

U.S. ENVIRONMENTAL PROTECTION AGENCY

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IN RE: RAVENSWOOD PCE GROUNDWATER SUPERFUND SITE  
PROPOSED PLAN PUBLIC MEETING

\* \* \* \* \*

BEFORE: TRISH TAYLOR  
LAURA JOHNSON  
DAWN IOVEN  
CHRIS KORENER  
VINCENT A. CAMBARARE

HEARING: Thursday, January 20, 2011  
6:00 p.m.

LOCATION: Ravenswood City Police Department  
333 Virginia Street  
Ravenswood, WV 26164

WITNESSES: Avis Turner, Jack Turner, Pete Weston,  
Gary Braham, Greg Prosin, Vince Gambler,  
Dale Vanderlawn, Mike Kelly

Reporter: Danielle S. Ohm  
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MS. TAYLOR:

My name is Trish Taylor. I am a community involvement coordinator for the U.S. EPA. We're here tonight to talk about the groundwater cleanup that's going on here at Ravenswood. The cleanup site is called the Ravenswood PCE Groundwater Cleanup. If you did not sign in, we do have a sign-in sheet up by the door. And there is a copy of tonight's slides up there for handouts. We also have handouts, the posters that you see here if you want to take those with you. And if you did not get the mailing, there is a sign-in sheet. If you want the mailing we have a check off list. If you didn't get one, we have a couple extra copies.

What we're going to be talking about tonight is a proposed cleanup plan. Nothing has been decided yet. This is just a proposal. And what we're doing tonight is hopefully going to talk about it in detail and then solicit your comments and questions before we actually make a decision. The proposed plan is about 25 or 30 pages, so we did not make copies for everybody but we do have it available if you want one. We also have it online. What we're going to talk

1 about tonight is a summary of what you'll find in the  
2 actual proposed plan.

3           With me tonight is Laura Johnson. She is  
4 the remedial project manager. She and I will go  
5 through this presentation as fast as we can. We also  
6 have Dawn Ioven in the back. She's with EPA. She's a  
7 toxicologist with EPA so if we get any questions,  
8 health-related questions, she'll be able to help us  
9 out there.

10           We're going to spend about 20 minutes  
11 with this presentation and hopefully we'll answer most  
12 of your questions. But then the majority of our time  
13 we're going to dedicate to Q and A. We have a court  
14 reporter here tonight so any questions or comments  
15 that you have will be considered part of the record.  
16 And if it's just a comment about what we're proposing,  
17 we'll record it. If it's a question we're going to  
18 try to answer it here and now if we can. If we can't  
19 we'll have to get back to you on that and will also be  
20 included in the response of this summary.

21           So I'm going to move over here and get  
22 this started. Tonight's agenda, you'll have this on  
23 your handout, we're going to give you a brief  
24 background of the site, talk about the cleanup options  
25 that we've reviewed, there are four. We're going to

1 talk about the one that we prefer. We call that the  
2 preferred alternative. And then we're going to open  
3 it up to Q and A's. When we talk about the site, this  
4 is what we're talking about. It's the downtown area  
5 of Ravenswood. It's what we're considering the site.  
6 There is a handout of this, if you want to take it  
7 with you.

8                   The contaminant of concern is called PCE  
9 or perc. When we do have cleanups like this,  
10 sometimes we break them into what we call operable  
11 units. That way we can clean up different parts of  
12 the site. With this we have two. There's a  
13 groundwater cleanup which is the groundwater itself  
14 and then later there's a vapor intrusion investigation  
15 that will occur. And that is associated with the  
16 groundwater but it's strictly about the soil vapor.  
17 And that will happen probably this spring. Tonight  
18 we're just going to be talking about the proposed  
19 cleanup for the groundwater itself. I'll let you go  
20 ahead.

21                   MS. JOHNSON:

22                   Like Trish just said, the area that we  
23 consider the site is the downtown area of Ravenswood.  
24 If you look at this map here, this is our most current  
25 understanding of the contaminated groundwater at the

1 site. The areas in the orange are the most  
2 contaminated. Our highest concentration currently is  
3 220 which is in this area here. The groundwater  
4 extends for about 1,400 feet and is heavily influenced  
5 by the city's production well. And I just want to  
6 reiterate right now that nobody is exposed to this  
7 groundwater. The city does a fabulous job of treating  
8 everything so all the water that they distribute is  
9 below regulatory limits. So there is no risk of  
10 exposure through your drinking water.

11           The city did install a Venturi air  
12 stripper, it's a pretreatment technology, in 2000.  
13 When they do use that, the two wells that are  
14 contaminated right now are not being used for  
15 distribution. When they do use it, it knocks down the  
16 PCEs to an acceptable level. And sometimes we get  
17 questions, you know, if I'm not being exposed, why are  
18 you coming in and cleaning up the groundwater? We  
19 have to. By law we have a mandate to clean up for  
20 beneficial use so that there is no risk whatsoever  
21 from this groundwater. So that's why we're here.

22           To date, we've done several environmental  
23 studies. We have a really good idea of where the  
24 contamination is in the aquifer. We have not been  
25 able to find a point source so far so we're not

1 entirely sure where this came from but we know where  
2 it is. In 2008 we started a treatability study which  
3 I'll talk more about a little bit later. But so far  
4 the technology that we're using in the treatability  
5 study has worked really, really well to clean up the  
6 groundwater. And since we've not been able to find a  
7 source, we have not been able to find a responsible  
8 party so EPA is paying all the costs for the cleanup.

9 MS. TAYLOR:

10 The four possibilities that we're going  
11 to be talking about have been evaluated using a list  
12 of nine criteria. And we're going to show what they  
13 are. The overall protection of human health and the  
14 environment is our number one concern. The list that  
15 you see here is in ranking but it's also in  
16 chronological order. So number one is our number one  
17 concern.

18 We also have, you know, several criteria  
19 that we consider to be most important. Number two  
20 basically is saying it has to comply with federal,  
21 state and local laws. It has to have long-term  
22 effectiveness, short-term effectiveness. It has to  
23 reduce the toxicity, mobility or volume. The  
24 implementability means basically a plan on paper how  
25 easily is it to actually operate and put into place.

1 Cost. And then eight and nine we evaluate together.  
2 It's folded because that's actually where we are now.  
3 We have evaluated as much as we can, but right now  
4 we're looking for community input. We want to know  
5 what you think about what we're proposing to do. We  
6 also want to hear from our state counterparts, what  
7 they think. So we won't move forward until we  
8 actually get input. We have a 30-day public comment  
9 period. And it ends in February.

10 The four alternatives that we looked at  
11 are no action at all, groundwater extraction, Venturi  
12 air stripping and the fourth one is highlighted  
13 because that's what we're proposing, that's our  
14 preferred alternative. And Laura is going to go  
15 through these in detail.

16 MS. JOHNSON:

17 The no-action alternative is required by  
18 law to kept. It's what we use as a baseline to  
19 compare all the other alternatives to. Because  
20 nothing would be done, there would be no costs  
21 associated with it. And since we would just be  
22 leaving the PCE in the aquifer, we estimate that it  
23 would take hundreds of years for it naturally to  
24 degrade.

25 Our second opinion that we looked at was

1 groundwater extraction and granular-activated carbon  
2 treatment using a new extraction well. That basically  
3 means we would go in and we would install a new  
4 extraction well or wells. They would remove  
5 groundwater. And we would run it through the  
6 granular-activated carbon system which we call a GAC  
7 system for short. And that basically filters out the  
8 PCEs. We have two discharge options under this  
9 alternative. We could either discharge to the Ohio  
10 River under a permit or we could give the water back  
11 to the city since it would be treated to use in their  
12 water supply.

13           A common element in all of the action  
14 alternatives is a thing called institutional control.  
15 That's basically something that we would put into  
16 place either through ordinance or zoning or some  
17 mechanism like that that would prevent the  
18 installation of new extraction wells in the  
19 contaminated groundwater. The current net worth for  
20 this alternative is \$1.6 million. And it would take  
21 30 years to complete, although when you're extracting  
22 groundwater, there's always the possibility that it  
23 could take a lot longer.

24           The second alternative that we evaluated  
25 is Venturi air stripping using a new extraction well.

1 Again, we would go in and put a new extraction well or  
2 wells in and we would run it through a Venturi air  
3 stripper. And that basically works by --- the easiest  
4 way to explain it is squeezing the PCE out of the  
5 groundwater. You know, it aerates the groundwater and  
6 it becomes a gas. And we would again put  
7 institutional controls in. And the current net worth  
8 for this is \$1.2 million, and again 30 years with the  
9 possibility of it taking longer.

10                   Alternative four which is our preferred  
11 alternative is in-situ air sparging with soil vapor  
12 extraction. And a little bit earlier I had mentioned  
13 that we did a treatability study. This works really,  
14 really well. And this is the technology that we've  
15 used in that treatability study. And the way air  
16 sparging works is we have a network currently in place  
17 of nine wells. Those wells we use to inject air into  
18 the groundwater. It interfaces with the PCE in the  
19 groundwater, it's like flowing through a straw into  
20 your drink. The PCE then becomes a vapor and we  
21 capture it with soil vapor extraction wells which act  
22 like a big vacuum. We capture all of the PCE vapors.  
23 We run it through a tube to a treatment building and  
24 we filter the PCE out of the air and we discharge  
25 clean air to the atmosphere.

1           It's worked incredibly well so far. We  
2 have case history of other sites that show that this  
3 technology works well. Aside from that it will cost  
4 \$978,000 to complete. And we estimate that it will  
5 take ten years to remove the PCE from the groundwater.

6           This is just again saying we did a  
7 treatability study and it's worked well. We would do  
8 groundwater monitoring under this alternative and all  
9 alternatives to ensure that we are capturing what we  
10 need to capture. All of the alternatives, also the  
11 city would continue to treat the groundwater before  
12 it's distributed until we reduce the PCE levels in the  
13 aquifer, and again the institutional controls.

14           And if this is the alternative that we  
15 choose, we would do what's called a preremedial design  
16 investigation where we would do some additional  
17 sampling so that we made sure that we install this  
18 system to capture all the PCEs that's out there and,  
19 you know, we design the system to be most effective.

20           Why we choose this alternative? It's  
21 going to be protective of human health and the  
22 environment. It will be compliant with local state  
23 and federal laws. It provides a permanent solution.  
24 And it will achieve long-term risk reduction through  
25 the treatment of the contaminants. It again ensures

1 that future exposure did not occur. And it reduces  
2 the risk through a more reasonable time frame and at a  
3 lesser cost than the other alternatives.

4 MS. TAYLOR:

5 The rationale as to why we're choosing  
6 this particular alterative, what she just went  
7 through, that goes back to that nine criteria, the  
8 list of nine criteria. So this is the current status.  
9 We're in the middle of a public comment period. It  
10 will end February 9th. Sometimes, depending on the  
11 comments that we receive, we change our suggested  
12 cleanup remedy. So if that does occur, depending on  
13 the information that we get, we would start this  
14 process all over again. We would create a new  
15 proposed plan. We'd hold another meeting and suggest  
16 it to you and have another public comment period of  
17 it. That doesn't happen very often but it could  
18 happen.

19 What we do is we hold a public comment  
20 period. You can send in your comments by mail, e-mail  
21 or you can give them to us tonight. Then we collect  
22 all of them at the end of that public comment period.  
23 We evaluate what's been suggested. If there's  
24 questions, we will answer them. That will be part of  
25 the record of decision. Once we decide the actual

1 alternatives that we're going to use, we'll put that  
2 decision into what we call a record of decision. And  
3 in that document we have all the questions and  
4 comments we received with responses in that document.  
5 If you hit the next one --- you can do a brief summary  
6 of the proposed plan if you want to see it or read it.  
7 You can go online. The second website is a database.  
8 It's not as friendly as the first one.

9           The second point is the database for all  
10 the records of the administrative records so you'd  
11 have to look it up by state and then look it up by  
12 site name, which would be the Ravenswood site. If you  
13 go to the first website, that is specifically for  
14 Ravenswood so it will take you directly to Ravenswood  
15 information. It's a little bit more friendly. Or if  
16 you wanted to read a paper copy, we do have a paper  
17 copy at the library and in our regional office.

18           So we're going to open it up to Q and A  
19 and hopefully you'll have questions or comments or  
20 concerns for us. We're going to ask that people stand  
21 up and give us your name if you feel comfortable with  
22 it, you don't have to. That's just so the court  
23 reporter can get it down. And if I repeat it, that's  
24 again, for the court reporter's benefit. We do not  
25 have microphones here tonight. So does anyone have a

1 question or concern?

2 MS. TURNER:

3 My name is Avis Turner. And I was  
4 wondering how long has the water been contaminated?

5 MS. JOHNSON:

6 It was first identified in groundwater  
7 during routine sampling in 1989. And we became  
8 involved, I believe, in 1998. Some of the past  
9 actions that we've done, we've installed two new  
10 production wells for the City of Ravenswood outside  
11 this area so they use that to blend with the other  
12 water. But there's been some kind of regulatory  
13 involvement since around 1989.

14 MS. TAYLOR:

15 Yes, sir.

16 MR. WESTON:

17 Pete Weston. This contaminate that's in  
18 the water, is it still --- do people in town possess  
19 that contaminant? Is it the water solely or what?

20 MS. JOHNSON:

21 I'm not entirely sure. It was at least a  
22 common dry cleaning fluid and an industrial solvent.  
23 I'm not sure if it's still something that's available  
24 for sale or use. Chris, I don't know --- Chris  
25 Korener is one of my contractors. He's shaking his

1 head yes that it is still available. Do people in  
2 Ravenswood still use it? I really have no way of  
3 knowing but we've not found any definitive, ongoing  
4 source of the PCE contamination. So it's not  
5 something --- it doesn't appear to be something that  
6 somebody is still actively dumping, you know, in  
7 Ravenswood. I don't know if that really answers your  
8 question.

9 MR. WESTON:

10 It's not exactly the answer I like to  
11 hear.

12 MR. BRAHAM:

13 My name is Gary Braham. With this  
14 remediation process that you're using, what other  
15 sites has it been used at and what percent of  
16 remediation do you get with it?

17 MS. JOHNSON:

18 It has been used at Vienna, PCE --- which  
19 is close by, it's right up about 30 miles away from  
20 here. They have had a huge success with it removing  
21 the PCE from the groundwater there. I'm not sure of  
22 the actual amounts that it's removed. Chris, I'm not  
23 sure if you know. It's much bigger site there.

24 MR. KORENER:

25 This is part of the Vienna system. They

1 cleaned up a site that was very similar in size to the  
2 Ravenswood Site.

3 MS. JOHNSON:

4 Chris, will you stand?

5 MR. KORENER:

6 And we started and actually built that  
7 system in 2005 and by 2008 it was cleaned up. It was  
8 a little different here, it wasn't quite as stretched  
9 out and as long but the contaminant levels were just  
10 about the same. The larger cleaning at Vienna had  
11 concentrations as high as 15,000 micrograms per liter  
12 of PCE. So more than ten times the worst monitoring  
13 well sample was here. And we have cleaned up in five  
14 years about 96 to 97 percent of that. We would have  
15 done more except we found another source after we had  
16 cleaned up a bunch of it. There was one little 1940s  
17 dry cleaner in the guy's backyard garage.

18 It's been a little tough to clean up and  
19 we're going to add a couple more wells to take care of  
20 that. You have extremely good soil under here with  
21 all the sand for air sparging. It's bubbling that air  
22 up through the groundwater, takes the PCE contaminant  
23 that we would much rather be in vapor phase. It's dry  
24 cleaner solvents, what they used to dissolve dirt on  
25 clothes. They would rather be in vapor. And once it

1 gets into the vapor, this is just a big vacuum that  
2 sucks 100-foot diameter or radius of influence around  
3 each well and pulls it right in and cleans out the  
4 carbon. We've only pulled here between five and ten  
5 pounds of PCE out. In Vienna, we were up about 2,000  
6 pounds. So there was a lot more up there threatening  
7 the Vienna wells. This one source was just very close  
8 to the wells.

9 MS. JOHNSON:

10 And the reason we've only pulled five out  
11 so far is we don't have as much PCE in the groundwater  
12 to pull out than the Vienna site has had. But Vienna  
13 is the best case study because it's similar in nature  
14 and it's close by and it really has been very  
15 effective. Any other questions?

16 MS. TAYLOR:

17 Or comments. It doesn't have to be a  
18 question.

19 MR. PROSIN:

20 My name is Greg Prosin. Do we have a  
21 higher incidence of health problems in this area from  
22 this contamination or how was it identified in the  
23 first place?

24 MS. JOHNSON:

25 It was originally identified during

1 routine sampling. The city has to sample their water  
2 before it's distributed. I believe it was identified  
3 in one of those samples that they took in 1989. ATSDR  
4 which is the Agency for Toxic Substance and Disease  
5 Registry did a public health assessment, I believe in  
6 2005, that did not find any short-term health effects  
7 from it. And if you're interested, that's definitely  
8 a report that we can share. It is a public document,  
9 we just don't have a copy of it with us now.

10 MR. PROSIN:

11 How about long-term healthcare since  
12 1989?

13 MS. JOHNSON:

14 Well, just because it's been found since  
15 1989, no one has been exposed in an ongoing way. All  
16 of the city's distributed water, I believe since 1998,  
17 has not had any PCE levels above regulatory limits.  
18 In that time frame from 1998 to --- from 1989 to 1998,  
19 I believe there were five times that there was PCE  
20 that was found but it would not be enough to lead to a  
21 long-term health effect.

22 MR. PROSIN:

23 So we don't have a higher incidence of  
24 cancer here or any problem with ---?

25 MS. JOHNSON:

1 I don't believe so.

2 MR. PROSIN:

3 Thank you.

4 MS. TAYLOR:

5 Let me ask, Dawn, do you want to address  
6 that? Do we have information about that? Dawn is a  
7 toxicologist with the EPA.

8 MS. IOVEN:

9 Usually with the Department of Health  
10 either on a local level or state level has the type of  
11 information that can be used to determine whether  
12 there's an elevated cancer risk in a given community.  
13 ATSDR did do a public health study a few years ago and  
14 didn't find any short-term problems, at least. In  
15 terms of an increased cancer risk, I don't have that  
16 information off the top of my head. But it is  
17 something the Department of Health tracks and if they  
18 were seeing a higher incidence of cancer, I think the  
19 community would be aware of that and there would be  
20 ongoing studies to figure out if there's an  
21 identifiable source of that. But to my knowledge  
22 there is not an elevated risk of cancer in this  
23 community compared to the rest of West Virginia.

24 AUDIENCE MEMBER:

25 What about Ohio?



1                   MS. IOVEN:

2                   I don't know about Ohio. Moving away a  
3 little bit from this ---.

4                   AUDIENCE MEMBER:

5                   I got a letter to come to this meeting  
6 tonight and I live right across the river. And I  
7 talked to a boy over there who every day that --- he's  
8 like 36, 37. And he told me that he had been having  
9 thyroid problems real bad. And he said he went to one  
10 doctor after another, after another and then finally  
11 went to a doctor that helped do some of the testing  
12 over there on the water or on people. And she took  
13 the thyroid out or had it taken out and she told him  
14 that he had ---.

15                  MS. JOHNSON:

16                  I guess I can field that a little bit.  
17 If you're on the other side of the Ohio River the way  
18 the groundwater flows in this area, the Ohio River  
19 kind of forms a barrier. And because the city greatly  
20 influences groundwater flow, the groundwater that's  
21 contaminated with PCE does not actually flow over to  
22 the Ohio side of things. So I wouldn't --- I'm not  
23 discounting at all what you're saying, but I don't  
24 believe that it would be associated with our  
25 groundwater contamination on this side of the river.

1                   AUDIENCE MEMBER:

2                   I don't know. I got a letter. All I  
3 know is I got a letter in the mail telling me, you  
4 know, that the meeting was here and all that.

5                   MS. JOHNSON:

6                   We do a very extensive mailing.

7                   AUDIENCE MEMBER:

8                   There's a lot of people in the Ohio area  
9 all the way to --- our kids are all around the pools  
10 and stuff like that. And their test come back --- a  
11 lot of them saying that they were at risk of this and  
12 that and cancer down the road.

13                  MS. JOHNSON:

14                  I think that might be a different  
15 chemical, a different issue. But you know, if you  
16 have specific concerns, you know, we can talk more so  
17 about that after the meeting and maybe we can help you  
18 find some resources for the right person to talk to  
19 about those concerns on that issue.

20                  AUDIENCE MEMBER:

21                  I got some letter about it. Like why is  
22 this in Ravenswood?

23                  MS. JOHNSON:

24                  I think our mailing list for this public  
25 meeting was quite large. And so if you're on the Ohio

1 side of things, you know, this does not directly  
2 affect you, you know, you're not drinking the water  
3 from here, you're not above the plume. So we can  
4 definitely work --- if you'd be more comfortable not  
5 being on the mailing ---.

6 AUDIENCE MEMBER:

7 Well, I do drink the water here because  
8 my mother lives here and I go to her house.

9 MS. JOHNSON:

10 Okay.

11 MS. TAYLOR:

12 And again, the public water is treated.  
13 So if you're on public water, you're not being exposed  
14 to the plume that we're talking about.

15 MS. JOHNSON:

16 Does anybody else have any kind of  
17 questions or concerns or comments?

18 MR. WESTON:

19 I have the same question. How far are  
20 the maximum areas here away from the threshold of this  
21 chemical?

22 MS. JOHNSON:

23 I'm sorry, could you repeat that?

24 MR. WESTON:

25 Where the highest concentration is how

1 far is that from the threshold level that's known for  
2 this chemical?

3 MS. JOHNSON:

4 The regulatory limit is five parts per  
5 billion. Our highest level that we have currently in  
6 aquifer is 220 parts per billion. But again, when the  
7 water is distributed to the public, it's below the  
8 regulatory limit so there is no exposure. But in  
9 ground water, our current conditions are 220 is our  
10 highest.

11 MS. TURNER:

12 If we were to have flooding or anything  
13 like that, would that interfere with our drinking  
14 water from the ---?

15 MS. JOHNSON:

16 No, it should not. You mean if there's  
17 flooding from the Ohio River?

18 MS. TURNER:

19 Yeah, or you know, any part of town that  
20 would get flooded, would this get into our drinking  
21 water?

22 MS. JOHNSON:

23 No, I don't believe so. The city would  
24 still be treating. And you know, if there was  
25 flooding I would assume that they would do a more

1 rigorous sampling of the water before it was  
2 distributed just for other kinds of, you know, E-coli  
3 and that kind of contamination that could come with  
4 flooding conditions. But a flooding event should not  
5 affect your safe drinking water.

6 MS. TAYLOR:

7 Actually, let me ask, is there any one in  
8 the audience from the water department that could  
9 maybe answer that? I know, Vince, you just walked in  
10 the door. We got a water question just in time for  
11 you. It's about flooding, and does flooding affect  
12 the water and the water quality for distribution?

13 MR. CAMBARARE:

14 Well, the City of Ravenswood's water  
15 supply water is groundwater and we have seven wells.  
16 A question like that would relate to more of a surface  
17 water system; correct?

18 MS. JOHNSON:

19 Yes.

20 MR. CAMBARARE:

21 As far as he levels fluctuating up and  
22 down, that I don't know, I don't have any data on  
23 that. But flooding would be more relevant to surface  
24 water affecting the quality and amount.

25 MS. TAYLOR:

1 Thank you. I'm sorry I put you on the  
2 spot there.

3 MR. CAMBARARE:

4 That's all right.

5 AUDIENCE MEMBER:

6 I have a question about the concentration  
7 --- the high concentration, is it actually moving or  
8 is it staying in the same spot?

9 MS. JOHNSON:

10 The groundwater does move. And it is  
11 influenced by the city's treatment system up here.  
12 You can kind of see it naturally curves up this way.  
13 This is the way the groundwater is moving right now.  
14 So I guess your question is more specifically of these  
15 highest concentration areas?

16 AUDIENCE MEMBER:

17 Yes.

18 MS. JOHNSON:

19 They do fluctuate a little bit but we  
20 have seen historically these are the two highest  
21 concentrated areas. So they do tend to move up and  
22 out a little bit but these tend to say is our highest  
23 areas and this is where our treatment system, the  
24 treatability study that we're running right now is  
25 focused on, these high concentration areas, to kind of

1 knock them down before they do move out of that area.

2 MR. KENNEDY:

3 Makia Kennedy. You have about eight air  
4 sparges working right now?

5 MS. JOHNSON:

6 We have nine, yes.

7 MR. KENNEDY:

8 Nine?

9 MR. JOHNSON:

10 Yes.

11 MR. KENNEDY:

12 How many more can you get? I know you're  
13 going to do more studies. But I mean, are we going to  
14 see air sparges all the way down through this thing  
15 and how many more basin wells are you going to need to  
16 --- because you're going basically from production  
17 well three, from like a --- it says, I think 35 parts  
18 per billion?

19 MS. JOHNSON:

20 Uh-huh (yes).

21 MR. KENNEDY:

22 Are you going to need a lot more to take  
23 out the entire concentrations?

24 MS. JOHNSON:

25 I'm not sure I can answer that right now.

1 I mean, if this is the remedy that we choose, if this  
2 becomes, you know, what we're going to do as the  
3 cleanup for the site, then when we do our additional  
4 sampling of sites we would design the system in the  
5 most optimal way so that we captured everything.

6 MR. KENNEDY:

7 I had another question about all your  
8 other, you called them investigation points. How deep  
9 did you go? Because on this chart you did not put the  
10 deep wells, the deepest wells, you just went with your  
11 investigation points. How deep were those  
12 investigation points that you used?

13 MS. JOHNSON:

14 I'm not sure if I know that off the top  
15 of my head, how deep we went with those. I don't know  
16 if Chris has got something you know off the top of  
17 your head.

18 MR. KENNEDY:

19 We saw the unit that was in here and it  
20 didn't look like he was, you know, going very deep.

21 MR. KORENER:

22 At 90 feet down there's a layer of  
23 bedrock and that's comparative to the sand, it's  
24 impermeable. In many of those points we did dual  
25 levels, depending on where we were in the process, the

1 purpose of each point. All of them got at least the  
2 upper groundwater which is 60 feet down so it's  
3 somewhat across ---.

4 MR. KENNEDY:

5 Right.

6 MR. KORENER:

7 A good number of them went almost down to  
8 the bottom so we had true level data points there.  
9 The contaminant source here as you look at all the  
10 data costs, there are a lot of deep wells, there are a  
11 lot of shallow wells. And there are an awful lot of  
12 data points in three different shallow and deep  
13 investigations. This presents the shallow but if you  
14 go deep, you don't see very much almost entirely  
15 across. There's a couple places ---.

16 MR. KENNEDY:

17 Deep well five I think had a large  
18 number.

19 MR. KORENER:

20 The funny thing --- not funny but the  
21 interesting thing is that little narrow yellow portion  
22 of the plume that sticks up towards PW 3 ---.

23 MR. KENNEDY:

24 Right.

25 MR. KORENER:

1                   If we had shown a map that was a year  
2 prior to this, that would have been orange and even  
3 higher than orange.

4                   MR. KENNEDY:

5                   Because that's where the majority of the  
6 air sparges are.

7                   MR. KORENER:

8                   And its taken what was in 2007, I think,  
9 the well right in front of the library over there  
10 peaked at 1,200 which was by far the highest. That's  
11 still a low level compared to Vienna just to put it in  
12 perspective. But that well is now at 63. So the air  
13 sparge in a year's time has knocked from 1,200 to 63  
14 so 20 times down.

15                  MR. KENNEDY:

16                  Using eight different sparging wells.

17                  MR. KORENER:

18                  That would have probably been covered by  
19 two and then there's three in the parking lot right in  
20 the maintenance yard and then there's some as you go  
21 around Sycamore.

22                  MR. KENNEDY:

23                  Right.

24                  MR. KORENER:

25                  And so they're strategically placed

1 There ---.

2 MR. KENNEDY:

3 So the vapor well can collect them.

4 MS. JOHNSON:

5 Correct.

6 MR. KORENER:

7 We can look at the air sparging wells,  
8 the radius of influence is the term for it. It's  
9 about equal to the depth that the well is underwater.  
10 So we're talking about 40 to 50 feet. So that's why  
11 that is spaced. And then the vacuum unit was more  
12 than that, I think it's 150 feet. It's done a pretty  
13 good job in that upper part. You're obviously quite  
14 familiar with looking at the data?

15 MR. KENNEDY:

16 Yeah. I've looked at the data and they  
17 group from, I think the first collection in 2000, I  
18 think.

19 MR. KORENER:

20 Those are good questions. And it's doing  
21 a good job in the short term that it's operating.

22 MR. KENNEDY:

23 And you have six months, I believe, ---.

24 MR. KORENER:

25 This data is how old?

1                   MS. JOHNSON:

2                   Less than a year ago, yeah.

3                   MR. KORENER:

4                   So that's only halfway through this  
5 sparging and we haven't sampled lately to see how much  
6 better it's done.

7                   MS. JOHNSON:

8                   And all that specific kind of information  
9 is in the administrative record which was one of the  
10 links that was on there.

11                  MR. KENNEDY:

12                  That's where I found information ---.

13                  MS. JOHNSON:

14                  Great. And you know, going back to your  
15 earlier question with the expansion of the air  
16 sparging extraction wells, we do --- if this is the  
17 remedy that we choose for the site, we try to design  
18 the current system to use only public roads and to use  
19 state roads to kind of keep it off of private  
20 property. When we go to do the final design, we would  
21 make every attempt to keep it on public property but  
22 there is always the chance that we would need to get  
23 private property access. The wells fortunately are  
24 flush now and it's very unobtrusive. When we do do  
25 the drilling it's about half a day per well and then

1 the trenching work and everything is restored to the  
2 condition it was in before. That is just something to  
3 consider.

4 MR. KENNEDY:

5 Actually I walked right past the vapor  
6 well and a couple of the air wells, like you said in  
7 front of the library. And all they are is just a cap  
8 on the ground.

9 MS. JOHNSON:

10 Yeah, it's very unobtrusive.

11 MS. TAYLOR:

12 Any other questions? Yes, ma'am.

13 MS. MEAD:

14 My name is Paula Mead (phonetic). I'm  
15 still a little concerned about drinking tap water.  
16 And everyone says it's safe and everything. My  
17 neighbors think I'm crazy for dinking tap water. My  
18 question is, I have a really old home and my water  
19 pipes are old and I know the city infrastructure pipes  
20 are really old and they get built up with calcium,  
21 lime and all that. And my question is, are  
22 contaminants stored in my water pipes in with all the  
23 other gunk that's in there, too? And my hot water  
24 tank, cold water tank. Can it get absorbed through my  
25 skin?

1                   MS. TAYLOR:

2                   Do you want to answer it?

3                   MS. JOHNSON:

4                   I'm not sure if I know exactly how to  
5 answer that question but I don't believe that the  
6 characteristic of PCE which is the only contaminant  
7 here would be something that would bond any kind of  
8 calcium or any deposit in your system. It's a very  
9 mobile kind of contaminant, you know. And just again  
10 to reiterate, you know, the city does only distribute  
11 water that has been tested and treated and is below  
12 the regulatory limits. I really don't believe that it  
13 could store in your pipes. But if that's something  
14 that you're concerned about, we can --- I can look  
15 into that matter further for you and get some more  
16 information because I'm not entirely familiar with  
17 that kind of question.

18                   MR. IOVEN:

19                   PCE would not build up in pipes, whether  
20 it be down pipe passing other houses.

21                   MS. TAYLOR:

22                   Anybody else have a question? Yes, sir.

23                   MR. VANDERLAWN:

24                   My name is Dale Vanderlawn. I was  
25 wondering if you know the percentage of the air that

1 you're pumping into the ground that you're actually  
2 collecting, how much is bubbling up in these basements  
3 and things like that to collect and things like that?

4 MS. JOHNSON:

5 That's a good question. When we started  
6 the system, the way that we started it is before we  
7 started injecting air into the ground, we actually  
8 started doing soil vapor extraction first. So we  
9 started extracting the PCEs from the ground and then  
10 we phased the system into operation so we started at  
11 half capacity injecting the air. And then we checked  
12 to ensure that we were capturing those vapors. When  
13 we were sure that we were capturing everything that  
14 was there, we turned the system on full force. So I  
15 think we have a pretty high level of certainty that we  
16 are capturing everything that we are putting in.

17 MS. TAYLOR:

18 Did that answer your question? Does  
19 anybody else have any ---?

20 MR. PROSIN:

21 Greg Prosin again. Two or three years  
22 ago when the EPA came we were told that we were on the  
23 EPA's superfund list of top ten toxic sites in the  
24 United States; is that correct?

25 MS. TAYLOR:

1 Not top ten but you are on the National  
2 Priorities List, superfund site, yes.

3 MR. PROSIN:

4 So where do we fall now? Are we in the  
5 same category or are we ---?

6 MS. TAYLOR:

7 You're still superfund. It's still ---  
8 it's a listing that allows us to use federal funds for  
9 cleanup. So NPL is the acronym that we use. It's the  
10 National Priorities List. So that basically means it  
11 is a superfund site. It's not ranked, though, so  
12 until the cleanup is completed we will then put out a  
13 proposal for deletion which means that we'll propose  
14 to delete it off of the list. But until the cleanup  
15 is finished, it will be considered a superfund site so  
16 it will be on that National Priorities List.

17 MR. PROSIN:

18 This chemical, when we're talking about  
19 tap water, is it absorbed through the skin? Is there  
20 any danger from that like in showers?

21 MS. TAYLOR:

22 No. You're not being exposed to the PCE  
23 through your tap water because it is being treated  
24 before it's distributed.

25 MR. PROSIN:

1                   And for the lady back there that talked  
2 about her pipes, as a sidebar we use a Pur Ultimate  
3 filter on our faucet which according to the panel on  
4 the side of the box takes the PCEs out of the water.

5                   MS. TAYLOR:

6                   Yes, sir.

7                   MR. KELLY:

8                   Mike Kelly. They brought up a question  
9 and I think I need to know, too. We're on a high  
10 priority list or National Priorities List. One of the  
11 reasons we are is because we supply more water to more  
12 households, not just Ravenswood, but we are pumping  
13 our water to Silverton, Sandyville and places like  
14 that. So we're sending water to a lot more households  
15 than you think.

16                   MS. JOHNSON:

17                   Right. And that's not a criteria that  
18 would be used --- the way a site gets on the National  
19 Priorities List is we look at the groundwater and we  
20 see that if it was not treated, if there was no  
21 pretreatment or control in place, then there could be  
22 an exposure risk. So we look at every possible risk  
23 that's out there and since we see the groundwater is  
24 contaminated, we are mandated to restore it to  
25 beneficial use. So that's why it's ranked on the NPL,

1 that's why federal funds are available for it.

2 MS. TURNER:

3 If someone was to be, let's say,  
4 contaminated by this water, what would be the  
5 symptoms?

6 MS. JOHNSON:

7 Dawn?

8 MS. IOVEN:

9 Exposure to PCE, there are a couple  
10 things. If someone were exposed to very high  
11 concentrations, the first symptom that would be noted  
12 would be like a headache, nausea, sort of the same  
13 kind of symptoms you get if you paint your house and  
14 you smell the fumes from the paint. It's similar to  
15 that, mostly a headache, maybe a burning in the  
16 throat, upset stomach.

17 Over the longer term exposure to lower  
18 concentrations of PCE but for a longer period of time  
19 could cause liver damage primarily. PCE also is what  
20 is called a probable human carcinogen, meaning that we  
21 know that PCE causes cancer in some animals,  
22 laboratory animals. We believe that it may also have  
23 that potential in people. So over the long term  
24 exposure to low levels over many, many years, decades,  
25 could have the potential to cause cancer in humans as

1 well. Through ingestion, probably liver cancer would  
2 be the primary. Through inhalation, perhaps lung  
3 cancer.

4 AUDIENCE MEMBER:

5 My husband was diagnosed with kidney  
6 cancer about three years ago and he lived here all his  
7 life.

8 MS. IOVEN:

9 I don't --- off the top of my head I'm  
10 not sure about an association between PCE and kidney  
11 cancer, but again, let me reiterate that the public  
12 water that you're receiving is safe. There are very  
13 low and mostly nondetectable levels of PCE. No one in  
14 Ravenswood is being exposed to contaminated  
15 groundwater. Your public water is safe.

16 MR. TURNER:

17 My name is Jack Turner. And I just  
18 wanted to just comment. But a doctor once told me, he  
19 said, what God creates and puts on this earth is all  
20 right. What man puts on here is going to kill us all.

21 AUDIENCE MEMBER:

22 Are there any other kind of chemicals  
23 that we should be aware of in the water?

24 MS. JOHNSON:

25 I'm sorry, I couldn't hear, any other

1 what?

2 AUDIENCE MEMBER:

3 Any other kind of chemicals that's in the  
4 water ---?

5 MS. JOHNSON:

6 This is the only contaminant that we  
7 found in the groundwater that is over any risk level.

8 MS. TAYLOR:

9 And the groundwater is going to continue  
10 to be monitored throughout this process. Anybody  
11 else? Yes, ma'am.

12 MS. MEAD:

13 I never understood how Ravenswood avoided  
14 the CA issue when all the other towns on both sides of  
15 the river, like here in Point Pleasant, they had like  
16 tests done and all that, except for Ravenswood. And I  
17 never understood that.

18 MR. CAMBARARE:

19 I'll answer that.

20 MS. MEAD:

21 Thank you.

22 MR. CAMBARARE:

23 I'll answer that.

24 MS. JOHNSON:

25 Vince, will you state your name, please?

1                   MR. CAMBARARE:

2                   My name is Vince Cambarare. The CA  
3 issues ---.

4                   MS. JOHNSON:

5                   We can't hear you up here. I'm sorry.

6                   MR. CAMBARARE:

7                   CA issues. Contaminate a lot of public  
8 water systems up and down the Ohio River. And what  
9 saved Ravenswood was that you look where our well  
10 field is, in this area. In fact, L4 right out here.  
11 The Ohio River is about what, how many feet would you  
12 say from the well field?

13                   AUDIENCE MEMBER:

14                   We're at 2,000, 2,500.

15                   MR. CAMBARARE:

16                   That's what saved us. Most of these  
17 systems that had the soil contaminate, their wells are  
18 adjacent to the Ohio River by 30, 40, 50 feet from the  
19 Ohio River. So what saved us was the distance of our  
20 setback. In fact I sampled --- I just wanted to see  
21 for myself consciously, yeah. You know, I deal with  
22 water and treat water and I wanted to know for sure  
23 because it's such a big issue. And I've had this  
24 question asked several times. It cost us. It was  
25 about \$1,200. I said it would be in our best interest

1 if we sampled and let's see for ourselves. And she  
2 gave me the go ahead. She was all for it, too. And  
3 back about four years ago the State Health Department  
4 sampled ---. That was about four years ago and I  
5 wanted to get an update. So what saved us was our  
6 well field is set back from the Ohio River a distance.  
7 In fact, you can see it in that drawing.

8 MS. JOHNSON:

9 Thank you, Vince.

10 MS. MEAD:

11 I care about it because I live here, too.  
12 The website said that Ravenswood was pumping out so  
13 much water from the groundwater table that the Ohio  
14 River did not get into our groundwater, basically now  
15 they're counting it like backwash. When our ground  
16 levels, in layman's terms or whatever, when the  
17 groundwater gets too low, that we can count on  
18 backwash from the Ohio River.

19 MS. JOHNSON:

20 We do see some seasonal fluctuation of  
21 the groundwater that's right near the Ohio River. But  
22 it's really not that heavily influenced seasonally.  
23 So yes, that interface does occur but not enough to  
24 influence the majority of the groundwater that you're  
25 using. Chris?

1                   MR. KORENER:

2                   There's actually --- we measured and  
3 modeled to divide and you see where the little green  
4 prong goes to the lower right, if you extend that  
5 upwards towards the right of the building, that's  
6 where the divide between the Ohio River and the  
7 pumping is. If the Ohio River is high, if Vince pulls  
8 a little higher, it moves dividing a little bit  
9 towards the well, but only 100 feet or so. If the  
10 Ohio River is really low, the divide moves a little  
11 bit more towards the river.

12                   MS. MEAD:

13                   I wasn't talking about the Ohio River  
14 being up and I'm not talking about a flooding issue.  
15 Just from what I gathered from on the website is any  
16 time the groundwater was low, when we were using more  
17 water than usual, that it began to --- got in our  
18 water table.

19                   MR. CAMBARARE:

20                   You've got --- you're not putting any  
21 water directly from ---.

22                   MR. KORENER:

23                   As you can probably tell, Vince has  
24 really a very good understanding of the water system.

25                   AUDIENCE MEMBER:

1                   How is water in the Ohio River --- is it  
2 safe?

3                   MS. JOHNSON:

4                   We don't really have any specific  
5 information about that. I'm not sure if there's ---  
6 since our groundwater does not interface with the Ohio  
7 River, we haven't sampled it. I'm not sure what kind  
8 of data is out there.

9                   AUDIENCE MEMBER:

10                  Because in the summertime we live right  
11 on the banks of the Ohio River. We see kids playing  
12 in there, everybody is going into the water and if it  
13 was safe ---.

14                  MS. JOHNSON:

15                  I really can't answer that specifically.  
16 But I think a good resource --- I think usually state  
17 health departments, if there is an issue with a  
18 surface body of water, they usually have an alert or  
19 some kind of, you know, information on their website  
20 or ---.

21                  MS. TAYLOR:

22                  Like swimming advisories.

23                  MS. JOHNSON:

24                  Yes. I would check with the health  
25 department, you know, the State Health Department.

1 They would be the most likely source for information  
2 about that. Any other questions, comments?

3 AUDIENCE MEMBER:

4 I'm sure there's going to be updates on  
5 the website as you progress?

6 MS. JOHNSON:

7 Yes. The website will be updated  
8 throughout this process. My information, that's my e-  
9 mail and my mailing address. If anybody ever has any  
10 questions or, you know, concerns that come up, please  
11 don't hesitate to contact me, I'd be more than happy  
12 to talk to anybody about anything.

13 MS. TAYLOR:

14 The first website that's listed here,  
15 that will be updated as things progress. Tonight's  
16 presentation will be uploaded. We'll also have a  
17 handout available online at that website.

18 MS. JOHNSON:

19 And the next update will come, the public  
20 comment period closes February 9th so there won't  
21 really be any updates until that comment period ends.  
22 But we'll definitely make sure that it's updated  
23 frequently.

24 AUDIENCE MEMBER:

25 Laura?

1                   MS. JOHNSON:

2                   Yes.

3                   AUDIENCE MEMBER:

4                   Will you mention the state contacts that  
5 --- wants this info also.

6                   MS. JOHNSON:

7                   My apologies. We have two State of West  
8 Virginia, Department of Environmental Protection  
9 representatives here. We don't have their information  
10 up on the website but --- Pete, I don't know if you  
11 want to e-mail your contact information.

12                   AUDIENCE MEMBER:

13                   Should anyone have questions and you'd  
14 like to talk to someone a little closer, myself will  
15 be available and the state project manager, Mark  
16 Stosowski (phonetic). All of this data type stuff and  
17 quota information is on file in Charleston. We would  
18 be happy to answer any questions. Pass the word  
19 around, many who couldn't make the meeting have  
20 questions. I don't have a business card. Do you have  
21 one?

22                   AUDIENCE MEMBER:

23                   I didn't bring any.

24                   AUDIENCE MEMBER:

25                   I'll scribble something on a piece of

1 paper.

2 MS. JOHNSON:

3 And if people want the state contact,  
4 they can always contact me and I can pass along Mark  
5 and Pete's information.

6 MS. TAYLOR:

7 We do have --- do we have the state  
8 contacts on our website?

9 MS. JOHNSON:

10 No.

11 MS. TAYLOR:

12 We can add it.

13 MS. JOHNSON:

14 We'll add their information to our  
15 website.

16 MS. TAYLOR:

17 We're going to stick around for a little  
18 bit longer so if you have questions or concerns you  
19 want to talk to us about on a one-on-one basis, you  
20 can do that. There's also some posters. You can look  
21 at the plume and the technology posters over there if  
22 you're interested.

23 I want to thank everybody for coming out.  
24 We really appreciate your input. We couldn't do this  
25 without you so thank you very much.

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MEETING CONCLUDED AT 7:30 P.M.

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CERTIFICATE

I hereby certify, as the stenographic reporter, that the foregoing proceedings were taken stenographically by me, and thereafter reduced to typewriting by me or under my direction; and that this transcript is a true and accurate record to the best of my ability.



Court Reporter