnesium plant was used from '62 to '67?
A. I think that's well accepted.
Q. And as we said, the low temperature sodium

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plant used from '66 to 95; is that right?
A. It is.
Q. And ammonia cyanide from '85 to '93?
A. Ammonia Cyanide came on in that time period.
Q. And the cohort included all employees who had ever worked in any of those four facilities?
A. The cohort did include all of those people.
Q. And the final cohort in this study consisted of 926 males and 42 females; is that right?
A. That is correct.
Q. And again, since it's a mortality study, we're interested in people who died from Parkinson's disease among other diseases; is that right?
A. That is an -- certainly an end-point of consideration.
Q. Okay. So in order to determine if someone died from Parkinson's you looked at death certificates: is that right?
A. That's where the information came from.
Q. And you also -- and also whether Parkinson's disease was mentioned on the death certificate; is that right?
A. That's correct.
Q. But is it true, do people actually die from Parkinson's or do they die from a complication of

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Parkinson's?
A. It is unusual for people to die from Parkinson's. They usually die of a complication or something else.
Q. And what would be recorded on a death certificate in those cases where people die of a complication?
A. The first cause of death is usually the immediate cause. The next cause would be something like Parkinson's disease, if that was -- that would be considered an underlying cause. And then there is also an area where you could mention, as the other word is mentioned, other conditions that an employee -- a person may have been suffering with.
Q. So there would be -- so that would be a mention?
A. So there's an area to mention other illnesses that a person may have been suffering with.
Q. I'm going to hand you Exhibit 6.
(Exhibit 6 marked for identification.)
My questions are going to be limited to the part about use of death certificates.
A. Okay. I have not seen this particular paper before. Can I just confirm this is American?
Q. Yes. It was produced to us in discovery from

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Syngenta documents.
A. I'm just saying this is referring to a study --
Q. Yes. Minnesota.
A. -- undertaken in --
Q. In the United States, yes.
A. Well, I haven't read it in detail but if there's a particular area you'd like me to look at, maybe we can do that.
Q. Yes. I will direct you there.
A. And if I can't answer them, maybe I have to read the whole thing.
Q. Fair enough. Can you read the title into the record, please?
A. "Survival Study of Parkinson Disease in Olmsted County, Minnesota".
Q. And this study was published in 2008, yes, at the bottom of page 1?
A. Yep.
MR. NARESH: Did you mean 2008?
BY MS. FIORILLO:
Q. I'm sorry, it was downloaded from the website in 2008. It was published in 2003. Would you read the objective of the study on page 1?
A. In the abstract?

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Q. Yes please.
A. "To compare survival in incident cases of Parkinson Disease (PD) with survival in subjects free of PD from the general population."
Q. And would you read in the "Methods" section of the abstract the first sentence, first two sentences I'm sorry?
A. "We used the medical records linkage system of the Rochester Epidemiology Project to identify all subjects residing in Olmsted County, Minnesota, who developed PD in the period 1976-1995. Details about the study population and the identification of incident cases were reported elsewhere."
Q. So in order to determine who had Parkinson's disease the researchers of this paper used medical records; is that right?
A. "We used the medical records link ..."
I am afraid I don't know what the medical records linkage system of the Rochester Epidemiology Project is, I'm afraid.
Q. Well, they are medical records, but we'll turn to page 5, if you wouldn't mind?
MR. NARESH: I'll move to strike the attorney commentary.
BY MS. FIORILLO:

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Q. Bates 26353.
A. 26353. Okay.
Q. The second paragraph in the right-hand column reads:
"Parkinson disease was recorded anywhere in the death certificate in only 57% of the patients."
Is that right?
A. I'm sorry?
Q. So am I reading this correctly?
A. I believe it says:
"Parkinson disease was recorded anywhere in the death certificate in only 57% of the patients."
Yes, that's what it says.
Q. The next sentence reads:
"This finding is in agreement with other studies showing a sizable underreporting of PD in death certificates."
Is that right?
A. That is correct.
Q. The next sentence reads:
"Underreporting should be considered when interpreting findings of studies based on PD cases identified through death certificates."
Is that right?
A. That is what it says.

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Q. Did you consider underreporting of PD on death certificates when you coauthored the Widnes study?
A. Specifically Dr. Tomenson did, yes.
Q. And how did he do that?
A. He looked at a number of studies that showed figures not dissimilar to this. In the United Kingdom we've got mentions as well as underlying cause, so when mentions were considered the figure goes up to 76 percent rather than 57 percent, as is said here.
Q. Okay, but that's still under-reported, right, at 76 percent?
A. That would be true -- the figure will be true for the observed cases as well. So in fact it will probably more likely skew the SMR to over-represent Parkinson's disease in the population.
Q. And how will that be?
A. The death certificates are used to determine the observed numbers of cases.
Q. And what do you mean by observed numbers of cases?
A. In the study "Mortality from Parkinson's disease and other causes among a workforce manufacturing paraquat: a retrospective cohort study", presents the outcome as a standardized mortality ratio.

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Q. But you told me earlier that people don't typically die from Parkinson's disease?
A. But it still presents the data as a standardized mortality ratio, or SMR. So if the data for Parkinson's disease is not appearing on the death certificates then the number of cases expected will appear to be fewer than it actually is. So when comparing the workplace number of cases, the figure you divide it by will be smaller, which would mean that it is not impossible that it would overestimate the effect on causing Parkinson's disease.
MR. NARESH: You want to take a lunch break.
THE VIDEOGRAPHER: Going off the record at 12:45.
(Lunch recess.)
THE VIDEOGRAPHER: We are back on the record as of 1:34. You may continue.
BY MS. FIORILLO:
Q. I'm going to hand you Exhibit 7.
(Exhibit 7 marked for identification.)
Take a minute and look at that.
A. I have not seen this, personally seen this paper before. So, do you want me to ask me about the totality of it or is there a particular --
Q. No, I'm going to direct you to certain parts.

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A. I'll read the extract, if I may?
Q. Yes, please.
A. I've read the extract of this paper.
Q. And the title of Exhibit 7 is:
"Survival Time, Mortality, and Cause of Death in Elderly Patients With parkinson's Disease: A 9-Year Follow-up".
Is that correct?
A. That's what it says, yes.
Q. This paper was published in 2003; is that right?
A. Yes, it is. Correct.
Q. The first line of the abstract reads:
"This community-based study of Parkinson's disease (PD) investigated age at death and cause of death in a cohort of 170 previously studied patients."
Is that right?
A. That's what it says.
Q. And this study took place in Sweden; is that right?
A. Again, it's certainly got Swedish authors.
Q. It's in the abstract.
A. It is, yes "a defined area of Sweden". It is.
Q. Again, following in the abstract, it says:

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"Only 53% of the death certificates for the deceased patients recorded PD as an underlying or contributory cause of death."
Is that right?
A. I'm not going to argue with you. I haven't found it yet. If you could just steer me towards it?
Q. It is the third-to-last sentence in the abstract.
A. Yes:
"Only 53% of ... underlying or contributory cause of death."
Q. So you would agree with that?
A. Yes, that's what it says.
Q. If you would turn to page -- at the bottom of page 2, in the column that reads "RESULTS" the last sentence says:
"Table 2 presents the causes of death for cases and controls. The largest category of deaths --"
Would you agree with that first sentence? "
A. "Table 2 presents of the causes of death for cases and controls."
Yes, that's right.
Q. The second sentence:
"The largest category of deaths in the PD group was 'other diseases' (38%), which included

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'weakness due to old age', 'dementia', and 'arteriosclerosis'."

Is that right?

A. That's what it says, yes, I agree.

Q. And again in table -- looking at Table 2, "Major causes of death for patients with PD after 10 years of follow-up" it has that other diseases was 38 percent of the causes of death. Is that right? Other causes for people with PD?

A. Other disease, yes.

Q. If you would refer back to Exhibit 5 or 6, the subject of the e-mail at the top page is "Paraquat and Parkinson Disease"?

A. Yes, I have that document in front of me.

Q. Looking at the top of page 5, reading in the first paragraph:

"The second reason seems to be the fact that Morbus Parkinson normally does not lead to death."

Is that what it says?

A. I'm terribly sorry.

Q. Page 5, at the top of page 5.

A. "Please accept our sincere apologies..."

Q. Further down the paragraph.

A. I'm with the paragraph, I'm just trying to find the exact place where we are.

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"The second reason seems to be the fact that Morbus Parkinson normally does not lead to death."

Q. And this is written by the editor of the journal of International Archives of Occupational and Environmental Health, and this is one of the journals that rejected your paper; is that right?

A. It is indeed, yes.

Q. And he's saying they rejected it for a second reason because the fact that Morbus Parkinson normally does not lead to death; is that right?

A. That's what they've said, yes.

Q. In addition "Morbus Parkinson studies should be conducted as morbidity studies, not as mortality study."

Is that right?

A. That is what it says.

Q. So the journal is saying that the Widnes mortality study should have been a morbidity study; is that right?

A. I don't think it's specifically singling out our study and saying it should be. I think they're saying it would be better as a morbidity study.

Q. But they're rejecting it for that second reason as well; is that right?

A. That is one of the reasons they rejected it.

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Q. And morbidity meaning disease, right?

A. It means disease, yes.

Q. So in the editor's opinion that rejected your study, saying that paraquat exposed workers -- that the workers should have been -- strike that. So the study should have determined how many paraquat exposed workers got PD, not how many died from it; is that right?

A. I think it would be right to say that they would recognize it as a better study and they will have probably published it had it done so.

Q. But they rejected it -- this is one of the reasons why it was rejected, right, because it was a mortality not a morbidity study?

A. That is correct.

Q. Turning to page 6. And this is a comment from the journal of the Environmental Health Perspectives, it starts on the bottom of page 5 and goes to page 6. The journal of Environmental Health Perspectives rejected the mortality study because:

"The consulting editors felt that the paper's impact would be low due to limitations related to the use of death certificate data and SMR to estimate associations".

Is that right?

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A. That's what it says.

Q. Turn to page 2, and we're going to go back to the actual study. And for the record this is Exhibit number --

MR. NARESH: It's 4.

BY MS. FIORILLO:

Q. Thank you. I'm going to read under the section that says "Exposure assessment" on the right-hand side:

"Limited information is available to assess the exposures to PQ of the workers in the cohort."

Is that what that says?

A. That is what it says.

Q. "However, 1330 static monitoring results were collected between 1979 and 1993, and 100 personal monitoring results were collected between 1973 and 1993."

Is that right?

A. That's what it says.

Q. "Only summary information was available for static monitoring results collected before 1987"

Is that right?

A. That's what it says.

Q. "There was insufficient sampling information available to use these measurements to perform a

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quantitative exposure assessment."
Is that right?
A. That's what it says.
Q. So the paraquat sampling equipment used in the plant was not sufficient to perform quantitative exposure assessment for the entire cohort; is that right?
A. I wouldn't put it entirely that way. I think what it says is the information that had been collected using these 1,330 static monitorings and 100 personal monitorings and the summary data was insufficient to be able to use those measurements to perform a quantitative exposure assessment on the group.
Q. Okay, so we don't have a quantitative exposure assessment for this group in this paper for everyone?
A. We don't have a quantitative exposure assessment for people in this group. I mean I think this -- this is clearly stated in the paper.
Q. And by static monitoring, you mean air sampling monitors; is that right?
A. Static monitoring means air sampling monitors that are put in a single place rather than attached to a worker.
Q. And the study doesn't say exactly how many of

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those static monitors there were, does it?
A. I'm sorry, could you rephrase that question?
Q. I'll strike it. So the 100 personal monitoring results were collected from 1983 to 1993; is that right?
A. That's what it says in the paper, yes.
Q. But there were -- so that means for 900 or so people in the study you didn't have personal monitoring results?
A. There were the 100 personal monitoring results collected. It would therefore be improbable that everybody had one done. It seems improbable.
Q. So you did not have them for the vast majority of the people in the study?
A. I think we need to remember that a lot of the people in the study -- a lot of the 930 would have retired before this time, so there would be fewer active workers than 930.
Q. So again, "yes" or "no", for the 900 or so people you would not have had personal monitoring results, right, "yes" or "no"?
MR. NARESH: Objection: asked and answered.
A. Sorry, could you just repeat the question?
BY MS. FIORILLO:
Q. Sure. Can you read back the question.

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(Record read.)
A. Yes, as I said before.
Q. The Paddle study was based on a limited qualitative exposure assessment of 11 chemicals; is that right?
A. In the paper they say they performed a limited quantitative exposure assessment for 11 chemicals.
Q. And paraquat was just one of those; is that right?
A. Paraquat was one of those.
Q. And in this study about 300 of the 729 male workers were assessed to have high or medium exposure to paraquat; is that right?
A. That's right.
Q. So what does medium mean? Let me strike that question. The paper does not give a quantitative assessment of what medium exposure means; is that right?
MR. NARESH: Objection to form. I'm just confused as to which paper. Paddle paper --
MS. FIORILLO: In the Widnes study. This paper.
A. I'm terribly sorry, I've forgotten the question already.

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BY MS. FIORILLO:
Q. Can you read it back?
(Record read.)
A. That is right. The purpose was to identify which groups were more exposed and which groups were less exposed.
Q. So that's all we know, more or less; is that right?
A. That's what we meant.
Q. The last sentence on page 2 of the study reads:
"Exposure levels were not assessed for research staff, plant laboratory workers, (day and shift) and technical administrative staff (day and shift), but their exposure was likely to have been low."
Is that right?
A. That's what it says.
Q. Do you have reason to believe that they had any exposure?
A. I cannot think of any reason, and let me quickly review. Laboratory workers may have been exposed when handling samples. I would have thought research staff similarly. Technical administrative staff I think is highly unlikely.

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Q. So some of the people classified as having low exposure in this study you believe may not have been exposed at all or unlikely to have been exposed?
A. It is unlikely they would have been exposed significantly.
Q. On page 3, a total of 118 workers were assessed to have held jobs that entailed high exposure to paraquat, and a further 202 held jobs that entailed medium exposure to paraquat; is that right?
A. If you could just steer me to which part?
Q. Sure, in the results section on page 3?
A. In the --
Q. Second sentence.
A. "Over 40% had worked on the two earliest plants and almost half had only worked on the LTS plant. A total of 118 workers were assessed to have held jobs that entailed high exposure to PQ, and a further 202 held jobs that entailed medium exposure to PQ."
Yes.
Q. So would the high exposure to paraquat people have been in the quaternization plant?
A. They would have been working in the HTS and they would have had some time working in HTS and MAG plants.

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Q. So you're saying the total exposure would be reported as high for all three of those plants?
A. Two. HTS and MAG.
Q. Oh, I'm sorry. And it's in the HTS plant where quaternization took place?
A. HTS was the first plant where paraquat was produced in batches in the form of 4,4'-bipyridyl which then underwent quaternization. And in the MAG plant similarly.
Q. So where did quaternization take place?
A. Quaternization took place in the HTS plant all through its production period and it was also used for quaternization during a period after it stopped being used for production of 4,4'-bipyridyl. But that doesn't mean it's the only place where quaternization occurred.
Q. I understand. And the personal monitoring of these 100 individuals took place in one month, is that right, or during one month?
A. (Reads.) "...and the mean of the six personal monitoring results available for this period, all collected for workers in a single location during 1 month", yes. These six took place over one month.
Q. So again, they took place over one month; yes?

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A. Those six took place over one month, yes.
Q. And if you read further on, it says:
"... the 94 personal monitoring results collected during the same time period ..."
So does that mean they were collected during that same one month?
A. May I just find that? Well, as I'm reading this the six person monitoring results available were for a period before 1987, and the 94 were for the period '87 to '93.
Q. At the top of page 3, "Statistical methods".
"The observed number of deaths from selected causes and groups of causes was compared with the expected number calculated on the basis of national and local age and period-specific mortalities."
Is that right?
A. That's what it says here, yes.
Q. "The standardised mortality ratio was calculated as the ratio of the observed to the expected deaths, expressed as a percentage."
Is that right?
A. That is correct, yes.
Q. The results of this Widnes study show there was only one death from PD as the underlying cause among male workers compared with 1.8 expected; is that

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right?
A. I think that's on a subsequent page, isn't it?
Q. It's on page 3, just above the Table 2. Middle of the paragraph.
A. So "At least 3.3 death certificates ... would have been expected to have mentioned PD".
Q. Well I was reading the sentence before that.
"There was only one death from PD as the underlying cause among male workers (1.8 expected), and the death certificate of this worker was the only one that mentioned PD".
Is that right?
A. That's what that says, yes.
Q. Again, the next sentence:
"At least 3.3 death certificates of male workers would have been expected to have mentioned PD."
Is that right?
A. That's right.
MS. FIORILLO: Can we go off the record for two minutes?
THE VIDEOGRAPHER: Off the record at 1:59.
(Break taken.)
THE VIDEOGRAPHER: Back on the record as of 2:04.

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BY MS. FIORILLO:
Q. Sir, I'm going to hand you what is Exhibit 8.
(Exhibit 8 marked for identification.)
A. Okay, I haven't read this document.
Q. This is the "Feasibility of Conducting a Prevalence Survey of Parkinson's Disease in a Bipyridl Cohort at Widnes". Is that the title of the document?
A. It is the title of the document.
Q. And the authors are Philip Cole, Jack Mandel, Dimitrios Trichopoulos and Hans Olov Adami; is that right?
A. Indeed it is.
Q. Philip Cole is a paid Syngenta consultant; is that right?
A. I'm afraid I don't know -- the only name I recognize is Jack Mandel.
Q. And is he a paid Syngenta consultant?
A. He has been.
Q. So you don't know who Dimitrios Trichopoulos is; is that what you're saying?
A. I'm saying I don't recall these gentlemen specifically.
Q. So these gentlemen gave their opinion on whether doing the study that we've been discussing, the Widnes study, was feasible; right? That's what the

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title suggests?
A. The title suggests -- it's not how I'm understanding it, if I've understood your question correctly.
Q. They're commenting on the Widnes study, is that right?
A. They are commenting on a prospective -- a potential study at Widnes.
Q. And we've been talking about the Widnes study; is that right?
A. That is correct.
Q. Are you aware of a group informally called the Epiteam of consultants at Syngenta?
A. I'm loosely aware of that team.
Q. Do you know who is on that team?
A. From Syngenta there must be a representative. I'm not sure other than that. I have personally met once with that team.
Q. And the study they commented on -- strike that. Were you aware that Syngenta asked these gentlemen to comment upon a prevalence study at Syngenta?
A. I am and I think it's very -- I think this is referenced in the paper itself. Because this document explains why doing a mortality study would be

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difficult.
Q. Can we turn to page 3?
A. Of?
Q. Of this document.
A. Yes, certainly.
Q. It says:
"In summary, a prevalence survey of an uncommon, difficult-to-diagnose condition in a small, possibly select, cohort is most unlikely to produce informative results."
Is that right?
A. I think that is exactly right, which is why we didn't do one.
Q. And how was the Widnes cohort study different?
A. Earlier in your questioning you asked me about -- you pointed out to me that a number of the journals had suggested we should -- a morbidity study would be better. This document explains why a morbidity study would be extremely difficult and the conclusion was that we would refrain from doing a morbidity study until we saw the outcome of the mortality study to see if it was justified doing.
Q. And what did you decide, based upon what you just said?

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A. We decided that we should go ahead with the mortality study that was done.
Q. I'm going to turn back to exhibit -- the one that starts with the e-mail heading "Paraquat and Parkinson Disease". Page 5, at the top, again the Widnes study, was rejected because it says:
"The prevalence of the diagnosis Morbus Parkinson is 100 to 200 per 100.000 inhabitants."
Is that right?
A. "The prevalence of the diagnosis ... is 100 to 200 per 100,000 inhabitants."
Q. "Therefore, in a study population of about 1000 exposed persons one to two cases of illness would be expected."
Is that right?
A. That's what it says.
Q. And this was rejected by the International Archives of Occupational and Environmental Health; is that right?
A. It was.
Q. They go on to say:
"A doubling of the risk -- which means a relative risk of 2 -- would therefore not be significant yet."
Is that right?

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A. That's right.
Q. I'm going to hand you Exhibit 9.
(Exhibit 9 marked for identification.)
And I am going to direct you to page 4?
A. I have not read the rest of the document.
Q. Go ahead.
A. I don't mind moving to page 4 but I can't comment --
Q. Okay. That's okay. My questions are only going to be on page 4. In the middle of the page there is an e-mail from John Tomenson, who is one of the authors, he's the first author of the Widnes study.
A. Yes, he is.
Q. To Kevin Ledgerwood, is that right?
A. That's right, yes.
Q. And you were copied on this; is that right?
A. Yeah, I am.
Q. The second paragraph reads:
"I have deliberately avoided mentioning there was no data for 1986, and I ducked the question of whether the results were respirable or total dust measurements."
Is that right?
A. That's what it says.
Q. "A sharp referee will probably pick up on

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that."
Is that right?
A. That's what it says.
Q. "I also haven't said anything about the exposure studies that attempted to quantify dermal and oral exposure of users, and I have focussed on the two studies with 24 hour urine collections."
Is that right?
A. That's what it says, yes.
Q. So you were missing exposure data; is that right?
A. It says there's no data for 1986. That's what it says.
Q. But you didn't disclose it, right, in the report -- in the study, excuse me?
A. I don't think it claims it -- I don't think the study claims anything that is or isn't true.
Q. So when he says "I have deliberately avoided mentioning ..." this, what does that mean?
A. I think it means he's not specifically mentioned that there was no data for 1986. Which is not the same as trying to claim there was.
Q. But he doesn't put that in the study. He doesn't specifically say that?
A. I think you're right. I don't think he put

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it in the study.
Q. I'm going to hand you Exhibit 10.
(Exhibit 10 marked for identification.)
A. Okay.
Q. Are you aware of this study?
A. If I've seen this paper it would have been a very, very long time ago. As it refers to end use of Gramoxone it would not be my specialist topic area, my expert area.
Q. Move to strike. There's no question pending.
This is a study of the health of Malaysian plantation workers with particular reference to paraquat spraymen; is that right?
A. That's what it says.
Q. And this study was performed by people at ICI, is that right, J.K. Howard and others?
A. I know Dr. Sabapathy, or I knew Dr. Sabapathy. I don't know Anne Whitehead or J.K. Howard. In fact, according to this, J.K. Howard works for the Chemical Industries Association.
Q. I'm sorry, I apologize. It's the Sabapathy -- is that right?
A. Dr. Sabapathy works --
Q. And Whitehead that worked for ICI?
A. Correct.

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Q. And are you aware that Dr. Howard was a paid consultant?
A. As I said, I have -- if I've seen this paper it would have been a very long time ago.
Q. And are you relying on this study as evidence that occupational exposure to paraquat does not cause long-term chronic effects?
A. I am not because this is a paper relating to end-use and my remit is in the facility.
Q. But speaking at Syngenta, as the corporate designee for Syngenta, is Syngenta relying on this?
MR. NARESH: Objection to scope. His scope is limited as set forth in the topics in the agreement of the parties.
MS. FIORILLO: It does say occupational.
MR. TILLERY: Re-read your topics. We just looked at them. Obvious too.
MR. NARESH: Are you limiting your question to occupational exposure?
MS. FIORILLO: Spraying, that's an occupation. Applicators are occupational.
MR. NARESH: Are you limiting your question to occupational exposure?
MS. FIORILLO: I'm going to ask him about this study.

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MR. NARESH: Are you limiting your question to occupational exposure?
MS. FIORILLO: This is occupational exposure in this study.
MR. NARESH: Look, he's here as a corporate rep on the topics, for which he's disclosed. And then we provided disclosure on February 18 making clear our interpretation of the topics and I received an e-mail agreement with our interpretation of several of these topics. We can have an argument about scope later, but my position is he is here as a corporate representative on a topics for which he's designated and the parties subsequently agreed on limitation of certain of those topics. So if you want to ask a question, he can answer the question, and we can argue later about whether or not it's within the scope.
BY MS. FIORILLO:
Q. I'm going to move on. Have you ever submitted this study to any regulatory authority in support of continued paraquat registration?
MR. NARESH: Objection to the scope.
A. I have not.
BY MS. FIORILLO:
Q. Has Syngenta ever submitted this study to any regulatory authority in support of continued

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registration of paraquat?
MR. NARESH: Same objection.
A. I don't know.
BY MS. FIORILLO:
Q. The bottom of page 1:
"Concern has been expressed, nevertheless, that the full extent of the potential hazard to sprayworkers has not been sufficiently explored."
Am I reading that correctly?
A. That's what it says here.
Q. "Claims have been made that generalised ill-health may result after working with paraquat and that the spraying of paraquat may represent an important health hazard."
Is that right?
A. That's what it says.
Q. So Syngenta was concerned about the potential chronic health effects of paraquat to spraymen; is that right?
MR. NARESH: Objection to the scope.
A. I can't answer that question without referring to the references mentioned.
BY MS. FIORILLO:
Q. This study was published in 1981; is that right?

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MR. NARESH: Can we go off the record for a minute here?
THE VIDEOGRAPHER: Off the record at 2:27.
(A break taken.)
THE VIDEOGRAPHER: Back on the record at 2:29.
MR. NARESH: So, for the record we have a statement from Mr. Tillery at 12:14 p.m. that he agreed on a condition that the only basis by which we were allowing a switching of attorneys from a single firm in the middle of a deposition was that Ms. Fiorillo would take only one topic, Mr. Tillery is the rest. The only topic she is addressing is the epidemiology study of Widnes, the epidemiology study he coauthored. Plaintiffs have now moved beyond that, with Ms. Fiorillo asking questions about a study from 1981 or 1980 that is not the study he coauthored, is not related to Widnes. We object to that.
If Ms. Fiorillo has additional questions about the Widnes study that he coauthored, she's free to continue and ask questions about that, as agreed. If she's moving on beyond the one topic that plaintiffs represented she would be asking about, we object to that and we do not agree to further questioning.
MR. TILLERY: And what does that mean when

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you say you won't agree to further question? Off the record, before we resumed this, you said you were terminating the dep. Is that your intention?
MR. NARESH: If Ms. Fiorillo has more questions about the Widnes study, as agreed, then go ahead.
MR. TILLERY: No, I'm sorry, if she moves on in the topic under discussion with another one, on exactly the same topic, which is what she was talking about, if -- I told you about topics. If I misspoke, I apologize, counsel, but I referenced a "topic", and that is what I told you when I explained to you how the practice rules work in Illinois. Is that when you're dealing with an individual witness you really can't change horses in mid-stream. When you're dealing with topics, you can. And this is a corporate designee deposition. This is not an individual witness deposition.
MR. NARESH: Which topic?
MR. TILLERY: Excuse me a second.
MR. NARESH: Go ahead.
MR. TILLERY: If that's the case, and you are, then if you're telling us we're not going to proceed otherwise, and if you're terminating it you need to make that statement otherwise she's going to

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resume the dep.
Now, if you do, let me explain to you what I'm going to do. Well, let me first hear what you're going to do. Are you moving to terminate the deposition?
MR. NARESH: I'd like to know -- I have the quote from you, and it's on the record.
MR. TILLERY: I understand you've read it.
MR. NARESH: And I hear that you're changing the representation you made earlier, which I do take issue with. But now you're saying that she's taking a different topic than the one you said earlier. So I want to hear on the record what your position is, because you've changed your position in the middle of this deposition. So please tell me what topic Ms. Fiorillo is supposedly asking questions about that is different than the one that you told me about earlier?
MR. TILLERY: You know, I don't have the topics in front of me. I think it's 31(d) is what I think it is, but I haven't memorized all the topics but it deals with worker safety. That's exactly what he has in front of him.
MR. NARESH: Then why did you say something different earlier on the record?

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MR. TILLERY: Counsel, I'm not here to answer questions. But I will tell you, if you tell us what you're doing, what your plan is with respect to the depo, then I'll respond to it. She's going to go ahead with -- our intention is she's going to go ahead with the questioning. You tell us what you are going to do.
MR. NARESH: My -- we proceeded with an agreement that, quote, she's taking only one topic, you're the rest, Mr. Tillery. The only topic she's addressing is the epidemiology of the Widnes, the epidemiology study he coauthored. I said this is the condition I will agree to proceed, that --
MR. TILLERY: So you don't have any problem with me asking these questions of the witness?
MR. NARESH: No. And then I said: what I don't agree that if you tag out then Ms. Fiorillo is going forward and you're not stepping back in. And you said "correct, proceed".
MR. TILLERY: So you don't have any objection with her proceeding with the questions?
MR. NARESH: On the question, the topic of the Widnes statement.
MR. TILLERY: Oh, so but she can only talk about that study, right?
MR. NARESH: That's what you agreed with me

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on.
MR. TILLERY: Okay, so what you're saying is I can't come back and ask further questions, and she can't ask any questions other than that one study, when we've only touched about half of his topics?
MR. NARESH: Look, if you wanted to do -- if you had a different --
MR. TILLERY: Excuse me. Is that what you're saying? Because I think the judge might find a little bit of humor in that.
MR. NARESH: I think the judge might find a little humor in the fact that you -- we specifically had an agreement, and if you're reneging on the agreement just tell me you're reneging on it.
MR. TILLERY: No, here's what --
MR. NARESH: Are you reneging on the agreement, Steve?
MR. TILLERY: No, I'm not. Now tell me what you're going to do? Here's your choice. You can have me ask the questions, or you can have Rosemarie Fiorillo ask. Which one do you want?
MR. NARESH: No, you also agreed that you're not asking further questions on this topic.
MR. TILLERY: That's right, she was going to ask them on this topic. I said "topic", that's right.

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She was gonna ask on this topic. She prepared for this topic. And that's what I was trying to explain that under a corporate designee structure we get to have people, different lawyers prepare. There might be multiple, dozens of topics, and people prepare and they present in a corporate designee context. That's what she's done. Now, if you want me to take these instead of her, I'm happy to do that, right now, and I'll be happy to finish this line until this gentleman has to leave for whatever he's going, where you told me he has to go. If you want on the other hand for her to do it, she can do it. But if you're saying I can't proceed and she can't proceed, you're effectively terminating the dep.
MR. NARESH: Look, I'm just having a hard time understanding why you said something that you didn't mean.
MR. TILLERY: So --
MR. NARESH: If you could just help me understand that, then maybe we can find a path forward here.
MR. TILLERY: We're chewing up the clock. Go ahead and do what you're going to do, and then I'll respond. I've already told you what's happening.
MR. NARESH: What I'm asking you -- you told

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me the topics --
MR. TILLERY: I said topics.
MR. NARESH: Hang on. Don't interrupt me. You told me the topic, and you told me what the topic is, and I have it on the record. We did it on the record for a reason. And now you've changed your topic, you've expanded the topic, and you still won't give me a number, you won't tell me what topic she's talking about. And I do have an issue with the fact that you're continuously changing the scope of what we're talking about here. I want to have an understanding on what your position is. That's something you're gonna live with.
MR. TILLERY: Look, here is what it looks like. You haven't prepared him on this study. If that's it, that's no problem, you just tell us and you can prepare him later. But if that's -- you know, there's no sense in beating around the bush about it. If he's not prepared, that's fine, we can deal with it later. But the bottom line from my perspective is simple. It's a topic. We can ask the questions. I can read the topic in, if you want me to get it. I don't have it memorized. I'm happy to read it into the record. But if you want me to -- if you want the dep to go forward and you're not terminating -- if

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you're terminating it, you have the right to do that. The practice rules permit you to terminate the dep. Now you probably are going to be facing a motion that requires you to pay all of our travel expenses back to England, okay, and our lodging expenses but that's on you. That's your decision. So I'm just telling you, our intention will be to immediately seek compensation for the return trip.
MR. NARESH: That was a very self-serving description of what just happened earlier today. What I am looking for -- we had an agreement, just two hours ago, right before lunch on what Ms. Fiorillo was going to ask questions about. You are now reneging on your agreement. And now, all I'm asking you to do, so that I can make a decision over where to go from here, is what your position is now that you've changed your position?
MR. TILLERY: I just told you.
MR. NARESH: No, no, no, you still have not identified for me -- the only thing you've identified for me is something that you've reneged on. And so if you have a topic for which Ms. Fiorillo and only Ms. Fiorillo is asking questions, then you need to identify that for me by number since you've already reneged on what you did by description.

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MR. TILLERY: It's the same one she just asked about. There it is. It's 31(d). I think that's what I told you before.
MR. NARESH: Okay, so let's go back to Ms. Fiorillo and ask your questions for 20 minutes on 31(d) and only on 31(d), no-one else asks questions on 31(d), and then we'll end at 3 o'clock.
MR. TILLERY: Well, here, I think we can probably get this clarified, since you're saying -- you're effectively saying that's the end of it, I can't ask others. So we'll go ahead and present the motion to the court -- excuse me, counsel. We'll present our motion to the court unless we get an understanding that we can resume this deposition on the remaining topics he hasn't spoken to. And if that's your position that we can't, no problem, but we'll take it to the judge.
MR. NARESH: What we ought to do is, rather than waste any more time, is -- I believe you've reneged on an agreement, but if Ms. Fiorillo has more questions on 31(d) she should ask the questions, I'll object on scope as appropriate, and go from there.
MR. TILLERY: We're happy to do that and she can proceed with respect to the study that she was talking about.
MR. NARESH: I may object on scope but that's

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fine.
MR. TILLERY: Was this witness designated for 31(d)?
MR. NARESH: He was designated for 31(d), 64 through 67. And then we had some discussions on 64 and 67 in our disclosure with you.
MR. TILLERY: So I think 31(d) is the topic.
MR. CRAIG: I want to make clear, Ragan, is your position that 31(d) only covers epidemiological studies of Syngenta employees?
MR. NARESH: I believe 31(d) says occupational health and safety and then goes on from there.
MR. TILLERY: And the study she's talking about is an occupational health and safety --
MR. NARESH: Look, we can argue about scope later. We can argue about that much later. Let's not waste any more time. Let's go ahead. Let's do this thing.
BY MS. FIORILLO:
Q. Can you read back the last question, my question?
(Record read.)
MR. NARESH: I'll object to the scope.
BY MS. FIORILLO:

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Q. Your answer to my last question would be?
A. My answer to your last question is, I'm unaware of what this paper has been used for. It's outside the scope of the topics I thought I was covering for on behalf of Syngenta.
Q. This paper was published in 1981, is that right?
MR. NARESH: Same objection. Can I have a standing scope objection with the understanding that you don't agree to it at this time.
MS. FIORILLO: Yes.
A. It says here it was published in 1981.
BY MS. FIORILLO:
Q. And the concern was that the potential hazard to spray workers had not been sufficiently explored; is that right?
A. It says "Concern has been expressed, nevertheless, that the full extent of the potential hazard to spray workers has not been sufficiently explored."
Q. And paraquat came on the U.S. market in 1965; is that right?
A. I am not sure when it first was sold in the U.S.
Q. And when was it first sold within the U.K.?

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A. Before that, in the early '60s.
Q. And again, two of these authors are from ICI which is a predecessor of the company of Syngenta; is that right?
A. Oh, one of them is from plant protection, London, Dunlop Estates. I guess that must be ICI as well.
Q. And so whether -- so if my math is correct, so 19 years after paraquat had been on the U.K. market, Syngenta still had not understood paraquat's long-term health effects; is that right?
A. It says claims have been made, it doesn't say who made them.
Q. But ICI was performing this study, right?
A. ICI is performing this study, yes.
Q. To answer the question of what the potential long-term health effects of paraquat were, right?
A. I haven't read this paper so I'd have to take your word for it.
Q. Okay, would you take a few minutes to read it?
A. I can take quite a few minutes, sorry.
(Pause while witness reads document.)
So I've read the introduction. Do I need to know more than that?

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Q. Yes.
A. Is there any area you'd particularly like to draw my attention to?
Q. No, we're going to cover several areas.
A. Okay. My concern is that even having read it, it would be outside of Syngenta occupational health and therefore outside of my remit.
Q. There was no question pending, but can you read back his answer?
(Record read.)
MR. TILLERY: So he's not going to answer questions?
MR. NARESH: You can ask questions. By the way, we still have an understanding on the ongoing scope objection.
A. Okay, I've very quickly skim read it. And I think I see the shape of it.
BY MS. FIORILLO:
Q. In your role at Syngenta do you review studies regarding the long-term health effects of paraquat exposure?
A. Only to employees, by which I mean Syngenta employees.
Q. For the paraquat mortality study you authored, did you review studies regarding the

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long-term health effects of paraquat exposure?
A. I did not.
Q. And what was your role in coauthoring the Widnes study?
A. My key role was the identification of the synthetic routes and the history of the -- the history of the plants at Widnes.
Q. Did you say synthetic routes?
A. The routes of synthesis. The manufacturing processes. Sorry, introducing a new term for the same thing.
Q. Have you ever given a presentation discussing the occupational health of applicators and spraymen?
A. I may have given a presentation on behalf of somebody else.
Q. So what does that mean?
A. I may have given someone else's presentation because they were unable to do so.
Q. And that was about paraquat?
A. It would have been. It would have been about paraquat.
Q. Do you remember when that was?
A. My recollection is that it was in Portugal a long time ago.
Q. And to whom were you giving it?

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A. People in Portugal I'm afraid is the best I can remember.
Q. And do you remember why you were giving it?
A. Because the normal presenter was unable to present.
Q. But why were you discussing the occupational health of applicators of paraquat?
A. Presumably it was for -- the population there needed to know about it.
Q. Looking back at the Howard study. The study compared 27 paraquat spraymen to two control groups; is that right?
A. That's how I read it.
Q. And in one control group of what they call general plantation workers, some of those men may only occasionally work in areas where paraquat was recently sprayed; is that right?
A. Where does it say that, please?
Q. At the top of page 736:
"One was a group of general workers, some of whom may occasionally work in areas recently sprayed with paraquat ..."
Do you see that?
A. Yes.
Q. Is that right?

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A. That's what it says.
Q. And that group included rubber tappers and harvesters; is that right?
A. Sorry, where does it say that?
Q. Where does it say that? If you go below "POPULATION", in the second paragraph.
A. "It had been intended to use two groups of estate workers".
Q. One of rubber tappers, and oil palm harvesters; is that right?
A. Tappers, yeah.
Q. Tappers, I'm sorry.
"Some members of this group had received minimal exposure to paraquat as a result of working in areas of the plantations in which spraying had recently be completed."
Is that right? The top left-hand corner on page 2.
A. "Some members of this group". Which group is "this group"? Yep.
Q. And that group had 24 people in it; is that right?
A. Again, remind me where it says that?
Q. The second paragraph, top right:
"The final three groups consisted of 27 spraymen, 24 general workers, and 23 factory workers."

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Is that right?
A. Yes, that's what it says.
Q. And so we talked about one control group. The other control group was a group of latex processing factory workers who were not exposed to paraquat at work; is that right?
A. I think that's what it has said.
Q. Again, that's at the top of page 2 in the left-hand corner:
"... the other a group of latex processing factory workers, who had received no known exposure to paraquat in the course of their work."
Is that right?
A. Yeah.
Q. And the participants in this study were all male; is that right?
A. I think that's what it said.
Q. And the spraymen averaged 3 to 5 years of spraying; is that right?
A. I think I recall seeing that but can you remind me where it says that?
Q. In the abstract.
A. Okay, yeah. (Reads.)
MR. NARESH: Do you have a stopping point?

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MS. FIORILLO: No.
MR. NARESH: We agreed the deposition would end at 3, for his purposes.
MS. FIORILLO: Okay, so we'll continue.
MR. NARESH: We can do this on or off. I'll just tell you that I view this document as related to exposure related topics 31(b), 31(n) and 31(o) for which we'd already agreed that there could be a continuation of that deposition. And so that's what I'd suggest that we do with this one, since in my view this is an exposure document not an occupational health document. I don't think we have to reach that resolution right this second, but I think we can continue that conversation later.
MR. TILLERY: To clarify, your view is that Mr. Botham would cover this topic?
MR. NARESH: I think that this is an exposure assessment document, for which Mr. Botham was designated.
MR. TILLERY: We're willing to agree to that. But I will tell you this. As I have -- as this deposition has progressed, I looked at this 31(d) and it very clearly says the methodologies, results, significance and replication of, and Syngenta's internal and external communications about studies

investigating the health effects or other aspects of the safety of paraquat or any paraquat product or formulation, whether published or unpublished, and whether performed by or for Syngenta or by others, including investigations, investigating. And then (d) "occupational health and safety". And then it says "including". So you should, I hope, understand that it was a fair belief of ours when you listed this gentleman to cover this topic that occupational health and safety which is not limited to Syngenta employees would include a study upon which Syngenta has heavily relied that it's definitely occupational health and safety. But I'm willing to agree that we can do it with Mr. Botham.

MR. NARESH: Again, I read it differently. I read this as an exposure document. I'm not saying that -- I think I'm right. You sound like you think you're right. But it sounds like we've reached a path forward on it, and I suggest we take that path.

MR. TILLERY: We will.

THE VIDEOGRAPHER: So we are concluding today's deposition at 3:04.

(The deposition closed for the day at 3:04 p.m. To be continued.)

CERTIFICATE OF COURT REPORTER

I, Chanelle Malliff, an Accredited Real-time Reporter of the United Kingdom and Europe, hereby certify that the testimony of the witness Dr. Clive Campbell in the foregoing transcript, numbered pages 1 through 186, taken on this 27th day of February, 2020 was recorded by me in machine shorthand and was thereafter transcribed by me; and that the foregoing transcript is a true and accurate verbatim record of the said testimony.

I further certify that I am not a relative, employee, counsel or financially involved with any of the parties to the within cause; nor am I an employee or relative of any counsel for the parties; nor am I in any way interested in the outcome of the within cause.

CHANELLE MALLIFF

Signed: ....

Name: CHANELLE MALLIFF

Date: February 28, 2020

Ragan Naresh, Esq.
ragan.naresh@kirkland.com

March 5, 2020

RE: Hoffmann, Diana v. Syngenta Crop Protection LLC
2/27/2020, Dr. Clive Campbell (#3984468)

The above-referenced transcript is available for review.

Within the applicable timeframe, the witness should read the testimony to verify its accuracy. If there are any changes, the witness should note those with the reason, on the attached Errata Sheet.

The witness should sign the Acknowledgment of Deponent and Errata and return to the deposing attorney. Copies should be sent to all counsel, and to Veritext at cs-ny@veritext.com.

Return completed errata within 30 days from receipt of testimony.

If the witness fails to do so within the time allotted, the transcript may be used as if signed.

Yours,
Veritext Legal Solutions

Hoffmann, Diana v. Syngenta Crop Protection LLC
Dr. Clive Campbell (#3984468)

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Dr. Clive Campbell Date

Hoffmann, Diana v. Syngenta Crop Protection LLC
Dr. Clive Campbell (#3984468)

ACKNOWLEDGEMENT OF DEPONENT

I, Dr. Clive Campbell, do hereby declare that I have read the foregoing transcript. I have made any corrections, additions, or changes I deemed necessary as noted above to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

_____

Dr. Clive Campbell Date

*If notary is required

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 20___.

_____

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