

SUPERIOR COURT OF NEW JERSEY
CHANCERY DIVISION-MORRIS COUNTY
Docket No. C-3939-84

DIAMOND SHAMROCK CHEMICALS
COMPANY,

Plaintiff

vs

TRIAL TRANSCRIPT

THE AETNA CASUALTY & SURETY
COMPANY, et al.,

Defendants

AFTERNOON SESSION

MORRIS COUNTY COURTHOUSE
MORRISTOWN, N.J.,

SEPTEMBER 28, 1988

BEFORE:

REGINALD STANTON, A.J.S.C.

TRANSCRIPT ORDERED BY: Stephen D. Cuyler, Esq.,

APPEARANCES:

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BY: WILLIAM H. HYATT, JR., ESQ.,

and

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BY: WILLIAM E. HEGARTY, ESQ.,
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I N D E X

WITNESS DIRECT CROSS REDIRECT RE CROSS

A. WOLFSKILL

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1
2 ANTHONY WOLF SKILL, having been sworn,
3 resumes:

4 THE COURT: Afternoon session.)

5 THE COURT: Doctor Wolfskill remains on
6 the stand under oath.

7 MR. CUYLER: Judge, Mr. Bates has
8 submitted a motion to the court, only he will
9 not be here tomorrow, someone from his firm
10 Maryanne Hayes, attorney from Chicago will be
11 here. We haven't moved her admission formally
12 pro hac, papers have been submitted. I
13 understand from our adversaries there is no
14 objection to the application. With the Court's
15 permission, I just move Maryanne Hayes pro hac.

16 MR. BATES: She's been involved in the
17 case for a couple of years, she was not with us
18 at the time we first moved ourselves in four
19 years ago but she has been involved in the case
20 for a couple of years.

21 THE COURT: Where are the papers.

22 MR. BATES: I have 2 --

23 THE COURT: I was a little --

24 MR. BATES: I know this is not a form of
25 or appropriate, I would be --

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THE COURT: Submit a form of order if you would, please. I didn't get to see those papers I was being pushed and pull.

MR. BATES: Here's a copy of the papers.

THE COURT: I'll be glad to admit Miss Hayes pro hac vice, so, whenever I have the order.

MR. BATES: Thank you.

THE COURT: Mr. Koepff was questioning when we broke off. Why don't you continue.

CROSS-EXAMINATION CONTINUING BY MR. KOEPFF:

Q Good afternoon Doctor Wolfskill.

I believe in preparing your report, the May 1970 report, you testified there were several drafts of that report before it went final?

A What was the date of the report?

Q The May, 1987 report?

A 1987. I had one or 2 drafts of the report before the final one that was submitted.

Q Did you discuss with the Cahill firm whether you would retain drafts?

A I told them that I would not be retaining drafts.

Q And I take it they concurred that you did not have to retain drafts?

1 A Well, I don't remember if they said yes or no.

2 Q Well, turn to page 12 of your deposition
3 line 17.

4 "QUESTION: Did anyone from Cahill ever voice
5 any objection to the procedure whereby drafts would be
6 destroyed?

7 "Mr. Spivak objects. Answer the question, said
8 you may answer.

9 And your answer was, not to me."

10 Is that a correct answer?

11 A Well, I think that's correct, I don't remember
12 an objection or either way.

13 Q Well, here you're saying they didn't give
14 an objection, you were not saying you don't remember it
15 here, you're saying they didn't, isn't that correct?

16 A Well, my recollection might be different today.

17 Q But in May, '87 your recollection is that
18 they didn't give, they didn't express an objection?

19 A Yes. Right.

20 Q Now, after you spoke with the Cahill firm
21 did you in fact destroy all prior drafts of your
22 report?

23 A I do not remember when the drafts were thrown
24 away, probably, my normal habit when I get the new
25 version I throw the other one away. So I'm not sure

1 about the timing, whether it was before or after.

2 Q By the way, when you spoke with the Cahill
3 firm, did you express any concern about destroying the
4 drafts?

5 A I don't know if I did or not, I do not recollect
6 expressing a concern.

7 Q I take it in any event, the draft of your
8 reports were destroyed, were thrown away?

9 A Yes.

10 Q And you --

11 MR. KOEPPF: I did spec with Mr. Spivak
12 yesterday and I understand the Cahill firm has
13 no draft in their possession.

14 MR. SPIVAK: That is correct, my practice,
15 too.

16 Q Now, as of May, 1987, sir, how much had
17 Woodward-Clyde charged Diamond Shamrock in connection
18 with preparing that May, 1987 report?

19 A I don't recollect that number. Perhaps it's in
20 the deposition.

21 Q Well, I gather as of today you recollect
22 you've billed for your work, the opinion and whatever
23 you've done since the opinion, \$80,000, isn't that
24 correct?

25 A Yes. Because you asked me that on the

1 deposition, I looked it up before coming to the trial
2 and it's somewhere around \$80,000.

3 Q You said \$80,000 as of today?

4 A Well, as of sometime -- that's not an accurate
5 number, it's about 80 thousand.

6 Q But that 80 thousand reflects billing
7 past, May, 1987 does it not?

8 A That includes billing since then.

9 Q At your deposition, would you turn to page
10 117, lines 11-12. And there was some follow-up
11 questions dealing with the billing, but in any event,
12 at lines 11 and 12 you say, I would think maybe 20
13 thousand is a raw estimate.

14 Does that refresh your recollection what you had
15 billed as of May, 1987?

16 A Well, I went back afterwards to see what it had
17 been and we actually had 2 accounts for this job, when
18 I was living in San Francisco we had one account
19 number, when I moved back to Houston another account
20 number picked up.

21 So I went back and looked at all of them and
22 more appropriate number for them was probably 40 or
23 \$45,000.

24 Q So if I understand it when you gave the
25 answer in your deposition, you recall roughly 20

1 thousand you went back and checked your records and
2 turned out the figure was closer to 40 or 45 thousand?

3 A One of those accounts had about 20 thousand on
4 it that I had seen a month or 2 before the deposition.
5 So that was my recollection then. But I'm sure it was
6 about twice that, actually considering the other
7 account.

8 Q I'm just trying to make sure I understand.
9 As of May, 1987, after you went back and checked your
10 records, you now believe the amount you had billed for
11 your May, 1987 opinion was roughly 40 or 45 thousand?

12 A I think that's about right.

13 Q And I gather you've done a little bit work
14 since May, 1987?

15 A That's right.

16 Q About twice as much work, isn't that
17 correct?

18 A About twice as much.

19 Q I take it though by May, 1987 you felt you
20 had done enough work to render that May, 1987 report
21 and the inclusions therein, isn't that correct?

22 A One of the big differences between those times
23 which I stated in this deposition was that I had read
24 Burton's deposition and I had scanned through the
25 others. Since that time I've read all 17 of them.

1 Q But my question, sir is, at the time that
2 you signed your May, 1987 report, the time you put your
3 signature on that report did you feel you had done
4 enough work, enough investigation to reach the
5 conclusions which you had reached in that report?

6 A Yes.

7 Q Let me just go through a few of the things
8 that you did in connection with rendering that report.

9 I believe you said you interviewed Mr. Steward?

10 A Yes.

11 Q Exactly when did you interview Mr.
12 Steward?

13 A Sometime I think in April of '87.

14 Q How many times did you meet with Mr.
15 Steward?

16 A Once.

17 Q Is it fair to say most of that day was
18 spent with Mr. Steward going over the different figures
19 so you could come up with your dot chart and then
20 contact zones, wasn't that the purpose of that meeting?

21 A That was the purpose, yes.

22 Q Did you have any other interviews with Mr.
23 Steward besides that one?

24 A I talk with him on the telephone but I think
25 that was the only personal visit.

1 Q Now, had you read Mr. Steward's deposition
2 prior to signing your May, 1987 report?

3 A I think that's one that I had which I had looked
4 through but had not read it entirely.

5 Q I would ask you to to page 95 of your
6 deposition, sir, line 2:

7 " QUESTION: Are you aware at the time that Mr.
8 Steward has given a deposition in this case?

9 "ANSWER: I think I have seen some reference to
10 deposition but I haven't seen a deposition from him."

11 Is that a correct answer, sir?

12 A Well that was the answer given at this time.

13 As a result of that recollection I asked for a
14 copy of his deposition and then discovered I had two of
15 them because I had previously had had his before, it
16 was in the stack.

17 Q Had you read his deposition prior to
18 signing the report or not?

19 A Well, I told you that I had looked at all of
20 those depositions and had read Burton's in detail, so
21 since I had it in my possession I think I looked at it,
22 but I did not read it page by page.

23 Q Well then is the answer here, I haven't
24 seen a deposition from him incorrect?

25 A I think that's incorrect because I later found

1 that it was in the stack, after I got a new copy.

2 Q Now, I believe on direct you said you had,
3 you either met or spoke with Mr. Lubetkin, is that
4 correct?

5 A I talked to him on the telephone.

6 Q How long was that conversation?

7 A 10 minutes or so.

8 Q That was the extent of your conversation
9 with Mr. Lubetkin?

10 A I don't remember if I talked with him again
11 after he sent some materials in, I don't think I did,
12 but I might have, but that was the extent of first
13 conversation with him, either the first or the first
14 and the last.

15 Q Is it fair to say that any conversations
16 that you may have had with Mr. Lubetkin, this 10 minute
17 one after you had signed your May, 1987 report?

18 A Yes.

19 Q When you did your work that led to the
20 May, 1987, were you at all interested in the health of
21 the workers at the plant?

22 A I don't understand by what you mean by
23 interested in the health of the workers.

24 That was a common topic in the records of the
25 plant, so maybe you could ask me something more

1 specific.

2 Q Well, let me read from page 121 of your
3 deposition, maybe you can help me out. I don't have to
4 read the question unless counsel for Diamond wishes,
5 but at line 21 you gave this answer.

6 Industrial hygiene now concerns health of the
7 workers and the health of workers is not something I
8 was interested in in this study. I'm not a doctor or a
9 health expert.

10 Did you give that answer.

11 MR. FALLS: What page.

12 MR. KOEPFF: I'm sorry, it's page 121,
13 line 21.

14 MR. FALLS: What page is that?

15 MR. KOEPFF: I'm sorry.

16 A I'm reading the context of that answer so if you
17 will give me a minute.

18 Q Please do.

19 A This question concerns the previously published
20 articles concerning industrial hygiene practices at the
21 plants making either herbicides or pesticides during
22 the 1950s, that's that a such a narrow and specialized
23 issue I'm sure that I have, have not read any directly
24 my to that.

25 And you continued with the same thought.

1 Article that would set forth conference on industrial
2 hygiene in making pesticides or herbicides.

3 Were you aware of any articles, et cetera? And
4 I answered, industrial hygiene now concerns the health
5 of workers and health of workers is not something I was
6 interested in in this study.

7 And the reason that that's -- what my definition
8 of interest is here, I'm interested in environmental
9 damage which does not include occupational health and
10 safety issues.

11 So occupational health and safety, although it
12 was a major issue at this plant, was not a subject of
13 my investigation. I was looking for environmental
14 damage which is different from occupational hygiene, or
15 occupational safety.

16 Q Prior to May, 1987 when you signed your
17 report, did you ask to interview anyone who had worked
18 at the plant, apart from Mr. Steward?

19 A No, I just asked to see Mr. Steward.

20 Q You didn't believe --

21 A Gordon Steward.

22 Q I didn't catch the last part of your
23 answer.

24 A That's right. I asked only to see one person
25 who knew the plant and that turned out to be Gordon

1 Steward. I didn't ask for him by name.

2 Q I understand. Did you believe it
3 necessary to interview anyone else who had worked at
4 the plant?

5 A Well, I had a lot of deposition of which I spent
6 quite a bit of time on Burton's deposition and he
7 seemed to give a lot of information concerning
8 conditions at the plants when he was there.

9 So I didn't see the need to interview workers,
10 looked like there was, would be plenty of information
11 in the depositions.

12 Q Is it fair to say that you really didn't
13 read those other depositions but you only scanned them?

14 A Before May of '87, that's right.

15 Q You felt scanning those deposition was
16 sufficient to reach the opinion that you signed on May,
17 1987?

18 A I was interested in what the conditions were at
19 the plant based on what plant operators would say. And
20 Burton had plenty to say, so that looked to me like
21 that would be plenty of information.

22 I've since read all of them and I don't see
23 anything that would change my conclusions from having
24 read them all.

25 Q When you read them in-depth you had

1 already reached your conclusion, hadn't you?

2 A I said I didn't see anything that would change
3 my conclusions after I had read all the rest of them.

4 Q But when you read them, when you had read
5 these deposition in depth you had actually reached your
6 conclusions months earlier, hadn't you?

7 A That's right.

8 Q And prior to signing your May, 1987
9 opinion had you seen any contemporaneous document from
10 the plant concerning how it was run?

11 A Yes.

12 Q What -- this is before you signed them?

13 A Yes.

14 Q What documents did you see?

15 A Well, I don't know that I can be specific.
16 There was some correspondence that I had seen and I
17 think some memos which were probably not
18 correspondence. But I can't identify which ones were
19 in the record -- I mean which ones in the record that I
20 had actually looked at. I don't have an inventory of
21 those as opposed to the ones I've seen since then.

22 Q Did you have see any contemporaneous
23 documents concerning leaks and spills at the plant?

24 A My recollection is, yes.

25 Q Can you identify those, sir?

1 A Not by date or who wrote them. I've seen to
2 many since then to now remember which ones those were.

3 Q Am I correct that one of the topics in
4 which you were asked to give an opinion in your May,
5 1987 opinion, was the regulation of chemical discharges
6 to soil, groundwater and surface water?

7 A Yes.

8 Q Did I understand you to say on your direct
9 that that regulations at least insofar as it concerned
10 groundwater and surface water didn't start until the
11 mid, 1970s?

12 A I said groundwater. The dominant legislation
13 protecting groundwater was really the RCRA Act in '76
14 which then had followed thereafter by CERCLA

15 And those are the 2 primary legislative actions
16 that dominated the groundwater protection regulatory
17 climate.

18 Q Would a river be considered surface water?

19 A A river is surface water, not groundwater.

20 Q When did the regulation of surface water
21 in New Jersey start to your knowledge?

22 A The earliest regulation that I saw was the 1907
23 Passaic River Valley, I'm not sure of the name of it.
24 I followed it through for a number of years, each year
25 it seem to be delayed one more year. The last year I

1 looked at it was about 1922, I'm not sure when it was
2 enacted or enacted fully but I feel sure that it was
3 enacted before 1951.

4 Q That still was from 1907?

5 A That was the first date I saw it mentioned. I'm
6 not sure that it was actually implimented in 1907.

7 Q You consider yourself to be an expert on
8 regulation in this area, correct?

9 A Well, I use regulations in my business to the
10 extent that I need to know them and there are four or
11 five of them that I use.

12 I'm not a regulatory specialist in that I do
13 more than that, but I certainly use regulations in
14 areas of my practice.

15 Q Well, to give an opinion as you have given
16 in your May, 1987 report or as you've given in your
17 direct testimony, I take it you at least have some
18 expertise in how New Jersey regulated surface water
19 during the period of time, 1950 through 1969?

20 A Well, that's correct. And that's one reason I
21 researched, I asked counsel to send me the New Jersey
22 surface water laws just for that reason.

23 I had not had an occasion prior to that to see
24 if there was any local statutes or something.

25 Q And in fact, you actually didn't ask,

1 didn't you give a standing instruction to the Cahill
2 firm to send you materials that dealt with regulations
3 of chemical discharges?

4 A I don't remember how broad that statement was
5 but I did ask them for regulations and they sent the
6 Passaic River Valley Commission's or whatever the
7 appropriate name is, their regulations.

8 Q Let me see if I can refresh your
9 recollection. Turn to page 113 of your deposition,
10 turning to line 17.

11 "QUESTION: Did you give any standing
12 instruction action to the Cahill lawyers with respect
13 to what documents you wanted to see in connection with
14 rendering a report?

15 "ANSWER: I asked them to provide documents that
16 would summarize the regulatory climate for that river
17 which they provided and which I actually was not able
18 to use much.

19 That's very -- they are very hard to follow.
20 That was a request for documents -- then it goes on.
21 If you wants --

22 MR. FALLS: Why don't you read it.

23 Q Okay.

24 MR. FALLS: Just the rest of the sentence.

25 Q I didn't have it with me Mr. Falls.

1 MR. CUYLER: I have it. That was a
2 request for documents, specific request, the
3 other things like the engineering reports. Is
4 that enough?

5 MR. FALLS: Yes.

6 Q Now, I take it the Cahill firm sent you
7 documents that summarize the the regulatory climate for
8 that river?

9 A Yes. And it was the statutes I had just
10 mentioned.

11 Q Did they send you any other documents
12 besides that one statute?

13 A Well, I got 3 or 4 inches worth, so it's
14 possible there may have been other things in there
15 besides that one statute. That statute had had many,
16 many additions subsequent years.

17 One of my problems with having difficulty using
18 it, was difficult to know when it was actually enacted.

19 Q Well, as an expert in regulations of
20 chemical discharges in the surface water, tell us your
21 expert opinion on when regulation of such discharges
22 first occurred in New Jersey?

23 A On any river or any body?

24 Q Correct, sir?

25 A I don't have any idea about that status for New

1 Jersey. I studied the regulatory climate for the
2 project that I'm interested in, and this case it was
3 the Passaic River.

4 Q Aren't you interested in this particular
5 site?

6 A Yes, that's why I asked for the documents that
7 summarized the regulatory climate for this site,
8 meaning this river.

9 Q Well, let me put it to a different way.
10 Apart from making the standing request to the Cahill
11 firm, did you independently do any investigation of the
12 regulatory climate was in New Jersey?

13 MR. FALLS: I object to the use of the
14 standing request. The witness did not describe
15 it as standing request.

16 Q Mr. Falls is correct, I apologize I'll
17 rephrase it.

18 Did you --

19 A I had no reason to believe that I would not get
20 what I needed and so I did not ask a second party to
21 look up the legislative climate.

22 Q Well, would it be a surprise you, sir as
23 an expert in regulation of chemical discharges into
24 surface water, that New Jersey had on its books a
25 statute enacted as early as 1884 dealing with the

1 prevention of discharge or escape of sludge acid into
2 or upon the waters of the State of New Jersey?

3 A I don't think statutes that age would be have
4 any interest.

5 I concluded tha that ones following it are
6 controlling the climate for that river. It may have
7 even -- I'm not surprised there may have been
8 something in 17 something, it's not a period of
9 interest.

10 I'm not making an academic study of everything.
11 You know that might have once applied.

12 I would be satisfied to have documents that
13 summarized the regulatory climates for the time the
14 plant was in operation. I don't need to search other
15 periods of time.

16 Q Are you saying that statute wasn't in
17 effect during the 1950s or 1960s?

18 A No. I'm saying that the statute that I had, I
19 believe gave me enough information as to what the
20 regulatory climate was that I was interested in for
21 releases from that plant.

22 Q Now, do you know whether or not there was
23 a statute on the books of the New Jersey legislature
24 enacted in 1899 securing the purity of public supplies
25 of potable waters in the state?

1 A I don't recollect having seen that one.

2 Q Does it come as a suprise to you that New
3 Jersey had such a statute?

4 A Well, tell me the meaning or scope of the
5 statute, maybe I can --

6 Q Sure.

7 A Give more information about it.

8 MR. KOEPFF: Your Honor, let me just mark
9 the defendant's exhibit 682 and hand it to you.

10 Q Let me just, so we have the complete
11 record of 683, give that here. That's the earlier one
12 I mentioned.

13 Q I've handed you Doctor Wolfskill, copies
14 of 2 statutes that I just referred to. Would it be
15 fair to say that you had not seen these statutes prior
16 to my showing them?

17 A That would be my recollection that I haven't
18 seen the 18 hundred statutes.

19 Q Now, I believe you testified that in all
20 this work you have done since '79 you've had occasion
21 to look back in time at how, what the regulatory
22 climate was for that particular plant and how it had
23 its discharge? Is that correct?

24 A Yes.

25 Q You didn't run across those statutes?

1 A I don't think I ran across these 2 right here
2 for the, having to do with the Passaic River.

3 I'm not sure I understood your question. Are
4 you referring to the 80 Lister site, research?

5 Q I am. Just in terms, you're an expert,
6 you say and you come in here and say you're an expert
7 on the regulation of discharges of waste in the surface
8 water?

9 I'm just trying to see whether you came across the
10 statute before.

11 MR. FALLS: I object to this question.
12 This witness has not stated he's an expert in of
13 potable water in the 19th century.

14 THE COURT: That was really a rhetorical
15 question more than anything else. I don't think
16 -- will you read the question back to you me.

17 (Last question read.)

18 THE COURT: All right. Let me have the
19 next question.

20 MR. KOEPFF: Did he answer.

21 THE COURT: It wasn't a question.

22 Q Have you come across the statute I just
23 put in front of you, sir in your work?

24 A Is this another question?

25 Q Yes. It --

1 A I don't recollect coming across either one of
2 these two in my research for the 80 Lister project.

3 Q.

4 MR. KOEPFF: I've marked as 684 another
5 statute. I'm afraid I do not have a sticker.

6 Q Do you have in front of you sir, 684? I
7 am sorry. This is it here.

8 Would you look at that statute, it's an act
9 prohibiting the discharge of sewerage and excremental
10 matter.

11 In your work as an expert on regulation of waste
12 and discharge in the surface water did you come across
13 that?

14 MR. FALLS: If you are going to ask the
15 witness questions about these statutes I think
16 you ought to give him a chance to read them.

17 MR. KOEPFF: That's fair Mr. Falls, I'm
18 sorry. If he needs it that's fine. Take your
19 time Mr. Wolfskill and look at it.

20 MR. FALLS: I also note for the record
21 this is apparently dealing with the regulation
22 of water for human consumption.

23 MR. KOEPFF: Fine. So stipulated.

24 Q Have you had a chance doctor Wolfskill to
25 look at it?

1 A I'm still looking at it.

2 I'm not sure if this was in the collection of
3 documents that was sent for me to review. Upon
4 reviewing it, I don't think it changes my understanding
5 of what I got out of the Passaic Valley Regulations
6 which pertain particularly to that river.

7 Q Let me just, I can save you showing other
8 statutes that we're enacted after.

9 Would you agree with me that there were
10 regulations in New Jersey prior to the 1950s that dealt
11 with the discharge of waste, chemicals or what have you
12 into surface water?

13 A That's correct. There was even one for the
14 Passaic River.

15 Q Specifically?

16 A Yes.

17 Q And that was in effect when the plant was
18 in operatin from the '50s to the '60s, correct?

19 A I believe so.

20 Q Would it be your expert opinion as a
21 supposed expert in regulation --

22 THE COURT: Incidentally, you don't need
23 to use the term supposed. You're not conceding
24 the expertise of the witness but that's a little
25 bit perjorative.

1 Go ahead, please.

2 Q Doctor Wolfskill, is it your opinion --
3 withdraw that.

4 Earlier today I think it was today you mentioned
5 dilution is the solution. Is that correct?

6 A Yes.

7 Q Is it your expert opinion that any
8 contamination of potable water or Passaic River,
9 violation of any of the statutes that either you show
10 -- I've shown your or take that as an assumption, is
11 it your expert opinion that someone could avoid being
12 found liable for those statutes on the defense that
13 dilution is the solution?

14 A No, I don't think that would have been a basis.

15 Q do you know whether or not the 80 Lister
16 Avenue plant was ever held, ever found in violation of
17 the Passaic River statute for discharges into the
18 river?

19 A Yes.

20 Q Do you know whether or not the plant was
21 able to avoid being held withdraw.

22 In your expert opinion, could the plant have
23 avoid being found in violation by saying dilution is
24 the solution.

25 MR. FALLS: I object to the question your

1 Honor. I mean, he is asking to make a legal
2 judgment as to what defenses will succeed in
3 some kind of proceeding?

4 THE COURT: I'm not sure what the thrust
5 of the question is. I don't think it really
6 falls within Doctor Wolfskill's area of
7 expertise.

8 Move to something else, please.

9 Q I believe you've given testimony about, in
10 your summaries, I have forgotten which item, small
11 accidental leaks and spills. See that one, I think I'm
12 referring to item number 2 on conclusions?

13 A Yes.

14 Q Were you ever at the Lister Avenue plant
15 when it was in operation?

16 A No.

17 Q Did you ever see any reports that were
18 prepared in the '50s or '60s about plant leaks?

19 A By reports are you referring to memoranda or
20 correspondence?

21 Q Yes, sir.

22 A Well, I've seen some document that have those
23 words in it, it's hard for me to separate whether they
24 were in deposition or whether they were in contemporary
25 memoranda.

1 So I'm not sure if they were in the contemporary
2 reports or not, those particular words.

3 Q Let me see if I --

4 A I would assume that there will be some or there
5 probably are some.

6 Q I was just wondering in rendering your
7 opinion you had seen them?

8 A Well, I don't recollect if those items were in
9 my possession before May of '87 that were plant
10 memoranda.

11 Q Let me turn your attention to the
12 deposition transcript at page 147, Mr. Falls. And for
13 context, I don't want to try and be unfair to you, I
14 would, I asked you whether you had seen contemporaneous
15 document reporting on leaks or spills. That's at line
16 14. I asked, the question, you said, you saw it
17 reported in depositions and then I follow up with this
18 question.

19 Question. I'm sorry. I'm trying to distinguish
20 between depositions and documents. Do you have any
21 reports that were prepared in the '50s or '60s about
22 plant leaks? Have you seen any?

23 You said as to me, about Newark? About this
24 plant's leak?

25 I said, yes. And you gave the answer, no, the

1 next page.

2 Is that --

3 A Well, I do not recollect whether I had those in
4 possession at that time or not right now.

5 Q Is it fair to say in reaching your opinion
6 about the accidental leaks and spills as you put in the
7 summary, that you have no personal knowledge as to what
8 happened at the plant site during the 1950s and 1960s?

9 A The only personal knowledge that I have that was
10 not provided by anybody else was my own inspection at
11 the site.

12 I've been through the site and I've seen the
13 site and see what kind of equipment it has, et cetera
14 and I know that that kind of equipment has leaks and
15 spills.

16 So that's the only personal knowledge that was
17 not aided by anybody else.

18 Q And that inspection, if I recall was about
19 what, roughly what, 15 years after the plant closed?

20 A Yes.

21 Q What I would like to do Doctor Wolfskill,
22 today in your direct testimony you used some charts,
23 some figures, remember, that you developed with Mr.
24 Steward.

25 Do you remember those exhibits?

1 A Yes.

2 Q Let me ask some preliminary questions,
3 I'll come to the figures.

4 I take it it's your testimony that because you
5 found some type of correlation between 2 different
6 items that you reached that conclusion, that is, maybe
7 you can help me out, tell me exact --

8 A Well, that is a basis of the conclusion of how
9 dioxin entered the subsurface part of the environment
10 was the fact that it was correlated with that portion
11 of the plant that had dioxin and that from my
12 experience and inspection of the site would likely
13 leak.

14 So those were corroboratory events.

15 Q And the correlation is again between where
16 samples taken of the shallow soil showed concentrations
17 of dioxin, that was one thing, wasn't that?

18 A Well, on that chart there are three levels of
19 concentrations that are applied. High, medium and low.
20 It was my interpretation that likely an early leak
21 would be indicated, early meaning an initial leak, that
22 idea. If it were one of concentration in parts per
23 billion, that's somewhat similar to what the products
24 had in them.

25 Q When you use the word correlation in your

1 report and as you used it through your testimony here
2 in court, did you use it in any statistical
3 significance sense?

4 A I did not run standard statistical analogies to
5 get standard deviation or coefficient or correlation or
6 any of those types of measures. Because I could tell
7 by inspection that it was correlated.

8 Q So I take it you did not use the word
9 correlation in the statistical sense?

10 A Well, I did not use statistical methods and
11 procedures to do it. I can do that in my head.

12 Q By the way you're not a statistician, are
13 you?

14 A Well, I've had several courses in statistics.

15 Q Do you recognize yourself to be a
16 statistician?

17 A No, I consider that I can handle statistics when
18 I need to.

19 MR. KOEPFF: Your Honor, I have a
20 slight problem. Apparently in preparing for the
21 cross-examination I didn't realize they would
22 blow up their figures larger than I was using
23 and it would facility, I know this is
24 duplicating a few exhibits, but it would help me
25 if I could use my own copies of figures, if you

1 don't mind.

2 THE COURT: All right.

3 MR. FALLS: May we have a moment.

4 MR. KOEPFF: This is a copy.

5 MR. FALLS: Do you have reduced copies?

6 MR. KOEPFF: This comes from his report.

7 MR. FALLS: This is copy of our exhibit.

8 MR. KOEPFF: Your honor, I'm going to just
9 have him identify that as figure one. I'm going
10 to have him identify my others one, too. I'll
11 have the other one, the third one identify as
12 mine, then I have transparency that was taken
13 off one. That's why I'm doing it. If my
14 transparency was the same scale as theirs I
15 would use theirs.

16 Q Doctor Wolfskill, you may have to come
17 over and just help me identify this.

18 Can you identify what we've marked as
19 Defendant's Exhibit 685?

20 A Yes, that's figure one from my report.

21 MR. FALLS: Here's a copy of figure one.

22 Q Let me just take you quickly through this.

23 This is a summary of what Mr. Steward put
24 together for you as likely sources of dioxin in the
25 process of the plant?

1 A Yes.

2 Q It doesn't represent where dioxin was
3 actually found in a samplings, does it?

4 A You mean samplings of the soil?

5 Q Yeah?

6 A No.

7 Q It doesn't represents where dioxin might
8 have been found in samples of the equipment or in
9 barrels or that sort either, does it?

10 A Well, this doesn't represent the results of any
11 sampling exercise that was done during the site
12 investigation, which include building, equipment, soil,
13 groundwater, et cetera.

14 This was his recollection of the locations that
15 we generally find dioxin somewhere in the process.

16 Q Now, I believe this is the one that
17 doesn't have the 23 dots, is that right?

18 A That's right, there are 2 missing.

19 Q Maybe just forgive me. Could I give you a
20 red pen here and ask you just to indicate on mine where
21 those read 2 dots should should be.

22 A Keep in mind these dots are, of course are
23 symbolic they don't exactly represent a one vessel that
24 had, that Steward thought had something in. They're
25 symbolic of the area.

1 Q When did you discover those 2 dots we're
2 not on the figure?

3 A Well, about 2, 3 weeks ago.

4 Q Who brought that to your attention?

5 A Gordon Steward reviewed this and discovered
6 that.

7 Q And then just going to put this down for a
8 second.

9 MR. CALOGERO: For the record your Honor,
10 perhaps Mr. -- excuse me, Doctor Wolfskill can
11 state the 2 dots that he just put on that
12 exhibit, 29 read dots are on the piece of
13 equipment that has been identified as the TCP
14 purification unit.

15 THE COURT: Is that so, Doctor Wolfskill.

16 THE WITNESS: Yes, that's my understanding
17 from Steward:

18 THE COURT: Very well.

19 Q Now, let me show you what we've marked as
20 defendant's exhibits 686.

21 Can you identify that exhibit?

22 A That appears to be figure three; figure three of
23 our report.

24 Q Now, if I understand this chart, you have
25 to correct me if I'm wrong, what you did here is, you

1 imposed on this samples of shallow soil that showed
2 dioxin contamination and you broke it out in three
3 categories. Is that what you did?

4 A This shows the concentration that was derived
5 from analyzing those shallow soil samples.

6 Q And how many sample points are there or
7 here?

8 A We'll, I've countend them before but I do not
9 remember. 50 or so, I think, 40 or 50.

10 Q Were these samples that you yourself did?

11 A I personally did not do them.

12 Q Did you have anything to do with --

13 A With the sampling operation?

14 Q Yeah?

15 A I reviewed the sampling operation.

16 As I indicated in my testimony, my assignment on
17 this job was senior reviewer and I was not responsible
18 for performing the work. But I was responsible for
19 reviewing the work which, included among other things
20 going to the site one day, seeing their sampling
21 operation.

22 Q This sampling was done several years
23 before you were asked to give an opinion to this case,
24 isn't that correct?

25 A That's right. I think most of these are 1984.

1 There may be some 1985 samples in it.

2 Q Did you ever do any sampling for purposes
3 of rendering your opinion in this case?

4 A Are you talking about did I personally take any
5 samples?

6 Q Or did you instruct anyone to do any
7 sampling, for purposes of this case?

8 A For purposes of this case?

9 Q Yes?

10 A No, not for purpose of this case.

11 Q We're basically using the sampling that
12 was done in 1984 and 1985?

13 A Yes, we're using the results.

14 Q I think it might be helpful, there was
15 lots of sampling done here for dioxin during those
16 years, wasn't there?

17 A Well, those represent all of the zero to 12 inch
18 samples that I could find in the investigation.

19 Q That was low surface soil samplings,
20 correct?

21 A Actually some of those came from borings that
22 also had samples on the top 12 inches, but most of them
23 were surface samples that were not done with boring
24 machine.

25 Q Does that show all the boring samples on

1 it?

2 A It shows the ones that I could find that had
3 data in the top 12 inches analytical data for dioxin.

4 Q But weren't there boring samples taken
5 that showed dioxin contamination at the plant site
6 below the surface soil?

7 A Yes. There are lot of other data in the record
8 that shows dioxin concentration in at some other depth.

9 Q In facts, shows dioxin contamination in
10 some levels after 15 feet?

11 A I think nearly all of the dioxin detect analyses
12 were at a depth of 15 feet or shallower.

13 Q Do any of the samples that show dioxin
14 contamination at department of 15 feet or so, appear on
15 what you, what we marked as exhibit 686 which is your
16 figure three?

17 A These are the shallow samples because these were
18 the ones that the first contact with some kind of
19 surface spill or leak. I did not put the deepers ones
20 on there because that would be some kind of migration
21 phenomena and it could move somewhere else by the time
22 it got deep better.

23 So this was indeed to reflect the shallow. They
24 were all between zero to 6, 7 to 12. I used the lower
25 of those 2 numbers.

1 There were 2 test values at most of those
2 locations. But it was the 12 inch zone that I was
3 interested in for this correlation.

4 Q For purposes of your analysis, you
5 disregarded the dioxin contamination found at the
6 deeper depth, is that fair?

7 A That's right.

8 Q Weren't there also other types of samples
9 called wipes and chips taken at that time?

10 A Yes. They were taken of various parts of the
11 building and the equipment.

12 Q Do they appear on this figure?

13 A No.

14 Q Is it fair to say you disregarded those
15 samples in doing those analysis?

16 A They were not part of this analysis looking for
17 the entry into the soil.

18 Q You didn't look at those samples to see
19 how they correlated with your conclusion, is that fair?

20 A That's correct.

21 Q In looking at the dioxin contamination
22 going to level below surface to see how that correlated
23 with your conclusion, isn't that correct?

24 A Well, each of those two bases doesn't have
25 anything to do with this conclusion.

1 Q We'll come back to that.

2 Is is fair to say, just disregard it and then
3 I'm sure we can find out why?

4 A Yes.

5 Q Now, when they did this sampling -- who
6 was the person by the way who decided where to sample
7 back in 1984 and 1985?

8 A My recollection is that a work plan document was
9 produced which proposed sampling locations and it was
10 sent to the state agency for approval and through an
11 approval mechanism the work plan was agreed to which
12 defined where all the samplings would be of any kind.

13 So it was an agreement with the state as to
14 where the samplings would be taken.

15 Q Did you have any involvement in deciding
16 which of these sampling points would be --

17 A Very little.

18 I reviewed the work plan but I didn't have
19 comment as to, let's move it over or up or down or how
20 many. I just reviewed it for content.

21 Q One other thing about the figure.

22 Someone took a sampling and it showed very low
23 levels of less than one part per billion but they took
24 the sample that would show on here, wouldn't it?

25 A Well, there were none to my search of the data

1 at this depth that were less than one part per billion.

2 So ever sample at that had a value for my reading.

3 Q Let's look at it another way, so we're
4 talking on the same wave length.

5 This X, whether it's a dot, triangle or an X,
6 the sum of those reflect all shallow soil samples,
7 there aren't any left off?

8 A I don't think there are any left off.

9 Q So for example, if there's a space on this
10 exhibit where we don't see a triangle or dot or X, that
11 just wasn't sampled, isn't that fair?

12 A That's my understanding.

13 Q Now, let's go back to 1984 and 1985 when
14 they did the sampling.

15 Isn't it true that when -- who did the sampling,
16 who did the sampling?

17 A Woodward-Clyde consultants did the sampling that
18 was done, the borings and I think the IT Corporation
19 did the shallow.

20 Q Didn't they use what's call a bias
21 sampling technique back then?

22 A I forgot which one. I think the surface
23 sampling was put on what's call a bias, which is to
24 perform samplings in the vicinity of structures or
25 other interesting places.

1 The borings were not put on bias. They had a
2 different distribution.

3 Q Let me make sure we're on the same
4 wavelength.

5 The shallow surface sampling was done on a bias
6 basis, not the boring sampling?

7 A Yes. I might add, they're actually three or
8 four kinds of sampling on there. Also the sumps and
9 the sewers at the sumps were samples, where the sumps
10 were that's bias. Sampling the sump where it is.

11 The sewers were sampled at the points where they
12 could find the sewer.

13 The bias sampling for the shallow is the reason
14 that there are more values over near the acid building
15 and the process building but it doesn't exclude samples
16 some where else, it just put a higher percentage of
17 them in that zone.

18 Q The bias was to sample in those areas
19 where the processes that might lead to dioxin were
20 located, isn't that correct?

21 A Well, I'm being careful to define the word bias.

22 It does not mean that the only location samples
23 were where dioxin was expected. It was that the
24 majority of the samples within that area.

25 Other samples would be distributed around the

1 site.

2 There was a 50 foot grid that was placed over
3 the entire site and sample locations were selected from
4 that grid.

5 MR. KOEPFF: I don't have this marked, but
6 I would like to just read the witness something
7 from the October, 1985 feasibility study
8 prepared by IT Corporation and Diamond Shamrock.

9 I would like to first show it to Mr.
10 Falls.

11 Q Doctor Wolfskill, just bear with me, I'm
12 going to read from Page 2-20 of the feasibility study
13 which was prepared by IT Corporation for Diamond
14 Shamrock. It's dated October, 1985.

15 You've seen this document before, haven't you?

16 A Yes.

17 Q Just reading from that page, it's talking
18 about the sampling program and it says, a biased
19 sampling approach was employed. That is, samples were
20 taken at locations suspected to have high levels of the
21 dioxin.

22 Would you agree that's the type of sampling
23 technique used?

24 A I don't think that that description there is
25 complete.

1 I think if you look in the work plan or in the
2 remedial investigation it will give more description
3 about that program to show that there were other
4 locations selected that were not expected to, you know,
5 not expect to be high sources. And in fact, a lot of
6 them weren't high.

7 Q Now, the majority of them would be in
8 areas where there were sources of dioxin?

9 A Yes. And you can see from that distribution
10 that the majority or this by the two buildings.

11 Q That was the bias of the sampling?

12 A Yes.

13 Q Is it fair to say the time you signed your
14 May, 1987 report, you were aware of this bias sampling
15 technique?

16 A Yes.

17 Q That we've walked about?

18 A Uh-huh.

19 Q Yes?

20 A Yes. I was aware of it in 1984.

21 Q At any time since you were asked to render
22 an opinion did you ask anyone or did you yourself try
23 and do any independent sampling, not a bias sampling of
24 the area?

25 A No. I have not nor have I asked anybody to

1 produce other samples from the site.

2 MR. KOEPFF: Can I ask the witness to
3 approach the chart.

4 THE COURT: Sure.

5 Q Doctor Wolfskill, I'm sorry to make you
6 get up.

7 Let me just show you an example. I notice that
8 there's an S here and an X there and I'm pointing now
9 to grid D-2 and D-4.

10 Do you see that?

11 A Yes.

12 MR. KOEPFF: Mr. Falls did you want to
13 come near?

14 MR. FALLS: Okay.

15 Q Is it fair to say that in that area, that
16 is the only 2 sampling points, where I just pointed
17 here and here, D-3?

18 A I think that is the only 2 that are in the soil
19 below the slab.

20 Q So there is no sampling in the non-shaded
21 area outside, is that correct? It would be a little
22 bit above the grid area?

23 A That's right, not in that area.

24 Q Now, I think it's fair to say also that
25 there are areas outside the building that have no dot,

1 have no triangle, have no X.

2 Is that correct? And that, I'm talking about
3 just along the edges, not inside your hatches but
4 around it.

5 MR. FALLS: You said, you mean there are
6 some areas there there are no samples shown.

7 MR. KOEPPF: Yes.

8 A That's correct.

9 Q Now, let's look at the warehouse, that's
10 this rather large block in the center of the drawing,
11 roughly the center.

12 How many sampling points are inside the
13 warehouse?

14 A I think there's one.

15 Q And that one is at the far wall, would
16 that be fair?

17 A The south wall, yeah.

18 Q So there are no sampling points any where
19 else inside the warehouse except for that one?

20 A Yes.

21 Q Now, these -- and samples were taken in
22 1984 and 1985, correct?

23 A I think so.

24 Q When did Diamond leave the plant site in
25 terms of it's no longer being an owner?

1 A Well, I think it sold the site sometime around
2 1970 or so.

3 Q What did you do, sir, in rendering your
4 report, that the area within the warehouse remained the
5 same over those 15 years?

6 MR. FALLS: Could I have the question,
7 I didn't hear it.

8 THE COURT: Read it back, please Mr.
9 Mastandrea.

10 (Last question is read.)

11 MR. FALLS: I don't understand and
12 therefore object.

13 Q I'll try to take it slowly.
14 There was sample taken in 1984 and 1985?

15 A Yes.

16 Q It showed some level of dioxin
17 contamination as of that date, correct?

18 A Yes.

19 Q What did you do to verify, sir that that
20 contamination had not occurred sometime subsequent to
21 1970 when Diamond left the plant?

22 A Well, there aren't any data to verify that any
23 of those have occurred after that site -- after that
24 date. In fact there are no measurements -- I do not
25 know of any measurements of the soil.

1 This is the only one. So I have not considered
2 what some other operator may have done to the site.

3 Q You agree with me it's at least possible
4 sometime after 1970 some one of the subsequent owners
5 may have spilled something there that could have lead
6 to dioxin or could have gotten through one of your
7 other transport means?

8 A Well, in the course -- transport means is
9 another issue.

10 In my reading of the record of who was in this
11 site following Diamond, I don't think there was new
12 supply of dioxin at that time. I don't recollect any
13 processes that those people operated that would create
14 a new supply of dioxin.

15 Q But dioxin could have gotten there through
16 the cracks by someone transporting, correct?

17 A Through someone transporting?

18 Q Yes. One ever your transport mechanisms?

19 A Well, the transport mechanisms were air and
20 that's not likely, this sample is under a poured slab
21 inside the building, so air is not likely a transport
22 method for that sample.

23 Surface water, moving it around the site from
24 rainfall. Again that's probably isolated from the
25 surface water migration method.

1 Flooding probably is not likely. I do not
2 believe, I think there might had been flooding at least
3 once during Diamond's operation and I don't think it's
4 been flooded since then.

5 The flooding I do not think would have access to
6 the shallow soil right under the slab.

7 the groundwater is not that high so I don't
8 actually think there is a transport mechanism available
9 that would explain that data right.

10 Q In giving your opinion about the
11 correlation didn't you feel it was necessary to have
12 samplings of other areas of this warehouse?

13 A No. I think the 40 or 50 samples that we have
14 there with the distribution around the site satisfy me
15 that the preponderance of high levels have to do with
16 probably the sewer, since one high location was found
17 in the location right next to the sewer and around
18 those 2 buildings. Those were the highest occurrences.

19 And there are enough points at other places,
20 although it's of course possible there could be an X
21 anywhere on that sheet, that's possible. It might take
22 infinite sampling and find that from an engineering
23 point of view that is enough to demonstrate that the
24 likely mechanism is leaks that came from those 2
25 buildings and possibly the sewer.

1 Q The only thing that that chart shows is a
2 dioxin contamination represented by the triangle and
3 one spot, isn't that correct?

4 A Inside the warehouse, yes.

5 Q Would you agree with me that that dioxin
6 contaminatio could not have gotten there any sooner
7 than, let's say mid 1960s?

8 A Well, I'm not sure right now whether that spot
9 sits under the old original building or not. That is
10 not on this drawing.

11 That might have been there in 1952 or something
12 there or there are probably records to show where the
13 old building was. But I do not know if it was at that
14 point or not.

15 Q What's the source of the contamination you
16 found here spillage from a tank or what was it?

17 A We'll, my interpretation of this drawing is that
18 whatever acted for this location right here was likely
19 some kind of movement of product that had dioxin that
20 went through that slab.

21 I don't know of any other method, unless there
22 was some dropped on the ground 10 years earlier or
23 something, in case that was an alleyway between
24 buildings.

25 The building might have been built on top of

1 that, either of those 2 hypotheses I think are
2 possible.

3 Q You agree with me there are about 4 or 5
4 other hypothesis you could come up with right now that
5 could have contaminated, wouldn't you?

6 A I can think of two.

7 Before the warehouse was built it was there or
8 after the warehouse was built something went through
9 the floor of that building.

10 Q Or it could have happen sometime even
11 after Diamond left, someone with dioxin trampling on
12 their feet, isn't that possibility?

13 A Well, this sample is underneath a floor slab, we
14 had to drill through the floor slab to get to the
15 sample, so it's not likely anybody tracked the dioxin
16 on that sample. Sample is under the floor.

17 Q Did you make an investigation to see
18 whether or not the floor was impervious to dioxin
19 getting through or what I'm trying to say, did you make
20 any investigation to see whether or not this dioxin had
21 gotten through a crack in the floor or just was found
22 there before the warehouse was built?

23 A I did not make an examination of this chart to
24 explain the process of a single one of those dots,
25 where it was. That was not the purpose of this

1 analysis.

2 It was to look at the general trend where the Xs
3 were in relation to the facilities that had dioxin in
4 then. I did not make an analysis as to where that
5 feature came from in the warehouse. One thing it
6 wasn't asked.

7 Q Now, I've taken the liberty, just help me,
8 what I've done is, or I should say my friend Mr. Pierce
9 did this last night.

10 We did your Xs and triangles and dots and we
11 tried to, as you see can see what we did.

12 Would you agree with me we made at least a rough
13 approximately on plastic transparency where the Xs or
14 the dots and triangles appear?

15 A Yes.

16 Q The other thing I've done is on Xs, I
17 marked them read, I guess those are the ones that have
18 the highest?

19 A Yes.

20 Q And then I take it the dots were the
21 intermediates categories, so I marked them orange. You
22 see that?

23 A I can't tell the difference between red an
24 orange. I can tell the difference between and X and a
25 dot.

1 Q And then I put triangles in green. All
2 right?

3 A Yes.

4 Q Having done that now could we go back --

5 THE COURT: Mr. Falls made a side comment
6 that doesn't need to be recorded.

7 A These marks right here that are supposed to be
8 part of the drawing?

9 Q Yeah.

10 MR. FALLS: The witness has said the dots
11 on the transparency correspond with the dots on
12 his chart and that appears to be so.

13 MR. KOEPFF: Do I mark my transparency
14 687.

15 THE COURT: Yes, transparency is 687.

16 MR. KOEPFF: The witness pointed out this
17 figure which is figure one in exhibit 682 is --
18 the scale, they're about half an inch off. I
19 still would like to use this for illustrative
20 purpose, I'm not trying to say it's precise.

21 THE COURT: Impose the transparency on a
22 different plot that's on a slightly different
23 scale.

24 MR. KOEPFF: What I'm trying to show
25 is sampling locations in light of the equipment

1 on the figure rather than just on the plant
2 layout.

3 Q You see what I'm doing Doctor Wolskill,
4 I'm trying to show the sampling points vis-a-vis
5 equipment.

6 Would you agree with me first of all that the
7 sampling points that were done arent near all of the
8 different equipment that was used in the manufacture of
9 TCP or would be in the processes that might have dioxin
10 in.

11 Would you agree with me not all those points
12 were samples?

13 A That not all points were samples that have
14 dioxin inside.

15 Q It would have dioxin in the process?

16 A That's right. The soil, there's not near as
17 many soil sample locations as there is process
18 equipment that contains dioxin.

19 Q Where's the autoclave located? Here?

20 A I think it has been in 2 locations. Before the
21 explosion it was to the south of the process plant and
22 after after explosion it was to the north.

23 Q The autoclave is it fair to say, we have a
24 green triangle, roughly block H-3? Above the
25 autoclave, there is a green triangle?

1 A Yes, I see a green triangle.

2 Q And then close proximity to the autoclave
3 we have 2 orange dots, is that correct?

4 A Yes.

5 Q Now, did you do any further testing around
6 the autoclave to see if there was any red Xs at all?

7 A I did not do any testing. That data came from
8 the one site investigation that I know of at the site.

9 Q Which of those you mentioned, 2
10 autoclaves, which is the one that exploded?

11 A The one to the south of the process building.

12 Q That's the one --

13 A To the north. This is the one to the south.

14 Q That would be in block K-5, would it not?

15 A I believe that's the location.

16 Q Now, that's the autoclave that exploded
17 when it was processing TCP?

18 A Yes.

19 Q I take that would have had dioxin in it,
20 would it not?

21 A I believe so.

22 Q Which way did that blow up? Which way did
23 the dioxin go.

24 Which way did the dioxin go when it --

25 A I have no idea. Up and out I would assume

1 Q Would you expect a fair amount of dioxin
2 concentration in the immediate vicinity of that
3 autoclave?

4 A Well, I don't think that there's any uniform
5 distribution of dioxin that would have come from that
6 explosion. It would not be continuous function that
7 each point gets smaller the farther the distance from
8 the autoclaves.

9 So I would not expect any vigerous distribution
10 as a function of that explosion.

11 Q Bear with me. Let me just come back.
12 Are you familiar with plant explosion in
13 Servasto, Italy?

14 A Yes, I've read accounts of that.

15 Q That involved a plant that was
16 manufacturing herbicides that included the production
17 of dioxin as a by product?

18 A It had dioxin as a by-product, yes.

19 Q How far did dioxin contamination from that
20 explosion go?

21 A That's been awhile since I read that article.
22 But my assessment is it went quite some distance. I do
23 not know if it was wind blown or whether it was
24 propelled to this distance but I think there was a
25 considerable disbursement of the dioxin.

1 Q Wouldn't it be fair to say that you would
2 expect, if that autoclave exploded, to be substantial
3 contamination all over the plant site?

4 A Well, I don't know what to expect as the
5 distribution of the dioxin. That, those autoclaves
6 were in a building, there was an explosion, building
7 itself has a lot to do with what direction the debris
8 goes into.

9 So I think that's indeterminate as to the
10 pattern of dioxin distribution based on that kind of an
11 explosion.

12 Q You can't rule out, can you, that some of
13 the dioxin concentration, that your finding samples
14 here might be attributable to the explosion, can you?

15 A I have assumed in my conclusion that some of the
16 distribution of dioxin, I don't know what percentage.

17 Q Which of these sampling points is
18 attributable to the explosion?

19 A I don't know which one is attributable to the
20 explosion.

21 Q Up here on the transparency, D-8. You see
22 a red X?

23 A Yes.

24 Q What piece of equipment is up there?

25 A That is in the tank car loading area, so I

1 interpret that would be a spill from the loading point.

2 Q On what basis do you interpret that?

3 A Gordon Steward told me that was the loading area
4 and that's where products were loaded and I think in
5 the record also indicates that somewhere that I've
6 read, so that's an area where product was handled that
7 could be spilled.

8 Q And I just have -- there's no sampling
9 points along here to know how extensive that is, is
10 there?

11 A That's right.

12 Q So based on just one sample in one spot
13 here you've made that conclusion?

14 A What conclusion?

15 Q That it's attributable to spillage of
16 loading tank cars?

17 A I said, that's correct. Like that is spillage
18 from a tank car operation.

19 Q You aren't applying any data for that
20 conclusion, you've just rely on that one X?

21 A I'm relying on the distribution of the Xs. The
22 fact they appear to be, doesn't mean where dioxin was
23 handled or processed or piped or pumped and that's one
24 of how many Xs. That seems to be consistent with that
25 interpretation.

1 Q Did you in doing this analysis make any
2 effort to find out dioxin contamination was out there
3 in the plant site and by how much, I'm not talking
4 about levels of concentration, I'm talking about pounds
5 of dioxin?

6 A I have not made an analysis of the weight or
7 mass of dioxin at the site and I haven't seen anybody's
8 calculations that do that.

9 Q So you would agree with me that even
10 though the red X shows a high level of concentratio,
11 the total amount of dioxin contamination could vary
12 from sampling point to sampling point?

13 A You mean the total weight in the vicinity of an
14 X?

15 Q Yes?

16 A Yes. The total weight of dioxin in the vicinity
17 of an X could be variable and most likely is variable.

18 Q Now, in referring your opinion in this
19 area, is it almost fair to say that you didn't consider
20 how far down the dioxin went?

21 A Well, I did consider how far down it went.
22 Since what happens I'm interested in answering one
23 question, where did it first enter the soil. I feel it
24 didn't first enter the soil 15 feet deep.

25 There were some places, like the sewer that it

1 might have been 2 or went in 2 or 3 feet deep or
2 however deep or around the sewers because those were
3 buried in the ground.

4 But generally speaking, the slabs were close to
5 the ground, so that I was interested in where it first
6 entered the surface, first entered the soil and that
7 that would not be at some depth.

8 Q But by the way did you think somewhat
9 extraordinary to find dioxin at a depth of 15 feet?

10 A No. I was a little bit surprised that it wasn't
11 deeper. But that's what the record shows, that the
12 deepest, I think the deepest sample found which soil
13 that is not groundwater, but soil had dioxin was about
14 15 feet.

15 Q And is it your testimony that finding
16 dioxin at level of 15 feet is consistent with
17 incidental spill?

18 A Well, I think it is over a long period of time.
19 It's just a matter of quantity that can add up in the
20 years that that plant was in operation.

21 Q How much dioxin would you have to spill,
22 in your expert opinion before, in order for the dioxin
23 to be found at 15 feet?

24 A Well, I'm sure the dioxin was contained in some
25 other fluid, had a trace quantity in a fluid, so it was

1 a fluid that was entering the ground at these contact
2 zones and a barrel of fluid could find it's way 15 feet
3 deep easily, but that site was covered primarily with
4 fill that was pretty pervious, would not take long for
5 something to permeate through that fill.

6 So I do not think it would be a very large
7 quantity of liquid that contained the dioxin to go 15
8 feet. That's why I made the statement earlier without
9 ever looking at the data I might have thought it be
10 more than 15 feet after looking at the profile.

11 MR. FALLS: Are you finish with chart?

12 Q You may resume your seet.

13 MR. FALLS: I wonder if this would be an
14 appropriate time to take a break.

15 THE COURT: Sure, we'll take a break for
16 about 10 minutes, now.

17

18 (Recess.)

19 A N T H O N Y J. W O L F S K I L L, resumes.

20 MR. KOEPFF: Mr. Bates is leaving for
21 Chicago, he asked me if there is no objection by
22 Mr. Falls, Mr. Bates wants to know if I would
23 defer to him to do his limited cross and I could
24 resume.

25 THE COURT: Sure, we can do that.

1 Q What I would like to do is ask you about
2 certain things to find out if they would be included
3 within your definition.

4 A All right. Let me rephrase the answer then to
5 the question on plant life.

6 Whether it's environmental damage or not would
7 depend upon what its risk to environment and public
8 health and its impact as regards regulatory acceptance
9 or not acceptance of the damage.

10 Basically depends in a a case by case decision
11 as to whether any kind of environmental impact is a
12 damage.

13 THE COURT: I suppose for the example
14 that, if you took something and sprayed it on
15 poison ivy with the intent to kill the poison
16 ivy and you did, that would not be environmental
17 damage?

18 THE WITNESS: That's correct.

19 THE COURT: If it didn't hurt --

20 THE WITNESS: That is environmental impact
21 but it's not environmental damage.

22 Q Let me ask you this. Would the killing of
23 fish be considered environmental damage as you use it
24 here in plaintiff's exhibit 610?

25 A As I use this in my exhibit, I'm talking about

1 environmental damage from CERCLA point of view. And
2 under CERCLA and through EPA's guideline document and
3 instruction and how to form endangerment assessment and
4 evaluate environmental damage there are certain
5 criteria and risk exposure, risk analysis, analyses
6 that are performed to decide whether any given
7 environmental impact, whatever it did, is a damage.

8 That's why I say, killing of fish for the purposes
9 of this conclusion I need to go through the CERCLA
10 definitions and procedures to be able to say whether
11 there would or this wouldn't.

12 Q Just so I'm clear, if CERCLA were to state
13 that damage to certain types of plant or damage to fish
14 would be environmental damage that that would be what
15 you consider to be environmental damage for purpose of
16 your conclusion, is that right?

17 A CERCLA would not say that, but CERCLA gives a
18 procedure whereby that is evaluated and in fact the
19 decision rests with EPA as to whether it is damaged, it
20 does not rest with the analyst.

21 Q Well, can you explain to me how in the
22 1950s and the 1960s in the absence of CERCLA Diamond
23 could have ever anticipated that anything would have
24 result in environmental damage as you used that word in
25 your conclusion?

1 A Well, there might have been some other
2 jurisdiction or some other entity that would have
3 declared a damage and responsible remediation. CERCLA
4 is not the only law that addresses that, but since
5 that's the one that has been applied at this site
6 that's the interpretation that I've given it.

7 Q So you have given your conclusions in
8 number one in an interpretation that did not exist in
9 the period 1951 to 1969, is that correct?

10 A Yeah. I think during that period of time that
11 not only did Diamond not believe there was a
12 jurisdiction that would require repair of an
13 environmental impact or pollution, using either word
14 they are the same, and the industry did not anticipate
15 that there would be a jurisdiction or a liability for
16 repairing pollution or environmental impact, that
17 therefore they didn't think there would be one.

18 Q Well, again under your definition then
19 you're using the word environmental damage in your
20 conclusions.

21 Would it also be a fair statement to say that
22 Diamond would not have anticipated that the intentional
23 escape of organic compounds into the soil or
24 groundwater would give rise to environmental damage in
25 the period 1951 to 1969?

1 A I think that would probably be right. I think
2 either one would have probably resulted in the same
3 action.

4 Q I also would like, if I could, to briefly
5 direct your attention as to what was marked during your
6 direct examination as plaintiff's exhibit 612 which is
7 the figure 3 from your report which has various
8 triangles, circles and Xs for various percentages of
9 dioxin on the soil.

10 Do you recall that exhibit?

11 A Yes.

12 Q And if I had understood your direct
13 testimony and your report correctly, you identified a
14 number of causes for the dioxin to have been found in
15 varying degrees of concentration around the plant site,
16 correct?

17 A Did you say I determined a number of causes?

18 Q There were number of causes for the dioxin
19 to have been released and discovered in these various
20 locations, is that correct?

21 A I believe there are number of causes that caused
22 both the release and the migration of dioxin at the
23 site.

24 Q Just if I could, I tried to make a little
25 list, I just want to make sure I have got at the amount

1 of them as we can specifically identify.

2 Was one of them one of them would have been the
3 plant explosion in 1960?

4 A Yes.

5 Q Would another one have been the removal of
6 debris from the plant site following that explosion?

7 A Yes. And in addition, there are other salvage
8 materials taken off that site that had nothing to do
9 with the explosion, renovation of equipment. So there
10 was other equipment taken off that site.

11 Q You're talking about equipment, process
12 equipment in the 2,4,5-T process for example that would
13 have been removed maybe at some time prior to the
14 explosion in 1960 and at other times after the
15 explosion?

16 A That's right. Any equipment leaving that site,
17 there was a good percentage of it out there I believe
18 was contaminated with dioxin. Any that left the site
19 would have transported the dioxin with it.

20 Q So the removal of process equipment at any
21 point in time could well have caused dioxin to be
22 released at any one of these places on this exhibit?

23 A Well, I was referring primarily to off-site.
24 Just take the equipment off-site.

25 There is a possibility that something might have

1 dripped off the truck or something before it got to the
2 gate but that's a pretty small site. But I was really
3 referring to -- that's primarily an off-site migration
4 mechanism or transport mechanism of salvage equipment
5 taken off site.

6 Q So in other words, removal of the
7 equipment would be a more likely cause of contamination
8 to have gone off-site, is that right?

9 A Well, it's likely a mechanism. I do not think
10 that that transported the most dioxin off the site in
11 case that's what you meant.

12 But it is, was a likely transport mechanism for
13 dioxin off the site.

14 Q As I understand your testimony as well, we
15 talk or you talked a little bit about air discharges
16 during some of the process where concentration was a
17 by-product, like the anisole still for example or some
18 of those other processes?

19 A I don't believe I discussed air releases along
20 with some liquid by-product.

21 Q Let me ask you your opinion.

22 Would, could for example, from some of the
23 scrubbers, for example, caused dioxin to have dioxin to
24 have been released in the plant environment?

25 A Yes. I believe dioxin probably managed to get

1 through some ever those scrubbers and get released.

2 I say that because the permit that they got
3 permitted release of certain amount of 2,4,5-T and if
4 it in fact was released it would have taken dioxin with
5 it.

6 Q So in other words, if we had a scrubber
7 somewhere here, say in the process building, releases
8 into the atmosphere through the scrubber could well be
9 the cause of dioxin to be found in the location of the
10 process building, right?

11 A Well, not in these data, at least the data that
12 are in the building.

13 As you just said because those are under floor
14 slabs. So that an air transport mechanism is not going
15 to deposit dioxin under the floor slab.

16 Q Let's -- maybe just outside one of the
17 buildings then?

18 A It might if it's just outside the floor slab.

19 Q That could be a a cause of dioxin being
20 found just outside the building?

21 A Yes.

22 Q We also I think had, you described for us
23 once dioxin particles were found outside a building,
24 say in a location here on the left corner of exhibit
25 612, some of that dioxin could possibly move from one

1 location at the site to another by wind or air
2 movement. Is that right?

3 A That's right. And I think it would generally be
4 removed in a less concentrated form. It would start
5 getting diluted with something.

6 I mean that was one of my premises that when I
7 was interested in the Xs, the Xs have not been diluted
8 much with anything and therefore where they're found
9 that must have been an early deposit point, not much of
10 a migration point.

11 Q In other words, again if I could just
12 summarize quickly.

13 One additional cause of dioxin being found at a
14 particular location on the site would be this air
15 movement or wind movement of small particles?

16 A Right.

17 And I think over the lifetime of that site
18 that's a significant migration mechanism. I mean, it's
19 more than just from scrubbers or vents, because blowing
20 dust and material off the buildings, you know could
21 always be transporting dioxin.

22 So wind blown dioxin in the past I think has
23 been significant migration mechanism for both on and
24 off-site.

25 Q And wind blown particles of dioxin could

1 explain why we find some quantities of dioxin somewhat
2 far removed from the process building?

3 A That's one explanation, one possible
4 explanation.

5 Q It's one possible cause of it being found
6 here?

7 A Yes.

8 Q If I also recall your testimony, I may
9 well be thinking of Mr. Steward's testimony or Mr.
10 Kennedy's testimony when you were here, but there was
11 also some dioxin perhaps being picked up on the shoes
12 of workers as they moved around the plant in their
13 day-to-day business. You have to say yes or no.

14 A I would expect that to occur, yes.

15 Q And again, the movement of particles of
16 dioxin on the shoes of various plant employees could
17 well explain why again you could find dioxin somewhat
18 far removed from the process equipment?

19 A I don't think it's possible that that mechanism
20 would explain an X, just because of the volume of
21 contaminated material that it would likely take for it
22 to show up in one of our samples that we took.

23 So it's, that's probably not enough material --
24 that might cause a triangle or dot on that chart but it
25 would be very unusual if it caused an X.

1 Q And as I understand your testimony as
2 well, we would have or could have rain water, again
3 that would fall on to dioxin that was located in one
4 part of the plant and that rain water then, as it moved
5 along the surface of the ground could cause dioxin to
6 move from one location to another?

7 A Yes. I believe that's a major migration
8 mechanism.

9 Q As I understand your testimony earlier as
10 well, you state that you found some fairly high levels
11 of dioxin in the areas of some of the sewers, is that
12 correct?

13 A Yes. There was one location there just east of
14 the acid building where that X is, that's an X, that's
15 a sewer location.

16 Q Your explanation for the high quantities
17 there was because of leaks from the sewer or materials
18 being spilled, as it was attempting to get into the
19 sewer or both?

20 A That's not a leak where it enters the sewer. My
21 interpretation is, is that could have been caused by a
22 leak from the sewer, that's a very common occurrence at
23 other plants.

24 Q So sewer leaks could be another
25 explanation for, which would have caused dioxin to be

1 located in the areas of that sewer?

2 A If my recollection where that X of S is that's
3 deeper than zero to 12 inches, it's down 2 or 3 -- no,
4 it's the one in the, out in the street there. That
5 one.

6 I believe that sample is down at the level of
7 the sewer. It's not zero to 12 inches, if my
8 recollection --

9 Q Your understanding is that the most likely
10 cause for the large quantities of dioxin to be located
11 there would be leaks from the sewer?

12 A Yes. That particular place, that's one of the
13 few places that I thought I found out what actually
14 happened at that place.

15 Q Now, you also testified or it may have
16 been in your report, you used the word flooding?

17 A Yes.

18 Q A mechanism to move dioxin from one
19 location on the plant site to another?

20 A Yes.

21 Q Was there a specific -- did you have a
22 particular flooding in mind? In other words, a
23 particular point in time when there was heavy rainfall
24 where a flood would have caused such movement?

25 A Well, I have have read in the record somewhere

1 there was a flood in which the Passaic River rose high
2 enough to inundate the plant, I don't know how much
3 inches deep the plant was flooded.

4 The plant elevation is below the hundred year
5 flood plane.

6 Q So that, so as a result of flooding as you
7 understood it from reading the records took place
8 sometime in the period 1951 to '69?

9 A Yes, I think there was one flooding event that
10 showed up in one of the depositions or some record that
11 I remember reviewing, indicated there had been a flood
12 there that flooded the site.

13 Q Is it your testimony then that that
14 flooding could well have caused dioxin to move from one
15 location on the plant to another?

16 A Yes, I believe it would.

17 Q I believe you also testified this dioxin
18 could have been released in the various area in the
19 plant site by wash downs of equipment?

20 A Yes. Whatever, you know activity that would
21 cause some liquid that had dioxin I think to hit the
22 floor or hit the ground if there's no floor under that
23 object.

24 Q Were you limiting yourself to the once a
25 year 2 or 3 week maintenance down time period when

1 those wash downs were done?

2 A No. I think it's the sum of whatever activities
3 like that took place over that whole period of time.

4 There are numerous reference in the record to
5 hosing down something, cleaning the floor, I'm sure
6 that occurred regularly, maybe daily. I don't remember
7 frequency but I can imagine that that kind of event
8 would occur frequently.

9 Q Each one of those wash downs in your
10 opinion could have been a cause for dioxin to be
11 released into the environment or move around and
12 migrate around the plant?

13 A Well, I think each of ever those events would
14 charge the floor with liquid if there is, was any
15 opportunity for leak which had to seep out, that's when
16 it would occur.

17 Q In other words, each one of these wash
18 downs would have caused liquid material to fall on to
19 the floor and possibly seep into the soil?

20 A Yes.

21 Q I believe you also identified sumps or
22 pits as a possible sources for dioxin contamination at
23 the plant site?

24 A There are the same idea, they're just differnt
25 shape but it's the same idea that concrete box in the

1 case of sumps is supposed to hold liquid.

2 My general experience is that they generally
3 leak a little bit and so, these could have been a
4 possible entry into the soil.

5 Q So releases or discharges from the sumps
6 could well have caused dioxin to be released into the
7 environment at the plant?

8 A I believe so.

9 Q Now, you also and I think this was
10 identified specifically on your conclusion, you talked
11 about both leaks and spills. Is that right?

12 A Which conclusion are we talking about?

13 Q Well, I think a couple of them.
14 Specifically they're on conclusion No. 2 that you talk
15 about numerous small incidental leaks and spills?

16 A Yes.

17 Q And just for purpose of clarification,
18 when you are talking about numerous small leaks and
19 spills, you were present when Mr. Kennedy was
20 testifying to the number of valves and pumps and pipes
21 and whatever at the plant, right?

22 A Yes.

23 Q And by numerous at least as you used them,
24 used that word here on your conclusions, would you be
25 referring to, shall we say, many leaks and spills over

1 the course of the 1951 to 1969 period?

2 A Yes. And in that conclusion the leaks and
3 spills are those that came from the feature that was in
4 contact with the soil. And in most cases that was the
5 concrete slab.

6 The slab itself was charged with other leaks,
7 spills, wash downs, et cetera that permitted
8 contaminated liquid to be on the floor slab.

9 Q Based on your experience as you've
10 described it earlier in various plant and facilities,
11 leaks and spills happen fairly regularly, is that
12 right?

13 A Yes.

14 Q So when we're talking about numerous leaks
15 and spills we're talking about, say as many as 100 over
16 the course of a year in a plant as big as this one?

17 A This plant had hundreds of connections and pipes
18 and pumps, and I could easily imagine 100 events a
19 year.

20 Q Would it be -- strike that.

21 MR. BATES: I have nothing further.

22 THE COURT: You have nothing further then
23 Mr. Bates. Fine.

24 MR. BATES: I appreciate you letting me
25 go out of turn.

1 THE COURT: When are you going come back

2 MR. BATES: Unfortunately I have a long
3 scheduled video tape deposition in New York City
4 that I could not change. I'm not going home
5 yet.

6 THE COURT: You will be back next week.

7 MR. BATES: Yes.

8 THE COURT: Fine. Mr. Koepff, let's go
9 back to you.

10 CROSS-EXAMINATION CONTINUING BY MR. KOEPFF:

11 Q Mr. Wolkskill, I forgot to ask a few
12 questions about your background this morning.

13 Did you testify that you were professor at MIT?

14 A Yes.

15 Q Are you still a professor?

16 A No.

17 Q During what period of time were you
18 professor at MIT?

19 A When I was at MIT I had several functions. The
20 first three years, which would be '63, '64, '65, I was
21 an assistant professor of civil engineering in the soil
22 mechanics group.

23 The next, I think three years I was a fulltime
24 research associate, not a professor, but on the
25 research staff working with the professors.

1 Actually after 1969, when I indicated that I
2 worked with Lambe Associates I was still a part-time
3 research associate at MIT.

4 When I left to come to Woodward-Clyde in
5 Houston, I terminated my employment with MIT as well as
6 those companies.

7 Q I don't want to quibble but I just want to
8 make sure.

9 You were never professor but you were always an
10 assistant professor?

11 A That's right.

12 Q And you ceased being an assistant
13 professor when?

14 A After three years which would be, I guess, three
15 years from September '63.

16 Q Sorry about, let's get back to, pick up on
17 some of Mr. Bates' questions.

18 I noticed in your report and in your testimony
19 and in the summary that we have here, you used the word
20 accidental in front of the word leaks and spills.

21 Do you see that?

22 A Which one?

23 Q I think that's conclusion two you have
24 there. Results of numerous small accidental leaks and
25 spills?

1 A Yes.

2 Q Now, I believe you may recall at your
3 deposition I asked you a number of questions about the
4 use of the word accidental. And in your view would it
5 be -- would it be an accidental leak or spill if one of
6 those numerous leaks was allowed to continue leaking
7 for a period of time?

8 A Well,, I think it may have been accidental when
9 it was generated. Sounds like an accident that
10 somebody hasn't turned it offer if they have the
11 ability to turn it off.

12 Q What don't we look at your deposition
13 answer, page 158.

14 Question was, in your view -- do you have it in
15 front of you? Page 158 Mr. Falls, line 2.

16 Doctor Wolfskill was, in your view would it have
17 been an accidental leak or spill if one of those
18 numerous leaks was allowed to continue leaking for a
19 period of time?

20 And you gave the answer, yes.

21 Do you remember that question and that answer?

22 A Well, I don't remember it but I can read it.

23 Q Do you have any reason to dispute you gave
24 the answer?

25 A No.

1 Q Is that still your view today?

2 A Yes.

3 Q Now, would you consider it a leak
4 accidental if plant personnel saw the leak and the leak
5 continued to leak thereafter?

6 A Are you reading from the deposition?

7 Q Well, I can read from it, I am going to
8 first ask you the question?

9 A I'm sorry I didn't know you were asking me a
10 question. Would you --

11 Q I'm asking you the question, would you
12 consider it to be an accidental leak if plant personnel
13 saw the leak and the leak continued thereafter?

14 A Well, I think that's actually complicated. To
15 some extent it's accidental because they don't intend
16 that it leaked.

17 Why the person hasn't shut the thing off, if he
18 has the ability to shut it off or, you know, however,
19 this question is posed a little open-ended I don't know
20 why it's allowed to leak.

21 Certainly if it's a floor slab leak they can,
22 probably don't even know it's leaking and that
23 continues to leak unobserved.

24 If it's an observed leak and it leaks a day or
25 something I think the whole event is, it's still an

1 accident because the leak itself was an accident, the
2 causing agent was an accident.

3 Q If a leak is allowed to continue to leak
4 for a period of days would you agree at that point it's
5 no longer an accidental leak?

6 A Well, the initial leak was accidental.

7 Q That's not my question.

8 If it's permitted to leak for a period of days
9 would you agree at that point the leak is no longer
10 accidental?

11 A I don't understand the circumstances that, you
12 know, that would permit either shutting it off or not.
13 I think that depends on a case by case basis.

14 Q I'll try --

15 A I'll give you an example.

16 If the faucet is turned on and it's a matter of
17 turning the faucet off I think after awhile they should
18 turn the faucet off, there's no reason for this thing
19 to continue leaking because they have an easy ability
20 to shut this thing off.

21 There may be some leak they can't get to for a
22 while or they don't have the material in stock to
23 repair it. I don't know how many circumstances there
24 might be that would permit something to leak for a week
25 or maybe even more.

1 So I would generally conclude that it's still
2 part of the accidental leak. It's management of it
3 that depends on the circumstances.

4 Q Make my hypothetical a little easier.

5 Let's assume the plant has people who are in the
6 maintenance departments, they may even have a
7 maintenance engineer who went to college and has a
8 degree, just take that as one assumption.

9 Take as another assumption they have fair number
10 of people who can do repair work under his supervision
11 and take it as another assumption they have the
12 necessary parts around to make repairs.

13 Now, if they see a leak in the system and they
14 allow the leak to continue for a matter of days, would
15 you agree with me at that point it's no longer an
16 accidental leak?

17 A I think generally, yes depending on the
18 circumstances, again.

19 Q Now, would I be correct that with respect
20 to your chart with the Xs, circles and the triangles,
21 that there's no way that you personally can tell
22 whether or not one of these read Xs attributable to a
23 leak that occurred over a period of days or weeks, that
24 could have been repaired, like my hypothetical or is it
25 an accidental leak?

1 A That's right. I don't have any basis to make
2 that analysis.

3 Q So it could have been a non-accidental
4 leak or it could have been an accidental leak, correct?

5 A Well, I think you can tell from my earlier
6 response to your question about a long-term leak,
7 however term that is, is it accidental or not.

8 My general impression is, it's accidental
9 because of the kind of leak it is. So I find it hard
10 to, you know, make further distinctions about how it
11 relates to an X or one of those points on that chart.

12 Q What is your impression, by the way of how
13 well this plant was maintained? Did you consider it
14 sloppy plant or well maintained plant?

15 A I think it was neither, I don't think it was
16 either one of those two.

17 Q I'm sorry?

18 A I don't think it was at either extreme of those
19 two.

20 I think it was an old plant and it therefore
21 needed lots of maintenance, it got a lot of maintenance
22 but it needed a lot of maintenance.

23 Q It needed a lot of maintenance because
24 there were leaks, correct?

25 A Well, leaks is one thing the maintenance did,

1 right, but because of the leaks and things they needed
2 to repair and change, they had a pretty substantial
3 maintenance crew.

4 Q When you gave your expert report and your
5 testimony today about the term accidental, you knew
6 that was important for the outcome of this coverage
7 case, didn't you?

8 A Yes. I knew that from the charge that I had,
9 which I put here in the beginning of the report that
10 one of the charges was to assess the nature of the
11 leaks.

12 And you know what I found, there are leaks,
13 there are spills, there are discharges, there was whole
14 number of mechanisms that released pollutant into the
15 environment.

16 Q Well, isn't it fair to say you knew that
17 your conclusion that these had to be accidental leaks
18 was important to how well Diamond would do in this
19 case.

20 MR. FALLS: Objection as to form.

21 THE COURT: Read it back, please Mr.

22 Mastandrea.

23 (Last question is read.)

24 MR. FALLS: I object to the these, had to
25 be accidental.

1 THE COURT: Well, that's the point of the
2 question. The witness doesn't have to agree
3 with it but that's the question.

4 Answer it, if you will, please.

5 A Well, I do not really understand, you know what
6 it takes to win or lose a case.

7 I think that my part of the proceedings here are
8 to characterize one piece of it and it is to
9 characterize the type of emissions that came out of
10 this plant. And whether they are accidental as what we
11 were talking about here and No. 2, whether they are
12 intended as in number C, the word discharge, discharge
13 of effluent into the river, those were not accidental
14 discharges, those were planned discharges, that was the
15 system.

16 I mean categorizing all of those methods of how
17 dioxin got into the environment was part of this
18 assignment.

19 Q I'm glad you gave that testimony, sir
20 because I was wondering about that.

21 You used the term accidental for spills and
22 leaks. You didn't use the term accidental for the
23 discharge of effluent into the Passaic River, did you?

24 A That's correct.

25 Q That wasn't accidental, was it?

1 A Well, I think that effluent went into the river
2 two ways, one of them was a discharge, planned
3 discharge.

4 There were plenty of accidental releases
5 although to the river. I mean both occurred.

6 Q But we're dealing with the discharge of
7 effluents into the Passaic River as you described in C,
8 right?

9 A Yes.

10 Q That was not accidental, was it?

11 A The way I'm using the word discharge there and
12 the reason I, one reason I made the distinction between
13 A and C was the character of the emission. And as I've
14 indicated before what I think is accidental with C is
15 that it would, that the discharge would cause
16 environmental damage.

17 Q My question, the discharge of effluents
18 into the river was not accidental, you would agree with
19 me?

20 A Some of the effluent that went into the river
21 we're not accidental, the discharge, the release.

22 Q It was not accidental for the plant to be
23 discharging effluent into the river during the period
24 of time it was not hooked up to the Passaic sewer
25 system, correct?

1 A That's right. I don't want to leave it like
2 that because it's incomplete.

3 During that same period of time there were also
4 accidental releases to the river, rainfall, dust, any
5 number of other activities also. The release itself
6 was accidental so it was combined procedure.

7 Q Did you have any doubt in your mind that
8 the industrial waste and the other contaminants that
9 went into the river through the discharge of effluents
10 to the regular system was the overriding reason why
11 those contaminants were found in the river and these
12 other mechanisms are inconsequential in nature?

13 A I haven't been able to call that shot because I
14 think as many times as it rained at that site and took
15 particles out into the river that that was a large
16 process over 19 years of time.

17 I mean, a lot of gallonage per minute went over
18 the bulkhead any time that it would rain. So I'm not
19 sure I wouldn't know which one to guess was the
20 dominant activity that put dioxin in the river.

21 Q Well, how many gallons were flowing into
22 the river through the different outlets that the
23 system, that the plant had before it was hooked up to
24 the Passaic Valley Sewer system.

25 MR. FALLS: How many gallons of what?

1 Q Effluent, sir.

2 A Well, I haven't made an estimate of it, you
3 know, in gallons per day or whatever, but I've heard
4 descriptions of the release and such.

5 And considering that, the cooling water has
6 dioxin in it, that that's my assessment after reading
7 the record, that a large part of the flow, the part of
8 the flow that I think had dioxin in could very easily
9 be less than all the rain water that ran off the place
10 in 19 years.

11 Q I'm sorry I missed the last part.

12 A The part of dioxin that flowed out through a
13 pipe or a trench into the river, the fluid that had
14 that dioxin in it, I think that easily is less than all
15 the rain water that has washed over into that river and
16 actually it's not 18 years, but you know, all the way
17 until 1983 there was the opportunity for rain water to
18 wash sediment into the river. That's a very large
19 amount of water.

20 Q Now, the rain water that comes into the
21 river would be picking up dioxin where, sir, from the
22 soil?

23 A We're talking about rain water that falls on the
24 ground?

25 Q Yes. And we're, as I understand your

1 testimony, you're saying that rain water would pick up
2 dioxin and go into the river?

3 A Rain water would pick up particles. Dioxin
4 mainly was transported on a particle not in water, the
5 water is -- it's very insoluble in water.

6 But the small particles that would pass out with
7 rain water over 20 or 30 years time is a lot of flow.

8 But I'll stick with my first assessment, I'm not
9 sure which one is larger.

10 It is not obvious to me that one or the other
11 one is the, contributed the larger amounts of dioxin.

12 Q It's not obvious to you?

13 A It's not obvious to me which one of the
14 mechanisms contributed the larger amount of dioxin in
15 the river. Rainfall had 30 years or so to operate.

16 Q Now, what happens to dioxin on the surface
17 of soil when exposed to sunlight?

18 A Well, according to reference that I consulted in
19 which were cited in here, that dioxin and oil
20 solution --

21 Q No. I'm going to interrupt.

22 I'm asking about dioxin, the top of soil. I
23 don't want to know about soil solution, I want to know
24 what happens to dioxin exposed to sunlight when it's on
25 top of soil?

1 A Well, it has a very slow degradation rate in
2 soil.

3 Q On top of soil when exposed to sunlight?

4 A Well, the top, I don't know what you mean by the
5 top.

6 Q I mean on the top so when the sun shines
7 down, the sun shined directly on the soil with the
8 dioxin. I'm not talking about five inches under or 15
9 feet, I'm talking about the soil on the top.

10 MR. FALLS: Dioxin molecule which is
11 directly exposed to sunlight.

12 MR. KOEPFF: Yes. That's what I have been
13 trying to do. Sorry. End of the day, excuse
14 me.

15 A Well, I'm sure you understand that soil is made
16 up of a lot of small particles that are far less than a
17 millimeter under the surface of the soil, dioxin can be
18 in the shade. I mean that's the nature of an
19 assemblage of soil particles.

20 I don't think that dioxin -- that may have
21 spilled out, say from a surface spill and it's there on
22 the soil, I don't believe the sun degraded all of that
23 before the next time it rained, at all, you know from
24 the point of view of what was available to go to the
25 river.

1 Q Could I just have an answer to the
2 question I asked.

3 What happens when the sun shines directly on
4 dioxin that's on top of the soil? Does it
5 photodegrade?

6 A Slowly if it's already attached to the soil.

7 Q Slowly, is that your --

8 A Yes.

9 Q Are you able to express an opinion on
10 that, an expert opinion on that?

11 A Well, I give that opinion on the basis that
12 that's one subject that I studied in this report was
13 the persistence of dioxin in soil.

14 And this paper that's referred to there that
15 perhaps you've looked, it was one that I cited because
16 it talked about dioxin in several environments. It
17 basically said, the dioxin was adsorbed with the soil,
18 sunlight would not take it off rapidly.

19 It of course gave the conditions of in oil which
20 was quite different.

21 The feasibility study also had an effort that
22 was aimed in 1985 and '86 and the persistence of dioxin
23 in the soil. And that's the study that I reviewed.

24 And the toxicologist working there concluded
25 that the dioxin would be persistent in the soil.

1 Q I still want to come back. Doesn't dioxin
2 get to degradate when exposed exposed to direct
3 sunlight?

4 A If it's adsorbed on soil already, slowly.

5 Q Are you familiar with any studies, the
6 explosion of the plant at Servasto, Italy, the effect
7 of photo-degradation days of dioxin?

8 A Well, I've read the studies but I don't know
9 right now what the study has in it.

10 Q Would you dispute that those studies show
11 there was rapid degradation of dioxin following that
12 explosion?

13 A What's the definition of rapid?

14 Q Well, it has half-life, it has half-life,
15 half-life of one year?

16 A But the mechanism I'm talking about, it rains
17 every week. I mean I think there was an ample supply
18 of dioxin on the soil to be transported both by wind
19 and by rain water. And that degradation is not rapid
20 enough to remove that source before it could be
21 transported.

22 Q Now, you're still of the view that you
23 can't make a distinct between the effects of the dioxin
24 contamination and the sediment of the Passaic River
25 that went in through the plant effluent and other

1 outlets before the hookup to the sewer and what might
2 have gone in through rain water? You can't say which
3 is qualitatively or quantitatively much more important?

4 A I don't think which -- I don't know which one
5 put more dioxin in the river, that's right.

6 Q Doctor Wolfskill, are you able to give a
7 qualified -- are you qualified to give an opinion on
8 half-life of dioxin?

9 MR. FALLS: In what circumstances?

10 MR. KOEPFF: Any circumstance?

11 A Well, the answer for any circumstance would be,
12 no.

13 Q Let me turn your attention to page 142.

14 THE COURT: I think when Mr. Koepff said,
15 any circumstance he meant any one circumstance,
16 not, could you do it it for every one.

17 Are you being definite, because you're not
18 purporting to be able to give whole range of
19 half-life.

20 THE WITNESS: No. The distinction
21 I'm making is that if I were asked that question
22 I have resources to find out the answer and
23 satisfy myself that the answer I have is correct
24 or not.

25 But without utilizing my resources I

1 probably couldn't give the half-life on some
2 chemical compound without some research. I mean
3 that's the distinction.

4 THE COURT: You need to look at some text
5 I guess.

6 THE WITNESS: Well, plus I have
7 toxicologist that work for me and I need to find
8 out what they have to say on the matter and do a
9 fairly general research.

10 MR. KOEPFF: My questions is whether he
11 personally, not whether he can go to textbook
12 and read an article or he go to some one in
13 among the thousands of people.

14 THE COURT: I thought he might have
15 misunderstanding your question and he thought
16 you were asking whether he could give it under
17 all circumstances, when I think you were really
18 meaning to ask him could he give it under any
19 single circumstance.

20 Q I'll just turn to the deposition because I
21 think this might make it a little shorter.

22 Do you have it in front of you sir, page 142.

23 A Yes.

24 Q Line nine. If you don't mind, I'll, just
25 for fairness to you I'm going give you a few questions

1 and answers before so you get the context.

2 Do you make it a practice to follow the
3 literature? You asked me, of the half-life of dioxin?

4 I say, yeah. Your answer was, no.

5 So then I asked you this question. So I take it
6 you don't feel qualified to give an opinion on the
7 half-life of dioxin and you gave the answer, no.

8 Do you still stand by that answer?

9 A The answer that's in this?

10 Q Yes?

11 A Yes. And the interpretation that I had I think
12 at this time again was the same thing, without
13 researching, without the ability to consult I would not
14 be able to come up with a half-life of anything.

15 Q Now, in your report that the Judge has
16 admitted into evidence subject to motions to strike
17 that report, the May 87 ' one, you gave some opinions
18 on the persistency of dioxin in the soil, didn't you?

19 A That's correct. I did not give an opinion on
20 the half-life of dioxin.

21 Q Well, can you give an opinion on the
22 persistency of dioxin without knowing something about
23 the half-life?

24 A Yes. If half-life were a thousand years from
25 the context that we're talking about you don't need to

1 know the half a life of dioxin.

2 Q What is the half-life of dioxin, do you
3 know?

4 A Well, it depends upon what media it's in. It's
5 not -- from what reading and study that I have done on
6 the subject, it depends entirely upon the media that
7 it's in. And the range is very large.

8 Q Have you done any -- let me just ask
9 this. The opinion that you gave on the persistency of
10 dioxin that's in this May, 1987 report of yours, that's
11 just based on one article, is that not correct?

12 A That's not correct.

13 Did you hear my answer? That is not correct.
14 It's based on more than one article.

15 Q How many articles did you reference in
16 your report?

17 A Well, I referenced one article in the report.
18 But my basis for the opinion that the dioxin would be
19 persistent for number of years, I believe the language
20 that is in that report discusses it, says number of
21 years?

22 Doesn't give, I'm sure it doesn't say five or
23 ten or something like that. I think it says in terms
24 of years.

25 MR. SPIVAK: Page 7.

1 A It's expected that the dioxin present in the
2 soil at 80 Lister Avenue will persist for a substantial
3 period of years. And I gave that, my basis for that, I
4 have three bases.

5 Q I'm interested in the part of your opinion
6 and why don't we stay at page 143.

7 "QUESTION: You have given an opinion, haven't
8 you on the persistency of dioxin in the soil. You gave
9 this answer.

10 I gave an opinion of that based on a reference
11 which I noted as number three in here, which was a
12 journal reference that it was likely in this kind of
13 particular soil that dioxin would be very persistent
14 and referenced that in here.

15 Do you see that answer?

16 A I didn't see it but that's correct. That's one
17 of the basis for that opinion.

18 Q You didn't reference any other articles,
19 did you, besides that one?

20 A That's the only one I referenced in the report.

21 Q How many articles are there out there that
22 deal with the persistency or the biodegradation of
23 dioxin?

24 A My recollection is I looked at three but I'm not
25 sure how many there are out there. I don't know how

1 much is are out there.

2 Q You have looked at three articles, you
3 don't know how many are out there?

4 A Well, I suspect that nobody knows exactly how
5 many articles are in the literature that have to do
6 with persistency of dioxin.

7 Q Can't even estimate. Greater than 100?

8 A No, I can't can't.

9 Q You testified you don't even follow the
10 literature on the half-life of dioxin, isn't that
11 correct?

12 A That's correct. And that's not the basis for
13 this conclusion in the report.

14 Q But you hve to understand, Doctor
15 Wolfskill, I'm trying to, as you've heard I've been
16 challenging whether or not you are qualified as an
17 expert to testify in their area.

18 You're telling me that you don't even know the
19 literature out there other than three articles dealing
20 with bio-degradation of dioxin?

21 A Well, you haven't permitted me to give the basis
22 for my conclusion.

23 Q We're going to get to that, I just want
24 for find out whether or not you know how many articles
25 are out there?

1 A I don't know how many articles are on that
2 subject.

3 Q Have you attended any recent international
4 conferences on dioxin?

5 A No.

6 Q There was one a few months ago in Sweden,
7 did you hear about that?

8 A I may or may not have heard about it, but I did
9 not attend it.

10 Q Have you ever been involved in any -- do
11 you know the Times Beach site in Missouri?

12 A Our firm worked on that job. I also was on
13 that job but I had very marginal participation when the
14 job was going on.

15 I reviewed the record of the job after we
16 started this one, we did that job, our firm did that
17 job before we did this job.

18 Q So you're involved in both personally?

19 A Well, I said my involvement of the Times Beach
20 job was to review records and talk with our people that
21 had worked on the job when we started this job at 80
22 Lister.

23 Q And are you familiar with Times Beach at
24 all?

25 A I have general familiarity with it, yes.

1 Q That involves the spraying of dioxin in
2 contaminated oil, does it not?

3 A Yes. It may not be the only event that's out
4 there but that's the major event, putting oil on roads.

5 Q But it was contaminated with dioxin, was
6 it not?

7 A Yes.

8 Q For how long did they spray that oil, that
9 contaminated oil at the Times Beach site?

10 A I don't remember how many times they sprayed it.

11 Q Any doubt in your mind that was an
12 intentional spraying, it wasn't intentional leak, was
13 it? I mean accidental leak?

14 A I think that was discharge to the pavement or to
15 the --

16 Q It was intentional spraying, was it not?

17 A That's what I would think it is.

18 Q What are the levels of concentratio of
19 dioxin that have been found in the soil in the Times
20 Beach area?

21 A I don't remember the numbers.

22 Q How deep --

23 A I have reviewed the numbers because I worked on
24 a project to design a landfill to put those soils in,
25 so at one time when we were working on that project I

1 had numbers that came from that job. But I don't
2 recollect what they are now.

3 Q That's fair. You knew at one point but
4 today you don't recall.

5 How deep was the level of dioxin contamination
6 at Times Beach?

7 A I don't know -- you're talking about the road.
8 Times Beach is a town. Are you talking about the town?

9 Q Yes. I'm talking about the spraying of
10 the contaminated oil on the road in the Times Beach
11 area?

12 A In the area, including the rural roads?

13 Q Yes.

14 A According to, if I remember the rod, the first
15 rod that came out and they were anticipating excavating
16 several feet and in portions of that town.

17 Q Would you say several feet was 15 feet.

18 A What sticks in my mind is like 5 or so, but it's
19 been several years since I worked on that job so I
20 don't know how deep the excavation levels was going
21 took. It was big vault to hold a lot of dirt.

22 Q Would it be fair to say that excavation
23 was not contemplated to be for dioxin contamination
24 found at 15 feet?

25 A I don't remember any instances to 15 feet. They

1 had a different soil condition there.

2 Q Have you been, have you heard a site in
3 Hyde Park, New York, involvind dioxin contamination?

4 A Yes.

5 Q Are you involved in that?

6 A No.

7 Q Do you know anything about the dioxin
8 contamination problem there?

9 A Just what I have read publicly. I have not read
10 the reports from that project.

11 Q Apart from the Lister Avenue one and your
12 looking at some stuff in Times Beach, what other dioxin
13 contaminated projects have you been involved with?

14 A Those are it.

15 Q Lister Avenue is the one that you're
16 directly involved in, correct?

17 A Directly involved in the design of the structure
18 to hold the dioxin and reviewed the other project which
19 was the site investigation of where the dioxin was.

20 Q I misunderstood.

21 Your involvement with the Lister Avenue site is
22 to design a structure in which to contain things, is
23 that right?

24 A No. That's not correct. I'm talking about
25 Times Beach. I worked on a project for the Times Beach

1 dioxin problem to design a structure to put the soil
2 in, that was not acceptable so it wasn't built.

3 That was an assignment that I worked on in which
4 case we had information about the soils and the dioxin
5 contents and how to store it in the structure.

6 Our firm also had a job to investigate the
7 distribution of dioxin at Times Beach.

8 Q I am talking about you, not your firm?

9 A Well, I'm getting to together that part.

10 And so, the project manager for that job ended
11 up also as project manager for the 80 Lister Avenue
12 jobe for our portion.

13 Once we got the 80 Lister job I reviewed with
14 him the result of the Times Beach project.

15 Q Putting aside Times Beach and putting
16 aside 80 Lister Avenue, have you yourself had direct
17 involvement with any other dioxin contaminated project?

18 A No.

19 Q May be we should turn to different
20 chemical for a few minutes, Doctor Wolfskill.

21 I take from your review of the reports with
22 respect to the 80 Lister Avenue site, you're aware that
23 DDT was found in sampling at the site in the sediment
24 of the river?

25 A Yes.

1 Q Have you done any investigation at the
2 request of Diamond to determine whether or not the DDT
3 that was found at the plant site or in sediment of the
4 Passaic River result from any accidental events?

5 A I have not.

6 Q I take it you have no knowledge as to how
7 the DDT left the plant processes or vessels and got
8 into the ground?

9 A Well, what I have found from this study of
10 this project is that there were releases, leaks,
11 spills, discharges of probably all of those chemicals,
12 somewhere to the environment. In the early days, too
13 that would have included DDT and whatever else that
14 they had around there.

15 So those were mechanisms that did show up in the
16 study.

17 Q Now, would you -- were you here when Mr.
18 Kennedy testified, I believe it was yesterday toward
19 the end of the day when Mr. Pierce examined him and Mr.
20 Kennedy?

21 A Yes, I was here yesterday.

22 Q Mr. Kennedy testified about the wash
23 process with respect to DDT and how it was most likely
24 that that had a rinse that went into the river during
25 the period before the plant was hooked up to the sewer.

1 Do you remember that testimony?

2 A Well, I do not remember it exactly as to what
3 was hooked up to what.

4 Q Do you have any understanding at all of
5 how the DDT processes were worked at the plant?

6 A Not the process chemistry and machinery, no.

7 Q Do you know what differet steps happened
8 at the plant in making DDT?

9 A Well, I have reviewed that briefly, I've been
10 more interested in the dioxin and I have looked at
11 other processes marginally but I don't know how DDT was
12 made in that plant and each process that's involved in
13 it.

14 Q Were you asked by Diamond to investigate
15 how the DDT got into the sediment in the Passaic River?

16 A Well, the scope of that project was for
17 investigation of how organic compounds got into the
18 environment and so to the extent that that's one of
19 them, that's part of the general study and the general
20 conclusions.

21 Q Now, is it your testimony that the DDT
22 that got into the Passaic River sediment got in there
23 through rain water or did it get in there through some
24 planned events, such as through the effluent disposal
25 system?

1 A I didn't separate DDT to find out exactly how I
2 thought that one got into the river, which I think that
3 was your question, the river.

4 Q Yeah.

5 A I didn't distinguish between that one and any of
6 the general process in that building.

7 Q Now, when you did your analysis with the
8 samples, the bias sampling system, remember we went
9 over that testimony. Say yes?

10 A Yes.

11 Q Did you have you any samples -- nodding
12 helps me and everybody else, but someone would who
13 read the record may wonder what happened.

14 Did you do any analysis of the samples of DDT to
15 come up with whether the DDT that was found on the site
16 came about from that -- came about from series of
17 small accidental leaks and spills?

18 A No. Dioxin was the only chemical that I made
19 that analysis for.

20 Q So that analysis is wholly inapplicable to
21 how the DDT got on the plant site, correct?

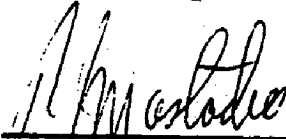
22 A Well, the data in that analysis are not
23 applicable. It maybe the same processes but the data
24 that come from that analysis doesn't apply to the other
25 chemicals.

1 literally. I'll say five minutes. I'll do that
2 but I can start at 8:30 if everybody is here. I
3 may have to interrupt for a few minutes at nine
4 and get back and let's try to get Doctor
5 Wolfskill out and get back with Mr. Backer.

6 MR. MOSER: Thank you.

7 (Trial adjourned to 8:30 a.m. Thursday,
8 September 29, 1988.)

9
10
11
12 I HEREBY CERTIFY that the foregoing is
13 true and accurate transcript in the above
14 entitled matter.

15
16 

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