1703

(10:50)

(Jury is present)

(All parties are present)

THE COURT: Okay. Everyone will be seated. Let the record reflect that everyone's back in the courtroom. And the plaintiffs ready to call their next witness?

MR. FELL: Yes, Your Honor. And the plaintiff calls W. B. Papageorge by deposition.

THE COURT: Okay. Now, ladies and gentlemen, the plaintiffs are presenting deposition testimony at this time. I think during the opening statements or somewhere someone informed you that some of the witnesses in this case were unable to travel here and that their testimony would be presented by deposition. This happens to be a video deposition.



WATER_PCB-SD0000068303

Now, this testimony was taken under oath with a court reporter present in the room and everything was taken after Mr. Papageorge was placed under oath. So his testimony is to be considered just as if he were in the courtroom live testifying here as all of the other witnesses have so far.

So with that caveat, go ahead. And do we need to turn any lights down or anything? Do you think we'll be able to see?

MR. FELL: I think we'll be fine, Your Honor.

MR. PRATER: Your Honor, briefly, you might want to advise the jury that I will perhaps be standing up from time to time to add something verbally to their videotape under the continuation rule.



WATER_PCB-SD0000068304

THE COURT: Okay. Well, you just did. You just advised them of that.

MR. WHITE: But not as good as you could.

THE COURT: Same thing. I mean, the same thing happens in a deposition that happens here in this courtroom from time to time. The attorney for the other side will stand up and, one, either make an objection or add something to the questioning.

Now, we've already gone over -- I think the parties have worked out any objections that may have been made at the time and we've gone over some matters already. But, from time to time, again, in a deposition the plaintiffs' attorney will ask questions and then the defense attorney will ask questions on



WATER_PCB-SD0000068305

cross-examination, just as we do here in the courtroom. And in order to alleviate some of that Mr. Prater may jump up or stand up at a time earlier than he normally would just to add the testimony that the defense would present on cross-examination if it were live here in the courtroom. I don't know what points in the video he will do that, but, you can expect that. Okay.

MR. PRATER: You did explain that a lot better.

THE COURT: I don't know if I did or not but... Okay. Let's go.



WATER_PCB-SD0000068306

WILLIAM B. PAPAGEORGE,

called as a witness, having first been duly sworn, testified as follows; to-wit:

BY MR. ATKIN:

Q. Can you state your full name, please, for the record?

A. William B. Papageorge.

Q. And how do you spell Papageorge?

A. P-A-P-A-G-E-O-R-G-E.

Q. Where do you presently reside, Mr. Papageorge?

A. In St. Louis County, Missouri.

Q. Okay. You've testified before in other cases involving PCBs; is that correct?

A. That is correct.

Q. Approximately how many cases have you testified in?

A. I've never kept score, frankly. I would suggest in depositions and trials is approaching thirty or forty.

Q. Can you briefly tell us your educational background?



WATER_PCB-SD0000068307

A. I'm sorry?
Q. I'm sorry. I should speak louder. Can you briefly tell us your educational background?
A. I received a bachelor of science degree in chemical engineering from Washington University located in St. Louis, Missouri, in 1943. I received a master of science degree in chemical engineering also from Washington University in 1947. Additional formal credits were earned at Oklahoma A & M, now known as Oklahoma State University in Stillwater, Oklahoma, toward a doctor of science degree in the period 1947 to 1951.
Q. Did you -- Can you tell us briefly your employment history at Monsanto, just what titles you held and approximately what years, to the best of your recollection? I know this goes back a while.
A. I know it does. I joined Monsanto in 1951, late '51. My initial assignment was as a process engineer in the plant's



WATER_PCB-SD0000068308

engineering department.

Very good. Following that assignment, which lasted until 1954, I became designated as a senior chemical engineer still within the same engineering department. In 1955 I was appointed a production supervisor. In 1956 I was appointed a maintenance supervisor. In 1959 I became an assistant engineering superintendent. In 1961 I was appointed a general superintendent of warehouse, inventories, and utilities. In 1964 I was assigned to the plants located at Sauget, Illinois, S-A-U-G-E-T, of Monsanto, as a general superintendent of manufacturing. In 1965 I was appointed plant manager at the Anniston, Alabama plant. In 1970 I was appointed manager, environmental control.

Q. At Anniston?

A. No. Reporting back to St. Louis. In 1973 I was appointed manager, product acceptability, of the operating unit



WATER_PCB-SD0000068309

within Monsanto referred to as the Monsanto Industrial Chemical Company.

Q. Still stationed in St. Louis?

A. Yes.

Q. Okay.

A. In 1977 I was appointed the manager of product acceptability for the chemical -- sorry -- Monsanto Chemical Intermediates Company. In 1983, as a result of a reorganization within Monsanto, I was appointed a director, environmental operations, for the operating unit referred to as the Monsanto Industrial Chemicals Company, the same kind of assignments, different group of plants. In 1986 I was named manager of occupational health for another reorganization within Monsanto. This was referred to as the Monsanto Chemical Company. And I finally retired at the end of that year.

Q. Let me show you another document. And we will mark this as Papageorge Four for



WATER_PCB-SD0000068310

identification. This is a progress report from the technical services department of the Anniston, Alabama plant dated July 23rd, 1969, bearing Bates stamp designation DSW 014284 through DSW 14295. And this document reflects that an audit was in fact done of the Aroclor department; is that correct?

A. That is correct.

Q. Now, in or about July 1969 Monsanto visually checked Snow Creek and Choccolocco Creek for PCBs; is that right? And I'm referring you to the document.

A. Yes.

Q. Okay. And the document reflects that -- what the results of that visual inspection were; is that correct?

A. I recall seeing it as I scanned it.

Q. I'm on the first page, actually.

A. Still?

Q. Yeah.

A. It's the last paragraph, first page. Yes, sir, I see it now.



WATER_PCB-SD0000068311

Q. It reflects that none was noted more than one block from the plant boundaries.
A. I see that, yes.
Q. Okay. Does that mean, sir, that up to one block from the plant boundaries Monsanto was able to visually detect PCB waste?
A. Well, that tells me that the observer who went out looking for evidence of PCBs, which looked an awful lot like the motor oil that drips out of your car on your garage floor.
Q. Right.
A. He went out looking, and he spotted what he thought might be a PCB.
Q. Uh-huh. (Affirmative.)
A. Remember, he didn't analyze for it. He just saw that stain, if you will.
Q. Okay.
A. And it was at most a block -- and I'm assuming that is a city block -- a typical city block away from the plant boundary line.
Q. Now, if you turn to page DSW 014298, which



WATER_PCB-SD0000068312

is page six of this document --

A. I have it.

Q. Okay. That reflects that samples were taken of -- two sets of samples of mud and water were collected from Snow Creek in September of 1968. Is that correct?

MR. PRATER: Okay. And the answer at this point was, Your Honor, "I'm having difficulty finding reference to two here.

"QUESTION: Do you see where -- Let me help you out. Do you see where it says, 'sample location'? And he answered, 'Yes.'

"QUESTION: The paragraph just above that. It says, 'During September of 1968 two sets of samples, mud and water, were collected from Snow Creek.

"ANSWER: I see that, yes.

"QUESTION: And it also reflects that these samples were



WATER_PCB-SD0000068313

analyzed for PCBs by the organic research method, correct?

"ANSWER: I'm confused by your use of the word 'method.'

"QUESTION: It says, 'By organic research.'

"ANSWER: Yes, sir.

"QUESTION: Do you know what is meant by the term 'organic research?'

"ANSWER: This refers to the team of analytical chemists assigned to Monsanto's central research department to work on new technology for analyzing for chemicals. And PCBs was one of their projects."

(Video resumed.)

Q. And this in fact gives the results of the samples that were taken in 1968; is that correct?

A. Are we still on the same page as those two samples?



WATER_PCB-SD0000068314

Q. Yes.
A. As I read it, it shows me analyses were completed on the two samples of sediment and the one sample of water. Apparently the second sample of water was dropped and broken.
Q. Right. What is the figure given for the parts per billion of the one water sample?
A. Fifty-eight, plus or minus two.
Q. Okay. And it also gives results for the sediment; is that right?
A. I'm sorry? It also gives results?
Q. For the sediment.
A. Yes, it does.
Q. Okay. And are you able to determine from the results of sediment how many thousands of parts per million of PCBs were found in those samples, in the two samples of sediment?
A. Thousands of parts per million?
Q. Yes.
A. Well, this number you see there is not identified as to the magnitude of that



WATER_PCB-SD0000068315

number. We don't know if it's parts per million or parts per billion.

I'm sorry. I read it now. I read it.

Q. It is percent, right?

A. Percent, yes, sir.

Q. All right. So this would be parts per hundred, would it not?

A. Yes. It would be point two plus or minus point oh two in percent, yes.

Q. Parts per hundred?

A. Yes.

Q. And the second sample would be --

A. Yes.

Q. And the second sample one block below the plant that full?

A. Yes. It's one point six four pounds per hundred pounds.

Q. Okay. Now, this progress report is labeled on top "Company Confidential" on the first page.

A. Yes, sir.

Q. Okay. What does that mean?



WATER_PCB-SD0000068316

A. Well, it is information that someone in the company, generally the author of a document, believed that it was unique to the company's operation and in his opinion ought to be kept confidential and for use within the company to manage its affairs.
Q. Okay.
A. It is the author's judgment call.
Q. Okay. To your knowledge, sir, did Monsanto ever disclose to the residence of Anniston in 1968 or 1969 that twenty-seven pounds of organic and acid waste from the Aroclor and HCl departments were being lost from the plant?
A. There was no reason to talk those numbers. They were meaningless.
Q. But the answer is no?
A. That is correct.
Q. Thank you. Did anyone ever tell the residents of Anniston at that time that Monsanto was visually checking Snow Creek and Choccolocco Creek to determine the effects of the PCBs in the plant effluent



WATER_PCB-SD0000068317

water?

A. Sir, this is no different than a service station man telling his neighbors he's got motor oil in the curb by his service station. Those things just are nonproductive comments that one can make to others.

Q. Okay. I'm going to move to strike. But the answer, though, is no; is that right?

A. Yeah.

Q. Okay. Did anyone ever tell the residents of Anniston that Monsanto had taken samples of mud and water downstream from the plant in Choccolocco Creek and Snow Creek in 1968 and 1969?

A. Again, there was no rational reason for talking to anybody, so they didn't do it.

Q. Okay. The answer's no; is that right?

A. That's what you heard me say. We didn't do it.

Q. Okay. And is there -- did Monsanto ever disclose to the residents of Anniston in 1968 or 1969 that it had taken fish



WATER_PCB-SD0000068318

samples to be analyzed for PCB content as reflected in this document?

A. The same rationale applies, sir. The reason for doing so --

Q. Sir.

A. -- was not present, and we didn't do it.

Q. Thank you. And this in fact gives the results of the samples that were taken in 1968; is that correct?

A. Are we still on the same page of those two samples?

Q. Yes.

A. As I read it, it shows me analyses were completed on the two samples of the sediment and the one sample of water. Apparently the second sample of water was dropped and broken.

Q. Right. What is the figure given for the parts per billion?

A. (No response.)

MR. ATKIN: Okay. I'm going to show you another document which we will mark as Papageorge Five



WATER_PCB-SD0000068319

for identification. Okay.

Let us mark for identification the next document, which is a July 21st, 1970, progress report.

Q. If you could go -- let me just say that -- for the record, that Plaintiffs' Exhibit Seven for the Papageorge deposition is a progress report from the Technical Services Department dated July 21, 1970, titled Aroclor Losses at the Anniston Plant, bearing Bates number MONS 056663 through 056673.

If you could turn to page 056667.

A. I have it.

Q. Okay. According to that sheet, the average Aroclor concentration from April 22nd, 1970, through May 4th, 1970, was eighteen hundred and thirty-three parts per billion in the warehouse sewer. Is that correct?

A. That is correct.

Q. Okay. And the average Aroclor losses per



WATER_PCB-SD0000068320

day listed on that document were one point forty-three pounds?

A. That is correct.

Q. Okay. If you could turn to the document MONS 056670.

A. I have it.

Q. Okay. According to that sheet the Aroclor concentration in the total plant effluent averaged fourteen hundred sixty parts per billion per day for April 15th, 1970, through June 30th, 1970. Is that correct?

A. That is correct.

Q. Okay. And the Aroclor losses per day averaged fifteen point seventy-four pounds for that period?

A. Yes.

Q. Okay. According to these two sheets the average amount of PCBs -- I guess if you look at 056672, the parts per billion at Snow Creek from April 15th, 1970, through June 21st, 1970, was seven hundred sixty-eight parts per billion. Is that right?



WATER_PCB-SD0000068321

A. That's what it indicates, yes.
Q. Okay. And on some days -- I'm referencing now in particular May 10th, 1970, the amount of PCBs in parts per billion in Snow Creek reached as high as ninety-six hundred parts per billion, correct?
A. Do I have the right page, sir? Is that MONS 056670?
Q. 6671.
A. 71?
Q. Look at 5-10.
A. 5-10, yes.
Q. Okay. We'll mark this as Plaintiff's Exhibit Number Nine for identification and while you look at it, I'll just identify it for the record. This is a memorandum written by Mr. Hodges to Mr. H. S. Bergen, Jr., dated August 7, 1970. And I note that you are a -- you were apparently a recipient of this document, correct?
A. That is correct.
Q. Okay. Do you recall seeing this document before?



WATER_PCB-SD0000068322

A. Yes. As I read it I recall it, yes.
Q. Okay. Who was Mr. Bergen?
A. Mr. Bergen was the director --
Q. Bergen. Thank you.
A. -- of the functional fluids business group in the organic chemicals division of Monsanto Company.
Q. And PCBs would have fallen under his jurisdiction or been among the functional fluids that were part of the business group that he was responsible for?
A. That is correct.
Q. You will note that it says at the top of the memo, "Confidential, for your information, and destroy." Do you see that?
A. I do.
Q. The first sentence of the memo says, "Following are the moves underway resulting from the FDA findings of high levels of PCB in fish taken from Choccolocco Creek downstream from its confluence with Snow Creek. "Do you see



WATER_PCB-SD0000068323

that?

A. I do.

MR. PRATER: And at this point, Your Honor, the deposition went on.

"QUESTION: Do you recall what the FDA's findings were?

"ANSWER: I recall an incident where FDA representatives out of Atlanta, Georgia, reported the finding of PCBs in some fish that were taken. I don't recall too many of the other details. I do recall that a group from the Anniston plant went to the FDA offices to discuss this matter. I don't recall the exact timing."

(Video resumed.)

Q. The first item under status states, "We are presently discharging to Snow Creek about sixteen pounds a day of PCBs." Do you see that?

A. I do.



WATER_PCB-SD0000068324

Q. Okay. Were you aware that as of August 1970 Monsanto was discharging sixteen pounds per day of PCBs to Snow Creek?
A. I was certainly made aware by the plant reports, yes.
Q. Okay. The third paragraph states, "Joe Crockett, secretary of the Alabama Water Improvement Commission, will try to handle the problem quietly, without release of the information to the public at this time." Do you see that?
A. I do.
Q. Okay.

MR. PRATER: And the transcript goes on, "Did Monsanto request that Mr. Crockett try to handle the problem quietly, without releasing the information regarding the high levels of PCBs in fish from Choccolocco Creek?"

"ANSWER: I'm certain they did not.

"QUESTION: Okay. Do you



WATER_PCB-SD0000068325

know who at Monsanto discussed with Mr. Crockett his handling the problem quietly without releasing the information to the public?

"ANSWER: I'm not under any impression that it was discussed. There was a request on Mr. Crockett's part to Monsanto people to handle the data in this manner. And when you say who, it's this group that met with Mr. Crockett and the federal FDA people in Atlanta, as I recall, when this matter came up.

"QUESTION: And your recollection -- I don't want to put words in your mouth. But your recollection is it was Mr. Crockett's desire and request of Monsanto that the problem be handled without releasing the information to the public; is



WATER_PCB-SD0000068326

that correct?

"ANSWER: That is true, yes."

Then at page 84 line 8.

"Mr. Papageorge, we were discussing, I believe, Papageorge Nine, is it?

"ANSWER: Yes.

"QUESTION: Papageorge Nine. Had Monsanto had prior dealings with Mr. Crockett before this, before this memorandum?

"ANSWER: Oh, yes, many.

"QUESTION: Concerning what?

"ANSWER: Findings of PCBs in water and sediment samples and also sharing with him data on how we made PCBs. We shared with him diagrams, charts."

(Video resumed.)

Q. Do you recall when you first had dealings with Mr. Crockett on the PCB issue?

A. The best I can do is early, 1970.



WATER_PCB-SD0000068327

MR. PRATER: And at this point the deposition continued, "The last sentence of that first paragraph on the first page says, 'Dr. Myers, Director of Public Health of Alabama wants toxicity information on PCBs, and this will be conveyed personally to him by Jack Garrett next week.' Do you see that?

"ANSWER: I do.

"QUESTION: And Mr. Garrett, you told us, was involved in Monsanto's medical department; is that right?

"ANSWER: Yes. That is correct.

"QUESTION: Do you know if he ever conveyed the information that was requested, the toxicity information that was requested by Dr. Myers?

"ANSWER: He did, yes."



WATER_PCB-SD0000068328

(Video resumed.)

Q. Okay. Page four of that document, the last page, talks about fish, mud, and water sampling. And it states, "Since our fish samples from nearby Choccolocco Creek also showed high levels of PCBs, we are instituting more samplings to determine the extent of the problem." Do you see that?

A. I do.

Q. Was that ever done?

A. Certainly.

Q. Okay. When was it done?

A. Following the date of this memo, on into '71.

Q. Okay. And let me just identify it for the record. It is a September 8th, 1970, memorandum from W. B. Papageorge, St. Louis, to numerous people, beginning with Cameron, C-A-M-E-R-O-N. It bears Bates number DSW 013975 through DSW 013987.

If I could direct your attention to page nine of the memorandum bearing Bates



WATER_PCB-SD0000068329

number DSW 013983?

A. I have page nine.

Q. Okay. This discusses Anniston. And it reflects that in August 1970 the Aroclor losses in the plant effluent increased to a level of seven thousand two hundred eight parts per billion, equal to eighty-eight pounds per day; is that correct?

A. Yeah. I found that in the second paragraph, yes.

Q. This document, while you're looking at it, is, for identification, s a September 18th, 1970 memo from Paul Hodges to Toby Bell, Anniston, with seven recipients, Mr. Papageorge being one of them.

A. I have read the exhibit.

Q. Mr. Hodges says, "We had hoped that it" -- This is referring to the late emissions data on the flow to Snow Creek. "We had hoped that it might show an improvement over the first week in September and thus demonstrate a favorable trend to Crockett.



WATER_PCB-SD0000068330

Instead, the emissions are considerably increased with 9-13-70 at six point two five parts per million, or about eighty pounds of PCBs for the day." Do you see that?

A. I do.

Q. Okay. That level was considerably above what Monsanto had targeted by September 1970; isn't that right?

A. That is correct.

Q. Okay.

A. I have reviewed the document.

Q. Okay. This is Papageorge Fifteen -- thank you -- for identification. And it is a memorandum dated October 7th, 1970, apparently written by Mr. Savage.

A. That is correct.

Q. And it's directed to your attention; is that correct?

A. Correct.

Q. Okay. And this discusses the September 1970 PCB levels in Snow Creek from losses from the Anniston plant; is that correct?



WATER_PCB-SD0000068331

A. That is one of the subjects, yes.
Q. Okay. And it reports that the average PCB loss for the month of September 1970 was high at twenty-six hundred parts per billion or thirty-two pounds a day. Do you see that?
A. I do.
Q. Okay. And it reflects that the PCB levels in Snow Creek were still very high in September 1970, doesn't it?
A. Well, this is the author's comparison of the finding of twenty-six hundred parts per billion, with some target that was lower than that that they were shooting for. So this is where the description "high" comes from.
Q. That's the author's description? That's Mr. Savage's description?
A. Well, certainly it's his. But it's based on what the plant and Mr. Savage had all agreed in shooting for a target.
Q. What was the target they were shooting for?



WATER_PCB-SD0000068332

A. As I remember, we were all shooting for ten parts per billion based on the ability of the analytical technology to detect that with confidence. It is not based on any other consideration, only the ability to measure and believe the number when you got it.

Q. Mr. Papageorge, I show you a document, one page, bearing Bates number DSW 014091. This is a document to W. F. Taffee from E. G. Wright. Mr. Wright you've already told us about. Who was Mr. Taffee?

A. Mr. Taffee is a member of the technical services department at the Anniston, Alabama plant, to whom Mr. E. G. Wright reported.

Q. Okay. Have you ever seen this memo before? I note that you're not a recipient.

A. I don't recall this memo, but I recall the information that it contains.

Q. Okay. Towards the middle of the memo -- this is probably the information you're



WATER_PCB-SD0000068333

referring to -- Mr. Wright says, "Several samples have been collected from the ditch upstream from the sump." And it gives the results which show that there were sixty-four thousand eight hundred parts per billion of PCBs, 1242 only, on October 15th, 1970; thirty-five thousand parts per billion of 1242, only, on October 21st; and twenty-eight hundred parts per billion of 1242, only, on October 22nd, correct?

A. Yes.

Q. Do you know what ditch it's referring to?

A. This is a newly constructed ditch at the landfill designed to collect rainwater, surface water. And not only was it designed to collect, but it also gave an opportunity to grab samples and see how well this ditch with the sump was working to keep the PCBs from going anywhere.

Q. Okay. And it reflects that the samples taken on October 15th and October 21st from the ditch contained visible PCBs; is that correct?



WATER_PCB-SD0000068334

A. That's what it says.
Q. Okay.
A. Apparently they saw something other than crystal clear water.
Q. Let me hand you a document that we will mark for identification as Plaintiffs' Exhibit Seventeen, a one-page memorandum to yourself from Mr. Mason, dated October 1st, 1970, bearing Bates number MONS 098219.
A. Okay.
Q. This memo discusses the problem of PCB contaminated fish at Anniston, correct?
A. Yes, it does.

MR. PRATER: "QUESTION: And in the second paragraph Mr. Mason states, 'I think it would be useful if you and I could tour Anniston to discuss the subject in more detail, both with our consultants and with the plant personnel involved.' Do you recall touring the Anniston plant



WATER_PCB-SD0000068335

with Mr. Mason to discuss the problem?

"ANSWER: Yes, I do, very much.

"QUESTION: Okay. Who are the consultants he is referring to?

"ANSWER: I'm trying to remember their names at this time. We had some fish experts, I'm going to call them, ethologists from Tulane University helping us."

(Video resumed.)

Q. In the first paragraph of this memorandum, Mr. Mason says that, "He thought it would be useful if we could obtain additional information on the exact location of PCB deposits and have a better idea of where the fish are picking up the material." Do you see that?

A. Yes, I do.

Q. Did you ever provide Mr. Mason with the



WATER_PCB-SD0000068336

information on the exact location of the PCB deposits?

A. We thought we were, but Mr. Mason needed some more touring, and this was his way of getting personally exposed to the site and to the situation.

Q. Okay. Did you ever get a better idea where the fish were picking up the PCBs, as discussed in this paragraph?

A. I don't think I personally got a better idea. It may be that Mr. Mason did. I can't evaluate that.

Q. Well, what was your idea?

A. My idea was that the fish obviously were in an environment, in a situation where PCBs were present, and it was found in their tissues because they consumed it.

Q. Monsanto never took air samples -- PCB levels in the air anywhere outside the Anniston plant; is that correct?

A. That is correct.

Q. Okay. This is eighteen.

Okay. While Mr. Peck is putting the



WATER_PCB-SD0000068337

designation on, let me, just for the record, indicate that this is a two-page document bearing Bates numbers DSW 013117 through 013118.

Apparently the first page is a cover slip from the desk of Mr. Papageorge, dated 12-8-1970, and the letter underneath is dated December 7th, 1970.

And this is a memorandum addressed and written by Mr. Papageorge; is that correct?

A. Correct.

Q. Okay. To Mr. Savage?

A. Correct.

Q. Okay. In this memorandum you state that one of the important objectives of the PCB control program was to control the losses of PCBs in Monsanto's plant through the waste water effluent to fifty parts per billion by January 1st, 1971, and ten parts per billion by September 1, 1971, but that in November 1971 Anniston had fourteen hundred and ten parts per billion



WATER_PCB-SD0000068338

in its waste water effluent, correct?
A. That's right.
Q. Okay. Also you say -- you also say, "Because of the seriousness of the PCB problem, this level of performance cannot be allowed to continue." What did you mean by "the seriousness of the PCB problem"?
A. Its presence in places that we never suspected was perceived to be unacceptable, and we were trying to reduce the opportunity for PCBs to get there in the future.
Q. Okay. I hand you what will be marked as Papageorge Exhibit Number Nineteen. For identification purposes, this is the summary of the January 1971 technical services department monthly report, bearing Bates numbers DSW 013907 and 013908. Have you had a chance to look at that?
A. Yes, I have.
Q. Okay. This memo reflects -- well, this



WATER_PCB-SD0000068339

monthly report reflects that in January 1971 Aroclor losses were three hundred seven parts per billion or one point eight pounds per day, correct?

A. Yes.

Q. Okay. And that was still six times greater than the targeted level for January 1971; isn't that right?

A. That is correct.

Q. Okay. We're going to mark for identification purposes as Exhibit Twenty to your deposition, a document bearing Bates number MONS 098414, dated January 29th, 1971. Appears to be a memorandum from Mr. Papageorge to Mr. Savage, with several recipients.

A. I have read the exhibit.

Q. Okay. By January 1971, you had concluded that high levels of PCBs would continue to exist in the plant waste streams because of the PCBs trapped in the soil and in the sewer system, correct?

A. That is correct.



WATER_PCB-SD0000068340

Q. Okay. What did you mean when you said that high levels would continue because of the PCBs trapped in the soil?
A. What I had in mind was the fact that PCBs tenaciously hang onto soil particles like little magnets. And since they aren't destructible in the environment, they'll be there forever, such that any time a water flow occurs in this soil, the chances of that soil, with its PCB being transported, will remain.
Q. Okay.
A. And later if a sample of that contaminated water is taken, sure enough, PCBs will be found in it.
Q. In the last sentence of the second paragraph you state, "Cleanup of these sources can be economically impractical." Do you see that?
A. I do.
Q. What did you mean by that?
A. I was theorizing in a way what kinds of technology could be applied to extract the



WATER_PCB-SD0000068341

PCBs in soil. And with my quick, off the top of head kind of study, I visualized that this could be a monstrous task in terms of equipment and successful achievement. So I quickly extrapolated that into an economic kind of thought, and I was hoping that by getting others involved we could get perhaps a different perspective that could still get to the solution without my high cost estimates.

Q. Okay.

A. Which were, as I said earlier, not based on any highfalutin calculations or science. It's just a gut feel I had that this could be a monster.

Q. Okay. You also concluded that the PCB contamination in the plant was so widespread that all of the plant's effluent must be treated; is that correct?

A. Yes.

Q. And that this would result in a system more complex and costly than anyone had anticipated, correct?



WATER_PCB-SD0000068342

A. Correct.
Q. Okay. You also said -- Do you get a pension from Monsanto?
A. Yes.
Q. How much does that pension come to annually?
A. Annually about sixty thousand.
Q. Do you own any Monsanto stock?
A. Yes.
Q. How many shares do you have?
A. Oh, I'm trying to recall. About eighteen thousand.
Q. Let us mark as Papageorge Twenty-one, for identification, a three-page document, first page bearing Bates numbers DSW 013422 through DSW 013424, the first page being apparently a cover slip from the desk of William B. Papageorge and the remainder being a document from Mr. Wright to Mr. Crockett; is that correct?
A. Correct.
Q. Okay. And this document reports on the December 1970 Aroclor losses for Aroclor



WATER_PCB-SD0000068343

1242 and 1254 from the Anniston plant, correct?

A. Correct.

Q. Okay. And Mr. Wright asks that this data be held as confidential material. Do you know why he asked that?

A. Yes.

MR. PRATER: And, Your Honor, the next question was, "Why?" And the answer was, "It has to do with the confidence that had yet to be established regarding the ability of the analytical equipment to give accurate data. And as long as Monsanto was still in the process of -- I'm going to use the term -- fine-tuning its method to the point where they had a lot of confidence in the analytical results, at that point the promise, as I recall, was made to the AWIC" -- that's AWIC, "that we would inform them when



WATER_PCB-SD0000068344

that day occurs, and it was up to the AWIC then to do whatever they wanted with the data."

The next question was, "Did Monsanto ever get the type of confidence in the analytical abilities of its equipment you are referring to?"

Answer: Yes."

(Video resumed.)

Q. Did Mr. Crockett agree with Mr. Wright's request that this data be held as confidential material?

A. Yes.

MR. PRATER: Okay. The next question was, "And do you know why?

"ANSWER: Well, it fit in with his own request that he had made previously to us, that we not share this data and let the state agency decide when and how."



WATER_PCB-SD0000068345

(Video resumed.)

Q. The next document is Papageorge Twenty-two. For identification purposes, it bears Bates number DSW 013408 and DSW 013409.

I'd ask you to take a look at it, if you could.

A. I have read the document.

Q. Thank you. And you were a recipient of this document, correct?

A. Correct.

Q. And this is a document reporting on the daily Aroclor 1242 and 1254 losses from the Anniston plant for the month of March 1971, from Mr. Wright to Mr. Crockett, correct?

A. That is correct.

Q. And in April 1971 the average Aroclor losses for Aroclor 1242 and 1254 from the Anniston plant were four point three three pounds per day, correct?

A. You said April. This is the average for the month of March reported in April.



WATER_PCB-SD0000068346

Q. I'm sorry. Thank you. Yes, thank you. I meant March. Is that correct?
A. That is correct for March.
Q. Okay. By the way, was your proposal that the PCB losses in the water and air not exceed one pound per day ever adopted by Monsanto?
A. The proposal, yes. It was adopted as a target, yes.
Q. Okay. Was that target ever reached at the Anniston plant?
A. I understand it eventually was, yes.
Q. Do you know what "eventually" means?
A. It was after the shutdown of the PCB-producing facilities and the dismantling of the facilities. And with continued sampling and analyzing, they eventually reached that point.
Q. Okay. Do you know what year?
A. I'm going to say early 1980s.

MR. PRATER: Next was said,

"Okay" --

MS. MATTIACE: Harland, we've got it.



WATER_PCB-SD0000068347

MR. PRATER: You got it?

(Video resumed.)

A. That's a guess on my part. I was not involved so...

Q. Fair enough. Okay. We will mark for identification Papageorge Twenty-three, bearing Bates number DSW 014798 through DSW 014800. And this is a May 24th, 1971 letter from Mr. Wright to Dr. Gerald Gunning, correct?

A. That is correct.

Q. And you were a recipient of this letter, correct?

A. Correct.

Q. Okay. And who is Dr. Gunning?

A. Dr. Gunning was a professor of fish biology at Tulane University who had a consulting firm and had done some consulting for Monsanto.

Q. Why was Mr. Wright sending Dr. Gunning residue data from the March 1971 survey of Choccolocco Creek fishes?

A. As part of his assistance to the plant



WATER_PCB-SD0000068348

regarding fish in area waterways, Dr. Gunning had taken some fish samples. And these samples were sent to the St. Louis Monsanto analytical center for analyses. And the results we see here were obtained by that laboratory.

Q. Okay. Let's look at the results for a second, if we could. I would like you to turn to DSW 014799.

This data shows that as of March 1971 some of the fish sampled in Choccolocco Creek had as many as one thousand seven hundred ninety-one parts per million of PCBs, isn't that right, if you look at the sample number three?

A. I believe I see that number.

Q. So Papageorge Twenty-four is a one page document --

MR. PRATER: I would like to continue there. The next question was, "Okay."

"ANSWER: I'm personally confused by this. I would have



WATER_PCB-SD0000068349

to study it a little longer. I see two sets of numbers with each box -- one in parentheses."

(Video resumed.)

Q. Is the technical services -- the technical services department monthly report summary for July 1971 bearing Bates number DSW 013395.

Have you had a chance to look at that document?

A. I have.

Q. Okay. And this is a summary of a monthly report for the technical services department for the current level of Aroclor waste for July 1971, correct?

A. Correct.

Q. Prepared by Mr. Haupt, H-A-U-P-T?

A. Yes.

Q. And this document is, again, marked confidential, read and destroy, correct?

A. Yes.

Q. And that would have been Mr. Haupt's determination, correct?



WATER_PCB-SD0000068350

A. Yes.
Q. And it reflects that the PCB losses during July 1971 averaged two point one four pounds per day or two hundred and forty parts per billion, correct?
A. Yes.
Q. And that's more than twice the targeted amount, isn't that right?
A. Would you repeat that last --
Q. Sure. That's more than twice the targeted amount; isn't that right?
A. Correct.
Q. Okay. And that brings us to Papageorge Twenty-five for identification. For identification purposes, Papageorge Twenty-five bears Bates numbers DSW 013382 through 013384.
A. I have scanned the document.
Q. Okay. This report, the first page of the report, discusses the fact that two EPA representatives and Mr. Crockett visited the Anniston plant to collect several samples for PCB analysis from the plant



WATER_PCB-SD0000068351

effluent and that they also took samples from Choccolocco Creek, correct?

A. Correct.

Q. Did you participate in the meeting between them and Monsanto?

A. No.

Q. Okay. The next document, the next page, DSW 013383, says at the top, "Confidential. This pollution control section is for immediate information purposes only. Detach and destroy upon reading. Do not file." Do you see that?

A. I do.

Q. Okay. You were one of the people who received this memorandum, correct?

A. Yes, sir.

Q. Okay. Did you destroy this document after reading it?

A. No, sir. This came out of my file, this copy.

Q. Okay. The next page, DSW 013384, the final page, it appears that the average losses of PCBs reported to the AWIC were



WATER_PCB-SD0000068352

less than the total average losses actually experienced by the plant; isn't that right?

A. I see two numbers reported as average pounds per day.

Q. Right.

A. The higher number includes in it --

Q. Well --

A. It is not clear.

Q. It appears to me -- Maybe we can figure this out together. It appears the total average, the first set of figures for parts per billion is thirty-two, and pounds per day is zero point two eight --

A. I see that.

Q. -- for PCB losses. The next section says, "The average losses, which will be reported to the Alabama Water Improvement Commission, are as follows: Average pounds per day zero point one two pounds per day, Aroclor 1242 and 1254," correct?

A. I see that, yes, sir.

Q. Okay. So is that because Monsanto was



WATER_PCB-SD0000068353

only reporting to the Alabama Water Improvement Commission the PCB losses, average pounds per day for Aroclor 1242 and 1254?

A. Yes.

Q. Okay. And why was that?

A. Those were the major commercial PCB mixtures that were of interest, not only to Monsanto but literally everybody involved with the PCB environmental issue.

Q. Were there other Aroclor mixtures manufactured at the Anniston plant?

A. Yes.

Q. How many?

A. Oh, there were Aroclor 1260, Aroclor 1268, Aroclor 1232.

MR. PRATER: At that point the witness went on, "I didn't mention Aroclor 1221 because it was not perceived as a PCB. It was a monochlorobiphenyl."

THE COURT: And at this point it's a good point to stop.



WATER_PCB-SD0000068354

MR. FELL: One more line and, yes, Judge.

THE COURT: Okay.

(Video resumed.)

Q. But Aroclor 1260 and 1268 and Aroclor 1232 were PCBs, isn't that right?

A. Yes.

THE COURT: Let's go ahead and recess for lunch. We'll be in recess until 1:15.

(Break at twelve o'clock)



WATER_PCB-SD0000068355

# Transcript Word Index




**&**

**&**
1708:12

**0**

**013117**
1738:3
**013118**
1738:4
**013382**
1751:17
**013383**
1752:8
**013384**
1751:17 1752:21
**013395**
1750:8
**013408**
1746:4
**013409**
1746:5
**013422**
1743:16
**013424**
1743:16
**013907**
1739:19
**013908**
1739:20
**013975**
1729:21
**013983**
1730:1
**013987**
1729:21
**014091**
1733:9
**014284**
1711:5
**014298**
1712:23
**014798**
1748:7
**014799**
1749:9
**014800**
1748:8
**056663**
1720:12
**056667**
1720:14
**056670**
1721:5 1722:8
**056672**
1721:19
**056673**
1720:13
**098219**
1735:10
**098414**
1740:13

**1**

**1**
1738:21
**1:15**
1755:10
**10:50**
1703:1
**10th**
1722:3
**1221**
1754:19
**1232**
1754:16 1755:5
**1242**
1734:6,8,10 1744:1
1746:13,19 1753:21 1754:3
**1254**
1744:1 1746:13,19 1753:21
1754:4
**1260**
1754:15 1755:5
**1268**
1754:15 1755:5
**12-8-1970**
1738:7
**14295**
1711:5
**15th**
1721:10,20 1734:7,21
**1703**
1703:1
**18th**
1730:14
**1943**
1708:8
**1947**
1708:10,15
**1951**
1708:15,22
**1954**
1709:3
**1955**
1709:6
**1956**
1709:7
**1959**
1709:9
**1961**
1709:10
**1964**
1709:12
**1965**
1709:16
**1968**
1713:6,18 1714:20 1717:11
1718:15,23 1719:9
**1969**
1711:4,10 1717:11 1718:15
1718:23
**1970**
1709:17 1720:4,10,18,18
1721:10,11,20,21 1722:3
1722:18 1725:2 1727:23
1729:17 1730:4,14 1731:9
1731:15,22 1732:3,10
1734:7 1735:9 1738:8
1743:23
**1971**
1738:20,21,22 1739:17
1740:2,8,14,18 1746:15,18
1748:8,21 1749:11 1750:7
1750:15 1751:3
**1973**
1709:21
**1977**
1710:6
**1980s**
1747:20
**1983**
1710:9
**1986**
1710:16
**1st**
1735:9 1738:20

**2**

**21**
1720:10
**21st**
1720:4 1721:21 1734:8,21
**22nd**
1720:18 1734:10
**23rd**
1711:4
**24th**
1748:8
**29th**
1740:14

**3**

**30th**
1721:11

**4**

**4th**
1720:18

**5**

**51**
1708:22
**5-10**
1722:11,12

**6**

**6671**
1722:9

**7**

**7**
1722:18
**71**
1722:10 1729:15
**7th**
1731:15 1738:8

**8**

**8**
1727:4
**84**
1727:4
**8th**
1729:17

**9**

**9-13-70**
1731:2

**a**

**abilities**
1745:7
**ability**
1733:2,5 1744:13
**able**
1704:14 1712:6 1715:15
**acceptability**
1709:23 1710:7
**accurate**
1744:14
**achievement**
1742:5
**acid**
1717:12
**add**
1704:20 1705:12 1706:6
**additional**
1708:10 1736:17
**addressed**
1738:9
**adopted**
1747:6,8
**advise**
1704:18
**advised**
1705:2

**affairs**
1717:6
**affirmative**
1712:15
**agency**
1745:22
**agree**
1745:11
**agreed**
1732:21
**ahead**
1704:12 1755:8
**air**
1737:18,19 1747:5
**alabama**
1709:17 1711:3 1725:7 1728:6 1733:15 1753:18 1754:1
**alleviate**
1706:3
**allowed**
1739:6
**amount**
1721:18 1722:4 1751:8,11
**analyses**
1715:2 1719:13 1749:4
**analysis**
1751:23
**analytical**
1714:12 1733:3 1744:13,20 1745:6 1749:4
**analyze**
1712:16
**analyzed**
1714:1 1719:1
**analyzing**
1714:15 1747:17
**anniston**
1709:17,20 1711:3 1717:11 1717:20 1718:12,22 1720:11 1724:15 1730:3,15 1731:23 1733:14 1735:13 1735:19,23 1737:20 1738:22 1744:1 1746:14,20 1747:11 1751:22 1754:12
**annually**
1743:6,7
**answer**
1713:7,21 1714:3,7,11 1717:17 1718:9 1724:7 1725:21 1726:6 1727:2,8 1727:13,15 1728:11,16,23 1736:3,8 1744:10 1745:9 1745:18 1749:22
**answered**
1713:14
**answer's**
1718:18
**anticipated**
1742:23
**anybody**
1718:17
**apparently**
1715:4 1719:16 1722:19 1731:16 1735:3 1738:5 1743:17
**appears**
1740:14 1752:22 1753:10 1753:11
**applied**
1741:23
**applies**
1719:3
**appointed**
1709:6,8,10,16,18,22 1710:6,11
**approaching**
1707:21
**approximately**
1707:17 1708:18
**april**
1720:17 1721:10,20 1746:18,22,23
**area**
1749:1
**aroclor**
1711:7 1717:13 1720:11,17 1720:23 1721:7,13 1730:4 1740:2 1743:23,23 1746:13 1746:18,19 1750:15 1753:21 1754:3,11,15,15 1754:16,19 1755:5,5
**asked**
1744:6
**asks**
1744:4
**assigned**
1709:13 1714:13
**assignment**
1708:22 1709:3
**assignments**
1710:15
**assistance**
1748:23
**assistant**
1709:9
**assuming**
1712:20
**atkin**
1707:5 1719:21
**atlanta**
1724:9 1726:14
**attention**
1729:22 1731:18
**attorney**
1705:10,21,23
**audit**
1711:6
**august**
1722:18 1725:1 1730:4
**author**
1717:2
**author's**
1717:8 1732:11,17
**average**
1720:17,23 1721:18 1732:2 1746:18,22 1752:22 1753:1 1753:4,12,17,19 1754:3
**averaged**
1721:9,14 1751:3
**aware**
1725:1,4
**awful**
1712:9
**awic**
1744:22,22 1745:2 1752:23

**b**

**bachelor**
1708:5
**back**
1703:7 1708:20 1709:21
**background**
1707:23 1708:4
**based**
1732:19 1733:2,4 1742:12
**bates**
1711:4 1720:12 1729:20,23 1733:9 1735:9 1738:3 1739:19 1740:13 1743:15 1746:4 1748:7 1750:7 1751:16
**bearing**
1711:4 1720:12 1729:23 1733:9 1735:9 1738:3 1739:19 1740:12 1743:15 1748:7 1750:7
**bears**
1729:20 1746:4 1751:16
**beginning**
1729:19
**believe**
1727:6 1733:6 1749:16
**believed**
1717:3
**bell**
1730:15
**bergen**
1722:17 1723:2,3,4
**best**
1708:19 1727:23
**better**
1706:15 1736:19 1737:7,10
**billion**
1715:8 1716:2 1719:19 1720:20 1721:10,19,22 1722:4,6 1730:7 1732:5,13 1733:2 1734:6,8,9 1738:20 1738:21,23 1740:3 1751:5 1753:13
**biology**
1748:17
**block**
1712:2,5,19,20,21 1716:15
**boundaries**
1712:2,5
**boundary**
1712:21
**box**
1750:3
**break**
1755:11
**briefly**
1704:17 1707:22 1708:3,16
**brings**
1751:13
**broken**
1715:6 1719:17
**business**
1723:5,10

**c**

**calculations**
1742:13
**call**
1703:9 1717:8 1736:11
**called**
1707:2
**calls**
1703:11
**cameron**
1729:20
**car**
1712:10
**case**
1703:19
**cases**
1707:15,17
**caveat**
1704:11
**center**
1749:4
**central**
1714:13
**certain**
1725:21

**certainly**
1725:4 1729:12 1732:19
**chance**
1739:20 1750:9
**chances**
1741:10
**charts**
1727:19
**checked**
1711:11
**checking**
1717:21
**chemical**
1708:6,9 1709:4 1710:2,7,8 1710:19
**chemicals**
1710:14 1714:16 1723:6
**chemists**
1714:12
**choccolocco**
1711:12 1717:22 1718:14 1723:22 1725:20 1729:5 1748:22 1749:12 1752:2
**city**
1712:20,21
**cleanup**
1741:17
**clear**
1735:4 1753:9
**collect**
1734:14,16 1751:22
**collected**
1713:5,20 1734:2
**comments**
1718:6
**commercial**
1754:7
**commission**
1725:8 1753:19 1754:2
**company**
1710:2,9,14,20 1716:20 1717:2,6 1723:7
**company's**
1717:4
**comparison**
1732:11
**completed**
1715:3 1719:14
**complex**
1742:22
**concentration**
1720:17 1721:8
**concerning**
1727:14
**concluded**
1740:18 1742:16
**confidence**
1733:4 1744:11,19 1745:6
**confidential**
1716:20 1717:5 1723:14 1744:5 1745:13 1750:20 1752:9
**confluence**
1723:23
**confused**
1714:3 1749:23
**considerably**
1731:1,7
**consideration**
1733:5
**considered**
1704:7
**constructed**
1734:13
**consultants**
1735:21 1736:6
**consulting**
1748:18,19
**consumed**
1737:17
**contained**
1734:22
**contains**
1733:21
**contaminated**
1735:13 1741:13
**contamination**
1742:17
**content**
1719:1
**continuation**
1704:22
**continue**
1739:6 1740:19 1741:2 1749:20
**continued**
1728:2 1747:17
**control**
1709:19 1738:17,17 1752:9
**conveyed**
1728:8,19
**copy**
1752:20
**correct**
1707:15,16 1711:8,9,17 1713:6 1714:2,21 1717:18 1719:9 1720:21,22 1721:3 1721:11,12 1722:6,20,21 1723:12 1727:1 1728:17 1730:9 1731:10,17,19,20 1731:23 1734:10,23 1735:13 1737:20,21
**correct (cont.)**
1738:11,12,14 1739:1 1740:4,9,22,23 1742:19,23 1743:1,20,21 1744:2,3 1746:10,11,16,17,21 1747:2,3 1748:10,11,13,14 1750:15,16,20,23 1751:5 1751:12 1752:2,3,15 1753:21
**cost**
1742:10
**costly**
1742:22
**county**
1707:13
**court**
1703:5,13 1704:2 1705:1,6 1706:16 1754:22 1755:3,8
**courtroom**
1703:8 1704:8 1705:9 1706:2,10
**cover**
1738:5 1743:17
**credits**
1708:11
**creek**
1711:11,12 1713:5,20 1717:21,22 1718:14,15 1721:20 1722:5 1723:22,23 1724:20 1725:3,20 1729:5 1730:20 1731:22 1732:9 1748:22 1749:12 1752:2
**crockett**
1725:7,16 1726:2,13 1727:11,22 1730:23 1743:20 1745:11 1746:15 1751:21
**crockett's**
1726:9,20
**cross**
1706:1,8
**crystal**
1735:4
**curb**
1718:4
**current**
1750:14

**d**

**daily**
1746:13
**data**
1726:10 1727:17 1730:20 1744:4,14 1745:3,12,21 1748:21 1749:10
**date**
1729:14
**dated**
1711:3 1720:10 1722:18 1731:15 1735:8 1738:7,8 1740:13
**day**
1721:1,10,13 1724:21 1725:3 1730:8 1731:4 1732:5 1740:4 1745:1 1746:21 1747:6 1751:4 1753:5,14,20,21 1754:3
**days**
1722:2
**dealings**
1727:11,21
**december**
1738:8 1743:23
**decide**
1745:22
**defense**
1705:22 1706:7
**degree**
1708:5,9,14
**demonstrate**
1730:23
**department**
1709:1,6 1711:2,8 1714:14 1720:10 1728:14 1733:14 1739:18 1750:6,14
**departments**
1717:13
**deposition**
1703:12,15,22,23 1705:8 1705:20 1720:8 1724:4 1728:2 1740:12
**depositions**
1707:20
**deposits**
1736:19 1737:2
**description**
1732:15,17,18
**designated**
1709:4
**designation**
1711:5 1738:1
**designed**
1734:14,16
**desire**
1726:20
**desk**
1738:6 1743:18
**destroy**
1723:15 1750:20 1752:11 1752:17
**destructible**
1741:7

**detach**
1752:11
**detail**
1735:20
**details**
1724:13
**detect**
1712:6 1733:3
**determination**
1750:23
**determine**
1715:15 1717:22 1729:7
**diagrams**
1727:19
**different**
1710:15 1718:2 1742:8
**difficulty**
1713:9
**direct**
1729:22
**directed**
1731:18
**director**
1710:11 1723:3 1728:5
**discharging**
1724:20 1725:2
**disclose**
1717:10 1718:22
**discuss**
1724:16 1735:19 1736:1
**discussed**
1726:1,7 1737:9
**discusses**
1730:3 1731:21 1735:12
1751:20
**discussing**
1727:6
**dismantling**
1747:16
**ditch**
1734:2,12,13,18,22
**division**
1723:6
**doctor**
1708:14
**document**
1710:22 1711:6,13,15
1713:1 1717:3 1719:2,22
1720:3 1721:1,4 1722:20
1722:22 1729:2 1730:12
1731:12 1733:8,10 1735:5
1738:3 1740:12 1743:14,19
1743:22 1746:2,8,10,12
1749:18 1750:10,19
1751:18 1752:7,17
**doing**
1719:4
**downstream**
1718:13 1723:22
**dr**
1728:4,22 1748:9,15,16,20
1749:1
**drips**
1712:10
**dropped**
1715:5 1719:17
**dsw**
1711:5,5 1712:23 1729:21
1729:21 1730:1 1733:9
1738:3 1739:19 1743:15,16
1746:4,4 1748:7,8 1749:9
1750:7 1751:17 1752:8,21
**duly**
1707:2

**e**

**earlier**
1706:5 1742:12
**early**
1727:23 1747:20
**earned**
1708:11
**economic**
1742:6
**economically**
1741:18
**educational**
1707:22 1708:3
**effects**
1717:23
**effluent**
1717:23 1721:8 1730:5
1738:19 1739:1 1742:19
1752:1
**eight**
1715:9 1721:22 1730:7,8
1734:5,9 1740:3 1753:14
**eighteen**
1720:19 1737:22 1743:11
**eighty**
1730:8 1731:3
**either**
1705:11
**emissions**
1730:19 1731:1
**employment**
1708:17
**engineer**
1708:23 1709:5
**engineering**
1708:6,9 1709:1,5,9
**environment**
1737:15 1741:7
**environmental**
1709:18 1710:11 1754:10
**epa**
1751:20
**equal**
1730:7
**equipment**
1742:4 1744:14 1745:7
**established**
1744:12
**estimates**
1742:10
**ethologists**
1736:12
**evaluate**
1737:12
**eventually**
1747:12,13,18
**everybody**
1754:9
**everyone's**
1703:7
**evidence**
1712:8
**exact**
1724:17 1736:18 1737:1
**examination**
1706:1,8
**exceed**
1747:6
**exhibit**
1720:7 1722:14 1730:17
1735:7 1739:15 1740:11,17
**exist**
1740:20
**expect**
1706:12
**experienced**
1753:2
**experts**
1736:10
**explain**
1706:14
**exposed**
1737:5
**extent**
1729:8
**extract**
1741:23
**extrapolated**
1742:5

**f**

**facilities**
1747:15,16
**fact**
1711:7 1714:19 1719:7
1741:4 1751:20
**fair**
1748:5
**fallen**
1723:8
**far**
1704:10
**favorable**
1730:23
**fda**
1723:20 1724:8,15 1726:13
**fda's**
1724:6
**federal**
1726:13
**feel**
1742:14
**fell**
1703:10 1704:15 1755:1
**fifteen**
1721:14 1731:13
**fifty**
1715:9 1738:19
**figure**
1715:7 1719:18 1753:10
**figures**
1753:12
**file**
1752:12,19
**final**
1752:22
**finally**
1710:20
**finding**
1713:9 1724:10 1732:12
**findings**
1723:20 1724:6 1727:15
**fine**
1704:15 1744:17
**firm**
1748:18
**first**
1707:2 1711:19,22 1716:21
1723:18 1724:19 1727:21
1728:3,4 1730:22 1736:15
1738:5 1743:15,16 1751:19
1753:12
**fish**
1718:23 1723:21 1724:11
1725:20 1729:3,5 1735:13
1736:10,20 1737:8,14

**fish (cont.)**
1748:16 1749:1,2,11
**fishes**
1748:22
**fit**
1745:18
**five**
1719:23 1731:3 1734:7 1751:14,16
**floor**
1712:11
**flow**
1730:20 1741:9
**fluids**
1723:5,10
**following**
1709:2 1723:19 1729:14
**follows**
1707:3 1753:19
**forever**
1741:8
**formal**
1708:11
**forty**
1707:21 1721:2 1751:4
**found**
1715:17 1730:10 1737:16 1741:15
**four**
1710:23 1716:17 1721:14 1729:2 1734:5 1746:20 1749:17 1751:3
**fourteen**
1721:9 1738:23
**frankly**
1707:19
**full**
1707:6 1716:16
**functional**
1723:5,9
**future**
1739:13

**g**

**garage**
1712:11
**garrett**
1728:9,12
**general**
1709:11,15
**generally**
1717:2
**gentlemen**
1703:14
**georgia**
1724:10
**gerald**
1748:9
**getting**
1737:5 1742:7
**give**
1744:14
**given**
1715:7 1719:18
**gives**
1714:19 1715:10,12 1719:7 1734:3
**go**
1704:11 1706:17 1720:6 1755:8
**goes**
1708:20 1725:14
**going**
1718:8 1719:21 1734:19 1736:11 1740:10 1744:16 1747:20
**good**
1705:4 1709:2 1754:23
**grab**
1734:17
**greater**
1740:7
**group**
1710:15 1723:5,11 1724:14 1726:12
**guess**
1721:18 1748:3
**gunning**
1748:10,15,16,20 1749:2
**gut**
1742:14

**h**

**hand**
1735:5 1739:14
**handle**
1725:8,16 1726:10
**handled**
1726:22
**handling**
1726:2
**hang**
1741:5
**happens**
1703:23 1705:7,8
**harland**
1747:23
**haupt**
1750:17
**haupt's**
1750:22
**hcl**
1717:13
**head**
1742:2
**health**
1710:17 1728:5
**heard**
1718:19
**held**
1708:18 1744:5 1745:12
**help**
1713:12
**helping**
1736:13
**high**
1722:5 1723:20 1725:19 1729:6 1732:4,9,16 1740:19 1741:2 1742:10
**higher**
1753:7
**highfalutin**
1742:13
**history**
1708:17
**hodges**
1722:17 1730:14,18
**honor**
1703:10 1704:16,17 1713:8 1724:4 1744:8
**hoped**
1730:18,21
**hoping**
1742:7
**huh**
1712:15
**hundred**
1716:8,11,18 1720:19 1721:9,21 1722:6 1730:6 1732:4,12 1734:5,9 1738:23 1740:2 1749:13 1751:4

**i**

**idea**
1736:19 1737:7,11,13,14
**identification**
1711:1 1720:1,3 1722:14 1730:13 1731:14 1735:6 1739:16 1740:11 1743:14 1746:3 1748:6 1751:14,15
**identified**
1715:23
**identify**
1722:15 1729:16
**illinois**
1709:14
**immediate**
1752:10
**important**
1738:16
**impractical**
1741:18
**impression**
1726:7
**improvement**
1725:8 1730:21 1753:18 1754:2
**incident**
1724:8
**includes**
1753:7
**increased**
1730:5 1731:2
**indicate**
1738:2
**indicates**
1722:1
**industrial**
1710:2,13
**inform**
1744:23
**information**
1717:1 1723:15 1725:10,18 1726:4,23 1728:7,19,21 1733:21,23 1736:18 1737:1 1752:10
**informed**
1703:18
**initial**
1708:22
**inspection**
1711:16
**instituting**
1729:7
**interest**
1754:8
**intermediates**
1710:8
**inventories**
1709:12
**involved**
1728:13 1735:22 1742:8 1748:4 1754:10
**involving**
1707:15
**issue**
1727:22 1754:10
**item**
1724:19

**j**

**jack**
1728:9
**january**
1738:20 1739:17 1740:1,8

**january (cont.)**
1740:13,18
**joe**
1725:6
**joined**
1708:21
**jr**
1722:18
**judge**
1755:2
**judgment**
1717:8
**july**
1711:3,10 1720:4,10
1750:7,15 1751:3
**jump**
1706:4
**june**
1721:11,21
**jurisdiction**
1723:9
**jury**
1703:2 1704:18

**k**

**keep**
1734:19
**kept**
1707:19 1717:5
**kind**
1710:14 1742:2,6
**kinds**
1741:22
**know**
1706:10,16 1708:20,21
1714:8 1716:1 1726:1
1728:18 1734:12 1744:6
1745:16 1747:13,19
**knowledge**
1717:9
**known**
1708:12

**l**

**labeled**
1716:20
**laboratory**
1749:6
**ladies**
1703:13
**landfill**
1734:14
**lasted**
1709:3
**late**
1708:22 1730:19
**letter**
1738:7 1748:9,12
**level**
1730:6 1731:7 1739:5
1740:7 1750:14
**levels**
1723:21 1725:19 1729:6
1731:22 1732:8 1737:19
1740:19 1741:2
**lights**
1704:13
**line**
1712:22 1727:4 1755:1
**listed**
1721:1
**literally**
1754:9
**little**
1741:6 1750:1
**live**
1704:8 1706:9
**located**
1708:7 1709:13
**location**
1713:14 1736:18 1737:1
**long**
1744:15
**longer**
1750:1
**look**
1721:19 1722:11,15
1739:20 1746:6 1749:7,15
1750:9
**looked**
1712:9
**looking**
1712:8,13 1730:12
**loss**
1732:3
**losses**
1720:11,23 1721:13 1730:5
1731:22 1738:17 1740:2
1743:23 1746:13,19 1747:5
1751:2 1752:23 1753:1,16
1753:17 1754:2
**lost**
1717:14
**lot**
1706:15 1712:9 1744:19
**louder**
1708:2
**louis**
1707:13 1708:7 1709:21
1710:3 1729:19 1749:3
**lower**
1732:14
**lunch**
1755:9

**m**

**magnets**
1741:6
**magnitude**
1715:23
**maintenance**
1709:8
**major**
1754:7
**man**
1718:3
**manage**
1717:6
**manager**
1709:16,18,22 1710:6,16
**manner**
1726:11
**manufactured**
1754:12
**manufacturing**
1709:15
**march**
1746:14,23 1747:2,3
1748:21 1749:10
**mark**
1710:23 1719:23 1720:2
1722:13 1735:6 1740:10
1743:13 1748:5
**marked**
1739:14 1750:19
**mason**
1735:8,16 1736:1,16,23
1737:3,11
**master**
1708:8
**material**
1736:20 1744:5 1745:13
**matter**
1724:16 1726:15
**matters**
1705:18
**mattiace**
1747:23
**mean**
1705:6 1712:4 1716:23
1739:7 1741:1,21
**meaningless**
1717:16
**means**
1747:13
**meant**
1714:9 1747:2
**measure**
1733:6
**medical**
1728:14
**meeting**
1752:4
**member**
1733:13
**memo**
1723:14,18 1729:14
1730:14 1733:17,20,22
1735:12 1739:23
**memorandum**
1722:16 1727:12 1729:18
1729:23 1731:15 1735:7
1736:15 1738:9,15 1740:14
1752:15
**mention**
1754:19
**met**
1726:12
**method**
1714:2,4 1744:18
**middle**
1733:22
**million**
1715:17,20 1716:2 1731:3
1749:14
**mind**
1741:4
**minus**
1715:9 1716:9
**missouri**
1707:13 1708:7
**mixtures**
1754:8,11
**monochlorobiphenyl**
1754:21
**mons**
1720:12 1721:5 1722:8
1735:9 1740:13
**monsanto**
1708:17,21 1709:14 1710:1
1710:2,8,10,13,18,19
1711:10 1712:5 1717:10,21
1718:12,21 1723:7 1725:2
1725:15 1726:1,9,21
1727:10 1731:8 1737:18
1743:3,8 1744:15 1745:5
1747:7 1748:19 1749:4
1752:5 1753:23 1754:9
**monsanto's**
1714:13 1728:14 1738:18
**monster**
1742:15
**monstrous**
1742:3

**month**
1732:3 1746:14,23
**monthly**
1739:18 1740:1 1750:6,12
**motor**
1712:9 1718:4
**mouth**
1726:18
**move**
1718:8
**moves**
1723:19
**mud**
1713:4,19 1718:13 1729:3
**myers**
1728:5,22

**n**

**name**
1707:6
**named**
1710:16
**names**
1736:9
**nearby**
1729:5
**need**
1704:12
**needed**
1737:3
**neighbors**
1718:3
**new**
1714:15
**newly**
1734:13
**nine**
1722:14 1727:7,10 1729:23
1730:2
**nineteen**
1739:15
**ninety**
1722:5 1749:13
**nonproductive**
1718:6
**normally**
1706:6
**note**
1722:18 1723:13 1733:18
**noted**
1712:1
**november**
1738:22
**number**
1715:22 1716:1 1720:12
1722:14 1729:21 1730:1
1733:6,9 1735:9 1739:15
**number (cont.)**
1740:13 1746:4 1748:7
1749:15,16 1750:7 1753:7
**numbers**
1717:15 1738:3 1739:19
1743:15 1750:2 1751:16
1753:4
**numerous**
1729:19

**o**

**oath**
1704:2,5
**objection**
1705:12
**objections**
1705:16
**objectives**
1738:16
**observer**
1712:7
**obtain**
1736:17
**obtained**
1749:5
**obviously**
1737:14
**occupational**
1710:17
**occurs**
1741:9 1745:1
**o'clock**
1755:11
**october**
1731:15 1734:6,8,10,21,21
1735:8
**offices**
1724:16
**oh**
1716:10 1727:13 1743:11
1754:15
**oil**
1712:10 1718:4
**okay**
1703:5,13 1705:1 1706:13
1706:17 1707:14 1710:5
1711:15 1712:4,18 1713:3
1713:7 1715:10,15 1716:19
1716:23 1717:7,9 1718:8
1718:11,18,21 1719:21
1720:1,16,23 1721:4,7,13
1721:17 1722:2,13,22
1723:2 1725:1,6,13,23
1729:2,13,16 1730:3
1731:7,11,13,21 1732:2,8
1733:17,22 1734:20 1735:2
1735:11 1736:5 1737:7,22
**okay (cont.)**
1737:23 1738:13,15 1739:3
1739:14,23 1740:6,10,18
1741:1,12 1742:11,16
1743:2,22 1744:4 1745:15
1747:4,10,19,22 1748:5,15
1749:7,21 1750:12 1751:13
1751:19 1752:7,14,17,21
1753:23 1754:6 1755:3
**oklahoma**
1708:11,12,13
**opening**
1703:17
**operating**
1709:23 1710:12
**operation**
1717:4
**operations**
1710:12
**opinion**
1717:4
**opportunity**
1734:17 1739:12
**order**
1706:3
**organic**
1714:1,6,9 1717:12 1723:6
**ought**
1717:5
**outside**
1737:19

**p**

**page**
1711:19,22 1712:23 1713:1
1714:22 1716:21 1719:10
1720:14 1722:7 1727:4
1728:4 1729:2,3,23 1730:2
1733:9 1735:7 1738:2,5
1743:14,15,16 1749:17
1751:19 1752:7,21,22
**papageorge**
1703:11 1704:5 1707:1,8,9
1707:12 1710:23 1719:23
1720:8 1727:5,6,9 1729:18
1730:16 1731:13 1733:8
1738:6,10 1739:15 1740:15
1743:13,18 1746:2 1748:6
1749:17 1751:13,15
**paragraph**
1711:22 1713:16 1725:6
1728:3 1730:11 1735:16
1736:15 1737:9 1741:17
**parentheses**
1750:3
**part**
1723:10 1726:9 1748:3,23
**participate**
1752:4
**particles**
1741:5
**particular**
1722:3
**parties**
1703:3 1705:15
**parts**
1715:8,17,20 1716:1,2,7,11
1719:19 1720:19 1721:9,19
1721:22 1722:4,6 1730:7
1731:3 1732:4,12 1733:2
1734:5,7,9 1738:19,21,23
1740:3 1749:13 1751:5
1753:13
**paul**
1730:14
**pcb**
1712:6,14 1719:1 1723:21
1727:22 1731:22 1732:2,8
1735:12 1736:18 1737:2,18
1738:16 1739:4,7 1741:10
1742:16 1747:5,15 1751:2
1751:23 1753:16 1754:2,7
1754:10,20
**pcbs**
1707:15 1711:12 1712:8
1714:1,16 1715:17 1717:23
1721:18 1722:4 1723:8
1724:11,21 1725:3,19
1727:15,18 1728:7 1729:6
1731:4 1734:6,19,22
1737:8,16 1738:18 1739:12
1740:19,21 1741:3,4,14
1742:1 1749:14 1752:23
1755:6
**peck**
1737:23
**pension**
1743:3,5
**people**
1726:10,14 1729:19
1752:14
**perceived**
1739:10 1754:20
**percent**
1716:5,6,10
**performance**
1739:5
**period**
1708:14 1721:15
**personally**
1728:8 1737:5,10 1749:22
**personnel**
1735:22

**perspective**
1742:9
**picking**
1736:20 1737:8
**placed**
1704:5
**places**
1739:9
**plaintiff**
1703:11
**plaintiffs**
1703:8,14 1705:21 1720:7
1735:6
**plaintiff's**
1722:13
**plant**
1709:16,17 1711:3 1712:2
1712:5,21 1716:16 1717:14
1717:23 1718:14 1720:12
1721:8 1724:15 1725:4
1730:5 1731:23 1732:20
1733:15 1735:21,23
1737:20 1738:18 1740:20
1742:17 1744:1 1746:14,20
1747:11 1748:23 1751:22
1751:23 1753:2 1754:12
**plants**
1709:13 1710:15
**plant's**
1708:23 1742:18
**please**
1707:6
**plus**
1715:9 1716:9
**point**
1713:8 1716:9,10,17
1721:1,14 1724:3 1728:1
1731:2 1740:3 1744:18,20
1746:20 1747:18 1751:3
1753:14,20 1754:17,22,23
**points**
1706:11
**pollution**
1752:9
**pound**
1747:6
**pounds**
1716:17,18 1717:12 1721:2
1721:14 1724:21 1725:3
1730:8 1731:4 1732:5
1740:4 1746:21 1751:4
1753:5,14,20,20 1754:3
**prater**
1704:17 1706:4,14 1713:7
1724:3 1725:14 1728:1
1735:15 1744:8 1745:15
**prater (cont.)**
1747:21 1748:1 1749:19
1754:17
**prepared**
1750:17
**presence**
1739:9
**present**
1703:2,3 1704:3 1706:8
1719:6 1737:16
**presented**
1703:22
**presenting**
1703:15
**presently**
1707:11 1724:20
**previously**
1745:20
**prior**
1727:10
**probably**
1733:23
**problem**
1725:9,17 1726:3,21
1729:8 1735:12 1736:2
1739:5,8
**process**
1708:23 1744:16
**producing**
1747:15
**product**
1709:22 1710:7
**production**
1709:7
**professor**
1748:16
**program**
1738:17
**progress**
1711:1 1716:19 1720:5,9
**projects**
1714:17
**promise**
1744:21
**proposal**
1747:4,8
**provide**
1736:23
**public**
1725:10 1726:5,23 1728:5
**purposes**
1739:16 1740:11 1746:3
1751:15 1752:11
**put**
1726:18
**putting**
1737:23

**q**

**question**
1713:11,16,22 1714:5,8
1724:5 1725:23 1726:16
1727:9,14 1728:12,18
1735:15 1736:5 1744:9
1745:4,16 1749:21
**questioning**
1705:13
**questions**
1705:22,23
**quick**
1742:1
**quickly**
1742:5
**quietly**
1725:9,17 1726:3

**r**

**rainwater**
1734:14
**rational**
1718:16
**rationale**
1719:3
**reached**
1722:5 1747:10,18
**read**
1715:2 1716:3,3 1719:13
1723:1 1730:17 1740:17
1746:8 1750:20
**reading**
1752:12,18
**ready**
1703:9
**reason**
1717:15 1718:16 1719:4
**recall**
1711:18 1722:22 1723:1
1724:5,7,12,14,17 1726:14
1727:21 1733:20,20
1735:23 1743:11 1744:21
**received**
1708:5,8 1752:15
**recess**
1755:9,10
**recipient**
1722:20 1733:19 1746:9
1748:12
**recipients**
1730:15 1740:16
**recollection**
1708:19 1726:17,19
**record**
1703:6 1707:7 1720:7
1722:16 1729:17 1738:2
**reduce**
1739:11
**reference**
1713:10
**referencing**
1722:2
**referred**
1710:1,13,19
**referring**
1711:13 1730:19 1734:1,12
1736:6 1745:8
**refers**
1714:11
**reflect**
1703:6
**reflected**
1719:2
**reflects**
1711:6,15 1712:1 1713:3
1713:23 1730:4 1732:8
1734:20 1739:23 1740:1
1751:2
**regarding**
1725:19 1744:12 1749:1
**release**
1725:9
**releasing**
1725:18 1726:4,22
**remain**
1741:11
**remainder**
1743:19
**remember**
1712:16 1733:1 1736:9
**reorganization**
1710:10,18
**repeat**
1751:9
**report**
1711:1 1716:19 1720:5,9
1739:18 1740:1 1750:6,13
1751:19,20
**reported**
1724:10 1733:16 1746:23
1752:23 1753:4,18
**reporter**
1704:3
**reporting**
1709:21 1746:12 1754:1
**reports**
1725:5 1732:2 1743:22
**representatives**
1724:9 1751:21

**request**
1725:15 1726:8,20 1745:12 1745:19
**requested**
1728:20,21
**research**
1714:2,6,10,14
**reside**
1707:11
**residence**
1717:10
**residents**
1717:20 1718:11,22
**residue**
1748:21
**response**
1719:20
**responsible**
1723:11
**result**
1710:9 1742:21
**resulting**
1723:20
**results**
1711:16 1714:19 1715:10 1715:12,16 1719:8 1734:4 1744:20 1749:5,7
**resumed**
1714:18 1724:18 1727:20 1729:1 1736:14 1745:10 1746:1 1748:2 1750:4 1755:4
**retired**
1710:20
**reviewed**
1731:12
**right**
1711:12 1712:12 1715:7,11 1716:5,7 1718:9,18 1719:18 1721:23 1722:7 1728:15 1731:9 1739:2 1740:8 1749:14 1751:8,11 1753:3,6 1755:6
**room**
1704:3
**rule**
1704:23

**s**

**sample**
1713:13 1715:4,5,8 1716:13,15 1719:15,16 1741:13 1749:15
**sampled**
1749:11
**samples**
1713:3,4,19,23 1714:20,23
**samples (cont.)**
1715:3,18,18 1718:13 1719:1,8,11,14 1727:16 1729:5 1734:2,17,20 1737:18 1749:2,3 1751:23 1752:1
**sampling**
1729:4 1747:17
**samplings**
1729:7
**sauget**
1709:13
**savage**
1731:16 1732:20 1738:13 1740:15
**savage's**
1732:18
**saw**
1712:17 1735:3
**says**
1713:13,17 1714:5 1723:13 1723:18 1728:4 1730:18 1734:1 1735:1 1736:16 1752:8 1753:16
**scanned**
1711:18 1751:18
**science**
1708:5,8,14 1742:14
**score**
1707:19
**seated**
1703:6
**second**
1715:5 1716:13,15 1719:16 1730:10 1735:16 1741:16 1749:8
**secretary**
1725:7
**section**
1752:10 1753:16
**sediment**
1715:3,11,13,16,19 1719:15 1727:16
**seeing**
1711:18 1722:22
**seen**
1733:17
**sending**
1748:20
**senior**
1709:4
**sent**
1749:3
**sentence**
1723:18 1728:3 1741:16
**september**
1713:6,18 1729:17 1730:13 1730:22 1731:8,21 1732:3 1732:10 1738:21
**seriousness**
1739:4,7
**service**
1718:2,4
**services**
1711:2 1720:10 1733:14 1739:18 1750:5,6,13
**set**
1753:12
**sets**
1713:4,19 1750:2
**seven**
1717:11 1720:8 1721:21 1730:6,15 1740:3 1749:13
**seventeen**
1735:7
**seventy**
1721:14
**sewer**
1720:20 1740:22
**share**
1745:21
**shared**
1727:18
**shares**
1743:10
**sharing**
1727:17
**sheet**
1720:16 1721:7
**sheets**
1721:17
**shooting**
1732:14,21,22 1733:1
**show**
1710:22 1719:22 1730:21 1733:8 1734:4
**showed**
1729:6
**shows**
1715:2 1719:13 1749:10
**shutdown**
1747:14
**side**
1705:10
**sir**
1711:23 1712:4 1714:7 1716:6,22 1717:9 1718:2 1719:3,5 1722:7 1752:16 1752:19 1753:22
**site**
1737:5
**situation**
1737:6,15
**six**
1713:1 1716:17 1722:5 1731:2 1732:4,12 1740:6
**sixteen**
1724:21 1725:2
**sixty**
1721:9,22 1734:5 1743:7
**slip**
1738:6 1743:17
**snow**
1711:11 1713:5,20 1717:21 1718:14 1721:20 1722:5 1723:23 1724:20 1725:3 1730:20 1731:22 1732:9
**soil**
1740:21 1741:3,5,9,10 1742:1
**solution**
1742:10
**sorry**
1708:1,2 1710:8 1715:12 1716:3 1747:1
**sources**
1741:18
**speak**
1708:2
**spell**
1707:9
**spotted**
1712:13
**st**
1707:13 1708:7 1709:21 1710:3 1729:18 1749:3
**stain**
1712:17
**stamp**
1711:4
**stand**
1705:11 1706:4
**standing**
1704:19
**state**
1707:6 1708:12 1738:15 1741:17 1745:22
**statements**
1703:17
**states**
1724:19 1725:6 1729:4 1735:17
**station**
1718:3,5
**stationed**
1710:3

**status**
1724:19
**stillwater**
1708:13
**stock**
1743:8
**stop**
1754:23
**streams**
1740:20
**strike**
1718:8
**study**
1742:2 1750:1
**subject**
1735:19
**subjects**
1732:1
**successful**
1742:4
**suggest**
1707:20
**summary**
1739:17 1750:6,12
**sump**
1734:3,18
**superintendent**
1709:10,11,15
**supervisor**
1709:7,8
**sure**
1741:14 1751:10
**surface**
1734:15
**survey**
1748:21
**suspected**
1739:10
**sworn**
1707:2
**system**
1740:22 1742:21

**t**

**taffee**
1733:10,12,13
**taken**
1704:2,4 1713:4 1714:20 1718:12,23 1719:8 1723:21 1724:12 1734:21 1741:14 1749:2
**talk**
1717:15
**talking**
1718:17
**talks**
1729:3
**target**
1732:13,21,22 1747:9,10
**targeted**
1731:8 1740:7 1751:7,10
**task**
1742:3
**team**
1714:12
**technical**
1711:2 1720:9 1733:13 1739:17 1750:5,5,13
**technology**
1714:15 1733:3 1741:23
**tell**
1707:22 1708:3,16 1717:19 1718:11
**telling**
1718:3
**tells**
1712:7
**ten**
1733:2 1738:20,23
**tenaciously**
1741:5
**term**
1714:9 1744:17
**terms**
1742:4
**testified**
1707:3,14,18
**testifying**
1704:8
**testimony**
1703:15,21 1704:1,6 1706:7
**thank**
1717:19 1719:7 1723:4 1731:13 1746:9 1747:1,1
**theorizing**
1741:22
**thing**
1705:6,7
**things**
1718:5
**think**
1703:16 1704:14,15 1705:15 1735:17 1737:10
**third**
1725:6
**thirty**
1707:21 1720:19 1732:5 1734:7 1753:13
**thought**
1712:14 1736:16 1737:3 1742:6
**thousand**
1730:6 1734:5,7 1743:7,12 1749:13
**thousands**
1715:16,20
**three**
1720:19 1721:2 1740:2 1743:14 1746:20,20 1748:6 1749:15
**time**
1703:16 1704:20,20 1705:9 1705:9,17,19,19 1706:5 1717:20 1725:11 1736:10 1741:8
**times**
1740:6
**timing**
1724:17
**tissues**
1737:17
**titled**
1720:11
**titles**
1708:18
**toby**
1730:14
**told**
1728:13 1733:11
**top**
1716:20 1723:13 1742:2 1752:8
**total**
1721:8 1753:1,11
**tour**
1735:18
**touring**
1735:23 1737:4
**toxicity**
1728:6,20
**transcript**
1725:14
**transported**
1741:11
**trapped**
1740:21 1741:3
**travel**
1703:20
**treated**
1742:19
**trend**
1730:23
**trials**
1707:20
**true**
1727:2
**try**
1725:8,16
**trying**
1736:8 1739:11 1743:11
**tulane**
1736:12 1748:17
**tuning**
1744:17
**turn**
1704:12 1712:23 1720:14 1721:4 1749:9
**twelve**
1755:11
**twenty**
1717:11 1732:4,12 1734:9 1740:11 1743:13 1746:3 1748:6 1749:17 1751:14,16
**twice**
1751:7,10
**type**
1745:5
**typical**
1712:20

**u**

**uh**
1712:15
**unable**
1703:20
**unacceptable**
1739:11
**underneath**
1738:7
**understand**
1747:12
**underway**
1723:19
**unique**
1717:3
**unit**
1709:23 1710:12
**university**
1708:7,10,13 1736:13 1748:17
**upstream**
1734:3
**use**
1714:4 1717:5 1744:17
**useful**
1735:18 1736:17
**utilities**
1709:12

**v**

**verbally**
1704:21

**video**
1703:23 1706:11 1714:18
1724:18 1727:20 1729:1
1736:14 1745:10 1746:1
1748:2 1750:4 1755:4
**videotape**
1704:22
**visible**
1734:22
**visited**
1751:21
**visual**
1711:16
**visualized**
1742:2
**visually**
1711:11 1712:6 1717:21

**w**

**want**
1704:18 1726:17
**wanted**
1745:3
**wants**
1728:6
**warehouse**
1709:11 1720:20
**washington**
1708:6,10
**waste**
1712:6 1717:12 1738:19
1739:1 1740:20 1750:15
**water**
1713:5,19 1715:4,5,8
1718:1,13 1719:15,16
1725:7 1727:16 1729:4
1734:15 1735:4 1738:19
1739:1 1741:9,14 1747:5
1753:18 1754:1
**waterways**
1749:1
**week**
1728:9 1730:22
**went**
1712:8,13 1724:4,15
1754:18
**we've**
1705:14,18 1747:23
**white**
1705:4
**widespread**
1742:18
**william**
1707:1,8 1743:18
**wit**
1707:3
**witness**
1703:9 1707:2 1754:18
**witnesses**
1703:19 1704:10
**word**
1714:4
**words**
1726:18
**work**
1714:14
**worked**
1705:16
**working**
1734:18
**wright**
1733:11,11,15 1734:1
1743:19 1744:4 1746:15
1748:9,20
**wright's**
1745:11
**written**
1722:17 1731:16 1738:10

**y**

**yeah**
1711:21 1718:10 1730:10
**year**
1710:21 1747:19
**years**
1708:19

**z**

**zero**
1753:14,20