ORIGINAL

- X

NYACK GAS PLANT SITE

PROPOSED REMEDIAL ACTION PLAN

PUBLIC MEETING

- X

Nyack College

Hilltop Auditorium

February 25, 2004

ROCKLAND & ORANGE REPORTING
20 South Main Street
New City, New York 10956
(845) 634-4200

Proceedings

MR. KNIPFING: Good evening and welcome to our public meeting on the Proposed Remedial Action Plan for Operable Unit 1 of the Nyack Manufactured Gas Plant Site.

My name is Mike Knipfing. I'm a Citizen Participation Specialist with the New York State D.E.C. My office is up in New Paltz.

Joining us tonight to make presentations will be the two project managers for the site. The Project Manager for the D.E.C. is Bill Ottaway, right over there. He'll be carrying the load, basically, this evening. We do also have the Project Manager from the New York State Department of Health here, John Olm, right here in front row. John will be making a brief presentation, and, of course, they'll both be here during the question-and-comment period to answer any comments that you have that they can answer tonight.

Proceedings

As I said, the purpose of tonight's meeting is to discues the Proposed Remedial Action Plan. It's very important that we remember it's a proposal. This is not cast in stone. We're required, under the New York State Law, to, when we come up with a proposal, to come to the public with that proposal during a public comment period.

To make the public comment period more meaningful for everybody, we're also required to set up a document repository in the area where the project is. So, the public can actually go and look at these documents we'll be discussing tonight. The documents are rather large. So, to go through them all, page-by-page, none of us have that kind of time or patience, but I do want to show you the primary documents that are in the repository now and that will be discussed tonight.

We're here for the proposal, but

the proposal is based on other fundamental documents that have been generated for this site.

The first document is called "The Remedial Investigation." That is all the data that's been collected to fully characterize the nature and extent of contamination at the site. Let me show that to you.

This is the RI, okay, and this is what is at the repository. It's got all the data, all the tables, everything you'll need to really get an idea what the heck is there. Okay.

The second important document is called "Feasibility Study." Once we know what's there, we look at, well, how do we deal with it, what are feasible remedies that would be available to us to address what we find? And the Feasibility Study takes this data and then breaks it down, using the known technologies that are available to us, to come up with alternatives. It's

feasible to do this, you should try that, you know, and it's sort of ways that we try this, we try that, this is what's feasible to address the contamination that we found. Okay.

The D.E.C. and the Department of Health then takes the data and the feasibility studies and comes up with a proposal based on what we know about the site, based on what the state of technology is, how should we address this issue, and that's the Proposed Remedial Action Plan. That, luckily, is a lot smaller, and that's what we'll be discussing tonight.

This - this is the PRAP, okay, Proposed Remedial Action Plan.

As I said, this is a 30-day comment period. The repository for these documents is your local library. Let me see where that is. Nyack Public Library on South Broadway.

It's very important that you understand the Record of Decision is the

final decision, not what we're talking about tonight. We cannot come up with a final decision until we have this meeting, until we solicit comments, until we prepare something called "A Responsiveness Summary." That is, actually, added, incorporated into the Record of Decision. It takes all the comments that we've received during the comment period and looks at it in relationship to what we have, originally, proposed.

The Record of Decision can be different than this PRAP based on the comments we receive during the comment period and tonight, as well. Okay.

When the Record of Decision is, finally, determined and signed, then everybody on the contact list will be receiving a Notice of ROD Availability - ROD, Record of Decision, Availability. And that also will be placed in your local document repository. The notice will just, briefly, say what the

selected remedy is, or, in this case, there are several different remedies based upon the parts of the property we're dealing with, and, basically, tell you what it is and tell you how to get more information about it by going to the repository and checking out the Record of Decision.

Let me see what else is here.

It's important for anybody who didn't receive a Fact Sheet from us, make sure your name is on the sign-in sheets cause that's how we update our mailing list to make sure -- and if you just print, that will be really helpful to everybody.

Now, since this is a public comment period, we do have a Court Reporter here tonight and if you do have a comment to make and you feel comfortable stating your name, maybe, it would be helpful to spell it out, too, for her so she gets it right. Okay. If you want to be anonymous, you can be anonymous, too.

Proceedings

It doesn't matter.

Since we don't have a printed agenda for you, I'm just going to, basically, tell you I'm here, I've talked about citizen participation and it's essential to the project, and I'll turn the meeting over to Bill Ottaway, our D.E.C. person. He'll go through the Remedial Investigation, briefly, the Feasibility Study, but, basically, he's going to concentrating on the proposal tonight. And this is for OU-1, Operable Unit 1, that stands for what's on the site, the structures, the ground on the site. We're not talking about the river tonight. We're talking about the land, okay, the structures on the land.

After Bill is done with his proposal about the PRAP, John Olm will say a few things about how the Department of Health has looked at this PRAP and how they have evaluated it in terms of: Is it protective of public health and the environment?

Proceedings

After that's done, we'll open up the floor for comments.

Now, during the process if you don't understand a slide that's being shown, please, you know, we're a small-enough crowd, just ask the question and we'll clarify some things, but if you do have a substantive comment you want to bring forth tonight, please wait until the end so we can make sure we get it down, properly, okay, and we can attribute it to the right person. If you don't want to be named, remain anonymoue.

Also, on your way home tonight, if you think of something brilliant you wanted to say, well, you've got plenty of time to do it, okay, because the comment period ends on March 12th.

So, any time between now and March 12th, you can send your written comments to Bill Ottaway, and his name and address and phone number is in the Fact Sheets that you all, hopefully,

have received or you could pick up on the way out.

Okay. Without further adieu then, I think I've bored you enough, Bill Ottaway, Project Manager from the D.E.C.

MR. OTTAWAY: Thank you very much.

One thing I would like to add to what Mike was saying is, in addition to the paper copies, the PRAP and the Fact Sheet are available on the Internet. The website for that -- the URL for that website is on the Fact Sheet so if you want to get the information that way. We'll also be posting the ROD on the Internet. That way, you can get it on your computer as opposed to having to go down to the library.

Also, on the Fact Sheet, I believe my E-mail address is on there. So, you can get written comments to me through E-mail, as well.

Okay. I'd like to start off by showing a couple of the pictures Orange and Rockland has provided us of the site

back when it was operational. I've also got copies of these pictures over on the side, as well as pictures that were taken during the Remedial Investigation so you can see what the site looks like.

As you can see, this is a big industrial site. The housekeeping isn't pristine. You can understand how a few things might have slipped through the cracks. The large round structures are the gas holders, right here and here, and the whole point of this operation was to produce gas. This is, functionally, the same as the natural gas you use in your ovens now, but they didn't find the natural gas deposits until the 1940s, 1950s.

So, this plant started operating back in 1852.

Before 1852, if you wanted to see what you were doing at night, you were using a candle. So, getting a gas plant in your community was a huge deal. All of a sudden, to have light, you could

turn a switch on the wall and your gas light would come on. Instead of chopping wood, you'd turn on your gas stove.

So, you've got to realize how much a part of the modernization process these gas plants were at the time.

So, that's one view.

This is just a welcome slide.

Here is an aerial view of the facility. Actually, I'm going to skip over to the next one.

One of the things I wanted to point out on this was this is what we refer to as the jetty area. You can, clearly, see in this slide that that is all man-made. It's an area that has been filled over time and that's relevant to some of the discussion we'll have later.

Another thing I wanted to point out is this wall right here. This low area in here - that's what I'm going to refer to as the Lower Terrace. The part above

that wall is the Upper -- we refer to as the Upper Terrace.

Most of the structures associated with the gas plant are on the Upper Terrace. The Lower Terrace has some above-ground tanks, that sort of thing, but not nearly as much as what we have on the Upper Terrace.

MEMBER OF THE PUBLIC: Is there two pools?

MR. OTTAWAY: Let me see. They're drainage pits. These two? That, I believe that -- where is Bruce?

MR. COOLUM: Over here.

MR. OTTAWAY: Those are drainage pit areas?

MR. COOLUM: Uh-huh.

MR. OTTAWAY: Okay. Just wanted to make sure I'm being accurate.

So, this is the drainage pit area. That's one of the more heavily contaminated areas of the site.

MR. KNIPFING: Bill.

MR. OTTAWAY: Yes.

Proceedings

MEMBER OF THE PUBLIC: When was this picture taken?

MR. OTTAWAY: Marybeth, do you know when the picture was taken?

MS. McCORMICK: I believe it was around the '50s, '60 -- around the '50s because the plant -- in the 1950s. The plant was demolished in the '60s. So, this was prior to that demolition. I don't have the exact date, but I think it's like - I want to say 1958, somewhere in that time frame.

MEMBER OF THE PUBLIC: Thank you.

MS. McCORMICK: You're welcome.

ANOTHER MEMBER OF THE PUBLIC: So, that drainage was drainage from the gas storage tanks?

MR. OTTAWAY: Do you know, more precisely?

MR. COOLUM: They're just referred to, on historic figures, as the drainage pits. They're, probably, water and other materials mix with the water from the operations that all went down there,

collected in those pools.

MR. OTTAWAY: One of the -- a lot of hazard -- there are lots of different kinds of hazardous waste sites. The archaeological aspect of these sites makes them, particularly, interesting. As you're investigating them, you're also going back and trying to figure out how the plants operated, what they possibly could have been doing in this one foot location, and every site is unique. I've got some -- some things are interesting, others become horror stories at this point in time, so.

Okay. As I said, this plant operated from 1852 until 1965. Not very many physical plants last 100 years. So, that's quite a record right there.

This information here, I'm not going to go into detail. Basic, generally, a number of different processes were used to create the gas. They created gas from coal. They also used petroleum products to create gas or

to augment the gas, and, basically, you can use just about any hydrocarbon to make the manufactured gas. There are whale manufactured gas plants on the coast where they actually took whale oil and turned that into a combustible gas. Up in the northern reaches, there are wood manufacturing gas plants where they were using stumps, that sort of thing, to create the gas.

So, it's a very flexible process, and, as I said, it made a huge difference back in the day.

The contamination that we're concerned with at this site is coal tar. This is a condensate from the hot gas. So, they produced the gas from any number of operations, it went into the large cylindrical gas holders you saw in the earlier photo, and, as it cooled, the coal tar condensed out of the gas.

This is a very complex organic -- a complex of organic chemicals. The chemicals of concern are PAHs,

Polycyclic Aromatic Hydrocarbons. The member of this family you may have heard about is Benzo(a)pyrene. That's the most toxic of this bunch. They are relatively large molecules. They're not, particularly, soluble. A number of them are suspected human carcinogens. That's why we're concerned with them.

The other family of chemicals that we're concerned about here are Benzene, Toluene, Ethylbenzene and Xylene. We refer to these as a group as BTEX compounds. These are more volatile chemicals. They're smaller molecules. They dissolve more readily in water. The PAHs dissolve in water to a degree but not nearly as much as the BTEX compounds.

I'm going to try to limit my use of the alphabet soup we use in our office to these two or three phrases because if I use all of the abbreviations we use, no one would understand a word I was saying.

Because the BTEX compounds are more soluble, that's, primarily, the family of chemicals I'll be talking about when we discuss groundwater contamination.

Because the PAHs are relatively more stable, once again, into the ground, they don't dissolve, they don't biodegrade as readily, those are the chemicals we'll be talking about when we discuss the soil contamination.

One other thing I would like to talk about is this funny acronym which we pronounce DNAPL, and that's a dense non-aqueous phase liquid. Another way of saying that same thing is product. This is the actual pure coal tar, which is still -- they're in the form of coal tar, and because it's more dense than water, it will drop through the groundwater table until it finds a less permeable layer and then it will start moving, horizontally.

So, as I said, those are the chemicals of concern. I'm going to try

to limit the technojargon to not that much.

Mike went, briefly, through the PRAP/ROD process. The Remedial Investigation started in '99, lasted about three years after a relatively quick remedial investigation process. It was a very aggressive process where we went out there on an iterative basis and did a lot of borings, a lot of test pits, and we'll get into, exactly, what those look like a little further on.

The Feasibility Study was conducted over 2003 and 2004. We'll, hopefully, get the PRAP and ROD this year, and then we go into the remedial design for 2004/2005.

Mike talked about this being the final decision. A lot of the really interesting decisions are going to be made during the design process. The very detailed questions about, exactly, how big this is or, exactly, how we're going to go about doing that, things

like trucking routes, things like that sort of thing, that's going to be taken care of during the design process.

So, we're not sitting here today unleashing on you every detail of how this is going to come about.

Those -- the design considerations will be talked about over time and there will be opportunity for public involvement while we're making those decisions, as well. And so we, probably, won't be doing any actual cleanup until 2005/2006, sometime in that vicinity of time.

Okay. So, during the Remedial Investigation, the primary tools that we used were test pitting, soil borings, monitoring wells and sediment coring. So, these are reproducing fairly well. If you want to take the opportunity to look at the pictures on the table, they look even better.

The main reason I wanted to show this picture is this is what most of the

contamination, it looks like. It's not a matter of where the soil is contaminated. It's just a pool of this black goo. Instead, what we have, it seems like this, which, when you open up the test pit, it runs into the test pit. I think that's important to know that there is a lot of relatively clean soil even in the heavily contaminated areas.

Too far away. Here you go. And this is just another slide showing the coal tar coming into one of the test pits.

We also did soil borings. This is the auger for the drilling rig. There is a picture of a drilling rig, itself, over there, and the main way that we take samples while we're doing soil borings is this, this is a split spoon, this is two halves of a cylinder. When you put that together, you put the shoe on each end and drive that into the ground and you can bring up an undisturbed soil sample, and, with that

soil sample, you can see what's in the ground. That's one of the things that people, sometimes, don't appreciate is it is very difficult to see underground. Even in thie day of advanced technology, there's no way for us to put on special glasses and look down. You have to go out with these tools, the test pits and the soil borings, and it shows you what's going on in a 2-inch area, and, from that, you have to extrapolate back to try to understand, exactly, what's going on for the site.

So, moving on, and here is a soil boring being completed. You can see this is in one of those very heavily contaminated areas and you're actually getting product coming up with the auger.

So, at first I was pointing out, in the test pit, you don't have, you know, just a pool of coal tar in the ground, but, with this slide, I wanted to show,

boy, we do have some areas on this site which have quite a bit of coal tar still there.

Okay. One of the other things that we did is sediment coring. This is the coring barge. This Proposed Remedial Action Plan we're presenting today does not address the sediments. The sediment contamination we found was relatively moderate. I think there were a total of three sediment cores which showed a trace of tar. That was in the top couple feet of the sediment. There were somewhat elevated gauge levels. It wasn't something that made us go, oh, my God, we have to go do something now, but it was something where we said, huh, we're going to have to do something, we're going to have to try to figure out which of this contamination is associated with the plant, and, rather than going through that entire process, up-front, we decided to break this into two operable units, and that's going to

allow us to get working on the land-base sites while we're still trying to figure out what's going on in the sediment.

Okay. The nature of the contamination. This -- probably, these numbers, probably, won't mean anything to anybody here, but I threw them up just in case there is someone who is interested in numbers.

The interesting thing, the PAH levels of up to 19,000 parts per million, anything over about 500 is a high number. So, 19,000 as opposed to 500, yeah, where we have contamination, it's got a lot of PAHs.

In the groundwater right near the coal tar, 200 parts per million of BTEX. That's another very big number. The groundwater standards are down in the lower parts per billion.

So, right near the contamination, we have very high levels of these contaminants. One of the great things about this site is they don't travel --

haven't traveled very far. We'll get into that pretty quickly.

Now, here is the map showing the extent of contamination. This is the soil contamination. And, at this point, I wish I made that a little darker, but this is the same, basically, the same theory that was in the Fact Sheet and in the PRAP. This is the area of coal tar contamination. There's a lot of information on this map if you went to get further into it, but that's really the take-home point of this map is this is the area where we have coal tar at this site.

Now, this is the area where we found significant groundwater contamination. Oddly, it's a much smaller area than we have for the soil contamination. Typically, the groundwater contamination extends out a little bit beyond the coal tar area at these MGP sites, and I've tried, in the next slide, to explain why this is a

little different, and we'll see if I can pull it off.

So, this is a cross-section of the site. I'm, probably, going to lose three-quarters of you, so bear with me.

This green area is where we have coal tar. The blue line is where the groundwater is.

So, all the coal tar is above the groundwater is enclosed in groundwater contamination, and this area out here is that jetty area that I was pointing out earlier in the old photos. That's a lot of coarse fill material. There's a lot of river water coming through that.

Now, I don't know whether it's because the river water has been flushing through there enough that there's not much left for it to move or whether there's such a flux through there that the groundwater contamination is incredibly diluted, but, for some reason, this area in here with the coarse fill material doesn't show a lot

of groundwater contamination.

So, the groundwater contamination is, primarily, limited to these areas in the bedrock where the coal tar has reached down into the rock area. The rock being this brown line.

Like I said, if I lost you, it's not your fault. That was a stretch slide.

Okay. Now, we're going to get into the Feasibility Study. All that information was regarding the Remedial Investigation.

What we do, we assemble potential tools for remediation, look at the entire universe of different ways people do clean up the site, figure out which ones are appropriate to use on the manufactured gas plant sites. Then, we start combining those tools into remedial alternatives.

As you'll see in the final remedy, we're using a number of different tools. Not every tool is right for

every situation.

So, we want to use -- we want to be as flexible as possible to use this variety of tools to clean up the site as efficiently, as effectively as possible. And, at the end, the real meat of the Feasibility Study is the comparison of the alternatives, so.

Okay. This is just a list of remedial technologies we looked at, and I'll be going through each of them.

Here is a picture of excavation taking place at a manufactured gas plant site in Syracuse, I believe.

As you can see, conventional excavation, great big backhoe, big dump trucks. This is a large hole that they're making.

We also have excavation taking place along the Hudson River. This is up near Troy.

And here is another site where they're doing a portion of excavation around the structures. Sometimes, when

you're excavating the structures, you find actual pure tar held inside the structures.

In that case, bring it back in trucks, suck the pure tar out, but, you know, you will be finding structures still there at these sites.

This is another picture. This is from Orange and Rockland's Haverstraw Site, which they, recently, cleaned up with excavation. And what we have here is a temporary structure. They use this to control odors, to control vapors. It's not something that's required on these sites, but it is something which can, very effectively, control the amount of -- control how much the site impacts the neighborhood.

At this point, Orange and Rockland is intending to use a temporary structure during the excavation portion of this project, too. Again, that's not something that's necessarily required. There are advantages to using it in

terms of how effectively you can control some of the aspects of the project.

So, I wanted to show, basically, what, you know, that temporary structure looked like.

Okay. One of the things -- the next item, other than excavation, we wanted to look at was in-situ solidification, and this is, basically, taking a big auger, mixing the dirt up with some cement and creating a monolith under the ground. This would be very low permeability. You would not have the contaminant moving from this monolith. You wouldn't have it leaching into groundwater. It's a containment option. It's mixed with a -- you would -- one of the things, one, it's an in-situ remedy, which means we're just treating the soil in place. We would be shipping in some cement, about 10 percent by weight, and you would also have to do some excavation associated with this technology.

Proceedings

As you're driving the auger down into the ground, if there's a big building down there or large rocks, it's not going to work very well.

So, you have to take that big backhoe we saw in the earlier picture and clear the obstructions.

And the green on this slide, this is the slope area between where we have a lot of debris. These are structures in the Upper Terrace, and here are the drainage. Here's the drainage pit area.

So, as you can see, in the Lower Terrace, there really aren't very many structures that we're looking to clear.

In the Upper Terrace, there are a lot of structures up there, a lot of clearing that we have to do in order to use in-situ solidification in the Upper Terrace.

This is just one of the many kinds of units that does in-situ solidification.

Proceedings

In this case, we're calling it deep soil mixing. It's the same thing. Sometimes, it's a single auger. In this case, it's multiple augers. It is a very large piece of construction equipment.

And here is a close-up of the auger flights, and these augers mix the dirt up and they add the cement to it as it's being mixed up, and, as I said, you end up with, basically, this big old monolith sitting in the ground.

Ex-situ solidification is another thing we thought about.

In this case, you dig the soil up, mix it with cement outside the ground and then put it into forms. Nothing particularly difficult to understand about that.

Chemical oxidation is another one of the more challenging technologies to think about. Oxidation - there are a number of chemical oxidants out there, ozone ferrimagnets, and these chemicals

can, permanently, destroy the chemicals of concern that we're looking at on this site. It's cost-effective. In the lab, it works great. You put these two, the coal tar and the oxidants together and, boom, you're left with nothing but, you know, carbon and oxygen. The challenge is to deliver the oxidants to the contamination, get it down into the ground and put it in contact with the contamination long enough for it to do its job.

In order to do this, you have to establish hydraulic control over the site, make sure that treatment chemical is down there, staying in contact, working on the contamination.

And one of the other things is that it's more effective on some tars than others. So, in order to do this, you would have to collect a sample of tar and see how it works in the lab.

Pump and treat - that's a way to treat groundwater. Very simple, pump

the water up, clean it up, discharge it. It's a proven technology, but it takes a long time and it's expensive, but it is something that does work.

And enhanced bioremediation - this is something that most sites have some biological bioremediation component to them. Right now, bioremediation is keeping the BTEX compounds in control at the site. Over the decades that that contamination has been in the ground, there's been a huge population of bacteria growing up around that contamination. Those bacteria use these chemicals as a carbon source, especially, the BTEX, bugs love eating BTEX.

So, we have a very large, very healthy biological community around this contamination. It's one of the reasons that we don't tend to have a large groundwater plume running off of our manufactured gas plant sites because we have such a well-established biological

community.

Enhanced bioremediation is just helping bugs help bugs. Typically, it involves adding some oxygen or making it an oxygen-core environment for the anaerobic bacteria, giving the bacteria a better environment to do their job.

Okay. This is the selection criteria. I'm going not going to go through these in detail. They're on your handout.

What I wanted to highlight here is that all of the remedies we look at have to be protective of human health and the environment and they have to comply with New York State standards, guidelines -- criterias and guidelines, SCGs.

So, as we're comparing the remedies, we've already -- we know that we've met these primary criteria, and these are the other criteria that we use to differentiate between the four or five acceptable alternatives.

Okay. On the Upper Terrace, we are

proposing to excavate contamination down to bedrock. The presence of the structures that I talked about, earlier, would require us to do subetantial excavation here regardless of what alternative we selected. Regardless of what else we were going to do up in the Upper Terrace, we would have to remove those structures and the gross contamination associated with them.

On the Upper Terrace, once we've done that, we're halfway home on the excavation.

All of the alternatives we look at for the Upper Terrace had similar costs. They would have met the cleanup goals. The excavation is great because, once you've excavated, you know it's gone. There's no uncertainty.

As you're digging, you can see that you've reached your clean soil beyond contamination. There's just a great level of certainty with excavation.

Yes.

Proceedings

MEMBER OF THE PUBLIC: Where does the excavated material go?

MR. OTTAWAY: We would be sending the excavated material off-site to a licensed treatment or disposal facility. Most of coal tar contaminated soil we see generated goes to low temperature thermal absorption units. This, basically, cooks the dirt, drives the organic chemicals off. Those chemicals are then collected and treated.

So, that's, particularly, the debris. The large stones, the structural material, those would have to go to a landfill more type of place, but the actual dirt would most likely go to a low thermal absorption unit.

MEMBER OF THE PUBLIC: Who is the "we" doing this?

MR. OTTAWAY: Orange and Rockland. Orange and Rockland is doing -- Orange and Rockland --

MEMBER OF THE PUBLIC: They own the

property?

MR. OTTAWAY: Yeah. Well, no. That's a great question, and I, probably, should have added that early on in the presentation.

Orange and Rockland inherited the environmental liability for this site because, as the gas industry consolidated, where, once, you had thirty different gas companies or thirty different gas plants throughout this area, finally, they all consolidated, shut down the small plants, made big plants bigger and what you were left with was one great big company, and then, when the natural gas pipe lines came in, those same companies used their distribution system to distribute the natural gas. That's how Orange and Rockland inherited the environmental liability for this site.

The site is, currently, owned by Presidential, and Orange and Rockland is paying for the remedial investigation,

feasibility and the cleanup to satisfy their environmental liability.

MEMBER OF THE PUBLIC: There's contamination on the lot just next to this.

MR. OTTAWAY: I'll get to that as we get into the third or fourth slide here.

Lower Terrace - we are planning on using the in-situ solidification on the Lower Terrace. As I was saying as we came through, there are less obstructions down here. Also, we're right on the Hudson River in the Lower Terrace. Groundwater is very close to the surface. That presents some definite difficulties in excavation, making the excavations more difficult, more expensive and taking a longer time.

The in-situ solidification is going to take less time. It's going to be less of a disturbance to the community.

And one of the other things I

wanted to mention on this slide is we looked at chemical oxidation of the actual source area for the Lower Terrace. This, actually, would have been a little cheaper, probably, would have worked out pretty well, but it would have been difficult to establish hydraulic control and to show effectiveness.

As I said, earlier, that jetty area is made up of very porous fill material. You have a lot of groundwater flow through there and we just did not feel comfortable with the idea of putting a lot of chemicals into that area. We weren't confident that we would be able to control that.

So, that's one of the reasons that we were -- our slide is looking at in-situ solidification instead of the chemical oxidation, just have a higher confidence level that that will be effective.

MEMBER OF THE PUBLIC: What would

happen if you couldn't control it?

MR. OTTAWAY: Honestly, you would be releasing a lot of oxygen into the Hudson River. That's, probably, what the downside is. That's not much of a downside.

Chemical oxidation is something -- well, actually, let me move onto the next slide. We are using chemical oxidation over on the Hudson Vista property. This is a smaller area. It's an area we feel that we can control the oxidation process over on this area. It's cost-effective. It has, as I said, earlier, it has less short-term impacts to the community. You won't even notice that we're there.

During the design, we have to demonstrate all of these things. Is this a treatable tar? Is this tar amenable to it being destroyed by these chemicals? And, if so, which chemicals are most effective? Can we deliver the chemical to the tar? Can we keep the

chemical in contact with the tar long enough for it to be effective? And we also have to figure out how to measure success as we're -- you can dump the chemical down in the ground, but, after we're done, we have to come back and prove to you, Orange and Rockland has to prove to us that it did what it was supposed to do.

So, those are the challenges ahead of us and I'm very confident that these are completely surmountable challenges. It's going to be an interesting project, but it's not -- I don't expect these to stop a project. If something does get in the way of using chemical oxidation, we would propose to use the in-situ solidification on this area - exactly, the same as we're using on the area to the north on the Lower Terrace.

Finally --

MEMBER OF THE PUBLIC: The Lower Terrace - is that where the pools are with the tar in it?

Proceedings

MR. OTTAWAY: Yes. Right. That area closest to the Hudson River.

MEMBER OF THE PUBLIC: Where all that gooey tar is?

MR. OTTAWAY: We would be eliminating that gooey tar before we did the in-situ solidification. We would be removing the structures and all the grossly contaminated material associated with the structures.

As I said, the Lower Terrace, the groundwater is very shallow. We are going to be working against the Hudson River as we're excavating down there. If there are areas where we just can't, effectively, excavate down there, we would also look at using wells, you know, some -- trying to -- what we would refer to that as, it's a NAPL collection, putting wells or trenches down there, pumping systems, to extract the actual product, the actual coal tar, without having to do the excavation, but it would be some combination of the

excavation and a NAPL extraction to remove the heaviest contamination from those areas.

MEMBER OF THE PUBLIC: And what is it you're going to solidify?

MR. OTTAWAY: Well, remember the pictures of the test pits where we had stringers and coal tar coming into the site? That's the sort of material that we would be solidifying.

As the auger is -- and, as I was showing that slide, I was pointing out we have this 2-inch thick seam of coal tar coming into the excavation, but we also have these 4 feet of clean soil in between our layers of coal tar. The augers would mix that all together and add the concrete. We're not allowed to mix the dirt up and say, hey, look, we've diluted it, it's not a problem anymore, not allowed to do that, but we are allowed to take advantage of the mixing process during this solidification to decrease the

concentration of that contamination in any area of that monolith.

MEMBER OF THE PUBLIC: If you're going to be doing that and mixing it all up, why don't you just remove it?

MR. OTTAWAY: Because it costs more money. Because it's, as a mixed-up monolith, it's not -- it's creating this mixed-up monolith meets the remedial goals. It eliminates -- well, actually, let me get -- that's more of a discussion. I'm going to leave that for the question-answer period so I can get through the rest of this presentation, but let's try and make sure that we address that question first in the question-and-answer period.

We're still on this bedrock. The tar that has made it into the bedrock is, probably, the most challenging aspect of this cleanup.

As I talked about for the Lower Terrace and the very heavily contaminated material, we would be going

in and pumping out the coal tar that's readily mobile.

After we extracted all the coal tar that we can that way, we would be putting a chemical oxidant into the bedrock, pumping it through the fractures, putting it in contact with coal tar to destroy that contamination that way.

Really, we're looking at two questions -- yup.

MEMBER OF THE PUBLIC: Sorry. Is this limited to the Upper Terrace or --

MR. OTTAWAY: No. Both, Upper and Lower Terrace, gets bedrock contamination.

MEMBER OF THE PUBLIC: Okay.

MR. OTTAWAY: I forget my train of thought here.

As we are comparing alternatives, the chemical oxidation was equally effective as pressure-grouting, but it was much more cost-effective than the pressure-grouting.

The chemical oxidation was also much -- worked much more quickly than the pump-and-treat or the enhanced bioremediation.

We're looking at 20, 30 years, sometimes, for pump-treat systems to be effective. If we can clean up a site in one or two or three years, instead, that's, definitely, preferable.

And the western parcel is also described. This is an at-grade distribution holder that was across the street. We did some investigation over there, did not find any contamination associated with it. We are going to be following that up with some additional investigation in the spring. If we do find some low levels of contamination over there, we may have to have a deed restriction or a site management plan, that sort of thing.

At this point, based on the results we've seen so far, we don't anticipate any cleanup work to be needed over there

and we don't need any restrictions on the future use of that property.

Okay. This is, primarily, Slide 4, you know, to be included in the handout. It lists all the costs associated with the cleanups.

As you can see, we are looking at some relatively large numbers - 8, 6, 10 million dollars. That's for the soil alternatives, and, again, you know, 5, 6, 7, 4 million dollars for the groundwater alternatives. This is a major project and it's going to take some doing.

Here is a picture showing an overview of the Upper Terrace where the excavation is going to take place, the Lower Terrace where we'll be using the in-situ solidification. The Hudson Vista Associates property, the small area coming off-site where we're going to be using the in-situ chemical oxidation, and the parcel over here where the depreciable was.

Proceedings

MEMBER OF THE PUBLIC: I'm a little confused on this slide. Does that relate to -- excavation relates to the soil. Solidification relates to the soil, but what about groundwater in those areas? You're doing in-situ oxidation.

MR. OTTAWAY: Okay. I think I'm going to have to -- yeah, I'm going to have to -- actually, I'm going to hold off on that question for the question-and-answer period. I'll have to go back to an earlier slide.

At this point, I'd like to invite John Olm up to give his presentation.

MR. OLM: Thank you, Bill.

I'm very pleased to be here tonight and I serve as the Department of Health's Project Manager for this site. I work out of Troy, for the Bureau of Environmental Exposure Investigation.

And a couple of slides I want to run through here just to kind of get you familiar with how the Department of

Health interfaces with the D.E.C. in the investigation and then eventual cleanup of these type of sites.

Three points I want to touch on tonight, the first being: What is the Department of Health's role in the process?

As many of you don't know this, but, in New York State, the Department of Health does have a Memorandum of Understanding with the D.E.C. for the investigation and cleanup of inactive hazardous waste disposal sites.

From listening to Bill and from an environmental standpoint, this is a very complex site.

In terms of public health, I'm happy to inform you that it's a relatively simplistic site, and what I'll attempt to do is just work you through what we term "a community exposure assessment" to allow you to see how we derive our conclusions, considering public health, what the site

means in terms of public health, and, when things need to be done to mitigate exposures, how do we interface with D.E.C. to do that?

And then, at the end, I will just provide some outreach information so that if you have questions, public health concerns, following the meeting, you can contact me. We have a toll free number and, for those of you who want to do it, electronically, I can provide you with my E-mail address, also.

As I mentioned, the Department of Health has a partnership with the D.E.C. in this State's Inactive Hazardous Waste Disposal Program.

Back when this facility was operating in the 1800s, obviously, public health had many other concerns other than hazardous waste. Hazardous waste wasn't even a term in the encyclopedia yet. Love Canal wasn't even a Love Canal yet.

So, as you can imagine, public

health has evolved over time and we, too, have evolved over time with D.E.C. and we get involved early on in the process.

Our role, primarily, and principle is to serve in advisory capacity to the D.E.C. and in matters of public health, particularly. And what we are tasked with early on is to ensure that all of the site investigations and, eventually, the remedies are going to be protective of public health. And there's a systematic approach that we use to accomplish this. We get involved early on in the process when work plans are developed for investigation of these types of sites. We receive a copy of that report. We review that report, provide input back to D.E.C. That input goes back to the responsible party, and we end up getting revisions of reports, making determinations whether those recommendations have been entrained in the report, and so we work through

this. It's a continuous process. It's a living process that we, basically, get involved in from cradle to grave with these type of sites.

So, once we receive a work plan, we'll input it, provide that to D.E.C., and, once the investigation is conducted, the investigation report is prepared, a copy comes to the Department of Health. A project manager would review that, provide recommendations, input. Another revision comes back. Typically, we want to ensure that there's enough data collected as a result of that investigation that we can render some decisions whether we feel all the media -- when I say media, the soil, groundwater, air, surface water, sediment has been investigated, satisfactorily. We want to be able to render some decisions based on what environmental data has been generated, and, typically, these investigations will produce a significant pool of data

that we can pull from and evaluate what we consider potential exposure to the community.

And we're on the community's side when it comes to the investigation of these sites. We want to consider how the community interacts, interfaces with these types of sites. Many times, these sites were in place before a community was there, and, in other instances, a community was there and these sites were put in after the community was formed, and, sometimes, they just came together at the same time, but we have to consider practical ways that these sites can effect people, their health, their liveliness and there's a systematic way that we do that, and this is what I'll get into with the next slide.

The term that we use is "community exposure assessment," and it's really a two-step process. It has several components to it.

The first part of that or first

step of the process is what I term "hazard identification," and this is where we pull, from the investigation, all the environmental data, soil, the groundwater. We evaluate that data and make some decisions as far as what is the contamination? Is there a source of contamination still preeent?

From that data, we can make determinations as far as toxicity of the chemicals, the mobility of the chemicals, its persistence in the environment, and then render some decisions as far as what does that mean in terms of how can that effect the surrounding community? And, ultimately, what we look at is this five-component strategy that we call "The Assessment." The community exposure assessment will first identify a source of contamination in the environment.

In the case of this particular site, we know that there's a source of contamination. It's this manufactured

gas plant waste material, tar, the DNAPL, all the terms that Bill used. And, once we identify a source, we have to identify, well, where is that contamination? And we know that there's soil contamination, we know that there's groundwater contamination and we have to make some decisions based on that as far as how do people interact with those contaminated media?

So, what we'll look at is the point of exposure.

In this case, the site is divided into an Eastern Parcel and Western Parcel, and, from what Bill told you, the investigation that was conducted on the Western Parcel, which, currently, is just a parking lot, has been very minimal and, from what we can see, we don't believe there's going to be a need to do any remedy on that side.

So, we are considering and focusing most of our exposure assessment on the Eastern Parcel, the riverside of Gedney

Street, and, as Bill informed you, there's a significant area of contamination, primarily, the soils in the groundwater.

When I say soils, one of the things that we look at is surface soil, first couple of inches underground. Then we, also, consider what is the realm of contamination in subsurface soils being much deeper? Because the way someone can be exposed to that contamination can vary, significantly, from whether it's surface soil contamination or subsurface, and, from what we have evaluated, there's very minimal surface soil contamination. In most of this site, particularly, up towards Gedney Street, it's very well vegetated, and I'll get into that a little bit later on how we can sort of focus our assessment and identify who in the community is most effected.

So, once we have identified the point of exposure, what we need to

consider is what are the relevant groups of exposure? Inhalation, direct contact, ingestion - these are terms that we use in this assesement process. And what we have broken it down to -- obviously, we know that there's soil contamination, we want to determine whether there's a chance that someone could contact that soil, directly, by touching it.

And, fortunately, the site is fenced on, at least, three sides and that goes a long way into limiting access to the parcel. Trespassing can still occur, obviously, but it does tend to limit access and limit trespassing on the parcel.

The other pathway that we considered is groundwater ingestion.

Fortunately, in the case of this site, there are no private wells in usage. Groundwater is traveling straight towards the Hudson River. There are no wells. Obviously, the

whole community here is served by public water.

So, in terms of groundwater, we can eliminate that particular media as far as the exposure pathway.

One exposure pathway that we will evaluate -- right now, it's not a pathway that renders a concern, it involves contaminated soil gas.

Just to make it sort of understandable, soil gas -- we have a column of soil above groundwater that's contaminated with VOCs, volatile organic compounds. These chemicals can, sometimes, volatilize off and travel through the soil in the form of vapors, and, when it becomes a concern is when we have structures that are built on top of sources of this type of contamination. And I believe there have been instances when these vapors will somehow find their way into basements and effect indoor air quality. We're going to be considering that later on

down the road. When this site is redeveloped, we're going to ensure that there are engineering controls in place because there may be residual contamination that existe on this parcel and we want to ensure that that residual contamination is not going to be released in the form of vapors, find its way into basements or in through foundations where it could effect the air quality, and there are engineering controls that can be put into place to prevent that from occurring. So, that is something we've considered. We already put language into the Proposed Remedial Action Plan. So, that will be addressed when the time comes.

The last part is: Who is effected in this community? We have, based on our evaluation, determined that residents in the community are not effected whatsoever.

What we are considering is the potential that trespassers could be

exposed if they are on-site. We expect that any exposure would be very minimal based on the vegetative cover that is, at least, present on the Upper Terrace, and any exposure that would occur, whether it be maintenance workers or trespassers, we would expect to be very infrequent, very short in duration.

So, it's a concern; however, we feel that this particular remedy, once it's put in place, will address that, effectively.

Another group that we would consider at risk right now would be construction and utility workers, those involving subsurface excavations. Right now, that is a concern. We would expect if that occurred when this remedy does go into design or into construction, I should say, you'll see the workers will be in protective clothing out there, personal protective equipment will be used and it's to protect their health.

One of the things that we'll also

make sure is in place is a community health and safety plan. This is something that we require of the D.E.C. to have in all of their work plans for investigations of these types of sites.

We also require a community health and safety plan to be in place during construction, and that has several components to it, including an indoor air-monitoring section where there are requirements for monitoring, not only for chemicals such as these volatile chemicals - Benzene and Xylene, Toluene, but also for particulatee. We don't want to see dust blowing off the site, and we want to have mechanisms in place to monitor for that. They set off alarms when they do exceed certain thresholds and then make sure that there are provisions to either stop the construction or provide some kind of engineering controls to mitigate it.

So, that's something that we require to be in place before any shovel

hits the dirt.

And that's about it, the long and short of it here.

I just left the last thing here for any questions, health-related type questions that I might be able to address while I'm here tonight, and, if not, I will be around after the presentation and I can either give you my business card or you can shoot some questions off at that point in time.

Sir.

MEMBER OF THE PUBLIC: You mentioned water not being effected, the community underground water, but there was a big list of millions of dollars they are going to be doing something with the water. So, they are going to be cleaning up the water even though it's not effecting the community?

MR. OTTAWAY: Yup. It's a good question. Did everybody hear that question?

He mentioned that there's a

significant portion of the cleanup proposed to clean up contaminated groundwater on the site even though, from a public health standpoint, it doesn't really represent a concern, and that's a valid point. As you can imagine, there are, typically, two components to a cleanup. It can either be driven by environmental concerns or it could be driven by public health concerns, sometimes, by both.

In this case, even though the groundwater isn't used for consumption, it still represents an environmental contamination concern and, under D.E.C. law, it has to be addressed, and that's why it's part of the remedy.

Yes, sir.

MEMBER OF THE PUBLIC: I'm just curious. What is coal tar? What can that do to you?

MR. OLM: Well, coal tar consists, primarily, of these Polycyclic Aromatic Hydrocarbons, PAHs. There are seven

PAHs that are known carcinogens, but, from a standpoint of the community, what does it represent? Right now, it doesn't represent any health concern because it's in the ground. You're not contacting it. For any health effect to occur, you have to have some contact with that material.

So, we don't feel that there is any risk of health effects or any exposure, for that matter, to the surrounding community, and, once construction does commence, obviously, there's going to be some short-term impacts to the community. There will be noise. There's going to be traffic. Short-term impacts for long-term gains, hopefully, and that's why we require that there be a community health and safety plan in place so that we can identify concerns of the community in terms of truck traffic, in terms of odors, in terms of noise. We want to make sure there are provisions in that health and safety

plan to address those concerns, and, you know, we maintain our partnership with the D.E.C. through the construction phase and we can be contacted if there is a concern in the community and we can be contacted, project manager from the D.E.C., and, you know, if there is a problem, then let us rectify it.

Yes, ma'am.

MEMBER OF THE PUBLIC: I know that the Department of Health, the State, has done some surveys in the past in this County about cancer. Have they done any in that particular area or that street or that neighborhood?

MR. OLM: I don't know the answer to that. I can find out for you if you give me your name and telephone number. I don't know, off the top of my head, if there have been any cancer incidence studies done in this area or not.

MEMBER OF THE PUBLIC: That would be good.

MR. OLM: I know, Statewide, there

has been a lot of investigation into that, but I don't know if, by zip code, there's anything. I mean I'm, probably, going to have to get back to you.

MR. OTTAWAY: Yes, sir.

MEMBER OF THE PUBLIC: Yes. My name is Bill Hodgson, H-O-D-G-S-O-N. I'm Chairman of the Nyack Planning Board, and my questions are -- question are addressed at the future use of the site, which, obviously, you can't have investigated or it's an unknown to you, but I have a general question and a specific question.

My general question, given the contamination of this site, are there examples in which residential or commercial use of this site has been judged possible after this whole remediation? Because, you know, just think that's going to be quite the scare when we're throwing around names like carcinogenic polycyclic aromatic hydrocarbons, and is this, although, it

might be said, but is it, in fact, commercially, a possible thing to do?

And my second question is a subset of that. Where you've solidified, in-situ solidification, on the Lower Terrace, does that Lower Terrace then become excavatable for the construction of buildings?

MR. OLM: I'll address the first part of your question and I'll need Bill to address the second part.

Obviously, future development, that's the hope of all once this site is remediated. We want to see it used. We want to see -- but we want to see it protected, too. And, obviously, the gross contamination that exists there today will have been removed if this proposal moves forward.

Again, I'm getting back to the way I explained to this gentleman about exposure. There may be some residual contamination that remains there. Obviously, there's going to be a lot of

clean fill brought in, clean soil brought in, so any residual contamination will be covered by that. There will be provisions. There will be deed restrictions and institutional controls in place to ensure that there's a soil management plan, and a soil management plan is developed and designed so that if somebody has to excavate into soil that may have residual contamination that they are aware of it, first of all, and for the main purpose that they can protect themselves, and that, usually, involves utility workers.

The other thing is that we, likely, will allow the construction of buildings on the property, most of the property may be under either a building or pavement. That, in itself, serves as a barrier, any residual contamination, but we would, probably, have some restrictions on green space usage. So, if they did have an area that was not

paved or didn't have a building on it, we wanted to ensure that there's no digging past a certain depth. There may be demarcation barriers placed beneath clean fill so that if someone does dig, can see that there's this orange snow fence or some marker that will identify don't dig any further or contact the D.E.C. before digging further. That's, typically, done in cases of where you have residual contamination left behind.

One of the things that we wanted to ensure is that there's going to be some mechanism for addressing potential for contaminated soil gas to migrate into constructing buildings on the parcel, and, as I mentioned, there are engineering controls that can be constructed and put into the construction details that will address that particular exposure.

There are systems similar to radon mitigation syetems, what we call "subslab depressurization systems" that

can, effectively, pull any VOCs, organic compounds, out and get rid of them in a proper way so that these VOCs aren't finding their way into cracks and crevices and pipe chases and then going into the basements or into the living spaces where it could effect indoor air quality.

Obviously, we can't give you a picture of what the site is going to look like following remediation because that hasn't been worked out yet. We're looking at the construction phase right now.

Yes, ma'am.

I know he's been waiting.

MR. OTTAWAY: Actually, I'm going to answer --

MR. OLM: Okay. I'm sorry.

MR. OTTAWAY: -- answer the second half of his question first, then we're going to get his question, then we're going to get her question.

So, the second half of your

question, yes, you can do a construction on material that's been solidified. It's not like hardened concrete. It's a much stronger material, but you can bore through it with drilling rigs. So, you would be able to bore through a place in piles, if you were doing some sheet pilings for foundations, that sort of thing.

It would also have significant bearing strength if you were doing a slab-on-grade type of construction.

So, yes, you could do construction on solidified material.

Your question?

MEMBER OF THE PUBLIC: My question?

MR. OTTAWAY: Yeah. What --

MR. KNIPFING: Bill, his question concerned, in the Lower Terrace, why don't you just excavate the whole thing?

MR. OTTAWAY: Right. And the bottom line is that the solidification

meets the cleanup criteria as effectively as digging it out. You're left with a monolith that's not going to contaminate the groundwater or --

MEMBER OF THE PUBLIC: Why are you going to excavate that huge section up above and leave that little section down below to solidify? Why not do it all?

MR. OTTAWAY: The area is misleading. The process of excavating the Lower Terrace would be, in itself, much more expensive, much more complex than excavating the Upper Terrace. One of the things that, just looking at it from above, doesn't show you that the bedrock is very shallow on the Upper Terrace. Within 10 feet, you're hitting bedrock.

So, you can excavate and there's no groundwater up there. You can come in there, one big backhoe, excavate all that material very effectively, very easy.

You go down into the Lower Terrace,

you're going to have to dig significantly deeper - 20 feet, 25 feet, in order to dig your way out of contamination. You're also going to have to be fighting all of the water of the Hudson River while you're doing that excavation. It's a much more expensive, much more complicated process to do an excavation on the Lower Terrace.

That having been said, we are going to be doing some excavation to get out the most heavily contaminated material there at the drainage pits. That's going to be a difficult, expensive thing to do, but, for that very heavily contaminated material, it's worth it.

For the less contaminated material, the picture that I showed you from the test pit, that is very amenable to this process of in-situ solidification. As I said, that process is going to give us a very good remedy that is going to be effective of public health and environment.

Proceedings

So, that's why we're proposing solidification for the Lower Terrace.

Does that answer your --

The woman in blue, yes.

MEMBER OF THE PUBLIC: Can you just elaborate on your remedial goals for, both, soils and groundwater? Maybe, you can just explain to the audience how what your TAGM numbers mean for soil? Are they suitable for residential use versus commercial use?

And, for the groundwater, what numbers are you going to clean up to? Is it going to be protective of surface water criteria?

I understand you're going to defer the Hudson River sediments to OU-2, but what about the Hudson River surface water?

MR. OTTAWAY: Okay. Boy, there's a lot of questions in there.

I'm, actually, going to go back to the question you had very early on talking about the extent of the

groundwater remedy.

MEMBER OF THE PUBLIC: Okay.

MR. OTTAWAY: This is the slide I was going to come back to. These are the areas where we have shown groundwater contamination in the bedrock.

During the design phase, there will be a design level investigation to confirm that we found all of the contamination and that our remedy addresses all of the areas that are contaminated.

MEMBER OF THE PUBLIC: Is that for soil and groundwater?

MR. OTTAWAY: This is the groundwater remedy.

MEMBER OF THE PUBLIC: Okay.

MR. OTTAWAY: As I said, remember, I had that really funny slide where I was trying to describe why it is that, in this case, the ground, only a small area within the contamination is impacting groundwater. This is, you

know, those areas in the plan view where we have the contamination getting down into the bedrock contaminating groundwater.

MEMBER OF THE PUBLIC: Since you're on this slide, le me just hit on a question I have about this.

MR. OTTAWAY: Uh-huh.

MEMBER OF THE PUBLIC: I know you're trying to condense a lot of information into one thing --

MR. OTTAWAY: Yeah.

MEMBER OF THE PUBLIC: -- but the PAHs, some are carcinogenic, some are not, and it's really tough to tell on this figure, and I don't have the benefit of reviewing the Remedial Investigation --

MR. OTTAWAY: Right.

MEMBER OF THE PUBLIC: -- to understand, you know, like, for example, you know, I look at this map and I look at High Avenue and Gedney, I know there's a house there.

Proceedings

MR. OTTAWAY: Right.

MEMBER OF THE PUBLIC: Is there groundwater contamination underneath that house?

MR. OTTAWAY: No.

MEMBER OF THE PUBLIC: Is there some contamination? Do they have to worry about vapor intrusion into their basement?

MR. OTTAWAY: We are doing -- we've done some investigation of the soil gas that shows us that we don't think there's going to be a problem over there. We are going to be doing some additional investigation this spring in order to confirm that, yes, we do not have a soil gas issue over there.

MEMBER OF THE PUBLIC: Does that include indoor air sampling?

MR. OTTAWAY: Typically, not. We don't like -- the chemicals of concern for the soil gas are the BTEX chemicals.

MEMBER OF THE PUBLIC: Right.

MR. OTTAWAY: They are somewhat

ubiquitous. If we go into someone's house, we will find Benzene, Toluene, Ethylbenzene and Xylene in their house. If you have filled up your gas tank lately, we're going to have really high levels just from the vapors coming off of your clothes, and --

MEMBER OF THE PUBLIC: But there are guidelines on that, too.

MR. OTTAWAY: Yeah, but it's complicated.

MEMBER OF THE PUBLIC: Yeah.

MR. OTTAWAY: The best measure to find out whether there is an impact from soil gas into a house is a subslab soil gas sample. That would be a matter of going into the house, drilling a hole through the basement floor and collecting a sample of soil gas through there.

MEMBER OF THE PUBLIC: Uh-huh.

MR. OTTAWAY: Right now, what we're proposing to do is doing some soil gas samples along the street. If those come

Proceedings

back and show us that we do have additional concerns, then we would expand that investigation.

As I said, based on what we see so far, we don't think we have a problem, but we'll investigate that further.

In terms of the chemicals of the groundwater contamination, the main chemicals of concern for the groundwater are the BTEX chemicals - Benzene, Toluene. You can get some PAHs in the groundwater. If you look through a detailed investigation of remedial investigation report, you will find some PAHs; however, where you see the PAHs you also see the BTEX compounds at levels which are not more -- more highly elevated above groundwater standards.

So, for the groundwater, if you just look at those four compounds, the BTEX compounds, that's the simplest way to investigate what we have here in terms of groundwater contamination.

MEMBER OF THE PUBLIC: But you're

also sampling for PAHs, as well?

MR. OTTAWAY: Yes, we sampled a very extensive speed of chemicals. We included sampling for metals. We included sampling for organic chemicals that we, typically, wouldn't see aesociated with a manufactured gas line, so.

MEMBER OF THE PUBLIC: How can you be sure that there's not groundwater contamination or soil contamination at the High/Gedney Street intersection? Is that going to be included in your future investigation?

MR. OTTAWAY: Because we did -- actually, I'm going to pop back one slide, and we have the -- fortunately, the test pitting doesn't show here, and, as I said, up in this area, we have relatively shallow bedrock.

So, the test pitting is as effective getting down -- actually, more effective than the soil boring. What we have here is a soil boring result, and

we had clean test pitting and soil borings in this area, and that's why we feel that we don't have any contamination over here.

As we're doing an excavation, one of the great things about excavation as a remedy is you see what you -- you see what you get. As we're digging, if we, suddenly, find there's this narrow little track of contamination wandering, you know, here and there around this area, we'll know about it. If we're doing an in-situ remedy, we wouldn't see that as we're working on it.

So that, again, that's one of the advantages of the remedy in that Upper Terrace. We will see if we have some unexpected little fingers of contamination going where we don't know about it right now.

MR. KNIPFING: Bill, the groundwater is going towards the river; right?

MR. OTTAWAY: Yes, the groundwater

is going through here this way.

Groundwater is complicated in that it's, actually, moving up through the bedrock. Normally, you think of groundwater going down.

In this case, the bedrock, the water has an upward gradient through the bedrock towards the bottom of the Hudson River; however, the bottom of the Hudson River is covered with relatively very fine sediment. I'm not -- so, you don't have a situation where there is a wholesale release of contamination from the bedrock fractures into the Hudson River. You have the bedrock contacting the fine sediments, slowly, making its way through the sediments into the Hudson River.

Obviously, there's a great volume in the Hudson River. We don't see any contamination of the surface water; however, dilution is not an acceptable way to address contamination. That's why we're going and spending the money

to clean up the groundwater so that we don't have that as a potential source for contamination either into the Hudson River or neighboring properties, whatever. We eliminate that as a source of groundwater contamination.

Okay.

MEMBER OF THE PUBLIC: What are your remedial goals for groundwater? Will it be protected? I meant I don't know the surface water standards. Are they more stringent than the groundwater standards? Do you plan on mitigating the groundwater standards or to surface water standards? And I realize, with the DNAPL, the coal tar, you may not be able to choose either.

MR. OTTAWAY: Right. We would love to be able to meet groundwater standards on the site. I cannot guarantee that we will. I think that one of the reasons that I like the remedy that we've chosen is it gives the best chance of meeting groundwater criteria for this site. If

we do a good job with designing that remedy, if we really do contact all the contamination with the oxidizing material, we could meet groundwater criteria on the site. We're not going to guarantee that. We are expecting to have restrictions on the use of groundwater at this site. We are going to be monitoring the groundwater after we're done with the remedy to see how good a job we did on that cleanup. Right now, we don't have any groundwater -- the groundwater contamination is limited at the site. As we move north, south, east and west away from the area where we have contaminated groundwater, we don't have contaminated groundwater.

So, we have contaminated groundwater in a confined area. We're going to clean that up as best we can. We're going to try to meet groundwater standards. We may not. If we do not, then we will have restrictions on the use and we will continue to monitor it.

Proceedings

If we do, successfully, address all the source areas, navel in the bedrock, over time, the bacteria we talked about earlier will continue to eliminate the contaminants, particularly, the BTEX compounds. So, the groundwater will steadily improve with time, as well.

MEMBER OF THE PUBLIC: Will you, too, address groundwater discharging to surface water? Will you, actually, sample?

MR. OTTAWAY: We don't have any demonstration of groundwater discharging to surface water. We don't have, like I said, we don't have a direct -- a place where we can go out and measure where the groundwater is discharging to surface water. It's moving, generally, in that direction. So, we assume that, essentially, ends up there, but we don't have a situation where a concentrated volume of contaminated water is entering the Hudson River. We don't have a point source of contamination that we could

monitor.

MEMBER OF THE PUBLIC: That's because you've sampled and determined that or is that a theoretical assumption? I mean I realize --

MR. OTTAWAY: Do you want to add anything or even correct me if I'm --

MR. COOLUM: It's a little bit of both, of observation and I would say it's more than theory.

As Bill mentioned, the marine sediments in the river make a very effective cap over the river bottom and limit permeability. So, groundwater moving off the upland coming from Downtown Nyack, coming through the site, we know it has to get to the river somehow. If it's moving through the subsurface and tries to come up into the river bottom and hits the marine sediments, that's not going to be a very effective pathway.

So, the site model says the near-shore zone where you have the

beach, the sandy material, and between the high and low tide lines, just below the low tide line, that's the most -- that's the gap that the groundwater can really get through. It's, mostly, all under water. You don't see it. At low tide, you might see a little bit of water coming out of the beach phase when the tide is down, but, generally, it's all making its way into the river below the low tide line before you start to get a thick accumulation of low permeability sediments that just slow that flow down.

MEMBER OF THE PUBLIC: I don't mean to harp on the issue, but I work for the Environmental Protection Agency and I work on a number of sites along the Hudson River and it's really big -- I mean I think we have to understand that, you know, a really important part of this site is discharge into the Hudson River. We have to look at cumulative effects from all the sites along the

Hudson River that are discharging and, yes, there might be low permeability material that may -- I don't, necessarily, think it's going to prevent groundwater discharge to surface water. I think that's an important thing to look at. If you're going to defer to the OU-2 portion, fine. That's why I'm sort of harping what, are you going to clean the groundwater to this site?

I know the DNAPL, it might be, technically, impossible to, eventually, clean up, very low standards. You know, some of the carcinogens, in this case, PAHs are down to .002 parts per billion. That's extremely low. That's a detection limit of any instrumentation possible. So, I don't know. I think that deferring to OU-2 is fine, but something that, hopefully, you'll revisit at that time.

MR. KNIPFING: Bill, could you, briefly, restate that and summarize it?

MR. OTTAWAY: Yeah. First, I'm

going to restate and then I'm going to have Bruce Coolum (phonetic) -- this is Bruce Coolum. He represents REPACK, the engineering firm Orange and Rockland hired to perform the Remedial Investigation and Feasibility Study.

The young lady was indicating that one of her chief concerns is discharge of contaminated groundwater into the Hudson River and she requested that we make a careful analysis and consider that as we look at this remedy; is that a good synopsis?

MEMBER OF THE PUBLIC: Thank you. Yeah.

MR. OTTAWAY: And now I want to check with Bruce to see if he has something to add to that.

MR. COOLUM: Yeah. The groundwater on the site is -- all of the remediation consideration of on-site groundwater isn't in OU-1, which is landward remedy. The OU-2 only addresses sediments, basically, everything from

the beach face, the high tide line out towards the river. So, we won't be looking at groundwater at that point. We'll be looking at, basically, the end result or anything moving off the site. The groundwater - I think that it's important that we say that the remedy for OU-1 and all the sort of patchwork of different remedies that we've put, together, is intended to address all of sources we find in all of the different places and there are number of discreet areas, discreet sources, because those are what's, obviously, effecting the groundwater.

The stuff, as Bill mentioned, that we can't really get to really, easily, is in the bedrock, and we are, actually, going after some of that, too. There is a point, though, we think where if we don't know, you know, obviously, bedrock just, you know, goes down, groundwater keeps going down. If you drilled 100 feet below the site into the

bedrock, you would have groundwater, but we're not going to go that far down because whatever is happening down there isn't effecting what's at the surface. Things in the shallow zone where the water table is located, that's the primary focus because that's the stuff coming through the beach. That's the stuff coming into the river and that's what's going to be addressed by the remedy.

In a lot of places at the site right now, as Bill mentioned, like in the jetty area, we see a lot of soil contamination, and the natural system is already bringing those concentrations way down. By removing the source and then doing monitoring, we will -- we expect -- the hope is we'll see by the time that water reaching the river, the combination of source removal and natural bio cleanup will knock the stuff out so we aren't discharging above the surface water standards to the river

because, again, we don't want to use dilution as the remedy. We want to deliver water to the river that's already, you know, at an acceptable level, and, actually, we have not gone out and, actually, measured water moving into the river. You can't put a monitoring well right on the beach there.

MEMBER OF THE PUBLIC: But you can use other devices to measure upwelling into the river.

MR. COOLUM: Right.

MEMBER OF THE PUBLIC: You can identify seeps at low tide.

MR. OTTAWAY: Let me just, briefly, clarify one point.

The concept of the break between OU-1 and OU-2, the break between OU-1 and OU-2 is, basically, defined by where we stop solidifying. If there is contamination right outside of the solidified mass, that will have to be addressed during OU-2. You know, we

have had preliminary discussions with Orange and Rockland about, exactly, where that line is going to be. Right now, we're thinking it's, probably, going to be at the high tide line, but, as we look at questions like this, you know, question of upwell, it may be possible that it would make more sense to include that inner tidal zone where you would get migration of contaminated groundwater in the solidification, maybe, maybe not, but that's the sort of -- you know, I mentioned, earlier, that some of the questions that get asked here are going to be answered in the design process, and I think that your question may end up being one of those questions that is answered, partly, in my response, but the bottom line is that is something that we're going to have to consider as we move forward with the details of the design and with, exactly, how we handle the interface between OU-1 and OU-2. So, I appreciate your

comments.

MEMBER OF THE PUBLIC: Thank you. I mean it sounds like the surface water sampling component will be included as part of monitoring the effectiveness; is that true? That's what I understand.

MR. COOLUM: There will be groundwater monitoring, certainly, as close to the river as practical. There's been surface water sampling as part of remediation.

MR. OTTAWAY: Even the groundwater sampling, we can hypothesize why very close to the nappe we see we have clean groundwater. We can say that that's because all of the contamination has already been leached away. We can say we have very high flow.

So, we have a dilution factor. I'm not going to try to hypothesize why we don't have contaminated groundwater in the jetty area, but we don't, and I think if we started looking at the concentrations of contaminants that are

upwelling in that intertidal zone, I think we, probably, see a similar story there where just the volume of water moving through that highly-permeable material associated with the river would give us diluted, you know, concentrations, which, as we said, repeatedly, dilution is not an acceptable remedy for contamination.

MEMBER OF THE PUBLIC: And you have not seen the coal tar globules?

MR. OTTAWAY: No. The coal tar we've seen in the sediment has been shallow. It appears to be surfacial deposition.

When we've done the deeper course, we haven't seen evidence of coal tar migrating from the on-site DNAPL plume and pushing its way into the off-site sediment.

MEMBER OF THE PUBLIC: Okay. Thank you.

ANOTHER MEMBER OF THE PUBLIC: Question, you're talking about putting

in-situ, essentially, making this impermeable barrier.

MR. OTTAWAY: Right.

MEMBER OF THE PUBLIC: Because it's going to encapsulate, we have all this water, bedrock coming down the hill and you're going to excavate and it sounds like we're going to have a big concrete dam. What's going to keep that from turning into a swamp behind this concrete dam along the front right up to the top and all the water coming down from the bedrock?

MR. OTTAWAY: Right. Engineering design is the simplistic answer to your question. We don't have a large volume of water flowing through the overburden down to the Lower Terrace.

As we were talking about in the Upper Terrace, we don't have any groundwater above bedrock.

So, what we have is water running, coming from the bedrock up. So, you know, shift the image, slightly, to have

groundwater coming, you know, water coming up from the bedrock and coming onto this monolith, but one way to picture this is step back, take a larger view and it's sort of like one peg being stuck in a 5 or 30-mile long stretch of water flowing towards the Hudson River. You will get water flowing around the one peg stuck down sitting on top of bedrock. You are going to have to, carefully, take into consideration what effects you have on the edge of that monolith are, but, overall, it's not going to have effect, regionally, on groundwater flow. It's not a large area when you start looking at regional groundwater flows, but it is something we're going to have to, carefully, consider during design. It is something Orange and Rockland's engineers did identify as a technical concern with this remedy. That will have be to be addressed.

MR. QUINN: My name is Kieran

Quinn, K-I-E-R-A-N Q-U-I-N-N, and I served on the Village Board when the Local Waterfront Revitalization Plan was enacted and, in that waterfront, which is an overlay to the zoning, and, in that overlay, there are incentives for a riverfront walk. I will submit written comments that talk about that riverfront walk, the preservation of those options when the solidification is taking place.

Similarly, the Village is, currently, engaged in a Comprehensive Plan, but it's clear that that Comprehensive Plan envisions that riverfront walk and will include references to that and the desire of the community to maintain that option for a riverfront walk on that site.

MR. OTTAWAY: Okay. At this point, I don't see anything in the remedy which would preclude that and that will be something that, you know, will have to be discussed as part of the planning for

the future use for the site.

Any other questions?

MEMBER OF THE PUBLIC: I have a question. How significant in the risk of public health from the excavation? Who, actually, monitors the health effects on the excavation and how often is the monitoring done?

MR. OTTAWAY: The monitoring would be continuous. There will be a community -- I should defer to our Department of Health.

MR. OLM: That's okay. You were doing a great job, Bill.

As I mentioned, earlier, there was a community health and safety plan in place. During the investigation stage when they were doing test pits and installing monitoring wells, soil boringe, they were doing that while it was monitoring ongoing, both, for volatile organic compounds and, also, for particulates and they put up monitoring stations, usually, several on

this site, based on the prevailing wind direction that would dictate where they're put, and these monitors will, you know, they do have levels that we consider protective and if they exceed these levels, they, typically, have an alarm that will sound off and, when that occurs, there's a contingency plan in the health and safety plan in the community air-monitoring plan that requires them to stop the work, determine what's causing the problem, and, sometimes, they can just control it by digging slower or not digging in that contaminated area all at once. Sometimes, they can control it by engineering controls such as foam, but there are ways that you can minimize the odors and the dust particulates, and that's all addressed in the health and safety plan and will be addressed in the health and safety plan that is required to be developed and implemented during the construction phase, and, you know,

we are still on-call, so to speak, when construction is ongoing and if the community sees something they see consider strange or awry, they can contact me and my intern will follow up.

MR. OTTAWAY: I would like to add to that that Orange and Rockland at this time is going to use a temporary structure over the excavation that would have an air-handling and air-treatment facility. So, under a negative pressure, any negative vapors coming from the excavation, that air would be routed through carbon filters and then the discharge has to meet certain discharge criteria.

So, you know, that is the most effective way to deal with that concern of, you know, what is the potential for dust and vapors.

One other thing that has to get mentioned is the odor threshold on some of the chemicals we're looking at are

very low. The less technical way to say that is coal tar really stinks and it really stinks at really low levels. If you smell coal tar, that doesn't necessarily mean we're going to have - we have a dangerous level of vapors in the air.

The temporary structure is the best way to address nuisance odors, as well. Orange and Rockland is going to make an effort to address nuisance odors in addition to the, you know, the vapors which would be vapors and dust which would be a health concern and that's one of the reason why, right now, they're looking and they're anticipating using the temporary structure for this operation.

MEMBER OF THE PUBLIC: Could you state again at what point will the work begin, do you anticipate, and how long do you anticipate it will go for?

MR. OTTAWAY: Maybe, I will refer that question to -- let me introduce

Proceedings

Marybeth McCormick from Orange and Rockland Utilities.

The question is: When would you anticipate remedial action taking place and how long would that process take?

MS. McCORMICK: Well, based on the schedule that we're discussing, we're looking at, possibly, 12 to 16 months of design. We would be looking at the first construction season being the winter of 2005. We're anticipating private taking of four years to complete. We are saying construction seasons. That would be the time this work would be staged. Upper Terrace done at one point in time, the Lower Terrace at another because, obviously, from a site standpoint, you would have to coordinate those activities since different actions would be occurring.

So, overall, we're looking at a time frame that would take us, probably, through 2008 to be complete, you know, going -- you know, marking it out in

actual time.

Now, again, the fine details of that would be worked out in design, but, as we structured it now in coordinating these activities and how long we anticipate those particular actions will take, that's about the time frame we'll be looking at.

And, while I'm standing, I was trying to raise my hand before, just to address your question about the monitoring, something that we did when we were in Haverstraw, the site that Bill mentioned, briefly, where we've done excavation work, we did that right in the middle of a residential neighborhood and, literally, in people's backyard and put the structure up. It was effective in controlling odors and the particles, but we also used state-of-the-art, first time used in the State, a state-of-the-art air-monitoring system. It's a perimeter air-monitoring system. It's the neatest little unit,

an air conditioner/heater. It runs under proper conditions. It's all radiotelemetry to compute. That's the monitor. We're monitoring the perimeter of this site 24 hours a day, seven days a week.

Similarly, as Bill and John were alluding, there were alarms set with that. If it was after-hours, there was a paging system set in place. Again, generally, the most likely time you're going to have a problem would be when you're going to be working so you would be there and people present to address it, but, also, accounted for off issues. Should the air-handling system fail or shut down, you would have the monitoring system that would alert you something needed to be done, but the structure, itself, is effective and we would intend to use this same type of perimeter air-monitoring system around this site as we were working, as well.

MR. OTTAWAY: The gentleman in the

red.

MEMBER OF THE PUBLIC: Yeah. I hate to throw rocks on something, but supposing we decided to let sleeping hydrocarbons lie, apropos of Kieran Quinn, our former Mayor, served on the committee, supposing the people in the area decided we wanted to keep that wonderful idea of the concept of open space, there are private property interests involved and we assured that open space would be, you know, benefitted by easements insofar as the type of construction that could be on it, from the viewpoint of the Department of Health, would there be any -- would the State have any objection if we decided -- I don't know how much, how many millions of dollars Orange and Rockland is going to spend on this, not that I mind Orange and Rockland spending millions of dollars, but if we're talking about keeping that as open space, the type of construction we put

down there would be low impact, as the Mayor talked about a plan to have a riverwalk along the edge of the river there, would that be acceptable to the Department of Health?

MR. OTTAWAY: If it, effectively, addresses potential exposure to the community, that's really what we're looking at, and if you don't have structures on the property, that sort of makes it moot, the need for engineering controls to address potential vapor issues. It sort of makes moot management plans for certain types of future land use.

So, I mean it could have a positive effect. It may not have any effect on what it all means as far as public health. I mean I think the bottom line is what is the -- what shape it is going to be left in following the cleanup? It's not going to be pristine. There's going to be some residual contamination, but that can be managed and can be

managed, quite effectively.

So, it all depends on how the land is, you know, developed in the future, and we have to consider those potential future land uses and will consider those.

Let me just follow up that I have a site in Western New York where the term "coal tar" is a bit misleading, particularly, when created during using the carbonated water gas process. This is not tar like you would put on your roof or on your driveway. This is liquid, about the consistency of canola oil, very liquid.

I have a site in Western New York where a property some distance from the manufactured gas plant decided to put in a basement. When they put in that basement, the coal tar that had been sitting very nicely not bothering anybody back on the site up and decided to move 150 feet into their basement. Coal tar was, originally, 18 feet down

and got into their basement, which is only 6 feet down by their drain system drawing groundwater in, pulling the coal tar with it.

We have other examples where vibrations of sheet tiling cause coal tar was very comfortably sitting still to up and start moving. We don't like the idea of this coal tar, which is highly mobile, sitting there in a constipated area ready to start moving off in some unknown direction, particularly, into the Hudson River, which would be the most likely direction for it to get up and start moving.

So, that's one of the reasons that, when we look at a site like this, source removal is a real priority for us. We want to get rid of that mass of contamination so that, regardless whatever else happens, we've eliminated the bulk of the chemical problem that we have there for that.

Yes.

Proceedings

MEMBER OF THE PUBLIC: Yes. I regret that I missed the earlier part of your presentation. So, I don't know whether you started out saying what kind of building you contemplate on this or what your remediation is going to go to?

In other words, I suppose you're having an open structure and park or something or a parking garage that was open or something, or a boat landing, you might have, you know, you would go to a certain level of remediation and then if you were going to have apartments or, let's say, an office where people were going to be eight hours a day, you would do something else if you had dwellings where people were going to live for 24 hours --

MR. OTTAWAY: Right.

MEMBER OF THE PUBLIC: -- and children and pets be exposed to the land down from up above. To what level are you contemplating this remediation?

Proceedings

MR. OTTAWAY: We wouldn't be anticipating any restriction on use of this property with the exception of appropriate institutional controls.

So, even if we are not anticipating any soil gas problems, we put a barrier there just to make sure that we couldn't possibly have any soil gas issues for the on-site building, but we would anticipate residential use of the property being permitted in the future.

MEMBER OF THE PUBLIC: With grassed areas or not?

MR. OTTAWAY: Yes.

MEMBER OF THE PUBLIC: With grass?

MR. OTTAWAY: There would be a site management plan. Actually, let me -- it's spelled out in the PRAP. Let me try to remember, exactly, what is spelled out because this is new for us. With the reauthorization of the Super Fund Legislation, we have a slightly different process. There will be an environmental easement established.

That environmental easement will require that the site management plan is followed for this property. The site management plan will require that the entire site is - that, for the entire site, there is an appropriate cover - for the entire site. That cover could be buildings, could be two feet of clean fill with vegetative cover, it could be pavement, but one of those effective barriers will be in place across the entire site, so.

Yes.

MEMBER OF THE PUBLIC: I just wanted to follow up on Mr. Millson's question. If there were going to be some economic use of this site or development of some sort, is it fair to say that you would not have to do this?

MR. OTTAWAY: No, not fair to say. This is contamination, which is, currently, even at low levels, at some level, this is effecting the Hudson River. This is contamination which is

contaminating the groundwater which is a resource of the State. It's something that, you know, we don't want to see groundwater contaminated, and, as I said before, it's contamination which we don't have a control over right now.

Do you have anything to add to that?

This is George Harris, my immediate supervisor with the D.E.C.

MR. HARRIS: No. Actually, I don't. That pretty much addresses the issue.

MEMBER OF THE PUBLIC: It, as I'm listening, it sounds like if you didn't disturb it, it's really not a problem.

MR. HARRIS: One way you can think of this drum of contamination might be contained in the long run, but a drum that has chemicals hazard to the public health or environment, we don't want to leave it someplace where it possesses risk.

It's, currently, effecting the

Hudson River, which is a really important resource in that area. We need to restore as much as we can. The Hudson River - it may not be upwelling or think it's not upwelling the river, but the sediments are contaminated either from runoff from the site -- but it's there and needs to be addressed.

There are people fishing off that site, there are teenagers who use that site at night, there are trespassers all being effected by the contamination right now.

MEMBER OF THE PUBLIC: I have a question about the process. Who initiated this project?

MR. OTTAWAY: This project was initiated by Orange and Rockland entering into a Consent Order with the New York State D.E.C. to investigate and remediate all of their manufactured gas plant sites throughout their service area.

MEMBER OF THE PUBLIC: And define a

consent order.

MR. OTTAWAY: A legally-binding document.

MEMBER OF THE PUBLIC: Who initiates that? Does D.E.C.?

MR. OTTAWAY: Yes.

Marybeth.

MS. McCORMICK: I'll -- cause Bill came in after the fact. Actually, in '96, the State formed a program in place. We signed the consent, the initial consent order, in 1996. The order for this wasn't signed until 1999, but, in 1996, the State was, I guess, approaching various utilities. We were asked to identify properties, manufactured gas plant sites, and there was an agreement we would go in and investigate these sites and if we found contamination, we would address it.

So, the process started in '96. We've been investigating various locations. Orange and Rockland has identified seven MGP sites within our

service territory. Three of them are in Orange County, four of them are here in Rockland. There are two sites in Haverstraw, there's the Nyack site, the Gedney site, and we have a site in Suffern and then two sites in Middletown and a site in Port Jervis, and they are in various stages of investigation with exception of the small Haverstraw site where we're just about complete with our remediation.

MEMBER OF THE PUBLIC: I promise only one more questions.

Usually, with in-situ oxidation, you control vapors --

MR. OTTAWAY: Right.

MEMBER OF THE PUBLIC: -- that might be created.

MR. OTTAWAY: Uh-huh.

MEMBER OF THE PUBLIC: Do you have a plan - I know it's down the road - so the community understands there might be a truck or on-site that's extracting vapors from the subsurface or a

subsurface vapor collection system, you know, that, obviously, control any off-gassing? Would that be something that would be addressed during the design phase? Because if you have an apartment building, then you have this, you know, it's not necessarily compatible with a residential development.

MR. OTTAWAY: Well, except you think about what an SVE system looks like. We have a relatively small area we're looking at for the chemical oxidation and, you know, we could have some vapor collection. Obviously, we're not even starting the design phase yet, but I think if we did have to go to a vapor collection system, we could do that in a relatively unobtrusive way, so.

MEMBER OF THE PUBLIC: How do you set the southern boundary on this? I notice there's one test place where you have PAHs of 100 to 500 parts per

million into even in the remediation site.

MR. OTTAWAY: We will be doing a design level investigation and looking to see where else we have any coal tar down here. Where we have these, I believe --

MEMBER OF THE PUBLIC: The one by the letter K right there, right, is outside the remediation area and, yet, it's 150 parts per million.

MR. OTTAWAY: Right, and that's, generally, if we see contamination, which does not have -- we don't see any visual evidence of coal tar and the PAHs are less than 500, and that contamination is at depth that would not present any risk of creating ongoing groundwater and contamination or any risk of mobility.

One of the key things that we've talked about in terms of why can't we just leave this here is the mobility of the contamination. If we have actual

coal tar product somewhere, visual sign of coal tar, we want to get rid of that because we look at that and say this is something that can get up and move. If we have a situation where we don't have any coal tar but we have something that has somewhat elevated PAHs, the soil, we would expect that, for a time, we would get some leaching, particularly, of the BTEX components from this soil. We would monitor the groundwater to make sure that that process, that attenuation of that contamination proceeds, appropriately, but that wouldn't be something that we would go out and dig 13 feet down to get some mildly contaminated soil, down 13 feet, and that's what we're looking at with that particular point.

The elevated levels - I don't remember whether they were 100 or 400, but that was a sample taken about 13 feet down. You have clean soil above it. And we made the decision that that

Proceedings

really doesn't represent a source area, doesn't represent an area that we're going to be going after right now.

MR. KNIPPING: Bill, isn't it true - I have done other sites along the Hudson - almost anywhere along the Hudson if you go into the ground, you're going to come up with PAHs? Because PAHs were fill, ash, especially, coal ash. All the fill that was put on the Hudson along either side was fill, had PAHs, and, I'm sorry, I'm a history major, but I learned what PAHs are. It's over 100 different compounds. The result of incomplete combustion of organic material. So, your fireplace, your ashes, PAHs.

So, it's ubiquitous in industrial areas where they've created fill. So, you can, probably, find it anywhere along the Hudson.

MEMBER OF THE PUBLIC: When is the next time the public can have input? When are we invited to take another look

at this site? I'm not sure of your process.

MR. OTTAWAY: So, this is the Proposed Remedial Action Plan. We're inviting comments on this. This is sort of the framework for how we're going to go forward and look at the design process. The design will also be released for public comment and we will be holding a meeting during the design process, too. I don't know if we'll have a number of meetings during the design process or whether it will be a single meeting. We'll have to work through the details of that citizen participation process as we move forward, but we, certainly, once, you know, we have collected the comments we have here, plus any written comments, we'll put that together in a Responsive Summary which will be a section of the Record of Decision which we would expect to be releasing in April. Then, we would move forward into the design

process, and, as I said, we would have a citizen participation program during the design process, as well.

MR. KNIPFING: Bill, do you anticipate having -- when should you be doing the OU-2 work? After all this or during?

MR. OTTAWAY: No.

MR. KNIPFING: So, another meeting on the OU-2 findings, perhaps?

MR. OTTAWAY: Right. That's a very interesting question.

MR. KNIPFING: I asked.

MR. OTTAWAY: Orange and Rockland had a very detailed report into our office for a while. It's the ball is in our court regarding the Remedial Investigation of OU-2. I don't see any reason why that the Remedial Investigation Report couldn't be approved sometime this year, move into the Feasibility Study and, in relatively short order, we could get PRAP and ROD on that, I don't know, but then we are

Proceedings

-- we put that into the remedial action side of things and we would have to coordinate that work with all the other work we're doing on our site.

As Marybeth indicated, earlier, it's going to be a major project and we would have to, you know, coordinate any work we did in the Hudson River with all that other work.

Did you want to add anything to that or --

MS. McCORMICK: You're looking at me?

MR. OTTAWAY: Yes.

MS. McCORMICK: May just want to add, in addressing OU-2, as we go forward with the design in OU-1, we're going to be looking, as Bill alluded, earlier, is there any benefit or reason to include, potentially, some treatment of the close-shore sediments or what have you in the solidification?

So, we're going to look at OU-2 in the context of (a) contaminants and what

we need to do and what are we doing on OU-1 that should eliminate a lot of impacts that may, currently, be existing, and (b) what would be the next step, logically?

So, you're going to have to walk both of them, together.

MR. KNIPFING: Yeah, that's what I thought.

MEMBER OF THE PUBLIC: I apologize, but what part is the Hudson Vista Associate's property? Where is that?

MR. OTTAWAY: Right there. So, here is the Hudson River, here is the jetty area that spins out and there's a parking lot right here.

MEMBER OF THE PUBLIC: Yeah.

MR. OTTAWAY: And it's this little section right here.

And, up here, the Hudson Vista Associates portion of the site is this area right in here.

MEMBER OF THE PUBLIC: Again, I would appreciate clarification with

regard to existing environmental concerns as the property exists now. I understand that if you touch the soil or you're trespassing, that's a problem. Environmentally, is there a concern now?

MR. OTTAWAY: Yes, there is.

While difficult to measure, we do, certainly, have some volume of contamination going into the Hudson River. So, it's just one of a number of sources of contamination of the Hudson River in this area and we have to address each one of those as we go. We do, and, as we mentioned, also, we do have contaminated groundwater and we have the soil which is, you know, contaminated. We don't want to have any contaminated media. Obviously, if we had a perfect world, we wouldn't have any contamination.

What we're doing right now is when -- so, Mike, earlier, mentioned that these polycyclic aromatic hydrocarbons

are ubiquitous, they come out of your car's exhaust, they come out of your chimney when you run your heating system, they come out of your, you know, the wood you burn, everything, but that's at relatively low levels. Once we get contamination that is so significant that it reaches the status of hazardous waste, that's when the switch flipe and we have to do something about it.

We're not going after every little piece of contamination up and down, you know, the Hudson River or across the State. We're going after the most significant contamination, the contamination that meets that fairly high hurdle of being classified as hazardous waste.

So, I think that's -- okay.

MR. KNIPFING: I just wanted to remind everybody if you did not sign in, please sign out. It's very important if you didn't get a Fact Sheet from us, we

have your name and address so we can make sure you're on our mailing list. It sounds like we'll be pen-pals for quite a few years, and the comment period ends on March 12th. If you have any comments between now and then, please submit them to Bill Ottaway. The name is in the Fact Sheet.

MEMBER OF THE PUBLIC: Can we submit them via E-mail?

MR. OTTAWAY: Yes, and my E-mail address is on the handout and I believe it's on the Fact Sheet, as well.

MR. KNIPFING: Good-night, everybody.

MR. OTTAWAY: Thank you, everybody, for coming out and putting up with our presentation.

Proceedings

THE FOREGOING IS CERTIFIED to be a true and correct transcription of the original stenographic minutes to the best of my ability.

Kathryn Lebeau

LAWYER'S NOTES/ERRATA SHEET

Page	Line	