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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
Vs.	)	No. 78 C 1004
	)	
OUTBOARD MARINE CORPORATION and MONSANTO COMPANY,	)	
	)	
Defendants.	)	

The deposition of RUSSELL W. COOK, JR., called by the Defendant, OUTBOARD MARINE CORPORATION, pursuant to Notice and Agreement of the parties and pursuant to the Federal Rules of Civil Procedure, taken before Thea L. Urban, CSR/RPR, a Notary Public in and for the County of Cook, State of Illinois, on Tuesday, June 8, 1982, at the hour of 12:00 o'clock a.m., at the office of the United States Attorney, Room 1486, 219 South Dearborn Street, Chicago, Illinois 60604.

PRESENT:

MR. JAMES WHITE,
Assistant United States Attorney
United States Attorney's Office
219 South Dearborn Street, 15th Floor
Chicago, Illinois 60604;

16-5V28.0/079

PRESENT: (Continued)

MR. SEBASTIAN T. PATTI
Enforcement Division
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604,

On behalf of the United States of America;

MS. ROSEANN OLIVER
(Phelan, Pope & John, Ltd.
30 North LaSalle Street
Chicago, Illinois 60602)

-and-

MS. CAROL DORGE
(Martin, Craig, Chester & Sonnenschein
115 South LaSalle Street
Chicago, Illinois 60603)

On behalf of Outboard Marine Corporation;

MR. JAMES H. SCHINK
(Kirkland & Ellis
200 East Randolph Drive
Chicago, Illinois 60611)

On behalf of Monsanto Company.

* * * * * * * *

I N D E X

WITNESS:	PAGE
RUSSELL W. COOK, JR.	
Direct Examination by Ms. Oliver	4
Direct Examination (Resumed) by Ms. Oliver	80

* * * * *

E X H I B I T S

COOK-OMC DEPOSITION EXHIBIT NO.	MARKED
1	25
2	64
3	68
4	68
5	69

* * * * *

Q Mr. Cook, have you been with Mason and Hanger since 1950?

A Yes, ma'am.

Q And you are presently employed by Mason and Hanger?

A Yes, ma'am.

Q You are presently the Manager of Engineering for the Lexington, Kentucky Engineering Office, is that correct?

A Yes, ma'am.

Q What are your responsibilities as Manager of Engineering?

A Any engineering function that comes in or out of that office must receive my concurrence.

Q Are there other engineering offices of Mason and Hanger other than in Lexington, Kentucky?

A Are there?

Q Yes.

A Yes, ma'am.

Q Where are they?

A There is one in New York City, engineering offices per se. The operating plants have engineering offices in each of the operating plants.

RUSSELL W. COOK, JR.,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. OLIVER:

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

A Russell William Cook, Jr.

Q You are employed by Mason and Hanger - Silas Mason Co., Inc.?

A Yes, ma'am.

Q You have been tendered as a witness for the United States Government?

A Yes, ma'am.

Q In this litigation?

A I said yes, ma'am.

Q Why don't you wait until I am finished with the question.

A I thought you were finished.

MS. OLIVER: Let the record show this is the deposition of Mr. Russell W. Cook, taken pursuant to notice and agreement of the parties and Federal Rules of Civil Procedure.

Q Is the Lexington, Kentucky office what you would call headquarters or main office of engineering?

A Yes, ma'am.

Q Were you involved, Mr. Cook, in preparation of a report or several reports involving the Waukegan Harbor Outboard Marine property?

A Yes.

Q Relating to PCBs?

A Yes, ma'am.

Q When did you become involved in those projects?

A Late 1979, in December, I believe.

Q How many people from Mason and Hanger have worked on what we could call the Waukegan Harbor project?

A Twenty, twenty-five, thirty at different times; not all at once.

Q Are there presently any projects going on with the USEPA relating to Waukegan Harbor?

A No, ma'am.

Q When did you conclude your work for the USEPA relating to Waukegan Harbor or the North Ditch?

A I think I have to clarify what you mean by

conclude.

Q You told me that you are not presently doing any work, is that right?

A Yes.

Q When was the last time you did any work for the USEPA relating to Waukegan Harbor?

A Would this include answering questions relative to the report, things of this nature?

Q Yes.

A I would expect six weeks, a month ago -- no, it was before, when we came up here to speak to Mr. White April 12. It was that time.

We told them and since then, no more discussions. I think I wrote that down.

MR. WHITE: April 12 is the date.

BY MS. OLIVER:

Q April 12 you had a meeting with Mr. White --

A Yes.

Q -- and discussed your reports, is that correct?

A No, we discussed me being the witness.

Q You prepared for your deposition?

A Yes.

Q Before April 12 what was the last involvement or work you did relating to this project?

A That is very difficult to say because EPA would call the project engineer on this job now and ask him various questions. We have actually done no design for several months; as a matter of fact, hardly at all this year, but we have answered questions relative to clarifications or items in the Report.

Q When was the last time you did any design work relating to this project?

A I believe it was September the 4th when we sent them a final cost estimate for one of the design projects.

Q September 4, 1982?

A '81.

Q '81, yes.

Did you bring copies with you, Mr. Cook, of the reports of projects that you worked on for the EPA relating to Waukegan Harbor?

A I brought with me, my final copy of the Engineering Study dated January 1981; the Appendix to the Engineering Study dated January, 1981; the First Addendum dated May, 1981; the Second Addendum

dated March, 1982; a document labeled Whole Harbor Dredging. It is a cost estimate, dated July 10, 1981; a Cost Estimate dated March 17, '81 for Lagoon Treatment Facility; a Cost Estimate dated July 1, '81 for Laggon Treatment Facility; a Cost Estimate dated September 4, '81 for Dredging and Water Treatment for the Removal of PCBs in Waukegan Harbor; a Volatilization Literature Review, dated May, 1981.

Q All of these documents that you have just listed for us were prepared by Mason and Hanger?

A Yes.

Q Were there any reports or proposals or studies or recommendations made by Mason and Hanger that you didn't bring with you today?

A These were preceded by some preliminaries that I did not bring, the report was.

MR. WHITE: Those have all been turned over to the Defense.

BY MS. OLIVER:

Q You mentioned the Second Addendum to the Final Report dated March, 1982. Did you do any work to prepare that Second Addendum?

A Yes, ma'am. We have to.

Q What work was done for the preparation of that Second Addendum?

A An analysis of some additional borings.

Q Anything else?

A It was the nalysis of borings and how they would change what was initially published in the January '81 Report.

Q In preparing the Second Addendum, you reviewed the additional borings information?

A Yes, ma'am.

Q Is that all you reviewed? That is my question.

A And the result that those borings had on the report.

Q Do you have a title, Mr. Cook, with respect to this project?

A With respect to this project, no, ma'am.

Q What is your responsibility with respect to this project?

A As I previously stated, my function, when a project comes into the office, I assist in dealing with a client to design the scope of work, the costs

for preparing it, the time interval and then the assignment of the proper people to complete the tests.

During the course of its preparation, I review what is being prepared, introduce my comments and when it goes out, I am the one who issues it so that Mason and Hanger Company is bound by what is issued.

Q So you reviewed each of those reports in front of you that you have listed for us and approved them all?

A Yes.

Q For sending out to the clients?

A Yes.

Q Was there a project officer assigned to this work?

A A project manager.

Q Who was that?

A Dr. Harry Sterling.

Q Is he no longer with Mason and Hanger?

A That's true.

Q When did he leave Mason and Hanger?

A January, '81.

Q Was another project manager assigned?

A Yes, ma'am.

Q Who was that?

A Marion F. Lail, L-a-i-l.

Q Who is the project officer today?

A Marion Lail.

MS. OLIVER: Off the record.

(Brief discussion had off the record.)

BY MS. OLIVER:

Q Are Dr. Sterling and Mr. Lail the only two project managers that worked on that project?

A Those people with that title, yes, ma'am.

Q What was the responsibility of the project managers?

A I could go on for probably half an hour's dissertation on that but it was primarily to complete the task within the scope of the work was defined, to insure that the task was completed within the scope of the work as defined.

Q Did they prepare reports?

A They?

Q The project managers.

A No. These reports were partially prepared by them.

Q Let us take a minute.

The final report in January of 1981, who prepared that report?

A Many people.

Q Who?

A Myself, Louis L. Snedden, Vice President of Engineering had an input to it in context and review; Dr. John Nordin, Romulus E. Payne -- the E. I'm not so sure of, Payne, P-a-y-n-e; Frank Hunt.

Those are the primary people that did the writing and preparation. Other people prepared estimates and things of that nature.

Q How did you become involved in this project in late 1979?

A At that time Mason and Hanger managed EERU in Edison, New Jersey: Emergency Environmental Response Unit. Mr. Maurice Sproul was the Manager of that office.

That office responded to hazardous spills throughout the United States for EPA.

Mr. Sproul was asked to review a design by

Greeley & Hansen, here in Chicago, for what was called a North Ditch Bypass.

Mr. Sproul asked my engineering office for assistance in review and discussions of the proposal method of construction. I sent Dr. Sterling, Hal; I believe that was all, to a meeting here in Chicago to review or discuss with the contractors and the designer, Greeley & Hansen, this project. That was my first introduction to it.

Q Mason and Hanger was involved prior to December of 1979 in responding to hazardous spills throughout the United States?

A The Emergency Environmental Response Unit, Edison, New Jersey was, yes, ma'am.

Q How big was that unit in New Jersey that was managed by Mr. Sproul? How many people were in this unit?

A I honestly cannot name the number. I am guessing it's somewhere between 20, 30 people.

Q When the EPA would contact this unit, the unit would go about cleaning up the spills?

A Yes, ma'am.

Q Were you in any type of supervisory capacity

with respect to the operation of that unit?

A No, ma'am.

Q Do you know what various spills were cleaned up?

A There are some listed in the report. Do you want me to cite the page?

Q Yes. You are referring to the final report?

A Yes, January '81.

Q When we talk about the reports for the record, we should talk about the dates for the record so we can keep them all straight.

A Page 4.

One was Cleanup of PCB spill in Washington State, the Duwamish River; Hudson River Cleanup for PCBs in New York; James River Cleanup of Kepone. I am not sure on that Hudson River one.

Those are basically two that are of sizeable order here. There were many others that I don't know of. I couldn't recite how many others there were.

Q Is it your testimony that the Emergency Environment Response Unit in Edison, New Jersey was responsible for projects in the Duwamish River Cleanup of PCBs in Washington State?

A Mr. Sproul's crew went out there, yes, ma'am.

Q And the Hudson River Cleanup?

A I cannot say. I don't think he was but I'm not sure.

Q How about the James River Cleanup?

A Of Kepone, yes, ma'am.

Q Was the unit involved in any cleanup of PCBs in harbors in Japan that are mentioned here?

A No, ma'am, not to my knowledge.

Q Was Mr. Sproul involved in this project in Waukegan Harbor?

A Mr. Sproul came to the Lexington Engineering Office, first of July, 1981 and from then until April 12, we had discussions with him on techniques.

As far as actually him involved in the design, no, ma'am.

Q He was not involved in the final preparation of the report?

A No, ma'am. The January Report?

Q Yes, January of 1981.

A Okay.

Q Were any members of the Emergency Environmental

Response Unit from Edison, New Jersey that worked on these projects that you mentioned involved in the planning or design or --

A No, ma'am.

Q -- or reporting of the projects in Waukegan Harbor?

A No, ma'am.

Q You mentioned a Mr. Al Pope?

A Hal Pope.

Q Who is he?

A One of my civil engineers.

Q You didn't mention Mr. Pope in listing the people who contributed to the Final Report.

A He didn't.

Q What was his role, if any, in the project?

A Very little. We may have asked him to prepare some estimates or review some estimates but as far as him preparing the test and the intent of the report, he had very little to do with it.

Q When Mr. Sproul was asked to review the North Ditch Bypass Plans, did he contact you?

A Mr. Sproul's initial indoctrination was that he would be the office that would issue the construction,

request for construction. He would be the contracting officer to see that construction was built in accordance with the plan prepared by Greeley & Hansen. So the construction and contract had been paid for out of the contract with EERU.

Then Mr. Sproul asked us to review the plans, help him review the contract, review the plans for accuracy and things like this.

Q So Mr. Sproul contacted you?

A Yes, ma'am.

Q Did he give you an opinion, his opinion on the plans?

A No, ma'am.

Q Did you give him your opinions on the plans?

A Greeley & Hansen? No, ma'am, we didn't. We gave an opinion on some other things, though.

Q You sent Dr. Sterling and Mr. Pope to a meeting with Greeley & Hansen?

A Greeley & Hansen, EPA here in Chicago. I don't remember --

Q Was that early 1980?

A Yes, ma'am. It could have been in January of '81, too -- I mean December '79, too. I do not

have the exact date before me.

Q The purpose of that meeting was to discuss the Greeley & Hansen --

A Selection of a contractor to implement Greeley & Hansen's design.

Q What was Mason & Hanger's recommendation at that meeting?

A We recommended that they take some additional borings to see if there was any contamination in the rough plan by Greeley & Hansen.

We recommended if there was any contamination, that there be a section of the specifications written so that people that might be exposed to it would have a plan on which to clean up their equipment.

We discussed the possibility of contaminated materials being removed and someplace to put them.

Q Before you sent Mr. Pope and Dr. Sterling to the meeting, did you discuss the Greeley & Hansen design with them?

A No.

Q Did you see the Greeley & Hansen design?

A No.

Q You did not see it personally?

A I saw it subsequently, yes, ma'am.

Q When Mr. Pope and Dr. Sterling had gone to this meeting, what information did they have?

A None. They took none with them. They saw them when they were there.

Q Whose recommendation was it to make additional borings?

A The individual, I cannot say. I don't know specifically which individual it was.

Q Was it Dr. Sterling and Mr. Pope?

A I don't know.

Q Was it somebody from Mason and Hanger?

A Yes, ma'am.

Q Do you know what information was made available to Messrs. Sterling and Pope at the meeting?

A A set of drawings and specifications.

Q Do you know of any other information available to them?

A At that time, that is all I know of.

Q Who recommended removal?

A I don't have the slightest idea. The design

that was entered into with Greeley and Hansen by I believe EPA, we at Mason and Hanger had nothing to do with selecting Greeley & Hansen for a design or telling Greeley & Hansen what to design.

Q I thought you told me a couple of minutes ago that Mason and Hanger made recommendation to remove --

A No, ma'am.

Q What was Mason and Hanger's involvement after this meeting?

A It took some borings and found there was contamination.

Q Who took borings?

A I believe Mr. Sproul contracted for these and asked a representative of the EPA; found contamination and had stopped at that point, the Greeley & Hansen North Ditch Bypass implementation.

Q What was Mason and Hanger's next involvement with the Waukegan Harbor and the North Ditch Harbor Projects?

A It kind of lay dormant until the middle of '80 and then we gave EPA a proposal to prepare this study.

Q Do you know if the EERU unit was doing anything relating to Waukegan Harbor and the North Ditch up to the time you made your --

A To the best of my knowledge, after we made the borings and after they found there was contamination in there, they weren't involved anymore in that Greeley & Hansen implementation.

Q After the Greeley & Hansen project stopped, was the EERU unit involved at all in the project?

A Our contract, subsequent contract for the study came to EERU.

Q Other than coming through EERU, did they do any work on the project? Did the unit do any work other than being their liaison, so to speak, between EPA and your office?

A Not to my knowledge. When you say work, I don't know what you mean by work.

Q Any study, any design, any recommendations, any reports?

A No, ma'am.

Q Who suggested that you make a proposal to the EPA?

A EPA requested it.

Q Do you know who at EPA requested it?

A I think it was addressed to Howard Zar, if I'm not mistaken, although I can't swear to it.

Q What were you requested to do?

A Give them a proposal to perform this study.

Q The study --

A That culminated in the report.

Q -- of January 1981?

A Yes.

Q What information were you given to do that?

A Well, there is a bibliography which is about as long as your arm but I can't repeat it all.

I think you have a bibliography of all the material we received.

Q You received this request with respect to the proposal in the middle of 1980?

A Generally in that time frame, yes.

Q And you submitted your report in January of 1981?

A That's right.

Q Between the time that the Bypass Project was stopped and the time you were asked to submit a proposal by the EPA, did you have any contact with

the EPA, you or people working for you?

A I'm sure we did although I don't have any document before me which verifies this because usually you have discussions with people before you submit a proposal.

Q Do you know what discussions were had?

A More or less to define the scope of the work that would be involved here. Before we can, in any proposal, we submit to some person, we define the scope of what it is we intend to do, quite well.

Q My question goes more to how were you kept advised of the situation in Waukegan Harbor and the North Ditch so that you would be able to prepare a proposal?

MR. WHITE: Do you understand the question?

BY THE WITNESS:

A Verbal discussions.

BY MS. OLIVER:

Q Verbal discussions?

A I'm pretty sure it was verbal discussions, yes.

Q Do you know with whom at EPA?

A I think it was with Howard Zar.

Q Do you recall discussions on what type of work EPA wanted done in Waukegan Harbor and the North Ditch?

A Yes, it's in here: Page 4, Scope of Study, Par. 1.4; Page 4 and 5.

(Whereupon, a document was thereupon marked as Cook-OMC Deposition Exhibit No. 1 for identification as of 6-8-82, TLU.)

BY MS. OLIVER:

Q Mr. Cook, I have had marked as Cook Deposition Exhibit No. 1 for identification, a resume given to us by the attorney for EPA.

Would you look at that and tell me if that is an up-to-date resume of yours?

A Through January, 1981.

Q Do you have a more up-to-date resume?

A No.

Q Had your office, Mr. Cook, been involved in any studies for the removal of contamination from sediments before preparing the January 1981 Final Report?

A Contaminated sediments?

Q Yes.

A Not of this order of magnitude.

Q In any order of magnitude?

A One more time, say what you said?

Q Had your office, the Lexington office from which this project originated, been involved in any other projects involving the removal of contaminated sediments?

A Involved in what way?

Q Involved in the proposal, preparation, design for removal?

A No, ma'am.

Q Was your office involved in any other way in those types of proposals or studies?

A We had discussions for some, but they were primarily our own thinking.

Q Had any projects that you had been involved in discussing designs, proposals, recommendations for removal of contaminated sediments been undertaken where work has actually been done?

A My office?

Q Yes.

A No, ma'am.

Q What projects have you discussed relating to removal of contaminated sediments other than Waukegan Harbor?

A There was an advertisement in the Commerce Business Daily for DDT cleanup in Alabama. We were considering submitting our credentials for that and did not do it.

Q When was that?

A Within the last year and a half; I can't remember.

Q Any others?

A None that come to mind.

Q Before this project relating to the Waukegan Harbor and the North Ditch, did you have any discussions relating to projects involving removal of contaminated sediments?

A In the context of what you're asking, no.

Q Have you prepared any proposal or design for removal of contaminated sediments that have been sent out to contractors for their work to be done?

A No, ma'am. You mean other than this?

Q Other than this.

A No, ma'am.

Q In the Final Report there are several instances where statements are made about estimates being given in the range of an order of magnitude.

What does that mean?

A If you look in the dictionary, the order of magnitude can be from one to ten.

Q What does it mean in terms of giving estimates?

A That means that these estimates can vary depending on many things.

Q They can vary by a factor of ten?

A It's possible, to look like a true definition.

I would like to go back and ask you a question. What do you mean by contaminated?

Q In terms of your report, your reference to PCB contamination and I am talking about sediments that are contaminated with some substance, the purpose of which is to remove it.

Is that the way you understand my questions?

A A toxic material?

Q Pollutant material.

A Pollutant material.

Q That is intended to be removed.

A Okay.

Q Do you have any other understanding of what contaminated sediments would mean?

A Okay, I just wanted to know. That's all.

Q Has your company been involved in the removal of sediments: Designs or plans for removal of sediments, whether they are contaminated or not?

A Yes, building bridges, caissons, these sorts of things and the long-term construction since 1827, I'm sure that my company has.

Q Would it be fair to say that that is the general area in which your company has operated, in the area of building bridges and caissons?

A No.

Q What other areas?

A Plant operations.

Q What does that mean?

A Operating plants for the United States Army.

Q What types of plants?

A Manufacturing ammunition.

Q What does Mason and Hanger do with respect

to manufacturing of the ammunition in the plants?

A We are the contractor for the Department of the Army to operate an Iowa Ammunition plant.

We are the contractor for the Department of Energy to manage the Pantax Plant which manufactures atomic weapons.

Q What other areas of work does your company involve itself in?

A Construction management.

Q Construction of what?

A At one time, the New York Engineering Office was construction manager in the broad term for three-quarters of a billion dollars of construction for sewage disposal plants, sewer plants, underground sewers; these sorts of heavy civil construction.

Q Is your company still managing those types of plants?

A Yes, ma'am.

Q Did your company become involved in the design of the sewage disposal plants?

A Not those, no.

Q What other areas?

A That is primarily it.

Q What other environmental work has your company done besides --

A Environmental is a broad term. Can you be more specific?

Q Anything relating to environmental interests?

A I still think that is a pretty broad term.

Q What about water pollution? What work has your company done relating to water pollution?

A We have designed. have built -- I am trying to count the number but probably about ten or so reasonably good-sized facilities to treat what we call red water or pink water.

Q What is red water or pink water?

A It is a byproduct of the manufacture of TNT.

Q TNT?

A Trinitrotoluene.

We are currently in a design of a hydroplane to treat basically the same type of material and in the facility that is going to cost in the neighborhood of $25 million.

Q Any others?

A Those are the largest.

Q Can you tell me what percentage of your work presently is involved in the matters relating to water pollution?

A Today, presently?

Q Presently.

A Over half today.

Q That is involved in the design and building of these plants for treatment of this byproduct of TNT?

A Yes.

Q Has that been the same since 1980?

A No.

Q What was it in 1980?

A Less but I cannot recall.

Q Does your company do any dredging itself?

A Ourself?

Q Yes.

A Today, no.

Q At any time?

A We had a gold dredge in California.

Yes, ma'am, we have done dredging for removal of material from caissons and things of that nature. Mr. Snedden has the patent on a device for

removing sediments from many caissons.

Q When did you stop doing the dredging work?

A Beg pardon?

Q When did you stop doing the dredging work?

A Years ago.

Q Years ago?

A Yes.

Q Would you say that Mr. Snedden is the person that knows the most about dredging in the company?

A Yes.

Q I take it that some of your clients are the United States Government agencies, is that right?

A Yes, ma'am.

Q Do you have private clients as well?

A Yes.

Q Could you tell me how much of your work is done for the United States Government?

A It varies from year to year but it runs about 50 percent.

Q How much was the cost of the project that you undertook for the Government?

A Which cost?

Q Your cost. How much did you get paid by

the Government?

A Engineering fee?

Q Yes.

A In the neighborhood of $200,000 although I can't quote that precisely.

Q Is that total for all the work that you did through the end of your involvement?

A There was subsequent add-ons for the designs that resulted from the study.

Q That was added on to the $200,000?

A Yes.

Q Have you been paid?

A Finally.

Q Do you have any experience personally in dredging, Mr. Cook?

A Me personally?

Q Yes.

A No.

Q I have noticed from your resume that much of your involvement has been in the munitions ordnance field. Is that a fair statement?

A I spent twelve years in operating a plant.

Q You operated one of the plants that was

run by Mason and Hanger?

A I worked at the plant that Mason and Hanger operated.

Q I am sorry, plant --

A I worked at the Iowa Ammunition Plant that Mason and Hanger operated.

Q You worked for Mason and Hanger in the plant?

A I have been with Mason and Hanger for the past 32 years, ma'am.

Q My question is, Mr. Cook, while you worked at the plant, you worked as an employee of Mason and Hanger who was running the plant.

A Yes, ma'am.

Q Do you know what the chemical characteristics of PCBs are?

A Chemical characteristics?

Q Yes, what PCBs are and how they react and what they do?

A I know the chemical equation for PCBs and that's about it. Chemical characteristics is too broad a statement for me to answer.

Q Do you have a specific area of expertise

with Mason and Hanger, Mr. Cook; for example, dredging or some area like that?

A Not dredging; engineering management.

Q Engineering management?

A Yes.

Q Have you ever personally been involved in any proposals or recommendations for removing sediments other than this project?

A Me personally?

Q Yes, in an engineering sense.

A Sediments, per se?

Q Sediments, per se.

A No, ma'am.

Q Sediments any other way, anything?

A No, ma'am.

Anything is quite broad.

Q I am referring to sediments.

Have you been involved from an engineering standpoint in any dredging operations?

A No, ma'am.

Q What I would like to do is refer to the Final Report of January, 1981. There is a table of contents of IV. It goes on through VIII.

I would like you to tell me if you can, Mr. Cook, who prepared parts of the report that are listed.

A Roman numeral IV?

Q Roman numeral IV, small Roman number iv. Do you see that in the table of contents?

A Who prepared that?

Q Let me ask a question: The first section that is listed there is called Introduction on the Background of Polychlorinated Biphenyls.

Do you see that?

A Yes, ma'am.

Q The Extent of PCB Contamination at North Ditch.

My question is, who prepared the introduction on the background, the purposes and the scope of the study?

A I am looking at 1, Introduction, Page 1, the first paragraph. It was basically written by Mason and Hanger.

Q What I am asking is, you told me earlier that there are several people who contributed to that report and what I am trying to do is find out

who the people are and what they contributed.

A Who wrote what?

Q Who wrote what, yes.

A I can't go here page by page and say who wrote what.

Q I am not asking page by page. I am asking general portions of the report. There are listing for example for Extent of PCB Contamination in Waukegan Harbor, Discussion of Applicable Governmental Regulations; Evaluation of Alternatives. . .

A Harry Sterling and John Nordin probably wrote a good percentage of that but it's not of their own, they didn't think it of themselves.

Q Let us start with did you write any part of that report?

A Yes, ma'am.

Q What part did you write?

A Pertaining to the North Ditch area.

Q Show me on the Table of Contents. Refer me to the portion you wrote, Mr. Cook?

A When you say I wrote, I was primarily the fellow that put the words on paper. Everything in here has been peer-checked.

Q I am just asking for what you put on the paper.

A Primarily 7, Page vi.

Q Excavation of North Ditch Contaminated Soils?

A Yes.

Q That Section 7?

A Primarily, yes.

Q Anything else?

A Not to the extent that this was.

Q Can you tell me who wrote the Introduction?

A No, ma'am.

Q Can you tell me who wrote Part 2, Extent of PCB Contamination at the North Ditch?

A Probably Harry Sterling. Harry probably had the most to do with No. 1 also. I am surmising that from logic.

Q What about Part 3, Extent of PCB Contamination in Waukegan Harbor?

Who wrote that?

A Harry, but he was not the author of that. He didn't come up with all this background information. That was given to him.

Q He reviewed the information that was given to him and put it in this Part 3?

A Yes.

Q How about Part 4 under Discussion of Applicable Governmental Regulations?

A That was probably Harry.

Q No. 5, Evaluation of Alternatives for North Ditch Cleanup.

Do you know who was responsible for that?

A That was a joint effort.

Q Who?

A Me, Harry, Snedden.

Q How about Part 6, Evaluation of Alternatives for Waukegan Harbor?

A Probably Dr. John Nordin did the majority of that. Harry Sterling may have done some.

Q Part 7, you told me you did?

A Primarily, yes.

Q Part 8, Dredging, Storage and Treatment of Waukegan Harbor Contaminated Sediments. Who did that?

A Harry, Dr. Sterling and Dr. Nordin.

Q How about 9, Ultimate Disposal of --

A Wait a minute. I am looking at -- that 8,

8 was primarily Nordin and Sterling.

Q All right.

No. 9, Ultimate Disposal of Residues, who prepared that portion?

A Probably most of it was Harry.

Q How about the Summary of Costs?

A Probably most of that was Harry as was Recommendations which was kind of a joint effort by everybody, but Harry, I believe, was the ultimate scribe for it.

Q Would it be fair to state that people who were responsible for writing those parts, the sections, were responsible for the content. It was up to them to decide what to put in those sections?

A To a degree, yes, yes.

Q Who if anybody reviewed the sections?

A I reviewed the entire report. Snedden reviewed the entire report and of course, Harry.

Q Anybody else?

A Probably everybody who worked on it at one time or another has read the report and made some comments.

Q You mentioned earlier that this report

was peered.

A Peer, yes.

Q Peer reviewed.

A Yes, ma'am.

Q Who peer reviewed it?

A Dr. Nordin and Dr. Sterling are peers.

Q Anyone outside of Mason and Hanger?

A No, peer review to my connotation isn't outside.

Q It is in-house peer review?

A Yes.

Q Who prepared the two addendums to the Final Report?

A Nordin and Lail.

Q Did they both work on both addendums?

A Yes, ma'am.

Q Was Mason and Hanger asked to prepare addendums to the report?

A Asked?

Q Asked by anyone to prepare addendums?

A This is data that we had requested and it was undertaken when the report was written. It came in subsequently to the report being published so we

published it to update the report.

Q Were any drafts of your January 1981 report, the Final Report, submitted to the EPA for its approval?

A Yes, ma'am. It was submitted to the EPA for approval.

Q How many drafts of this report were written?

A I believe two although I know of one. There might have been an earlier one than that.

Q Did you recieve comments from the EPA?

A Yes, ma'am.

Q Were those comments incorporated in the Final Report?

A Basically.

Q Who at EPA reviewed your draft reports?

A Howard Zar, I believe DiDomenico. DiDomenico, I'm sure he has seen part of it; Kaye Jacobs. I believe those are the ones -- Oh, I think a fellow by the name of McDermott had some comment on it.

Q In your Final Report, you make some recommendations about what should be done in Waukegan Harbor in the North Ditch.

A Yes, ma'am.

Q Did those recommendations change at all in any way from the draft report to the Final Report?

A No.

Q So your recommendations were the same?

A Basically, yes, yes.

O What were the comments or suggestions that the EPA --

A Pardon?

Q What were the comments or suggestions that the EPA made with respect to your draft reports?

A Editorial comments more than anything else.

Q Did you review the EPA suggestions?

A Yes, ma'am.

Q Who else reviewed the suggestions?

A Sterling, Nordin.

Q Did you have meetings with the EPA before the Final Report was published?

A I'm pretty sure we did, yes.

Q Did you attend the meetings?

A I may not have attended all of them.

Q Did your proposal that you submitted

to the Government in the middle of 1980 include your recommendations for removal that appear in the Final Report?

A No, ma'am.

Q Between the time you prepared your proposal and the time you submitted your final report, did you reach your conclusions?

A That's impossible to say. It was sometime during the report.

Q Sometime before the draft reports were submitted?

A They had to be because our recommendations were in the draft report.

Q How long did it take you to write the Final Report, Mr. Cook? It is a big document?

A Oh, that's a very good question.

Q Thank you. I'm glad I have one.

A That thing was probably started, drafted three months before it was concluded, bits and pieces. You do not sit down and write one of these things all in one day.

That is a speculation on my part because for me to tell you the day we started to write the

Final Report is very, very difficult to do.

Q Were the people who were working on this project, Dr. Sterling and Dr. Nordin and Mr. Snedden, working on this project full-time?

A Snedden was not.

Q How about Sterling and Nordin?

A Sterling was more than full-time. Nordin was pretty much full-time.

Q Who is the gentleman at Mason and Hanger who prepared the recommendations that appeared in the report?

A That was probably a group discussion. I will take the responsibility for it.

Q Do you recall having discussions about the recommendations?

A Yes.

Q Yes?

A Yes, ma'am.

Q How many discussions were you involved in?

A Me?

Q Yes.

A I can't answer that.

Q One or more than ten?

A Many.

Q Many?

A Yes.

Q Who provided you with the alternatives from which to make your recommendations?

A Drs. Sterling and Nordin.

Q Did they do it in writing or do it orally? Did they discuss alternatives orally?

A Both.

Q Does Mason and Hanger have any experience on PCB contamination anywhere?

A Define experience, please.

Q Involvement in any PCB contamination problem?

A Ma'am, that could be from in carbon paper that has PCBs on it --

Q Have you done any work involving carbon paper or anything involving PCB on it?

A No, but that is quite a broad statement. Can you give me some more specifics?

Q We talked about what Mason and Hanger does, design projects. Has Mason and Hanger been involved in the designing of any project relating to PCB contamination?

A Per se, no, as you say it.

Q How did you limit your answer by saying per se, no?

A Because -- no. You have a broad statement. I have to answer no because I don't know of anything in the broad statement that you have given me that I could say yes to.

Q Let me ask you generally and you tell me what involvement Mason and Hanger have had with PCBs in any way?

A Through the EERU.

Q Other than EERU that we talked about before.

A Some of our operating plants have PCBs that they keep track of. They have PCB plants, these sort of things.

Q Army plants?

A Oh, yes.

Q They have PCBs?

A Oh, yes, easily.

Q The Army -- I am sorry.

A You take that in jest.

Q No, I do not take it in jest. I take it very seriously.

A They are very cognizant of these things. They watch for them all the time.

Q What does Mason and Hanger do in operating these plants with respect to PCBs?

A Transformer, various other materials that might have them in them.

Q What does Mason and Hanger do with respect to management of these plants relating to PCBs? Does it engage in any kind of program or does it have any program other than being aware that there are PCBs in transformers?

A That is a very broad statement.

Q Other than in the area of plants that might have PCBs in them, what other involvement does Mason and Hanger have?

A None.

Q None?

A Yes, not outside, when we were at EERU.

Q But the people who were at EERU were not involved in that Waukegan Harbor Project, is that right?

A Right.

Q The projects that are listed on Page 4

of the report: For example, the Duwamish River Cleanup in Washington State, do you know what was done in that case?

A No, ma'am. Well, I have an idea what was done, but exactly what was done, I don't know.

Q Do you know the amount of PCBs that were involved?

A A transformer as I understand it.

Q Do you know the cleanup that was undertaken?

A Sediment removal, treatment with carbon.

Q Do you know how much sediment was removed?

A No.

Q Do you know how it was removed?

A Mud Cat.

Q Mud Cat dredge?

A I think.

Q Do you know how long it took?

A No, I don't.

Q The Hudson River Cleanup, do you know anything else about that?

A I don't think that we were in on that.

Q Do you know if there was a Hudson River

Cleanup of PCBs?

A We went and saw PCBs in the area. I did not, but Snedden and Sterling and somebody went to see and talk to people about the Hudson River spill.

Q Do you know of any cleanup work that has been undertaken with the Hudson River, actual work that was done there?

A No.

Q Did Mr. Snedden or anyone else from Mason and Hanger talk to anybody about the Duwamish River Cleanup?

A Say again?

Q Do you know whether anyone from Mason and Hanger like Snedden or anyone else went to talk to anyone about what was done in the Duwamish River Cleanup?

A Talk to anybody; who?

Q People who did the work up there to find out what they did and how they did it?

A I am not trying to be hard -- I just don't understand what you are saying.

Q Let me start again.

You told me that some of your people went

to look at the Hudson River area.

A Yes, ma'am.

Q Did anyone of your people go up to Washington State to look at the Duwamish River?

A No, ma'am.

Q The James River Cleanup for Kepone?

A Yes.

Q Do you know what cleanup was undertaken there?

A Only in a remote way. Again this was cleanup with the carbon towers.

Q Do you know whether any of your people went to speak to anyone involved in the James River Project?

A My people?

Q People that worked in this Waukegan Harbor Project?

A No, they did not.

Q You also mentioned in your report, cleanup of PCBs in harbors in Japan. Do you know where those harbors were and when those cleanups took place?

A We have documents stating what was done.

Q Do you have any knowledge?

A Me?

Q Yes.

A Only what I have read.

Q What have you read?

A Primarily very, very -- well, practically nothing. I know that it was done and I don't even know the technique that was used. However, Dr. Sterling and Dr. Nordin and those other people looked into that, the techniques.

Q Is the Enviromental Emergency Reponse Unit mainly involved in cleanup of oil spills, if you know?

A I don't know but I don't think so. I think is any hazardous material spill.

Q I think you mentioned earlier that none of these other projects listed on Page 4 are of the scope that the Waukgan Harbor North Ditch Project is, is that right?

A That is almost a foregone conclusion.

Q I take it the Waukegan Harbor North Ditch Project is much greater in scope than any other project?

A To my knowledge, I have never read of any PCB spill that is that order of magnitude.

Q Are you aware of any cleanup proposal that has been attempted of the order of magnitude as you propose in this case?

A The only one that is being discussed now is the Hudson River and I am not current on that.

Q Do you know what the initial cost estimate for the Hudson River Project was?

A No, ma'am.

Q Do you know what it is now?

A No, ma'am.

Q Do you know whether there are any differences between dredging harbors and rivers?

A Beg your pardon?

Q Do you know whether there are differences in dredging techniques for harbors or rivers?

A That is a pretty broad statement.

Q Can you use the same type of dredging techniques that you would use in a river in a harbor?

A I couldn't say categorially yes or categorically no. I would suspect that there are overlapping places where either type of dredge can be used.

Q Do you know whether what was proposed for

the Hudson River could be done in Waukegan Harbor?

A I do not.

Q Mr. Cook, in the report in several places there are references to Hydroscience or Hydroqual.

A Yes, ma'am.

Q Do you know what that is?

A It is -- let me check.

They are referenced in here but I cannot remember exactly who they are or what they are.

Q Did you read any reports by Hydroscience?

A I didn't read the reports. Dr. Sterling and Dr. Nordin did most of that.

Q Would it be fair to say that Dr. Sterling and Dr. Nordin have most of the technical knowledge and background information that went into this report?

A The analysis of the data?

Q Yes.

A Probably in the analysis of data, yes.

Q Have you, Mr. Cook, ever been involved in the engineering design of lagoons?

A The broad term of lagoon, yes.

Q As to what was recommended in this report?

A No.

Q Have you ever been involved in design of silt curtains?

A Personally, no.

Q Were environmental considerations part of the factors or one of the factors you considered in making your recommendations in your Final Report?

A Environmental considerations?

Q Yes, like what the effect of what you were proposing would be on the environment.

A I would like to have you --

Q Let me go back. Your Final Report indicates that dredging could be done to remove PCBs in sediments over ten parts per million, over 50 parts per million and over 500 parts per million.

A Yes, ma'am.

Q Did anyone at Mason and Hanger make a recommendation as to which of those three plans would be environmentally acceptable?

A No, ma'am.

Q Do you know if anyone did?

A Nobody in our office did.

Q Has Mason and Hanger made a recommendation --

A No, ma'am.

Q -- to the EPA --

A No, ma'am.

Q -- as to what level to dredge?

A No, ma'am, and we will not.

Q Why not?

A It is not our expertise.

Q What areas does it involve that is not in your area of expertise?

A Oh, I can talk for 15 minutes on that.

Q Just a couple of minutes will do.

A We don't have the people to judge it. There are lots of other factors that we did not have the specific knowledge or background or experience to pass judgment and so that's why we design.

Q What I am just asking is tell me briefly what are some of these factors that you would need to know to make a decision like that?

A Hydrogeology.

Q You also discussed in your Final Report some treatment of the water that would be removed during the dredging and removal of sediment, is that right?

A Yes.

Q Who made the determination of what treatment should be done of that water?

A Dr. Nordin ran some bench tests, lab tests.

Q Dr. Nordin made that decision?

A Yes.

Q You also made some recommendations regarding silt curtains in the report. Do you recall that?

A Yes.

Q Who made a decision regarding the evaluations, the recommendations on the silt curtains?

A That was collectively. There were many questions on whether a silt curtain would be beneficial or not. I think we judged them ourselves that it would be. We proposed a double silt curtain that slipped through the single silt curtain at 50 part demarcation line.

Q Am I correct, Mr. Cook, that you based your recommendation on what should be done on the sampling analyses that was done in the Harbor as to what the levels of PCBs found in the Harbor were?

A Restate it, please.

Q Did you follow that?

A No, I didn't.

Q You made some recommendations about what should be done in the Harbor, is that right?

A As to?

Q As to removal of sediments?

A Yes.

Q My question is, did you base those recommendations on the sampling data that was generated indicating which levels of PCBs were in the Harbor?

A The sampling data was merely to determine what was in the Harbor, I don't know.

Q Did that affect what your recommendation was with the levels of PCBs in the Harbor were?

A No, I don't think so. The fact that it is there has not too much to do with how you remove the material. In other words, the quantity of PCBs has very little to do with the technique you would use to remove contaminated sediments.

Q You made some estimates of cubic yards of sediment that needed to be removed.

A Yes, ma'am.

Q Did you make those estimates based on what

the levels of PCBs were?

A The two are not synonymous.

Q Why did you make estimates of cubic yards?

A So we could have some idea of the quantity of material that was there.

Q How did you make those estimates?

A Sampling plan.

Q So the sampling plan gave you information on how much was there?

A How much what?

Q How much PCBs.

A How much PCBs and sediments.

Q Then you determined how much should be removed in cubic yards?

A We calculated the volume to be removed under certain conditions, yes.

Q You also made an estimate of the amount of PCBs in the sediment in pounds, is that right?

A Yes, ma'am.

Q Why did you make that estimate?

A All of the previous discussions stated the estimate of the quantity of PCBs that was there. This whole discussion was predicated on the fact

that PCB was there.

If I am not mistaken, I think the EPA would have liked to have known how much PCB was there.

Q Did they ask you to make that calculation?

A I can't say that per se but I would suspect it is inferred by -- wait, let me read the Scope of the Work.

MS. OLIVER: While you are doing that, let us take a five-minute break.

(Brief recess had.)

THE WITNESS: You asked me, if I am not mistaken, why we calculated the extent of PCB contamination.

BY MS. OLIVER:

Q The amounts of PCBs.

A The amounts, okay. The previous data that we had stated amounts of PCB that was in the contaminated soils, both in the Harbor and I believe in the North Ditch and the description of our scope of work certainly infers that if you don't know or make some estimate of amount of PCBs in the contaminated areas, you cannot really describe the problem that

is there.

So I am inferring even though it may not have been specifically stated that we were asked to calculate the pounds of PCBs. It is the normal thing that you do in the scope of a study.

Q In making your engineering decisions, you didn't have to know the amount of PCBs in sediments, did you?

A To some degree, yes.

Q To some degree?

A Yes.

Q You did not need an estimate of the number of pounds, did you?

A To be truthful, I guess no.

Q Did you need an estimate of the number of pounds in PCBs in order to make your determination of the cubic yards to be removed?

A Just the opposite.

Q You mentioned previous data that related to the amount of PCBs in the sediments and soils. Do you know what that previous data was?

A There is a document that reviews some of that which is a listing of all the information we've

got. Page 8, Preliminary U.S. EPA Grab Samples; Illinois EPA Core Samples.

Page 9, Environmental Control Technology Corporation; Battelle, Pacific Northwest Laboratories; Soil Testing Services, Inc.

Q That is what you are referring to?

A Yes, ma'am.

Q All right.

A JRB Associates, Inc.: Study of Groundwater; U.S. EPA Sampling, January 1980.

Q You are referring to all the sampling data that was done up to that date in time?

A There may have been other data that was given to us, too.

The EERU Subsurface Borings that were taken as part of the Greeley & Hansen proposed design, these sort of things, too.

Q Mr. Cook --

A If I may, the laws and statutes have lines of demarcation of extents of contamination, percentage parts per million: 10, 50, 500, these sort of things. In order to describe these areas and the extent of these areas, we also have to take or make some

estimate of the amount of PCB contamination in certain areas.

Q Are you familiar with those regulations that set certain standards?

A I personally am not. I know personally what they say and if I were to do any task as this is, I would sit down and investigate it.

(Whereupon, a document was thereupon marked as Cook-OMC Deposition Exhibit No. 2 for identification, as of 6-8-82, TLU.)

BY MS. OLIVER:

Q Mr. Cook, let me show you what we have marked as Exhibit No. 2 for identification, which is a request through, I think EPA channels.

Do you recognize that document? The cover page is from a Mr. Rutter dated 12/18/80 for a $200,000 appropriation to Mason and Hanger.

Is that the appropriation for the work that you did on this project?

A I cannot swear that I have seen this front page.

Q But $200,000 was the amount of the project

costs?

A Not a bad guess, was it?

Q The contract number 68-03-2647 is the same as the Final Report.

A Yes.

Q That is the --

A May I read this, may I go to the next page?

Q Sure, I want you to look at the whole thing.

(Brief pause.)

BY THE WITNESS:

A Well, I'm not so sure this is the study.

BY MS. OLIVER:

Q Is that attached to the cover page? Is that a Scope of Work proposal by Mason and Hanger for this project?

A This is for the study. This is for the oncoming plans and specifications for the cleanup.

Q The second page of the document is a memorandum dated December 18, 1980 Re: Plans and Specifications from Mr. Rutter again and attached to it is a three-page document that begins discussing specification for engineering work, has a section on Objectives, Scope of Work, Design, et cetera.

A The reason why is --

Q Just a minute.

Do you recognize this document, the last three pages?

A Yes. I do. It is not the instructions to the report, the study.

Q What is it?

A It is for follow-on design work of which these documents that you read here, Construction Cost Estimates, were prepared.

This is actual design of the implementation in the Waukegan Harbor only.

Q Was this document, the last four pages of Exhibit No. 2, prepared by Mason and Hanger indicating objectives, scope of work and design?

A In this exact form, I'd say no, no.

Q Was this the objective, scope of work and design, the contents of this document, your understanding of what Mason and Hanger proposed to do?

A For the design, not the study.

Q And did Mason and Hanger make a proposal to the United States or the EPA for the design?

A For this one, yes, ma'am.

I don't know the date of it, I really don't. I think we actually were willing to design before we actually ever got this document, I believe on a "Do it, we will cover your costs later."

Q The document is attached to the requisition that is dated 12/18/80 and a second memorandum dated 12/18/1980.

Was the proposal for design as indicated on the four-paged attachment for Exhibit 2 prepared by Mason and Hanger and presented to EPA before 12/18/80?

A It would have to be.

Q Do you know when?

A No.

Q You cannot be any more specific than before 1980?

A I think it was Summer, early Fall, something like that.

Q This is the Summer, early Fall of 1980?

A That's the date, '80, isn't it? Yes, yes.

This is to be differentiated. Our authorization to perform this study, that is an authorization for specific design in the Harbor Area only.

Joan L. Urban
Certified Shorthand Reporter
[illegible] Street
[illegible]
[illegible]

(Two documents were thereupon marked respectively as Cook-OMC Deposition Exhibit Nos. 3 and 4 marked for identification, 6-8-82, TLU.)

BY MS. OLIVER:

Q Mr. Cook, I would like you to look at Exhibit No. 3 and 4. Exhibit No. 3 is a report called Plan for Removal and Disposal of PCB-Contaminated Soils and Sediments at Waukegan, Illinois, dated September, 1980.

Have you seen that document before?

A I think this is what we gave EPA in their preparation of the plan.

Q That is a preliminary report prior to the January 1981 Final Report?

A Yes, ma'am.

Q And Exhibit No. 4 is a report called Program for Staged Clean Up of PCB Contamination in the North Ditch on OMC Property at Waukegan, Illinois, dated September, 1980.

Is that a preliminary report, Mr. Cook, before the Final Report was issued in January of 1981?

A It appears to be, yes.

Q Are there any additional preliminary reports that were submitted to the EPA before the January report?

A I mentioned the ones to this, to the study. There were preliminaries of this in almost the entire form.

Q A preliminary to the Final Report of January 1981?

A Yes, those are excerpts from certain portions of it.

(A document was thereupon marked as Cook-OMC Deposition Exhibit No. 5 for identification, as of 6-8-82, TLU.)

BY MS. OLIVER:

Q Could you identify Exhibit No. 5 which is a cover letter from you to Mr. Zar?

A Yes.

Q What is Exhibit No. 5, Mr. Cook?

A These are the bench tests that Dr. Nordin and Romulus Payne ran.

Q What do you mean by bench tests?

Theo L. Urban
Certified Court Reporter
[illegible] Street
[illegible] 603

A They took samples of the Waukegan Harbor sediments and submitted them to various tests, from which they ultimately selected the proposed cleanup equipment used in our final design.

Q When were those tests conducted?

A The sediments were collected July 1 and 3 by Warzyn. The tests were done sometime after that.

Let me see if I can find the exact date. Dr. John Nordin and Romulus Payne examined sediment samples from Location 4, 5, 6, 7 on July 2 -- quote me, that is on Location 4, 5 and 6 on July 7.

Q The report was submitted to Mr. Zar when?

A It is dated October. Warzyn gave us their report evidently on August 5, 1980. They did some analyses of the levels of contamination, I believe.

Q At the time that the Final Report was submitted, did Mason and Hanger have the results of all the testing that had taken place?

A No, ma'am.

Q What testing or what results were not --

A There were six tests, I believe, in Slip 3 area that we had not received the data. I believe that is covered in Addendum 1.

Thos L Urban
Certified Shorthand Reporter
[illegible] Street
[illegible]
312 [illegible]

Q Who was doing those tests?

A Warzyn.

Q By the way, did you also receive --

A Raltech did the lab tests, I beg your pardon.

Q Raltech did the tests?

A Raltech does the lab work; Warzyn takes the samples.

Q You received results from Raltech. Did you also receive results at some time in the study or the project from ERG? Have you ever heard of ERG?

A I think that was part of the data that I stated was given to us by EPA.

Q Did you ever receive from ERG, any corrections in their data?

A I am not aware of this area or -- Dr. John might, Dr. Nordin. His nickname is Dr. John.

Q Are you aware of any data that was given to you regarding any samples or analyses done in the Waukegan Harbor or the North Ditch or the parking lot area that was later corrected?

A To the best of my recollection, EPA gave us all of this data. I don't remember getting any from them and I am also very positive that we never

got any from anybody other than through EPA.

Q But you never got any information from the EPA that any data that they had given you was incorrect or not reliable data?

A I cannot recall. Now again, maybe Dr. Sterling or Dr. Nordin can -- I cannnot specifically recall it.

Q You don't recall ever being told that any of the data that you had been given was not accurate?

A No.

Q Were you the person that corresponded with the EPA, for example sending your draft reports or your reports to EPA?

A All correspondence -- pardon me, all laws are to be broken. Policy is correspondence goes out through me, comes in to me. However, there are times when other correspondence takes place but the critical things come to me and through me.

If I see them, then I pass them on to whoever is involved. This way I keep a general working knowledge of what the project entails.

Q In this project, was it your understanding that policy was followed insofar as at least the

critical information or data?

A Yes, ma'am.

Q Anything important would come in through you or to you?

A That's almost always true. Again there are instances where this is violated. You just cannot keep from it.

Q Do you know of any instances in this project in which that practice was not followed?

A No, the important things were passed through me.

Q I take it you would send it to the person --

A Yes, ma'am.

Q -- who would be most interested in that information?

A Not only that I make sure that we get a file copy.

Q The subject of Addendum No. 1 to the Final Report were these six additional test results, is that correct?

A I believe they were B-1 through 6.

Q They were not available at the time of the

Final Report, is that right?

A That's true.

Q What was the subject of Addendum No. 2, Mr. Cook?

A Additional, at least six more in that same general area. That would be 7 through 12, I think.

Q They relate to the Harbor, is that right?

A Yes and there is a caution in Addendum 2. It says "Sample Point B-1 through 12 taken in and near the Waukegan Harbor must not be confused with separate borings, B-1 through 37 taken on the OMC property."

For some reason there was a doubling up of nomenclature.

Q Were the first six additional tests that are part of Addendum No. 1, test results where the tests had been done and the results were just not available by the time you did your report?

A Yes, ma'am.

Q Did you request additional tests be done? Did Mason and Hanger request additional testing be done?

A Generally as a broad statement, yes.

Q Did you request those additional first six tests be done?

A We suggested that the last six be done also.

Q But did you suggest the first six be done?

A I do not recollect that. It may have been but I do know that we requested the last six.

Q Did you request the last six after you prepared your final report?

A That was probably true.

Q Why were six more tests requested?

A To better identify the area of the high contamination near the old outfall in Slip No. 3.

Q Was it your opinion and Mason and Hanger's opinion that the area in Slip No. 3 near the old outfalls had not been properly identified?

A Properly? Sufficiently, maybe.

Q Sufficiently?

A Yes.

Q Had not been sufficiently identified?

A Yes.

Q Mr. Cook, are the recommendations for removal and disposal of PCB-contaminated sediments from the Waukegan Harbor and the North Ditch and

the parking lot area your recommendations today?

A Mason and Hanger's recommendation today?

Q Yes.

A Yes, ma'am.

Q Had they changed at all between the final report in January of 1981 and today?

A Basically, no.

Q When you say basically, no, does that mean no?

A Yes. The reason I say, there is a slight change in the area of decontamination in Slip No. 3 between what we would now suggest and what was in the report.

Q In the entire Slip No. 3 or in the area closest to the outfall?

A Closest to the old outfall.

Q What was your recommendation in January of '81 regarding that?

A We had an area, I believe inside diameter that was about 80 feet. We had it more into Slip No. 3.

As a result of our tests on the bank, we moved this diameter a little back, back a little bit to encompass the material in or near the seawall back

near Larsen Marine property.

Q Any other changes?

A No, that's basically it.

Q What would be the area or diameter of the area?

A Same diameter.

Q Same diameter?

A Well, I am almost positive. Let me double-check.

Yes, 80 feet I.D.

Q Mr. Cook, did you review all the reports prepared by Mason and Hanger for your deposition today?

A Yes, ma'am -- well, these that I have here.

Q The ones you listed earlier for us.

Did you review any other documents?

A Some little of my correspondence file.

Q Your correspondence?

A To and from.

Q From the EPA to the EPA?

A Yes.

Q Any other documents?

A Didn't have time.

Q Any depositions?

A No, I've seen no depositions.

Q Have you ever given a deposition for Mason and Hanger?

A No, ma'am.

Q Have you ever testified at the trial of a case before?

A No, ma'am.

Q Have you been told by Mr. White or his associates in which areas they wish you to testify about in this case?

A Area? They basically generalized the Report.

Q What have you been asked to testify about?

A Mason and Hanger standing behind what is presented in this Report.

Q And this report you are referring to is the Final Report?

A Yes, Final Report, yes.

MS. OLIVER: Let's break for lunch.

(Whereupon a luncheon recess was taken at 12:40 p.m. until 1:30 p.m. of said day and date.)

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
Vs.	)	No. 78 C 1004
	)	
OUTBOARD MARINE CORPORATION and MONSANTO COMPANY,	)	
	)	
Defendants.	)	

June 8, 1982

1:30 o'clock p.m.

The continued deposition of RUSSELL W. COOK, JR., resumed pursuant to adjournment, taken before Thea L. Urban, Notary Public and Certified Shorthand Reporter, at 219 South Dearborn Street, Suite 1486, Chicago, Illinois 60604.

PRESENT:

MR. JAMES WHITE

MR. SEBASTIAN T. PATTI

MS. ORSEANN OLIVER

MR. JEFF FORT

MR. JIM SCHINK.

DIRECT EXAMINATION (Resumed)

BY MS. OLIVER:

Q Mr. Cook, referring again to the Final Report of January 1981, am I correct that at areas or locations both at the Harbor and North Ditch, you found what you characterized as non-uniform areas. or zones of PCB contamination? Do you recall that at all?

A Non-uniform is what I zm hanging my hat on.

Q Meaning variations in uniformity of PCB contamination?

A The concentrations would vary place by place, yes.

Q Did that have any significance to you in determining what your recommendations would be?

A No, ma'am.

Q Did it have any significance to you at all?

A I guess I don't understand what you mean by significance. It is kind of a broad statement, really.

Q You noted it in the report?

A Yes.

Q Why did you note it in the report?

A What page?

Q Start out at Page 12 and referring to the North Ditch, I think.

A Specifically what area, ma'am?

Q I am sorry, on Page 12, the paragraph that begins with "The PCB penetration into the sand is not uniform. There are zones of low contamination. . . adjacent to zones of high concentration . . ."

You see that?

A Yes, ma'am.

Q My question is what significance does that have in terms of your recommendations?

A As to what we have actually recommended to be done?

Q Yes.

A In the areas of the high contamination, we recommended to be removed. In areas where the contamination is below 50 parts or something else, we have left that alone.

Q What if you have areas like I think you have found where areas are right adjacent to each other and one is a high area and another is a low area?

A If these are interspersed where one cannot

discretely separate them, one from another without disturbing one another, we encompassed them all in a removal suggested area.

Q So in terms of remova, you would just remove the whole area?

A Basically that's true, yes.

Q In terms of your estimate of quantity of PCBs, does that make a difference between zones of contamination?

A No. In the way we had estimated, no, but the validity of our estimate or anybody else's estimate, yes, because they can be shaded one way or another. You take additional borings, and you might get a different idea, a different estimate.

Q If you made some estimates of the amount of PCBs in the North Ditch and the Harbor --

A Yes, ma'am.

Q Could you conclude that those estimates were within the order of magnitude?

A Basically that's true, yes. They are not presented as a finite number. They are presented as a number from which you could vary up or down of the actual amount that is there.

Q But would you say by an order of ten?

A I say no. Dr. Nordin says yes.

Q You say no, it wouldn't be by an order of ten?

A Yes, and Dr. Nordin can see where it could be.

Q What would you say?

A I didn't think it would be quite that high. That is my personal opinion.

Q Do you have a level of confidence that you can ascribe to your estimate of the amount of PCBs?

A No.

Q You made an estimate of the cubic yardage as well.

A Yes.

Q Is that a finite number?

A No, ma'am.

Q That again is an estimate?

A Yes, ma'am.

Q Is that based on an order of magnitude?

A That is probably true, yes.

Q So the estimate that you made of cubic

yards of concentrated sediment could vary up or down by a factor of ten?

A Probably not in the Harbor.

Q In the Ditch?

A In the Harbor you have a reasonably well-defined boundary.

In the North Ditch, there are not really enough samples to really define the boundaries. It is a loose, more loosely-defined area.

Q Is that true as of today, to your knowledge?

A To my knowledge today, it is based on the same information that we had. I know of no other data that I could base a different opinion on. I have no other data that I could base a different opinion on.

Q So in the North Ditch, because of the un-defined boundaries, you could not ascribe more than an order of magnitude to your estimate?

A That is right.

Q Of the cubic yardage, is that right?

A Basically true, yes.

Q In the Harbor, is there a degree of confidence you could ascribe to your estimate?

A I wouldn't know how to calculate it. I

would put no number of degree of confidence on there.

MR. SCHINK: Would you read that answer back, please?

(The answer was thereupon read.)

BY MS. OLIVER:

Q Mr. Cook, Mason and Hanger made no estimate of the amount of PCBs that either had been discharged from the Harbor or the Ditch to the Lake or that might in the future be discharged, has it?

A We made an estimate of PCBs based on the analysis of data that was presented to us.

Q You made an estimate of the amount of PCBs that are there?

A Yes, ma'am.

Q What I am asking is Mason and Hanger made no estimate of whether any had moved in the past out of the Harbor or the Ditch into the Lake, did it?

A We had no reason to.

Q So you didn't do that?

A No.

Q And you did not make any estimate of how much might in the future move out?

A No, ma'am.

Q So any information in your report along those lines is just information that Mason and Hanger people had obtained from other sources and included as a matter of information?

A Yes, that's true.

Q If you look a minute, Mr. Cook, at Page 27 of the Report, there is a section on ERG.

A Yes.

Q You say in the Report here that ERG was under subcontract to JRB Associates, Inc. to examine contamination of groundwater, aquifers and quantify the rate of release of PCBs to Lake Michigan.

You don't know of any information submitted by ERG to quantify the rate of release of PCBs to Lake Michigan, do you?

A If it wasn't in the reports, I have no other reference to quantify the rate of release of PCBs to Lake Michigan.

Q On Page 38 of the Final Report, paragraph numbered 2, the second sentence of that paragraph refers to "Contamination is not uniform with respect to depth and there are hot spots or zones of low contamination at any depth."

Does that again, Mr. Cook, refer to the zones that we talked about before in the North Ditch that were similarly found in the Harbor?

A Yes, the sampling revealed points of higher contamination in a general area and points of lower contamination in the same general area. The hot spots primarily are up at Slip 3.

Q So again, the contamination not being uniform and the zones of contamination that would be present would cause the difficulty in estimating both the cubic yardage of contaminated sediment and the amount of PCBs?

A Not the cubic yardage. The cubic yardage, we feel we have a reasonably good handle on because of samples we took.

Q You feel because you took the high level, you would just take the yardage?

A We went through a sounding plan, established the bottom of the muck, the top of the muck that was within limits of time and money we had available, plotted what we call muck contour levels and then wherever samples had been taken within these contour levels, this is how we judged the PCB within the

muck.

Q Quantity of PCBs based upon the muck depth?

A Yes, and the confines in the Harbor, the confines of the seawall.

Q With respect to the muck depth and the estimation of sediments, on Page 34 of the Report at the top of the page, the first sentence, you refer to a one-foot error in estimation of average muck depth thickness when estimating sediments greater than ten parts per million PCB can result in an error of 45,000 cubic yards of sediment.

A True.

Q What does that mean?

A Just a quantitative number. If I have an extra foot thick in that area I'd have that much more cubic yards of sediment. It is just area times multiplier.

Q You mean the concentration?

A It had nothing to do with it, the quantity. Concentration and quantity are not synonymous.

Q Are you saying that if the muck depth was a foot one way or the other --

A Foot deeper. I'd have that much more

material.

Q That would be an error of 45,000 cubic yards?

A In the area they are talking about, yes.

Q What area are they talking about here?

A Will you point me to the paragraph, please?

Q The top of Page 34.

A That would be the entire Harbor, I would imagine. Yes, I believe this refers to the entire Harbor.

Q You made an estimate of the muck depth over the entire Harbor, did you not?

A Yes, ma'am, within the limits of the program that we conducted ourselves.

Q And you had found that the muck depth varied from location to location for the sampling, is that right?

A Yes.

Q So what you did is you just averaged?

A It was in defined areas.

Q Within the defined areas that you had sampled, you just averaged those thicknesses?

A No, we took discrete areas.

Page 40 --

Q I'm sorry?

A Page 40. We took the concentrations and the muck depth in A-1, 2, 3, 4, 5, 6, but each one of those had an individual area; did the same thing with B-1, 2, 3, 4, 5; C-1, 2, 3, 4, 5 and took the muck area and I had the concentration in those areas. That is how we arrived at PCB estimated pounds.

Q How did you arrive at what you estimated to be cubic yardages in A-1 through 6?

A In the A-1 through 6, from contours. We prepared a contour map.

Q You are referring now to the Appendices to the Final Report?

A Appendix, Insert Pocket 3.

There is a plan in there. It says bottom of muck, top of sand and there is a plan that says top of muck. Those two gave us the thicknesses we calculated within the breakdown of areas A, B, C.

Q In the area of A-1 through A-6, you had some actual measurements?

A Yes, here they are, top and bottom, every thickness as you went through.

Q What did you do then with the average thicknesses at each location?

A Calculated the area and the thicknesses and got a volume.

Q And that was --

A That is how we reached a total volume of sediments in the Harbor.

Q You did that for each section?

A Yes.

Q And then added them up?

A Yes.

Q What facts didn't you have that made your determination of the cubic yards of sediment in the Harbor an estimate? What would you need to know to make it a finite number?

A The samples, sampling stations were quite broad and the more sampling points you can take, the better your data.

Q So that fact that you didn't have enough sampling locations?

A That affected it, yes.

Q In order to reach what you would call an accurate --

A A more accurate.

Q -- a more accurate amount of cubic yards of sediment?

A Yes.

Q You told me a little bit earlier you cannot tell me what degree of confidence you would ascribe to the accuracy of your estimate, is that right?

A No. Incidentally, there is another document there that says thickness of muck sediment so you can read the thickness, but we actually took the top and bottom and then requoted the thickness contour.

Q How did it come to be, Mr. Cook, that you prepared this section on the North Ditch, Section 7 of the Report?

MR. WHITE: Do you understand that question?

BY MS. OLIVER:

Q Why did you get that job?

A I guess I volunteered.

Q You did the section called Excavation of North Ditch Contaminated Soils?

A Yes. I think I was more in depth in that one than any of them.

Q More in depth in terms of what?

A Analysis of what is there and a remedial plan.

Q You recommended a bypass around the Ditch and then excavation of the contaminated sediments in the Ditch?

A Yes, ma'am.

Q Is that right?

A Yes.

Q As part of your Section No. 7 that you prepared, you have a section called Cost Estimates.

A Yes, ma'am.

Q Did you obtain those cost estimates?

A I helped generate them.

Q How did you generate them?

(Whereupon Mr. Fort entered the deposition room.)

BY THE WITNESS:

A From basic quantities of material and unit costs from standard or similar construction jobs. There are published estimating manuals, means, costs.

Once you achieve your plan, you take a quantity, take off as near as you can come near the unit price or unit volume or unit length.

Q Did anyone assist you in obtaining the cost estimates?

A Yes.

Q Who was that?

A Mr. Hunt.

Q What was Mr. Hunt's position there?

A Civil Engineer.

Q Did Mr. Hunt help obtain the cost estimates for the other parts of the recommendation?

A Yes.

Q Was that Mr. Hunt's major involvement in the project, the cost side?

A He is a civil engineer. He designed sewer systems, earth moving for -- I expect he has 45 years' experience in that field.

Q But was his involvement in this project principally to obtain cost estimates?

A No.

Q He helped with the design and the proposals?

A Yes.

Q What portions did he help in?

A The design of the Bypass, the scheme of the design of the Bypass; the dewatering technique, things of this nature.

Q Another portion of your part of the Report is called Alternatives to Excavation.

A What page, please?

Q Page 86.

A Yes.

Q Did you prepare that portion as well?

A The majority of the parking lot contamination was prepared by Dr. Nordin.

Q Dr. Nordin?

A Nordin, yes. Dr. Nordin was principal investigator and he was the fellow that came up with the majority of the estimates of the quantities.

Q For both North Ditch and Harbor?

A Mostly North Ditch although he was involved in the Harbor some.

Q How did you go about determining what alternatives there would be in the proposal that you made for the North Ditch? Did you make a list of the alternatives?

A I don't understand what you mean.

Q You have a recommendation?

A Yes.

(Whereupon there was a brief interruption -- telephone call.)

BY THE WITNESS:

A This is a pretty long-winded answer, but if you look at Page 52 through 59, it is presented there.

Q Page 52 through 59 are the alternatives that you considered?

A Evaluation of alternatives for North Ditch Cleanup. It lists In-place Secure Storage, Incineration Versus Landfill of Excavated Soils and our recommendations on Page 58, 59.

Q Have you done, Mr. Cook, any further analysis for consideration of any of the alternatives listed in Section 5?

A For the North Ditch?

Q For the North Ditch?

A No, ma'am.

Q Just a minute -- since preparing the final report in --

A No.

Q -- in January of 1981.

A No.

Q Have you done any further analysis for consideration of alternatives for the Harbor since completing the Final Report?

A Considering additional alternatives, no, ma'am.

Q Reconsidering the alternatives you considered in your Final Report?

A No.

Q Has anyone from the EPA asked you to reconsider any of the alternatives?

A No. Wait, I take that back. In telephone calls EPA has called Marion Lail and said, "What if we do this or what if we do that," but these are primarily "what if" situations.

As far as putting this down in a formalized presentation, I don't think we have. There may have been a letter going out but I don't think so.

They had asked us to look at what happens if we do this but the majority of what they have asked us to do is in the Report.

Q Would you check with Mr. Lail to find out if there was core --

A I know I have asked him whether we capped off Slip 3. It's in the Report and these kinds of discussions have gone on, not frequently, but several times. But yet they are to me, just a further discussion of what alternatives we have already presented, so in the true sense that we consider more alternatives, I don't think so.

Q For example, to cap off Slip 3, what do you mean by that? How do you go about doing that?

A It discusses here encapsulating Slip 3, putting material in there and covering it over.

Q Why did you not recommend that to the U.S. EPA?

A Our basic premise was our recommendations should be state of the art, economically feasible and not allow the Waukegan Harbor to be lost to its present function. Capping Slip 3 would lose part of the Waukegan Harbor to its present function. That was not our decision to make.

Q Is that the only reason that it was not recommended, because it would lose part of the

Harbor?

A It was a portion of the reason, yes, ma'am.

Q Was it economically feasible?

A It is within a range of monies that fall within the least of the most costs we have proposed.

Q How did you determine economically feasible? How did you determine what was economically feasible and what was not?

A Let me change the word economically feasible to within an estimated cost. We prepared an estimated cost.

Now, whether I judged whether that was economically feasible, I did not. I prepared a cost that appeared within the realm of the other costs we were preparing. Judging one against the other on a trade-off basis, economic basis, that, we did not do. We tried to maintain that Harbor for its present use.

Q Did you consider whether the cost of the estimate would exceed any benefit that would come from the work?

A No. I had no way of judging that. Cost

benefit analysis, I had no way of judging because there were too many unknowns as far as I am concerned.

Q Why did you determine that one of the factors that you would consider in making recommendations is to keep the Harbor in the same state or usable state as it is today?

A I believe that was on the of the criteria that I got from the EPA.

Q The criteria that you got from EPA eliminated the consideration of encapsulation?

A No, it did not eliminate it. We prepared an estimate for the encapsulation.

Q But one of the criteria that you got from the EPA was that the Harbor, any recommendation that you made would have to be consistent with the use of the Harbor and encapsulation wouldn't be true, is that right?

A Supposing EPA changed their minds. At least we had prepared the alternative, right?

Q Did you, Mr. Cook, have any contact directly with any of the other EPA consultants on this project?

A Who?

Q For example, Dr. Thomann.

A Dr. Sterling and Dr. Nordin both have talked to Dr. Thomann.

Q Have you?

A Me personally, no, ma'am.

Q What was the substance of the discussions with Dr. Thomann?

A The substance of discussions of Dr. Thomann's method of calculating PCB concentrations and the other thing.

Q Did you follow Dr. Thomann's method?

A No, ma'am.

Q Do you agree with Dr. Thomann's method?

A It is a method that has application.

Q But you used a different method?

A Yes, ma'am.

Q Do you know whether you or any of the people working on this project talked with any other consultants?

A If you could name them, I'm sure they did but the answer is yes. Who, I don't know but they have talked to several people that were listed here.

Q You did not have any conversations with any other consultants?

A No, ma'am. Well, I met the firm that was retained by OMC one time when I was at the Harbor at Falcon Marine. Is that within the context of what you are asking?

Q These are consultants of the EPA?

A All right.

Q So consultants of EPA --

A No. Who specifically are you asking?

Q They have a lot of people. People from Raltech, people from Warzyn, people from ERG?

A I talked to Warzyn people, Raltech, yes.

Q For what purpose?

A To enter into a contract with them to take borings and run analyses.

In that context, yes, I have.

Q Did you talk to anyone at Weston and Company, Roy F. Weston?

A Related to this project?

Q Related to this project, yes.

A No, ma'am.

Q Did you talk to anybody from Roy F. Weston related to PCBs in the Harbor and the North Ditch generally?

A No, ma'am. I take that back. Roy Weston, Dr. Pete Ledderman, this was at -- EPA had hired him to make a change to my design; told me they were doing some work in the North Ditch. I said, "Don't tell me about it."

Q What change in what design of yours?

A The last package they turned down.

Q What was the design of?

A The treatment of 150,000 cubic yard lagoon and dredging of 50 parts per million above.

Q What was the change that was made?

A They were going to reduce the size of the lagoon.

Q How did you decide on the size of the lagoon in your recommendation?

A Compatible with the quantity of materials to be removed.

Q Is that the area that you were working in or involved in in this design of the lagoon?

A I don't do specific designs but I am a judge of the application of these designs, yes. I entered into the rationale that went into a lot of these things.

Q When you say you are a judge of those designs, in what areas are you a judge?

A Just through 30 years of experience, I have picked up areas that I have enough information to know whether they are right or wrong.

Q With respect to lagoons?

A Building an earthern structure which is a lagoon bank; treatment of water, concrete structure, all these sorts of things.

Q How did you decide that you needed a lagoon of a certain size?

A About the area that is available on the vacant OMC property.

Q So the lagoon was going to be placed on OMC's vacant property?

A We started out, it would fill the entire property. That was one limitation. The other was some compatible site, compatible with the volume of PCB to be cleaned up -- pardon me. Yes, the volume of muck to be cleaned up at some level of PCB contamination.

Q Did you design the lagoon to encompass the greatest amount of sediment?

A Initially, we did.

Q Was that changed?

A Yes.

Q Why?

A EPA asked us to.

Q Did they ask you to make it smaller?

A In essence, we cut it in half.

Q What was the basis for that?

A Less amount of dredging. The two large lagoons were for Whole Hrbor dredging, ten parts and above. The single lagoon was for 50 parts per million and above dredging.

Q When did the change take place?

A The dates are on the documents that we turned out.

Q But which document are we talking about. Are we talking about the March 1982 report?

A The March 1982 report? I didn't bring the date of the drawings and the specifications. Do you have those -- yes, it would be the March, July, September.

MR. WHITE: You don't have the specs and drawings?

THE WITNESS: No, I don't have the specs and drawings.

BY THE WITNESS:

A (Continuing) The bid package that we turned out consisted of three sets of documents: Specifications, drawings and cost estimates. One was for the fixed price contract for the lagoon and treatment facility.

The other was a cost fixed fee and the dredging and the dredging included contamination cleanup in Slip No. 3.

We did a package for 2 each 150,000 cubic yards lagoons and Whole Harbor dredging. That was with permanently built tanks, pads, intake towers, etc., and that was a fixed money contract.

Complementary to that was a dredging for the entire Harbor from ten parts per million and better and both those lagoons would have been used.

They subsequently asked us to revise that to one each 150,000 cubic yard lagoon and dredging, that would be a hard money contract, fixed

price contract. Complementary to that would be dredging from 50 parts per million and up and cleanup of the deep contamination of Slip No. 3.

Q Are the 150,000 cubic yards lagoon you described intended to hold 150,000 cubic yards of sediment from the Harbor?

A They will not hold that. That is their capability. They will not hold 150,000 cubic yards of sediment.

Q How many cubic yards of sediment would they hold?

A If you dredged the entire Harbor, the estimates of the quantities of material to be excavated here is roughly but if you dredge the entire Harbor, the lagoons would be approximately half full.

Q When you say half full, are you talking about sediments?

A Sediments, yes.

Q If I understood you correctly, you designed lagoons of a certain size capacity and EPA asked you to cut them down and then after that, you found out that Weston was changing the capacity again

and making that even smaller?

A That's right and then when Mr. Pete Ledderman said they were doing something in the North Ditch area, I said, "Don't tell me about it."

Q So you don't know why the changes were made?

A No, ma'am.

Q Mr. Cook, in dredging the Harbor, were you involved in any consideration of how much PCBs would be lost in the dredging procedure?

A Personally myself, I did not run a calculation.

Q Were calculations run?

A Dr. Nordin subsequently wrote a report dated May 1981. He conducted a literature review, the Volatilization of PCBs during Planned Waukegan Harbor Cleanup Operations.

Q That report consists of the review by Dr. Nordin of the literature on volatilization?

A It was primarily what we had suggested, that it might be wise to do a volatilization study on this sort of thing. EPA didn't have the time nor the money to allow this so they amended our

contract to include a literature search and a forecast of what PCBs might be involved and during the cleanup based on that limited amount of information.

Q So consideration of volatilization and loss of PCBs during dredging was based on the literature search?

A Yes.

Q That you were allowed to do?

A We did not do any specific testing ourselves.

Q I take it then in your opinion, the better way to have gone about that would be to do testing yourself?

A The people in New York State are evidently doing that because there have been several advertisements for firms to conduct a volatilization monitoring program during the forthcoming intended cleanup in the Hudson River.

Q Did you recommend or propose to the EPA to do a volatilization study?

A Yes, ma'am.

Q And instead of being permitted to do a study, you were authorized to do research to review

the literature?

A Paper study, so to speak.

Q Besides losses of PCBs by volatilization and lost by dredging, are there any other losses of PCBs that could occur in a project?

A Water moves in and out of that Harbor every day. If the water moves in and out of the Harbor, and that Harbor is contaminated, then PCBs are going to be coming out of the Harbor.

Q Would water move in and out at a faster rate during dredging?

A Actually no because you would remove a little bit of water but after a certain period of time, it would be a closed loop because you move it, retrieve it and put it back in so it's probably very little, if any. There might be some evaporation loss but it wouldn't be much, so during the treatment system, during the time we are dredging and treating the net result would be very little loss from the Harbor.

Q Are you then saying that the loss of PCBs from the Harbor during the dredging would be --

A As it is.

Q As it is without dredging?

A The movement of water in and out of the Harbor would not appreciably change because of the dredging.

Q In your opinion there would not be a loss of PCBs by the dredging process more than you would have every day if you had any, is that right?

A No, ma'am.

Q No, I am right, or no, there won't be any more of a loss?

A I think there would be a loss during the dredging time.

Q How would you have that loss?

A You are stirring up sediments. These sediments can become more intimately in contact with the water. You could increase the solubility of PCBs in the water.

This is primarily so in the Slip 3 area. You get down to the ten parts per million, 50 to ten parts per million, it's less. It is a very, very -- It would take quite a computer program to calculate this but yes, as you stir up these sediments, they can increase the solubility in the

water to some limited amount; not the total solubility in water but you could then if that water moved in and out, carry a little more PCBs to Lake Michigan while you were dredging.

Q When you say a little bit more?

A I don't have the slightest idea.

Q How would you decide?

A It is such a complicated -- temperature, movement of ground water into Waukegan Harbor, all of these things are so variable that I don't have the ability and no one in my office has the ability to do more than make a scientific guess.

Q How do you propose to compensate for this loss of PCBs through dredging by mixing up the sediments?

A Compensate, what do you mean by compensate?

Q To avoid it or minimize it, shall I say?

A The silt curtains were an attempt to do it.

Q You designed two silt curtains at Slip No. 3?

A Yes, ma'am.

Q Why two?

A So they could control the water flow a

little bit better and if you did get a flow of water out of that area, you could put a flocculant or something in there that would cause these sediments to settle rapidly and not be dispersed throughout the whole Harbor. At the same token, you could put an oil steamer or something there that would prevent it from coming out of Slip 3.

Q You mean something in between the two curtains to catch the sediment coming out?

A If you saw that you were getting a reverse flow, there are flocculants that you can use. Do you understand what a flocculant is?

Q No.

A It causes finely suspended particles to settle.

Q Whose idea was it to propose two silt curtains?

A That thing probably had as much cussing as discussing than in any other part of the project. I think it was a compromise for safety.

Q What do you mean by safety, by the movement of PCBs?

A Yes. In reviewing some of our discussions,

people said if that just takes one of the "what ifs" out, you can prevent the material from flowing back.

Q How effective would the double silt curtains be?

A That is a very good question.

Q No. 2 today, how about that?

A That is relative. I can't answer but more effective than one curtain.

Q PCBs would still move out?

A It is possible. The possibility is there.

Q There is no way you can tell me how effective the two silt curtains would be in minimizing --

A If you can tell me there will be no 4-foot seiches, no 12-inch rainstorms, no sudden depressions causing great fluctuation in the level of that Harbor, then I can give you a better answer. But if you can't answer that to me, I can't give you a better answer.

Q Are these factors you just mentioned --

A They are all natural phenomena that have and can occur in Waukegan Harbor.

Q When you say that, what happens to the effectiveness --

A You wash this material out past the silt curtains.

Q So the silt curtains would not be as effective under those circumstances?

A Not as effective. You would have a tremendous outflow from around the silt curtains.

Q What type of material did you propose to use for the silt curtains?

A It is stated in here. There are any number of types of material. It is also stated in our design document. I literally do not remember the trade name, but it is a plastic-type material.

Q Is any one better than any other?

A If you were to talk to one manufacturer from another, you probably would get several yes answers.

Q Is there a thickness to the silt curtain?

A Yes.

Q That you would propose?

A We specified that also, but I cannot remember what the thickness was.

Q What are the considerations in choosing the thickness of the silt curtain you chose?

A We designed it for 4-foot change in water level, anchored at each end theoretically, anchored at the bottom.

Q I am sorry?

A Anchored at the bottom.

Q Your silt curtain would be anchored at each end of the Harbor and at the bottom?

A Anchored by a weight and it must take the tension there from water up against it to the point that that chain would be suspended.

Q Are you aware of this type of silt curtain being used?

A Yes, it has been used. I cannot point to a specific instance where it has been used but people we talked to have cited instances.

Q Who did you talk to about the silt curtain?

A I cannot, I do not have their names. If that is information you want, I would have to dig it up.

Q Were these manufacturers --

A Yes.

Q -- of silt curtains?

A Yes, ma'am, people who have done this

before. They are here around the Chicago area if I am not mistaken.

Mr. Hunt was the fellow who did the contacting of those people, those fellows. I would have to go to his file to find out. I don't remember who it was, offhand.

Q In the alternatives in Section 5 in the Final Report, there is a section on In-Place Destruction.

A The page, please?

Q 53.

Who did the background work on In-Place Destruction alternatives?

A Dr. Nordin and Dr. Sterling, I think. It is, I think, hexace acetic acid. That is in-place destruction.

Q I take it that today you would not recommend in-place destruction of either the Harbor or the North Ditch, is that right?

A That's true, yes. That is true.

Q The next alternative is In-Place Fixation. Is that again a Dr. Nordin and Dr. Sterling area?

A I think that was a mutual consideration

from each of several of us. They talked with the people that were involved in that type of apparatus. We discussed its pros and cons. We, I think that was sort of a collective thing.

Q Is it feasible?

A Feasible, yes, it is feasible.

Q What is the reason that you rejected it as a consideration?

A It entails mixing the materials in their natural environment with some material to set them up, harden them, kind of like a concrete. The material you are putting in there has a volume to it. You add that to a volume already there, you have two volumes of something.

You do that in the Waukegan Harbor, you have raised now, the current levels of sediment and you have put a concrete liner in the bottom of that Harbor.

Now, if you raise the bottom of it, you may not be able to get ships in and out of Larson Marine, let alone the large cement ships into Slip 1 without dredging.

This almost prevents future dredging because

you are putting a concrete-like substance in the Harbor.

Q Would it be fair for me to say then that the reason you rejected it was because it would interfere with the use of the Harbor by the boats?

A That and you cannot predict, we cannot predict how this material would stay fixed for the next 10, 50, 100, 200 years. It could break down, leach out. Concrete is not an indestructible material.

Q Is there any way to determine whether it is breaking down, leaching?

A Run a test on it. Now, then, if you run enough tests by the time you got your answer back, your problem is still there.

Q Did you have an opinion or do you have an opinion as to how long --

A It is not a data published that we could find, no, ma'am.

Q So you just did not know whether an In-Place Fixation would remain stable?

A True.

Q In the future?

A I do know that concrete under water, wet concrete will deteriorate with time.

Q Is that knowledge that you have based on any work that was done?

A Personal observation.

Q In what areas?

A I have seen it in buildings, in paper mills where they have tanks that are continually wet. The inside of this concrete will leach away.

Q You mentioned a Japanese company who successfully used the chemical fixation with no reported leaching since 1973.

Do you know what type of procedure they used?

A I do not but if I'm not mistaken, I think Dr. Nordin talked to them.

Q Why did you conclude in the section that chemical fixation might be a viable method of local containment but should not be considered a solution for the entire area?

A The materials that you would have to use to leach PCB out of soils and sediments are volatile hydrocarbons. On a large scale, I don't know if it

has ever been done in the order of magnitude you'd have here and it's indeed possible that you could generate as big a mess as you could clean up. You would have to recycle. You would have thousands and thousands of solid. If you didn't recycle in the once-through process, you'd have to recycle it and then you'd have to have recycling plans, this sort of thing.

Dr. John Nordin has a very good dissertation on that. It might be worthwhile to ask him.

That is the basis. Small, you can take care. But large scale, it gets to be a formidable problem and the plan to do it might be more obnoxious than what you are getting rid of.

Q When you say large scale, are you talking about --

A 150,000 to 160,000 cubic yards of material.

Q Under that would be feasible to do it, in your opinion?

A Don't ask me for a quantity. Don't start at one yard and say two, three. If these things are small quantities, yes.

Q But what I am asking is under 150,000 cubic

yards, would that be considered small quantity?

A Under 150,000, no.

Q What I am asking is, can you tell me at what line you would draw --

A No, I can't.

Q -- between a small area and a large area?

A I can't. You have to look at this on the application.

Q Do you know of anyone who has ever recommended to the EPA, in-place fixation?

A No.

Q Did you consider in-place secure storage?

A Yes, ma'am.

Q Why was that rejected?

A The proposal for in-place secure storage involved a cutoff wall surrounding the area that you want to isolate. This cutoff wall is water won't pass through it. You then imbed this cutoff wall into the underlying clay liner which is throughout the entire Waukegan area.

The reason we do not recommend it is because we have no idea of the integrity, the imperviousness of that underlying clay liner.

Q Did you do any research?

A Not for that kind, not for that. The only thing we did on the clay is a test for PCBs. We did no compaction test or anything of this nature.

Q You did not test and no review to determine whether the clay would hold up?

A This is true but our civil engineers and I know a little bit, enough about geology to know that Mother Nature does not place clay layers in nice, even homogeneous mixtures. They have lenses, they have other materials in them. I have yet to see in nature, a clay layer that is nice and thick and homogeneous that you can bank on.

All of these clay liners for the lagoon storage places are clay liners that have been brought in and recompacted to make impervious layers. Mother Nature doesn't build that kind of clay liner.

Q Did the alternative involve setting up an artificial clay liner?

A Some of them do, yes, ma'am. The one we suggested did.

Q You did not suggest in-place secure storage as a permanent alternative?

A That's right.

Q You did not?

A We did not.

Q My question to you is why not?

A Because we don't know of the integrity of the underlying clay liner.

Q So for that reason you recommended off-site disposal?

A We did not recommend off-site disposal. We recommended on-site or off-site, whichever could be accomplished. We recommended on-site disposal for economic reasons, it being the less expensive of all of them. However, if OMC will not accept on-site disposal or if you cannot get a waiver from EPA for being close to the Lake or in a water table, then we recommend an off-site as the next viable option.

Q So your first recommendation is on-site permanent disposal?

A That is right.

Q Where would that on-site permanent disposal be?

A In the parking lot north of their present

building and south of the Ditch.

Q What would be done to the parking lot to make it acceptable for permanent on-site disposal in your recommendation?

A Warzyn's Report which is Appendix 4, I believe, Appendix No. 4 in our appendix, they go into a very lengthy dissertation on several methods. This is one they suggest. We suggested off-site.

Q Warzyn recommends several places for on-site disposal, do they not?

A It comes down to Scheme No. 2. However, whatever page that is on -- on Page 140, Option: On-Site Option 3 is the one we recommend.

Q On Page 140 of your Final Report?

A Yes. It lists the dollars and it is described on Page 136. If you look at the insert pocket No. 1 in the appendices, that happens to be Sheet 7.

Q What is the option called?

A Option 3.

Q Option 3?

A In the lower right-hand corner, you will see Sheet 7 of 12, very fine print?

Q Yes, but it is Option No. 3?

A Top of the title block says OMC Site Option 3 and it is narratively described beginning on Page 146 of our Final Report.

Q Is that your recommendation for permanent on-site disposal of the North Ditch excavation or the North Ditch and the Harbor?

A Both.

Q Both?

A Yes. That presupposes that they will be done in the same time frame or that you can dispose of them in this area.

Q In your opinion, is on-site disposal as indicated at least on Option No. 3 a feasible disposal means?

A Under the conditions under which we have stated.

Q And the total cost for that disposal option, you have listed on Page 140 as $11,534,000?

A Yes, but I want you to read Page 148 and that second sentence in the top paragraph applies to most all cost estimates.

It says:

"There are many indeterminate cost factors involved, and a significant spread between several contractors' bids can be expected. The dredging costs" --

whatever it says there applies to the North Ditch construction as well. And it is probably more so because the North Ditch has a less well-defined boundary of contamination than the Harbor and these, all of these are presupposing that the quantities of material we say must be excavated in the Ditch on the parking lot is indeed within the realm of what will fit into the volume of the on-site disposal plan of Option No. 3 in the neighborhood of three hundred-some thousand cubic yards of material.

Q In the on-site disposal, you would still use the lagoon to hold the dredged material from the Harbor?

A The lagoons are necessarily to reduce, to get the muck sediments out of the dredging water. And they happen, the lagoon happens to be the most expedient way of doing that, of doing it that way.

Q How long do they stay in the lagoon before they can be placed on the on-site disposal?

A One month, two months, three months after they have been dewatered, they should be in a condition similar to what they were in situ. Now, that period of time then, you ought to be able to put them in a repository.

Q When you say one month, two months or three months, --

A It depends on how much rain you get, these sorts of things. It is sitting out there depending upon pulling the water off the top of this to reduce its volume.

If you get a lot of rain, you are not going to get these sorts of things. It depends upon natural factors. Again, this is predicated on Dr. John's lab tests.

There may be a slight variation of that lab test.

Q How long will it take to dredge the Harbor?

A Another very good question again.

MR. WHITE: That's three, Roseann.

BY THE WITNESS:

A We have made a kind of a balance of the volume available for lagoons; a cost of a water

treatment system; the cost of dredges, these sorts of things and sort of balanced them out. Our proposed plan entails 150,000 cubic yards lagoon in which you would alternately fill from the dredge into the Harbor.

We have a water treatment system that operates at 1,500 gallons per minute, operates that seven days a week, 24 hours a day.

If you went strictly on that basis on the amount of water that you brought in there, you could run a calculation. However, there can be a slight difference in the suspended solids in the dredging method that you used. You can get as low as 15 percent solids or as high as 30 percent solids. If these solids vary, the amount of water you put into the lagoon varies but a realistic estimate for dredging from the 50 parts per million to the 500 parts per million at 50 parts per million would completely close down Larson Marine. We were nominally looking to 30 to 60 days to do this. It depended on whether the dredger would have breakdowns, would have problems, these sorts of things, so we allow a little bit time for breakdowns

and so on.

Q How much time did you allow for breakdowns and this unforeseen circumstance; for example, rocks in the Harbor might break the dredge.

A If you run a quick calculation, the 1,500 g.p.m., 24 hours a day, seven days a week, that is about as half as fast as a dredger can dredge in an eight-hour day, so what we are saying is we have allowed about 50 to 100 percent breakdown time for the dredging.

He only needs to operate one day. If he has trouble, wait a day and a half, these sorts of things. He can dredge faster than we can treat.

Q You have a treatment level in your treatment system, do you not?

A Yes, ma'am, there is a treatment level.

Q What is that treatment level?

A 1,5000 gallons per minute.

Q You have an effluent level that you are attempting to meet in the treatment system, a one part per --

A Billion.

Q Billion?

A Yes, ma'am.

Q What does that mean?

A That means that the water that comes out of that treatment plant after it has gone through, has been stabilized, after we validated it, the PCB content in that water will be less than one part per billion.

Q How did you arrive at the one part per billion level?

A EPA.

Q They told you that is what they needed?

A Yes.

Q How are you going to achieve that?

A It is achievable. It is attainable. These are the things we are reasonably sure.

Q How do you attain it?

A Dr. Nordin ran lab tests on it. It's easily attainable through sand filtration. First of all, we transfer material from the lagoon into a sedimentation basin where we treat it with a floculant or some other method to reduce the suspended solids, send it through a sand filter and through a carbon filter, into a clear well.

We test the clear well until the process has been proven and Illinois EPA says as long as we don't shut down the process, we can sample periodically to prove.

We also have alarms indicating certain things in our treatment, if the pressure should go up and these sorts of things.

As long as our process stays the same, we can sample periodically and discharge into the Harbor.

Q If you are not able to meet the one part per billion treatment level, what effect would that have on your system?

A I don't think that is a valid question.

Q You don't think there is any reason you would not be able to meet it?

A That's true.

Q You made recommendations, didn't you, Mr. Cook, on the type of dredging to be used in the Harbor?

A Yes, ma'am.

Q Am I correct that the type of dredging would differ from Slip No. 3 to the rest of the

Harbor?

A It doesn't have to.

Q Did you make a recommendation that the same dredging equipment be used?

A Slip No. 3 in our design, we asked for a lesser dredging rate than we did in the rest of the Harbor.

Q What do you mean by lesser dredging rate?

A Withdrawal of water at a lesser rate, 600 cubic feet per minute versus 50 to 500 cubic feet per minute.

Q Smaller pumping capacity?

A Yes.

Q What is that?

A To keep down the resuspensions of solids, keep down the royalty, minimize the amount of material resuspended, recontacting water.

Q What type of dredge --

A May I make a statement? These are not in the Report. These are the subsequent designs that we prepared as a result of the recommendation in the Report.

Q Right.

A Is that a valid reference? Can I refer to what was done versus what was said in the Report?

Q You mean what are designs?

A Yes.

Q You mean the design specifications, sure, absolutely.

A You won't find this discussion in the Report is what I'm saying.

Q But it is in the specifications submitted to EPA?

MR. WHITE: And they have the specifications.

BY MS. OLIVER:

Q What type of dredge?

A Pneumatic, hydraulic; either.

Q So the type of dredge does not make any difference for Slip No. 3. It is the pumping capacity?

A No, it is not true.

Q What is not true?

A The type of dredge is all important. We did not want to dredge with a dredger that goes in there with large cutter heads, a lot of gyration, resuspended solids, shake them around, dig up the

sand, these sorts of things. These sediments are organic materials, reasonably lightweight, much lighter weight than sand.

You mentioned earlier that your dredging rates are much higher because you have to transport, you have to have a transport velocity for that sand. These sediments are really very lightweight so you don't need transport velocity so we want to minimize that.

Q Has anybody told you that on-site permanent disposal is not acceptable?

A No, ma'am.

Q When you mentioned earlier that the caveat in your report on the cost estimates, is it your opinion that these cost figures that you give with your recommendations are not official numbers?

A Those were prepared 1980. Just today there is an escalation in them.

Q What is the escalation?

A I can't cite you the last figures but they run anywhere from 10 to 15 percent per year, based on what type of industry.

Q Ten to 15 percent higher?

A Yes.

Q Per year?

A Yes, ma'am.

Now with the economy changing, it is a little bit harder to judge. Road building escalation has decreased.

Q If you were asked today for an estimate on your recommendations, your estimates would be higher than they would be in 1980, wouldn't they?

A Yes, ma'am.

Q It wouldn't be lower?

A No. Seldom.

MR. WHITE: Is this a good time to take five or ten minutes' break?

MS. OLIVER: Sure.

(Brief recess taken.)

BY MS. OLIVER:

Q Mr. Cook, your Final Report that you submitted talks in terms of areas to be dredged under 10 parts per million, over 10 parts per million, over 50 parts per million and over 500 parts per million for the Harbor.

A Ten, 50, 500, yes.

Q How did you propose that the Harbor be dredged, to reach a parts per million level or to reach a cubic yardage of sediment removed?

A It is not for me to say. All I am doing is proposing a method and a line of demarcation. If EPA wants to make some line of demarcation different from that, so be it.

Q In order to reach a certain level of parts per million of PCBs, the cubic yardage could be more or less than what you have estimated, is that right?

A I don't understand that question.

Q How would you go about dredging the Harbor to reach a level of 50 parts per million?

A There is a line of demarcation on it. You dredge from that line up.

Q Would you have to sample along the way to determine whether in fact you are reaching 50 parts per million as you are dredging?

A I don't think I understand.

Q You probably don't. Why don't you explain?

A No, I'm going to give you a picture. I would refer to the list of --

Q Are you looking for --

A That last page, where is that?

(Ms. Oliver indicated said document to the witness.)

THE WITNESS: Yes, that.

BY MS. OLIVER:

Q Are you looking for Figure 30?

A Those are the lines of demarcation.

Q So in order to --

A Approximately, the approximate lines of demarcation.

Q The approximate lines of demarcation?

A Right.

Q In order to dredge the Harbor to remove 50 to 500 parts per million or over 500 parts per million, you would dredge from a line at Slip No. 1 through Slip No. 3?

A Right, that is correct.

Q What happens if you go back to that area after you dredge and find out that you have a hundred parts per million?

A I'd be vastly surprised if you did.

Q Is that not possible to happen?

A We don't think it will happen.

Q Why not?

A Because we propose a sampling plan once the dredging is done to verify that the sediments have been removed.

Q I thought that is what I asked before.

A Oh.

Q As you go through the dredging, you will sample spots that have been dredged to verify that the sediments with the PCBs have been removed, is that right?

A There is a description of a measurement plan before and after dredging to assure that you have removed the sediments in the areas that you were, well, 50 and 500 and on up.

Q My question is, Mr. Cook, if you do this sampling in an area and find out that you in fact did not remove the PCBs, what do you do?

A You wouldn't tell if you didn't remove PCBs. You would tell that you didn't remove sediments. If you want to tell that you didn't remove PCBs, you test the sediments but as quality control for dredging, it is measurement of removal of sediments.

Q So you would measure how much sediment is being removed?

A Yes, ma'am. We have specified a certain amount of removal and the man will keep dredging until that material has been removed.

Q Is there a quality control setup to measure whether PCBs are in fact being removed?

A In the sediments being removed?

Q No, what is remaining or what the levels are in the areas that are remaining after the sediments are removed?

A The shortened version, 150,000 cubic yards with dredging 50 parts and above calls for a sampling plan throughout the entire Harbor when they get done, which is presumably to learn, to determine what has happened to that Harbor as a result of the dredging.

Those are costs that were not even addressed in our report but have since been added to the design version.

Q Who added that --

A EPA.

Q -- sampling program?

A EPA.

Q Is it possible at the end of dredging that the sampling program could be underaken by the EPA and could be found that there are still areas of over 50 parts per million in the Harbor?

A Remotely, yes.

Q So that is possible and that is what the sampling is intended to determine?

A The reason being that although we have called for a rather finite line of demarcation of 50 parts per million in the Report, in reality we have moved the line of demarcation slightly north so that we would not encompass the water intake structure that is for that South junction Johnson Motors Plant.

There may be a spot or two south of where that silt curtain would be that you would fine 52, 53, 54 parts per million so your question must be answered yes, there is a remote possibility because we actually found right close to that area, one or two spots.

Now, you go in and sample again and found it did not register in that area, it is indeed possible you may find one or two places that are

above 50.

Q What about by the dredging process itself, moving the sediment around.

Is it possible that you won't take the PCBs out of the sediment?

A You take the PCBs because the PCBs are very tightly adsorbed to the sediments. The PCBs in that sediment do not come out readily. Your sediments are primarily organic and PCBs adhere quite well to organic materials.

Q When you say they adhere quite well --

A Adsorb.

Q Adsorb, meaning to say --

A Stick to it, not absorb, but adsorb.

Q What will be the dredging efficiency?

A We specified, I believe, 95 percent efficiency to 500. Higher than that, I believe a 98 percent, up in the upper end of Slip 3.

Again these are, I think our design documents may be slightly different from our study so if you want to know the exact dredging efficiency that we are currently contemplating, refer to the first or second design patent.

Q Do you have that with you?

A I do not have it with me.

Q Are those dredging efficiencies that are something in your experience you have seen using these type of dredges?

A It is something better than you probably would normally expect to get but this dredging is being approached in a manner different from ordinary dredging.

Q So you would not normally expect to get a 95 or 98 percent efficiency in dredging?

A That is probably true, yes, ma'am. Man is going to have to exert a little care.

Normally people dredge just to move material and they really don't care where they get it. We want the material all to be removed now.

Q In this case, more care has to be taken than in the normal dredging procedure to be sure that you get the material?

A Normal being different from the kind of dredging where they would come in and do that lower Harbor just to deepen the channel so the big ships

could come in. This is to remove the sediment, the material. The ulterior motive is not to deepen the channel, per se, but to remove the material.

Q So it is not the normal type dredging that occurs?

A A little more elaborate, yes. We believe it is attainable, though.

Q When you say that you would expect a 95 percent or 98 percent dredging efficiency, does that mean you would expect to have 5 percent of the material or 2 percent of the material left and not dredged?

A That is basically what the difference would be, yes.

Q That means that you are not getting out 2 percent or five percent of what you intended to get out, is that right?

A Yes, yes.

Q Do you know what that material would consist of that would be left in the sediment?

A No, because we have not sampled all these materials but the areas where you would probably get the least efficiency is adjacent to the bulkheads.

Q Where would that be?

A Around the edge of the water, the water-line. There are bulkheads, piles driven around. These are the areas you might not be able to get exactly up to.

Out in the area of the slip and Northern portion, there, you ought to be able to get your dredge. He has been told to probe for objects that might be old automobiles or tires or boat anchors, things of this nature; loose cable so as to find these things and get rid of them, pick them up and deposit them in the lagoon prior to dredging so that he can get a clean area to dredge.

I say old automobiles and I say it seriously. It wouldn't surprise me a bit to see an old car in the bottom of that place there. That part of the Harbor has not been dredged for a considerable period of time.

Q That would slow down the dredging, wouldn't it?

A No, you just pick it up, wash it off, and put it in the lagoon.

Q My question was, Mr. Cook, though, that the

percent of material that you are not able to dredge, you don't know what kind of material, what type of material would remain?

A You mean -- it would be silt, the same as the rest of the material in the muck as we call.

Q You don't know what that concentration would be?

A No.

Q You mentioned it wouldn't surprise you to find automobiles in the Harbor or cable. Did your cost estimate take into consideration finding those types of things?

A We did this by allowing the man a considerable amount of downtime in these dredging operations to change dredge heads. That is the efficiency of dredging.

Q Is that a 50 percent more time than you permitted for?

A If indeed the man can dredge and keep up with the dewatering in Slip 3, the dredging requirement there is 600 cubic feet per minute.

If there are no obstructions in the bottom and he went right through, he ought to be able to

dredge 600 into 7,000. That is twelve hours, is it not, something of that nature? That is ideally how long it would take him.

Q Is the ideal situation likely to happen out there?

A No, therefore we said to take into costs, we said it would take him about two weeks to do it. These are the kinds of numbers we have introduced into cost estimates. Estimating times what it costs you to keep the dredge, paying the dredge.

Q What other factors have you considered in your cost estimates to give you some leeway, so to speak?

A Put a contingency factor on all of them.

Q What contingency factor?

A Twenty percent.

Q Twenty percent?

A Yes.

Q Anything else?

A Basically when you prepare a concept cost estimate like this, you always are reasonably generous with your quantities and unit prices because it is not too difficult to recognize the bricks, but sometimes

you forget the mortar. So you allow yourself these sorts of generosities, each one being refined during the next stage of design or study or whatever.

So these are indeed conceptual cost estimates, not intended to be an estimate of what an actual contracted cost would be.

Q Do you have an opinion on what the actual contract cost of any of this work would be, any of your recommendations would be?

A Would probably be at least 15 to 25 percent because of escalation.

Q At least 15 to 25 percent higher than what you have estimated here?

A Yes, and we have found if more things like this quality control, after the dredging has been done has been added at the request of EPA. Therefore, that would add another five percent and I am guessing.

The costs were reasonably valid for the time and the condition under which we prepared them. The situation has changed.

Q The situation today has changed so that in your opinion it would cost at least 20 to 30

percent more that what you estimated here?

A Including escalation and other factors.

Q We haven't talked about off-site disposal and you made some recommendations in your report on that item. Who decided to add a discussion of off-site disposals?

A That is not the way it occurred.

Q How did it occur?

A You started out with an off-site disposal.

Q At whose recommendation?

A This was basically the only viable alternative that we have at that time, was to put it somewhere else, off-site.

Our original idea started off with putting it in some repository that met Government standards and the only place that could be would be off-site because they do not meet, the on-site security does not meet the regulations.

Q But your final recommendation was first choice to be on-site disposal?

A If OMC would accept the responsibility for care of it, and if you could get a waiver to put it in there and it was predicated on economics.

Q Economics meaning then --

A It was cheaper to put it there.

Q In your investigation into that confirmed that it was cheaper to put it there, didn't it?

A Yes, ma'am.

Q Let us go back a minute to the on-site disposal option that you recommended. You mentioned that you would recommend it if OMC agreed to accept it, is that what you said?

A Someone had to be responsible for it while it is there. Someone has to take care of it just like CECOS or BFI would have to. You would have to give it in essence, perpetual care for some period of time.

We presumed that OMC being on their land would do this. That is our presumption.

Q What type of maintenance is necessary for your on-site disposal?

A There is underground leachate systems. If there is water coming through there, it is called leachate and you periodically sample that to see if it is leaking so you have to have that kind of maintenance.

Q Any other maintenance?

A If you built it with a cap over the top of it, used it for a parking area, just the surface maintenance.

Q Did your recommendation include a cap over it?

A Oh, yes. Our recommendation closely approximates a design that would fit in an area that would be acceptable by EPA standards. Only it is now placed in the place where it is not, would require a waiver to be built, constructed primarily identical to an off-site security storage area.

Q Would it be constructed the same as CECO'S, one of the landfills would be?

A Clay.

Q Have you done any work with off-site landfill disposal sites like CECO'S or Browning-Ferris?

A We have contacted these people, yes.

Q For this project?

A If I am not mistaken, other projects, but I can't recall which ones. I know we knew of them before this project.

Q Who was the person responsible for

contacting --

A I think it was Harry.

Q Harry?

A Sterling.

Q Dr. Sterling contacted the off-site disposal places for this project?

A Yes.

Q Do you know whether Dr. Sterling was the person who had this previous contact with these places?

A I don't know but he was the head of my environmental department so it possibly could have been.

Q You mentioned the CECOS landfill site and a Browning-Ferris landfill site that were possibly off-site disposal areas, is that right?

A I believe CECOS is the way you say it.

Q C-E-C-O-S?

A Yes. We actually looked at several others.

Q Do you know whether any of the off-site disposal areas that you looked at were capable and available to receive the sediments that you would remove or propose to remove, the sediments from the

Harbor and the Ditch?

A The only one we know that is acceptable is the CECOS in Ohio. I beg your pardon. I think there is some in Alabama but the closest one is CECOS.

Q Do you know whether CECOS has the land available presently?

A I believe they do.

Q To accept --

A If not, they could make it available and having already been permitted, I believe for PCB acceptance, I think it could be done.

Q Do you know how Dr. Sterling got the cost estimate for the off-site disposal areas?

A I think he talked to them on the telephone. He was up in that area looking at several and I don't know whether he went to the Browning-Ferris site or not. He could have but he spent a day or two looking, talking to the people about disposal sites.

Q Talking to people at Browning-Ferris?

A And I think other people also.

Q It is your understanding, is it not, that Browning-Ferris is not licensed to accept PCBs?

A He does not now have a license, yes, ma'am.

Q Before he could receive any PCBs it would have to have a license, is that right?

A He would either have to build a facility and have it licensed, yes, ma'am.

Q Was the Browning-Ferris site your second choice if the on-site disposal area was not available?

A And if indeed the Browning-Ferris site had to be made acceptable, if he could get a license, presumably he could.

Q How long would you propose to hold the sediments in the lagoon until disposal off-site?

A No longer than necessary.

Q Do you know how long that would be?

A As soon as you have a site available.

Q Did you determine how long it would take to transport the sediment from the lagoons to the off-site disposal place?

A You have a certain quantity of material. You have a vehicle that has a certain volume within limits. You divide that vehicle into that volume and those are the number of trips you have to make.

Q Did you do any calculations on the amount of sediment you would have in the lagoon --

A Oh, yes.

Q -- and the capacity of the trucks or whatever you are using?

A Well, as I previously stated, we know how much material is in the Harbor for the area to be dredged.

Q For example, if you excavate the North Ditch according to the proposal --

A Roughly 160,000 cubic yards.

Q And you dredge the Harbor over 50 parts per million?

A That is around 50,000 there.

Q That is approximately 200,000 cubic yards?

A Yes, ma'am.

Now, there are other bits and pieces. You have to take the surface of your lagoon out.

Q How many cubic yards would that be?

A I think we estimated. It's in here. Let me see if I can find it for you. It is at the top one of these pages and I can't remember the page. It was the summary of what the yardages of material

were and the extraneous material we anticipated would be involved.

Q Would the lining of the lagoons have to be treated?

A Treated?

Q Yes, in any manner before you could dispose of anything?

A Disposed of, yes.

Q Anything done to the lining before you could --

A The surface of the lining would probably have to be disposed of in a secured landfill. We allowed for some of that material.

Q How about on page 1 to 8?

A Ah, yes.

Q Are we talking about --

A Plan 3 is the 2 150,000 cubic yard lagoons plus Whole Harbor dredging, so Plan 3, that is just the sediments out of the Harbor. If you wanted to put it in a secured landfill, you would add to that, the extra 20,000 of extraneous materials and materials that would be removed from the North Ditch which in round numbers is 160,000, so you are looking at

320 - 30 - 40 - thousand yards.

Q In order to transport that amount of cubic yardage off-site, did you do any calculations to determine how long that would take?

A No, this specifically said we do not consider off-site take-off. Read the Report.

Q Isn't it likely that all of the 300,000-plus cubic yards will not be transported at one time?

MR. WHITE: In one truck?

MS. OLIVER: At one time.

BY THE WITNESS:

A Well, yes, it is a logical conclusion because you can't get 350,000 cubic yard containers.

Q Do you know what the truck capacities of trucks that move materials like PCBs are? Do you know how much a truck can hold?

A Ten, 20, 30 yards or you can get the right kind of vehicle and you can get greater than this. We have discussed at length how you would prepare a vehicle to carry this material and it could take some special precautions.

Q While you are transporting 20, 30 cubic

yards at a time, did you propose to do anything with the remaining 300,000 cubic yards in the lagoon?

A Bear in mind there are two different kinds of material here: Sediments and North Ditch materials which are primarily sediments. We mentioned in our Report that when you are taking these sediments out of that lagoon, you do it by exposing the minimum amount of surface area as possible and if necessary, put back on there, some material that will keep volatilization down.

The other material, the same thing would apply. We say as you remove, as you excavate these sands in the North Ditch area, do it in as small a volume as possible and take precautions to minimize volatilization of PCBs from the exposed area.

Q How do you do that? How do you propose to do it?

A There are several things that can be done and incidentally this is one thing where we have changed our minds in what the Report says. The Report says you can use manure, it is an organic material, or you can use the sludge from the sewage

treatment plant.

I am serious. You can use tarps and we said plastic covers. We now do not recommend plastic covers nor tarpaulins because plastic covers can increase the temperature beneath them and cause more volatilization. Also it is possible that the covers themselves might be contaminated and if they tear or are blown around, you could be distributing materials like that so you would use some organic material or something to keep the surface covered up.

Q When you say you want to take small amounts out of the North Ditch to minimize volatilization --

A Minimize the surface area that you have exposed.

Q How small are the areas?

A I don't know. How large is large, how small is small. It is very difficult to say.

Q What you would propose was as these areas in the North Ditch are being excavated, the material is covered by sludge or some --

A Organic material.

Q And then placed in a lagoon for temporary storage?

A If indeed -- no, not the lagoon. We have never -- one of these scenarios, two of these scenarios does describe using the lagoon as an on-site repository. It would have to be made different from what it is now but we have always been under the impression that if you are going to excavate the materials from the North Ditch area, you would have a place to put them when you started excavation, either the on-site secured storage area or an off-site secured storage area.

Q So the North Ditch excavation would require immediate removal to a permanent repository, either on-site or off-site?

A If I am not mistaken, that was part of the reason the Greeley & Hansen North Ditch Bypass was stopped.

Q Is that because of problems in volatilization?

A No, they had no place to store the contaminated material.

Q But is the reason that you want it deposited immediately because of volatilization?

A To minimize handling it. If I am not mistaken, the regulations literally infer that if

you take a scoop of material greater than 50 parts per million, you cannot put it back where you got it. You must put it in a secure storage place so that is the literal translation to me.

Q So Mason and Hanger's recommendation is that any excavation work in the North Ditch would be the materials would have to be removed immediately to a permanent storage place?

A Yes, that primarily is true but there is one scenario where we make the lagoon larger, put everything in the lagoon and rather than everything in the area north and south of the building and east and south of the building. That is Scenario 5-A and B in here.

Q Is that a permanent storage solution?

A There are several alternatives. If you see Alternative 3, if you follow all the alternatives through, one of them is to make the lagoon ten foot thick instead of three feet thick and use that as a secured storage area.

Q But we are still talking about a permanent storage?

A Yes, but again --

Q And under no circumstances would Mason and Hanger recommend that the excavation of North Ditch be temporarily stored in a lagoon and then be taken someplace else?

A There is one of these scenarios that addresses that, yes. You see, there are many scenarios as you have fingers on my hand.

Q But I am asking what your recommendation is?

A My recommendation is No. 3 and that is you put it in a place once you have picked it up, either on-site or off-site.

Q You put it in a --

A Secured storage.

Q These sediments from the Harbor can be temporarily stored, in your opinion?

A The only reason we talked about temporary storage was they wanted to remove those sediments before they had a place to put them and that's why we said temporary storage. The scenario we went through was to build the lagoon and dredge the Harbor before they had any place to put that material in a secured storage.

We talked to Illinois EPA, U.S. EPA and called it a temporary storage lagoon. That is the only scenario where we really have involved temporary storage. Do you follow what I'm saying? It is a matter of timing.

Q What would your recommendation be as to how the work in the Harbor now should proceed?

A We need to dewater. The lagoons could be used to dewater.

As I stated earlier, we need to leave that no longer than it takes to reconsolidate the material.

Q You would still have lagoons there for purposes of dewatering and then disposal someplace else?

A Yes, ma'am.

Q You mentioned that Dr. Sterling is in charge of your environmental department.

A Yes.

Q Is that the department that was responsible for this project?

A (Nodding affirmatively.)

Q Yes?

A Yes, ma'am.

Q How many people work in the environmental department?

A At that time, I think we had about three or four permanent people. It is like the rest of the office. You can call from any other department that you need to fulfill your needs.

At one time even though it was an environmental project, we called anybody else in the office so there's permanent staff and then staff you call in as needed.

Q How many other departments are in your office?

A Architectural, civil, structural, mechanical, chemical, special projects, accounting, bookkeeping and sales.

MR. WHITE: Just a point of clarification.

Dr. Sterling is no longer with the firm, has been gone since January of '81.

MS. OLIVER: Did I say he was still there?

MR. WHITE: Yes.

BY THE WITNESS:

A (Continuing) Mechanical, electrical, estimating, specification writing.

BY MS. OLIVER:

Q When you mentioned, Mr. Cook, that in excavating a ditch you would need to use some organic cover, would you use that organic cover for all of the materials removed from the Ditch?

A I didn't say that.

Q Under what circumstances would you use organic cover?

A You said the Ditch. I didn't say use organic fill in excavating the Ditch.

Q When would you use it?

A The Oval Lagoon and Crescent Ditch. Ditch at least to me infers west portion, 2,000 feet long.

Q Why would you only use the organic cover over the Crescent Lagoon portion?

A Because that is in higher concentrations and if indeed in excavating parts of the parking lots where some of these borings showed very high--- parts per million of contamination, if those were necessary, you would cover those also. But primarily the Crescent Ditch and Oval Lagoon.

The East-West portion of the Ditch, we are taking organic materials out and putting sand-based

covers like that back in.

Q Would you keep this organic material on-site or would you dispose of it?

A It is part of the disposal material. It would be contaminated or could be contaminated.

Q It could go along to the landfill?

A That is part of this extraneous material we talked about.

Q That was included in the calculations of your estimate of extraneous material?

A Yes, the extraneous, you couldn't find an exact reference to it in the discussion, I don't believe, but these are the kinds of things that are involved.

Q Would you use the organic material on the sediment in the lagoons that you are removing to send to an off-site disposal place?

A That material is already organic and you may have to come up with something else, different than an organic material. It may be such that you do not get the evolution or the volatilization of PCBs out of that material because it is organic already and it binds the PCBs to it quite well.

You may not get the solution by exposing those surfaces.

Q But you would want to find that out, wouldn't you?

A You will find that out when you do it so it is a matter of seeing that and taking care of it.

Q What would you have on hand to take care of it in case it should happen?

A I don't have a name or anything, some Monsanto product.

MR. WHITE: Very good, Russell, very good.

MR. SCHINK: A new one.

BY MS. OLIVER:

Q How much of your work, Mr. Cook, is generated through your environmental department?

A As I previously stated, if you consider the treatment of the sellite for the TNT right now, it is a sizable portion. It fluctuates from zero to 50 percent.

Q If you don't consider the TNT byproduct?

A That is environmental.

Q That may be but if you don't consider that

type of project --

A It could be zero. There are times when we have none. There are times when we have as high as 50 percent.

Q How many projects do you have today?

A The projects we have today in what?

Q Environmental projects.

A This one, we are concluding the shop drawing checking from the tail end of I think two or three others which were a red water cleanup system.

Q The TNT byproduct?

A Yes, ma'am.

Q Are those projects involving the TNT byproduct treatment Government projects?

A Only the Government makes TNT, ma'am.

Q I am glad to hear that. So all of your work in your environmental department is sponsored by the United States Government?

A That is not true.

Q Then what projects do you have presently ongoing that are not projects in your environmental department?

A None, none, none.

MS. OLIVER: I don't think I have any further questions.

MR. WHITE: Why don't we reconvene tomorrow morning at ten o'clock.

MR. SCHINK: Let me state on the record that based on the testimony of Mr. Cook today and representation of Mr. White that Dr. John Nordin will not be called as a trial witness. It is not Monsanto's desire to take his deposition.

I would suggest under the circumstances that Dr. Nordin be advised not to take an eight a.m. plane up here this morning. I understand based on talking to Ms. Oliver she wants to review that situation over the evening, but in light of the fact there are several other planes up here after eight o'clock tomorrow morning, I do not think it is sensible for Dr. Nordin at this point to plan on coming up here tomorrow.

MR. WHITE: It is my understanding from talking to Ms. Oliver prior to your talking to Ms. Oliver, that she is planning on taking the deposition of Dr. Nordin as scheduled Thursday.

MS. OLIVER: I am not ready to tell Dr. Nordin not to come up tomorrow and it may very well be that we will take his deposition on Thursday.

MR. SCHINK: But I gather you also at this point are considering the possibility of not taking the deposition.

MS. OLIVER: I am considering it.

MR. SCHINK: I think under those circumstances --

MR. WHITE: My only statement --

MR. SCHINK: It is not sensible for him to come up at eight o'clock. He can come up at a time later in the day if Outboard Marine intends to go ahead with this deposition.

I hate to see him come up here unnecessarily.

MR. WHITE: My understanding, Mr. Schink, is Dr. Nordin's deposition is going to take place on Thursday and Friday of this week. If one or both of the parties chooses not to take his deposition at that particular time, the United States considers that deposition waived.

MR. SCHINK: You have represented he is not going to be a trial witness, correct?

MR. WHITE: Correct. Mr. Cook has been designated trial witness in this case.

MR. SCHINK: I was suggesting, Mr. White, there might be a way of obviating an unnecessary trip by Dr. Nordin and that would be to have him come up tomorrow afternoon rather than the first thing tomorrow morning. It is my understanding after talking to Ms. Oliver that Outboard Marine will be in a much better position tomorrow to make a final judgment on that. I don't want him to come up here and waste the Government's money and taxpayers' money unnecessarily.

MS. OLIVER: I think everybody's comments are clear.

MR. WHITE: Dr. Nordin will be here Thursday morning.

(Whereupon, the deposition was adourned at the hour of 4:55 p.m. to be resumed the following day, June 9, 1982, at the hour of 10:00 o'clock a.m.)

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNITED STATES OF AMERICA,	)	
Plaintiff,	)	
Vs.	)	NO. 78 C 1004
OUTBOARD MARINE CORPORATION and MONSANTO COMPANY,	)	
Defendants.	)	

The continued deposition of RUSSELL W. COOK, JR., called by the Defendant Outboard Marine Corporation for examination, pursuant to notice and agreement and pursuant to the Rules of Civil Procedure for the United States District Courts pertaining to the taking of depositions, taken before Thea L. Urban, a Notary Public in and for the County of Cook, State of Illinois, and a Certified Shorthand Reporter of said State, at the offices of the United States Attorney, 219 South Dearborn Street, Chicago, Illinois 60604, Room 1486, on the 9th day of June, A.D. 1982, commencing at 10:00 o'clock a.m.

PRESENT:

MR. JAMES WHITE
(Assistant United States Attorney
United States Attorney's Office
219 South Dearborn Street, 15th Floor
Chicago, Illinois 60604)

appeared for the United States of America;

PRESENT: (Continued)

MR. SEBASTIAN T. PATTI
(Enforcement Division
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604)

appeared for the United States of America;

MS. ROSEANN OLIVER
(Phelan, Pope & John, Ltd.
30 North LaSalle Street
Chicago, Illinois 60602)

-and-

MR. JEFFREY C. FORT
(Martin, Craig, Chester & Sonnenschein
115 South LaSalle Street
Chicago, Illinois 60603)

appeared for Outboard Marine Corporation;

MR. JAMES H. SCHINK
(Kirkland & Ellis
200 East Randolph Drive
Chicago, Illinois 60611)

appeared for Monsanto Company.

* * * * *

I N D E X

WITNESS:	Direct	Cross	Redirect
RUSSELL W. COOK, JR.			
By Ms. Oliver (Resumed)	177		30[illegible]
By Mr. Schink		195	

E X H I B I T S

Cook-OMC Deposition Exhibit	Marked for ID
No. 6	177
No. 7	182
No. 8	184
No. 9	190
Cook-Monsanto Deposition Exhibit	
No. 10	246

* * * * *

RUSSELL W. COOK, JR.,

having been previously duly sworn, was examined and testified further as follows:

MS. OLIVER: Ready to go, Jim?

MR. WHITE: Let me make a statement on the record here.

This morning, Mr. Cook informed me there were a couple of corrections he would like to make with respect to his testimony yesterday afternoon, some inferences that may be drawn from his testimony; the first being the discussions surrounding concrete and water and deterioration of that concrete during the discussion of in-place fixation.

The second area he would like to correct is the area where, when we were asking the time involved to dredge.

Mr. Cook, if you want to make statements for the record which you care to make with respect to the issues, go ahead.

THE WITNESS: Yesterday, when we were discussing the possibility of deterioration or the thoughts that we used in rationale for not judging or not selecting the in-place fixation, the reference that concrete, ordinary concrete, well-made, well-placed,

Cook -

when subjected to the environment -- I think I said like in a paper mill can deteriorate.

The point I want to bring out is I do not want to infer that the same conditions that concrete in a paper mill would see would ever exist in the bottom of Waukegan Harbor. Now, the reason why, one of the reasons why we did not select in-place fixation is that when you take a cement like material, mix it with the bottom sediments that easily re-suspended in the water, if you agitate them, we wondered if indeed you could first of all, get the sediments and trap the material to form a hard-like and durable-like material and secondly, if you did, would this hard and durable material deteriorate over a period of time because I don't think anybody has any history on cement-like material made, using harbor sediments as a binder in them.

Secondly, we discussed the time to dredge Slip 3 and I divided 600 cubic feet per minute into 7,300 yards and got eight hours. You cannot do that. You must divide yards per hour into yards to get hours. I think I said that the time to dredge the

sediment of 7,300 yards of sediment out of Slip 3 would be nominally, eight hours. It is not. It would be 5.48 hours.

Now, in addition to taking the sediment out, you must take water with the sediment and in a slurry ratio of 15 parts solid to 85 parts water, you have to take about five and two/thirds yards of slurry out to get one yard of sediment. Therefore, it takes around 31 hours at 100 percent efficiency to dredge Slip 3. We allowed, I think in our estimating time to dredge it with efficiency, we allowed two weeks to dredge. I believe I mentioned the two weeks period that subsequently we said would be the period. The two-week period was correct. How I got that was incorrect. That's all.

(Cook-OMC Deposition Exhibit No. 6 marked for identification, 6/10/82, TLU.)

DIRECT EXAMINATION (Resumed)

BY MS. OLIVER:

Q Mr. Cook, I would like to show you what we have marked as your Exhibit No. 6 which Mr. White provided us this morning which is a letter from you

to Mr. Howard Zar dated June 13, 1980 submitting a proposal for an engineering study.

Can you identify that as the proposal that was made to the U.S. EPA for the project that resulted in the January 1981 Final Report?

A Yes, ma'am.

Q Who in your office prepared the proposal?

A It was a coordinated effort: Dr. Sterling, several of the design people that were involved in the thing made us estimates of the time involved; people worked up the man hours and in all proposals, I was subsequently responsible for the commitment of the time, the people and the dollars.

Q In the proposal, in the introduction on Page 1, it is stated:

"The study will recommend the alternative method which we believe is the most feasible in light of the circumstances surrounding this situation."

What is your understanding of the circumstances?

A As presented in this, the circumstances -- read this. It is entirely presented in our Report.

I can take two days relating the circumstances.

Q Is one of the circumstances your assumption that whatever was done to the Harbor would have to leave it in the same condition in terms of use that it is today or that it was in 1980?

A It is not specifically stated there but it was.

Q That was one of the circumstances?

A Yes, one of the considerations.

Q Did the EPA make any changes in your Scope of Work?

A At what time?

Q After you submitted your proposal and before the Final Report was prepared?

A I don't believe we met the schedule that was in the proposal.

Q Did it make any recommendations or suggestions on what work you should do?

A The work that is outlined in that proposal was basically followed.

Q Were there any specifications that were recommended by the EPA that you included in your specifications for either the dredging project, the

excavation project or the treatment?

A The result of this proposal that is shown in the January '81 report and there are no specifications in there, per se.

Q I understand that but subsequently Mason and Hanger submitted specifications, did it not?

A We submitted design documents including specifications.

Q Are you familiar with those design documents?

A Yes, ma'am.

Q You did not bring the specifications with you?

A I did not. You have copies. They are voluminous.

Q That is right.

My question is, did the EPA make any suggestions or recommendations for those specifications that were submitted?

A I would imagine that they did in the area of safety, these sorts of things. There is a chapter called -- it deals with protection of people that might be exposed, equipment or people that

might be exposed to the PCB environment and I think these are more the standard precautions that you must take. I think they generated or gave us the information for that.

Q Is there any other information that was included in the specifications as the result of the EPA suggestions that you are aware of?

A I have to answer No because they were not the prime movers in us determining what methods of construction, terms of construction we specified after we had reached the purpose or the intent from what was submitted in our January 1981 report.

Q One of the statements that you made yesterday involved a sampling program that was developed and suggested during the dredging operation in the Harbor?

A That to me is the safety thing that I was talking about.

Q That was proposed by the EPA?

A Yes.

Q That was included in your --

A Second design package.

Q I believe you told me that samples were

going to be done within a 24-hour period.

A I did not say that.

Q Is that right?

A I do not know.

Q Do you know what the period of time would be?

A No, ma'am, I don't. It is in the report. I can't cite that verbatim.

It is in the specifications. I can't cite that verbatim because I did not review that specification with the detail I reviewed the report.

Q Are you going to testify about the specifications?

A Am I going to?

Q Yes.

THE WITNESS: Am I going to?

MR. WHITE: No.

(Cook-OMC Deposition Exhibit No. 7 marked for identification, 4/10/82, TLU.)

BY MS. OLIVER:

Q Mr. Cook, Exhibit No. 7 is an August 31, 1981 report by Mason and Hanger entitled Specifications

for Dredging and Water Treatment for Removal of PCB Contamination in Waukegan Harbor, Waukegan, Illinois.

Is that a document that was prepared by Mason and Hanger people?

A It appears to be, yes.

Q Are those the final submission of specifications for the dredging work and the water treatment planned?

A Yes, but I don't know which set of circumstances.

Q I'm sorry, what?

A Which set of circumstances, whether it is for Whole Harbor dredging or the dredging for the 50 parts and above. I am not familiar sequencing of the date. If I saw the date of all the packages, I could tell which was which.

Q To your knowledge, is that August 31 specification package the last package that was submitted?

A I don't know.

Q You don't know?

A I don't know. That is what I'm saying.

I don't remember the dates of submittals.

All I brought was the cost estimates and each one was prepared some date different from this. This appears to be the second package which was Slip No. 3 in the main channel area of No. 1 Upper Harbor, 50 parts per million and above.

Q Does that mean that was the past set that was done?

A Of specifications, yes, ma'am.

(Cook-OMC Deposition Exhibit No. 8 marked for identification, 6/10/82, TLU.)

THE WITNESS: This is for 50 parts per million and above which we called the Upper Harbor in Slip 3 but it includes the deep contamination in Slip 3 around the old outfall, too. You asked me awhile ago if EPA gave any other sections. They would have given us measurements obtained or I'm sure at least contributed to it.

Throughout the entire set of specifications, there are certain things that refer to management decisions by EPA. Those are the contributing things that they gave us to these specifications.

Q Did they make suggestions or recommendations that you know of regarding the engineering or operating?

A To the best of my knowledge, they didn't make any suggestions or recommendations to the technical portions.

Again, these drawings in the preliminary state had been submitted for review to EPA, Illinois EPA, Corps of Engineers, people like that. And their comments were subsequently considered and incorporated in the technical portion.

Q My question did not intend for you to review the specifications. You identified them as the last package. If you are satisfied that is the last design specification submitted, then I am satisfied, okay?

A Okay.

Q Mr. Cook, Exhibit No. 8 is a March, 1981 Second Addendum to Final Report. Is that the second and last addendum that Mason and Hanger made to its January 1981 report?

A It appears to be, yes.

Q Is that second addendum based on Mason

and Hanger's review of all available data?

A Not all. That was what was reviewed. There were, I believe basically involved six additional borings.

Q You reviewed those six additional borings with a view toward your final report of 1981 --

A But you said all data. We didn't go back and review such as this and review all data with regard to the North Ditch and things of that nature.

Q But your opinions and conclusions that are expressed here are based on review of all data you had from March '82?

A Right.

Q From January 1981 when you submitted your report to when you got the last results that you were waiting for in March of 1982.

A That reflects the additional information and its impact on the January '81 study.

Q So your Final Report of January 1981 plus the addendum that was submitted shortly after that report, 1981 plus the 1982 Second Addendum compiled totally your opinions and recommendations regarding Waukegan Harbor, is that right?

A Basically that is true, yes. Well, the appendices to the Report, the original appendices.

Q The original appendices.

MR. WHITE: For the record, I want to make sure that you are not drawing inferences with regard to the design and specifications that I don't intend.

Mr. Cook may, during the course of his testimony in order to explain the concept, for example, of silt curtain at the bottom of Slip 3, he referred to how that is anchored, et cetera, et cetera, which may be in the design spec. If you want to inquire as to specifications, feel free to but he is not going to testify in detail from the specifications and designs, but as you explained, the concept and how it is done, the anchoring, where it is going to be stretched across, staggered, et cetera, et cetera.

Those items may be found in the design spec.

MS. OLIVER: Fine.

BY MS. OLIVER:

Q Mr. Cook, do you know who prepared the addendum, March 1982?

A Mr. Lail and Dr. Nordin.

Q You reviewed it and approved it as it went out?

A Yes.

Q You mentioned, Mr. Cook, that there was a lot of discussion about the silt curtains before they were recommended, is that right?

A Um-hum.

Q Yes?

A Yes, ma'am.

Q You have to answer, Mr. Cook.

Did you review any weather or wave data in making recommendations on the use of the silt curtain

A One of the data that we reviewed was the fact that Falcon Marine had reported a 4-foot seiche and that was probably the governing stress that the silt curtains may see.

Q What about the Government information on wind direction?

A No.

Q Did you get any information on wind direction, direction of waves from Argonne or U.S. Geological Survey?

A Not to my knowledge.

Q Your recommendation is to put the silt curtains in a north/south position, is that right?

A For which application?

Q Well, does it --

A That is not true.

Q Does it change?

A That is not true.

Q In what direction are the silt curtains going to be employed?

A There are two sets of silt curtains that are going to be employed there. The one around Slip 3 is not north and south, it is askewed at a convenient spot with anchoring, generally at the limits of 500 parts per million. Direction has nothing to do with it. It is primarily what is the best place on the bank to anchor this.

Q That is the double silt curtain?

A Yes, the double silt curtain.

Q What about the single one?

A The single one runs basically east to west, again fixed at some convenient anchorage location that does not interfere with Johnson Motors' intake

structure or access to Slip 1.

Q And the direction doesn't --

A It just happens to be that that is the direction it goes and if you are inferring wind or anything else, that did not make the decision. It is just the fact that we went from bank to bank.

Q Mr. Cook, one of the companies that analyzed samples is Raltech.

A Yes, ma'am.

Q Do you recall that?

A Yes, ma'am.

Q Do you recall asking them to do priority analyses for this project?

A I don't know what you mean by priority.

(Cook-OMC Deposition Exhibit No. 9 marked for identification, 6/10/82, TLU.)

BY MS. OLIVER:

Q Mr. Cook, Exhibit No. 9 is the letter with your signature at the bottom, I believe dated August 21, 1980 to Raltech Scientific Service, listing an order of priority for some samples.

Did you send that letter?

A That priority was given to them which samples we would like to receive first. It is a scheduling priority.

Q But you sent the letter?

A Yes.

Q How was it determined which samples should be done first?

A I cannot answer. These are the samples Dr. John and Harry wanted first.

Q So you do not know on what basis the determination of priority was made?

A It is their determination of these were most meaningful to them first.

Q Mr. Cook, what does Mason and Hanger propose to do with the lagoons after this project is over?

A I believe the discussions in the report, the January 1981 report are reasonably substantiated by the thoughts that we have had later on as a result of having made the design drawings which was to remove that material that is contaminated to a secure storage spot and then if permissible by OMC, to distribute the rest of the material throughout that OMC property site, leveling it off.

Q You would level off the lagoons?

A After you had removed the contaminated material.

Q The contaminated material, you are also referring to the portions of the lagoon that may be contaminated?

A Yes, the surface of the lagoons, the concrete portions, anything that has a concentration of PCB in it or on it that would be deemed by someone as having to be disposed of in a secured landfill.

Q Have you made any determination of what that level of contamination would be?

A No, I do not make determinations of level of contamination.

Q Have you discussed with EPA, what the level of contamination should be?

A We discussed it but no decisions were reached.

Q What are the discussions of tentative conclusions or tentative opinions?

A The same sort of demarcation, 10 parts per million, 50 parts per million.

Q No decision on 10 to 50?

A No, ma'am. In those areas, it is probably really easy to get any contaminated material because you can scoop off the surface of the line of demarcation out to be all or nothing except for maybe the in situ material, the sand that is there on that site.

Q But you made no recommendations on that?

A In essence, we were anticipating that the material would be almost zero contamination because in theory, you should be able to peel off the layer of clay that was in contact with the sediments. You should be able to, if not get the contamination of concrete, the PCB contamination off the concrete, you take the whole concrete to a secured landfill so you ought to be able to remove, in essence, all contamination that was placed there by that process.

Q That is in theory.

A It's true.

Q What about in practice.

A You could.

Q Do you know what will happen?

A You should be able to approach it pretty close to that.

Q What experience do you have that leads --

A What experience does anyone have?

Q -- to lead you to believe you should be able to approach the theoretical removal?

A If nothing else, I can take all the clay away to the secured landfill if I had to do it. It would just mean removing more material.

Q So the worst case in your view, that would be to have to remove the ntire lagoon and just transport it to some other --

A I would suggest not the entire lagoon but I would not envision the entire lagoon being contaminated.

Q But whatever portion would have to be removed to a landfill?

A Yes. This can be determined by testing.

MS. OLIVER: I don't have anything else for now.

MR. SCHINK: Let's take a break for a couple of minutes.

(Brief recess had.)

CROSS-EXAMINATION

BY MR. SCHINK:

Q Mr. Cook, my name is Jim Schink. I represent Monsanto in this litigation.

Am I correct that Mason and Hanger, your primary area of responsibility is in the field of engineering management, currently?

A Yes, sir.

Q Do I understand that you do not consider yourself to be an expert in chemistry, is that right?

A That is true.

Q You do not consider yourself to be an expert in chemistry of PCBs?

A That's true.

Q And that you do not consider yourself to be an expert in the area of volatilization of PCBs?

A That's true.

Q And that you do not consider yourself to be an expert in the area of the removal of contaminated sediments?

A You are speaking of me and me alone?

Q You.

A That is a qualified no.

Q I am correct, am I not, that you have not had any previous experience where you have had responsibility for a project which resulted in the actual removal of contaminated sediments?

A PCB contaminated sediments?

Q Any kind of contaminated sediments.

A I cannot categorically say no because there are certain projects that we have worked on in the past that may come to mind that I can't recall right now.

Q But as you sit here right now, you cannot recall any projects that you have been involved in in the past where there were special precautions taken in that sediments were removed because of contamination that was present in those sediments?

A I have worked with sediments of a different nature and removal of them and treatment of them.

Q Those sediments did not contain PCBs though, is that correct?

A They did not.

Q Am I correct that you do not consider yourself to be an expert in dredging?

A There again --

Q You personally.

A I personally have not done dredging but I understand the principles of dredging.

Q Do you consider yourself to be an expert in dredging?

A No, sir.

Q You do not consider yourself to be an expert in evaluation of various dredging techniques, do you?

A I believe I can evaluate them.

Q Do you consider yourself to be an expert in the evaluation?

A I think it is a matter of definition. If expert implies long and lengthy experience in that area, no.

Q Prior to your engagement in this case, had you ever been involved in any project where a silt curtain had been employed?

A Me personally?

Q You personally.

A No, sir.

Q Do you consider yourself to be an expert in the selection of the usage of the silt curtains?

A In your connotation, no, sir.

Q Do you consider yourself to be an expert in the design of facilities to treat and remove PCBs from water?

A Yes, sir.

Q Have you ever done that?

A PCBs, per se?

Q PCBs.

A I have not done it.

Q Do you consider yourself to be an expert in the area of designing a treatment facility to remove PCBs from water?

A I can and have designed facilities. Facilities were designed under my supervision that removed materials like PCBs from water.

Q Have you ever designed any facilities to remove PCBs from water prior to your engagement in this case?

A Personally, no, sir.

Q You would agree, would you not, that any dredging in the Waukegan Harbor would stir up the sediments at the bottom of the Harbor?

A To some degree.

Q A dredging regardless of technique used will agitate the soft muck on the bottom of the Harbor, will it not?

A What do you mean by agitate?

Q You used the terminology earlier in your testimony.

A Agitate to resuspend it?

Q You said that sediments are easily re-suspended when agitated.

A True. Was that tied into the dreging?

Q Now, would --

A Was that tied into the dredging?

Q I'm just repeating the fact that you used the term agitation before in your testimony.

Now, I am asking: Would dredging of the Waukegan Harbor in your opinion agitate the sediments on the bottom of the Harbor?

A To the extent that agitation means removal, probably true.

Q Would it cause some of the sediments on the bottom of the Harbor to be resuspended in the Harbor water?

A Yes, sir.

Q PCBs stick to sediments, don't they?

A That's true.

Q So that the dredging in the Harbor will cause PCBs to be resuspended in the Harbor water, will it not?

A It will cause the sediments to be resuspended and if there are PCBs on those sediments, they will also be resuspended, yes.

Q Is it fair to say that dredging in the Harbor will cause PCBs to be resuspended in the water?

A Yes.

Q Am I correct that Mason and Hanger in the design of a Harbor dredging project was concerned about PCBs that would be resuspended?

A Yes.

Q You were concerned about the resuspension of PCBs because without the dredging, those PCBs wouldn't be resuspended, would they?

A That is not true. Mother Nature resuspends them. Someone can drop a boat anchor and resuspend.

Q But as long as somebody does not dredge, dredging will not cause resuspension of PCBs.

A Beg pardon?

Q As long as the Harbor is not dredged, there will not be PCB resuspension due to dredging, is that right?

A Due to dredging only.

Q That is correct, isn't it?

A If I don't dredge, I don't resuspend PCBs from dredging, yes, sir.

Q And you tried to select a dredging technique that would minimize the amount of PCBs that would be resuspended in the Harbor, is that true?

A True.

Q But no dredge can remove sediment from the Harbor without churning up the Harbor sediments, can they?

A To the best of my knowledge, no.

Q In addition to causing PCBs that are clinging to particles in the bottom of the Harbor to be resuspended, dredging will also cause PCBs to be dissolved in the Harbor, would it not?

A To some limitation, yes.

Q Currently, does not the data that you have show that the PCB levels in the Harbor are about one part per billion?

A Basically, that is true.

Q Didn't your study conclude that in the areas where dredging occurs that the PCB levels could rise to as high as 100 parts per billion as a result of PCBs going into solution?

A I would prefer if you refer that to John Nordin. He can better address that but if the report says that, that is true. That is our position.

Q Let us assume that the report says that as a result of the agitation, the PCB levels in water surrounding the agitated materials will rise to 100 parts per billion. That is a substantial increase in the amount of PCBs in the water, is it not?

A That is a presumption based on many, many factors we do not know.

Q That is the amount of PCBs that go into the water may be even greater than 100 parts per billion?

A They may even be less.

Q But they may also be greater, is that correct?

A Depending on the solubility limit, yes.

Q As you sit here today, you don't know how

high the PCB levels in that water will go as a result of the agitation of sediments from dredging?

A Nor how low.

Q But you know that they will increase, don't you?

A It is presumed that they will increase, yes, sir.

Q In your opinion, would it be possible to dredge the Waukegan Harbor without increasing the level of PCBs in water in the Harbor?

A There are areas where the contamination is quite low that you might expect them not to do that.

Q Let us talk about Slip 3.

A Okay.

Q Where you have indicated that the level of contamination is quite high.

A That is the area where you would get the highest PCB solubility, resolubility in the water, yes.

Q You would agree that it would be impossible to dredge Slip No. 3 without increasing the level of PCBs in the Harbor water in that area?

A In the localized PCB area, you say impossible.

I doubt it is impossible but it is probably not true.

Q Do you know of any technique as you sit here today that will enable you to dredge the PCB muck and the PCB contaminated sand and the clays from Slip No. 3 without increasing the PCB level in the Harbor water?

A I would suggest that we discuss the muck separately from the sand and the clays.

Q All right.

A Because there is a different technique involved.

Q Let us talk about the muck. Do you know of any technique that would enable you to dredge the muck from Slip 3 without increasing the PCBs in the water above the muck?

A There are some of these that I don't remember what their names are. I will call them exotic dredging techniques. These were reviewed and claimed they can. However, I have nothing to substantiate this.

Q In other words, you cannot substantiate the existence of any technique that could be used in Slip 3 to dredge the muck that would not result

in an increase in the amount of PCBs in the water above the bottom of that slip, is that correct?

A I guess what I am really saying to you is it is impossible to do this. I am of the school that it is not impossible to do anything if you have enough time and money to correct a situation. That is --

Q Let me ask you this: Am I correct that the technique that you have recommended to the EPA and the technique about which you will testify at trial for the removal of PCBs from Slip No. 3 is a technique that will result in an increase in the level of PCBs in the water in Slip No. 3 above where this dredging that you have recommended is going to occur?

A That's probably so, yes, sir.

Q Am I correct that your concern about the PCBs that will be added to the water above Slip No. 3 and the PCB sediments that will be added to the water above Slip No. 3 is what led to your recommendation to the installation of silt curtains?

A That is true.

Q Silt curtains will not prevent some of the sediment containing PCBs and some of the water to

which PCBs will be added from escaping from this Slip No. 3, will it? It is probably not a 100 percent device, is it?

A That is true.

Q And the PCB-bearing sediments and PCB-bearing water will escape around the sides of the silt curtain, go over the top or underneath the silt curtain?

A Can I not say will? It can.

Q Let us say will. It will happen, won't it?

A Will means it is a positive statement that it will happen. There may be situations when it will not.

Q I am not asking you about situations. I am asking you about during the dredging taking place, whether two weeks or two months or however long it takes to complete the dredging in Slip No. 3 and while the curtain is sitting there. As you sit here today, can you tell me that some PCBs will escape through that silt curtain and around it and through it?

A There is a high probability it will happen but a positive statement, I would not say.

Q Under what set of circumstances will it not happen?

A Where the total inflow was into the Slip 3 area, where the total water inflow was into the Slip 3 area. In other words, if I continue to dredge, had no outflow at all.

Q But the dredging is not going to be continuous, is it?

A It could be, seriously. The man may desire to do dredging continuously to minimize this. I don't know how the man is going to do it.

Q Let me ask you: It is true, is it not, that PCBs will escape through the silt curtain and around it and under it?

A There is a huge probability that it will, yes.

Q Because practically speaking, you cannot stop 100 percent of water from leaving the Slip 3 area during dredging, is that right?

A A fair statement, yes.

Q Am I not correct that these silt curtains are something like densely meshed household screens made out of rubber or vinyl or something like that?

A They are a -- water is not meant to pass through them.

Q But water can pass through them, can it not?

A Not unless they are torn. We don't intend they be torn. They are to be a solid material.

Q If water cannot pass through them, why do you need two of them?

A As I discussed yesterday, if indeed water does pass through them with resuspended solids in there, the passageway between them, we can use to put a coagulant, something in there to cause the resuspended solids to settle very close to the Slip 3 area.

Q So you cannot guarantee that the water will not pass through one of those silt curtains?

A Those are intended for water to pass around the ends of them, not through them.

Q The purpose of the silt curtain, however, is to collect silt that would otherwise pass through, is that it?

A No, they are not.

Q What is the purpose?

A The purpose of the silt curtain is to confine

an area so the sediments do not pass on which is called silt, pass on to that outside area.

Q But water that contains PCB in solution could pass through that silt curtain, can it not?

A It is not intended to be so, no, sir.

Q Are you telling me the silt curtains you specified in your specifications will not permit Waukegan Harbor water to pass through?

A To the best of my probability, that is true.

Q Have you ever tested that?

A I never built one.

Q Would you agree that generally dredging is a messy operation?

A Not necessarily.

Q Have you ever been involved in any dredging project that was not messy?

A I've seen Corps of Engineers dredging channels where sand was involved. It was not messy.

Q You do not have leakages during dredging from pipes?

A In normal dredging techniques, who cares?

Q I'm not asking you that. I am asking you

if you have leaks in pipes that convey the slurry that is taken from the area that is being dredged to wherever it is being deposited?

A What sort of installation are you referring to?

Q You have a dredge that goes in the water and withdraws material from the bottom of the Harbor. That material is taken by the dredge and is piped to an area where it is deposited, is it not?

A You are speaking of a normal routine dredging like the Corps of Engineers does for harbors and channels, these sort of things?

Q I am talking about dredging generally.

A Dredging in general, yes. The piping that they use is not tight but normally when they dredge, it is to remove material for ship passing, these sort of things, and they don't care if they spill a little bit of this water.

Q My question is, is dredging not an operation that results in some spillage?

A It can, yes.

Q And there can be some mishaps involved in dredging that might lead to spillage of material as

well, could it not?

A You could conceivably say yes.

Q And the pipes can break during the course of dredging, can they not, resulting in contaminated waters?

A Yes, that's happened.

Q Being spilled?

A Contaminated waters?

Q Waters containing whatever material it is that is being withdrawn from the bottom of the area being dredged?

A I am speaking of dredging now, not in the connotation of contaminated materials.

Q Let us talk about dredging generally then. Whatever it is being removed from the bottom of the Harbor in the area that is being dredged in the normal dredging operation could end up being spilled right back in that body of water if the pipe breaks.

A Yes.

Q That is true and the pipe can break?

A Yes.

Q And the pipes have broken in the past in dredging?

A True.

Q It is also true that pipes can leak, even if they don't break, and they can spill whatever material it is that is being withdrawn from the bottom of the harbor being dredged, is that correct?

A Basically true.

Q Would you agree that generally speaking, dredging is an imprecise operation?

A I can't say that, no, sir.

Q Didn't you indicate earlier that when you put your dredge head down to the bottom of a harbor, you don't necessarily pick up 100 percent of what is down there, even if you want to, is that right?

A You are making me make a connotation of dredging in general to the specific dredging we are talking about in the sediments in Slip 3 and there are dredging -- in most dredging, that has to do with removal of materials other than silt. It is sand and these sort of things and we are not contemplating that same sort of dredging that you would have in a river channel removing sand in Slip 3 or anywhere else.

Q Don't the core borings show that the sands

in Slip 3 are contaminated with PCBs?

A Basically they are not contaminated.

Q In your report, you indicate that --

A That's underneath the old outfall and it is in an area where we are going to remove it by a different method than dredging.

Q Can you state there are no sands within the Waukegan Harbor area that contain more than 50 parts per million PCB that are not going to be removed through your Coffer Dam approach in Slip 3 and therefore won't have to be dredged?

A No, I cannot because I have not sampled every place in Waukegan Harbor.

Q So you cannot rule out the possibility that there may have to be dredging of a sandy material from Waukegan Harbor in order to even meet a 500 parts per million level, is that right?

A That is not true. The borings we have don't indicate that higher contamination level in the sands beneath the sediments, except at the old outfall.

Q How about a 50 part per million level?

A I would have to refer to the samples.

Q As you sit here today, you cannot tell me one way or the other whether there might have to be dredging of sand in the Harbor to get down to the 50 part per million level?

A I would not contemplate having to take the sand up.

Q What happens if pursuant to your specifications after the dredging is completed, you go out and take a sample and you dredge the muck and you are down to the sand and the sand has 55 parts per million. Isn't the contractor required then to remove that?

A To the best of our ability, that won't happen. That is to the best of the information we have from the borings. We are saying the top layer of that sand is not contaminated. The PCBs don't stick to sand. They stick to sediments.

Q If they don't stick to sand, how come you found them in the sand?

A Because under the old outfall where it soaked through the sand, it literally saturated.

Q So they do in fact stick to sand, is that correct?

A In that area.

Q In fact there are PCBs in the clay as well?

A These are the ones we are not removing by dredging. We are removing these by some other means of excavation, isolating them from the surrounding area.

Q You don't anticipate that this Cofferdam is going to go out as far as Area 2 or Area 3 in the Harbor, do you. and I am now down to Page 35 in your Final Report, the January 1981 report.

A There is a sketch that shows the limits of the Cofferdam.

Q Let us just look at Page 35 for a minute and focus on Site B-5, Boring Site 5. Do you see that on Page 35?

A Yes.

Q That is an area that is going to be dredged, isn't it?

A True.

Q If you look at the next page, Page 36, it shows in the sand, the reported PCB is 100 parts per million. If you are going to get down to 50 parts per million, you have to dredge that, don't you?

A Presumably true.

Q Isn't that right?

A B-5.

Q B-5.

A B-5 is outside the Cofferdam, yes, sir.

Q And it shows according to the data on Page 36 that the sand in that area tends to use dredging as a means of removal and contains PCBs in excess of 50 parts per million, is that right?

A That's true.

Q Am I not right that under the plan that you propose if dredging to 50 parts per million level is to occur, you will have to dredge sand from certain areas of the Waukegan Harbor?

A We have not anticipated that, no. We are primarily trying to get the muck out. We don't anticipate removing the sand.

Q In other words, your proposal contemplates leaving PCBs in the sand, even in situations where those PCBs exceed, for example, 50 parts per million?

A From this, let me refer to another addendum here and see if that is indeed valid, a valid statement. What does that addendum show -- B-5 was not changed by the addendum.

Q So even in the updated information, it still confirms there are areas within the Slip No. 3 area where the sands have been reported as containing contamination of PCBs in excess of 50 parts per million?

A True.

Q Which would have to be dredged under the plan that you propose to meet a 50 part per million standard, would it not?

A We have not proposed a 50 part per million standard. That is, we have not set any standard for removal.

Our premise was based on removing the material. We did not make a statement that you would have to remove 50 parts, 100 parts, 150 parts, 200 parts.

Our premise is based on removing the muck that contains the majority of PCB contamination.

Q So that in other words --

A In essence, our report says that sands will stay there unless someone says that it has to be removed.

Q And I understand that you have assumed that

with the techniques that are going to be used that not all of the PCBs will be removed, even from the most heavily contaminated area, that is Slip No. 3, is that not right?

A I don't follow that statement.

Q You testified yesterday that under the plan that you proposed, that even assuming all care is used in dredging that only 98 percent of the material to be removed will in fact be removed. Two percent will remain, is that correct?

A We are striving to remove that much of the sediments in Slip No. 3.

Q And indeed it would be quite an undertaking to remove 98 percent of those sediments given the traditional dredging techniques, would it not?

A This is a nondescriptive term, quite an undertaking.

Q Are you aware of any situation in the past where 98 percent of the material in the particular area designated for dredging has been removed?

A In sedimentation found and these sorts of things, I am not sure.

Q Can you cite any example where that has

occurred?

A I have not personally walked over and stuck my finger in one of these, no, sir.

Q But do you assume that of the roughly 200,000 cubic yards of material in Slip No. 3 --

A Seven thousand, three hundred yards of muck.

Q Of the 7,300 cubic yards of muck, 98 percent of that have been removed and two percent will remain, is that right?

A That is the basis of the calculation you just made, yes.

Q You also calculated that 7,300 cubic yards of material contained over 200,000 pounds PCBs, isn't that right?

A I believe it is one hundred.

Q I am referring now to Page 41, Table 2, right-hand colume, Figure 211, 831 pounds. I ask you if that is not the amount of PCB you calculated presently exist in Slip No. 3?

A If you will read Addendum 2, that has been slightly modified. The 7,300 cubic yards of muck has now been calculated to be 7,200 cubic yards of muck in which we calculated it is 167,000 pounds

of PCB.

I have updated my report from Addendum 2. We calculate that there is 3,700 cubic yards of sand, clay, and fill material that will have to be removed in the Cofferdam area and that would contain 138,000 pounds of PCB.

Q So whether you have 167,000 pounds or 300,000 pounds of PCB, you are still going to get only 98 percent of that out, is that right?

A That's probably true.

Q So you will still have somewhere between 3,000 and 8,000 pounds of PCBs left when you get through.

A That is not true.

Q Why not?

A Because you are taking the average concentration and the areas around the edge and farther away have lesser concentrations in them.

Q Is that true according to the borings that you took?

A Yes.

Q For example, in the vicinity of the outfall, did that have among the lowest concentration?

A No, but the outfall is going to be removed by a different method, by the Cofferdam method.

Q How many pounds of PCBs are going to be left then when you get through?

A I do not know because I don't have a sample analysis for the entire area.

Q But you anticipate there would be several thousand pounds left?

A No.

Q But there will be some left?

A There will be some.

Q And there will be some left because you are not going to dig it all up, is that partially true? For example --

A That that is in the sand, if the sand is not removed, it will stay in the sand.

Q In addition, there will be some PCBs that when you are done with the dredging in that area will come out of suspension and will accumulate on the top of the bottom of the Harbor, will it not?

A I cannot cite verbatim but in the second bid package, there is a method for determining if that indeed has happened and if there is much of it,

it again is cleaned up and taken to a landfill.

It is a cleanup method.

Q Let me stop here for a minute. You do the dredging and you withdraw this material.

A Yes.

Q As you specify.

As you complete the first removal, there will be PCBs behind the silt curtain that will be in suspension in the water, correct?

A Yes.

Q There will also be PCBs that have gone into the solution, perhaps a 100-fold increase in the amount of one part per billion to 100 parts per billion, is that correct?

A That is your supposition, correct.

Q Isn't that what is indicated in the volatilization report that you prepared and submitted to your CPA in connection with this case, that the levels could rise to 100 parts per billion during dredging?

A If that is what you read in the volatilization report, that is true. As I stated, I have not read, I didn't study the volatilization report like

I studied the report --

Q As the officer of Mason and Hanger who had principal responsibility for this project, you certainly stand behind --

A Yes.

Q -- each of the reports that Mason and Hanger include in the volatilization report.

A I cannot cite the specific numbers in our volatilization report is what I am saying.

Q Let us assume that the report indicates that the water will contain on the order of 100 parts per billion of solid PCBs. After the first pass through the slip with the dredge is completed, some of those PCBs that have gone into solution as a result of dredging will come out of solution, won't they?

A I do not actually know. Dr. Nordin would be the person to answer that.

Q Let us assume that your report states that after PCBs go into solution, that as time goes by, they settle out. They would settle back down into the bottom of the Harbor, wouldn't they?

A They can be released by volatilization

also.

Q They can be evaporated into the air above the Harbor and if the wind happened to be blowing from the west to the east, they could go into Lake Michigan, is that right?

A True.

Q And in fact, you expect that to occur, that is, PCBs from this area that is being agitated through dredging to be volatilized in the air?

A Yes, sir.

Q And you made an effort to try to quantify the amount, did you not?

A That is true.

Q In fact, your conclusion was that while this dredging was going on, several pounds per day of PCBs will be volatilized, that is, will rise up --

A Was it pounds or parts of pounds? I can't remember.

Q On the Executive Summary, Roman ii of the report, it says several pounds per day could be volatilized when the most concentrated Harbor sediments are dredged in place in the lagoon for settling.

A Slip 3, right.

A I am referring now to the Executive Summary, Roman ii of the Volatilization Report. Do you see that sentence, and I am reading the sentence:

"Mason and Hanger estimates that using data obtained by General Electric in a test tank that several pounds per day could be volatilized by" --

MR. WHITE: All right.

BY THE WITNESS:

A I couldn't remember whether that was pounds or parts per pounds.

Yes.

BY MR. SCHINK:

Q So while this area in Slip No. 3 is being dredged, you would expect several pounds per day --

A That's true.

Q -- to go up into the air?

A True.

Q Would you also expect several pounds per day to be volatilized while the Cofferdam work is going on and the sediment in the bottom of that Cofferdam is being exposed?

A True, but as we discussed the other day,

when we get into the excavation of these highly contaminated materials, we would like to put something on there that minimizes that, like the organic materials.

Q But you cannot tell until you analyze what you are excavating, whether it is contaminated or not, can you, in most instances?

A You can walk upon on the OMC property now and smell the stuff.

Q I'm not asking you about smelling it. What I'm asking about when you are excavating, when you have a bulldozer and you are digging the ground --

A No bulldozer.

Q What are you going to use as a means of excavating the property?

A Probably a clamshell.

Q A clamshell is one of these things people see when they walk by a construction site that has a big crane and something reaches down and a couple of arms, buckets, scoop the material up, is that right?

A Like you find in the penny arcade in the state fair, little gripper.

Q When that occurs, that is, when the clamshell

is doing the excavating, you cannot tell by looking at the material inside the clamshell buckets whether it has one part per billion PCBs or 10,000, can you?

A Probably can at that high level. It would be oily.

Q Let us say 500 parts?

A True, you can't tell.

Q So you don't know as you excavate whether the area you are excavating in most instances contains PCBs or not?

A We are reasonably sure that the sand and clay from the borings we have taken can and will contain PCBs in the very large area.

Q You are talking now about the area in the Harbor?

A No, the area around the old outfall, Slip No. 3.

Q Right, you are talking about the area in Slip No. 3. I'm going up to the property itself of Outboard Marine where you are going to do all this excavation.

You cannot tell there until you analyze in most instances, can you, whether there are or

are not PCBs in that area you are excavating? You have not taken that many borings there.

A The borings that we have taken define what we think is the limit of contamination.

Q But you admitted in your report that not enough information is known to define the boundaries of the area of contamination. That is why you were only able to give order of magnitude estimates, is that right?

A True, but I don't understand the question that you stated a little while ago that showed all this.

Q Am I not right that in the area around the parking lot, the North Ditch, the Crescent Ditch and the Oval Lagoon that you did not currently have enough information to enable you to precisely determine the area of contamination or the amount of material that will have to be excavated?

A I am certain it is probably more in the parking lot area than it is in the Crescent Ditch and Oval Lagoon.

Q But there is still enormous uncertainty with respect to each of those areas, is there not?

A I would not say enormous.

Q Let us say an order of magnitude.

A Ten times, I wouldn't think so.

Q So that your report is wrong?

A No.

Q Insofar as it says on Page 52 that not enough information is known to finitely define the boundaries of the contamination. Therefore these yardage estimates are only accurate to an order of magnitude. That was at Page 52, the first full paragraph, the last two sentences.

A That primarily is in the parking lot area. That is where the uncertainty is.

Q But you did not state that. You stated that with respect to the entire North Ditch area, did you not, in connection with your 160,000 cubic yard estimate of material to be excavated. You stated that with your 160,000 cubic yard estimate.

A That's what this report says, yes, but what I am saying is the greatest area of uncertainty is in the parking lot area.

Q In other words, there is uncertainty everywhere but there is more uncertainty in the parking

lot than there is in the other areas?

A Yes.

Q I gather that one of the areas of concern in dredging the Harbor is the possibility that some of the steel piling around the perimeter of the Harbor may collapse, is that right?

A The type of dredge that we are anticipating to use does not remove the sounding material that the piles are founded in. This particulr muck is not a structurally strong material and our contention is if you remove it, the piling will stay there.

Q But the muck is not of uniform depth, is that correct?

A Correct.

Q In some areas, the muck is a foot thick and in other areas, it might be ten feet thick? Is that right?

A I don't think it can be ten. If I'm not mistaken, I think it's seven.

Q Didn't you in your report state --

A Let me get the muck depth.

Q Page 38, Item 3, "The muck layer varies from zero to 10.5 feet."

Does that refresh your recollection as to the variation and thickness of the muck that you found?

A If it says ten. I didn't think it was that high. Let me see these.

(Witness consulting charts.)

BY THE WITNESS:

A (Continuing) We got muck thickness contours here that don't indicate quite that depth.

BY MR. SCHINK:

Q Well, what is wrong, the report or the contours?

A I don't have the slighest idea.

Q Let me ask you this: You would agree, would you not, that the bottom of the muck is in some areas, 15 feet below the surface and other areas, 10 feet below the surface? In other areas, it is less than 10 feet below the surface of the water and I refer you now, for example, to Page 36 and the Core Boring data.

A I could probably --

Q Let's look at B-3. B-3 if I am correct in interpreting that data reflects that from the top of the water to the bottom of the muck is approximately

nine feet.

A Top of the water to the bottom of the muck?

Q Correct.

A On B-3?

Q No, B-5, excuse me.

A Eight or nine feet, yes.

Q B-5 is the location in Slip No. 3, correct?

A Yes.

Q B-1 is also a location in Slip No. 3, is it not?

A B-1 through B-6 are all in Slip 3.

Q B-1, am I not correct that from the top of the water to the bottom of the muck is approximately 15 feet?

A B-1?

Q Yes.

A No, top of the muck to the top of the water?

Q No, bottom of the muck to the top of the water.

A Less than 15.

Q Fourteen feet?

A This is -- yes, that's close enough.

Q So even within Slip No. 3, there are variations of as much as five feet between the top of the water and the bottom of the muck, is that right?

A True.

Q Now, your dredge is going to go in there and your dredger is going to be instructed to remove the muck from Slip No. 3, correct?

A True.

Q How is the dredger going to do that, given the fact that in some areas you are telling him to go nine feet below the surface of the water and other areas 15 feet and in effect, there is a merry-go-round type of contour that you want him to dredge to?

A If you look, you have misconstrued the scale of things. These are not deep ledges. Those changes occur, something like 100 feet, 50 feet. These are smooth contours that a man can follow. This dredge is not 70 feet wide.

Q Your testimony is that changes in the bottom, the level of the bottom of the muck within Slip No. 3 involve smooth contour movements that a dredger could easily meet?

A That's not exactly the way I would phrase

it, no, sir, but they are not steep ledges and steep rises in there.

Q How does the dredger know when to change the depth of the dredge?

A Touching the bottom. This muck is not strong enough to support the weight of the dredge head.

Q Is it strong enough to support -- let us assume you have this muck removed and you had it in the same situation which as I understand it is a mixture of about 50 percent sediment and 50 percent water on the average.

A On the average, yes.

Q On the average. Now, if we had a tub of that. Could I stand on the tub of that?

A No, you couldn't. That's like pudding. That is what it looks like.

Q Like quicksand?

A Yes.

Q I would sink right in?

A Yes.

Q If I had a lagoon filled with this muck, you couldn't walk on that muck without sinking in, could you?

A That's the intent.

Q You could not drive a truck on it, could you?

A Don't intend to, no.

Q As I understand it, six weeks or so after this material is removed, that is this muck material is removed from the bottom of the slip and placed in the lagoon, it is your opinion that it will have lost enough water by then so it will have the same consistency that it had when it was sitting on the bottom of the Harbor?

A Maybe better.

Q But not strong enough so that you could walk on it?

A No, never.

Q It is still going to be mushy like pudding, is that correct?

A Yes, correct. It possibly will increase its density. Again, what we have done is by pulling this material together, we have made it more homogenous than you have seen on the bottom of the Slip.

Q But if you have a couple of rainfalls while

the material is sitting in the lagoon, then it will be runnier than it was down at the bottom of the Harbor?

A That is not the intent. The intent is to syphon.

Q It is foreseeable in a week, six-week period, you might have a rainfall?

A Yes.

Q If you were to keep the muck in there, say you did your dredging from October to November and then kept it in there for a year, you might get considerable amount of precipitation, is that right?

A We have a maintenance water treatment there to regulate the amount of water on top of it.

Q My point is let us assume the material is sitting there for a year and in a year, you would expect 30, 40 inches of rainfull, precipitation, would you not?

A Yes. It could be.

Q Is that about the average in the area?

A (No response.)

Q You didn't look into that in designing the lagoon?

A I?

Q Or anyone to your knowledge from Mason and Hanger?

A That was something that was not necessary as far as I was concerned to the design in the lagoon.

Q Even if the material is going to sit there for a year?

A The 200 gallon a minute water treatment system will take care of it.

Q What about the 1500 gallon per minute system?

A That is removed once the major dewatering is done.

Q But that is not going to occur until six months after you get the water material in the lagoon, is that correct?

A I don't understand the question.

Q You are going to build the lagoon and you are not going to have the treatment operating for six months, isn't that correct?

A That's not, no.

Q Isn't that what you told the State of Illinois?

A I don't think so.

Q You did not sign a document that was filed with the State of Illinois that made that representation?

A Just because the lagoon is going to be built, I don't have to fill it.

Q Wait a minute. What I am asking you is --

A The lagoon is going to be built but I don't have to dredge. The permit to operate and fill that thing is sometime after the lagoon is built. When you start dredging and putting your material, your 1500 g.p.m. water system is there or you can't keep up with the dredging.

Q In other words, if you told the State of Illinois you would do the dredging between October and November of one year and not build a treatment plant until the spring of the next year, that wouldn't be true, is that it?

A That is a scenario --

Q I am not saying that. I am saying that if you told the State of Illinois that you would dredge in October of one year and not build this 1500 gallon per minute treatment plant the following year, that would not be true?

A Dredging for Slip 3 only, that treatment is not involved.

Q Let me ask you this: If you told the State of Illinois that you were going to dredge Slip No. 3 in October of one year and not have any technique available for taking the water out of the muck that you have taken out of Slip No. 3 until the spring of the following year, that would not be correct, would it, in terms of the recommendation you made in this case?

A I don't think so. I don't know exactly what you are saying.

Q Let me start over so you understand.

My understanding is that when you remove the material from Slip No. 3 by dredge, you are already going to have in place a lagoon to hold it, correct?

A Yes.

Q That lagoon is going to be equipped with a treatment plant that will take the water that is settled out of that material and treat it and return it to the Harbor at a one part per billion level, is that correct?

A It is not necessary that that be done.

Q I didn't ask you that. Under the proposal that you have, the proposal that you have embodied in the January 1981 report and subsequent specifications about which you are going to testify at trial, that involved having a treatment system in place and operational to treat the water that is going to run off that muck that you take out of the Harbor, is that right, at the time you take it out of the Harbor?

A Could I take a minute to clarify?

Q Why don't you answer my question first.

A I don't understand it. It doesn't make sense.

Q Let me state it again.

The first step is to build the lagoon, is that correct?

A True.

Q The second step is to build a treatment plant to treat the water that is going to leak out of that lagoon.

A That is not true.

Q All right. What is the next step after you built the lagoon?

A There are many next steps.

Q What is the next major step?

A There are several next steps. I can dredge Slip No. 3 and I can put that material in the lagoon with absolutely no water treatment system at all.

Q What effect is that going to have on the amount of PCBs that volatilize off?

A Probabily minimize it because I will have a column of water above that sediment.

Q How many pounds of per day of PCBs will be released to the environment?

A I don't have the slightest idea.

Q But several pounds per day?

A No, I can't say.

Q If somebody from Mason and Hanger in a report indicated it would be more than a pound per day, would you disagree with that?

A You must look at the condition under which it was stated.

Q Let us assume that 7300 cubic yards of material was removed from the Harbor and it sits there in the lagoon and you don't have any treatment plant so the water it was removed with sits there with it.

A When Dr. John calculated the material, the volatilization from the lagoon, there is one important factor and that is the water column above the sediments. The thicker the water column, the less the volatilization.

Now, if you don't treat, then you have five times as much water at a slurry ratio of 15 to 85. You have five times, six times, maybe seven times as much water in the lagoon as you have sediments; therefore, you have several feet of water above the sediments that can sit there for a year in Slip No. 3 only.

Q It is your recommendation that you not have a treatment plan in place at the time the material is removed from Slip No. 3?

A It is not my recommendation. That is an option that EPA has in their dredging.

Q I want to know what your recommendation is.

A I have none. I have no recommendation of what they do. I can't recommend what they do.

I am giving them options.

Q Do you don't have a recommendation, is

that right, with respect to whether you have a treatment plant that is operational for treating the water at the time the material is dredged?

A It does not need to be.

Q I didn't ask you that. I asked you: You don't have a recommendation one way or the other?

A I'm not going to answer that because you are making it in such a condition that you are making me make the recommendation. It is not my responsibility to make that determination.

It is EPA's responsibility to determine what it is they want to do. I am offering them several options on how to do it.

Q Which one do you think is preferable from the point of view of minimizing the release of these PCBs to the environment?

Let me restate the question for you: If you wanted to undertake this dredging project in a way that would minimize the amount of PCBs that are going to be released to the environment, through evaporation, volatilization, would you have your treatment plant built to deal with all this water from the dredged materials at the time you began the

dredging?

A Depends on how much in dredging.

Q Let us say 7300 cubic yards of material from Slip No. 3?

A No need.

Q Not needed?

A No.

Q In your opinion, it would have no effect on volatilization?

A If I understand volatilization properly, if there is more water over the sediments, there will be less volatilization during that period of time.

Q On that basis, would you recommend never having a treatment plant?

A No, no.

Q At what point would you recommend having a treatment plant, how long after the dredging occurred?

A That is a time period that I have not made the -- I don't want, I cannot state right now. I haven't thought about it that much.

Q You thought about it enough to prepare a permit application for the State of Illinois, did you not?

A The State of Illinois made that for a situation that is possibly different from what you are describing right now.

Q You signed that permit application.

A True.

Q In that permit application, you indicated there would not be a treatment plant to deal with this material until many months after it was withdrawn from the lagoons, is that not correct?

A I would like to see that permit application if I may.

Q I will show it to you. I want to ask you a little about that first.

Did you review that permit application?

A I did but I can't recall, I don't have total recall.

Q I understand but you do recall that in that permit application, the proposed plan was to dredge Slip 3 in the Fall of one year and wait until the Spring of the next year before --

A I can't say I remember that.

MR. SCHINK: Why don't we have that marked as Exhibit No. 10.

Exhibit No. 10 is a multi-page document, the first page of which is signed by Mr. Cook and entitled Application for Permit for Construction Approval, and the type of project is Removal of PCB Contamination from Waukegan Harbor.

(Cook-Monsanto Deposition Exhibit No. 10 marked for identification, 6/9/82, TLU.)

BY MR. SCHINK:

Q Have you seen this document before, Mr. Cook?

A Evidently I have. It has my name on it.

Q You are not aware that anybody was submitting documents with your name or seal on them that you hadn't seen in the form in which they were submitted, are you?

A No. I had signed that. I reviewed it.

Q Am I correct you are not aware that any entity submitting a document to the State of Illinois bearing your seal and signature which was in some way altered or amended, are you?

A No.

Q You never complained to anybody at EPA

about that occurring?

A No.

Q You are sure about that?

A Yes.

Q You don't remember any problems with alteration of your documents from somebody by the name of Roy Weston?

A I have seen the documents that were altered. I have never seen a permit that was altered and I told Mr. Rudder that if it was altered, I would be greatly upset.

Q In other words, you had some drawings that accompanied this permit application that were altered before it was submitted?

A I have to check to see what drawings were accompanying this.

Q We will get back to that. Why don't you just look at this application and tell me whether this is in fact an application that you signed and prepared in this form?

A I don't have a copy of what it was I signed and I want to reserve statement on this until I can take my copy of this document and compare page by page.

Q In other words, there is a possibility it may have been altered from the time it left your office?

A I want to eliminate that possibility.

Q This document has been produced to us by attorneys for the U.S. Government and it purports to be a document that was filed with the State of Illinois that you signed.

I want to call your attention to the seventh page that has a number in the lower right-hand corner which is U.S. 47691, which was not on the copy of documents Mr. White provided us.

Do you see that?

A Yes.

Q I call your attention to Item 6 which appears to contain construction schedules or various steps in the project described, is that correct?

A Yes.

Q Do I understand that you prepared a set of applications which contemplated the dredging of Slip No. 3 during a one-month period in 1982 to be followed some six months later by the completion of installation of a treatment system to deal with the water that was removed during the dredging?

A That schedule says March 15, begin lagoon construction. September 1, lagoon construction completed and tested; October 1 to November 1, Dredge Slip 3; leave the sediments and the water that was used to transmit them to the lagoon in the lagoon until March 1, 1983.

Q Actually that is when you began installing your treatment system. It is not complete until April 15, isn't that right, under this proposal?

A Well, the next line item here is March 1, '83 to April 15, '83 is Install 1500 G.P.M. Treatment System. So then dredging of the 50 part per billion --

Q Let me stop you right here. Am I not correct that the proposal that you made to the State of Illinois was that you would spend a month dredging Slip No. 3 during the month of October, 1982?

A That is what this says, yes.

Q And then some six months later, you would complete the installation of a treatment system to treat water that settled from the material that had been removed from the Harbor?

A The intent of that 1500 G.P.M. treatment was to allow them to dredge 50 parts per million and

above area. It is not necesarily to treat that already there.

Q But you would not have any treatment for what was already there until that 1500 gallon per minute treatment system was completed, is that right?

A True.

Q So that the material you took out of the Harbor would sit in this lagoon from October until April to volatilize, is that true?

A True.

Q You would then complete the treatment system and begin to treat some of the water that drained off these materials that were put in the lagoon, correct?

A But the intent is not to treat the material that was dredged the previous six months from Slip 3 but to allow you to dredge the 50 to 500 parts per million. You must have a treatment system in order to dredge that area.

Q The material that you were removing during the month you were dredging Slip 3 is going to consist of 85 percent water and 15 percent sediment, correct?

A Theoretically, yes.

Q It may in fact have more water and less sediment.

A True.

Q In that form, you cannot put it in a landfill, can you?

A What size lagoon does this thing say?

Q You prepared the application.

A Well, I have to read it. I don't remember what size lagoon it was for.

Q I believe what you will find is the lagoon has a capacity of 150,000 cubic yards.

A If that's what it says.

Q I am referring now to Page 47693 which is two pages after tne page you are looking at.

A Yes, 150,000 cubic yards, right.

Now, in that 150,000 cubic yard lagoon, there is a special dammed up area for the sediments like contaminated sediments out of Slip 3 to assure that they have a water head over them to minimize volatilization.

Q Would you show me on Figure 22 which is Page 47705, where that special area is?

A 42?

Q 47705. As I look at that, it shows a single lagoon, not a separate lagoon.

A That is a pictorial representation of the process. It is not the design drawings. What accompanied that was the design drawings.

Q Is it your testimony that the design drawings provided for two compartments in this lagoon area; one for the sediment from Slip No. 3 and the second for the sediments from the balance of the Harbor?

A True. Within, if I may, the dredging of Slip 3 contaminated area beginning at the upper end of A-1, 2, and 3, those materials go into that special compartment as they are dredged.

As they continue to dredge, you may overflow the water, may overflow that dam that is in. I think it is ten feet if I am not mistaken so the highly contaminated materials would go in that one isolated area. The rest of it may go into the other part of the lagoon.

Q Under the system that you have now proposed to the State of Illinois, and this is, am I not correct, that is Cook Exhibit No. 10, your proposal

to the State of Illinois, the most recent proposal that you have made regarding removal of PCB contaminated material from Waukegan Harbor?

A Right. This first 150,000 cubic yard lagoon.

Q And this document is the most recent proposal that you made?

A To the best of my knowledge, yes.

Q Under this proposal, none of the sediments would be removed from the lagoon until almost eight months after it first went in there, is that not right?

A What page is that again?

Q Same page. You are going to start dredging in October and you are not going to start removing any material until June, isn't that right?

A The dredging from April 15 to June 15. June 15 to October 15 is the ultimate removal of sediment, ultimate disposal.

Q In other words, sediments containing PCBs from the Harbor that was removed in October and that is the most highly contaminated material is removed first, isn't that your proposal?

A True.

Q That is going to be sitting in there from the very beginning in October until the very end, October the following year is it not, just going to be in the bottom of the lagoon?

A True.

Q But you cannot guarantee, can you, that the most highly contaminated sediment is going to be the sediment you remove first?

A The boring data --

Q Some of the boring data indicate that the lower materials were higher contaminated than the upper material, doesn't it?

A My indication is that the boring indicates the areas A-1, 2, 3, 4 have a decreasing order of contamination.

Q Now, you are speaking only of within the muck.

A Within the muck.

Q In other words, because you are going to be leaving the most heavily contaminated area, that is the clay and sand areas in the Harbor, is that right?

A It's not intended to.

Q Let us just take that old Boring No. 5, the location we talked about before. The boring data there indicates, do they not, that the most highly contaminated portion is in the sand, Boring No. 5.

A In the sand according to this document; has a top layer, has 116 parts per million.

Q And that is more heavily contaminated than the muck, if you know?

A That's not so.

Q What data are you referring to?

A Addendum No. 1, the First Addendum.

Q To --

A Page 6.

Q What do you conclude from that?

A Well, on the Addendum 1, B-5, it shows a muck of 308 parts per million in the sand and 116 parts per million --

Q Okay. From that you conclude that in that area, the muck is more highly contaminated than the sand?

A True. You have the same conclusion with respect to the other areas of the Harbor where borings

are taken initially that the muck is always more highly contaminated?

A That is our general conclusion, yes.

Q That was not your conclusion, however, with respect to Borings B-1, was it, or B-6?

A No. The underlying areas where this material is highly concentrated is much higher.

Q In some areas, the muck is more highly contaminated and in other areas, the sand is more highly contaminated?

A Once you get out of the area where we propose to remove the sand and the clay, then generally the muck is higher contaminated than the underlying clay layer.

Q Generally but not always. Sometimes there is higher clay contamination?

A I think there is a very, very high probability that that is true.

Q During the one-year period that the sediments are going to sit in this lagoon after they are removed in October, removed from the Harbor by dredging and before they are removed the following October and transportated to some other location, throughout that

entire one-year period, there will be volatilization of PCBs from that lagoon site, is that right?

A True.

Q Do I understand that it is your proposal that during that entire period in an effort to minimize volatilization, you are going to cover this area with manure or some sort of sludge?

A I don't know. Dr. John found water column is a better way to do it.

Q Better than manure?

A It has the same effect, easier to spread out evenly, this sort of thing.

Q That is as you look at the lagoon and instead of actually having water on it, there would be sediments, there would be more volatilization, is that right?

A As I understand it, if indeed you pulled all the water off the top of the sediments, you could get a more rapid disbursal of the PCBs into the enviroment. Therefore Dr. John, I think he is proposing to leave that water column on there until the period, it is the period that it can be dewatered and taken away.

Q So you don't recommend putting any manure on top of the lagoon or any other organic material to try to reduce the volatilization, is that right?

A If this situation should necessitate, it can be done.

Q So you may have a situation where because of the way in which the material was piped into the lagoon, you have areas of exposed sediment. Those you would want covered with the manure?

A It is highly unlikely that that sediment will be distributed in that lagoon in a very even layer so there might be areas where you would want to put some sort of a material on top of it to keep it from volatilizing, if indeed it would penetrate.

Now, if I remember correctly, my specifications say that the contractor should get it as even as he can but let's face it, it is absolutely -- well, it is the high probability there will be hills and valleys.

Q And it is possible you may have to put more material in the lagoon than you initially anticipated because the area of contamination may be contaminated in more than 160,000 cubic yards, isn't that right?

A As I said, the measurement, the quantity of sediments in Waukegan Harbor 10 parts per million and above which is synonymous roughly with 160,000 cubic yards, we have a higher degree of confidence in those numbers than we do have in the amount of PCB in that 160,000 cubic yards.

Q Didn't you testify yesterday that with respect to estimates of area of contamination on the OMC property that you felt there could be an order of magnitude difference there but with respect to what is in the Harbor that your personal belief was it would be less than an order of magnitude, but Dr. Nordin felt it might be as much as an order of magnitude, is that correct?

A That is in the contamination if I am correct.

Q What about with respect to the quantity of material to be dredged from the Harbor?

A Quantity of material, that is what I tried to say a minute ago. We have a higher degree of confidence in the quantity of material to be dredged than we do have in the amount of PCB in that material.

Q If your estimate of the material to be removed from the Harbor is not 100 percent accurate

and you would agree it isn't, is that correct?

A Yes.

Q It is not like taking a ruler out and saying something is 12 inches long.

A And I can measure today and it can change tomorrow by ships and these sorts of things.

Q Exactly. What, in your opinion, based on the fact that the amount of material there can change, based on the fact that you have not taken borings throughout the Harbor, based on the fact that borings indicate considerable variation in PCB levels at given depths, what do you think the range of material that would have to be removed would be if you were to dredge to a 10 part per million level?

A I believe this was the statement that we made, that the one-foot difference throughout this area amounted to some 40,000 cubic yards of material.

Now, if that one foot difference throughout the entire Harbor from 10 parts per million and above, from that number, then you could see it would be 45, 40 or 45,000 cubic yards into 160 is roughly 25 percent.

Q But what you are saying is that 160,000

cubic yards is roughly four feet of muck on the average that you are going to be dredging, correct, if one foot equals 45,000, why wouldn't four feet equal 160,000?

A I hate to make that analogy.

Q But it is correct, isn't it?

A The ratio is correct. Whether the theory is correct or not, what you are saying is correct. The ratio is correct.

Q If it turns out that you have to dredge eight feet of muck instead of four feet of muck, you are going to end up with 320,000 cubic yards?

A Like I said, I have a higher degree of confidence in the amount of muck than in the PCBs in the muck.

Q I am not talking about amount of PCBs. What I'm talking about is the amount of material that is going to have to be withdrawn from the Harbor. You have come up with a figure of 160,000. You have admitted it is not a precise figure.

A True.

Q Correct?

A True.

Q You have admitted that it could well be in excess of that figure.

A Could be less, too.

Q Could it be twice that figure?

A I would seriously doubt it and for me to say scientifically yes or no, I don't know.

Q Let me ask you: If instead of just limiting yourself to dredging of the muck in the Harbor and focusing your attention on removal of whatever material, whether it be sand, clay or muck has to be removed to bring the PCB level in the Harbor down to below 10 parts per million in any location, how much material would have to be used?

A I don't have the slightest idea.

Q It would be a great deal more than 160,000 cubic yards, wouldn't it?

A I don't believe your word of great deal. Great deal is not a quantitative expression.

Q Would you have to remove a foot of sand? You have evidence that contamination in the Harbor extends about as deep as a foot in the sand.

A I believe it does. I can't recall, looking at each one of these borings, but our original impression

was that the upper layer of sand -- you're looking at Slip 3, looking at the whole Harbor.

Q But you are not going to be removing anything from Slip 3 except in the Cofferdam area, is that correct?

A But you asked me at 50 parts per million, how much material. It's 50 parts of material of muck out in the Northern portion of that Harbor, 50 to 500.

Q How much material in your view, in your judgment would have to be removed from the Harbor to bring the level in the Harbor sediments --

A I can't answer that right now. If that answer is important to you, I would request time to make an evaluation of it.

Q But you would agree it would be more than 160,000 cubic yards?

A I'm not so sure that I would agree to that but it probably is true.

Q That is in addition to the 160,000 cubic yards of muck or a total of 320,000 cubic yards?

A You've lost me again.

Q You have given the opinion in this case

that you have to remove what you have termed to be 160,000 cubic yards of muck from the Harbor to get down to a 10 part per million level, correct?

A I have given the opinion that if somebody else wants to remove it, they would have to remove about 160,000 cubic yards of muck.

Q You have also admitted that based on the boring data, removal of that muck will not result in a situation where the Waukegan Harbor does not have pockets of PCBs in excess of 10 parts per million, is that correct?

A The ten parts per million and above?

Q Right.

A If we remove all the muck from the 10 parts per million demarcation line and above, the only pockets that might be left might be some areas in the sand itself which to our interpretation of the data, are minimal.

Q But you found levels in excess of 100 parts per million in the sand by the Boring data, right?

A Well, you pointed to one.

Q And there are more, are there not?

A Since you brought it up, I have not reviewed

each and every one of those boring data.

Q Am I correct if you removed 160,000 cubic yards of muck, there would still be areas in Waukegan Harbor where PCB in the sand exceed 10 parts per million, is that right?

A That one boring is evidence of that, yes. And how many more, I can't say. Like I say, if you want an exact measurement of that, I respectfully request that I be given time to prepare it.

Q No, I just want to make clear that you are not giving the opinion that if you remove 160,000 cubic yards of muck from the Harbor, that you are going to be left with a situation where there are not PCBs above 10 parts per million in any area within the Harbor?

A I don't believe I ever said that.

Q I just want to clarify that. So there will still be areas of PCBs above 10 parts per million in the Harbor, even after the project that you have proposed is completed?

A I received evidence by the fact that the boring, isolated borings of some contamination in the upper level of sand, yes.

Q In addition as the PCBs that have gone into suspension settle and the PCBs that have been agitated settle down to the bottom there will be a layer of PCB-laiden sediment that will have settled on the bottom, is that correct?

A If I am not mistaken, the later dredging specifications address minimizing that.

Q It will still be there, even if you take efforts to minimize it. You cannot get rid of all of it, isn't that correct?

A I don't know what the concentration would be, no.

Q Let me ask you this: If a dredger comes in and removes the 160,000 cubic yards of material and six months later, the PCBs that have been agitated and have now settled and gone into solution and are settled out of solution, form a layer on the bottom of the Harbor containing five parts per million PCBs, will that dredger have been in compliance with the specifications that you set forth?

A I cannot say that.

Q Did you consider that question?

A We considered putting in a flocculant

Q No. Have you considered the question of whether your specifications ought to contain a requirement --

A As I said, there is a post-treatment section in the specifications that I cannot address verbatim today.

Q That section provides, does it not, that as long as there are 10 parts per million or less, that contractor is off the hook?

A If you have read it and can quote it, then it's probably true. Like I said, I can't recite what is in that specification verbatim.

(A brief recess was had.)

BY MR. SCHINK:

Q Mr. Cook, before we broke, we were talking about the obligations of the dredger with respect to the level of PCB that would remain in the top of the bottom of the Harbor after the dredging was completed.

I would like to call your attention in the specifications dated August 31, 1981, identified as Cook Exhibit No. 7 to Section 02881, 3.2.2.12, which indicates at follows:

"When the contaminated sediments have

been removed from the Upper Harbor to the satisfaction of the U.S. EPA OSC, the dredging shall be considered complete" except for certain testing.

Now, in drafting those specifications, what standards did you contemplate would satisfy U.S. EPA with respect to the completeness of the dredging?

A I did not contemplate any. That is EPA's responsibility.

Q In other words, the dredger could come in, could remove 98 percent of the material and the level of contamination remaining in the top of the bottom of the harbor would still not satisfy EPA and you have to come in and dredge again?

A I would have to review the entire section rather than one paragraph.

Q Let me ask you this: There is another provision in that same section that requires that 98 percent of the sediment in the upper end of the Harbor be removed and I am calling your attention now to the same section, Section 02881, specification 3.2.1.6, which state:

"Upon completion of the dredging in Slip No. 3, probings shall again be taken and the data compared to the data from the record probing. Two copies of this probing data shall be furnished the U.S. EPA OSC"

and then it says in Subparagraph 1:

"At least ninety-eight (98 percent) of the sediment shall be removed from the upper 350 feet of Slip No. 3."

Under the specifications that you have written them, it is possible, is it not, for a dredging contractor to come in to remove 98 percent of the sediment and still not have completed the dredging project as required by your specifications because the remaining PCB levels may not be considered satisfactory by the U.S. EPA, is that right?

A I believe that is the intent.

Q How did you determine whether 98 percent of sediments have been removed?

A There are placed where they take probings and it is a mathematical calculation.

Q But those probings like the core boring data are an indicator of what has happened, but they

do not tell you that 98 percent of the sediments have been removed, do they?

A The locations for these pre- and post-sounding -- did I say borings? It is a misnomer. It is sounding measurements of muck depth, measurement of muck level.

Q How do you know inasmuch as the muck varies in the amount of sediment present whether you have removed 98 percent of the sediments or not?

A It is --

Q Aren't you comparing apples and oranges?

A Let me see the whole section, please.

Q Sure.

A The basis on which the amount of sediment removal is calculated is generally described in Section 02881, paragraph 3.2. and I am going to read here a little bit from subparagraph 3, subparagraph 3.2.1.1:

"Probings to determine the depth to top of sediment and top of sand in Slip No. 3 shall be taken along the face of the north sheetpile bulkhead, along the center line of Slip No. 3, and along the face of the south

sheetpile bulkhead. The probings shall be spaced at intervals of 35 feet along each of the lines beginning at the face of the west sheetpile bulkhead. A record of the location of each probing and the two depths measured shall be prepared as reference for determining both quantity of sediment removed and percentage of sediment removed. Two copies of this record shall be furnished the U.S. EPA OSC."

Those measurements are then the ones that will be used to calculate the amount of sediment removed. The pre- and post- are compared and if they mathematically agree in those locations, then he has satisfied the 98 percent removal.

Q Even though there may well be other areas in Slip No. 3 where, if you took soundings before and after, it might show less than 98 percent removal?

A True. This is a grid accepted by U.S. EPA as a basis for which to calculate.

Q Did the U.S. EPA tell you that the one way they wanted it cone?

A This is the one they accepted. These are not our --

Q They wrote those specifications?

A I won't say they wrote them. I think they gave us guidance or at least accepted the spacings here.

Q Did you make an independent determination that if soundings were done in accordance with those specifications, that in your engineering and professional judgment that 98 percent of the sediments would in fact be removed?

A The only way I could do that is to go in there and measure every inch of the bottom of that Slip 3.

Q So in your words in your judgment, you cannot say without reservation that under the measurement and sounding technique proposed by EPA, that something less than 98 percent of the material would be removed?

A This is similar to nondestruct welding on pipe.

Q Answer my question, first.

A What I am saying is that there has to be some logical acceptable basis on which to compare anything and other than putting divers in there which

I wouldn't really suggest and having soundings that are two feet apart, one foot apart, you must arrive at some rational judgment and this was the basis of it.

Q You reviewed that and concluded that the proposal of EPA was an appropriate one in your view to assure that 98 percent of the sediments were removed?

A I can say this is a method from which they can run a calculation that shows that the soundings are 98 -- there is a 98 percent removal of material.

Q That is not my question. You can subtract 100 from 98 and get two.

A That's right.

Q And you can do it with one reading or two readings or three readings. Let me ask you first of all: Do you have the experience in dredging and in calculating removal of material before and after dredging from which to render an opinion as to whether what EPA suggested ought to be done was appropriate or not?

A It is EPA's basis for accepting the fact that the materials have been out there. It is their

basis for accepting what the degree of contamination is acceptable to them that might be left in there.

Q Can you say with a reasonable degree of scientific certainty as an engineer that 98 percent of the material is out of there?

A I can and the material were in the places that I measured.

Q I am talking about what you are trying to do is remove the 98 percent of material from an aea of the Harbor. I am not asking you simply whether the borings or soundings occurred but I am asking you, using the sounding technique and sounding locations recommended by EPA, would you say with a reasonable degree of scientific certainty that the 98 percent of material was removed?

A I don't think I can answer that question.

Q Would you stake your reputation on it?

A If I were to judge --

Q No, I am asking you. You stake your reputation day to day on making various statements and conclusions in your capacity as an engineer.

A I am staking my reputation that the before and after sounding, I can presume that 98 percent of

the material in those locations have been removed.

Q In respect to other areas where they may not take the soundings, you could not say that, is that right?

A That's true.

Q You testified yesterday that the calculation you made of material to be removed outside of the Harbor, that is, in the North Ditch, Crescent Ditch, Oval Lagoon and the parking lot was approximately 168,000 cubic yards, is that right?

A Yes.

Q That was a calculation that was accurate to an order of magnitude, am I correct?

A Yes, true.

Q That means that the range of magnitude of the material that could be removed could be as much as ten times that amount.

A That is what that literally reads.

Q That is what it means, isn't it?

A That's what it reads.

Q You in fact told Ms. Oliver, go look it up in the dictionary.

A I didn't say go look it up in the dictionary.

I said the dictionary definition of it. I didn't tell her to go look it up in the dictionary.

Q The dictionary definition is the definition you apply in using that term, is that correct?

A True.

Q In other words, that means there could be 1,680,000 cubic yards of material just as there could be 168,000 cubic yards of material?

A Not so.

Q Isn't that what order of magnitude means?

A True.

Q Doesn't it mean that the range of material to be removed is somewhere, in your judgment, between 168,000 and 1,680,000 cubic yards?

A That's what that says but that is not my judgment. The person that wrote that, I don't think understood what an order of magnitude is.

Q But you reviewed the report before it went out, is that right?

A Yes, that's true.

Q And you stated yesterday with respect to materials to be removed from the land of OMC that 168,000 cubic yards was in an order of magnitude

estimate, is that right?

A True.

Q Am I right that the amount of material to be removed from the OMC property affects the amount of time that it will take to effectuate that removal; that is, the more material you have to remove, the longer it takes?

A That is a logical conclusion.

Q That conclusion would be correct in this case, would it not?

A It seems to be a logical conclusion, yes.

Q And that the cost of removal increases as you increase the amount to be removed, correct?

A True.

Q The size of the storage area that you need for the material to be removed increases as the amount of material moved increases.

A True.

Q For example, if you have to remove 300,000 cubic yards, you would need a storage area that would be twice as big as a storage area you would need for 150,000 cubic yards?

A Basically true.

Q And the size for the area for disposing likewise increases as the area increases.

A Basically you are going through a geometric progression which is basically true.

Q Is the progression geometric or arithmetic? If you increase fourfold the amount of material, let us assume the amount of material is 168,000 or four times that or roughly 600,000. Would you expect the cost of disposal to be roughly four times as high or 16 times as high?

A Restate the question.

Q If you increase fourfold, the amount of material to be removed and disposed of from the property of Outboard Marine, would you anticipate that the cost would increase fourfold or sixteenfold?

A I have doubled the quantity?

Q No, quadrupled.

A Say again? You say removed, you mean here, excavation costs?

Q No, let us talk about disposal cost which is what we are focusing on, size of disposal area, cost of the disposal area.

A The best of my knowledge, the cost per cubic

yard of disposing of a contaminated material might actually decrease if you have larger volumes.

Q Is that true if you sent it to the Williamsburg, Ohio site?

A The information we got was on a yard-for-yard basis, no exponential change either way, but I would imagine if there were larger quantities of this material, that most people will negotiate a little bit for larger quantities.

Q But did the Williamsburg, Ohio site operator indicate that to you?

A We did not ask him that because we basically told him the amount of material we had. He gave us a statement. We did not ask him for a variation of two, three, four times that.

Q The same thing was true with Browning-Ferris; namely, they gave you a cost per yard of disposal?

A True.

Q Before you can dispose of it, though, you have to transport it to an offsite location, is that right?

A True.

Q The cost of transportation is simply a function of how many truckloads you can carry, is that it?

A Basically.

Q If you double the amount of be carried the way you would double the cost of transportation --

A Basically, that's true.

Q Your study concluded that if the material excavated from the property of Outboard Marine were disposed of at the only site that is currently licensed to accept it: Namely, the Ohio site, that the cost of getting the material there and disposing of it would be $57 million, is that correct?

A Will you refer to the page in the report where that is stated?

Q Sure, Page 139. The sentence is: "The closest site permitted to receive PCB contaminated material is CECOS near Williamsburg, Ohio, at a disposal cost of about $57 million."

Do you see that at the bottom of the page?

A All right.

Q That $57 million --

A May I take time to read this, please?

Q Surely.

A That $57 million is on the basis of 367,000 cubic yards now.

Q And what you are anticipating there is the material from this lagoon containing that has been dredged and dewatered from the Harbor and the 160,000 cubic yards of material that you estimate would be removed from the property of Outboard Marine, is that correct? That's how you got the 367,000 cubic yards?

A If indeed that number does summarize, and I presume it does.

Q Plus extraneous materials?

A Yes.

Q It states there would be 40,000 cubic yards of what you call extraneous materials?

A That was one estimate in here, yes.

Q If it turns out that there is instead of 168,000 cubic yards of material from the property of OMC to be removed, perhaps four times that amount, you would expect, would you not, that the cost of just transportation and disposal down to Ohio would increase in the same proportion is that right, so it

would be well over $100 million?

A Your mathematics are true. I am not sure your assumptions are true.

Q You have testified that transportation costs will continue to go up with each truckload.

A I said your mathematics, your extension of dollars is true but your assumption that there would be four times as much material in that site, I don't think is necessarily true and I am going to take a look here and see if I can offer you --

Q I am just giving you a hypothetical.

Let's assume and we do have testimony and we do have statements in the record about order of magnitude and what that means and that your figures for the contaminants present if removed are order of magnitude figures.

A Let me give you, if I may --

Q I just want to ask you, given that testimony, am I not right that if there is four times as much material to be removed, you would expect the cost of transportation and disposal to be four times as much?

A If indeed you can generate four times as

much material, your multiplications are correct. What I am saying is, if you look at Page 15.

Q Now you are referring to the Harbor itself?

A No, I am referring to the cross-hatched area that represents our estimate of PCB contamination over 50 parts per million.

What I am saying is, if you look at the white area between the cross-hatched area near the sea wall and the cross-hatched area near the Oval Lagoon and the Crescent Ditch and you see that that area is not four times the cross-hatched area. So what I am saying is from a logical --

Q You are talking about the surface area. You are not talking about depth, however.

A I am saying logically and I believe if I am not mistaken, the cross-hatched area over there in the West parking lot goes down quite deep, almost to the clay in certain areas. So what I am saying is I don't know whether or not there is physically four times the material in that North parking lot of the 160,000 cubic yards you are talking about.

Q I understand that.

A So that order of magnitude is a number

that was stated but in fact is not a reality.

Q But you do not know one way or the other because you don't have enough information to affirmatively define the boundary of contamination, is that correct?

A I could do a volumetric calculation.

Q Do you agree with that statement that not enough information is known to definitely define the boundaries of contamination in the North Ditch area?

A That's true. I am saying that --

Q In addition to increasing the transportation and disposal costs, am I not correct that the cost of removing material would increase as well? I am talking about the cost of actually excavating the material.

A It is not a straight line function.

Q Let us assume that you have to remove 320,000 cubic yards instead of 160,000, that you underestimated by 50 percent, the material to be removed from the OMC site. You have projected on Page 147 that the cost of removing 160,000 cubic yards would be $11 million. What would you anticipate the cost would be for removing twice that much?

A I would have to have some time to study that plus there are certain fixed costs that you have regardless of how much material you remove. You said 147,000?

Q Right, have a total cost of $11.237 million for removing materials from the North Ditch area. If you double the amount of material to be removed, what would that be?

A In each one of these estimates, there are certain fixed costs that do not apply if the quantity increases. It is usually some exponential factor. When we make a comparative estimate for doubling volumes, it is less than unity.

Q So it would something less than $22 million but in effect, substantially more than $11 million?

A True.

Q $12 million instead of 22?

A True, and it is an exponential and until I could look at this -- because the estimates that I have included in the Phase 1, Phase 2, Crescent Ditch, Oval Lagoon and parking lot each were estimated --

Q And they were based on '80 costs which since that time have increased 20 to 30 percent?

A May I finish?

Q Yes.

A They were estimated to be done individually, such that there was no continuity between the two. The contractor would have to move in, move out each time so there are certain fixed costs that appear in that number that if you did it all at once, would be removed.

Q Did anyone review your January 1981 report other than the people you identified yesterday at Mason and Hanger and the people to whom it was sent at EPA before that report appeared in its final form?

A We couldn't. We were under court order.

Q Did anyone from the Army Corps of Engineers review it?

A They were given a part of it by U.S. EPA.

Q Did they give you any comments?

A They discussed the dredging techniques as I understand it.

Q Did they discuss them with you?

A We had a meeting over there. We got some comments but I can't remember the name but in essence, they said it was buildable but not biddable and the

reason they said it was not biddable was because what we call boilerplate, the terms and conditions were not on the documents they reviewed. These are the contract documents we prepared.

Q The plans and specifications, for example, that the level of PCBs remaining after dredging had to be acceptable to EPA?

A That was -- I don't believe that was within their purview.

Q Did they indicate to you at this meeting that the silt curtains were not an effective way to control sediments?

A If I am not mistaken, we had several discussions with Corps of Engineers regarding silt curtains. What was said exactly, I do not know but I want to paraphrase now that they're better than nothing.

Q My question to you is, did they indicate to you at that meeting that the silt curtains were not effective?

A I cannot say that per se.

Q Did they indicate to you at any time that silt curtains would not be effective in their judgment and experience for the purposes of containing

the agitated sediments in Slip No. 3 during dredging?

A There were discussions as to their effectiveness. If they ever said they were not effective as a final blanket statement, I cannot attest to.

Q Did the Corps of Engineers indicate concern or reservation about whether the silt curtains would be effective, based on their experience?

A True.

Q They did indicate to you?

A Yes.

Q Did the Corps of Engineers also indicate to you based on their experience that they believed that the specification for the percentage of solid material to be removed from the Harbor was higher than to be anticipated?

A Not in those terms.

Q What did they indicate?

A They indicated, and again I am going strictly from memory. They indicated that we were looking for a high degree of removal.

Q You are talking now about the 98 percent removal of sediment?

A And if I am not mistaken, I think they said

it is not unrealistic, that it might be expected with care --

Q I am not asking about the percentage of removal. What I am talking about is the percentage of the material removed that is sediment, solid material as opposed to water. Did they indicate to you that getting 30 percent muck sediment through that dredging technique was a high percentage of removal?

A No, we had discussions on the slurry ratio and we told them or related to them, the average weight of the sediments and they were more inclined to believe that -- we originally were talking about a 70/30 ratio.

Q You are talking about 70 percent water?

A Yes.

Q And 30 percent slurry?

A Sediment.

Q Sediment.

A Yes.

Q That is a very high ratio, is it not?

A Not for sediments that are easily suspended.

Q And the Corps didn't indicate to you that

expecting to get 30 percent --

A They said that might be on the high side.

Q Did they indicate to you that they ever in the reported history of dredging had that situation occur, that is, where you have 30 percent sediment removal?

A I am not so sure that statement was ever made that way.

Q Was that the gist of what they were saying?

A I don't believe so.

Q Did anyone ever indicate to you that the 30 percent removal rate had been achieved before?

A In that particular response, I cannot say. I don't remember.

Q Did the Corps of Engineers indicate to you that customarily, based on their experience when you are dredging, you get about 15 percent recovery rate as opposed to 30 percent recovery rate?

A When we told them we had sized our lagoon and everything else and our times for a 15/85 percent ratio, they were more comfortable, let me put it that way.

Q But your rate assumes that 30 percent of

the material withdrawn is muck.

A We have design on 15 to 85.

Q But your specifications assume 30 percent of the material withdrawn is muck, do they not?

A Thirty percent of the material withdrawn is muck? Again, I am not being facetious but could you point that to me in the specifications?

Q Yes, but I don't have the time right now.

Let us assume that the specifications provide that 30 percent of the material to be withdrawn is sediment and 70 percent is water.

A True.

Q Is that your recollection of what they provide?

A I can't really say. We have talked 70/30 and 85/15 and I can't really recollect what the last one is. It probably, and it could be 70/30. We have discussed about specifying 70/30, designing on 15/85 as a safety factor.

Q But now you are talking about the design of the lagoon. I am not talking about the design of the lagoon. I am talking about what percentage of material the contractor is going to withdraw from the

Harbor is going to be sediment as opposed to water.

A That has nothing to do with it.

Q I am just asking you about that, however. My area of inquiry relates to percentage of material withdrawn from the Harbor by the dredger.

I am asking did the Corps indicate to you at any meeting that it was their experience that in a normal dredging operation, 15 percent of what was withdrawn during dredging was sediment as opposed to 30 percent?

A They indicated that the 15 percent was probably more realistic number but that has nothing to do with the dredging.

Q You have answered my question. My question was, did they indicate to you that 15 percent of what you were withdrawing from the Harbor in their experience was sediment and the balance was water?

A That doesn't have any meaning to me, really. There are so many cubic yards of sediment in the Harbor and you have to get it out of there by mixing it with water.

Q Correct.

A And whether I --

Q And did the Corps indicate to you that in their experience, typically the mixture that a dredger can withdraw, using available equipment, is 15 percent sediment and 85 percent water?

A So what, you just put more water.

Q Did they indicate that to you?

A They said it was 15 percent solid was the range that probably was what the man would end up with.

Q And that was based on the experience that they had had over the years in their own dredging operations?

A I'm not sure they ever said they dredged these kinds of sediments.

Q Are you saying that to your knowledge, this is the first time these kinds of sediments --

A We told them what the density of these sediments were and they felt a little more comfortable about that, about what we specified.

Q Did the Corps of Engineers indicate to you that they had any experience dredging these kinds of sediments?

A I really cannot say.

Q Did you ask them?

A It was asked, but I cannot recall the answer.

Q But you do recall that they indicated their experience was on the average of about 15 percent of the material withdrawn in a normal dredging operation is sediment?

A Based on a denser material.

Q And based on their experience in dredging?

A Correct. Their experience is sand dredging which has a much higher velocity and much lower solids to their water ratio.

Q Corps of Engineers has had more experience that Mason and Hanger in dredging?

A They probably have had more experience than anybody.

Q Would you agree you would rely on the experiences of the Corps of Engineers in the area of dredging insofar as those experiences have been --

A As it relates to this project? Yes, yes.

Q The disposal operation that you proposed, Option 3 involves essentially taking the Outboard Marine parking lot and turning it into an on-site

storage area, is that correct?

A Correct.

Q Would that on-site storage area be built before the Harbor was dredged?

A It does not need to be.

Q Would it be built before any of the excavation occurred in the Crescent Ditch and Oval Lagoon?

A Let me put it this way. Before you can dredge, pick up solid materials and not have a temporary place to put them like we propose for the sediment in the Harbor to the lagoon, my understanding is if you take any contaminated sediment out of the North Ditch area, you are going to have to have a place to put them.

Q Where are you going to put them while you build the parking lot?

A According to these borings, there is an uncontaminated area in the parking lot. You build it there.

Q Are you satisfied you have enough boring information to enable you to proceed?

A That is the basis on which we made our estimate.

Q You believe that you have enough data so that you could go ahead and you could build this area for secure on-site storage without the need for further borings?

A If you can't do that -- for the borings?

Q Yes.

A I presume you want to identify this area, take further borings.

Q In other words, if you took further borings, you might find out the area is not large enough to contain 168,000 cubic yards, right?

A The area is large enough to contain it but if you excavate materials that are contaminated, you may have to get permission for temporary on-site storage for those materials until you can build a permanent on-site storage.

Q Mason and Hanger prepared a study which attempted to quantify the amount of PCBs that would be volatilized, discharged into the environment --

A True.

Q -- during the dredging of Waukegan Harbor and during the year that that material might be sitting in the lagoon.

A Yes.

Q Did Mason and Hanger make any similar study of the amount of PCBs that would be volatilized or discharged into the environment as the result of the digging up of these deeply buried PCB materials during the excavation process on the Outboard Marine property?

A If it is not in that volatilization study, we did not.

Q Would you anticipate that the same principles that would be applicable to an analysis of amount of PCBs that EPA would be discharging to the environment through the Harbor Dredging Project would also be applicable in the excavation of the North Ditch area?

A With the exception of being under water which changes the characteristics of volatilization.

Q Right, that is when soils as you testified earlier are exposed and not covered by water, the rate of volatilization is greater, is it not?

A True -- well, I believe it is true.

Q That is the general conclusion that you came to?

A That is true.

Q One of the other general conclusions you came to, is it not, is that the volatilization rates are much more rapid for soils that had been recently dug up and exposed as opposed to soils that had been sitting in place for some time?

A I believe that is the logical conclusion, yes.

Q In other words, PCBs that might be currently buried 25 feet in the ground wouldn't be volatilizing in the normal course and at least being released to the environment, would they?

A Maybe not through volatilization.

Q But if you dig those PCBs up and expose them to the air, then those PCBs will start to volatilize and be released to the environment, would they not?

A That is basically a true statement.

Q If you expect several pounds of PCB a day to be volatilized to the Waukegan Harbor Slip No. 3 dredging, would you likewise expect several pounds a day of PCBs to be discharged while you are doing this excavation as well?

A That is a logical conclusion, yes.

Q I understand that you have in mind, the use of manure or sewage sludge, treatment sludge to cover over certain areas while excavating is going on?

A There are certain things that may be applicable. We have not identified them by name.

Q But you have identified manure and sewage sludge as possible --

A Being an organic material.

Q Would you propose to have manure or sewage sludge storage area on the site that would hold this manure or sewage sludge?

A That is a detail I haven't thought of and I don't care to get into it at this time.

Q But you would need the organic material readily available so as soon as you determine that there were PCBs in the soil that you had exposed, that you could cover them over to reduce the amount of volatilization?

A There might be some other way besides manure and sludge that is not obnoxious.

Q But you have not identified anything beside

the two. Those are the two you identified.

A There are other things, if I am not mistaken, worth looking into.

Q But as you testified yesterday, you looked into several of these things including certain plastic covers and the like and you concluded that it would not be acceptable.

A That is not a design intent. That is merely a statement that organic materials have these functions.

Q But if you assume for a minute that the U.S. EPA through its experts has concluded that in a year, ten pounds of PCBs enter Lake Michigan from the North Ditch, you would be concerned, would you not, about controlling volatilization PCB losses from unearthing this material that might amount to several pounds a day?

A Would I be concerned?

Q Yes.

A If I would be concerned about volatilization, I'm concerned on the going spread.

Q My point is if you are concerned about 11 pounds per year getting into the Lake from the Ditch as it is right now, you would, I assume, be

concerned about several pounds a day going up into the area as a result of unearthing?

A The logical conclusion if I am concerned about one, I would be concerned about the other, yes.

Q Am I correct that you don't know of any way at this point of accurately estimating the amount of PCBs that the EPA will be releasing to the environment as a result of these projects that you have recommended to them, is that right?

A We have not performed any kind of analyses unless it is that volatilization report.

Q To your knowledge, that volatilization report was designed to examine the amount of PCBs EPA would be released to the environment through the Waukegan Harbor Dredging Project and was not looking at what would happen on the land, is that right?

A True.

Q Because you are going to have more release of PCB from the stirring up from the soils on the land, correct?

A Yes.

Q Do I correctly understand that the on-site storage option, Option No. 3, is currently illegal?

A It would require a waiver from Illinois and U.S. EPA, I believe, to build it.

Q Right. Your understanding and one of the things that you looked into as part of your study for the Government were regulations surrounding various disposal alternatives, correct?

A True.

Q It was your conclusion, was it not, that right now, it would not be acceptable, and indeed, it would be improper and illegal to dispose of these materials on the site at Outboard Marine. Is that correct?

MR. WHITE: I object to the form of the question.

BY MR. SCHINK:

Q Would you answer the question?

A Without a permit, it is to me, the location which is there does not meet the requirements in the U.S. EPA regulations for permitting.

Q Did you ever calculate how many truckloads of clay would have to be transported to the lagoon site to build it in accordance with your specifications?

A Not the exact number but --

Q Order of magnitude, thousands of truck-loads?

MR. WHITE: What is the question, the pending question?

BY MR. SCHINK:

Q Can you give me an estimate of the order of magnitude of truckloads of clay that would have to be brought --

A I did not calculate the number of truck-loads of material because that is an indeterminate number. Is it a large truck, small truck? There are various sized trucks.

Q There are laws with respect to the size of trucks, is that right?

A But you can go smaller than that.

Q For purposes of your study, you assumed that when hauling contaminated material away from Outboard Marine, it would be in 20-cubic yard trucks, right?

A Yes.

Q If you use those same trucks to bring the clay, how many truckloads would it take?

A I don't know.

Q Do you know how many cubic yards of clay are needed for that lagoon?

A I do not. I would have to look at my breakdown. I don't know.

Q Do you know how many cubic yards of clay would be required for the storage site that you proposed building in the parking lot?

A I don't know.

Q What would you do if it turns out that there are 320,000 cubic yards of material to be disposed of from the Outboard Marine property instead of 160,000 cubic yards of material insofar as on-site disposal is concerned?

A I would have to look at what is available. I have not considered that.

Q Do you know, did you build as large an on-site disposal facility as you could in your plans?

A Looking at the drawings, I don't know. That particular portion was calculated and proposed by --

Q Page 7 of the specifications you showed us yesterday was the Option No. 3 as I recall. Can you look at that and tell me how much larger the disposal

site could be made?

A No. I can but I don't want to run a set of calculations or make an off-the-cuff approximation.

Q What is going to be involved if you go ahead and build a disposal site and then determine you have more than 160,000 cubic yards to go into it?

A If I were going to build that thing, I would determine how much material I had to go into it before I build it.

Q How do you determine that until you do the excavation?

A Take sampling.

Q In other words, you would have to be even more sampling before you went ahead?

A We have recommended that.

Q How extensive should that sampling be, in your view?

A I don't have the slightest idea.

Q How long would it take to do that sampling?

A I don't have the slightest idea.

Q How long did it take you to conduct the sampling analyses the first time around?

A Months.

Q Would you have to take more samples the second time around than you did the first time?

A Until I have a chance to sit down and evaluate this, I do not know.

Q You know how many samples you took the first time because you looked at them?

A Yes, but I have not added them up.

Q But you know the scope of that sampling program. You were responsible for that part.

A Yes.

Q Would the second sampling program be in your judgment, as comprehensive as the first?

A Probably more.

Q More comprehensive, you anticipate it would take several months as well?

A True.

Q So as you sit here today, you cannot say one way or the other whether a disposal site can physically be built within the confines of the OMC property that would be large enough to accommodate all of the material that may ultimately have to be dredged in order to meet the standards specified by EPA?

A Within the data presented in this report, I can build on-site disposal for the amount of material that I have estimated to be there, from the data that I have.

Q But you have admitted there are certain data that you still need to obtain, correct, with respect for example, to determining the amount of material to be removed?

A That does not presuppose your volume will increase.

Q I don't want to have to spend a lot of time going over this again but you have given us 168,000 cubic yards estimate, is that correct, which you think may be correct within an order of magnitude?

A All right, okay.

Q You have said that, right?

A If the report says that, yes.

Q You have indicated that your testimony in this case will be what the reports say. You stand behind the reports, right?

A True.

Q So further sampling could occur which would indicate the contaminated area of the OMC property

is, let us say, twice as large and will involve twice as much material as you have previously determined, correct?

A I have no basis on which to judge.

Q That is right because you don't have the data, is that right?

A True.

Q That could well be the case, that there is twice as much material that has to be removed.

A If there is that much physical space within the confines of the OMC property north of the building that would allow that volume, that's true.

Q As you sit here today, you cannot tell me, can you, that there might not be 320,000 cubic yards of material to be removed to get down to the standards specified by the EPA?

A I can't say that, no.

Q As you sit here today, you cannot tell me that 320,000 cubic yards of material, together with material from the Harbor and the other material can be stored on OMC's property, can you?

A Read that back.

(Question read.)

A The 320,000 material is your supposition of the North Ditch, doubled?

BY MR. SCHINK:

Q I am saying the North Ditch area is 320,000.

A That's ditch material?

Q Together with the material from the lagoon and material --

A I cannot make that estimate.

Q So you don't know the answer to that one way or the other?

A No.

MR. SCHINK: I have nothing else.

REDIRECT EXAMINATION

BY MS. OLIVER:

Q Mr. Cook, how many times have you been on the OMC property?

A There was a tour one day after -- I forget when, when several people were allowed to go back in behind and we went under the old outfall, the water tower and I believe I was on that sandpile area, the unused property once; maybe twice after that.

Q So you got a tour of the area once?

A Outside the building, yes, ma'am.

Q How long did the tour last?

A Oh, several hours.

Q You may have been there twice later?

A On the property adjacent to where they intend to put the lagoons, yes, ma'am.

Q When were you there last?

A It's been some time. I can't recall.

Q What year was that, 1981?

A Oh, 19 -- it was before the report was published. I can look up my itinerary and tell you if you think it is important.

Q Mr. Cook, with respect to the on-site disposal recommendation, there would be a clay lining in this area, is that right?

A The intent is to construct it similar to a permitted secure landfill.

Q Do you know how thick the clay lining should be?

A The drawings show the total thickness is ten feet, I believe.

Q Is that total thickness?

A That is with underdrains, et cetera. If

that is important to you, I can look it up.

Q No. If it is in the specifications --

A No, it is in the Appendix.

Q No, thank you. We will find it.

Would you agree that a limiting factor on the dredging aspect of your recommendation was the size of the treatment system and not the lagoon sizes?

A Limiting factor, limiting what?

Q Limiting factor on the dredging part of your recommendations. Does that make any sense to you?

A No, it doesn't make any sense to me.

Q Do you recall having a conversation with anyone at EPA concerning a limiting factor on the dredging?

A That terminology does not register as having a meaning to me.

Q Does it mean that the lagoons could change in size from bigger to smaller and not be affected by the dredging?

MR. WHITE: Do you understand the question?

I think he has answered the question by saying

it doesn't have any meaning to him, the limiting factor.

BY THE WITNESS:

A The limiting factor, your limiting factor, I don't know what you mean by limiting factor.

BY MS. OLIVER:

Q How many meetings did you attend with EPA to discuss your recommendations?

A Again, I did not bring my itinerary.

Q Five, ten, fifteen?

A In that general neighborhood.

Q Five to ten meetings to discuss your recommendations and discuss --

A We had meetings with the EPA, the Corps. We visited the site, we had design review meetings -- the most, 15, somewhere between five and 15.

I have an itinerary book. I did not bring it with me of the dates, where I went, why and for what reason and again, if that is important, it can be furnished.

Q When you mentioned earlier that you don't intend the silt curtains that you used will tear, is it possible they could tear?

A Anything made by man is not infallible. Yes, there could have been a blemish in the curtains that would have a fault or would tear. If it does, we can get repairable materials for it.

Q If it does, does that mean that the water or resuspended PCBs or PCBs dissolved in that water would move past?

A Only if there is a flow outward.

Your question, if there's evidence there is a tear, it can be repaired by taking it up.

MR. WHITE: Are you finished, Roseann?

MS. OLIVER: Yes, I am.

MR. SCHINK: I have no questions.

Thank you.

(Witness excused.)

(AND FURTHER DEPONENT SAITH NOT.)

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 78 C 1004
	)	
OUTBOARD MARINE CORPORATION and MONSANTO COMPANY,	)	
	)	
Defendants.	)	

I hereby certify that I have read the foregoing transcript of my deposition given at the time and place aforesaid, consisting of Pages 1 to 313, inclusive, and I do again subscribe and make oath that the same is a true, correct and complete transcript of my deposition so given as aforesaid, as it now appears.

_____
RUSSELL W. COOK, JR.

SUBSCRIBED AND SWORN TO
before me this ____ day
of _____,
A.D. 1982.

_____
Notary Public

UNITED STATES OF AMERICA)
NORTHERN DISTRICT OF ILLINOIS)
EASTERN DIVISION) SS:
STATE OF ILLINOIS)
COUNTY OF COOK)

I, Thea L. Urban, a notary public in and for the County of Cook and State of Illinois, do hereby certify that RUSSELL W. COOK, Jr. was by me first duly sworn to testify the whole truth and that the above deposition was recorded stenographically by me and was reduced to typewriting under my personal direction, and that the said deposition constitutes a true record of the testimony given by said witness.

I further certify that the reading and signing of said deposition was not waived by the witness and his counsel.

I further certify that I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel, or financially interested directly or indirectly in this action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Chicago, Illinois, this _____ day of _____, A.D. 1982.

_____
Notary Public, Cook County, Ill.

My commission expires May 31, 1983.

Thea L. Urban
Certified Shorthand Reporter
134 South La Salle Street
Chicago, Illinois 60603
312 - 782-3332