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ORIGINAL

PROPOSED PLAN TO AMEND THE RECORD OF DECISION

DELAWARE SAND & GRAVEL SUPERFUND SITE

NEW CASTLE, DELAWARE

RE: Public Hearing

New Castle, Delaware
September 2, 1993

The above matter came on for public hearing at the Carpenter's Union Local 626, 626 Wilmington Road, New Castle, Delaware on the above date, at 7:00 P.M., before Deborah J.W. Moquin, Court Reporter, Notary Public.

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APPEARANCES:

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BY: ERIC NEWMAN, Remedial Project Manager
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
BY: FELICIA DAILEY, Community Relations Coordinator
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MS. DAILEY: Good evening; my name is Felicia Dailey and I'm the community relations coordinator for the EPA. I would like to welcome you for coming out this evening.

We have a court stenographer here this evening and she's taking down the record for our meeting.

We are here to discuss the EPA's alternative plan for the clean up of the Delaware Sand & Gravel site. We are planning a 45-minute comment period, which will begin at 7:29 and end at 9:13.

We have a public notice ad which appeared in the Wilmington News Journal, announcing the availability of the proposed plan, and also the comment period at this meeting tonight.

We also have a repository record for the popular proposal plan here at the New Castle office of DNREC. I'm going to assume everybody knows what DNREC is. We also mailed

over 120 copies to those persons whose names appeared on the mailing list.

When you came in this evening, we asked that you sign for the mailing on the sign-in sheet, and the purpose of that is for the mailing list. It is a confidential list that the EPA uses to send out information through the mail to those persons whose names appear on the list.

You will notice, once again, that we do have a court stenographer here this evening, and she is taking down the official record of this meeting tonight. All comments and questions from tonight's meeting and those received in the mail will be included in what's called in the official document called Responsiveness Summary, which will appear in the back of the record of decision, once the decision has been made how to clean up the site.

After the presentation this evening by Eric Newman, the EPA's remedial project manager, we will open the floor up for your comments and your questions. Please state your

names and speak clearly and maybe what we'll do is pass the microphone around if the court stenographer is having a problem hearing us.

If you don't feel comfortable with asking your questions publicly, we do have index cards in the back. You can put your questions on there and we will take those at the end.

I would like to introduce you to Eric Newman, who's the remedial project manager, and I'd also like to ask you to hold all questions until his presentation is complete.

Without further adieu, I'll turn the meeting over to Eric.

MR. NEWMAN: We have invited you here tonight to discuss EPA and DNREC's decision to re-evaluate the selective remedy for the drum disposal area at the Delaware Sand & Gravel site. We had previously decided to treat the contaminated soils at the drum disposal area using on-site incineration.

There are really several factors that led us to determine that we ought to take

another look at that decision and that remedy. We found that contamination had spread a bit further than we had originally thought. More significantly, it had spread into areas that are really difficult to get a shovel into, and we found a considerable number of intact and partially intact drums, where we had originally thought that the majority of them had been crushed before being disposed.

In addition, we have now developed an alternative remedy, a different clean-up option that hadn't been evaluated in the original feasibility study. This new clean-up option really includes or employs a combination of two new technologies; soil vapor extraction and bio-remediation, along with engineering controls.

We have completed treatability studies which indicate that this combination of technologies will be effective for the drum disposal area, will meet our objectives, and we have identified now -- we have recently finished a new study and we have identified to the community

that this new option is EPA and DNREC's preferred alternative.

We are here tonight to solicit community participation in the final remedy decision. Now, I have got a brief presentation that I would like to go through. I will try to keep it brief. I guess you can be the judge of whether it's brief or not.

We'll start out with the site map just to orient ourselves. Of course, we are two miles southwest of New Castle. Here we have the Route 9 intersection with Grantham Lane. You can see Delaware Sand & Gravel is located at the end of Grantham Lane. Also, as you can see, the Army Creek Landfill Superfund site is adjacent to the Delaware Sand & Gravel site, separated only by Army Creek itself.

Let's take a closer look at the Delaware Sand & Gravel site. What we think of as the Delaware Sand & Gravel site is really comprised of 27 acres. Previous investigations have found that the majority of wastes were

disposed of in four discrete or distinct areas. The record of decision that was previously issued identified three separate construction projects that would take place on different areas of the site.

The Grantham south area and the inert areas were found to contain primarily construction rubble with mixed industrial wastes. The record of decision stated that we would construct a landfill cap over the Grantham south area and the inert area. This will prevent rain water from landing on the landfill and perculatin through the wastes and pulling contaminates into the groundwater.

At the Grantham south area, we have already designed and constructed the landfill cap and erected a security fence. At the inert disposal area, we have recently completed the engineering design, and we hope to begin the construction activities early next construction season.

What's left is the ridge and the

drum disposal area which is going to be the focus of this next discussion.

The record of decision said that we were going to excavate those contaminated soils and incinerate them on site. Now, the ridge area was primarily a staging area for the drums that were going to be disposed of in the drum disposal area, where you primarily surface soil contamination. It's not widespread and it's confined to the uppermost 5 feet.

The record of decision said that we were going to excavate those contaminated soils and incinerate them along with the materials from the drum disposal area.

The drum disposal area was approximately 15 feet deep, just a little bit less than one acre, and thousands of drums containing both liquid and solid industrial wastes from various companies here in Delaware were disposed of in the drum disposal area.

When we wrote the record of decision, it was our understanding that the

majority of these drums had been emptied into the pit and then the drum was either crushed in the pit or removed for recycling back to the companies where they had come from.

As called out in the record of decision, our first step in the design project was to begin a pre-design investigation, focusing or centering right around this drum disposal area. It was through this pre-design investigation that we found some additional information that led us to decide that we ought to take another look at whether incineration is really the best technolog for this area.

What we found is that we do have a considerable number of intact drums still in that what was 15-feet deep, one acre area, and that adds a considerable amount of complexity to the incineration project. The other thing we found was that the contaminates had leached down from from bottom of the pit, hit the naturally occuring clay layer down about 30, 40, feet below the surface here, and spread out along the clay in all

directions and then generally migrated towards this zero clay area, which is basically, a hole in the clay where it drops into the lower aquifer.

I should mention that the red here indicates contaminated soil and the green is clean soil.

So, the fact that we have a 5- to 10-foot thick layer of contaminated soils right above this clay layer, that has 25 to 30 feet of clean soils above it, also adds to the complexity of the job because we would have to remove 30 feet of clean soil just to get to the contaminated soils.

Well, as soon as we found the intact drums, we decided that we had to take an action there to prevent the continued migration of these contaminates from the drum disposal area right away, before we can resolve this final remedy decision. We decided to install a slurry wall around the perimeter of the drum disposal area as an interim action.

Now, a slurry wall is a vertical

clay wall that's 3-feet thick which extends from the surface down to the underlying naturally occurring clay layer, and connects in with that clay layer. The slurry wall, this clay wall, will control migration of contaminates from the drum disposal area.

You can see that we decided to put the slurry wall not just around the drum disposal area proper, the one acre containing the drums, but around the area that would include the contaminated deep layer, the deep contaminated layer.

We have also attempted to isolate this zero clay area. Now, this is a cross-section. Here I have a bird's eye view. You can see that it's not to scale, but you can get the idea that it goes around the drum disposal area and you can see that there's a partitioning wall that will attempt to isolate this zero clay area.

Now, a group of companies that have been identified as potentially responsible

parties, at the Delaware Sand & Gravel site, have agreed to design and construct the slurry wall. In fact, we have already begun the design and we are nearing completion. We expect to begin construction of the slurry wall, I hope, this fall, and that construction should last approximately 8 months.

This same group of companies hired a team of scientists and engineers to develop an alternative remedy for the drum disposal area, taking into consideration current understanding of the site conditions. This team, known as the Blue Ribbon Panel, developed this combination of technologies that included soil vapor extraction and the bio-remediation along with engineering controls. They presented the proposal to EPA and DNREC.

We evaluated the proposal very carefully, and decided that based on its technical merit, that a focused feasibility study was warranted that would compare the incineration technology, as it would have to be modified to

meet the current understanding of the site conditions, with this alternative that they've developed.

Now, during the feasibility study --

MS. DENISON: Question; who would do the quality control of the slurry walls?

MR. NEWMAN: I'll take all your questions at the end, if that's all right. I promise I'll get back to that later.

During the feasibility study, what we're really trying to do by focus or otherwise, we're trying to identify our objectives, compare our alternatives, see which alternative best meets our objective, basically.

In this case, our remedial objective is to first get the drums out of the ground and then protect the groundwater in the vicinity of Delaware Sand & Gravel, so that in the future, it can safely be used as a drinking water source. To do this, we need to remove, destroy or contain the contaminates that are in those soils

to prevent them from continuing to leach into the groundwater.

Now, EPA uses a very deliberate process when comparing these remedies that include 9 criteria. The pull-out sheet in the proposed plan that you were handed as you came in or maybe even received at your home, if you were on the mailing list, details the 9 criteria that we used to make this decision.

Now, let's take a look at the alternatives that were evaluated. I've got a diagram here; I'm going to try to narrate what we would do in chronological order, how it would occur.

The first step, of course, would be to complete the installation of the slurry wall. The interior of the slurry wall would be de-watered. Right now, we have a 3- to 5-foot-thick layer of water that is right above that clay layer. That would be removed.

After the de-watering, we would excavate not just the area that contains the

drums, but we would excavate all the way down to the clay layer and include all the area within the slurry wall. We would do our best to separate the clean soils from the dirty soils so that we are only incinerating dirty soils, as it is fairly expensive per ton to incinerate soil.

The drums and the soils would be incinerated on site. After the materials went through the incinerator, they would be sampled and most likely re-deposited back within the slurry wall. Then, a landfill cap would be constructed over the area that would tie into this slurry wall and connect in with this clay layer so we would isolate the area.

Now, we expect that this remedy would take approximately five years to complete, and that's assuming that there are no administrative delays, in siting in incinerator. The cost estimate for this project, the incineration project, is approximately $70 million dollars.

Then, we have alternative 2, which

is the new alternative; and again, I'm going to go through it in a chronological order of how it would occur.

After completing construction of the slurry wall and the interior is de-watered, we would excavate only the area -- only one-acre area that contains the drums down to approximately 15 to 18 feet.

Those drums would be sampled and sent for off-site treatment or disposal. The contaminated soils that come up with the drums would be temporarily stockpiled while we construct perforated piping into the excavated pit.

Now, the majority of contaminates at the drum disposal area are organic contaminates and approximately 80 percent of the mass of the organic contaminates are what's known as volatile organic contaminates. What a volatile contaminate is, it's one that is easily evaporated; it easily moves from liquid into gaseous state.

So, what we would do is, after putting the contaminated soils back into the pit

over the perforated pipe, we would pull the air through the perforated pipe pulling air through the soils, stripping those volatile contaminates off the soils, and then pulling them up to the surface, where they would be captured in some sort of an air control device. The materials that are captured in the device would be sent off-site for treatment or disposal.

When we pull the air through the soils, at the same time, what we'll be doing is, because oxygen is part of air, we will be pulling oxygen into the soils. There are naturally occurring micro-organisms right now at the drum disposal area that are, in effect, feeding off of the contaminates that are in the pit.

These micro-organisms actually use the contaminates as a food source because they are buried in the soil, they do not get sufficient oxygen. They respire just as we breathe -- well, not just as we breathe, but they also use oxygen, and it's the lack of oxygen that prevents these micro-organisms from proliferating.

While we're pulling the air through and stripping the volatile organic contaminates, we will also be promoting the growth of micro-organisims in the ground. Now, the micro-organisms don't just degrade volatile organic compounds, but they also work on semi-volatile organic compounds.

As I mentioned before, we have completed a treatability study. We have actually taken soil samples from the drum disposal area. We have brought them back to the lab and seen the micro-organisms grow in the lab. So, we know they're there.

We have pulled the air out of the ground and we've measured the amount of oxygen in the gas and we've found that it's low. So, we know that these organisms are being deprived of oxygen.

So, we completed the treatability study and the treatability study indicates that this combination of technologies, of soil vapor extraction and bio-remediation will work.

Sometimes you will hear folks call this combination of technologies bio-venting.

Now, so far, I have just mentioned what's going to happen to contaminates up in the one acre 15-foot area. Similarly, we will be installing vertical air extraction wells. They are pipes that are perforated down in the area where we have the contaminated soils. So, we will be pulling air through those lower soils also and stripping volatiles and promoting the growth of microbes.

We expect that this technology would take approximately 6 years to meet our treatment goals. Now, the majority of the contaminates that are found in the drum disposal area are readily degraded and we would be able to meet our treatment goals for those contaminates in one or two years. Other contaminates are more resistent and may take longer.

We do think that we can meet the treatment standards within about 6 years. The total cost of this remedial action is

approximately $26 million dollars; still not small potatoes.

Now, let's take a quick look at the two remedies side by side. In both cases, we'll construct the slurry wall, de-water the interior. In the case of the on-site incineration remedy, we will be excavating not just the drums, but also all the contaminated soils, while in alternative 2, we'll leave the majority of the contaminated soils in place where we will treat them using the soil extraction and bio-remediation technology, and then in both cases, we will place a cap over the surface when we're done.

You can see that the cost of alternative 1 is approximately $70 million; the estimated cost of alternative 2 is approximately $25 million dollars, and in both cases, the time to complete the job is 5 or 6 years.

So, I just want to take a quick look at the 9 criteria that we do use in comparing these alternatives, and then we'll get to questions and answers, well, questions and I hope,

answers.

The first two criteria are known as threshold criteria and they're really yes or no answers. Each alternative has to meet these two criteria or we don't go any further in our feasibility study. Overall, protectiveness and compliance with all appropriate requirements, regulations, in both cases, we got a yes answer.

When we take a look at balancing criteria, the long-term effectiveness, reduction of toxicity, mobility, volume through treatment, short-term effectiveness, implementability and cost, with the exception of cost, they are very close. They graded out very close in each case.

Long-term effectiveness and reduction of toxicity, mobility, volume through treatment, grades out slightly higher in the on-site incineration. Short-term effectiveness, implimentability grades out slightly higher for alternative 2.

Both of the alternatives meet our objectives, although alternative 2 does so at

considerably less cost. EPA has identified alternative 2 as our preferred alternative.

The State has been working closely with us all along and they have also concurred that alternative 2 appears to be the better, the most appropriate of the two, and we are here tonight to solicit community participation and to see what the community feels about EPA and DNREC's decision to revise the selective remedy at the drum disposal area, from on-site incineration to this alternative 2, which is a combination of soil vapor extraction, bio-remediation and engineering controls. Felicia?

MS. DAILEY: Okay; I would like to go to questions and comments. As we stated before, there is a stenographer present and she needs to hear your name. If you feel comfortable with that, please state your name and your question or comment clearly.

MARTHA DENISON: Well, let's start with mine. I'm very concerned with the quality control from start to finish, but that wall is

going to be left there for a very long time to come, and so the control of that is what really worries me and also the basic materials to make sure that, you know, that it is not only going to withstand the treatment, but the long-term usage.

MR. NEWMAN: Right; if I understand your question correctly, it who's --

MS. DENISON: What's in it and who's responsible?

MR. NEWMAN: Okay; a slurry wall is a clay wall that has the soils that are naturally there are mixed with a very fine clay, known as Benetite that -- I hate to say cements, but it sort of cements the materials together to create an impermeable barrier.

We do a considerable amount of in-office work in terms of specing out exactly what the materials are that we will be using. Then, during the engineering and design, we take those materials that we have speced out and we do laboratory tests. We actually make a mini wall, place water next to the wall, we apply a bit of

pressure and see how much moves through.

So, in the specifications, we developed an acceptable spec. Then, in the laboratory, we confirm that we're going to meet that.

So, as we are building the wall, we are continuing to do quality control checks and confirm that we are getting the in-field results, just as we did in the laboratory.

Now, the way this slurry wall works, right now, okay, once you de-water the interior of the wall, what you do is, you create a positive grading inside the drum disposal area. If you took a paper cup with just a couple little holes in the paper cup, and pushed it down into your bathtub, not so far down that it would go under water, but just a bit, water would seep into into holes, into the cup, rather than out.

By de-watering the interior of the wall, any water that moves across the wall is going to tend to move into instead of out of the slurry wall. I know that goes a little further

than the scope of your question, but --

MS. DENISON: No; as a matter of fact, it doesn't go further than my question. The other part of my question is, for many of us, we have worked on water problems for years. You have got some folks here tonight who have been through a lot.

We have tidal waters and we have very high water tables around here. So, the flow of water and erosion also is a very serious matter. Anybody around here who has concrete blocks in their house knows how much water manages to sit around New Castle. I mean, it's a very serious problem and just the times we get severe storms for days on end and there's high tides, high waves, plus the drainage also, you know, your storm drainage, and that kind of erosion because it brings in so many chemicals and street matter and things like that is really a serious worry.

I mean, there are a lot of drainage problems in this area to begin with. The County drains a lot of storm drainage just right around

this area where we are here and we have some very large raw sewage lines and pumping stations along this area too. It's an everyday thing; it's not something that none of us know anything about.

That kind of destruction can happen when we least expect it.

Would there be some type of sensors that would be buried with this wall or is it strictly a go in, dig and check it out once in a while thing?

MR. NEWMAN: No; we'll have monitoring wells, known as piezometers just to sample the water levels in the area.

In fact, New Castle County has been monitoring water levels within the vicinity of Army Creek and Delaware Sand & Gravel for the last two decades.

MS. DENISON: Who will be doing the monitoring?

MR. NEWMAN: We hope, the way the Superfund program is set up, the Government expects the companies who were responsible for

placing the wastes there to take the burden of controlling them or mitigating the situation.

We have yet to do so, but we fully expect to enter into a legal agreement where the companies who have been responsible for disposing of the compounds will do the monitoring with our very close supervision. So, we expect them to take the financial burden and actually do the work.

EPA and DNREC will continue to watch them, monitor them, and make sure that it's done in compliance with the specifications. So, before they do anything, everything is spelled out and then we do spot checks to make sure that everything is going according to plan.

MS. DAILEY: Anymore questions? Yes, sir?

CHRIS ROBERTS: I'm Chris Roberts, New Castle County Council. We had this problem several years ago over in Tybout's Corner.

With alternative 2, the soil vapor extraction and bio-remediation, will the natural

bacteria be the ones which will be disposed with the waste and this other bacteria? And also, if during this process, you introduce that bacteria and find out that's not doing the job, while you're monitoring the situation, will be you be interested in other --

MR. NEWMAN: At this point, we expected to just use the naturally occurring microbes that are indiginous to that area. Our treatability studies show that we don't need to augment the good bacteria that are there at this point, but during the remedial design, we'll be looking at all the potential options.

VINCENT DELLAVERSANO: I'm Vincent DellAversano, owner of Delaware Sand & Gravel.

Question 1: How much further have you guys pushed contamination with all your studies that you've been doing?

I have got 6 containers or 7 containers of trash up there, sitting up there in water, in a concrete lined pit. I've got 100 drums sitting on the ground from your studies.

All your studies when they dug up 1,700 drums, they backfilled it, bang, never capped it off as good as it was before.

How much further have you people pushed the contamination?

MR. NEWMAN: No further.

MR. DELLAVERSANO: No further? In other words, it's exactly where it's been?

MR. NEWMAN: We have not pushed the contamination any further. The drums that are out there right now contain PPE, personal protection equipment, the Tyvek suits that the guys were wearing --

MR. DELLAVERSANO: They're the ones on the ground.

MR. NEWMAN: They're the ones on the ground. The drums that are in the roll off containers which are sitting on the concrete pads --

MR. DELLAVERSANO: Full of water.

MR. NEWMAN: -- full of water, are double-contained drums.

First, we took the drum out of the soil, then we put in an over pack and then we took the over pack and placed it in a roll off and then we placed the roll off on a concrete pad.

Yes, right now, the concrete pads have water sitting in them.

MR. DELLAVERSANO: That's had water since it has been built.

MR. NEWMAN: Right; but it has not had contact with those drums whatsoever.

I'll clarify; the drums that we pulled out of the ground are not in contact with the water.

MR. DELLAVERSANO: I beg to differ with you. They're in six inches of water.

MR. NEWMAN: But there are three levels of protection between the drum and the water, but certainly, the whole thing is sitting in the water, yes. That is something that we are going to move; that's not a permanent situation that they are sitting out there. But right now, contamination has not moved any further as a

result of our activities.

MS. DENISON: Where else has this second procedure been used successfully?

MR. NEWMAN: The soil vapor extraction method and bio-venting?

MS. DENISON: Yes.

MR. NEWMAN: There were about two dozen different sites in the country, primarily on military bases where they have jet fuel spills. That's where we have really got a lot of in-field data.

MS. DENISON: Well, you know, I'm not big on the burning off, the incineration, to begin with, but what concerns me is you are only going to go 15-feet deep with this whole project; correct?

MR. NEWMAN: No, not completely correct. Let me put that one slide back on the projector.

MS. DENISON: All right.

MR. NEWMAN: This is alternative 2; the excavation will only go 15- to 18-feet deep,

to the bottom of where the drums are located. In that hole, we will install horizontal perforated piping and that's the way we'll treat the soils that are placed back in the hole. But we will, in addition to that, be installing these vertical wells that are -- we tried to show that where these hash marks are where the pipe will be perforated.

So, we will also pull a vacuum on those pipes so air will also be moving through the soils that are below the drum disposal area and along the clay area.

MS. DENISON: Oh, so right down the wall?

MR. NEWMAN: Right; all the way down. What we're looking at is treating these soils without ever moving them, just by putting the wells down, pulling the air through the soils. But the soils that come out, you know, we are going to excavate the drums. It is not 100-percent drum matter. There will also be a considerable amount of soils that are excavated

along with the drums. That contaminated soil, once we get the horizontal piping constructed, will be placed back in the excavation.

Another thing that I didn't point out is, that the relatively small amount of contaminated surface soils in the ridge area, will also be placed in the excavation area. So, that's the way we'll be handling both of these areas.

ROD DENISON: The incineration option, how will smoke stacking emissions be handled to prevent air pollution as a result of the burning of contaminated material?

MR. NEWMAN: With the incineration technology, you measure off gases, primarily CO2 that's coming off of the stack. So, there would be continuous monitoring that has, in fact, an automatic shut-off that you set at safe, acceptable levels and if the continous monitoring device detects that there is an excursion, it shuts the unit down.

MS. DAILEY: Any other questions?

MS. DENISON: How much water do

they figure will be, at any given point in time, involved in this,,,say the second alternative?

MR. NEWMAN: Water? Are you talking about the water that will be removed from the interior of the slurry wall?

MS. DENISON: I'm talking about the water that's removed, the water that has to be cleaned when it is taken out and the water that will be coming in naturally periodically; so, the whole site?

MR. NEWMAN: That would be determined during the engineering and design stage, as far as how much will move across, but it's really not much at all.

We expect that when we do the first removal, we're looking at 680,000 gallons that would be removed for treatment with this treatment plan. That's a one-shot deal.

Then, we will continue to monitor how much water is in the interior. We are still working out the details, but if it got above a certain level, then we're looking at going in and

looking at another removal action.

Once we get the wells installed, a landfill cap will be constructed across the top here. That's the green area. What we're talking about there is a multi-layer cap with a geo-synthetic membrane and clay. What that does is, it allows the rain, of course, to land on the landfill and then it runs off of the landfill and it's clean. It never comes in contact with the contaminates.

It sort of encapsulates this unit and then doing the soil vapor extraction and bio-remediation, also known as bio-venting, within this chamber.

MS. DENISON: What will happen to the the air coming out that has to be cleaned? Because I mean we live in a area with not only chemicals in the ground, but enough chemicals in the air to make us all sick periodically.

I mean, what do you see as being successful in this? I mean, obviously, not all of it will be cleaned. What will happen -- is air

going to be pushed back down into the ground after it has been cleaned? Is it going to be let out into the atmosphere? What's going to happen to it?

MR. NEWMAN: The off gas vents will be monitored. The State of Delaware and the Federal Government has a number of regulations that control air emissions and the majority of those, if not all of them, are identified in the proposed plan under the section entitled, "Compliance with ARARs."

MS. DENISON: So, it's not going to be really cleaning the air as it comes out; it's just going to be escaping into the air?

MR. NEWMAN: No, no; we will meet safe standards. If necessary, it's more than likely that an air filter will have to be placed on the off gas vent. It will be captured in the filtering unit and then the materials that are captured in the filtering unit, would be sent off-site for treatment and disposal.

Now, in the event that we have

micro-organisms doing the majority of the work, see that's the benefit of the bio-remediation over the soil vapor extraction. The micro-organisms are actually performing the treatment in place. Soil vapor extraction, you're removing it from the soil, capturing it, and sending it for off-site treatment. The bio-remediation portion of it they're actually degrading it in place.

So, with the bio-remediation, during the remedial design and beginning of the operation, what would happen is, you would treat the system to try to encourage as much as possible the degradation in place. We also are interested in completing this action as soon as possible and the soil vapor extraction will accomplish it quicker, maybe not more clean, but quicker.

MS. DENISON: Well, one thing that concerns me, I don't know very much about this type of thing, but my understanding is, you are also running chances for fires and things like that in a site like this, if you do it the way like for the second program.

You know, around here, we've had so many problems with chemical wastes at the Raytheon Plant right down the road here, Vesco Chemical, we've had serious, serious problems. We know what it's like to have like fires and explosions as well as severe air pollution and water problems.

So, I mean, what kind of danger are you talking about around the area? Not only in the emissions and how close people would be affected, but how about the chance for fire and explosion? You're talking about a lot of gases. If you are talking about biodegradable, you're talking about gases being emitted, just from that process too.

MR. NEWMAN: In fact, we're going to be encouraging the gases to be produced, and we are going to be ready for them. We're going to be capturing them.

The actions that we're taking are encouraging these contaminates to be moved from a liquid phase into gas so we can capture them, and as part of every remedial design at every

hazardous waste clean-up, we have a detailed health and safety and contingency plan. So, all of these things are looked at in excruciating detail.

MS. DENISON: Well, give us an idea of how close -- you know, we have developments just on the other side of that and there's the town over here. Give us an idea in facts, actual facts about what the danger area is going to be for this, not just for incinerator, but for the second alternative.

MR. NEWMAN: Well, we don't believe there's going to be a danger to the community or we would not be proposing this action whatsoever, as far as explosions or something of that sort.

I just put this slide back up because I just want to point out that we have Mr. DellAversano's home right here by the south area and we have another home in this area located right here.

Every action that we take, we have their safety in mind and all of our actions are

going to be geared so that it's safe not only for the State, but for these folks that are living adjacent to the Superfund site.

MS. DENISON: You didn't give me any facts about how you are proposing to do that.

MR. NEWMAN: What was your question, specifically?

MS. DENISON: Is it done by the monitoring of gases? Is it done by watching how the soils are handled as they're removed?

I mean are these things that have been tested in other areas that we can know they have had some success? Not just the jet fuel site, we're talking about other types of chemicals here.

MR. NEWMAN: Every action that we take at the site is with a tremendous amount of health and safety considerations. We don't take any action on a hazardous waste site without fully considering the potential impact to the on-site construction workers and the local community.

We measure -- you know, we will

continually monitor the gas that comes off, we will continually monitor every aspect of the activity.

I don't know if you want me to give you a number or what?

MS. DENISON: I guess I'm looking for whatever you have to offer.

MS. DAILEY: Let me just interject something here. Maybe to make it clearer, the site and safety contingency plan is developed for each site so that if at this time, if you're asking for specifics, it sounds like if, if I understand you correctly --

MS. DENISON: Well, anything that was used anyplace else that we could use as an indicator, anything similar.

In other words, we don't want a clean and a poke here; we just got done fighting Raytheon plant down the road here, we've had a chemical plant blow up down there by the site. I mean, we are overwhelmed around here.

You've got the fuel down the other

end of the County. You've got the oil company blowing off emissions; we've got all kinds of problems here.

MS. DAILEY: Can you give me an example of like what was done at some of the other sites?

MR. PETER LUDZIA: My name is Peter Ludzia; and I work for EPA also. I think your question relates to -- it sort of deals with a number of different issues.

MS. DENISON: It does.

MR. LUDZIA: Part of it is what are we doing here, what are some of the specifics with regard to what we're doing at this site. Obviously, your concern is right there.

MS. DENISON: Sure, sure.

MR. LUDZIA: What Eric has eluded to is the fact that for every site, we develop a site-specific health and safety plan.

Now, the plan we developed for this site is going to be different than, you know, the Army sites, the Federal facility sites because

here we have a different mix of contamintes.

MS. DENISON: Obviously.

MR. LUDZIA: So, we're going to be developing a site-specific plan. Eric eluded to the fact that throughout any activities on the site, when they're in there digging up the drums, there will be continuous monitoring. There's concern for the residents; there's concern for the people who are actually in the pits.

So, clearly in dealing with those drums, there will be continuous monitoring looking for explosive gases, oxygen levels, anything that might cause a problem for the workers or the people in the surrounding areas.

So, I mean you have to sort of --

MS. DENISON: So, really there isn't anything here that you can give as an example and that's what is making me very uncomfortable.

MR. LUDZIA: We have used these health and safety plans and we can take them --

MS. DENISON: That is not what I

mean. It is such a mixture of chemicals. That's what I'm concerned about. There are already so many chemicals in the air around here.

MR. LUDZIA: Every Superfund site really has a different mix of chemicals; so, I think it would be very difficult to come up with another site in say another state that has this same mix of chemicals.

MR. NEWMAN: Before Mr. DellAversano makes his statement, we did, in addition to treatability studies, we did a literature search on the soil vapor extraction and the bio-remediation technology throughout the Country, and it is, I believe an appendix to the feasibility study that is in the administrative record, where we can take a look and see other areas that we thought were similar to the Delaware Sand & Gravel site. There were some other sites that we took a look at in determinating whether this was a viable plan for Delaware Sand & Gravel. That is right at DNREC's office on Grantham Lane.

MS. DAILEY: You can go in and read

that document.

MR. DELLAVERSANO: What I wanted to tell you is, most plans will put out methane gas.

MS. DENISON: Oh, I know that.

MR. DELLAVERSANO: They've got almost every landfill that's been capped or buried and there's methane gas coming off of it.

If they find any quantity of methane gas coming off it, they usually set up an automatic burning system which will burn that gas off, causing no explosions, no fires, no nothing. They're all up the turnpike in Jersey at exit 7 there's a big burner there, there's one right up at Cherry Island; so, they're all set up to do that.

MS. DENISON: That's not what bothers me; it's the fact that there are so many other chemicals involved there. It's not just like a regular landfill.

So, you're talking about also burning off other chemicals that are going to be around for years. So, I think that's a terrible

mixture of chemicals.

MR. NEWMAN: There's no doubt about the fact that the mixture of chemicals makes the drum disposal area more complex than perhaps some of the other sites.

MR. DELLAVERSANO: We just put them all in one place; everybody else scatters them all over the place. The same chemicals are in Llangollen Landfill and Tybout's Corner. They're just not dealing with them. They're buried separately; they're scattered all over, which will come out a hundred years from now.

I don't care how they cap them.

MS. DAILEY: Any other questions or comments?

ANTHONY DELLAVERSANO: I've been on sites during excavations. I think you guys have excavated at least three times over there. What they do is, they set up air monitoring stations all around the place.

Talking not only to the people that work for EPA, but the company that worked for

PRPs, after all the excavations that have been done there, they can't find anything that would be a hazard as an airborne hazard to begin with.

The air monitoring tests that I have seen and the sniffers they got are more complex than what I'm used to in the Army, from a chemical warfare standpoint. These guys would be able to tell you and they basically got scared once because they saw something they didn't like and they shut the whole site down.

The problems that I see from being on sites as many times as I've been is more in the immediate area. My dad's house, which I don't live anywhere near, and the English's house would probably be in more danger than the City of New Castle or even Route 9 where Grantham Lane meets.

You got forest vegetation around it. It's an airborne hazard; it's not going to go too far. Depending on chemicals and weather conditions and everything else, there's not that much of a problem.

MR. NEWMAN: Anthony, I'll just add

that we do have volatile compounds --

MR, DELLAVERSANO: Oh, I understand that.

MR. NEWMAN: -- there; we have continuously monitored the area and we've made sure that we've never had any of our construction workers that are in an unsafe environment, and you're right, that well before something was to become a problem, we shut the site down and took another look at what we've got and why and approach it from a different angle.

So, we're continuously evaluating what we're doing as we're doing it.

MS. DAILEY: Any other questions or comments?

MR. JOHN LUCEY: I have three quick questions. First, is there any inorganic chemical contamination and what's being done to address that?

MR. NEWMAN: Yes; there is some inorganic contamination, although the majority of contaminates are organic. There are some

inorganics and primarily the engineering controls will be containing those in place, similar to the on-site incinerator which also does not treat inorganics.

The soil vapor extraction and bio-venting will not treat inorganics, but the compounds that are causing potential threats to groundwater in the drum disposal area are the organics.

MR. LUCEY: Under the second deal, the excavated soil from around the drums, I imagine that's the most contaminated. Why not treat that and make sure it's clean before it goes back in, rather than going into the ground and cap it over?

MR. NEWMAN: I was just saying that with land farming, the bio-remediation land farming, we think that this bio-venting, this combination of the soil vapor extraction and the bio-remediation will be more effective than land farming.

For those of you who don't know

what land farming is, you've got the soils out of the hole, and then it's almost just like a composting pile, you know. Those of you who are familiar with composting, and we know that to effectively compost, you're taking scraps or leaves and the matters that you want to break down you want them to make contact with the soils and you want to turn them regularly so they get good oxygen. And land farming is where you have a large amount of soils out, and in effect, instead of turning it with a shovel, you're turning it with a backhoe, you're airating it that way.

We think we can get the same effectiveness in the hole and we'll be able, with the slurry wall and the cap, we'll really get a lot of benefits that you could get from this where you're in total control of what's going on.

MR. LUCEY: Okay; and my last one would be, with the bio-venting, is there any contingency plan if it doesn't work? Where do we go from there?

Let's say two years goes by and you

don't have a reduction in the contaminates that you had planned, where do you go from there?

MR. NEWMAN: We don't have -- in many cases, we'll have what's called a biomedic bifurcated record of decision where you say you'll try plan "A" and if it doesn't work, you'll go to plan "B" and so on.

In this case, we are confident that the soil vapor extraction and bio-venting will work and we don't have a plan "B" identified to where we could just click right to it.

MR. LUCEY: I work for an environmental consulting firm and I've seen several of our bio-remediation projects where millions have been invested and it didn't work and they had to come back with the second alternative.

I was just wondering if there was some contingency plan.

MR. NEWMAN: In this case, this is not a site that we've just learned about. The Delaware Sand & Gravel site we've been studying for a number of years and we've been taking a look

at this soil vapor extraction and bio-venting for the last couple of years and we have included treatability studies where we have taken soil samples to make sure that -- and plated out the soils to make sure that we have the type of bacteria that are known to degrade these contaminates.

We have taken soils from the most highly contaminated areas and we've found that we do have micro-organisms there. So we don't have toxicity problems because the contaminates are too high.

So, we have done a considerable amount of up-front work and I think that, in many cases, when people get into problems, it's because they haven't done that before they made their decision; so, I think we are in pretty good shape here.

MS. DAILEY: How long do you monitor once the entire remedial action is completed? How long does that monitoring take place?

MR. NEWMAN: Once the remedial action is complete, we would continuously monitor. What we would do is put in place a long-term operation and maintenance plan that would include monitoring, and that takes place for a minimum of 30 years.

MS. DAILEY: Any other questions or comments?

MR. DELLAVERSANO: Anthony DellAversano, just one; with the close proximity of Army Creek and a lot of these contaminates going from the drum disposal area into what I think is one or two of their wells for their remediation, how much pressure are you going to have to put inside this thing to keep that operation from coming into this one, if you understand what I'm saying?

That slurry wall is going to have some permeability to it and the theory is if there's water that goes by, that's going to suck the water in as opposed to letting -- if I got right what you just explained correct.

How much is that well over there that is treating Army Creek going to fight with what you're doing at the drum disposal area?

MR. NEWMAN: We don't see that they'll fight at all. The Army Creek recovery wells are screened down in that lower aquifer, for for one thing. So, they're not in the same hydraulic unit.

In addition to that, over at the drum disposal area, all we have is between three and five feet of saturated zone above the clay ~~clumping~~, so there's not a lot of hydraulic pressure across that wall. The wall is speced out so that permeability is -- the details are 1 times 10 to the minus 8 centimeters per second, which is really impermeable.

MR. DELLAVERSANO: The reason I ask is, there has been an attempt to link these two sites together for a long period of time and the slurry wall is one way I'm trying to see of not linking them together anymore.

MR. NEWMAN: The fact is, we are

handling the contaminates that are moving from both landfills through the groundwater collectively. So the sites, right now, the contaminate plumed from these two landfills are so intertwined that they cannot be separated.

So, rather than trying to do so, we've said, we are going to deal with the groundwater as part of one project. So, the recovery wells that are in place are capturing all of the contaminates and they will re-route them to one water treatment plant.

MR. DELLAVERSANO: So that treatment plant that's currently on-site is going to take care of water for the whole facility?

MR. NEWMAN: The recovery wells --

MR. DELLAVERSANO: Just the recovery wells --

MR. NEWMAN: The recovery wells that are pumping there right now --

MR. DELLAVERSANO: Well, I know --

MR. NEWMAN: Yes, it will, yes. All the wells will be routed to the water

treatment plant.

MR. DELLAVERSANO: This 60 odd gallons that you're going to be pull out of there, where's that going to be treated at?

MR. NEWMAN: That has yet to be determined, but it would be an aqueous treatment plant, a water treatment plant.

MR. DELLAVERSANO: The last one I have is, is this still a PRP-driven remediation with you guys with you people dealing with them or is this totally your game at this point?

MR. NEWMAN: At Delaware Sand & Gravel at this point, we do not have an enforceable legal document with the PRPs for this portion of the remediation. We do have a Consent Order for the slurry wall where they have agreed to design and construct this slurry wall.

Once the record of decision is issued, we expect to invite them to negotiate a settlement for the remedial design and construction of this record of decision, implement this record of decision.

MR. DELLAVERSANO: Well, then you now just brought in another thing.

Once you've worked this out with DS & G, who's going to do the contracting work for this?

I'm the land user even though my family is the land owner. I am the land user; I don't like the contractor who was in there last time that did Grantham south because he hindered some of my operations. Okay?

Are you the one that's going to do did contracting work or is PRP going to do the contractor work as far as settlement goes or is that yet to be worked out?

MR. NEWMAN: It has yet to be worked out. We will continue to try to work with you, but having said that, you know, we have an objective here and we're going to clean this up.

MR. DELLAVERSANO: I understand your objective and I hope to fully go along with your objective, you know, but when you start shutting down some of my operations, then I begin

to have a small problem.

MR. NEWMAN: I think for the most part, we have tried to work with you and we'll continue to do so.

MR. DELLAVERSANO: Yes; and thank you.

MS. DAILEY: Are there any other questions?

We'll be here this evening if you want to ask them personally, Eric or anyone else. We do have some representatives of DNREC that are here.

I think if we are in agreement to end the formal part of the meeting, we can do so, but we are here.

MR. NEWMAN: Thanks for coming.

MS. DAILEY: Thank you for coming out. The comment period does end on the 13th; so, all comments received by postmark on the 13th will be accepted and considered into the responsiveness summary. Thank you.

(Hearing concluded.)

C E R T I F I C A T I O N

I, Deborah J.W. Moquin, a Court Reporter, Notary Public, do hereby certify that the proceedings contained herein of a public hearing which was held on or about September 2nd, 1993, were fully and accurately taken down by me, stenographically and thereafter reduced to a typewritten transcript under my personal supervision, and that this is a true and correct transcript of same.

DEBORAH J.W. MOQUIN
Court Reporter, Notary Public

DEBORAH J.W. MOQUIN
NOTARY PUBLIC OF DELAWARE
My commission expires April 1, 1994

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