United States District Court

District of Massachusetts

CIVIL No. 82-1672-S

ANNE ANDERSON, for herself, and as parent and next friend of **CHARLES ANDERSON,** and as Administratrix of the Estate of **JAMES ANDERSON; CHRISTINE ANDERSON; RICHARD AUFIERO,** for himself, and as parent and next friend of **ERIC AUFIERO,** and as Administrator of the Estate of **JARROD AUFIERO; LAUREN AUFIERO; DIANE AUFIERO,** for herself, and as parent and next friend of **JESSICA AUFIERO; ROBERT AUFIERO; KATHRYN GAMACHE,** for herself, and as parent and next friend of **AMY GAMACHE; TODD L. GAMACHE; ROLAND GAMACHE; PATRICIA KANE,** for herself, and as parent and next friend of **MARGARET KANE; KATHLEEN KANE; TIMOTHY KANE;** and **KEVIN KANE, Jr.; KEVIN KANE; DONNA L. ROBBINS,** for herself and as parent and next friend of **KEVIN ROBBINS,** and as Administratrix of the Estate of **CARL L. ROBBINS, III; MARY J. TOOMEY,** for herself and as next friend of **MARY EILEEN TOOMEY,** and as Administratrix of the Estate of **PATRICK TOOMEY; RICHARD J. TOOMEY; JOAN ZONA,** for herself, and as Administratrix of the Estate of **MICHAEL ZONA; RONALD ZONA; ANN ZONA; JOHN ZONA;** and **PAT ZONA,** Plaintiffs

versus

CRYOVAC, Division of **W. R. GRACE & CO.; W. R. GRACE & CO.; JOHN J. RILEY COMPANY,** Division of **BEATRICE FOODS CO.; BEATRICE FOODS CO.;** and **XYZ** Company(ies), Defendants

Deposition of **JOHN DROBINSKI,** taken on behalf of the Defendant pursuant to the applicable provisions of the Federal Rules of Civil Procedure, before Nancy L. Eaton, Notary Public in and for the Commonwealth of Massachusetts, at the offices of Hale & Dorr, 60 State Street, Boston, Massachusetts, on Thursday, December 26, 1985, commencing at 10:13 a.m.

APPEARANCES

SCHLICHTMANN, CONWAY & CROWLEY,
by **JAN SCHLICHTMANN, Esquire,**
171 Milk Street, Boston, MA 02109, for the Plaintiffs.

HALE & DORR,
by **JEROME P. FACHER, Esquire,**
60 State Street, Boston, MA 02109, for Beatrice Foods.

FOLEY, HOAG & ELIOT,
by **AMY WOODWARD, Esquire,**
One Post Office Square, Boston, MA 02109,
for W. R. Grace & Co. and Cryovac, Division of W. R. Grace & Co.

LOWENSTEIN, SANDLER, BROCHIN, KOHL, FISHER, BOYLAN &
by **JAMES STEWART, Esquire,**
65 Livingston Avenue, Roseland, NJ 07068,
for Beatrice Foods.

I N D E X

Exhibits

Stipulation

It is stipulated and agreed by and between counsel for the parties after the witness has read the deposition, it may be signed before any notary public, and the filing of the deposition may be waived. It is also stipulated and agreed by and between counsel for the parties that all objections except as to the form of the question and all motions to strike are reserved to the time of trial.

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JOHN DROBINSKI,

having been duly sworn, testified as follows in answer to direct interrogatories:

MR. STEWART: Would the reporter note the time, please?

THE REPORTER: I have 10:13.

MR. SCHLICHTMANN: We arrived a few minutes after ten at the receptionist. I would appreciate being informed prior to showing up here which room it is, which will certainly help me go right to the room. So if you can provide me a day in advance the number for the room. I don't like

to be punished for the fact I have to keep guessing where the room is.

Q. (BY MR. STEWART) This is the deposition of Mr. Drobinski in the case of Anderson against Cryovac. Mr. Drobinski --

MS. WOODWARD: Can we put on the record first of all what you told us before we began the deposition about the outstanding information, Jan?

MR. SCHLICHTMANN: Yes, in addition to the material that has already been provided, we still have outstanding which we owe you is all photographs taken at the Grace and Beatrice sites which are presently being copied, all the field notes from Weston Geophysical from the Grace and Beatrice sites which is presently being copied and the basic seismic information the results of which you have and the interpretive results of which you have but the basic information Grace doesn't have, Beatrice has and has been provided Beatrice, but Grace does not have a copy. You will have that as well. We should be able to do that today as well.

Q. (BY MR. STEWART) Mr. Drobinski, what's your position with Weston?

A. Manager of the Geology Group at Weston Geophysical.

Q. What does Weston Geophysical do?

A. Weston Geophysical is an earth science consulting firm which does basically consulting in all aspects of earth science.

Q. To a laymen what does earth science mean?

A. Basically study of the physical and natural phenomena that happens with the earth: Hydrology, seismology, geochemistry, oil-gas exploration, groundwater exploration, geotechnical studies for foundations, bridges, dams, things like that. It would be relating, basically relating to the earth, all those types of studies.

Q. What is your academic background that helps you in your task as a manager of geology for Weston Geophysical?

A. I have a Bachelor's degree in chemistry and a Master's degree in geoloy.

Q. Would you give me the schools and the years?

A. The school is Nasson College for Chemistry, 1969 and for geology is the University of Queensland, 1976.

Q. When was it when you joined the staff at Weston Geophysical?

A. I think it was early '77. I think that's correct.

Q. How long has Weston Geophysical been around as a firm prior to your joining them, do you know?

A. They have been in business thirty years now, so I have been there seven years, probably 23 years.

Q. Were you engaged to perform any tasks or render any services in connection with the Anderson against Cryovac lawsuit?

A. Yes, that's correct.

Q. Do you remember when you were engaged?

A. I think it was in late May or early June of this year. The precise date I'm not aware of.

Q. Were you personally involved in the discussions concerning the tasks to be performed?

A. No, I personally was not involved.

Q. Who from Weston Geophysical was involved in those discussions?

A. I think it was one of the owners, Mr. Vincent Murphy.

A. I believe it was someone associated with Mr. Schlichtmann.

Q. What did they tell you whoever hired you wanted you to do?

A. I believe, as I stated earlier, they wanted us to conduct a site investigation to determine, you know, if there was any contamination at the site, what type of contamination and basically, you know, do the field work associated with that type of a study.

Q. What did you understand that you were supposed to do, you Weston, were suppose to do on the Riley site?

A. Basically to gather information regarding the activities that had gone on at the Riley site.

Q. And how did you understand you were supposed to gather this information?

A. I think using standard exploration and geology procedures.

Q. At the time you had this first meeting with Mr. Murphy and Mr. Imse I'll call it, had either of those two people been to the Riley site?

A. I'm not sure. I don't have a direct answer because they have been to the Riley site but

I'm not sure it was before or after this meeting. I can't answer that question.

Q. Did they give you any specific fact information about the Riley site at that first meeting?

A. No, they did not.

Q. Did they have a copy of the complaint in the lawsuit with them?

A. If they did, they did not show it to me.

Q. Have you ever seen a copy of the complaint in the lawsuit?

A. I have not seen a full copy, no.

Q. You have seen portions of it?

A. I have just seen what I would call the title page.

Q. Did Mr. Murphy give you any specific instructions of what he wanted you to do further after this first meeting?

A. No, he did not.

Q. Did he give you any data or any leads to how you should go about investigating the activities on the Riley site?

A. No.

Q. How about Mr. Imse? Did he tell you what

further you should be doing?

A. No, he did not.

Q. What did you understand when this meeting was over that you were supposed to do next in connection with the Weston investigation?

A. I guess our next step was to evaluate what could be done at the site to investigate what type of activity had gone on.

Q. Did Mr. Murphy tell you you had been engaged to do anything specific like render a report?

A. No.

Q. Did he tell you anything about providing testimony in a lawsuit?

A. He definitely did not. I can guarantee that.

Q. What did you understand you were supposed to do after you conducted your investigation?

A. We basically -- my understanding was we would conduct an investigation, the investigation at that time had not been outlined obviously. It was the first part of it but to supply information, basically be the field portion of the study.

Q. Did you understand at that time that there

was another portion of the study beyond the field portion?

A. No, I did not.

Q. At some point did you learn that there was another portion of the study beyond the field portion?

A. Could you define what you mean by another portion of the study, first?

Q. Well, in your answer you stated the field portion of the study, and from that I inferred that there might be another portion.

A. Usually when geologists do a field study, they do the data assimilation and write a report. I'm not sure personally we were going to write a report. We have done the data assimilation. By your questioning, you're alluding to something beyond that. I inferred that anyhow.

Q. I take it that as the situation stands now, you don't contemplate providing any services beyond a field portion of the study of the site?

A. I understand based on what's happened over the last couple of months that Weston Geophysical will be providing testimony on what happened and what we observed at specifically the Beatrice and

the Riley site, excuse me, Grace site.

Q. Will you been providing that testimony on behalf of Weston?

A. Yes.

Q. Will anybody else from Weston be providing testimony as far as you know?

A. I believe not.

Q. After this first meeting with Mr. Murphy and Mr. Imse, did there ever come a time when the role that Weston was supposed to play in the lawsuit concerning the Riley land became more specifically defined or better outlined?

A. I think after we did our surface mapping or mapping of the site, we determined that and also in reading the Woodward & Clyde reports that there was a need for additional subsurface investigation.

Q. What was the purpose of the further subsurface investigation you wanted to do?

A. The purpose of the additional investigations was one to define better the contamination that we believed was there based on our surface mapping. Also to better define the static water table. Previous reports had not in my opinion as a geologist defined that adequately.

There was room for more study.

Q. The last thing you said was better define the static water table?

A. Static water table. Also at this time we became aware that the USGS, EPA and the Corps of Engineers were going to conduct a pump test and that test was factored into our subsurface investigation.

Q. Now, before you did your surface investigation as you called it, was there any purpose that either you or someone else developed for you as to why you were going to conduct the surface investigation?

A. The purpose was basically discussed between myself and Mr. Imse is one excellent way of understanding this type, particular studies, what type of activities had happened at the site. So it is a fairly quick and reasonable way to document what's on the site.

Q. Was there any particular thing or groups of things that you were looking for to document what was on the site?

A. No, we approached the site with an open mind. We tried to document everything there that

we could see on the surface.

MR. FACHER: That you could see?

A. On the surface.

MR. FACHER: I just didn't hear it.

Q. Did you ignore any particular things when you were conducting your site surface survey?

A. No, we did not.

Q. For example did you note presence of rocks or boulders, natural occurring things?

A. Yes, we did.

Q. So that the purpose of your survey then was to simply get a picture of what the site looked like at the time you were making the survey, correct?

A. I think it would be a snapshot in time of when we were mapping, that's correct.

Q. When exactly what was the site survey?

A. I think the site survey, again, I don't have the precise dates, but it was from late July to I think mid August, somewhere in that timeframe.

Q. Was it continuous during that time period or --

A. Yes, it was.

Q. So the site survey, did that result in any

kind of a map or any document to show what you found on your survey?

What document did you produce?

A. We produced a map at a scale one inch equals 20 feet of all the surface activity on the site.

Q. So that map would, to use your words, would be a snapshot of what was on the site from late July to mid August 1985?

A. That would be correct.

Q. Had you been on the site before you performed the site survey?

A. No, I had not.

Q. Had Mr. Imse been on the site before the site survey?

A. I believe he may have visited. The precise timing I don't have an answer for you.

Q. If Mr. Imse had made a visit before the survey, would he have made any field notes of the visit?

A. I would assume so. That would be in the field notes we're copying, but I'm not sure whether he actually physically went to the site or went to the gate and looked on. I don't have a direct

answer for you.

Q. What work did Weston do prior to going on the site to perform its site survey?

A. With regard to Beatrice site?

Q. All my questions are just with regard to the Riley site.

A. I believe that was our first work on the site was at late August when we went out and started mapping the site.

Q. Other than going on the site, did Weston do any background checking to learn anything about the site or what had gone on there prior to this site survey?

A. The only thing we had access to were the Woodward & Clyde reports. Beyond that, no, we did no other background reading or research or anything like that.

Q. Did the Woodward Clyde reports have any influence on the way you conducted the site survey?

A. No, they did not.

Q. Prior to the site survey, did Weston talk to anyone who had knowledge about the Riley site and what it looked like or what was there?

A. No.

Q. Prior to the site survey, you didn't have any personal knowledge about what was on the site or what had gone on there?

A. The only knowledge I had was from reading the Woodward & Clyde reports.

Q. And prior to the site survey, no one else at Weston had personal knowledge about the Riley site or what had gone on there; is that right?

A. That's correct.

Q. When you were conducting the site survey, did you talk with anybody to see, to learn more about the Riley site?

A. No, we did not.

Q. How many people worked with you on the site survey?

A. I believe there was a female geologist from Woodward & Clyde who oversaw what we did, there was myself and two to three other helpers from Weston Geophysical. It varied from day-to-day based on personnel demands.

Q. Prior to the site survey, did you have any meetings with Mr. Schlichtmann?

A. No, I did not.

Q. Did you get any documents from Mr.

Schlichtmann prior to the site survey?

A. We got the documents from Woodward & Clyde from Mr. Schlichtmann.

Q. And any other documents?

A. Specific to?

Q. The Riley site.

A. Let me think.

I think the only thing we got relating to the Riley site would have been some chemical analysis that Geoenvironmental had done on an EPA well on the Riley site. The other information would be the EPA data. That's in the literature.

Q. Okay. When you conducted your site survey, were you looking for anything specific?

A. No.

Q. Other than viewing the site survey as providing you with a snapshot in time of the Riley land, was there any other purpose to the survey?

A. The purpose to the survey as I stated earlier was just to see what was there, and prior to doing the survey -- the purpose of it was a snapshot, just to see what was on the site.

Q. After you conducted the site survey on the

Riley land, what did you do next?

A. I think based -- well, based on our surface mapping of the site and in conjunction with the Woodward & Clyde data, we decided it would be necessary to do a limited soil sampling program.

Q. And what was the purpose of the limited soil sampling program?

A. The purpose of the program is to see if the areas of debris that we had identified during our mapping contained contamination.

Q. Is there any particular type of contamination you were looking for?

A. Yes, based on the instrumentation that we had in the field, we knew there were organic vapors emanating from some of the debris piles.

Q. Other than your field, what your field instruments told you, was there any other reason why you were looking for organics?

A. There were a number of reasons. One, smell, you could smell sweet organic vapor smell in the air, a number of the barrels that we had discovered on the site contained labels on it that would indicate to us that they that solvents had been used on the site or solvents had been in the

barrels, excuse me.

Q. These labels that you just mentioned, did they have chemical names on them?

A. In two instances it just said Mann Chemical Company and in one instance it said freon.

MR. FACHER: Man?

A. Mann, M A double N.

Q. M double A N N?

A. M A double N.

Q. What was it about Mann Chemical Company that made you think there were organics in the barrel?

A. I think we were surprised to find drums on the site that had been -- that had chemical company names on them. We did know that Riley well No. 2 had been contaminated with a number of volatile organic compounds, so the whole just indicated to us that organics would be there.

Q. Now, other than the labels that said Mann Chemical Company, you mentioned another kind of label. What did that say?

A. Freon.

Q. When you told me that the next step for Weston was their desire to do a limited soil

sampling program, what did you mean by limited?

A. Well, the site is quite large and typically in a site like this, you may go out and do a detailed grid of the entire site. We decided based on the data we had that we would check the more heavily contaminated or the areas that looked more heavily contaminated to us, check those first.

Q. Did you do any kind of sampling at the time you were doing the site survey?

A. No, we did not. That's correct, we did not.

Q. When you were doing the site survey, did you have any equipment with you to help you detect the presence of contaminants?

A. Yes, we did.

Q. What equipment did you have with you?

A. We had an H Nu meter and a combustible gas meter and a toxicity meter.

Q. Are those three different instruments?

A. Yes.

Q. And what does the H Nu meter help you detect, what kind of things?

A. The H Nu meter detects volatile organic compounds.

Q. If there are volatile organics present in an area and you pass by with an H Nu meter, will it tell you which volatile organics are there?

A. No, it is not. It is total volatile organics.

Q. So if I'm walking by an area with an H Nu meter and I get a reading, does that tell me anything about -- let's assume the reading says ten parts per million, that doesn't tell me that I have ten parts per million of TCE there, does it?

A. That's correct.

Q. It doesn't tell me I have ten parts per million of benzene, correct?

A. That's correct also.

Q. Wouldn't tell me that there was ten parts per million of 1,1,1-trichloroethane either?

A. That's right.

Q. Same thing for perchloroethylene?

A. That's correct also.

Q. Would that be true also for 1,2-transdichloroethane?

A. Yes.

Q. How about chloroform?

A. It would be correct for that also.

MR. SCHLICHTMANN: You said 1,2-transdichloroethylene?

Q. How about 1,2-transdichloroethylene, same thing, that true also?

A. Yes.

Q. Doesn't tell you if he there is ten parts per million of those either?

A. No.

Q. The combustible gas meter, you had that with you on the site survey, correct?

A. Yes.

Q. What does that help you detect the presence of?

A. It determines the presence of gas that's combustible.

Q. What does that mean?

A. It just tells you that whatever gas you're dealing with may be flammable, flammable limit may be exceeded?

Q. Does that help you determine the presence of a specific combustible gas?

A. No, it does not.

Q. Just there is some combustible gas present?

A. All these instruments are screening

instruments.

Q. The last thing you mentioned that you had with you on your site survey was the toxicity meter; is that right?

A. I think that's correct.

Q. What does that tell you about contaminants?

A. I just, it tells you something's in the air. I'm not an expert on the toxicity meter. It just says the meter is set for a certain level and it rings an alarm when a certain level is approached. Again it is not specific.

Q. By something in the air, is that a specific class of contaminant or just anything that's in the air?

A. I don't know. I don't have an answer to that question.

Q. So you can't tell me what significance it has when the toxicity meter rings as far as what type of thing is in the air?

A. That's correct.

Q. You don't know?

A. No, these instruments are basically used for health and safety and for screening as I said.

Q. So you did your site survey and you had

A. After we took our samples, we analyzed them chemically.

Q. I thought step one was we did the site survey and we had those screening devices.

A. Uh-huh.

Q. Did you do anything else on the site survey?

A. We did limited -- excuse me, I thought you were referring to the soil sampling.

Q. That came later after the site survey.

A. At the site survey we did no sampling, we didn't take any samples or anything. I'm sorry.

Q. Sticking now with just after the site survey, did you give a report or a summary to anybody at that time about what you did on the site survey and what you found.

A. I think we gave a copy of the map we generated to Mr. Schlichtmann. We give a copy of the map we generated to a woman attorney whose name eludes me here and we gave a copy of the map to Woodward & Clyde consultants.

Q. Other than the map, did you give any verbal summaries of what had happened on your site survey to anybody?

A. At that time, no.

Q. Who else was involved with you after the site survey in the next step that Weston took on the Riley site?

A. As I said previous, the next step we took was the soil sampling. That was designed by myself and the people who helped me map the site.

Q. Who are those people?

A. It was a Mr. Brett Cox a Mr. Ben Frothingham and I'm trying to think of other people who were involved. I think those three names, myself and the other two individuals were the three main geologists who mapped the site.

Q. What is Mr. Cox's field?

A. He is a hydrologist, hydrogeologist.

Q. How about Mr. Frothingham?

A. Mr. Frothingham is a geologist.

Q. Did you write up any work plan or protocol for the limited soil sampling program?

A. I think we had a health and safety plan and I can't remember precisely. We wrote up a sampling protocol.

Q. Before -- after you figured out what you were going to do on your soil sampling plan and

before you carried it out?

A. Yes.

Q. Did you have any meetings or discussions with anybody about how you were going to do that or changes to what you wanted to do?

A. No, just with the three people I mentioned earlier.

Q. When did you conduct the soil sampling program?

A. I think that was conducted in late August I think. Mid to late August. The precise dates I'd have the look in the field notes but I think that's correct.

Q. Could you just give me a brief general description of what the soil sampling program was about?

A. Okay. Basically once we've decided where we're going to sample, we had a hand auger and hand auger is a device two inches in diameter, like a small post hole digger and you can drive it down to a certain depth and take a sample. What we did was continuously drove the auger down and laid the soil out on a plastic sheet. We examined the soil, noted what the soil content looked like and at the

same time had the H Nu meter and we had the H Nu meter sniff all the soil samples and we also sniffed the gases coming out of the hole.

There are two reasons for that. One was for health and safety and the second reason was to determine which of all the samples that we had taken from the hole were the samples that we wanted analyzed.

Q. So I take it that you didn't analyze every sample that you took out of every hole; is that right?

A. No. That's correct.

Q. What standard did you use to distinguish between what you were going to analyze and what you were not going to analyze from each hole?

A. I think the standard was no particular standard. The standard was how the H Nu meter responded to the soil sample that we had obtained.

Q. Who on the site when you were doing the sampling program made the determination of what sample would be analyzed?

A. I did.

Q. You did. Was there a magic number on the H Nu that would tell you we definitely will analyze

that one?

A. No, no. It was looking at the entire -- two things, looking at the soil and looking at the response of the H Nu meter down the stratigraphy.

Q. What significance did the stratigraphy of the soil have in helping you decide what samples to analyze?

A. Sometimes the soil was extremely discolored and that discoloration sometimes correlated with higher levels on the H Nu meter. Other times it did not, so we looked at the discoloration of the soil also.

Q. And how did the H Nu help you determine what to analyze?

A. The H Nu helped us determine which sample had the highest organic vapors gassing off the sample.

Q. And the purpose of your soil sampling program was to select samples for analysis that would help you know what?

A. Purpose of the soil sampling program was, one, to see if the piles of debris that we identified on the site contained contaminated material and the second purpose was to identify

what that contaminated material would be or could be.

Q. And the only way, if I understand what you told me about the H Nu as being just a screening device though.

A. Correct.

Q. The only way that you could fulfill purpose number 2 of what the contaminants would be, is if you had them further analyzed; is that right?

A. In essence that's correct.

Q. So that if someone wanted to know what particular chemicals were on a particular location on the Riley site, what they should look at from the soil sampling program is the samples you actually had analyzed. Is that right?

A. That would be correct, in the soil. We're talking about soil right now.

Q. Right.

A. The only caveat I would add to it, that we haven't grided the entire site and sampled every say five or ten foot grid, and we only analyzed for organic volatile compounds and pesticides.

There are a whole list of other chemicals we could have analyzed for but we did not.

Q. Was there a reason why you didn't analyze for that whole list of other chemicals?

A. The prime reason was based on the FIT reports analysis of the site. They hadn't identified any other chemicals that we should be aware of.

Q. Among the group of volatile organics that you were analyzing for, were there any specific chemicals that you were interested in?

A. I think we were interested all of them, specifically what had shown up in the previous analysis from water quality in the river valley.

Q. Between the time when you did your survey and the time you did your soil sampling program, were you on the site at all?

A. Yes. Oh, excuse me. Between the time -- let me retract that. Between the time we did the site survey and the soil sampling? Let me think about this.

I don't recall. I don't have a direct answer for you. I don't recall that time span in there. It's possible we could have been but I don't think we were.

Q. What did Weston do next after it conducted

the soil sampling program?

A. After the soil sampling program and after we got the chemical analysis, we determined it would be a good idea to do some drilling and sampling to find out, you know, what we had in the subsurface.

Q. The drilling and sampling that you are talking about, is that looking at soil contamination?

A. That's looking at both soil and water contamination.

Q. Why did you want to do further drilling and sampling?

A. The reason was that the preliminary or the initial soil sampling we had done had given us such high levels of volatile organic compounds that we felt that more data was warranted to more precisely understand what was happening.

Q. Understand what was happening in terms of what?

A. Soil. General terms of contamination.

Q. To what end?

A. The end being, I guess, to determine the extent of the contamination on the site and to use

those wells also since we at that time understood USGS and Corps of Engineers and the EPA were going to conduct a pump test to see how the aquifer beneath the Riley property would behave during the pump test, so I guess the other answer would be to see if the contamination that we had found in the soil at Riley was going to contribute to the observed contamination in wells G and H.

Q. I'm going to go over something just so that I'm clear about what you testified to. I think I heard you testify that you were viewing Weston's role and purpose in conducting this investigation to determine the extent of contamination on the Riley land at the time you were doing the investigation.

A. That's correct.

Q. And to be in a position to see if that contamination would be affecteded in any way when wells G and H are pumping; is that correct?

A. That's as the program evolved, that's correct, yes.

Q. Was there anything else that you viewed as Weston's role in conducting this investigation?

A. Basically, I said earlier, just supplying

field information. We were basically the information gathering unit.

Q. Did you understand who you were supplying this information to?

A. Mr. Schlichtmann.

Q. And the information you were supplying to Mr. Schlichtmann dealt with the extent of contamination on the Riley site at the time of your investigation? Is that right?

A. At the time of the investigation for the Riley property we were trying to determine what the extent of the contamination on Riley was, yes.

Q. Was there any other type of information that you understood you were supplying to Mr. Schlichtmann?

A. On the Riley site, no, just information specifically to what contaminants were there and the level of contamination.

Q. I take it from your previous answers that when you first started the investigation, you weren't aware of the USGS plans to conduct a pumping test, am I right?

A. That's correct.

Q. At what point did you learn about the

plans for a pump test?

A. I think it was sometime in late August I guess when I personally knew of the planned pump test.

Q. How did you find out about the pump test?

A. I don't know. I am not sure how I found out directly. Let me think.

No, I don't know who told me.

Q. Did you learn about the pump test in connection with an expansion of your tasks on the Riley site?

A. I'm not -- I'm not sure that's correct.

Q. Do you think that you learned about the pump test and then suggested that your duties ought to expand to include this or do you think it happened that someone said your duties ought to expand to include the pump test because it's going to happen?

A. Rephrase that. I just sort of --

Q. I'm trying to find out first is whether the chicken or the egg came first. Did you learn about the pump test and then decide to incorporate that into your investigation or visa versa?

A. I'm not really sure how that came about

because I think, as I said earlier, we were going to do the subsurface investigation, and then once that was underway, I think we found out about the pump test going on. I'm just trying to think of how we found out about the pump test. You're talking specifically about Beatrice now and I don't think during any of our activities at Beatrice that that came up.

Q. However you heard about the pump test --

A. I obviously heard about it.

Q. However you heard about it, did you then have to speak to anybody about including that in your tasks in connection with the Riley site investigation?

A. I think we talked both to Jan and -- Mr. Schlichtmann and Doctor Pinder about we had the contamination at the site and it probably would be definitely a good idea to monitor what happens during the pump test.

Q. Do you recall when this discussion took place?

A. No, I don't. I definitely don't.

Q. Was this discussion in person or over the phone?

A. It was probably over the phone.

Q. Were there any other participants besides Mr. Schlichtmann and Doctor Pinder?

A. I think Mr. Imse was involved. I know he was heavily involved then.

I don't recall any specific, other specific individual being involved at that stage.

Q. At what point relative to your -- either your soil sampling program or your subsurface investigation, did this discussion take place?

A. I'm not sure of the exact timeframe. It is somewhere in there after the site mapping. It was probably -- let's see. I don't want to mislead you. I don't know the precise timing. I just don't remember how it worked out.

Q. Had you had any prior discussions with Doctor Pinder before you started talking about the pump test?

A. No.

Q. Did you know that Doctor Pinder was involved in any way in investigation of the Riley site prior to this discussion with him about the pump test?

A. Yes, I heard he was involved.

Q. What did you understand his involvement to be?

A. I understood that Doctor Pinder was an eminent hydrogeologist, and I guess I had no direct knowledge of precisely what he was doing except he was than eminent hydrogeologist. I assumed he would be involved in the hydrolics of the system.

Q. How did you hear about Doctor Pinder's involvement?

A. I think through my colleague John Imse.

Q. Do you know where Mr. Imse learned about it?

A. I am assuming through Mr. Schlichtmann.

Q. Did you ever have any meetings with Doctor Pinder concerning this investigation?

A. Up to this particular timeframe?

Q. At any time?

A. Oh, yes.

Q. Were any of those prior to this conversation about the pump test?

A. No.

Q. How many times have you met with Doctor Pinder concerning this site investigation?

A. I think I have met with Doctor Pinder two

or three times. I am not sure which is correct, two or three times.

Q. Was anybody else at these meetings you've had with Doctor Pinder?

A. Other than perhaps one of his grad students at one time. I think Mr. Schlichtmann was at one of them. That was basically it.

Q. Whereabouts in the course of your investigation did these meetings take place?

A. I think the first time I personally met Doctor Pinder was maybe two and a half months ago.

Q. And you have met him twice, met with him twice within the last two and a half months; is that correct?

A. That's correct.

Q. Do you know if Mr. Imse had any meetings with Doctor Pinder during the course of this investigation?

A. He may have. I have no knowledge if he met with him directly, but he may have. I can't answer that for you.

Q. Other than Doctor Pinder, have you met with any other scientific experts concerning the investigation of the Riley site?

was important to your investigation?

A. I think the prime reason we were just getting some strange readings in our drilling which seemed to correlate Woodward Clyde's data and we wanted to get a better handle on what the subsurface configuration was doing to determine -- to help determine what subsurface flow patterns would be like.

Q. The subsurface flow patterns you're talking about, are those groundwater flow patterns?

A. Groundwater flow patterns.

Q. Did you understand it was part of Weston's responsibility to develop the groundwater flow pattern underneath the Riley land?

A. I don't think it was specifically spelled out that way, but to put the picture together what was happening on Riley land, that that would be a necessary piece of information, yes.

Q. Who is the Weston person who is most responsible for the ground water flow pattern information about the Riley site?

A. I guess it would be myself.

Q. Did you work with anyone from Weston on the groundwater flow pattern specifically?

A. Yes, I did.

Q. Who was that?

A. Mr. Brett Cox of our staff.

Q. Is there any reason other than presenting Mr. Schlichtmann with a complete picture of what's happening on the Riley site during the course of your investigation why you were interested in groundwater flow patterns?

A. I think the answer is obvious. To see which way the contaminants were moving.

Q. Was the ground water flow patterns on the Riley site part of the Weston investigation right from the start? Do you understand that to be part of the investigation?

A. I'm sorry, whose investigation?

Q. The Weston investigation.

A. Oh, Weston. I think in principal, yes, it would have been part of it.

Q. The other reason you said you were interested in doing the seismic work was to define the sands and gravels?

A. Yes.

Q. Underneath the site and to economize on the well drilling?

A. Uh-huh.

Q. How does the sand and gravel help you to economize on well drilling?

A. Well, the sand and gravel doesn't help us economize. The technique does. What was happening, there are some areas of higher velocity material under the site, and these areas may be or could be, is probably a better word to use, slower zones of groundwater flow, and we were encountering some indications of this in the drilling and Woodward Clyde's pump tests also indicate this, so the seismic refraction helped us to determine if this was indeed there. So I use the term sand and gravel, it is a very generic term. There are other materials in there that have some clay and silt in it which would be a little bit more higher velocity and the seismic will pick it up.

Q. The final reason you were interested in seismic work was to determine if the bedrock was fractured; is that right?

A. Yes.

Q. And why were you interested in that piece of information?

A. It's been our experience dealing with

sites that are contaminated that most people only look at the sand and gravels and we have found in our studies that a lot of times the rock is overlooked and there is a lot of contamination in the rock, specifically if the rock is fractured. Our initial drilling indicated the rock was fractured. We did the seismic to penetrate deep into the rock to see how deep it was fractured and that was the other reason.

Q. And the development of this seismic study that was done solely by Weston itself?

A. That's correct.

Q. And the interest in doing a seismic study, the initial interest that came from Weston?

A. Yes, that was our impetus.

Q. Doctor Pinder had no input into the seismic work?

A. As I said earlier, no, he did not.

Q. In your discussions with Doctor Pinder, did he ever express a particular interest in the bedrock for his work?

A. In general discussion, yes, he did mention it would be nice to know the bedrock profile throughout the valley.

Q. Did he tell you why he wanted to know the bedrock profile?

A. I think the bedrock profile would be important for his analysis of the hydrolics of the system.

Q. And why is that?

A. The bedrock is considered an impermeable boundary, so to analyze the system, you would have to know where that boundary is.

Q. If the bedrock is highly fractured, is it considered an impermeable boundary?

A. Eventually it will be an impermeable boundary, yes. Let me clarify that for you. Usually what happens, the first 10 or 15 feet of rock are fractured. As you go down deeper, the fracture closes up and it becomes impermeable. Our reason for looking at it was that first 10 or 15 feet of fractured rock that most people overlook and sometimes in some instances that can be a zone of contaminant flow.

Q. Did Doctor Harris have anything to say about the seismic work?

A. No.

Q. Any other scientific expert outside of

Weston have any input into the seismic work that was done on the site?

A. Umm, peripherally USGS was interested in what we were doing.

Q. Did they make any comments or suggest any changes to what you intend to do?

A. No, they did not.

Q. They were simply interested in the data that you acquired; is that right?

A. Yes, I'll clarify that for you, just for your information. USGS was conducting the same type of surveys throughout the valley and they were just interested in what we were doing.

Q. The seismic work that you did, was that seismic refraction or seismic reflexion?

A. Refraction.

MR. SCHLICHTMANN: For those who care.

A. There is a difference.

Q. The seismic work was part of your subsurface investigation as we've been calling it, right?

A. Yes.

Q. What else was part of that subsurface investigation?

A. I think the critical part was sampling the water and soil.

Q. Was installing wells part of that investigation as well or was that a different?

A. I am sorry, yes, it would have to be to get the water and soil samples, yes.

Q. What basis did you use -- strike that. Were you involved personally in selecting the soil sampling and the well drilling locations for your subsurface investigation?

A. I selected the subsurface, the well locations, yes.

Q. Were those different from the soil sampling locations?

A. Yes, they were.

Q. Who selected the soil sampling locations?

A. I did also.

Q. Let's deal with the placement of the wells first. What criteria did you use in selecting where to place the wells on the Riley site?

A. I guess we used three criteria. The existing data that both EPA and Woodward & Clyde had generated, the need for more appropriate spacing to determine what the water table was doing,

and three, to look at both -- I guess not both -- down gradient positions from where contamination had been observed at the surface and in the subsurface.

Q. In determining what areas were down gradient from places that you thought were sources of contamination, what information were you relying on?

A. We used a combination of data, again, EPA, Woodward & Clyde and just our geologic horse sense from being out there and walking around, the lay of the land I guess is the way to put it. Not very technical but that's how it was done.

Q. Was the decision based generally on regional groundwater flow patterns that you were able to cull from those various sources?

A. No, I would say it was more local flow patterns.

Q. What did you determine was the local flow of groundwater underneath the Riley site?

A. We weren't sure is the best way of putting that. We just did not know what the flow pattern was.

Q. So you took a guess on where it was down

gradient of your source in the placement of the wells is an educated guess?

A. I would say a guess based on our professional knowledge of other types of investigations elsewhere.

Q. Doctor Pinder help you in the placement of the wells at all?

A. As I stated earlier, he -- just after we showed him a document where the wells were, he agreed to the location. He had no problem with the location.

Q. Did you have any discussions with him about the localized groundwater flow on the Riley site?

A. At that particular time, no.

Q. At any time?

A. Recently, yes.

Q. When did you discuss the local groundwater flow directions with Doctor Pinder?

A. Basically from the pump test data.

Q. Is that within the past few weeks?

A. That's within the past few weeks.

Q. What was the nature of your discussion with Doctor Pinder about the direction of

groundwater flow locally under the Riley site?

A. At which particular date?

Q. Let me back up. How many discussions have you had with Doctor Pinder about the direction of the localized groundwater flow underneath the Riley site?

A. I think probably two or three.

Q. Did those discussions about the direction of groundwater flow focus specifically on the direction on a specific date?

A. Are you talking about the groundwater flow on a specific date or the discussion on a specific date?

Q. I'm talking about the groundwater flow on a specific date.

A. I don't think it did, no.

Q. Okay. Now I'll ask the other question again. What was the substance of your discussions with Doctor Pinder about the direction of localized ground water flow underneath the Riley site?

A. I think the discussion was that he -- back then we were installing the wells, he needed more information to understand which way the groundwater was flowing.

Q. I'm a little bit confused. Did you have this discussion back when you were installing the wells?

A. When you asked me originally, he was looking at our document with the well locations on it, did he agree to those locations and why and one of the reasons was he needed information for groundwater flow.

Q. After you put the wells in, you had subsequent discussions with Doctor Pinder about the direction of localized ground water flow on the Riley site, correct?

A. Yes. You're jumping over some steps here, but yes, that's correct.

Q. What was the substance of those discussions?

A. He basically wanted the water levels that were observed in those borings so he could determine which way the groundwater was flowing.

Q. Did Doctor Pinder ask you for any other information other than the water levels?

A. The boring logs.

Q. Did he ask you for any other information other than the water levels and the boring logs?

A. I guess probably the chemistry of the water also, water and soil.

Q. Did he ask you which way the groundwater was flowing underneath the Riley site?

A. No, he did not ask me that question.

Q. Did you ever tell Doctor Pinder your opinion about which way groundwater is flowing underneath the Riley site?

A. No, I did not.

Q. You mentioned before that in between the time you put your wells on the Riley site and the time you talked about those wells and the direction of localized groundwater flow with Doctor Pinder I was skipping over a few steps. What steps did I skip over?

A. The steps we would have to measure the water levels in the wells and then once we had the levels measured, the other thing the wells have to be surveyed in, so it is not simply going out and measuring the water level. The location of the well has to be surveyed and the elevation of the well has to be surveyed in.

Q. Okay. Let's go back to the wells that you put in. If I understand it correctly, other than

saying yeah, those are good places to put the wells, Doctor Pinder had no input into that decision; is that right?

A. That's correct.

Q. Did anybody else outside of Weston have any input into in the decision as to where to place the wells?

A. I think we discussed it with Mr. Schlichtmann what we'd like to do and what we should do. I think we ran a good program by him obviously so he -- we had some discussions with him about it. Beyond that, no.

Q. Did he have any input into the -- did Mr. Schlichtmann have any input into the locations of the wells?

A. In one instance he may have said -- I'm just trying to think, get this correct now. There is a large space between such and such wells. It would be a nice idea to see what's going on there. I think that may have happened.

Q. Which wells was he talking about?

A. I think it is well 12 if I'm not mistaken.

Q. Well 12 and what other well?

A. That's it.

Q. Of the 16 or 17 wells, how many well clusters did you have?

A. We had wells 8 through 14 were the well clusters, so that would be --

Q. What's the reason for putting the wells in in a cluster?

A. The reason for the cluster is to isolate certain sections of the aquifer to determine what's going on. If you put a completely screened well in, you don't get a good idea of what's happening in various parts of the aquifer, so using a cluster you get a more accurate portrayal of what's happening in the subsurface, both hydraulically and chemically.

Q. What different parts of the aquifer did your well clusters look at?

A. We essentially looked at four different parts. The rock, there was a zone of cobbles on top of the rock, and there was a zone of gravel we looked at also, and then the last cluster was to look at the water table at the near surface.

Q. What were you hoping to find out about the groundwater by having the clusters in those different locations?

A. We were hoping to find out if there was any, what the vertical flow of water was, whether the water was coming up or going down.

Q. Anything else you hoped to learn from the well cluster?

A. I thing the other thing we hoped to learn was the behavior of that zone that we had screened off during pumping, what that would look like.

Q. Anything else?

A. I think the other thing was since we isolated a certain part of the aquifer, we could also take a water quality sample from there to see how the contamination was stratified if it was at all.

Q. What importance did the vertical flow of water have to your investigation?

A. It determines whether we have a recharge zone or a discharge zone.

Q. Why was that significant to you?

A. It gives you more of a three dimensional idea which way the water is flowing.

With a single well you only have one dimension. This way here you can go up and down.

Q. What part did that have to play in your

investigation for Mr. Schlichtmann of the Riley site, whether the water was recharged or discharging?

A. From our point of view it gives us again a better idea of what the hydraulic systems are doing.

Q. Why were you interested in the water quality samples from different levels of the aquifer from the clusters?

A. It gives the geologist an idea of what, how the contaminant is flowing in the ground water regionally. Basically what the vertical distribution of the contamination is.

Q. And what does the vertical distribution of contamination tell the geologist?

A. It tells the geologist a number of things. I guess it tells them how the contamination is behaving in the aquifer, where the contamination is going I guess in general terms. It tells us if the contamination has got into the rock, so it gives us a rough idea of the permeability of materials. What else?

I'm sure there are other things, but off the top of my head I can't think of them right now.

Q. Did the vertical distribution of contaminants tell you any more about the Riley site other than where the contamination was going, how it behaves and whether it got into the rock?

A. In some instances it may indicate if you're close to the source of contamination or not.

Q. How does the vertical distribution do that?

A. I think if you had extremely high levels of contamination right at the surface, it would indicate that you were near the source of the contamination.

The only caveat I would add to that is it depends on the permeability of materials.

Q. Why was it important for your investigation for Mr. Schlichtmann that you look at the well clusters to find out about the behavior of the screen zone during pumping?

A. I guess again, you know, to determine what the hydraulics of the aquifer under the Riley site is. I mean there had been a small pump test done and it had some information. We felt more information would be required to clearly understand what was happening.

Q. Did you understand that it was one of

Weston's tasks to determine the hydraulics underneath the Riley site?

A. I don't think it was specifically our -- let me put it a different way.

It was probably in one of our tasks to provide that information to Doctor Pinder since he was looking at the hydraulics of the valley.

Q. So if I understand your answer correctly, it's Doctor Pinder who is actually going to determine the hydraulics under the Riley site and Weston was providing him with data to do that?

A. We were providing the data. Of course when we had the data, we looked at it ourselves, too.

Q. Have you had any discussions with Doctor Pinder about your view of the hydraulics of the Riley site?

A. No, I have not.

Q. Has he asked you for your view?

A. No, he hasn't.

Q. And you haven't volunteered your view to him, have you?

A. No, I haven't volunteered my view to him.

Q. The soils that you sampled in the

subsurface investigation, what were they supposed to be analyzed for, what types of contaminants?

A. We analyzed the soils, as I said earlier, for the priority and nonpriority of volatile organics. We also analyzed the -- trying to think. That was it.

Q. Was there anything else other than the well drilling and the soil sampling that was part of your subsurface investigation?

A. Yes, we did, just to amplify that last question, we did analyze some pesticides.

Q. In every soil sample?

A. No, only in soil samples that were next to the areas where we felt was obvious that pesticides had been disposed of.

Q. How many areas were they?

A. Two areas.

Q. Did those samples that you analyzed for pesticides come from the well core or did they come from separate locations?

A. One sample they come from a well core sample.

Q. What sample was that?

A. I think it was well 13. One sample came

from near one of the debris piles. Second sample came from a debris pile, and as I said earlier, just recently we took a sample for health and safety readings which came from a debris pile also.

Q. Are these all the same debris piles or separate debris piles?

A. The first sample I mentioned is a separate debris pile. The second two samples I mentioned are from the same debris pile.

Q. Anything else that was a part of your subsurface investigation?

A. Yes. Recently prior to the initiation of pump tests we did some permeability testing in the bore holes.

Q. What do you do when you do a permeability test?

A. Permeability test is just to measure -- what did I do? We pour water down. Let me step back. Excuse me. We put a device down the bore called a transducer. It is a pressure transducer. The transducer measures change in pressure. Transducer is installed in the bore hole and it is calibrated so it is set for a number. Once the instrument is stabilized and the number is input

into the instrumentation and calibrated, we pour a volume of water into the bore hole and what happens is that the initial static level of the bore hole rises up because we have added water to it and then we watched with this pressure transducer the change in pressure with time, and that gives us the permeability of the material that we're looking at where the screen is.

Q. Which particular wells did you do the permeability testing in?

A. I believe we did every single well but there may be a well we missed, but I believe we did every single well.

Q. By every single well, do you mean only the Weston wells or every well that exists on the property?

A. I believe we did all the Woodward & Clyde wells, too.

Q. Are there any EPA wells on that site?

A. There are presently one, two, six -- nine EPA wells on that site.

Q. Did you do the permeability tests on those wells also?

A. Let me think here.

I'm not sure. I think we may have. I'm not sure.

Q. How long after the Weston wells were installed did you to the permeability tests?

A. We did the permeability tests in mid to late November so the wells, some of the wells were still going in when we installed -- were doing permeability tests.

Q. Doctor Pinder have any input into the decision to conduct permeability tests?

A. He thought it was a very good idea and he stipulated if we did do it that we use this particular type of instrumentation.

Q. The transducer?

A. Transducer.

Q. Did Dr. Pinder suggest to you that you perform the permeability test?

A. No, it was our idea to do the permeability test.

Q. The data that you collected during the permeability test, what did you do with that data?

A. We gave the data to Doctor Pinder, a copy to Mr. Schlichtmann, and I believe we may have given a copy to EPA if we did an EPA well, but

since I am not sure we did an EPA well tnat point I'm unclear on.

Q. Am I right in assuming that a permeability test gives you an answer that the permeability at this location is X?

A. That's correct.

Q. Did Weston take the data that it gathered during the permeability test and work it through to find out what X was at each well?

A. No, we have not done that yet.

Q. The permeability data that you gathered, was that provided to Doctor Pinder so that he could find out what X was?

A. We gave the data to Doctor Pinder. I assume that's what he did. I can't answer what he did obviously.

Q. I take it from that answer that you have not told Doctor Pinder what the results of your permeability tests were?

A. No. As I stated earlier, we just gave him the data.

Q. Did you have any discussions with Doctor Pinder about the permeability of the soils in the Riley site area after you gave him your data?

A. No.

Q. Any other work that Weston did that was part of your subsurface investigation of the Riley site?

A. Yes, we early -- I forgot to mention this earlier, when we did the surface mapping we attempted to do an E M survey and a magnetic survey.

Q. E M and a magnetic survey?

A. E M and a magnetic survey.

Q. This is at the same time you were doing the surface survey?

A. That's correct.

Q. What is an E M survey all about?

A. It is called electromagnetic survey and it measures if there is any -- basic technique is to measure if there is anything buried beneath the ground basically.

Q. Does it tell you what the specific object that might be if you locate anything?

A. No, it definitely does not.

Q. Does it tell you whether it is made of metal or wood or --

A. No, it just tells you the difference in conductivity. There could be a number of causes

for the difference in that conductivity.

Q. When you were doing the E M survey, did you have any information that material had been buried on the Riley site?

A. No, we did not.

Q. Did you write up a report of the results of your E M survey?

A. No.

Q. Would the information gleaned from your E M survey be included on your site survey map?

A. It is not on there.

Q. Is it included in any document?

A. It is not included in any document basically because we felt that the technique did not work, that it was, as I said earlier, it was an attempt -- it was an experiment to see if this technique would work at the site. It clearly did not work and we did not do anything else with it.

Q. When you said clearly it did not work, does that mean it didn't give you any usable data on which to determine --

A. It gave us data, but we felt by interpreting the data it would not be an effective tool for investigating -- at that time an effective tool for

investigating this particular site.

Q. So the E M investigation was basically a wash?

A. Yes.

Q. Now you also mentioned a magnetic survey, is that what you called it?

A. Yes.

Q. And that's something different from the electromagnetic survey?

A. That's something different. Again it is to look for buried metal objects.

Q. So the magnetic one is specific to metal objects?

A. Yes.

Q. Are the results of the magnetic survey shown on your site survey map?

A. No, they are not.

Q. Are they shown in any document?

A. I think we gave the data to Woodward & Clyde consultants. Actually I know we gave to it them.

Q. What did the data show?

A. Data just showed minor fluctuation in the earth's magnetic field. Again it was a very

limited survey and an attempt to see if the technique would work. Based on that we decided there were other techniques that we could use, so we didn't go ahead with the survey. Again they both were attemps.

Q. So you didn't draw any conclusions from the magnetic survey either about the Riley site; is that right?

A. Basically what we did, that's correct.

Q. You just mentioned that you concluded there were other techniques that you could use to discover buried objects; is that correct?

A. I think I said there were other techniques that could be utilized at the site. That's the techniques we used, drilling, seismic and things like that.

Q. Those are the activities you already told me about; is that right?

A. Yes. As I said earlier, I forgot about those since we didn't use them.

Q. Okay. We talked about the subsurface investigation including placement of wells, the soil sampling, your permeability tests?

A. Uh-huh.

AFTERNOON SESSION

MR. STEWART: Note the time please. I have 1:30.

Q. Mr. Drobinski, I'd like to go back and just finish with you outlining for me the rest of the work that Weston did on the Riley site. I think we got as far as your permeability tests which were done in November. Has Weston done any further work after those permeability tests on the Riley site?

A. For the field work or for the work in general?

Q. Let's stick with the field work first.

A. After permeability tests were conducted, USGS and EPA initiated a pump test and we were working in conjunction with them and Woodward & Clyde to monitor the activities of pump tests.

Q. Were you personally involved at all in monitoring the pump test?

A. Yes, I was.

Q. Were you involved on the Riley site with the pump test?

A. Yes, I was.

Q. What exactly did Weston do to monitor the

pump test?

A. Okay. We did two things. The first thing we did is we rented a computer system that is attached to these little transducers that I talked to you earlier that measure change in pressure which is calibrated to measure the change in the water level. We installed 14 transducers in the wells that we had drilled at the Riley site. Subsequently four of our transducer cables were cut, so we only had ten holes we could use transducers in.

Also we measured the change of water level with electric tapes. These are hand held tapes that you lower down the bore hole and they indicate by a small light when the water table is intersected. So during the pump tests we have been measuring the fluctuation, the draw down due to turning on the pumps G and H that's ongoing right now.

Q. Anything else that Weston has done on the Riley site that you haven't told me about?

A. I think the only other thing we have done on the Riley site, we sampled some EPA wells which are installed on the Riley site.

Q. When did you sample those wells?

A. We sampled those last week I believe.

Q. Is there any further field work that Weston contemplates doing on the Riley site?

A. Yes, we plan to take another round of groundwater samples from both the Weston and the Woodward & Clyde wells and if we have access to the EPA wells. We would like if possible before the first heavy snow comes to perhaps examine some of the debris piles in greater detail. The last one is more conjecture obviously with the snow.

Q. Anything else Weston contemplates doing?

A. I think that basically takes care of it.

Q. As far as you can remember today, you at least outlined for me all of the field work Weston has done or intends to do on the Riley site; is that right?

A. I believe that's correct.

Q. Other than field work, has Weston done any work for Mr. Schlichtmann in this case?

A. Yes, we have.

Q. What work has that been?

A. We have examined some aerial photographs.

Q. Anything else other than field work

besides examining aerial photographs?

A. Specific to the Riley site?

Q. Yes.

A. I believe as far as I can recall with all the activities we have done, I believe that's complete.

Q. When you say Weston examined aerial photographs, who in Weston looked at the aerials?

A. Myself and I think a Mr. Preston Turner looked at the photographs also.

Q. Cruston?

A. Preston, P R E S T O N, Turner, as in Ted.

Q. I take it from what you have told me that you were pretty much the project manager for Weston on the Riley investigation; is that right?

A. That would be correct.

Q. What role did Mr. Imse play in the investigation?

A. Mr. Imse was originally involved more with the Grace site than with the Riley site.

Q. Did he play any role at all in connection with the Riley site investigation?

A. Yes, he did.

Q. What was that?

A. He assisted partially in mapping some of the Riley site and --

Q. Is that the surface survey?

A. Surface survey. He may have overseen some of the drilling activities going back a couple of months. I'm not sure. May have done that and also there was a video made of the Riley property. Mr. Imse conducted that tour.

Q. What about Mr. Murphy, did he play any role in the Riley site investigation?

A. Mr. Murphy is the owner of Weston, one of the owners of Weston. He played a peripheral role. His role basically was to bounce ideas off for some of the geophysical studies. He is more of a geophysicist than a geologist. I guess he made sure we were on tract to keep our client happy, Mr. Schlichtmann, and he played some of the administrative roles.

Q. How often did you confer with Mr. Murphy during the course of the Riley investigation?

A. I probably see him once or twice a week and we'd talk casually over what was going on.

Q. Did you have to clear with Mr. Murphy things you were doing on the Riley site?

A. No, I did not.

Q. Other than the administrative roles and interacting with the client and being a sounding board for geophysical studies, did Mr. Murphy do anything else in connection with the Riley site investigation?

A. I can't -- I don't know precisely what he did, and as I said, I only saw him once or twice a week. Read all the literature. He was familiar with what was going on. I know he had been out to the site a couple of times. I think beyond those type of things of just general interest, both from a scientific point of view and from a corporate point of view, that was it.

Q. The air photos that you and Mr. Turner examined, do you have any way of identifying those for me either by year or by photo service that took them?

A. I don't recall the photo service but I can identify them by year. One was I think taken in 1956. There was one taken in 1966 which is referred to in the Woodward & Clyde report and there is I think one was taken in 1984, the present available imagery. I think there was one 1969 also

that's alluded to in the Woodward & Clyde report.

Q. Are those four the only aerial photos you examined for Mr. Schlichtmann?

A. With regards to the Riley site? I believe that's correct.

Q. The topographic map that you referred to earlier, what exactly does that show, I mean just give me a general description of what is on a topographic map.

A. Topographic shows buildings, roads, streams, rivers, railway lines and contours. Contours are like, not a grid, but shows the various elevations, and I think t[illegible] are two foot contours.

Q. Of the ground surface?

A. Of the ground surface, that's right.

Q. Now, you told me this morning that when you looked at this topo sheet, it helped to explain a somewhat mysterious hole that you had seen on the Riley site; is that right?

A. Yes, that's correct.

Q. What exactly was on the topo sheet that you looked at?

A. On the topo sheet was a small, I think, a

rectangle or a square in the approximate position where we found this hole and my interpretation of that rectangle or square based on other figures on a topo sheet is that would be a building.

Q. All that was on the topo sheet in this location was a square; is that right?

A. That's correct. With topographical lines also.

Q. Was there any notation that denominated the square as a building?

A. I don't recall on the map if it did say it was a building.

Q. Was there any other marking on the map to indicate what that square might signify?

A. There would be no other marking that would indicate it would be anything else at least to my interpretation than a building.

Q. Did you make any other use of the topo map?

A. Other than a base map. Beyond that, no.

Q. Why were you examining aerial photos for Mr. Schlichtmann?

A. We were examining aerial photographs to put together, as I said earlier, sort of an archeological history of what went on at the site,

and by looking at various photographs, they are a snapshot in time what is going on obviously.

Q. Let's start with the 1984 aerial. Do you know who took that?

A. Off the top of my head, no, I don't.

Q. What do you recall about the 1984 aerial that you used to the develop this archeological history you were working on?

A. I recall seeing the railroad track, the access road to the site. Some of the other access roads are overgrown. Some of the clearing has been done on the site. Based on that photograph I could fairly easy pinpoint where all Woodward Clyde wells were and where we were going to drill our wells. There were signs on the -- not signs, excuse me, indications on the map where you could possibly see that, where you could see the areas that we had mapped where debris piles were and things like that. You could see -- what else?

The river. It was good depiction of what is on the ground.

Q. I take it from that answer that you examined the 1984 aerial photo before you put the Weston wells on the Riley site; is that right?

A. I looked at it prior to and also after, yes.

Q. Was there anything about the 1984 aerial snapshot in time that was different from your site survey map snapshot in time in 1985?

A. I don't recall anything being different, no.

Q. What was the purpose of developing this archeological history for Mr. Schlichtmann?

A. Purpose for developing the archeological history is to see if by looking at combination of aerial photographs and the character and nature of the material on the site if we could come up with some approximation or even a good idea of when the materials were disposed of there.

Q. When you say materials that were on the site, what materials are you talking about?

A. Materials that we mapped. There are a number of different types of materials on the site. Basically it is debris, drums, construction material, industrial material, industrial wastes and things like that.

Q. Why were you concerned with when construction material was deposed on the Riley site?

A. It would give us an idea hopefully we could look at it and date something on it when disposal activities went on on the site.

Q. Why was the date of disposal activities of construction material important to your investigation?

A. I think the date to put in a timeframe when these materials were put on the site.

Q. Why?

A. To, let's see -- I guess you know, find out knowing the hydraulics of the system when these materials, when the contamination that's on the site would have gotten to the wells.

Q. What does the date of deposit of construction material on the Riley site have to do with the date the contamination got to wells G & H?

A. That has a little bit to do but I also mentioned there was industrial materials.

Q. I'm asking you about construction materials right now. What does that have to do with it?

A. I think it shows that the site has undergone a history of disposal. It's been used as a disposal site of all types of debris from looking

at the photographs what type of debris has been put there, and it sort of gives a history of what the site was used for.

Q. You were looking at construction debris and industrial debris, is that what you said?

A. We were looking at all the debris that was on the site.

Q. I'm trying to run through the ways you would classify the debris. You have told me construction, industrial. Any other debris you have classified on the site?

A. I think there was general trash, construction debris would be reinforcing road, brick, concrete. A lot of things, bottles. Let's see. Just general, what I'd call general trash. The industrial debris would be drums, sludge, bung caps, crushed barrels, rubber gloves, scrub brushes. I have to think here. Just material that I would relate more to an industrial activity than a construction activity.

Q. When did you first get the assignment from Mr. Schlichtmann to develop this archeological history?

A. I don't think it was a specific time, you

know, a specific day to put that together. I think after we had found the debris piles at the site we decided it would be a good thing to look at them, look at the history of the site and just see what timeframes we're talking about.

Q. Would you define for me what a geologist is interested in?

A. Geologist is interested in basically anything that's associated with the earth. There are different fields of geology but generally geologists study the earth.

Q. Is there anything in your geological training that helps you to determine the time when certain chemical deposits were made on the earth?

A. Yes, in my particular training there is.

Q. What is that?

A. Knowledge of chemistry, a knowledge of depth of burial of material and knowledge of the surface materials, how they would behave to materials being deposited on there, looking at geomorphology of the site, also looking, I think I said earlier, looking at the air photographs and training in aerial interpretation. It is also a standard practice in any hazardous waste site for

the geologist to look at a sequence of photographs to develop a site history.

Q. What is geomorphology?

A. Geomorphology is the study of land forms. In other words you look at the land form and determine how it evolved, how long it took it to evolve, wheter it evolved naturally or artificially or by man.

Q. What does that have to do with the time of deposits of chemicals, determining the time that chemicals were deposited at a particular location?

A. I think you could look at depressions to see if they were dug by man, if they were natural, how much leaf litter is in them, the materials associated with it. Geomorphology by itself alone doesn't give you time, but it is looking at everything together. One single discipline doesn't give you an age of say 1200 B C or something like that. It is not radiometric but you look at everything you have to deal with.

Q. Have you developed any kind of a report dealing with your archeological history of the Riley site?

A. No, we have not yet.

Q. Have you given any oral summary to any one of your archeological history of the Riley site?

A. I don't -- let's see. I discussed some of this with Doctor Harris I think. The only person I would have -- and of course with Mr. Schlichtmann, but when Doctor -- we had Doctor Harris out there, we discussed, I think, the 1969 air photograph and also the degree of deterioration of the barrels on the site, the decayed wood matter on the site and just the general condition of the debris piles on the site.

Q. The discussion you had with Doctor Harris about the '69 photo, did that take place on the site?

A. It took place adjacent to the site.

Q. What exactly did you tell him about the '69 photo?

A. I told him two things about the '69 photo: that a lot of the debris piles that we could see on the '69 photo correlated to the debris piles that we had mapped in 1985, and that a lot of the material that showed up on the '69 aerial photograph had been removed.

Q. I am sorry. I missed that. The first

part you said the same debris piles that you see in the '69 photo?

A. Show up in our mapping in 1985.

Q. Okay, and the second part of your answer was?

A. Second part of the answer is that it looked like a substantial amount of the material, large drums and underground storage tanks that had been stored on the property had been removed.

Q. Okay. If I understand what you're saying, I think, is that in the 1969 photo, you found large drums and underground storage tanks on the Riley site?

A. On the surface of the Riley site.

Q. To be in that photo?

A. Yes.

Q. Do you know the date of the 1969 photo?

A. I don't, not precisely.

Q. Did you look at any other photos.

MR. SCHLICHTMANN: It is part of the Harris deposition.

A. No, not from 1969.

Q. The large drums that you saw in the 1969 photo, were they closed or open?

A. Based on the altitude of the photograph, it was impossible to tell whether they were closed or open. It was also impossible to tell the condition of those barrels.

Q. And how about the underground storage tanks that were being stored above the ground? Were you able to tell whether they were sealed or unsealed?

A. You could not tell.

Q. Anything about their condition?

A. I think the only indication that they may have been leaking was there was a lot of black tarry sludge or heavy oil deposits throughout the site and --

Q. You mean in 1985?

A. In 1985 and also on the photograph in '69 I believe you can see some of that tar. I'd have to see the photograph again, but I think that's correct.

Q. Your memory about the tar in the '69 photo, where is it in proximity to the underground storage tanks in the photo?

A. I'd say it is in proximity to them.

Q. How close to the underground storage tanks

do you remember the tar in the 1969 photograph?

A. Not having it in front of me, but I remember it being associated with it.

Q. Well, is there a clear space between the tar and the storage tanks in the photograph?

A. I could not say whether that's correct or not.

Q. In looking at the 1969 photograph, do you have any idea what was in the large drums or the storage tanks?

A. I have no direct knowledge what was in them. I can only assume based on what large underground storage tanks are used for.

Q. You don't have any personal knowledge what was in the tanks?

A. No.

Q. Or the large drums?

A. No, I don't.

Q. And you have not talked with anyone who did have personal knowledge what's in them?

A. That's correct.

Q. What else did you tell Doctor Harris about the 1969 photograph?

A. I think, as I mentioned earlier, that the

debris piles that we had mapped showed up in the photograph. I think I indicated to him where Riley well number 2 was. I indicated to him the outline of the Riley property.

Q. This is on the 1969 photograph you are indicating to him?

A. Yes, and I think that was it.

Q. Do you have any reason to believe that either the large drums or those storage tanks in the 1969 photograph have TCE in them?

A. I can only assume based on our analysis of the soil and water adjacent to those piles that we saw in 1985 that we see in the 1969 photograph that those piles were the source of the trichloroethylene.

Q. The debris piles we're talking about, both in '69 and that you saw there in '85?

A. Yes.

Q. Where are they in relation to the large drums and storage tanks that you saw in the '69 photo?

A. Without having the photos, it is hard. The debris piles are basically, well, they are in the same position that we have mapped them in '85. You have in a north-south projection, the site is

rectangular in shape. The road is lined with large underground storage tanks.

The debris piles, as I said, are in a northern part of the site on the western side of the access road and on the eastern side of the access road where the access road takes a bend to the north northeast.

Q. Where along the access road were the storage tanks in the '69 photo?

A. They were along the entire length of the access road from the gate up until the, I guess the northernmost boundary of the property.

Q. There were underground storage tanks all along the access road in the '69 photograph?

A. Yes.

Q. And the sources of TCE that you were just referring to are the debris piles, is that what your answer was?

A. Based on our hand augering and our drilling around those piles, I would assume, I have no other answer for you, that the source of the TCE would have come from those piles. There were other areas on the site that had TCE and at high levels, but that area looks like it has been cleaned up.

Q. Do you have any facts -- strike that.

Do you know whether the tanks or the large drums in the '69 photograph contained perchloroethylene?

A. The tanks that you're talking about, the underground storage tanks?

Q. Right.

A. I have no data in my hand that would suggest that they contained tetrachloroethylene.

Q. Same question for 1,2-transdichloroethylene.

A. The large underground storage tanks?

Q. Right.

A. Again, I was not there then. I can only assume based on what I see in the soil and water.

Q. Any data concerning whether the storage tanks had chloroform in them?

A. My answer is the same. I can only assume.

Q. Same question for benzene.

A. My answer is the same.

Q. And 1,1,1-trichloroethane.

A. In the large underground storage tanks, again, I was not there. I didn't take a sample of them.

Q. Okay. How about if I asked you the same

laundry list of chemicals concerning the large drums that you say you saw in the '69 photo. Any data?

A. Large drums we're talking 55 gallon drum size? Based on their proximity, two things. One of the drums we found had freon in it, had freon labeled on it. One of the wells at the site has freon in as a contaminant in the water. Second point is that the drums are in an extremely deteriorated condition. They are associated with debris piles. These debris piles have extremely high levels of tetrachloroethylene, trichloroethylene, and 1,2-transdichloroethylene.

So based on that correlation of those drums, those debris piles with the contaminant in the soil and water, I can only assume that those drums or whatever was in those piles of associated drums had those chemicals in them.

Q. Did you try to locate any aerials between 1969 and 1984?

A. 1969 and 1984? No.

Q. So you don't know when during that time period the storage tanks, the underground storage tanks, were removed from the site?

A. That's correct.

Q. Or whether during that period of time any of the large drums you see in the 1969 photo were removed. Is that right?

A. That's correct.

Q. Is there anything in your training or background that enables you from looking at the condition of a drum today to say how long it's been in that condition?

A. I would say indirectly. I am not a mettalurgist. I am a chemist. I used to work in the heavy construction industry with oil drums and things like that. For a drum to deteriorate to the condition of the drums I have seen on the site some of the drums are, you can pick up the metal, it is just like metal filings. I think well in excess of twenty years some of those drums have been there.

Q. That's a guess though, right?

A. It is a guess based on my professional experience.

Q. Did you rely on the 1956 aerial photo to develop your archeological history of the site?

A. We looked at the 1956 aerial photograph, yes.

Q. And what did you see in the 1956 aerial?

A. We saw in the 1956 aerial was I guess a number of things. The access road was there, there appeared to be an access track over to the tannery. There were -- there was an access road paralleling the railroad track and there seemed to be some distressed vegetation or some sort of distress in the vegetation in the wetlands which I called the peninsula which is where boring W 1 was drilled. There also appears to be some sort of activity in the middle of the swamp. It looks like someone has a little house out there with some sort of white dot type of material that it looks like something was stored in the middle of the swamp right off the present location of G.

Q. When you say right off the present location of G, directly west?

A. Three hundred feet west of where G is now. Also there was evidence along the west side of the road in the same location where our debris piles were mapped of some evidence of something being -- there is something there. There is white dots. I'm trying to elaborate for you.

It is clearly -- there is something

has been disposed of in that air photograph, so where we have a debris pile in 1985, there is a debris pile in 1969 and the same location on the air photograph there seems to be something there in 1956.

Q. The something that's there in 1956 you described as white dots?

A. White dots. The air photographs are not completely crisp, but there is clearly something in the same location.

Q. You also used the term white dots when you were talking about the house in the swamp?

A. No, I said there was a house in the swamp associated with white dots.

Q. What did you mean by that?

A. It looks like there is something next to the house in the swamp. What it is, I don't know. I can't tell from the air photograph.

Q. Do you intend to do any further work in connection with your archeological history?

A. I think that white area in the swamp where the house is and the white dot, we'll probably have enlarged to see if we can define better what's going on there.

Q. Any other archeological historical work you intend to do?

A. Umm, we were hoping, again weather permitting, and health and safety permitting, to examine more closely some of the debris piles for an artifact that we could possibly date. It may be successful. It may not be successful. I haven't talked to Jan directly about this.

Q. When did you look at the 1956 aerial for the first time?

A. I looked at the 1956 aerial approximately a week ago I think.

Q. Had you been working on the archeological history of the site before that?

A. Yes, we had.

Q. When did you start working on it?

A. I think from conception on when we were out there mapping the first time, I started to do the surface mapping, we could see different generations of material and that's when the idea germinated.

Q. What do you mean by different generations of material?

A. Well, as I said earlier, clearly some of

the material had been dumped very recently. Clearly some of the material has been there, bulldozed and removed. Clearly some of the material hasn't been disturbed in a long time. So the area that was bulldozed and removed we could see beer cans in there and things like that and there are people out there who look at things like this, beer cans, whatever, and can tell when they were produced.

Q. I take it you're not one of the people that can do that?

A. No, I just savor what's inside of them. There are other ways. There are different types of bung caps and liners, different technology for barrel packaging that's out there. So by looking at these, maybe not being an expert in the field, come up with an idea when the barrel was produced. There is a lot of newspaper out there, too.

Q. We went through before some of the equipment you had with you on your site survey.

A. Uh-huh, yes.

Q. Aside from what that equipment told you, did you make any visual observations on any of your visits to the site, pure visual observations?

A. Of course.

Q. That is data that is relevant to your investigation of the extent of contamination on the Riley site?

A. Yes, every time we were out there we were looking around, and I think being a scientist, you can't go to a place and just look at something with blinders on. You're always looking around the ground and looking at different things.

Q. What did you see unaided by any machinery, just what did you see visually, that's data relevant to your investigation?

A. The total investigation?

Q. Yes.

A. I saw a site that had locally extreme levels of dumping of industrial debris, I saw evidence of all types of different chemicals being disposed on the site.

Q. You saw chemicals being disposed?

A. No, I said evidence for different chemicals being disposed on the site.

Q. What was the evidence?

A. The evidence was rusted drums, bung caps, sludge, cans of oil. Let's see. Drums that

contained sludge, drums that contained wastes from an industrial operation, rubber gloves, rubber boots, scrub brushes, material that came from some sort of non-construction operation. There are a lot of caps that had chemical names on them: Dow Chemical, Union Carbide. There were caps that said read label before using. Stop, danger, pesticides. There was a label there for malathion. Besides the obvious obnoxious odor from the piles, smelled like the old organic chemistry lab, that type of evidence indicated to me that disposal had taken place.

Q. Anything else?

(Interruption for phone call).

A. Let me think. I want to be as complete as I can for you.

There were plastic drums, plastic jars, black sludge, there was a strange brownish really heavy odor type of material, sort of like a resin. Someone had deposited some hematite there. Hematite is iron oxide, Fe2 03. There was a lot of barrel -- lot of five gallon buckets, lot of lid tops. There were a lot of small components from cars and radios and refrigerators and, you know,

just associated junk is what I'd call it more than anything else.

I think that's complete. There was more there than I expected to see is probably the best way of putting it.

Q. Now, when you made these visual observations, were you distinguishing in your mind at all about what kinds of chemicals if any they would be a source of?

A. When I was looking at it, yes, I would look at a particular object and wonder, one, what that object was doing there, two, what it could contain and three, how did it get into where it was on the site. So every object that I looked at on that site, whether it was from an industrial point of view, a commercial waste point of view or just general trash, I always had that in the back of my mind.

Q. When you made the visual observations of these things on the site, did you make any mental note about what types of contaminants they might be a source of?

A. I guess it is a -- I have two answers. Some cases I had no idea what the contaminants

would be. In other cases based on the smell, what I could smell at the piles, I knew there would be volatile organics there, I knew there would be pesticides there. And some places where we found contamination in the subsurface, I guess in some instances I was surprised that it was there, but the places that we found it and the places that we saw it, the chemicals that we found and the compounds we found did not surprise me.

Q. Why were you surprised about finding the chemicals in the subsurface in some situations?

A. Because the surface, particularly near well five, the surface is basically clean of any debris, but there are extremely high levels of trichloroethylene subsurface. However looking at the area in detail once we were aware of that, we could see there was, there has been a lot of bull-dozing activity in there and some clearing and there are small pockets of surface disposal. That number I guess was somewhat surprising, but in hindsight looking back and looking at it with the data in hand, it makes more sense.

Q. In addition to those visual observations you had with your H Nu machine, right?

A. Yes.

Q. How long have you been using an H Nu?

A. I did not use the H Nu.

Q. How long have you been involved in investigations where an H Nu was used?

A. I think approximately two years.

Q. Was the H Nu machine around prior to two years ago?

A. I'm not sure when the H Nu machine was on the market. The technology has been around longer than a couple of years, yes.

Q. You have been involved for longer than a couple of years in sight investigations concerning chemical wastes, haven't you?

A. I have been involved in sight investigations, particularly chemical wastes, probably the last two to three years.

Q. And am I right that the H Nu machine has only been around generally available for those kind of investigations within about that same timeframe?

A. I don't have a direct answer for you. I am not sure when the H Nu machine was commercially available.

Q. You're a chemist, right?

A. Yes.

Q. Worked with volatile organic chemicals?

A. Yes.

Q. But prior to two or three years ago you didn't work with an H Nu; is that correct?

A. That's correct.

Q. The other machine you talked about was the combustible gas machine, is that what it's called?

A. Yes.

Q. How long were you or investigations you been involved in been using combustible gas machines?

A. I did not run the machine. The only time I had used that type of instrumentation before was in mining, methane in tunnels and things like that.

Q. On other hazardous waste site investigations that you have been involved with, have they ever used combustible gas machines?

A. Yes, they have.

Q. Can you tell me about generally how long that combustible gas machines have been in use?

(Interruption for phone call).

A. I don't have a direct answer for you.

Q. You don't know?

A. No.

I would assume ever since the technology is available, it's been used.

(Mr. Facher left the deposition).

Q. And how about the toxicity meter that you mentioned, have you ever been involved with any other site investigations where they have used a toxicity meter?

A. I don't recall specifically. If I had, I wasn't aware of it on the site. Someone else may have been running it.

Q. Do you know how long toxicity meters have been used by people investigating chemical sites?

A. Again, I don't have a direct answer for you. I would assume since the technology is available those instruments were used. The main reason is to protect people's health and safety.

Q. You also mentioned you looked at a 1966 aerial.

A. Yes.

Q. In connection with your archeological history?

A. Excuse me, no, I did not look at it. I read a review of that in Woodward & Clyde's report.

I stand corrected. I'm sorry.

Q. Are you relying on this review at all in connection with your archeological history?

A. I would rely on the interpretation that Woodward Clyde has put forth in their report to substantiate how I feel about the archeology, yes.

Q. What specifically are you relying on in the report?

A. According to Woodward Clyde, their report states, I don't know verbatim obviously, but the debris pile west of the access road that they saw when they did their site investigation correlated one to one with a debris pile that they saw on a 1966 air photograph.

Q. Anything else in the Woodward & Clyde report concerning that 1966 aerial that you're relying on?

A. I think they saw -- concerning the aerial you said?

They also saw some areas of tar and black oil substance on the air photograph in the same locations that we had mapped in the field. My only comment in 1985, it wasn't as extensive as in 1966. The area had been bulldozed and it wasn't a

big black tarry mass as they portrayed it.

(Mr. Facher rejoined the deposition).

Q. Anything else in the report that you are relying on concerning the '66 aerial?

A. I don't recall right now. Talking about only the aerial? I don't recall.

Q. Could you give me the substance of the archeological history that you have developed for this site?

A. The substance of the site is -- which way you want to go? Forward or backyard?

Q. However it is easiest for you to explain it to me.

A. I think it is easier for me to explain it from 1985 back since 1985 is clearest. What's in my mind, I guess the substance of the archeological study to date is that the debris piles that we see in 1985 are clearly evident in 1969. The Woodward & Clyde reports in 1966, debris piles are there also and that in 1956 the photograph strongly indicates that there is also a debris pile there in 1956. So based on present site investigation, coupled with our subsurface analysis, coupled with the air photographs, I would say that there was

concerning Weston's work.

MR. FACHER: Okay, thank you.

Q. Were there any enlargements made of any of these aerial photographs that you're aware of that you examined in detail?

A. Let me just step back.

Q. Please do.

A. The 1969 photograph is an enlarged photograph, okay? So I did not do that.

Q. All right. Go ahead.

A. Only enlargement that I would like to see is the '56 one. The other ones, no.

Q. Did you examine the photograph with any special equipment or just with the naked eye, the '69 photograph?

A. The '69? I looked at it with a magnifying glass.

Q. Hand magnifying glass?

A. Hand magnifying glass.

Q. Of an ordinary vintage or was it --

A. It is something a drafts person would use. It has a light in it.

Q. That big one with the light?

A. Yes.

Q. I see. Okay. And it was after the use of magnification you came to the conclusion as to what it was that you saw?

A. I came to my conclusion prior to using the magnifying glass. I used the magnifying glass to see if I could individually count what was there, you know, sort of enhance what was there.

Q. So you knew what it was, you just wanted get a better look at it?

A. Better look, that's correct.

Q. When did you reach the opinion that you intend to render if asked in this case?

A. I think we basically had that opinion, well, we had that opinion looking at both the '69 and reading about the '66 study by Woodward & Clyde. It wasn't until just recently when we saw the '56 one that we felt we could take it, based on the air photograph, back further.

Q. I'm sorry. You had the opinion when you read the Woodward & Clyde report you say?

A. We had the opinion that based on the Woodward Clyde report of '66, because we did not have that photograph, we had the '69 air photograph, we knew that the material had been there at least

till 1966 which we felt confirmed our opinion that the material had been there for quite a number of years.

Q. You knew the material had been there since '66 which confirmed your opinion that it -- that sound backwards to me.

A. We had an opinion the material had been there for quite a number of years.

Q. Uh-huh.

A. And just based on the physical characteristics of the material.

Q. Well, you saw that when you looked at it?

A. Yes.

Q. I mean you looked at it and you said this is really old crap here, right?

A. Your words, yes, that's right, sir.

Q. That was your thought, too?

A. Yes.

Q. So this is really old crap. So then -- see how he laughs. He enjoys it.

And then you decided you'd date it. Is that the way it works?

A. We would like if we could come up with a viable method to date. The only method we have now

is looking at the air photographs and looking at the physical characteristics of the material. I feel very strongly that the physical characteristics indicate it has been there a number of years.

Q. That probably is true. May be there a number of years. Let's talk about it for a while. Before we do that, you saw what was old material within the first couple of hours of walking around that site, right?

A. Yes.

Q. I mean did you see the bedsprings and the mattresses and all the rest of that stuff?

A. Uh-huh.

Q. And some of it was recent and some of it was not so recent?

A. That's correct.

Q. And rubber boots in there, you took them out and cleaned them, somebody could wear them?

A. I don't think I would attempt do that, sir.

Q. Others there would fall apart in your hands maybe?

A. I think most of the rubber boots we had seen were of the latter topic, fall apart in your

hands.

Q. Did you see a couple of safes out there?

A. There is a safe out there, sir.

Q. You determined it to be a safe, a weird looking object?

A. Yes.

Q. Did you date the age of the safe?

A. No.

Q. And suppose a safe is dated 1884, does that tell you that it was put on the property in 1884?

A. No, sir, it tells you when it was manufactured.

Q. Sure. So you could, you had somebody that was tearing out his old porch or something, he could take a whole pile of rotted wood last week and put it out there and then you'd have rotted wood on the premises, right?

A. What you're saying is in general terms correct, but it is not the type of material that we had seen there.

Q. You didn't see any back porches there?

A. No. Most of the material was covered with vines or leaves. There was vegetation growing

around it.

Q. You and I must have been looking at different material. But anyway --

MR. SCHLICHTMANN: There is plenty of it to go around.

MR. FACHER: Yes, there is a lot to go around. And plenty of crystal balls to go around, too.

Q. You looked at the drums on the photograph. When were -- in the '66 photograph, '69 photograph?

A. Uh-huh.

Q. Could you tell when they had been put on there?

A. I was, looking at the photograph, obviously you cannot tell when they were put there. All I can tell by looking at the photograph that it was previous to 1969.

Q. Well, all you could tell from looking at the photograph, assuming you're right, was that it was a photograph showing some drums?

A. That's correct, sir.

Q. Day after the photograph, the drums could have been gone?

A. Anything is probable, yes.

Q. Drums could have been put on there the day before the photographs?

A. It's possible, sir.

Q. Do you know that I'm wrong?

A. The only way I can correct your statement is that the 1966 photograph interpreted by Woodward & Clyde shows debris piles where we see them in 1969 and where we see them in 1984.

Q. Well, that may be, but the barrels, no way you know that the barrels you saw in '69 are the barrels on the photograph with the barrels that Woodward & Clyde saw or the barrels that are on there today if you walk out there, is there?

A. I would say the probability is high that the barrels that you see in the locations in 1985 were the same barrels that were there in 1969, were the same barrels there in 1966.

Q. You're giving me probabilites now?

A. Well, you're asking me a question. You want me to give you an answer? Anything is possible. I've given you my answer as a scientist who has looked at what's there.

Q. Well, what's the science that deals with metals?

A. Science that deals with metals is metallurgy I would say.

Q. And these people that date things by looking at the rings on trees and things, what science is that?

A. The name -- let's see. The name alludes me right now.

Q. But there is a science like that?

A. There is, yes.

Q. You're not a member of that science or you'd know the name of it. I assume you'd know the name of it. Is there a science that dates beer cans, or is that just a visual observation?

A. There are.

Q. Or trivia?

A. I don't think it is an acceptable scientific name but there are people who are experts in marketing, not marketing, in the container industry and they know what type of containers are made a certain time of year.

Q. Well, did you examine the barrels that were out there very closely?

A. The ones that I felt comfortable getting close to I examined, yes.

Q. Well, did you cut specimens and take them to a laboratory, anything like that?

A. I did not.

Q. Any materials did you take out of there and subject to some kind of analysis?

A. No, we were not allowed to take any material off the site.

Q. Well, did you ask to do it?

A. At that time we did not.

Q. Did you take pictures?

A. We took pictures, yes, sir.

Q. Of barrels and so forth?

A. Yes, sir.

Q. Did you do anything other than visual examination? Did you poke at them at all?

A. We poked at some of the ones that we felt were safe to poke at.

Q. Well, I have been out there a few times wondering around and didn't feel too unsafe. There was areas you felt unsafe to go into?

A. Yes, sir, definitely.

Q. I see. So you relied on the visual observation I take it from a distance of these unsafe areas?

A. For the unsafe areas we relied on our H Nu meter and the results of our chemical analysis.

Q. Neither of those dates anything.

A. That's for health and safety, yes.

Q. At least I'm right on that. All right, sir, did you have a mettalurgist with you?

A. No, we did not.

Q. Well, did you date any of the boots that were there?

A. We did not touch any of the boots that were there.

Q. Well, you looked inside them and did you get any information from them?

A. No, we did not.

Q. Or the bedsprings or any of that stuff?

A. The bedsprings we looked at them. Some were rusted. Some weren't. No, we didn't date.

Q. Well, do you know anything about who put the material on the property?

A. I don't have the faintest idea.

Q. Do you know anything about how long the property was on the site, these -- apart from your opinion, I'm talking about knowledge?

A. How long what was on the site, sir?

Q. Various objects or debris items were on the site, how long the bedsprings were there, did you make any opinion as to them?

A. The bedsprings I don't specifically recall.

Q. I don't have your map but you had every match stick that you saw on the ground as I remember it.

A. Yes, we did.

Q. Did you date each object?

A. We looked at each object. Obviously put it on the map. Some objects we looked at in more detail than others, that's clear.

Q. Now, this all comes back to the same question. When did you form the conclusion with respect to the fact that these -- that certain artifacts had been on the property for 30 years?

A. I think as I have --

Q. Is that right, thirty years is what we're talking about, isn't it?

A. Based on the air photography we can trace back site activity.

Q. All right. When did you come to that conclusion?

A. In two steps.

Q. Okay. Give us two dates.

A. I can't give you a specific date. The first step is looking, as I said, the nature of the material on the site.

Q. So that's summer of '85?

A. That summer we felt it was old.

Q. Old stuff. Okay. And it wasn't until --

A. We knew it was old. There is no two ways.

Q. Just like me.

MR. SCHLICHTMANN: Not that old.

Q. All right. You knew it was old.

A. Looking at the various air photographs confirmed our opinion or our observation that the material was old.

Q. You keep saying the material, but there must be what, 50 different or maybe a hundred different kinds of material there?

A. Specifically the debris piles. There is a lot of material on the site that is recent.

Q. I'm not sure I understand what you mean by debris piles. Are they mounds that you go up and down? Is that what you mean by debris piles?

A. They are mounds, probably I would guess approximately this high (Indicating). They contain

drums in them. Specifically the debris piles are where the high levels of the organic solvents are found. That's what I'm talking about.

Q. What's in the debris piles?

A. In the debris piles there are 55 gallon drums, there are --

Q. This is in every debris pile or some specific?

A. Okay, there are two debris piles. One about three quarters of the way up the access road on the west side and then you go another, let's say about a hundred feet.

Q. The west side is towards the railroad tracks?

A. Towards the railroad tracks and then you go up the road another 60 to 70 feet and there is another debris pile right on your right-hand side across the street, across the road from the MBTA station.

Q. Is that near one of your wells?

A. That is near EPA well 78 and Woodward & Clyde well number 1.

Q. So those are the two you are talking about?

A. Those. Yes. There are other debris piles.

Q. What are in those, what objects?

A. Rusted drums, there is the black tarry sludge. There is some wood. There are lots of bunk tops, plastic bunk tops. There are the ring liners that go underneath a 55 gallon drum. There is tins of pesticide caps. There is a lot of just dirt and debris with metals in it, metal nails, gloves, there is plastic, paper drums, old cardboard drums, paper drums or the old cardboard type drums.

Q. You're talking about a paper 55 gallon cardboard drum?

A. They are made of cardboard, yes.

Q. How about some auto parts or parts of automobiles?

A. There may be. I don't recall specifically.

Q. See bumpers there?

A. There are bumpers there, not those particular piles, but there is bumpers. There is a car body frame there. Elsewhere there is refrigerators and things like that, a couple of radios.

Q. Has that, has there been earth moving in those areas? When you say piles, are there piles

of earth that have been built up?

A. There has been earth moving on the site, yes.

Q. I mean in these debris piles you have talked about, is that as a result of some earth being moved as well there to build it up?

A. No, these two debris piles are not the result of earth moving.

Q. So you saw those on the site and then you looked at the aerial photograph of '69 and you said this photograph shows two debris piles in the same place?

A. Yes.

Q. Or that you, as you concluded, it was the same place. Could you conclude that the same bumper and refrigerator and paper drums and all that stuff was there in the aerial photo?

A. The aerial photograph is not that fine detail to identify a single object.

Q. Fine enough for you to identify 55 gallon drums you say?

A. You can see the tops, yes.

Q. Were they open or closed in the aerial photograph?

A. In the aerial I could not determine.

Q. Were they filled or empty?

A. I couldn't determine.

Q. Did they have chemicals or cow manure in them?

A. It is based on the air photograph. I can't tell you what's in the drum. Based on the chemical analysis of the oil around the drums I would assume that the contents --

Q. Did you do a chemical analysis in '69?

A. No, I did a chemical --

Q. You mean based on what you did 16 years later you are backdating the chemicals to '69, is that the way it works?

A. No. Excuse me. I am using the present day debris piles and the present day chemical analysis surrounding the debris piles to show that those debris piles are a source of contamination.

Q. Today?

A. Right now there is contamination in the soil.

Q. But you also have the opinion that or do you have the opinion that they were the source of contamination, the same piles, in '69?

A. I would say in 1969 those piles were a source of contamination also.

Q. The only thing you know about what was there in '69 was what you saw in the aerial photograph?

A. That's correct.

Q. How much of any given material did these barrels contain, do you know?

A. I can't answer that, sir.

Q. What was, you said something about a building you thought was on the property. Did I hear you correctly?

A. Yes.

Q. What kind of a building?

A. Based on the debris and the cellar hole, I would say it would be a wooden building.

Q. You found debris -- did you see any foundation? There is no foundation out there, is there?

A. It was a hole.

Q. There is no concrete that I saw. Did you see any?

A. There may have been concrete blocks in there. I'm not certain but there was not a poured

-- I don't mean a tree but --

A. I'm trying to be as accurate as I can for you, sir.

I think the only other difference between the '69 photograph and our mapping was that there were two access roads to the west of the site which are now disused. I think that was the difference. You have been on the site. You know where the fence comes up and there is some concrete blocks there?

I think that is it --

Q. So the '69 photo as far as you're concerned and the mapping are in all practically identical except for these missing storage tanks and maybe the disused road?

A. No, I don't think I said that.

Q. I'm deducing from that. If it is wrong, then I'm wrong.

Just to make myself clear, you say there are underground storage tanks resting on top of the ground?

A. Yes.

Q. You haven't devised a way to see through the earth yet with the naked eye?

A. They are coming up with techniques.

Q. Do you have any idea whether these underground tanks you described have any value at all?

A. I assume they have value as scrap. I'm not sure whether they are reused. I would assume their only value would be for scrap.

Q. There are a lot of them in the Whitney Barrel place?

A. Presently I think you're correct.

Q. Is it the same kind of thing, is that what you're talking about?

A. Yes.

Q. About what, 50 feet long?

A. Approximately.

Q. What do they hold, gallonage?

A. I would guess if they are for underground storage of gasoline or fuel oil, whatever, five, six and up to ten, twenty -- probably ten thousand gallons of liquid.

Q. Now, you told us about the mapping and then you saw the aerial photograph. Is that when you concluded you could date how long the barrels had been there?

A. No. I think we concluded it was more a reaffirmation of our feelings.

Q. What I am trying to find out, sir, is what objects do you say were on the Riley property for thirty years, if any?

A. I would say based on the examination of the photographs, our surface mapping in conjunction with the soil and water chemistry, that just north of Woodward Clyde well 6, that in 1956 the air photograph shows some activity in that area, so there was something in that area in 1956 any way.

Q. So you say that the air photograph shows something in 1956 in one area and you say was there when you were there in 1985?

A. Based on our mapping, we have something that was there in 1956 and we can map something in the same location in 1985. The material that we see in 1985 looks like it's been there, has been there based on its physical characteristics.

Q. Is that your opinion that something you saw in 1985 was in a certain spot on the northern -- north of a certain Woodward & Clyde well that that object was there in 1955 or 6?

(Mr. Stewart left the deposition).

A. I don't think it is a single object. I think is a conglomeration.

Q. How would you describe -- strike it out. How would you describe what the material that you say, if you do say it, was on the property for thirty years, how would you describe it physically and geographically?

A. In terms of 1985? In terms of 1985 in terms of what we can see physically on the site is north of that location where well 6 is, we can see a pile of debris that contains all the material which we discussed earlier.

Q. One of these two debris piles, is that what you described that has material in it that you described before?

A. Yes.

Q. And it could have other stuff as well?

A. It could have other stuff. We haven't, you know, excavated a pile.

Q. Did you make a list of everything that was in that pile that you're now talking about?

A. Yes, we did make a list.

Q. Where is that list?

A. The list is on the map.

Q. Well, now, I don't have -- I can't place myself by well numbers, so take me down the access road to where this site is.

A. You walk in the gate and if you look directly to your left that's a little road coming up to where pumping well number 2 is.

Q. That goes towards the railroad tracks?

A. You keep walking down the road on the left, there is another access road going into where the railroad tracks. You keep walking a little bit further, perhaps three hundred feet total from the gate, and on the left-hand side again, there are two steel pipes sticking out of the ground where the safe is and there is a couple of concrete blocks there that are foundations to, I think, I-beams.

Q. Right.

A. And go approximately 50 more feet and you look towards the left and you'll see a pile of debris which includes drums and some sludge and tar and material like that.

Q. Okay. Now, is that, do you say that all the material in that pile of debris was there in 1955?

A. No, sir, I didn't say all that material

was there in 1955.

Q. Do you say any of it was there in 1955?

A. I would say based on the '55 -- based on the photograph that we are alluding to in that location on the ground in 1956 there is something on the ground.

Q. Well, you saw a photograph that showed that there was something on the ground in '56?

A. Yes.

Q. Do you now say that the same things that you saw in '85 were there in '56 in that spot? That's what I'm trying to figure out.

A. Not every single item, sir.

(Mr. Stewart rejoined the deposition).

Q. What items were there in 1956 if there were any that you can testify about?

A. Let's see. I'm trying to envision the pile. Based on the deterioration of some of the metal there, I would say some of that, the metal in the pile was probably there then.

Q. Well, what metal do you say was there in 1956 and we'll give you a chance to answer that, but is there one identifiable, just to make sure we're all talking about the same thing, is there

one identifiable spot so if you took a stranger, or one identifiable feature if you took a stranger out there, he would immediately recognize what it was you were talking about?

Is there something identifiable like a flag planted in the center of the pile or a bed-spring sticking out or something that we can label this pile that are were talking about?

A. A stranger would be able to find the pile, yes.

Q. What would you call it, just a pile with a bumper in it?

A. No, no, a pile with six or seven 55 -- rusted 55 gallon drums quite prominent.

Q. Is there one like that?

A. Yes.

Q. See I want to pin you down so that you don't, when I ask you about it later on, you don't tell me, oh, you were asking questions about the wrong pile.

A. We have on the map -- it has, every pile has an indication.

Q. I'm warning you in advance.

MR. SCHLICHTMANN: Very decent of you.

A. I would say it is the debris pile on the west side of the road just north of Woodward & Clyde cluster number 6.

Q. Is there a pipe sticking up that has a well tag on it or something nearby?

A. Yes, well 6 is marked.

MR. FACHER: Well 6. Do you know what he is talking about now?

MR. STEWART: I have a general idea.

MR. FACHER: I need a specific idea.

Q. All right, sir. And you have photographs of that?

A. Yes, we do, sir.

MR. FACHER: And I'll ask Mr. Schlichtmann if he wants to answer, do we have those?

MR. SCHLICHTMANN: Yes, you have all of those.

MR. FACHER: What deposition are they in?

All the Harris exhibit?

MR. SCHLICHTMANN: There is, I think there is three aerial photographs.

Q. Would you be able to identify the

photograph of what we're talking about?

A. If I saw the photograph.

Q. You could spot it?

A. I could show you the location.

Q. Then I'll get those photos for you. But there isn't any shorthand way we can describe this location?

A. I think the shortest way is, as I said.

Q. Near Woodward & Clyde 6?

A. West side of the access road just north of Woodward Clyde cluster 6.

Q. You mentioned something about Mann Chemical. Is that where those were, the barrels with Mann?

A. No.

Q. Not there. You mentioned something about freon, is that where --

A. No.

Q. Not there either?

A. The barrels in this pile are, all the marks are indistinguishable.

Q. You can't tell?

A. Can't tell. Totally rusted.

Q. But you can still smell them?

A. You can smell them, yes.

Q. After thirty years you can still smell it?

A. You cannot smell the barrels. You can smell the pile.

Q. Oh, I see. You didn't find Jimmy Hoffa or anybody in there?

MR. SCHLICHTMANN: We were looking.

A. Let me explain.

Q. Make an even better case.

A. We did sniff one of the barrels with our instrument. Actually we sniffed all of the barrels with our instruments and one of the barrels in that pile had high vapor readings.

Q. That would make it relatively recent, wouldn't it?

A. Well, it depends what's in there. I don't know much. We didn't open up the barrel. We didn't want to fool with things we didn't know.

Q. A closed barrel?

A. It was open a little bit.

Q. You mean there was a top on it?

A. There was, yes, I think there was a top on it.

Q. And you didn't open it at all? You just

sort of sniffed it?

A. Sniffed it and I think some of the barrels contained plastic containers.

Q. You mean just plastic stuffed inside the barrel?

A. Yes.

Q. What would that tell you, that there was something encased in plastic that had been in the barrel?

A. It told me two things, that the barrel had been used, somebody just put some trash in it because sometimes the barrels contained plastic gloves and things like that. It looked like somebody used it for a trash barrel.

Q. Well, there are all kind of things come in barrels, not necessarily chemicals.

A. That's correct.

Q. Did you smell the sweet odor or the odor that you described before in this pile?

A. In that pile there, the odor I smelled -- I personally smelled the strongest was of, I would call it a pesticide type of odor.

Q. I see.

A. Generally we were near that pile we'd have

our respirators on.

Q. Do they come plastic wrapped, any pesticides in powdered form?

A. I am trying to think. Most of the pesticides I have seen are in liquid form but some could come. I don't know for that particular question.

Q. Did you smell the sweet, I think was it -- is that the way you described it, sweet odor?

A. It could have been a sweet odor sometimes.

Q. Did you smell the odor that you smelled at Whitney Barrel?

A. No.

Q. You didn't smell that?

A. It was a different odor.

Q. Anywhere on the property you didn't smell that sort of cleaning fluid type smell or sweet smell?

A. I have smelled sweet smells on the site but not that particular pile.

Q. Okay and that's the same smell you smelled on Whitney Barrel, isn't it?

A. Similar. I'm not sure if I would call it the same.

Q. I'm not making you out to be a smell expert, just trying to --

A. I could smell something at both locations.

Q. Which metal -- do you say that some particular metal in this, let's call it Woodward & Clyde number 6 west side, which metal do you say if any was there thirty years?

A. Trying to think what other metal is in the pile.

I guess specifically I can't go to the pile and tell you that that piece of metal was there thirty years or twenty years but that something was there in '56 and that the metal is extremely rusted and generally in a strongly deteriorated state.

Q. What something was there in '56? What specific object are you willing to testify under oath was there?

A. I can't, not being there in 1956, I cannot tell you precisely which object was there.

Q. Well, what specific object are you willing to say in your opinion was there?

A. I would say if we take the pile as a whole and the nature of the pile, in all probability

I can't think of anything else.

Q. Did you in addition to the, what I'll call the crumbling or rotted out barrels, however you want to describe it, barrel or barrels, did you identify any other barrels that had been on the premises for a lesser number of years?

A. I think in one instance there were a number of five gallon drums.

Q. Five or 55?

A. Five.

Q. Five.

A. That looked like they had been dumped very recently.

Q. Like within the last couple of months?

A. No, I would say within the last couple of years. They had brambles and overgrowth over them.

Q. Is it your testimony you can tell by overgrowth that something has been lying in that spot for thirty years just by looking at the overgrowth?

A. I don't think overgrowth alone contributes to that sort of conclusion.

Q. That area is very near to being described as a swamp, isn't it?

A. I would not describe the area as a swamp.

Q. Are there swamp parts in it?

A. There are swampy parts out towards the river. The area we mapped was the upland portion.

Q. Upland meaning going toward --

A. The upland portion meaning it was fairly solid ground. It was probably a couple of feet above the -- not a couple of feet. About a foot above the river level and it wasn't wet. We could walk around.

Q. What is the relation of the elevation of the property, the part of the property of this debris site that you just described and wells G & H?

A. I'll have to ask you to define it a little bit crisper because the physical building is such and such an elevation.

Q. From the ground level?

A. From the ground level.

Q. Higher elevation where you were?

A. I would say the pump house for G is slightly higher than the elevation of the Riley property.

Q. What is the elevation, do you remember?

A. I think -- the elevation of which, sir?

Q. The pump house.

A. The pump house.

Q. Do you remember in feet?

A. I don't have a number for that.

Q. Is that shown on the topo map?

A. The location of G since it was a 1962 topo sheet I don't think is on there.

Q. How about the specific site that you just described what I'd call the Woodward Clyde 6 site?

A. That specific site does not show on the topo sheet.

Q. What's that elevation?

A. But the elevation would be, I think, approximately 43-42 feet above sea level more or less.

Q. Are the wells south of this site?

A. Which wells, sir?

Q. G and H.

A. Okay. There are a lot of wells.

Q. No, I understand. I don't quarrel with you with your question. Wells G and H.

A. G and H are approximately -- G is approximately six hundred feet to the east. H is approximately -- probably 800 feet to the northeast.

Q. So this site is south of H and on kind of

a straight easterly line with G?

A. That would be correct.

Q. And there is a river in between, what they call a river. I wouldn't call it a river.

A. It is a stream.

Q. Well, they call it a river. I'd call it a stream myself but somebody has called it a river.

MR. SCHLICHTMANN: Sounds like a song. Some may call it a river.

MR. FACHER: We're all up the river, up the creek. One of us is going to be up the creek.

(Laughter).

Q. You said that there was, the correlation of the debris pile in '85 to a sequence of aerial photos helped you to reach your conclusion?

A. Yes, sir.

Q. And the sequence of aerial photos is the '56 photo which you saw last?

A. That's correct, sir.

Q. That's last photo you saw. You never saw the '66?

A. No.

Q. You just read about it?

A. Read about it in Woodward & Clyde report.

Q. The '69 photo which you saw after you started mapping the premises?

A. Which I examined.

Q. Is that the entire sequence?

A. Only other sequence I think I saw a '74 photograph and the most recent one that's available for the area now.

Q. Well, the '74, did you see that in connection with forming any opinion or was that just recent?

A. The '74 one was just identical to the '69 one. Just so the record will show that I saw that one.

Q. You saw them at the same time?

A. '74 I think I saw a couple of weeks ago also.

Q. You had formed your opinion by that time, had you not?

A. Yes.

Q. Well, now, I just wanted to make sure. Did you come to a conclusion that specific materials had been on the site for twenty or thirty years or is it just your opinion that the site has

been used as a disposal area for a number of years?

A. First the conclusion the site has been used as a disposal area for a number of years, that's true. For specific areas based on what I told you earlier, there appears on the photograph something north of well 6. If the further analysis of that photograph indicates to me that it is similar to what we have seen, then I would say that that location has probably been used from '56 onward.

Q. How do you describe that location?

A. That was the one we were describing.

Q. That's the one we're talking about?

A. Yes, sir that's the one we're talking about.

Q. That's the same one we're talking about?

A. Yes.

Q. So you're looking for further substantiation?

A. I think as I told your colleague earlier, I would like to have that photograph blown up so I can see that crisper.

Q. The '56 one?

A. The '56 one.

Q. All right. Other than that is there any

one system, the lab uses a gas chromatograph and certain organic compounds come out at certain times and makes certain peaks. Well, the lab had a problem with one of the chemicals, it was two chemicals we were eluting at the same time, and they couldn't tell in their instrumentation what the precise chemical was, and so it was a problem to them, so I suggested to them that they send it to another lab and have a mass spec analysis done on the water sample to see precisely what that chemical was. They did that and it confirmed what they originally thought it was, but it is a different type instrument.

Q. Did you come to any conclusions, sir, as to when the construction debris that you described earlier in your testimony had been deposited on the premises, on the property?

A. That was sort of continual. I think most of it based on what I had seen I would assume was associated with the large underground storage tanks that were there. There was big twelve by twelve type of cribbing type of thing, and it looked like to me that that's what they cribbed up the underground storage tanks.

Q. I'm not sure I understand. Is this something the tanks were resting on you mean like a pallet or something?

A. It seemed that way, yes.

Q. What I understand construction debris to mean actual construction materials, unused construction materials, parts of houses or concrete.

A. Wood, chips of concrete, blocks. Not industrial materials I guess is the way to phrase it.

Q. I thought I saw out there some roofs or what looked like parts of roofs. Do you have a memory of that?

A. Let's see.

Q. Maybe some asphalt shingles that looked like it was attached to a roof?

A. There could be if you were there recently.

Q. I'm just going from my memory. You don't have a memory of that?

A. I can't confirm or deny it.

Q. What, did you put any date on, I'm not asking you to do it now, I'm asking you had you previously done it, did you put any date on what you described as construction debris that had been

there in your opinion twenty years?

A. The wood materials are a little bit harder to answer because wood deteriorates quicker than metal. It is probable some of it could have been there twenty years. What specific pieces, I don't recall being impressed with the deterioration of the wood as I did with the metal. The metal is what sticks in my mind.

Q. What conclusions if any did you draw from what appears to have been earth moving activities on this site?

A. The conclusion I drew from the earth moving activity is there were some attempts made to scrape up --

Q. Bulldoze?

A. Yes, it looked more like a bucket loader where someone picked things up. Some of the drums in those piles had been crushed, big boulders in there, looked like someone had gone and mixed up some material.

Q. Did you think materials had been withdrawn from the site and taken someplace else by a front end loader putting it on a truck, something of that sort?

A. Clearly the large underground storage tanks had been removed and --

Q. How do you do that?

A. You bring in a crane.

Q. You have to bring a crane?

A. Bring a crane and put them on a flatbed truck.

Q. Drive them off?

A. And drive them off. If there is any other materials removed, I don't have an answer for it.

Q. All right. Is there any other metallic object other than the barrel that you described that you would be ready to give a scientific opinion on that it was there in 1955 or 1965 as you sit her today and before I let you go home?

A. Let's see.

I feel strongly about the debris pile, at least for -- that that debris pile was there in 1966 based on interpretation of the photograph. As I stated earlier, '56 is clearly fuzzy.

Q. All right. That's the best you can do at 4:54 today?

A. Let me search back.

I think with your caveat, that's probably correct.

MR. FACHER: Sometimes memories are refreshed overnight. Sometimes they're not. Why don't we suspend for the day.

MR. SCHLICHTMANN: Marvelous.

(Deposition recessed at 4:55 PM).

Excerpt from Rule 30 (e):

Submission to Witness; Changes; Signing. When the testimony is fully transcribed the deposition shall be submitted to the witness for examination and shall be read to or by him, unless such examination and reading are waived by the witness and by the parties. Any changes in form or substance which the witness desires to make shall be entered upon the deposition by the officer with a statement of the reasons given by the witness for making them.

* *

I, JOHN DROBINSKI, have read the foregoing transcript of my testimony and it is true and correct to the best of my knowledge, information and belief.

_____
Deponent's Signature

That on_____, 1985, the foregoing deposition was submitted to JOHN DROBINSKI, the witness, for examination and was read by the witness, at which time any changes desired were entered upon the deposition, and that thereafter the deposition was signed by the witness before me.

Notary Public in and for the Commonwealth of Massachusetts.

My Commission expires

COMMONWEALTH OF MASSACHUSETTS)
) ss.
COUNTY OF SUFFOLK)

I, Nancy L. Eaton, a Notary Public within and for the Commonwealth of Massachusetts, duly commissioned, qualified and authorized to administer oaths and to take and certify depositions, do hereby certify that heretofore, on the date cited above, the witness personally appeared before me at the above location and testified in the above captioned case; that the said witness was by me duly sworn to testify to the truth, the whole truth and nothing but the truth, that thereupon and while said witness was under oath, the deposition was taken down by me in machine shorthand at the time and place therein named and was reduced to typewriting thereafter.

I further certify that the said deposition constitutes a true record of the testimony given by the said witness.

I further certify that I am not interested in the event of this action.

IN WITNESS WHEREOF, I have hereunto subscribed my hand and affixed my seal of office this 29th day of December, 1985.

Notary Public in and for the Commonwealth of Massachusetts.

My Commission expires January 6, 1989.