ORIGINAL

AUGUST 8, 2013

PUBLIC MEETING TO ANNOUNCE
PROPOSED PLAN AND PUBLIC COMMENT PERIOD
FOR INTERIM ACTION REMEDY
FOR THE GARVEY ELEVATOR SUPERFUND SITE
HASTINGS, ADAMS COUNTY, NEBRASKA

Hastings Public Library
517 W. 4th Street
Hastings, Nebraska 68901

Reporter:
Dana Burkdoll, CSR, RPR, CCR

(Commenced on the record.)

MR. BEN WASHBURN: We are going to talk about the proposed plan, what some of the alternatives were, give you some site updates, and kind of what's going to happen in the future here at the site.

We have a court reporter here tonight who will be documenting everything that is said for the record, for the public comment, because we will take your comments and we will consider those and provide responses to all comments provided here tonight.

Brian Zurbuchen is the remedial project manager for the site. He will be giving the presentation, he is the man with all of the knowledge. He's the one that can answer all of your questions.

So really I would like to thank you guys for coming tonight. Please ask questions, make comments throughout the night. And at the end of the presentation we will be available as well if you prefer to speak to us privately and not in front of the group.

If you would like to be on the

mailing list, we have some green cards there in the back, which you can sign, put your address and your name on. And if you're not on the mailing list, we'll add you to the mailing list.

So whenever we have site updates, we send out a fact sheet, things like that, you'll receive it in the mail.

So I would ask you guys to do that if you so please.

And with at that, I'll turn it over to Brian and let him discuss the site.

Brian.

SPEAKER, MR. BRIAN ZURBUCHEN: Good evening, everybody. Again, thank you for coming.

If you do have questions during the presentation, feel free to ask them, just be sure to speak clearly and state your name for the court reporter before you ask your question.

Let's get right down to it. I've got quite a few slides here, so hopefully we'll flip through them quickly. But you will be able to absorb most of the information.

As Ben said, we're here to facilitate public involvement in our remedy selection process. We want to inform the public about what we've been doing to clean up the site thus far and how much progress we've made about the current site conditions, where's the contamination, and at what levels. And to let you know what alternatives we looked at to address that contamination.

How we're going to clean it up. Not how we're going to clean it up, but the different methods we looked at to clean it up. And we're here most importantly to solicit your public -- the public comments on what we consider to be our EPA's preferred remedial alternative.

This is just an outline of what I'll talk about tonight. An introduction and a little bit about the site history. It's got quite a long history.

Garvey Elevators was constructed way back in 1959 and it went on the State's voluntary cleanup program, and went into that program in 1995. So we've got a lot of history there. I'll try to get us through it quickly.

I'll talk about the remedial investigation. These are our activities to determine where all the contaminants are at the site and the soil and groundwater, where they are and what type of contaminants we have there.

And then we'll talk about the human health risks from that contamination. Does it potentially pose an excess risk to human health?

Then we'll talk about all the alternatives we looked at for soil and groundwater, and which ones are the preferred remedy.

I don't work alone on the site, of course. Randy Schademann, he just stepped out, he's our on-scene coordinator. He handles most of the response -- early response actions of the site, providing people with alternate water, extending municipal water lines, running the treatment system, these are all activities that -- that on-scene coordinators typically conduct early on in the process before they get to a remedy.

Jennifer Trotter is our site

attorney.

Jennifer, do you want to stand up there?

And Ben Washburn, our community involvement coordinator, of course, is up here.

And then our state partner is Lloyd Bruners, project manager for the Nebraska Department of Environmental Quality.

And then Tom Buell his -- his title, sorry, unit supervisor -- Superfund unit supervisor. Correct?

MR. BUELL: Perfect.

SPEAKER, MR. BRIAN ZURBUCHEN: And then, of course, part of the site team is Hastings and the surrounding community.

Okay. Typically, the Superfund remedial process, you know, how do we get to this point where we select a remedy? How do we get to the end where we cleaned it up?

It's a long process. It's not simple. We're spending a lot of public dollars to do these cleanups. We have to be certain that we're selecting the right remedy. We have to be certain that we know where all the contaminants are before we go out and take an

action, because it's extremely expensive.

So, in the first phase is our pre-remedial process, we're done with that. Then the site becomes listed on the national priorities list. It's on the national priorities list. It was listed in 2005.

Then we begin what's called a remedial investigation feasibility study. That's where we look at where the contaminants are, what types of contaminants we have. And then we do a feasibility study to identify a number of alternatives that might be used to clean it up.

And then we issue our proposed plan and take public comment on that.

We're in this stage right here.

When we issued a record of decision, that documents the alternative we've selected. So we're right here in the public comment period.

After we select that remedy, we're going to design a treatment system and then implement it.

It's a little more complex at Garvey. Life is never as simple as you hoped

it would be and that's especially true sometimes for Superfund sites.

At this site, we had a lot of historical information when we came onto the site in 2005.

As you recall, I said back in 1995 it was in the State's voluntary cleanup program. Garvey had done some work, they installed a system at the site. And they had done a little bit of site characterization on their property.

So we had enough information to move towards what's called an interim rod so we could take early action. And this early action, the purpose of that was to control that source area and stop further releases from the former Garvey facility itself to the downgrading groundwater plume.

So right now we're right here. So we're -- we're implementing that interim rod that we selected back in 2010. Many of you were here for that meeting. And we're here to take public comment on this interim remedial action as well, because there is still some question of what is the best remedy for one

particular area, that's the groundwater at the source area.

So we're containing the source area, and right now we're proposing a remedy for the -- for the source area soils and that big plume, that large four-mile long plume that comes from the site. Those are the two areas.

Many of you are familiar with Garvey Elevators, that's why I just jumped to that.

Site history: Garvey former owner, current owner is Ag Processing.

Garvey Elevators, back in 1959, constructed the facility, installed a carbon tetrachloride storage tank for the fumigation of grain. There was a pipe that ran from that tank to the above-ground storage tank that stored 2,000 gallons. And so there was a pipe that ran from that tank up the side of the elevator into galleries, infiltration galleries, along the top of the elevator there.

So at some point between 1959 when that tank was installed and 1986 when it was we removed, there were releases of carbon tetrachloride from that tank. Or from the tank and the -- and the buried line.

There were drips, the pipe may have burst, the buried pipe may have burst or leaked, or corroded and leaked, but there were releases in that vicinity there.

So there are a number of bullet items here that go through how the site was discovered. And, um, the State's involvement early on, '94, Garvey let us say, no, we have a problem here, we have this tetrachloride in our soil and groundwater.

In '97 they found in it one of the municipal wells. That well was taken off line and put on emergency use only.

In '99, Garvey installed their -- their system just on their property to handle some of that soil and the groundwater there.

Between '99 and 2002 they operated that system. They estimated they removed 2,100 pounds of carbon tetrachloride.

In 2002, they said they didn't want to participate anymore with the State. And then the State conducted what's called an preliminary assessment site investigation. That's the early phases of the Superfund process.

This shows that treatment system that was -- that is at the former Garvey Elevator property.

Actually, this should be eight. That is my mistake.

There are eight groundwater extraction wells. Groundwater extraction wells are denoted by the symbol here. General groundwater flow direction is east, with a slight southeast trend.

There are eight soil vapor extraction wells to treat the soil.

So the goal of this system was to prevent any contamination from flowing off their site. And, um, the soil vapor extraction wells, they extract soil vapors and then emitted it into the atmosphere. But if the concentrations are too high, then it is destroyed in a catalytic oxidation oxidizer system. It's on-site as well.

So, these extraction wells extracted the water, it was treated in a treatment building here, and then rejected into these two injections. They installed that system back in '99. They operated it for a few years. We

aren't certain how reliably they operated it. But that's all -- that's all we know is what's in the records there, because we hadn't taken over at that point.

In 2005, we added it to the NPL. That made it eligible to receive public funds in the event that the former owner wasn't able to pay for it or the operator or the transporter.

There are a few categories there that could be potentially liable.

In 2005, 2008, that time range, EPA signed Garvey on to an administrative order of dissent. That was an order that they voluntarily signed and they agreed to do some site characterization work. They agreed to determine where all of the contamination is at the source area and also downgrading it. And they performed part of that work. But then in 2008 they declared bankruptcy, in March 2008.

So we took over at that point. And, from 2008, to the present, these are some of the removal actions that Randy and his group has performed. They extended it, you know, 1.4 miles of water mains to get clean water to

residents whose private wells were impacted. By our current count, I believe that's 19 residences.

And they -- they also upgraded that system at that source area. The Garvey system, that they installed, Randy's group, they upgraded that system to better capture that groundwater.

And then a few more dates here. Move on.

Operable units. The site -- the site is rather large. We have a plume that is four miles long. The former property itself. Soil contaminated. Groundwater contaminated. We broke it into operable units to make it easier for us to address. So some of it is administrative.

OU 1, operable unit 1, is a contaminated soils and groundwater at the facility itself on that former Garvey property.

0U 2 is downgraded. Everything downgrades, so that huge plume downgraded. That is OU 2.

We've already talked about the purpose of the RI. We characterized the soil

and geology and the nature and action of the net contamination.

This is just a general profile of the soil beneath the site. We have about 115 feet of unsaturated soils. And underlaying by, saturated zone that is about 110 feet thick. Sand and gravel aquifer, very conductive, as you all probably know.

And, there are a couple of fairly laterally extensive silty clay units. And those are denoted here by these brown zones.

So we've got an upper, medial and lower aquifer. But it's all the same. Like the age of aquifer is 110 feet thick.

So what did we do to characterize the site? We took a lot of samples. We took a sample everywhere we thought contamination might be. Because we're not only looking at carbon tetrachloride, we need to see if there is any other pesticides, perhaps, they used and didn't apply properly. Maybe there are other fumigants they used. Maybe there is PCBs from the other transformer out there that leaked into the ground. We have to go out and take a look at all the different media.

Sediment. We looked where the -- where, you know, we expect the runoff to flow. And we took sediment samples at eight locations. We collected surface soil samples, 19 of those. Subsurface soil samples.

And then we also did a lot of groundwater sampling, 146 samples from 40 locations. And then we installed several monitoring wells that we continue to monitor.

I'm going to show you pictures of these where we took these samples here to give you some perspective.

So we sampled groundwater at the property and then also on downgrading in that plume. And we sampled multiple depths, not just one depth.

For example, here -- here is where we collected our sediment samples. These are the drainage areas by these white dash lines here. So each point represents a sediment sample.

This red one here, this is an area where we detected something. What we first do is we sample. If it's above our screening levels, then we have to look more closely at

it. We have only one location here of sediments where it exceeded our screening levels. So we keep that and retain that because we want to take a closer look when we do the remediation.

So at first we screen it.

Next, we -- are the surface soil samples. Each point represents a surface soil sampling location. We can see the elevator here.

Here is the upright grain bins.

I didn't explain that. This is an aerial photograph that we're looking at.

Here is the entry road to the grain elevator.

Here's the tracks that run in the northwest -- northeast/southwest direction.

Here's that flap storage at the grain bin.

So this is the big tall elevator that we see here.

Now, where did we see anything?

When we screened it, we had, one, two, three, four, five locations where we had contaminants above our screening levels and

these are those contaminants here.

Notice that none of the surface soil samples had carbon tetrachloride, but they did have this chloroform, which is a degradation compound of carbon tetrachloride.

PCB's were found near the transformer.

Now, that's just screen load.

We looked at 108 samples from 31 locations at multiple depths in the soil at all of these locations here. And we found four locations, only four locations where we found contaminants above the screening levels.

We did find carbon depth in the soil.

These points here are near that former storage tank and we intentionally focused our sampling, some of the sampling right where that storage tank was.

We also collected indoor air and sub-flat samples to assess whether there were any vapors coming into the shop, the maintenance stop there, or into the office. Those are the locations for those. And we only had a few that were above our screening levels.

Okay. Now, here's that huge plume. This is the elevator right here that's covered up by all of our sampling points. And this is what the plume looks like. That's the total lateral extent of the plume. The highest levels are right here in the middle.

Now, this is, over here is -- I think this is Technical Boulevard right here. Baltimore Avenue is right here. Washington is this street here.

THE AUDIENCE: Wabash.

SPEAKER, MR. BRIAN ZURBUCHEN: Thank you. You know where we are.

Does anybody not? I think everybody does.

So, what we did is we took a -- a, what's called a direct push, technology probe, and we pushed down into the aquifer and grabbed samples from several different depths.

Okay. Each one of these yellow dots.

And we also supplemented that with some existing information from our other site. Those are the green dots.

So before we did these samples, we

didn't know where the plume was. We had an idea which direction it was flowing. I should have showed you the sample we did first without the plume, because we got the plume picture after we did the sampling, of course.

Now, I'm going to show you a couple of cross-sections. We're going to slice down into the aquifer so you can see what the plume looks like that is not spread throughout the aquifer uniformly.

And these were the -- the samples -- okay, from monitoring wells. So to get this picture, we also used monitoring well data from a number of monitoring wells. Some associated with Garvey that we installed. Some from the Dana site.

And it looks like quite a few, but actually that number of wells over that aerial extent is not that many.

You have four miles long and you're trying to track how it's moving. So it seems like a lot of samples, but it's really not.

So, if we -- this cross-section right here at Garvey, along the railroad there if we slice down and look at that. Here's the

water table right here. Here's where we sampled. Here's where the highest concentrations are. And that gives you a little bit of a mental image there.

The next cross-section shows a nice egg-shaped plume there. It's how we would expect transport and dispersion to occur in the aquifer. As it flows with the groundwater, it actually spreads out laterally as well. It spreads with the direction of groundwater flow and laterally.

So the next step we -- we assess where -- what the contaminants were, where they are, and now we need to quantify the risks.

There is four steps:

Characterize distribution.

Estimate exposures.

Assess the health dangers and dose response.

And calculate the risks.

And I'll talk about what populations we considered. There is different groups of populations we have when we do a risk assessment.

So we -- the different populations

we looked at were:

Outdoor industrial workers.

Indoor industrial works.

Off-property residents.

Trespassers.

Construction workers.

And future on-property residents, because what if the elevator was dismantled and it was developed for residents. So we assessed that halfway as well.

Now, what's shown here are -- HI stands for hazard index. If it's greater than 1, then that's bad. So, NV means no value, we don't have the toxicity information to assess that pathway. That is what NV means.

Over here, we have 24, which is many times greater than 1 force. And, that is definitely an issue.

And the CR is cancer risk. Excess cancer risk above your normal risk of getting cancer over your lifetime.

So that's 1.4 times to the minus 3. So it's .000 -- no. Too many 0's. 001, 1 in 1,000, excess cancer risks above the normal risk. That's to an off-property resident

drinking the most contaminated water in the plume over a -- I believe it's a 30-year period.

So the red areas are the ones that we found pose an unacceptable risk and we need to address those. So the future on-property residents exposed to soils, and then off-property residents exposed to groundwater, future on-property residents exposed to on-site groundwater.

Yes, Lori.

THE AUDIENCE: So these folks here that live downgrade, it was current off-property residents, right?

SPEAKER, MR. BRIAN ZURBUCHEN: These folks would not, because they have been connected to municipal water.

THE AUDIENCE: Okay.

SPEAKER, MR. BRIAN ZURBUCHEN: We're looking at -- in the scenario, we're looking at someone who installed a well that we don't know about. Since we're on the site and we provide alternate water, either connecting people to the municipal main or supplying them with bottled water.

But everybody, except for one resident, is connected to the municipal main and we sample periodically residents that are near the plume. So the ones within are already taken care of. The ones near it, we continue to monitor on a frequency that we determine based on -- on what -- what we suspect the plume is doing or what we estimate it's doing.

THE AUDIENCE: So that risk now may be removed for all of these folks that are on City water now?

SPEAKER, MR. BRIAN ZURBUCHEN: Yes.

THE AUDIENCE: There is no risk whatsoever, not even in the ground soil?

SPEAKER, MR. BRIAN ZURBUCHEN: No. There is for future on-property residents. Right here, there is an unacceptable excess cancer risk to surface and subsurface soil. This risk is not -- it doesn't disappear. We take -- we assume that people are able to use that groundwater and we want to clean it up and restore it to its beneficial use. If you can't address a site by simply supplying municipal water to residents, that doesn't -- that doesn't address contamination and that is not

what we're doing. We're here to clean up the site.

THE AUDIENCE: My question is: What about the soil?

SPEAKER, MR. BRIAN ZURBUCHEN: Oh, the soil. To off-property residents, no, there is no issue there because there were no releases to the soil. It's in the groundwater, it's not volatilizing, you know, into the soil at a rate where it can cause soil contamination throughout a 100 foot, going out to the surface soil that you would be exposed to.

No, there is no risk from the Garfield...

THE AUDIENCE: Except at the elevator.

SPEAKER, MR. BRIAN ZURBUCHEN: Except on the property. Right. She was taking about the off-property resident. Right.

At the elevator, if someone, in an exposure scenario like an on-property resident, that -- that includes children. So, um, you would be eating a certain fraction of the soil, they assume that you eat so much a day, you breath so much of the dust, there are a lot of

assumptions that to go into these risk assessments.

So, say, again, sediment, it was found to be within acceptable limits. Surface and subsurface soil at the source area exceeds acceptable limits for a future resident. And then, groundwater exceeds acceptable limits for a future resident.

Off-site, we have the same thing, unacceptable.

The contaminants of concern. These are the contaminants that pose that excess risk in the soils, PCB and carbon tet. Groundwater, carbon tet, chloroform, and trichloroethanol.

Downgrading in the plume, it's carbon tet and chloroform. CCL4 and CHCL3.

What's our cleanup strategy? So, early on I showed you that -- that bar or that ribbon that described the remedial process. And then I showed you there was a popup that said -- showed the interim actions that were taken. Those interim actions that we're already taking are Phase 1.

Phase 2 is what we're in right now and that's what we're here to take public

comment about, is what our preferred remedy that we're presenting to you.

Phase 3, that will address the source area groundwater that we're still evacuating.

So this is just, again, that bar that shows Phase 1, what's going on right now. We're right here.

We're in this Phase 2.

And then, eventually, there will be a Phase 3 to get to a final remedy for the entire site.

So where are -- we have to identify what our objectives are before we go out and just start designing something. Short-term and long-term objectives are shown here.

We want to prevent any further migration from those contaminated soils infiltrating to the groundwater. We want to prevent that, we want to clean up that soil. And we want to prevent that plume from spreading further, that huge four-mile long plume. We want to prevent any exposures to that plume.

And long term, we want to restore

the aquifer, its beneficial use and reduce contaminant concentrations to an acceptable levels.

Now, we looked at four alternatives for the soils at Garvey and four alternatives for that plume. The no-action alternative you'll see S1 and G1, that's an alternative we have to look at, it's a baseline alternative. We have to look at it, because there is some cost associated with that. Even though we're taking no remedial action, we still have to monitor things at the site, so there is some costs associated with it. So that is our baseline.

OU 2, S2, this alternative we looked at what if we took those soils, dug them up, treated them, and then continued to operate that soil vapor extraction system that is currently there. We looked at that alternative.

S3, what if we just expanded that SVE system. What if we didn't dig up the soil. What if we just expanded that SVE system.

And then alternative S4, what if we dug up the soils, expand the SVE system and

continued to operate.

Now, groundwater. This is a lot of information. I can barely remember the soils right now. Probably your heads are swimming.

0U 2 groundwater. We'll go through these and I can come back if we need to.

G2. What if we just pump and treat at the leading edge of the plume, it's the farthest edge of the plume, in the direction of groundwater flow out at Texaco Boulevard, in that area.

What did we do? Extracted the groundwater there, treated and discharged it. How much would that cost? How long would it take? There's all sorts of criteria we'd have to look at.

G3. What if we pumped and treated at the leading edge, but we also in the middle we pumped and treated. So we kind of cut the plume off here, and at the leading edge. Would that speed up things? Maybe.

And then alternative G4 is what if we pumped and treated at the leading edge and then in the most contaminated area we did some chemical in situ treatment that breaks down the

carbon tetrachloride.

As I was saying before, the no-action alternative, there is some cost associated with that because we have to have continued project management, which means work plans. We have to do a statutory five-year review on the site. We still have to conduct monitoring. So all the cleanup alternatives will include these components, of course.

Now, that alternative S2, where we dig up the soils and treat them and put them back. Well, actually, we don't put them directly back. We dig them up, treat them over in this area here, and then dispose of them here, and borrow the soil from here and put it back here.

Um, so our activation area, we would have a 40-foot-by-10-foot area that is six foot deep. That's what we estimate right now. Later, when we get into design, we may do some additional sampling to revise that area, but that's our best guess right now what it would take.

Alternative S3, expand that SVE system. And by expanding it, there are eight

wells currently. We would install two additional ones right in the place they -- it would have been best to install them in the first place, which is right at that tank and right at that buried line. We would have installed two wells right there where we know the release is -- some releases occurred.

Alternative S4, we put those two alternatives that we just talked about together.

Okay. That -- that slide is missing. And that's proposed extension of ICA. Let me get to that. That's a component of the three groundwater remedies for operable Unit 2.

For the large plume down gradient, there's currently an institutional control area for the City of Hastings. And it -- let's see, that boundary coincides in some places with the edge of the City's boundary.

So, what we are proposing to do is to extend to -- have that ordinance be extended down to prevent somebody from installing a -- a private drinking water well in that area where the plume is.

Now, we can't draw a line exactly

around the plume and say this is that institutional control area where nobody should put a well, a drinking water well in particular is what I'm talking about, a domestic well.

So we have to go outside of that a little bit to the north and south just a little bit and then out in front of it.

Out in front of it is the NAD, that there are not many residents out in that area.

Alternative G2 for the OU 2 groundwater. Pump and treat the leading edge. We would install three wells at the leading edge.

And it's called the leading edge because some of the plume is still in the medial aquifer at this point and then it slowly migrates down into the lower aquifer. So it moves not only horizontally, but it has a vertical component as well.

So that's why there are two sets of wells. We had a single treatment building here. So six extraction wells, treatment building and two injection -- or three injection wells to reinject the clean and treated water.

So we would have a piping run along -- this road is --

THE AUDIENCE: Ottawa well.

SPEAKER, MR. BRIAN ZURBUCHEN: Ottawa, yes, that is correct.

Alternative G3. Pump and treat at the leading edge and mid-plume. So this is in an effort to see what would happen if we would pump in two additional areas to see if we could speed that up. So we would have three wells out at the leading edge and then an additional six wells in the middle of the plume there.

The treatment building in this case would have to be located or be best to be located midway between those sets of wells.

And the green is the piping.

Now, alternative G4, which is pumping at the leading edge. In addition to that, it would be injections of -- of, a chemical treatment to -- to address that contamination.

That -- those injection wells, there would be 39 of them on a 40-foot -- it had a 40-foot spacing.

Delivery is always a problem with

these injections because you have to get the stuff to the contaminants.

So this plume has been spreading out for 53 years. Um, so it's not going to -- you know, it's -- it's spread out for four miles. It's not contracting, it's spreading. So it's very difficult to inject a treatment everywhere the contaminated groundwater is. That's unfeasible.

That is why the default alternative a lot of times is pump and treat because there aren't a lot of alternatives that are good.

Now, how did we evaluate the alternatives? There are two threshold criteria. If it doesn't meet -- if the alternative doesn't meet these two criteria, we don't consider it. Protection of human health in the environment and compliance with ARARS. That is -- here we go. Applicable or relevant and appropriate requirements.

These might be State requirements, or, other Federal requirements not under a set of regulations that EPA oversees. Maybe -- maybe Fish and Wildlife statutes or something that we have to meet. So those are other

requirements that we have to meet. If it doesn't meet those, then we don't consider it.

And then modifying criteria in the short term and long term how effective it is. Does it reduce toxicity, mobility and volume of the contaminants? Can we implement it? And how much does it cost? Those are modifying criteria that we're trying.

The balancing criteria are State and community acceptance. So we'll look at each one of these alternatives and look at our evaluation of those alternatives.

So all the no-action alternatives have some common elements. They're not protective. We looked at a 30-year time frame for each one of those. No-action alternatives. And it would cost for those soils, no-action is still going to cost about $300,000. Groundwater, about 850,000. That is our estimate. That's to do project management, to create work plans, to do groundwater monitoring, and to do our five-year statutory required reviews.

Now, this is -- it presents -- or present an evaluation of all of the soil

alternatives here.

Protection of human health and environment for the no-action alternative, minus it doesn't meet that alternative -- or I mean that criteria. It doesn't protect human health and the environment. If we just leave it there and do nothing, it doesn't protect it. And it doesn't -- nor does it comply with our ARARS. So we don't -- we don't look at the rest of it.

Cost, as I said before, is almost $300,000.

S2. If we excavated the soil and operated the SVE system, protection of human health and the environment. It's protective and complies with the ARARS. On a scale of 1 to 5, we rated it a 3 in terms of long-term effectiveness. A 3 in terms of reducing toxicity, mobility and volume through treatment.

Is it effective in the short term? Moderately effective, moderately implementable.

If we expanded the SVE system, if we just expanded it, you can see, again, that S3 and S4 are both -- both meet the two threshold

criteria. But in the end, alternative S4 is better in terms of long-term effectiveness and the cost is less than the alternative S3. The time frame for cleanup is also shorter.

And all of these things are explained in more detail in that proposed plan there and you can read it. So you can read that later, if you would like.

But alternative S4 is the alternative EPA has identified as its preferred alternative. But we -- we have not decided.

The State is on board with our identifying S4. They also believe that that is the best alternative. But it's not a done deal, we haven't taken public comments yet.

THE AUDIENCE: So S4 is just S2 and S3 put together?

SPEAKER, MR. BRIAN ZURBUCHEN: Correct.

THE AUDIENCE: Why is it cheaper than just S3?

SPEAKER, MR. BRIAN ZURBUCHEN: It's the time frame it's required to -- to -- for it to operate. If you -- if you flip in there, it's on page --

THE AUDIENCE: 16.

SPEAKER, MR. BRIAN ZURBUCHEN: I am sorry?

THE AUDIENCE: Page 16.

SPEAKER, MR. BRIAN ZURBUCHEN: 16. On page 16. Ten years it was estimated to take S3, and five for S4.

Now, for OU 2 groundwater, this is that large downgrading groundwater plume. Again, we looked at the threshold criteria, did no action, didn't meet it. The others met that threshold criteria.

If you looked down at the -- our evaluation on our scale from 1 to 5, with 5 being better, alternative G4 best meets our criteria at a cost of 15.5 million approximately.

Alternative G4, with the injections and pump and treat, you notice it's much more expensive. The injections are quite expensive because it's 115, 110 feet to get to the water table, and then it's 110 feet thick, that aquifer is. So it's hard to deliver all of those -- deliver the treatment chemicals throughout the aquifer.

Um, and, EPA, both EPA and the State agree that alternative G3 is the preferred alternative.

And this just says, with regard to satisfy threshold criteria and best satisfied the balancing criteria.

This is an EPA fund lead site. Um, EPA and the State will be paying for this remedy.

Garvey, this site became eligible for Federal funding when it was put on the national priorities list and they declared bankruptcy.

So, as I've said before, the public comment period, we're in the middle of it. It ends August 30th. So you have plenty of time to take a closer look at the proposed plan and send us your comments.

We'll issue -- after we receive those comments and take them into consideration, we'll issue what's called a Record of Decision. That documents what our remedial action is going to be for the site. And it will include our response to the public comments.

Later, we'll have a design meeting at some point when we get into the design of this system. And then later Phase 3 will have a -- well, and then we'll implement the design in the interim remedial action.

I think I've said most of this already. Fax, e-mail or letter. If you have verbal comments tonight, if we can't answer them here, we'll get you a written answer. But we'll take your comments tonight, if you'd like.

So I think I'll leave that slide up if you want to write it down. Actually, it's in the facts sheet and in the proposed plan. I think everybody has a copy.

So, I'll take questions, if you're still awake.

THE AUDIENCE: How long before any of this could possibly be implemented? I mean, we had a meeting in 2010, we're back to 2013. We're part of the way there.

SPEAKER, MR. BRIAN ZURBUCHEN: Before -- so you're asking how long will it be before we actually start constructing something to address that OU 2 plume?

THE AUDIENCE: Yeah.

SPEAKER, MR. BRIAN ZURBUCHEN: Currently, I think our on-site construction activities are projected to begin I believe it's 2015. In 2015. The -- the next phase that we'll go through is we have -- we have -- we have to have a -- we have to hire a contractor to design our system.

Let's say that these alternatives are the ones that end up being selected after reviewing public comments, then we have to have our contractors complete a design. And then we have to review that design and go back and forth on -- on comments, all the while working with the State and to iron out their comments and their revisions.

Um, after that, then we will, you know, hire a -- a construction contractor. We -- it has to go through a public bidding process. So that design has to be bid out. And that's a process as well.

It doesn't happen overnight and like I was saying before, it's a huge sum of money that we're talking about to clean this site up. It is very serious. We don't want to take any

missteps, so we step carefully.

THE AUDIENCE: How many years do you have actual accurate information on your testing?

SPEAKER, MR. BRIAN ZURBUCHEN: On the samples that we've selected, we have, you know, we have -- we go through a validation process that we use to evaluate whether our procedures in the field were correct, whether the lab performed its job correctly. So any of the samples that EPA collected we have -- they're all what we call validated data.

So we can -- we say we can base our decisions on this data. And that data that was collected previously by Garvey, we don't know. We aren't relying on that data to make our recommendation for a proposed plan tonight. We're relying on our data that we collected.

THE AUDIENCE: You said that -- that this is -- has been spreading for a lot of --

SPEAKER, MR. BRIAN ZURBUCHEN: It could have been spreading for 53 years, ever since they put in the tank. We don't know when the release occurred.

THE AUDIENCE: So through periodic

testing, have you noticed that it's spreading --

SPEAKER, MR. BRIAN ZURBUCHEN: Is it continuing to spread?

THE AUDIENCE: Yes. How fast is it spreading?

SPEAKER, MR. BRIAN ZURBUCHEN: A foot or two a day. It continues to migrate with the direction of groundwater flow.

THE AUDIENCE: So since it is probably going to take at least five years after 2015, that is 2020, how far west will be the plume at that time?

SPEAKER, MR. BRIAN ZURBUCHEN: We're -- we're going to continue to monitor it. I'm not going to guess how far it will be. We'll continue to monitor it.

We have -- one of the things that we've done is construct a groundwater flow and transport model during -- during the -- let's see. We have side-by-side, we have two thing going on. So it's hard to keep things separate sometimes.

But we have that interim action going on right where we're actually in the

remedial action phase at the source area. And we've got this phase going on.

But we've done a groundwater flow and transport model and in general it's about a foot or two per day that the groundwater -- that's the rate the groundwater moves at.

Now, that front edge is continuing to smear and spread out, you know, to --

THE AUDIENCE: So it's moving north and south also?

SPEAKER, MR. BRIAN ZURBUCHEN: No. It's moving to the east -- almost directly east. If you see the plume there on that map, it's almost directly east. It's about 11 degrees south of east. That's the direction the plume is moving from that elevator.

THE AUDIENCE: My kids go to school less than a half a mile to the south edge of that plume. So it's -- if it's not treated for how many years, would they ever be affected by it?

SPEAKER, MR. BRIAN ZURBUCHEN: Well, there should be no concern, because there is no exposure pathway complete.

They -- the school is on municipal

water. Am I correct? I believe it is. Randy stepped out right -- no, there he is.

THE AUDIENCE: Because we've got notes home from school suggesting that the kids bring their own water because it's high in nitrates.

SPEAKER, MR. BRIAN ZURBUCHEN: Oh, because it's high in nitrates.

THE AUDIENCE: Yes, that's in the --

SPEAKER, MR. BRIAN ZURBUCHEN: Right. Nitrates are not associated with the Garvey Elevator site. Nitrates are a regional problem in this area.

THE AUDIENCE: I was wondering if there is a possibility that it is spreading in one direction?

SPEAKER, MR. BRIAN ZURBUCHEN: Remember, it's 110, 115 feet even to the water table. And if there -- they're not on the former property itself. So the soil is not contaminated with contaminants from Garvey. The groundwater may be, but -- but they're on the surface. And if you're not drinking the water, then there's no complete pathway.

THE AUDIENCE: -- right across the

road from Garvey.

THE AUDIENCE: They're not on the city water, the school is on the private well.

SPEAKER, MR. BRIAN ZURBUCHEN: The school is on a private well --

THE AUDIENCE: It's south of the plume?

THE AUDIENCE: Wallace, Adam.

SPEAKER, MR. BRIAN ZURBUCHEN: Different school. Okay. So you were thinking of a different school?

THE AUDIENCE: Well, I was thinking of different locations.

THE AUDIENCE: It's on Baltimore about a half of a mile from the south edge of that plume.

SPEAKER, MR. BRIAN ZURBUCHEN: Okay. Well, the -- if we get too many people talking at once, the court reporter wouldn't be able to do her job.

You're a half mile -- we -- we are confident in knowing where that plume is right now. We have monitoring wells -- here, let me flip back to a figure.

We have groundwater monitoring wells

on the perimeter of the plume, just outside of the plume monitoring it to -- to determine --

THE AUDIENCE: How often?

SPEAKER, MR. BRIAN ZURBUCHEN: How often do we sample those? The sampling frequency is -- is changing. It changes because early on we don't know as much. We sample more frequently. But I believe we're sampling those on a semiannual basis right now.

A half mile is a long way when we're talking laterally from the plume. It's not in the direction of the groundwater flow. So it's off to the side. So the plume would have to diffuse and disperse out that far, which it -- it -- it's not dispersing laterally at any great rate, if any.

THE AUDIENCE: Where is Wabash Avenue on your map?

SPEAKER, MR. BRIAN ZURBUCHEN: Wabash is right there.

THE AUDIENCE: That is all between highway --

SPEAKER, MR. BRIAN ZURBUCHEN: Did -- can you see that cursor on the screen?

THE AUDIENCE: Yeah.

SPEAKER, MR. BRIAN ZURBUCHEN: That is where Wabash is.

THE AUDIENCE: I thought there was a test site right on the edge of that plume. Idlewilde and Wabash.

SPEAKER, MR. BRIAN ZURBUCHEN: Idlewilde and Wabash would be right here at the intersection. So we have a monitoring well just west of there.

Oh, you probably saw a transect. Okay. I know which figure you're talking about, we collected groundwater samples there.

So the school is on Wabash you said.

THE AUDIENCE: No. No.

THE AUDIENCE: It's on Baltimore.

THE AUDIENCE: Baltimore.

SPEAKER, MR. BRIAN ZURBUCHEN: That's even closer to the source area.

THE AUDIENCE: It's closer to the source area, but a little farther south.

THE AUDIENCE: Right.

THE AUDIENCE: Because I'm 100 yards from Wabash and Idlewilde.

SPEAKER, MR. BRIAN ZURBUCHEN: 100 yards south of there?

THE AUDIENCE: Yeah.

SPEAKER, MR. BRIAN ZURBUCHEN: And we sampled your well before, correct?

THE AUDIENCE: Well --

SPEAKER, MR. BRIAN ZURBUCHEN: We have sampled it. I'm confident we have. I think that I've spoken to you before. Your last name is --

THE AUDIENCE: You mean private well?

SPEAKER, MR. BRIAN ZURBUCHEN: I'm sorry?

THE AUDIENCE: You mean, sampled our private well?

SPEAKER, MR. BRIAN ZURBUCHEN: Yes.

THE AUDIENCE: Don't they test it across Idlewilde?

SPEAKER, MR. BRIAN ZURBUCHEN: Across Idlewilde, I believe the municipal main, a removal extended to the municipal main all the way down to Wabash.

THE AUDIENCE: Yeah, that is true.

SPEAKER, MR. BRIAN ZURBUCHEN: All the way down Wabash. And you're just on the other side of Idlewilde from Wabash.

THE AUDIENCE: Yeah.

SPEAKER, MR. BRIAN ZURBUCHEN: And you're --

THE AUDIENCE: They go across the road with their -- where all the orange pipes are. That --

SPEAKER, MR. BRIAN ZURBUCHEN: Oh, the City may be extending it further, is that where they're working right now?

THE AUDIENCE: Well, a couple of months ago, they did.

SPEAKER, MR. BRIAN ZURBUCHEN: Okay. Well, we'll -- we'll talk with the City. But it sounds like they may be extending their mains further, perhaps.

THE AUDIENCE: No. No.

SPEAKER, MR. BRIAN ZURBUCHEN: No?

THE AUDIENCE: No.

SPEAKER, MR. BRIAN ZURBUCHEN: Okay.

THE AUDIENCE: It might be helpful to understand that -- that that plume is a straight line down. It's more of a -- a --

SPEAKER, MR. BRIAN ZURBUCHEN: Right. Right.

THE AUDIENCE: At the center of that

plume there may be nothing in the first 100 feet. At 200 or 300 feet, it may be as wide as that plume.

THE AUDIENCE: But it would still affect the well.

SPEAKER, MR. BRIAN ZURBUCHEN: Yeah. Yeah. So these are -- back to this -- back to this figure here, our Geo-Globe locations where we did extensive sampling here. Um, and that's a cross-section through there.

So you're saying -- you're right, it's not -- the concentration is not uniform with depth.

THE AUDIENCE: No. At one mile at the edge of that plume, it's not a straight up and down. That -- that plume may be 200 feet down, and at 100 feet it may be clean.

SPEAKER, MR. BRIAN ZURBUCHEN: Right. Right. It could be.

THE AUDIENCE: That's what I'm getting at, that it slopes this way.

SPEAKER, MR. BRIAN ZURBUCHEN: That is right.

So out here we had a well that is shallow. The water from it might not be

contaminated. Right there -- where did it go? Where the cursor is right there.

THE AUDIENCE: Yeah.

SPEAKER, MR. BRIAN ZURBUCHEN: Yeah. It's not -- the concentration is not the same everywhere with depth. Yeah.

THE AUDIENCE: So the part of the plume why is it at the elevator now that is -- it hasn't been leaking for years. Why wouldn't the largest concentration -- why wouldn't --

SPEAKER, MR. BRIAN ZURBUCHEN: Well, some of the highest concentrations were at the elevator. We've seen concentrations drop by two orders of magnitude and some of our monitoring wells at the site.

In our extraction wells, I was just taking a look back at the data from some of our extraction wells that we monitor very frequently. Like we were monitoring them, oh, quarterly, I believe.

The concentrations have dropped from, you know, a few hundred, to half or a quarter as much as they were. So the concentrations are dropping at the source area due to possibly source depletion, yes. And it

could be less contributions from the soil. Because, remember, there is that soil vapor extraction system that Garvey installed and operated for a while. And then they went bankrupt -- well, and we're not confident that the operation was consistent. They went bankrupt, we started operating it. We've been extracting contaminants.

And, in fact, there have been -- since 2008, we've removed 200 -- more than 260 pounds from the soil and from the groundwater at the source area through those systems.

THE AUDIENCE: What's the water test at the site now?

SPEAKER, MR. BRIAN ZURBUCHEN: Um, well, in our extraction wells, the majority of them are below, I believe, 100 micrograms per liter.

The monitoring wells, boy, I've got the data and I can show you the data and show you some trends, but I don't have the slide to illustrate it for you right now. But, if you're going to stick around, I can show you on that. Pull up something on the laptop.

And all of this information is -- is

provided to the public. It's in this library, there's a repository here in this library. It's in our administrative records. So all the documents that we're basing this on are in the library here for you to review. And all that -- that data is there.

Yes, sir.

THE AUDIENCE: If you pump water up and treat it, you can pump it right back down to the aquifer; is that correct?

SPEAKER, MR. BRIAN ZURBUCHEN: And your name was -- I didn't get your name.

THE AUDIENCE: Dennis Carlson.

SPEAKER, MR. BRIAN ZURBUCHEN: Oh, Dennis Carlson. Okay.

We're going to extract it, treat it, and reinjection is one of the options.

THE AUDIENCE: Because east of town on the NAD, they're pumping it down the creek.

SPEAKER, MR. BRIAN ZURBUCHEN: They are?

THE AUDIENCE: Yes, but they're not planning on doing that here, are they?

SPEAKER, MR. BRIAN ZURBUCHEN: We'll probably reinject it. That's what's -- that

what's currently -- that's what we're doing at the source area currently.

THE WITNESS: Because they're putting in center field wells and there is a huge reservoir at the research center to get into.

SPEAKER, MR. BRIAN ZURBUCHEN: I think it's a manmade reservoir, isn't it?

THE AUDIENCE: That's expensive.

THE AUDIENCE: They spent 25 million on that project last year.

THE AUDIENCE: That's Federal money?

SPEAKER, MR. BRIAN ZURBUCHEN: That's a different -- a different source than our -- than ours. Yeah. A different pot.

And we're not even -- let's say we do select this remedy, it has to be funded in order for us to actually construct it and to move forward.

THE AUDIENCE: When this -- you took over, I know one of our neighborhoods, said that their well was tested out at 900 parts per million. Is that possible? At that time on South Wabash?

SPEAKER, MR. BRIAN ZURBUCHEN: Oh,

on South Wabash? There could be -- yes. In several 100s, yes.

THE AUDIENCE: But now we're at 100 or less? Or 100 or more?

SPEAKER, MR. BRIAN ZURBUCHEN: Well, it's greater than 100.

THE AUDIENCE: Greater than 100.

SPEAKER, MR. BRIAN ZURBUCHEN: My figures here, We just had two contours. One contour was the five micrograms per liter contour. The five micrograms per liter, the Federal MCL for municipal drinking water systems. That's the standard that they have to meet. And that's the standard, that is one of our ARARS.

So, it was contoured at 5 and then 100. So the area was greater than 100, that dark red area was greater than 100. Right there. And this is based on more recent data. In the past, the levels were higher, yes.

Well, if there's -- if there are no more questions, I think that we'll wrap it up. You're welcome to stick around and I'll answer questions one-on-one, if you like.

I appreciate you taking the time to

come out and listen to, um -- listen to us.

MR. WASHBURN: I would just add one thing. We have copies of the proposed plan here, it's a very technical, detailed document. I'd be happy to e-mail this presentation to anyone else that would like information that is a little bit less technical, something for you to reference.

My contact information is available in the proposed plan and also on the fact sheet. So if you would like an e-mail copy of this presentation, please send me an e-mail and I'll be happy to send it out to you.

THE AUDIENCE: Thank you.

(The public hearing went off the record.)

C E R T I F I C A T E

I, DANA L. BURKDOLL, a Certified Court Reporter, Registered Professional Reporter and Certified Shorthand Reporter, do hereby certify that the within-named witness was by me first duly sworn to testify the truth, that the testimony given in response

To the questions propounded, as herein set forth, was first taken in machine shorthand and reduced to writing with computer-aided transcription, and is a true and correct record of the testimony given by the witness.

I certify that review of the testimony was requested by the witness or the parties. If any changes are made by the deponent during the time period allowed, they will be appended to the transcript.

I further certify that I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel, or financially interested in the action.

WITNESS my hand and official seal at on this 8th day of August, 2013.

DANA L. BURKDOLL, CSR, RPR, CCR
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