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PUBLIC MEETING PRESENTATION ON PROPOSED REMEDIAL ACTION AT SITE 5 NWS YORKTOWN VA
6/29/94
BAKER ENVIRONMENTAL

Public Meeting Minutes

PROPOSED REMEDIAL ACTION PLAN

SITE 5

SURPLUS TRANSFORMER STORAGE AREA

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SURPLUS TRANSFORMER STORAGE AREA

PUBLIC MEETING

JUNE 29, 1994

6:00 p.m.

PRESENTATION BY: Richard Hoff,
Risk Assessment Specialist
Baker Environmental, Inc.
420 Rouser Road
Coraopolis, PA 15108

MR. BLACK: Let me first introduce you to all these folks that are here. The gentleman on our left is Mr. Rich Hoff from Baker Environmental Company. He's our Risk Assessment man, Toxicologist. Baker Environmental has the contract for the Weapons Station. Jennifer Lofton, who is the IR Program Manager for the Weapons Station, Yorktown. Sitting in the back is Melissa Davidson, Community Relations Specialist for Baker Environmental. And all the way in the back, you've met Valerie Walker, who is our Environmental Specialist. In the back, all the way in the back, is Lisa Ellis from the Virginia Department of Environmental Quality. The gentleman on the right is Robert Thomson from the EPA out of Philadelphia. Jeff Harlow is our Environmental Engineer. You've been talking to Brenda, Brenda Norton, who is the Remedial Project Manager for the Naval Facilities Engineering Command, Atlantic Division. She gives us the money. And these two ladies up here are going to record everything we say here so we have a record of the meeting. We won't have to state that Mr. Moss is in attendance; we have him signed up.

But basically, what we have here, Mr. Moss -- I think you've read the board in the back, from about 1940 to about 1981, we stored in the small area, which is about the size of this room, I guess, a thousand square feet roughly, surplus transformers that contained PCB. PCB is polychlorinated biphenyl. And we estimate that probably about three hundred pounds of that oil and PCB has leaked into this area. In 1982, this area was cleaned up before we really had a comprehensive environmental program. It was in the very early stages. In 1991, 1992, we did some sampling and some testing in this area. And by that, I mean, we took soil samples in various locations within this area, at a surface level, down to twelve inches, down to nine feet, all the way down. We also punched some wells down to about 35 feet and took groundwater samples.

We took some chips off the concrete that was there, concrete pad -- actually two small pads, we took four samples of that. And from that information, doing the risk analysis that Rich Hoff, did, we made a determination that this site no longer is a hazard to human health or the environment. So what we're recommending right now is that we do no further action on the site, we leave it as it is. It's fenced, leave it there and not do any additional clean-up; it's not required.

And so what we're looking for -- and again, as I was talking to you back there -- comments, concerns, questions from the public, about what we're doing here. If you have any, I'd certainly be glad to hear it and see if we can incorporate that into our future plans.

I don t know that there is -- if you would like to see the risk assessment slides, we can bring this out and show that to you. I think that would probably be a good idea if you'd like to see that.

Rich, if you'll do that, we'll pull this thing out?

MR. HOFF: Sure.

MR. MOSS: What would your choices be, the other choices, other than just leaving it alone?

MR. BLACK: Well --
MR. MOSS: Digging it all out?

MR. BLACK: The levels that are there, I think Rich will show you that, we'd be wasting time and money. We would not accomplish anything more than what we've already done, basically.

The soil and the samples, you'll see, is a very, very minute level, way below what the EPA considers to be a risk at all. And so I think the only thing we could do is dig it all out again, and I don't know, in the background even, we may find contaminants have leaked in the area.

It's been very stable there. The area is fenced and gravel's been laid. You can see it's cleaned up. Nothing's been there since '81 or '82, except the transformers that were stored there. So what we'll do is have Rich -- I'd like to see this myself. I haven't seen this one.

MR. HOFF: I'm going to go through some of this early stuff. When you do risk -- I'm not sure how much you understand about risk. Risk is -- in our business, typically the way we calculate risk is to develop a number, from an

engineer's standpoint, so we can obviously mitigate that risk. Risk is, however, perception-related, so what we're trying to do is, we're trying to actually quantify perception.

The way we do this is we look at a number of factors ? We look at the site itself, the location of the site, the accessibility of the site, the history of the site. All of this comes together to help us quantify what we can see or perceive as the risk.

So just to give you a little background about what Site 5 is, this is the description: It's a surplus transformer storage area. It's located at the northeastern portion of the station, adjacent to the south end of Building 76. You can see that on the pictures. It's in the fenced-in area. It's approximately a thousand square feet. It's fenced and covered with gravel. The area surrounding it is fairly open. There's woods to the back. The grade is fairly level, falls away to a channel I think on the west side and to the northeast.

Again, just a quick rundown of the history -- Mr. Black covered this pretty comprehensively. It was used for the storage of PCB containing transformers. Transformers contain PCB, polychlorinated biphenyl contaminant. They have a very good insulating capacity, and they're wonderful for transformers and various electrical applications you need them for.

Again, about three hundred pounds were reportedly leaked from the transformers onto the pads and surrounding soils and gravel. In 1982, there was a removal action where they took out a lot of soil, but there was not then a study to determine how effective that removal action was. This is an overview of the previous studies. In 1984, the initial assessment study was conducted. There was no quantitative data collected here; there was simply an assessment that Site 5, because of the nature of what happened there in the past, should be included for further study to determine the potential health effects on human health and the environment.

As such, the round one confirmation study was conducted in 1986, and this is where we actually collected some analytical data on the soils. We took ten

soil samples and analyzed them for PCB's and Dioxins. You hear a lot of times PCB and Dioxins spoken in the same sentence. It's known that Dioxins can be a co-contaminant of PCB. That's because PCB is a mixture -- depending upon who formulated it, is not a pure mixture and the potential is there for Dioxins; and if not Dioxins dibenzofurans.

The results indicated that only PCB-1260 was detected, and that was detected in four samples, with a maximum concentration of about two. When we see Aroclor-1260 -- Aroclor is a trade name for PCB's. Aroclor was produced by Aroclor was I Monsanto. The number twelve indicates it is, in fact, a biphenyl. There are twelve carbons on the parent compound. Sixty gives you the percentage of chlorine in the mixture by weight. So when you see a 1260, you realize this is one of the heavier ones. There are other PCB's, PCB-1254, which is 54 percent by weight; 48 percent, 42, and so on. There are heavier PCB's. When you get much past 60, start to become a solid and no longer oil.

This will give you an idea as to where the site is situated, but since you have pictures of the fenced-in area. These are the locations of the samples. And what they did was they sampled obviously in the fenced-in area to determine where areas probably most affected, and then they also sampled outside the fence to determine if any had migrated.

PCB's typically don't move very far, they like carbon. Some environmentally mobile chemicals, if you get a little bit of rain, they tend to wash the chemical right through the soil column. Not so much with PCB. They're so hydrophobic, they just don't like water. If rained upon, they pretty much stay where they are. A mechanism that could transport them would be something like tracking, where you would have such a heavy rain effect, you re actually washing the soil particles away from and off site.

MR. MOSS: What was done after the original soil was removed and new soil put in?

MR. HOFF: There was some clean soil put in, some additional gravel, and then there was some sampling.

Subsequent to that, the Round One RI investigation was conducted in '92, and this was a little bit more comprehensive. We took 24 soil samples. Again, PCB-1260 was the only thing that showed up. This time the maximum concentration was about 1.4 PPM.

The next statement is, only one sample exceeded the Toxic Substance Control Act. That isn't true. The Toxic Substance Control Act's definition of clean soil is one milligram per kilogram. We had one other sample that equalled one milligram, so in essence, two samples were out of what you consider compliance with the TSCA Clean Soil threshold.

MR. MOSS: Were they inside the fence or outside?

MR. HOFF: They were -- let me see if I can pull this up. This goes back to the original confirmation study. The high point, I believe, with the initial confirmation study was at location number
MS. LOFTIN: Ten.

MR. HOFF: Ten. I'm sorry, which was right outside the fence. As a result, more sampling was done in that area. In the second phase of the Round One RI, I believe the high point was again in the vicinity of ten, was it not? That was the reason for the hydropunch sample being taken, because the belief was that if you got that soil contaminated in that area, is there a possibility it had migrated downward. And since that was the highest, we felt this was the point to go back and actually investigate a downward migration. And so again, it was the higher end, but lower than what I mentioned previously.

So now that we know we have soil samples that exceeded the TSCA Clean Soils limit, what we wanted to do was determine what the potential risk to human health would be. What we did was a risk evaluation.

The risk evaluation is similar to a full-blown baseline risk assessment, only somewhat more conservative. What it doesn't do is, it does not go into a full evaluation of all potential exposure pathways. It narrows it down to those which we consider to be the most conservative and those which we would consider to be standard to any baseline risk assessment which is pretty much

the residential exposure.

What happens, the EPA has determined from those scenarios, RBC, or Risk Base Concentration which can trigger a level, in this case, a cancer risk, which is ten to the minus six. EPA has determined an acceptable risk range for cancer; and that is ten to the minus four to ten to the minus six. They consider that generally acceptable. It gives the risk manager the opportunity to make some decisions based on the location and potential for exposure. What those numbers mean, if you were to convert those to cancers it would be one in 10,000 excess cancers to one in a million. That's sort of the working image.

This gives you an idea of what is considered as part of the risk evaluation. The components of the hazard identification; and the hazard identification looks at the ability of that particular chemical to cause harm.

PCB's are considered by the U.5. EPA as a potential carcinogenic. In addition, they can elicit a carcinogenic response when exposed. That's based primarily on animal studies. They're considered to be carcinogenic. There is a lot of different literature out there that has different toxicological end points. Typically PCB's are considered by investigators to be a promoter of carcinogenesis. They themselves do not actually cause the cancer, but if there is some injury, they enhance, and the cancer is responsive, so if you're exposed to ionizing radiation and there was some tissue damage, and you were exposed to PCB's at the same time, then the potential is that you are at a greater risk than if you were exposed to one or the other.

The exposure assessment again looks at what type of exposure you could reasonably expect out here; and again, we tried to look at the most conservative case in evaluating the residential exposure. The toxicity assessment goes into just what I talked about, actually talking about the chemical and its toxicity. The risk characterization pulls together these first three an? actually gives you a number. We finally get to that number. Do we have a problem here, or do I not?

As part of the hazard identification, what we do is we determine chemicals present, the environmental media which could effect health, effect and surface

soil, subsurface soil, groundwater, and in this case, concrete chip samples. After we evaluated all these, we found out that the only real affected media, or media which could become a problem from an exposure standpoint, was the PCB-1260 in the surface soils. Again, we consider whether or not these things can move, can they get to sectors other than somebody directly at the site.

PCB's are chemically stable, meaning if they are there in the soil now, you can reasonably expect them to be there ten years from now. Some chemicals will biodegrade, organisms in the soil will eat them and they metabolize them and thus change so you no longer have that chemical. Not so with PCB's. They tend to stick around, therefore, they're persistent. They're also very immobile. They just don't like water. They don't like to go. This is kind of the typical rundown as to what constitutes a complete exposure pathway. To have an exposure pathway, you have to have a source. Well, we know we had a source here. We have transformers that leaked and affected soil. We have a transport medium, and the transport medium would be the affected soils themselves. When you look at the transport medium, it's kind of a misnomer with respect to something that's immobile. A transport medium is really some medium by which you would contact them at an exposure point, so it's not if they're going to move away from the site and be exposed off-site, so you pretty much have to be right there, and that be the exposure point, the exposure route. If you get that dirt, affected medium, on your hands, touch your mouth; or if you were to get dirt all over your arm and not wash it off.

The potential receptors to PCB in the soil at Site 5 were considered to be station personnel, future construction workers, if somebody came in there and leveled that building and made the area into something else; for instance, a residential area, again, there would be future residents. The quantification of exposure, how we characterize the exposure, was -really commercial, industrial. That would cover station personnel and future construction workers; and residential, both child and adult.

As part of the exposure assessment process and the risk evaluation, you have to come up with exposure values. You have to assume, or try to infer, just how often a receptor might be exposed to soils, how much they would ingest, and for how long would the exposure would take place.

You can see that as part of the risk evaluation, there are default values; and then the values used in the calculation of RBC's, and they're very similar. This is one of the reasons we didn't go through a full-blown risk assessment. We had the RBC numbers that were calculated from the same numbers. We felt a direct comparison would give us the answer we needed.

In this case, we assumed that a child would ingest 200 milligrams a day of soil 350 days a year for 6 years. The child would also weigh an average of 15 kilograms. The 6-year age range assumes exposure beginning at one year of age to age six. So it's a pretty young kid. Adults, we would assume that the adult lived there 30 years, that's the 90th percentile range. That's the upper end of potential exposure. Most people don't stay in one place anymore. We assumed the adult would weigh 70 kilograms, which is again an average; and that as residents, they would be exposed 350 days per year. The adult would ingest a little bit less. We have the adult at 100 milligrams per day. And typically the distinction is made between adult soil ingestion and child soil ingestion because children can ingest soil not only during play, but if soil or dust is tracked into the home. They can ingest soils by hand to mouth contact while toddling or after falling. There's more there for them to ingest than just soil, also, the dust in the home which is considered to be the same as the soils outside.

This gives you a kind of comparison default value to the actual RBC value for commercial/industrial exposure. There's a little bit of difference here because during the typical baseline risk assessment, you assume that somebody who is actually involved in construction has a greater chance of ingesting dirt accidentally by the very nature of digging. And usually we will distinguish between a commercial and industrial exposure when excavation is in question. And those ingestion rates reflect that if somebody is just working in a facility and isn't involved in digging, is just doing simple, routine maintenance, they might ingest fifty milligrams per day. If that person is digging, he or she may ingest quite a bit more. However, when you use the higher rate, 480 milligrams a day, you use a much shorter frequency and duration. The digging, if it is going to occur out there, it's a very small area, you wouldn't expect somebody to be digging for 25 years. Typically we

would say one year and 180 days within that year. The RBC value is evaluated a little bit differently. They assume 100 milligrams per day, not quite splitting the difference, but certainly in that range, 250 days per year exposure to reflect the presence of actual workers working in the course of the 25-year time frame. Again, the adult is assumed to be 70 kilograms.

This is a summary of the toxicity assessment. What the toxicity assessment does is it tries to characterize dose and response. If somebody eats so many milligrams of PCB, what is the observed effect of having been so exposed. For PCB's right now there is only carcinogenic toxicity information. If you were exposed to high levels of PCB, there could be systemic health effects, but you would probably never exposed to the percent levels that need to be ingested. There are instances -- there's a place called Usho in Japan where PCB's were accidentally put into the rice soil; it was distributed and people ate it. There were noncarcinogenic effects that were observed; pink nails turned yellow. Mucus in the eyes. There was some very strange systemic effects, but no cancer. They have not yet found cancer in the population. That's an ongoing study and would take years. To date, there is no significant cancer in these people who ate PCB, but we don't have enough information on noncarcinogenic process because they are so varied, to determine a systemic health effect. We only have carcinogenics data to work with.

This is sort of a summary of what I said before in terms of the RBC's. The National Oil and Hazardous Substances Contingency Plan introduces an acceptable risk of ten to the minus four to ten to the minus six, which EPA considers generally acceptable. RBC's are calculated for that particular -- the lowest value which is considered to be the point of departure, meaning when we have no other information from the site and nobody is willing to make a risk-based decision solely on the process, we default to the lowest number in the range. It's the point of departure, and the RBC's are derived and updated quarterly using the most recent toxicological numbers as they become available to the EPA, the RBC's are updated and sent on to us.

This kind of gets into the nuts and bolts of actually how we came up with the numbers. The RBC's, they represent toxicity and exposure information all in one. So you take your maximum concentration and divide by the RBC, you come up

with the risk ratio; and since the RBC was calculated to ten to the minus six, you can normalize this number by multiplying it by that same value and come up with the incremental cancer risk. That's typically the numbers we make decisions based on. It's that incremental cancer risk and how it relates to ten to the minus four and ten to the minus six.

Using the maximum PCB concentration from our latest Round One study, we compared that to the residential RBC value. The residential RBC value is fairly low. When you do that, you get a ratio of 16.8, 16.9. If you multiply that by ten to the minus 6, you come up with a number of two times ten to the minus five, which is halfway, right in the middle of that EPA generally acceptable risk range. This is again the residential -- potential residential exposure. So it's a pretty conservative assessment.

This summarizes the actual conclusions of the risk evaluation, the future residential property use gives us an ICR value of two times ten to the minus five, which falls right in the middle of that acceptable range for future commercial or industrial property usage. Subsequent exposure, the ICR is even less. Now we're getting down to the very far end of the acceptable risk range. This kind of shows you pictorially where we fall. The point of departure is ten to the minus six. The upper end of the generally acceptable risk range is ten to the minus four, and for future residential property use in Site 5, you do nothing. We're right in the middle; that's if we do nothing.

Ecological assessments are a little bit more difficult to conduct. From a human health standpoint, we're only dealing with one organ. When you're talking about effects on the ecology, that can be so far ranged. You have soil micro-organisms, you have birds, you've got deer, you've got animals that burrow. You've got so many variables. We did not conduct a formal assessment here. The reason being that the site is relatively small, and just the nature of the area, it's not near a critical habitat; the PCB's are immobile at this facility, so if there wasn't any chances of migrating away towards some critical habitat. Again the site is small and flat; it's fenced and covered with gravel, so the potential for ecological effects in that area would probably be very difficult to distinguish, particularly since you've had other

activities in that area. It's not a pristine site. It would be difficult to distinguish the difference in the soil mechanism because of PCB, or because you've dug it out and replaced it and put gravel on top of it.

The recommendations, we found there was no current or future human health risk. That's not quite right; there are risks, obviously, but they fall within the acceptable risk range. We really doubt there will be any current or future ecological risk, and we think the removal action conducted in '82 was fairly effective. And therefore, the recommendation is to take no further action at Site 5 at this time.

MR. MOSS: The one question that came to mind when you were going through that, it's a fenced area, but your high samples were outside the fence.

MR. HOFF: Right.

MS. WALKER: Rick, could you put your slide back up there showing the sample lot location? Actually the high ones were within the fence.

MR. MOSS: Seems like you should expand the fence area to make sure it's inside the fence.

MS. WALKER: 5-S04, 5-S06, right up against the building in the fenced area, they were the two highs.

MS. LOFTIN: The hydropunches taken from the first round where it was found to be high.

MS. WALKER: This is Round One.

MR. HOFF: We probably should have had overhead with this data. These are the sample numbers and these are the corresponding locations. 5-S04 is, in fact, inside the fenced area. That's what I'm interested in is down around S15. That was my mistake.

MR. BLACK: Are either one of those, Rich, concrete chips?

MR. HOFF: No concrete chip samples were designated as chip S5-C01, 02, 03.

MR. MOSS: Okay. You've got to understand, I'm an engineer so the numbers -- I love numbers. You have to see the tables.

MR. HOFF: What we should have done is overhead, and probably a run-down of what the concentrations were. One PPM was found at S-05, S-06; and again that's --

MR. MOSS: Which is where you kind of expect it.

MR. HOFF: Yes, that's where you would expect it. Again, the uncertainty lies with the removal action, obviously the effectiveness. They didn't confirm the areas they removed back in 1982. And I would suspect --

MR. MOSS: What did they do with the soil they removed?

MR. BLACK: It was manifested off the station as waste manifest.

MR. MOSS: Somebody took it and disposed it. And the concrete, the same way, that was shipped out?

MR. BLACK: Yeah, you have to. Everything that is done by the manifest, you have to sign it, and it goes to a certified location by a certified hauler. He signs and it goes --

MR. MOSS: The really slick part is you guys are still responsible for it forever.

MR. BLACK: Yeah. Thank you, Rich, very much.

Anyone have any questions, comments or concerns they want to bring up at this time? Anything?

MR. MOSS: No.

MR. BLACK: Being as I only have one person here that doesn't know who I am, we appreciate your coming. I'm at work now from about 7:15 in the morning to 4:30 or so. Did you get one of my cards? On the back is my home phone number. I have an answering machine at both of them. If you have any questions, or anything you want to know, give me a call and I'll get back to you, if you want to leave a message or name on the answering machine.

You did sign up?

MR. MOSS: Yeah, I signed one of the cards in the back.

MR. BLACK: Good. What we'll do is put you on our mailing list; and once we get this thing, I'll talk to John Carr and Barry Stutt and get some kind of thing worked out where we can generate some interest.

MR. MOSS: I think your pool of interest has got to be right around your site, you know, more than five or ten miles away from that, who cares. There's so many other things around here.

MR BLACK: I m absolutely delighted that you came. And you're the first. We're going to build this thing into something where the community will know what we're doing here.

Rhonda, do you have a question?

MS. SHANKS: No.

MR. BLACK: With that, folks, we're going to close. I want to thank you. Appreciate it.

MR. MOSS: I'm glad I came. You didn't have to invite all those people just for me, really.

MR. BLACK: We need those people. If you ask me a question, I'm lost. The stuff Rich talks about, I have no idea. I'm not an engineer. I'm a wordsmith, or

whatever you call those guys that deal with the media. I'm totally amazed how they can come up with numbers.

Thank you very much. We're going to clean this place up and they're going to shut this library down.

COMMONWEALTH OF VIRGINIA

COUNTY OF YORK, TO-WIT:

I, ANNA M. FOX, a Notary Public in and for the Commonwealth of Virginia at Large, do hereby certify that the foregoing deposition was duly taken and sworn to before me at the time and place in the caption mentioned, and that the transcript is a true record of the testimony given by the witness.

I further certify that I am neither attorney or counsel for, nor related to or employed by, any of the parties to the action in which this deposition is taken, nor am I a relative or employee of any attorney or counsel employed by the parties hereto, nor am I financially interested in this action.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my notarial seal this 8th day of 19 August, 1994.

Anna M. Fox, Notary Public

My term of office expires: January 31, 1996.