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COUNTY OF SENECA
STATE OF NEW YORK

TECHNICAL REVIEW COMMITTEE MEETING

HELD AT: Seneca Army Depot
Romulus, New York

HELD ON: May 18th, 1994

REPORTED BY: PATRICIA A. NELK

MR. ABSOLOM: Okay. If we can get started, I am going to kick this thing off as close to twelve thirty as I can today. For those who don't know, I am Steve Absolom. I am chief of public works here at Seneca Army Depot. The commander of the Army Depot, Colonel Johnson, is away in training this week. He's unable to attend and be here.

A few opening things I want or opening remarks is, first off, I would like to make sure that everybody understands that we will answer all questions but I would like them one at a time so we can answer them one at a time. This is so that we can properly record the question and the answer. So please be patient if we say, "time out, one question, please." That is the purpose for it. We passed out an agenda for today. We are going to make one slight change on that. Because of the way we are going to present it Mr. Healy is not going to give a presentation. Engineering Science will give the overall presentation. So that will be the one change we will have in the agenda.

I do see a few new faces. What I would

like to do is go around the table and have everybody introduce themselves so everybody knows who is here at the front and then we will get right into investigations and where we stand.

MR. HEALY: Kevin Healy from the Huntsville Division Army Corps of Engineers. I am the lead engineer for the work being done at the Seneca Army Depot.

MR. DUCHESNEAU: Mike Duchesneau, Engineering Science in Boston. I am the project manager.

MR. SUEVER: I am Rick Suever. I work for Huntsville Division Corps of Engineers. I am the project manager for the work at Seneca.

MR. CHAPLICK: Jim Chaplick from Engineering Science. I am the department manager.

MR. ABSOLOM: As I said before, I am Steve Absolom. I am chief of public works here at Seneca.

MR. HODDINOTT: Keith Hoddinott, risk assessor for the Surgeon General.

MR. BATTAGLIA: I am Randy Battaglia. I

am the project manager at Seneca.

CPT. RAIMONDO: I am Captain Raimondo, the command judge advocate here at the Seneca Army Depot.

MR. GERAGHTY: Dan Geraghty, New York State Department of Health.

MR. ENROTH: Tom Enroth, project manager.

MR. NELSON: Bruce Nelson with Malcolm Pirne providing technical assistance to the EPA.

MS. STRUBLE: Carla Struble, project manager for USEPA.

MS. RAFFERTY: Lani Rafferty, State Health Department.

MR. GUPTA: Kamal Gupta, project manager for New York State Department of Environmental Conservation Division.

MR. MEHTA: Manmohan Mehta, New York State Department of Environmental Conservation. I am out of Region 8 in Avon

MR. SCOTT: Robert Scott, DEC permit administrator, Avon, New York.

MR. COOL: Bill Cool, Seneca County Soil and Water Conservation and councilman for the

Town of Varick.

MR. DURST: Dick Durst. Cornell University. I work at the experimental station. I am a resident of the Town of Varick.

MR. DOMBROWSKI: Brian Dombrowski. I am the director of the Seneca County Health Department.

MR. ABSOLOM: I would like the people in the back to introduce themselves.

MS. MCDONALD: Molly McDonald. I am a student intern at the New York State DEC for today.

MS. VERA: Linda Vera. I am also out of the DEC office in Avon as a citizen participation specialist.

MS. FALLO: Janet Fallo. I work here at the Depot in environmental.

MR. HUNTER (phonetic): My name is Bob Hunter, environmental protection specialist.

MR. CROOK: My name is Steve Crook, Law Environmental.

MR. QUINN: My name is Mike Quinn. I am from Law Environmental Remediation Engineering.

MR. LAFFIN: Alan Laffin, Lozier Labs out of Rochester.

MR. BURNS: Chuck Burns, Lozier Engineers, Rochester, New York.

MR. ABSOLOM: Very good. Welcome, everybody. With that we are going to get started right in with some briefings from Mike.

MR. DUCHESNEAU: Sure. I would like to welcome you all here to the presentation. We will begin with an overview of the organizational project. Many of you have seen this before. On the top here is Rick Suever. You have already met Rick. He's the project manager. And technical manager for this project for the Corps of Engineers, Huntsville is Kevin Healy. I am the engineering science project manager. And Kamal, who you have met, represents the State of New York. Carla represents EPA Region Two. And Randy represents the Seneca Army Depot. We have been working together here for almost three years. Now we are fairly comfortable with each other. I think that is a very positive aspect of the project that we

have been involved in.

Just to give you an overview of the items that we will be discussing -- that I will be discussing with you. These are the seven active delivery orders that we currently have with the Corps of Engineers in Huntsville. And I will be discussing each one of these projects individually. They have all the SWMU classification reports, the high priority AOC's, the moderate priority, the moderately low and the two RI/FS as well as the action memorandum.

I think it is important that we briefly discuss the SWMU classification flow chart. This was -- I know it is hard to see but you should have a copy in your handout here. And this was derived from the Interagency Agreement, otherwise known as the IAG. It is an overview of the process that is outlined in that document as to how to identify a SWMU, investigate it and perform ultimate remediation. It essentially involves three phases. The first phase is the SWMU classification phase. We are currently very active in this phase. The second phase once

the SWMU has been identified as an AOC, area of concern, or no action SWMU -- let me step back a second. Once it is listed as an AOC it enters the site investigation phase. For a no action SWMU, there would be no further action and it will be deleted from any further action investigation. The site investigation phase involves potentially site investigation. But also possibly if there is enough information to assure that a threat doesn't exist or it could possibly. We just make a completion report and that will be the end of it. However, if there is sufficient information and a removal action can be performed, that is done at the Army's discretion. To perform a removal action, say for a localized area, we have to eliminate the threat and prepare the completion report and that will be done with it.

Some SWMU's are AOC's that have a sufficient threat and additional work is required or additional large scale remediation would be required. That would enter the RI/FS phase. What this is intended to do, this whole process, is to blend the

obligations of RCRA with CERCLA. The Seneca Army Depot is on the NPL, National Priority List. That means that there are CERCLA obligations but there is also RCRA. RCRA is considered an ARAR in this scheme of investigation. So we have some obligation to RCRA. The nomenclature of a SWMU is strictly a RCRA term. When we get into site investigation or RI/FS, they are CERCLA terms. I think what we are showing here is the process outlined in the IAG and it is a blending of both of those particular regulations.

Just to briefly highlight the classification of the SWMU's that we have identified to date. Again this is in your handout. What we show there are 72 SWMU's. And SWMU's are consolidated waste management units that have been identified at the Depot. I will show you shortly the summary of this. As you see here, all the SWMU's have been identified and classified. The classifications include no action, high priority, moderate priority, low priority or moderately low priority. We will go through

a summary of this. Just to point out also that several of these -- I think there is seven, as a matter of fact, that have been identified on these sheets as TBD, to be determined. We met yesterday, our group project managers group which includes NYSDEC, New York State Department of Environmental Conservation, as well as EPA and Seneca. And we have agreed to classify all of these to be determined SWMU's as low priority AOC's. So when we revise this we will include all of those TBD's, or to be determined, as low priority SWMU's. I am not going to spend a lot of time here identifying any particular one. It is all shown in your handout but I want to provide you with a listing of the 72 and where they currently are classified. But what's interesting is the summary of all of the classifications of all the SWMU's. This is an overview picture -- again this is in your handout -- of where we stand on all the SWMU's.

Now, just to make sure there is no confusion here. There are 13 high priority SWMU's that have been identified in the SWMU

classification report. All of those SWMU's are currently under investigation. Five of those SWMU's were combined into an operable unit at the ash landfill. Plus there is another operable unit that is currently involved in RI/FS. That would bring that number to six. Plus the six high priority SWMU's that are currently under investigation. So it brings the number to thirteen. All of the thirteen are currently under investigation either with an RI/FS process or under the, you know, site investigation.

The moderate priority, there are three of those. They are also under investigation as site investigations. As well as the eleven moderately low priority. Those have been combined into a couple of SWMU's which have all been investigated as eight but there are really eleven.

The low priority SWMU's. At this point we are investigating seven. We have identified thirteen. Plus there are seven additional that I just mentioned from the to be determined that are also listed -- will be

listed as low priority which will bring the number to twenty. We are investigating at this point seven. There are thirteen low priority AOC's that we have to consider at this point. There are twenty-five no action AOC's or SWMU's.

That pretty much is a summary of where we currently stand in the investigation and identification of all of the SWMU's or AOC's at the Seneca Depot.

One of the primary documents that is identified in the IAG is the SWMU classification report. As the name implies, it is a report that identifies all of the SWMU's, classifies them in one of the groups that we just discussed.

We have performed limited sampling recently. The limited sampling was intended to provide us with preliminary information to help support classification of several of these SWMU's that were teetering on whether they were no action or low priority. We have collected that information. And based on that information, as I said, those to be determined SWMU's have been classified as low

priority AOC 's. Which again the second bullet item here really doesn't apply. We agreed to do low priority. The report is due to EPA and NYSDEC on June 10th, 1994. We have every intention of making that date.

Moving on to the high priority SWMU's. Actually they are AOC's. I somewhat use that term interchangeably. At this point they are not SWMU's. They are AOC, areas of concerns. This is the list of the high priority AOC's. We have currently completed the field work and have begun writing the report. The field work is initiated in October after receiving approval of the work plan from both NYSDEC and EPA. It was completed in early February. Some of the tasks that I highlighted are investigatory tasks, include photogrametric mapping, surface soil sampling, geophysical investigations, data evaluations, asbestos sampling, et cetera. We have prepared a pre-draft report for our review only. We have received comments from that. It was submitted April 29th. We should be receiving regulatory comments on June 10th; also on the same date the SWMU report is due. It will be

a busy week for us.

What I am going to show you today are some of the figures that will be included in that high priority AOC site investigation report. And I made copies of these overheads so you can follow along. Although they are not color I think you can hopefully follow along with what's happening here.

This is SWMU -- what we call SWMU four. It is SWMU four. It is the old munitions or break out washout plant. What was performed here was the spent casings of the shells, like Howitzer (phonetic) shells and whatnot, still had residual propellant in there. It would come to this plant and be washed out with steam and the wash water was discharged through leach fields. Our investigation was to try to ascertain the extent, if any, of the impacts caused by the operations. I guess the interesting thing on this facility is that we had expected to find some residual amounts of PEPS. Well, we haven't found that much. We found low levels of TNT. What I show here is we were surprised to find copper at the levels that we did find here. And we

think there is kind of a relationship between possibly what went on in the building. It is former building 230. We are not sure exactly what specific operation went on there. But there is a ditch or drainage pipe, I believe, that comes across the road from this building and leads directly to this pond down here. When the pond sediment built up in time, some of that sediment was pushed to the side over here. We are in fact finding elevated levels of copper not only in the sediment that was excavated from the bottom of the pond but we went out to the middle of the pond in a boat and found -- took a sample of sediment in the pond. I am talking in the neighborhood of three thousand parts per million here. Background for the site is generally running someplace in the neighborhood about 30 parts per million. It was kind of unusual that we found metals where we didn't expect to find metals. We are going to have to consider that.

The next facility is what we call SEAD 16. And this is the old deactivation furnace. What went on here is bullets or

small arms were deactivated or rendered harmless through the process of heating inside a large steel rotary kiln tube. This is the old facility. Subsequent to this a newer facility was built and that is SEAD 17 that we will discuss in a minute. What we found here was not surprising. We found some elevated levels of lead in a lot of the surface soils, which is the picture I am showing you now. The highest being upwards of nine thousand parts per million of lead in the surface soil. Lead was known to be a component of, you know, the bullets and some of the propellant material.

The next AOC that we have investigated is what we call SEAD 17. That is the existing deactivation furnace. This facility is currently being applied as part of the permit to operate under the part B permit. A trial burn has been prepared. But we identified this as a SWMU and subsequently did an investigation to identify the potential threat to human health and the environment. Again what we find here are lower levels of lead but nonetheless what we

think are elevated above background levels of lead; the highest of which here is probably around three thousand parts per million. But not inconsistent with what we would like or what we expected to find.

COMMITTEE MEMBER: Are these surface samples or do they go down?

MR. DUCHESNEAU: These are zero to six inches to the surface. That is consistent with what NYSDEC's policy of surface soils should be.

What we are looking at here is SEAD 24, which is the abandoned powder burning pit. This again was somewhat of a surprise to us. We found elevated levels of arsenic in the surface soils and those are identified in this area pretty much up in here. By elevated I am talking approximately 50 parts per million where the background is generally running much lower than that. I think NYSDEC's Tag -- technical action guidance memorandum -- which is the soil clean up value that NYSDEC uses for guidance, is seven parts per million for arsenic. We are somewhat above that. This was somewhat

surprising. We don't understand why arsenic would be at the levels that we found it at. Because arsenic is not typically associated with the operations that went on here; in other words, burning of powder, of munitions.

MR. DURST: Could this have come from farming pesticides?

MR. DUCHESNEAU: Yes. I believe arsenic is a component of pesticides. In some cases it could have been spread there. I guess the issue that we are concerned with is why is it so localized in this area. It is kind of unusual.

The next one is SEAD 25, this is the fire demonstration pad. What went on at this facility was, as the name implies, fires were ignited and then, you know, subsequently put out by the fire department at the facility. We have found BTEX -- Benzene, Toluene, Ethylbenzene and Xylene, otherwise known as BTEX -- at levels approaching -- the highest in this one boring is about 15,000 parts per billion micrograms per kilogram. It coincides almost exactly with the location of what we find in the groundwater for these

components. It is very consistent with what we would expect. Implying the use of a gasoline. These BTEX compounds are petroleum based compounds and major components of gasoline. What we expect what happened here is some of the gasoline that was used to ignite the fires to be put out have leached into the soil and subsequently into the groundwater. Again that is not inconsistent with what we expected to find. We didn't expect to find the levels at that level. We pretty much knew what went on there.

This is SEAD 26. It is the fire training pit. And in the middle of this is an elevated plateau approximately 10 to 15 feet above the low ground and it flattens out and is consistent grade-wise with the elevation of the railroad tracks on this side. Right in the middle is a bentonite -- bentonite is a clay -- lined pit. And as the name implies here this is where fire training activities were performed for people involved in fire prevention and fire fighting activities. So the pit was occasionally ignited. Oil was placed in the pit. It is a

bentonite lined pit so the oil wouldn't seep down into the ground. The pit was ignited and then subsequently extinguished by the fire training folks. What we found here is not inconsistent with what we expected. What I am showing you are the PAH's. PAH's are poly-aromatic hydrocarbons. Those PAH's are products of the combustion process as it occurred. It was totally consumed. As a result of that, there are PAH's. They are deposited had over the surface of those soils. What we are finding is elevated levels of these particular compounds. These are the same kind of compounds that you probably inhale through cigarette smoke and the like. In this case they are deposited on the surface of the soils.

The last of the high priority SWMU's that I will be talking to you about today is SEAD 45. This is the open detonation area. This is a facility that is an active RCRA facility. The subpart X has been submitted to the DEC and we are currently in the stages of negotiating the permit for that facility. But again while that permit is being applied

for this was identified as a solid waste management unit. We have subsequently performed this investigation to identify what the existing issues are at this facility. What we found here are not unexpected. Explosives in some of the surface soils. That is what this graph shows you. The open detonation mound is a rather large mound of soil; approximately 10 to 15 feet high and I would say 60 to 90 feet long. What occurs here is ammunitions that are deemed off spec or needing to be deactivated are buried in pits that are dug and then detonated. What we found here, the point of the mound is to decrease the shock of the explosion to try to keep the material from, you know, kicking out as far as it would if the mound of soil wasn't over it. What we found is some of the explosives that were detonated here have residual amounts that have been found in the mound itself. Given the fact that the mound is the center of the detonation it is not unusual to expect residual levels of explosives in the mound. I guess the issue that we see or feel is that given the slope

of the land and the infiltration of the run off of the rain from this we found, you know, the highest concentration of explosives in the low lying area down in this spot here. So we think that what we believe is happening is some of the rainfall is basically washing some of that material down into the low lying spots.

Just to move on to what we call the moderate priority SWMU's. Again we set up this criteria of identifying these SWMU's and our investigations have been focused on worst first type of priority. The seven priority SWMU's are fairly far along in the process. The three moderate priority SWMU's are lagging along in a couple months. We will get to them in the degree of completion as the other ones are.

This is SEAD 11. It is the old construction debris landfill. And what we found here is material that was construction debris and that kind of stuff was deposited in this landfill. It is a well defined landfill. Actually I think I have this turned somewhat around here. I guess it goes

this way. Right. But it is clear where the boundary of this mound of this landfill is. You can see it from the rise of the elevation. We have done several borings and test pits and whatnot. We have found basically the problem is semi-volatiles or PAH's; several that we were talking about earlier at the fire training pit. These compounds are very insoluble and tend to absorb to soil. You generally find them associated with the soil particles and not dissolved in the groundwater.

This is SEAD 13, what is called the IRFNA pit. IRFNA stands for inhibited red fuming nitric acid. Back in the 50's and 60's it was used as rocket propellant and some of that was stored at the Depot and subsequently disposed of. Because it was an acid you have to dispose of it in a base. Pits were dug in this general vicinity, lined with lime stone, which is a base, and the acid was slowly poured into the pits and mixed with the lime stone to neutralize the acid.

What I am showing you here is the

results of our geophysical and photogrametric survey. It identifies areas in the ground that are highly conductive. This produces a salt. The salt obviously increases the conductivity of the ground. As a result of that we have been able to identify the mound of this dissolved salt plume which seems to be consistent where the IRFNA pits were neutralized. This area here, the organic here is associated with dissolved salt -- nitrates from the nitric acid, calcium from the lime stone, sodium from probably the nitric acid also -- which is causing us this high conductivity area. So we think we have pretty well delineated the extent of this salt plume.

The last of the three is SEAD 57. And it is the EOD area, explosive ordnance disposal area. This is SEAD 57. At this point we don't have all our data back. I can't show you any nice color graph of this. This would obviously be for the next time we met. I will show you the map that we have produced from the photogrametric work that we have done and identify this as the area where

the explosive ordnance detonation was done. It is similar to the berm area at the open burning ground. We have done several monitoring wells and soil samples in the area.

Moving on to the eight moderately low priority AOC investigations. Again we have received final work plan approval on January 27th and initiated field work in February. As we speak, we are currently involved in completing the investigation at these eight AOC's. The tasks that we have completed to date include the seismic survey, the geophysical work, the test samplings, surface soil sampling, et cetera. We have installed several monitoring wells. We have additional monitoring wells to be installed. As well as some additional soil bores. We expect the field work to be done in July. And two or three months after we would be issuing this report. I would imagine sometime in early fall we would have completed this investigation.

Just a note on our general approach. It is consistent throughout both the RI/FS

process as well as the investigation of the AOC's. What we generally begin by doing after we have done a thorough literature search of the history of the site is to perform geophysical; that includes EM surveys to try to identify magnetic anomalies. We try to find pits or any other anomalies. In the geophysical work we do seismic surveys. The intention of the seismic survey is to find the depth of the bedrock. From that information we believe -- and its been consistently shown throughout the investigations to date -- the slope of the bedrock or the shale defines the slope of where the groundwater flows. From that information we are able to place our wells from the upgradient and downgradient of the area. And it helps us space so we don't space them too far apart or in the wrong location so we don't miss where the downgradient location is. Its been very successful to date.

Although I have in the book identified all of the SWMU's, I am not going to bore you to death here going through each one

individually. But the general approach, as I have mentioned, we generally come in, identify the location, where the groundwater flow is, install an upgradient well and two downgradient wells as required by RCRA following our geophysical work. It could be pending the soil gas survey if we believe volatiles are involved. From that information we are then able to go back and install test pits. If we identify, you know, a pit or a buried metallic object, we collect some soil samples. As a result, we do some test pitting and also some soil borings in the area to better define the location of any dispersed material there, such as a liquid like a gasoline type plume or something. That generally has been our approach at all of these SWMU's. I am not going to get into each individual SWMU here because I think you will be asleep before we get halfway through. They are all included in your book. And these are essentially figures from our approved work plans. So the approach is relatively consistent between all of them.

The seven low priority investigations is

again following behind the moderately low priority AOC investigations. And I mean it is almost a repetition of what you have seen. They are probably a week or so lagging behind the moderate priority, the moderately low priority AOC's. We also expect this report to follow shortly thereafter. Sometime in early fall after the eight moderately low priority AOC's having completed.

I have also included in your handout again work plan cuts showing the location of the wells, soil samples that we are planning on taking. We are currently involved in completing these investigations and I am simply not going to go through every single SWMU here and show you where the wells are. I mean, it is all defined in there. I mean, unless there is a need to do that.

MR. DURST: Could I ask one question on a couple of the moderately low sites? It was radioactive waste burial sites. I was just curious what the wastes were and how were they buried? Were they containerized in some way?

MR. DUCHESNEAU: I think -- could we

hold off on that question until after this? That is probably a topic I think Randy or Steve may want to discuss with you.

MR. ABSOLOM: Fine.

MR. BATTAGLIA: We can do that.

MR. DUCHESNEAU: The next order that I would like to discuss with you is the action memorandum. What this is is a document that has identified an area at one of the RI/FS's that we are doing at the ash landfill. It is a document that basically says we want to do some type of remedial action. It was submitted for agency review on December 3rd, 1993. We received regulatory comments. We are currently revising the document on the final and we just recently re-submitted it back to EPA and NYSDEC for the draft finals. So we are getting very close to finalizing this document and moving forward and actually performing a remedial action at the ash landfill.

Now, just to highlight that particular site. This is the ash landfill site. The area of concern is this bound area here. And in particular it is pretty much this area

that we call the bend in the road that we have identified through Phase I. Through the soil gas surveys there was a concentration of volatiles as well as through our monitoring well a source of dissolved chlorinated organics pretty much originating from this spot. We think it is responsible for the source of this groundwater plume that we have identified as the ash landfill RI/FS. We will get into talking about that briefly. On a close up of this area there are basically two areas of contaminated soil that is the focus of our interest here that we would like to remediate. It constitutes approximately 23,000 cubic yards of material or roughly 35,000 tons of material that need to be remediated in some way.

The proposed strategy here involves excavation, low temperature thermal desorption followed by thermal oxidation of off gases. It is to remove the existing threat and streamline the RI/FS process and eliminate the source of continual leaching to the groundwater plume. Treatment goals are the NYSDEC tag, technical action guidance

memorandum. Values for TCE, 0.7. It was 540 parts per million. DCE, a known proposed breakdown product of trichloroethylene, 79 parts per million, is above the .3 parts per million. And also some vinyl chloride, which is a final breakdown product of trichlor. As I mentioned, we are talking about 23,000 cubic yards or roughly 35,000 thousand tons of material.

The technology that we think is the most appropriate to use here is called low temperature thermal desorption. This is a machine that happens to be by Canonie. There happen to be several in the country that can do this. It means excavating the soil, putting it in some type of hopper, through a rotary kiln process, which basically rotates the soil. And as it is rotated it mixes it. The hot air is forced up the cylinder. The volatiles are volatilized from the soil, swept through a series of air pollution control, which includes a bag house, cyclone and venturi. In this particular instance they are using activated carbon. Because of the presence of vinyl chloride we are asking

the gases be thoroughly oxidized. Vinyl chloride does not oxidize through carbon and we are concerned about the emissions from the stacks of that.

Just a picture of a similar process that I was involved in. It is pretty much what you see here. I don't know if you can see it in your book there but here is the conveyer. Right here is the rotary kiln. Off gases are swept through the bag house. In this case there is a wet scrubber. What you can't see is the cyclone and the activated carbon absorber. They are in the background. The soil in this case was taken out and actually put back in the ground with concrete.

Moving on to the RI/FS at the ash landfill. Again we have touched on this just briefly as part of the action memorandum. We have scheduled a submission of the draft final RI on June 22nd. The reason that has been somewhat delayed -- the reason is to put in two additional monitoring wells and the ash landfill operation unit being made operable was combined in here. We have needed to install two additional wells so

that has delayed the submission of the report. But we are planning on getting that out on the 22nd of June. Subsequent to that the FS, or the feasibility study, which looks at various alternatives will be submitted to the Army. It was submitted -- it was submitted to the regulators. It was submitted to the Army for review on January 17th. Because of that delay I mentioned it is not planned to be re-submitted for regulatory review until July 11th. That will include all the data from those two additional wells that we have just recently installed.

Just to provide you a highlight of where we stand on that. On the aspect of what the big picture issues are on that site we talked about the soil issues related to this site; in other words, the contaminated soil and the bend in the road area. And that is being addressed expeditiously with the action memorandum. The groundwater plume still remains. Here is the outline. This is right out of the RI basically. Basically the highest concentration is right in the area NW

44, which is right in the middle of where that contaminated soil that we identified was. And it is a fairly extensive groundwater plume heading off towards the west. What our proposed remedial action for that problem is is a series of collection interceptive trenches strategically located; one immediately downgradient in this area and another one down at the toe. We believe because of the nature of the geologic material there -- the till, which doesn't yield a lot of water -- that the most effective way of capturing that plume is installing trenches -- trench drains to go down to the bedrock 10 feet down, back filling with gravel and at the bottom of the gravel filled trenches, you know, using PVC perforated pipe to allow the water to collect in and move off into a sump. That material would be pumped to a holding tank and treated with either air stripping or UVO zone. We are not sure exactly which alternative at this point. We are currently looking into doing treat-ability studies with UV0 zone. Those are the two alternatives that we have

decided on. We want to do more studies on the possibilities of using UVO zone. The advantage of using UVO zone is it doesn't have any air emission.

Moving on to the opening burning RI/FS. These are CERCLA type investigations. The draft final was submitted March 3rd for the RI. We received EPA comments. NYSDEC has no further comments on the document. The final is expected to be submitted back to EPA and NYSDEC in late May. So that is coming up very shortly. The FS, which again lags slightly behind the RI, has been submitted for regulatory review on March 10th. We have NYSDEC comments. We should be receiving EPA comments shortly. Once we have all the agency comments we will respond to the comments and resubmit that back as the final -- actually the draft final for the FS.

Just to provide you with a highlight of some of the alternatives that we are considering at the open burning ground. One, is the no action alternative. That is a baseline alternative. Essentially the problem here, as we see it, concerns metals

and basically you cannot really destroy a metal. You can't change lead to gold. You can't change lead to Co2. It is lead and it will always stay lead. What the alternatives involved in doing something with metals are basically isolation or solidification or somehow binding the metals in a matrix that would prevent it from leaching into the groundwater, for example, or prevent it from getting on people's skin and that kind of thing. So the alternatives that we are looking at are excavation and consolidation of the areas; off site treatment of some of the more elevated levels of lead and possibly capping in place. You can see the list here. Off site landfill is another one. Constructing solidifying material. The solidification phase is a process that involves mixing the soil with the heavy metals in some type of cement based material; basically form an analytic structure. Disposing on site or off site. Soil washing is another innovative technology. That is potential application soil washing. It could separate the fine material from the course

material. And the intention of that is the heavy materials would tend to segregate with the fine materials. So once we have separated the fines that have most, if not all, of the heavy metals we basically have accomplished a volume reduction. It is a lot less material that would have to be either disposed of off site or somehow solidified and placed on site into a cap or a landfill on site. Another option that we are considering is the possibility of acid washing some of the fines to remove the metals to another level of consolidation and then treating that smaller volume of material.

So therein lines pretty much the alternatives that are currently under consideration. It encompasses pretty much a wide range of innovative and standard technologies. That is it pretty much. I think we have run through all of the delivery orders. That is pretty much all I had to discuss today. I will turn the floor over. Are there any questions?

MR. DURST: I had a few others besides

the radio chemical one. In the case, for example, of the calcium nitrate where you got rid of the red fuming nitric acid, that was rated firstly high priority, I guess.

MR. DUCHESNEAU: Moderate.

MR. DURST: Why? Neither of those things are really toxic insofar as the nitrate? If anything, it is going to make vegetation grow better.

COMMITTEE MEMBER: There is a primary drinking water standard for nitrate. That is one of the reasons. And, in fact, we did find concentrations in excess of that drinking water standard.

MR. DUCHESNEAU: The other thing would be the concept of mixing a strong acid with a base. Not all of the acid was neutralized. Some of that acid could slip through the cracks and maybe change the pH and maybe do ecological damage. Those were some of the issues that may have gone through, you know, the people that decided upon the range. I think it was Randy and EPA.

MR. DURST: Another question I had was on your diagrams where you had the color

contours and so on. Some of the contours seemed to just cut off where a high level was indicated. Are you going to fill in those contours with more studies?

MR. HEALY: Yes. Anything that shows a high level running off the page would be indicative that a site investigation is of concern or is of need. In which case we will follow up with the site investigation which goes into much more -- or the RI/FS goes into much more detail delineating those areas.

MR. DUCHESNEAU: If you remember back to the whole process we first outlined going from the SWMU class phase to the site investigation phase and to the RI/FS phase, the intention of the SI, the site investigation phase, is to basically answer the question does a threat exist. In a case that you are pointing out, we have an elevated concentration but we haven't bounded that on all sides. That would probably constitute enough of an issue to cause it to move over into the RI/FS phase. In which case we would add additional soil samples to define that area and then evaluate it as part

of the risk assessment process simply as we are doing for both the ash landfill and the OB ground, which were the last two sites we talked about.

MR. DURST: Okay. One other question on the chlorinated organics, especially at this plume that you are just discussing at the old landfill. Have you had enough time to determine whether that plume is continuing or is natural bio-remediation holding it in place?

MR. DUCHESNEAU: Seneca has been groundwater monitoring for about eight years. Actually, to be honest with you, the concentration and the extent of that thing has not changed. All the time we have been involved we haven't seen a real shift in that plume. My personal opinion is exactly what you suggested here. Is that by the time the plume gets down that far -- because the groundwater is so slow in moving here -- that it is essentially bio-remediated pretty much by the time it gets to that point. Now, will it ever move an additional 10 or 15 feet? I mean, who is to say? We don't have wells in

every two foot intervals to tell you that conclusively. I don't believe that we think the plume is particularly moving at all. We haven't seen it move that far.

MR. HEALY: Also it is likely the stuff that was dumped there was in the area of 75 years ago. What you are looking at is 15 to 20 years later.

MR. DUCHESNEAU: We have tried to monitor that plume and accumulate data to date based on what we think is reasonable bio degradation, which we have tried to calibrate with the site data. We think most of that plume is being bio degraded.

MR. DURST: Are you going to do more environmental damage rather than let nature take its course?

MR. DUCHESNEAU: The ARAR's used, which is classified as a source of drinking water, is for TCE. It is five parts per billion. Some locations on this site it is much higher than that from an ARAR standpoint because we exceed the established State's standards for drinking water and groundwater, you know. That is, to a larger degree, driving this

whole process.

MR. CHAPLICK: The other issue is how far is that from the edge of the plume? There is a drinking water well a thousand feet downgradient.

MR. DUCHESNEAU: A trench is not going to be that big of a destruction to the environment. It is basically about this wide and going down about eight feet. So we are not talking about excavating the entire site to get that. Certainly, the excavation of the soil is going to cause some environmental damage to the critters, the worms that live in the soil at that particular spot. But we would like to eliminate that source of contamination.

COMMITTEE MEMBER: Just a quick question. You basically have 10 feet of glacial till over bedrock?

MR. DUCHESNEAU: Correct.

COMMITTEE MEMBER: The depth to groundwater is?

MR. DUCHESNEAU: For the ash landfill, for example, there are times during the year where the groundwater is six inches from the

surface. At other times of the year that level drops to, you know, six to eight feet below ground surface. It is pretty amazing when we looked at it but we have confirmed that. We have also done some literature searches at other sites around the country; one in particular in Ohio where it was reported there were similar types of fluctuations in groundwater. The best we can come up with is largely this whole process of fluctuation of groundwater is a evaporation issue. Possibly springs or seepage through some of the ditches that surround the roads and facility maybe contributing to that also. But we sampled the springs. We sampled the surface water discharges in those areas and have not really found any volatiles in that water. Now, the depth to rock here is, I would guess -- again depending upon the site -- but roughly about 10 to 15 feet of till to the bedrock and there is a 5 foot zone of weathered bedrock, weathered shale followed by seven hundred feet of Devonian shale loaded with fossils, I might add. That is basically the geology here. When we do

our augering, we do auger essentially to compensate bedrock. We can generally auger with no problem. We may break a few bits off here and there. It is fairly soft.

COMMITTEE MEMBER: These wells are screened in the weathered bedrock?

MR. DUCHESNEAU: The majority of the wells are screened in the overburden, the till. We have conducted at the ash landfill a fairly extensive bedrock investigation, which has included down to 100 feet; also packer tests at 20 foot intervals. And we are screening the wells at the zone that we found most permeable in the rock. That has all been completed at the ash landfill. The bedrock has not detected volatiles in the competent rock. So we are not focusing our remediation efforts at this point in the bedrock because there is hardly any water there. The permeability that we are getting through the rock through the packer test are ten to the seventh and up. So there is essentially no water there. And the water that is there is uncontaminated.

MR. HEALY: Ten to the seventh or ten to

the minus seven?

MR. DUCHESNEAU: Ten to the minus seven.

MR. HEALY: Slight difference.

MR. DUCHESNEAU: I think he knew what I meant. Therein lies a quick synopsis of the geology out there. It is fairly consistent throughout the facility. If you look at the U.S. Survey Publication, this whole area is a glacial till plane. To the north it is a little bit more washed out deposits. To the south there is a terrain. But right here it is essentially a till plane. And that has been absolutely every place we look we find basically that.

COMMITTEE MEMBER: Given its TCE contamination -- understanding that TCE is a predominant plume -- is there -- has there been any evidence of DNAPL?

MR. DUCHESNEAU: It is called DNAPL, dense, non-aqueous phase liquid. Those aqueous liquids -- TCE has a greater interest of point one. Because of its density being greater than one then it will pond someplace below the water; say in the bedrock in this case. And obviously it is a difficult thing

to remediate and difficult to find and really get it out. We have, in fact, done several borings of the hot spot and have not, as of yet, discovered the presence of DNAPL's. That doesn't say we have elevated soil concentrations. We have not found through the boring program that we have done or through the existing monitoring that has been installed the presence of a DNAPL's. My answer is no. There are some transfers of the solvent in the pore space of the soils. Maybe there is a displacement of the water in the saturated pore space by some of this TCE material. But we haven't found enough evidence to say that exists as of yet. I think we have done enough borings out there that if it was there we would have hit it.

COMMITTEE MEMBER: Is there any reason to believe that the source would generate such a pool or substantial residual contamination?

MR. DUCHESNEAU: I am sorry.

COMMITTEE MEMBER: Not understanding the exact source of the TCE, would the quantities lend itself to generating the pools or

residual zone?

MR. DUCHESNEAU: You are talking about the concentration levels we are finding?

COMMITTEE MEMBER: Understanding the concentrations are dissolved and maybe indicative of three phases of the area, the residual zone as a pool. But more specifically I am interested in whether there is any historic reason to believe that large quantities of pure product were disposed of at the ash landfill during that time.

MR. DUCHESNEAU: We are not sure exactly how much was deposited there. We have not -- I mean, I can't say there is a DNAPL'd plume. I have no evidence of that. Could I suspect that it is there? I guess I could but I don't believe it is there. The concentrations -- the highest soil concentration we found was 540 parts per million of TCE. That is hot but it is not, you know, to the level where I would expect a DNAPL. The percent levels and also the dissolved concentration, the highest is getting upwards between -- is it getting close to 10 percent or one percent?

MR. CHAPLICK: Of the saturation?

MR. DUCHESNEAU: Right.

MR. CHAPLICK: I think they got 10 percent but I am not sure what the value is.

MR. DUCHESNEAU: I thought it was less than one percent. TCE is what? Seventeen hundred ppm? I don't think we are finding upwards.

MR. BATTAGLIA: Eighteen was 9.8.

MR. CHAPLICK: I don't remember what the numbers were.

MR. DUCHESNEAU: We have gone through this with the EPA. Although it is getting close to that magic number of ten percent of the saturation, this case would be 170 parts per million of TCE. One-tenth of the saturation, which is about 1700 ppm. We still have not yet found evidence that there is a DNAPL present. We have well 44 that is right smack dab in the middle of this thing at the hot spot. And that well does not indicate the presence of DNAPL. We have used clear balers (phonetic) to locate. If there is a separate phase, we haven't found that. But I mean, be that as it may, we are

planning at this point to excavate that whole area and it is all going to be roasted and remediated at that point. So I think we will take sufficient precautions to assure if that does appear through the process we will remove that material and remediate that potential problem, if it is there. Any other questions?

COMMITTEE MEMBER: I had a question. I think it was 12-A, the solid waste management unit geographically is big. But the area of concern was -- the arrow says, "pit." I am just wondering why it is labeled such a large area?

MR. BATTAGLIA: Actually the arrow is down.

MR. CHAPLICK: It is the pit and the tank.

MR. DUCHESNEAU: Maybe.

MR. BATTAGLIA: I will go over all that.

MR. DUCHESNEAU: May I can go over that. We weren't sure actually where these pits were. There were rumors they were in this general vicinity. What we did is basically put a bound on what we thought would

encompass any of this potential area of these pits. Subsequent to this we did our geophysical investigation again to try to focus on a large area down to a small area. Although I haven't, you know, shown you the information here we have, in fact, done an EM and radar and identified the location of these underground buried pits. We just recently completed that work. So we knew that there was one pit marking out there. You could see that. We also suspected there were other pits. Through the use of geophysical techniques we have been successful in identifying those locations. Therein lies the focus of our test pits. Not throwing a dot out on this huge area. To go and do it right at the spot where we found the geophysical evidence to suggest there is a pit there.

MR. BATTAGLIA: Rob, is this the one that you are talking about?

COMMITTEE MEMBER: Yes.

MR. BATTAGLIA: When you walk around this field, it is a moot field. By the terrain it is hard to tell as far as where.

There is a couple areas where they were found or areas that there were depressions. That is where we did the EM surveys to find out if there was a burial area. I think we identified a couple areas over in here in addition to these pit areas here.

MR. CHAPLICK: Maybe you just want to start the whole thing again.

MR. BATTAGLIA: We are answering your question. We waited for you.

MR. DURST: Thank you.

MR. BATTAGLIA: About the time we started looking at these areas we had got a phone call from Sandia National Labs. They are looking at the atomic sites around the country. There is 12 sites around the country where they built the same facilities. So we met with the people out there. And right now I am preparing a document that is a detailed description of what activities occurred at these buildings. It is a little hard to show on this map. But building 803, building 804 and some of the other 800 number buildings were built exactly the same across the country; twelve areas in the country.

Seneca Army Depot was the last one to be built in 1956. That is an important point. A lot of details I got to hold until I get the document prepared because there is a fine line on whether something can be public information or not because of the technical information that is going into it. So the things that are over the line we can't really release. We are going to get a historical description of the activities that went on at those facilities. That is what we are going to do. The people at Sandia are helping us. We got people from the Atomic Energy Commission back in the 40's and 50's. They had people that worked here when the Army took over, too. It is also very similar across the country at these places. They had similar disposal areas associated with these buildings. Building 804 -- they called it A structure and C structure. Building 804, which is the C structure, has the waste water tank to the north of that building. We had no idea what that waste water tank was for. After those discussions with Sandia they told us in case there was a problem in the

building they could washout the building and wash everything in the waste water tank. What they said is we never had a release here; that they never used the tank. But we are going to sample the tank as part of SEAD 12 A and B just for confirmatory purposes.

Also across the country they also had what they call a dry waste disposal pit or area that normally was out behind the SEAD building. In Seneca it is over in this area here. These buildings are on the north end of the Depot; directly on the north side of the Depot. I don't have a Depot map here handy to show you. Just on the north side of the Building 804 is a waste water tank and directly northeast of that is one of the disposal pits. Building 803 is basically built with bank vault doors because if they had valuable items that is where they stored them. Also near these areas there is the northeast corner of the Depot. Romulus would be over on this side.

And in 1986 the Army dug up a pit location here and did remove drums with material inside the drums that was disposed

of off site. There is other areas. This whole field really was blocked off as being suspected because we really didn't know where or how much in that area they had buried things. We did know the Army buried a lot of miscellaneous parts that they generated from de-militarization activities. They just buried the parts. I don't know if they got it handy here or not. We have found a couple areas.

MR. DUCHESNEAU: You want the miscellaneous components?

MR. CHAPLICK: Twelve A, the big one.

MR. DUCHESNEAU: It would be oriented something like this. Although I am sure you can't see it back there. What this is is a geophysical output.

MR. BATTAGLIA: Show the pits here. Right here is the pit area that I am talking about next to the woods. And after we did the electromagnetic surveys we found the other burial areas over in here, which would be over in this area here. Also, to get your bearings, building 803 and 804 are over here.

COMMITTEE MEMBER: Where are the ponds?

MR. BATTAGLIA: Southeast of here.

MR. DUCHESNEAU: Far away.

MR. BATTAGLIA: Probably -- I don't know -- a quarter of a mile. We didn't know this whole field had been dug up or certain pits were in there. First draft of the SWMU classification report we basically just got an arbitrary square paced off in the report because I had somebody from the Army out there and we just kind of paced off an area. But that was just an initial report there. When we did this survey, we actually nailed it down to where they had burial areas. And in the site investigation that we are going to do we are going to do some test pitting and borings and sampling in and around those areas. This is one of the sites that is suspected for radioactive contamination as a contaminant of concern. Whether or not where or how it was generated, a lot of it we don't know. We do know that they did dig up radioactive contaminant waste in the dry storage pits.

MR. DURST: I don't suppose you can tell us what the radio isotopes are in particular?

Do they have long lives or are these --

MR. BATTAGLIA: We may say that in the document. The problem is when you are talking about sensitive things as far as whether something is classified or not, if you can add one and one equals two you can infer it equals two. You can't really say it completely like that. So what you do is you filter out some things so you can still tell the story without telling one and one equals two. Okay. That is basically what Sandia had to do for us. They really couldn't tell us everything AEC did down there. We are still working with them. They are going to come out on site. They are studying all these sites in the country. And they are going to be out here when we do the field work. My document, when it is done, is probably going to be detailed enough. You are really going to see everything they did back then when the AEC was here.

MR. COOL: What watershed is that in, Seneca or Cayuga?

MR. BATTAGLIA: Kenda (phonetic) Creek. The duck ponds feed down through there. It

is kind of split in half. To the west of there tends to drain westerly through Reeder Creek. That is in the northeast corner of Kenda (phonetic) Creek. This area here is SEAD 63. This is on the western side. Do you have a bigger map, Mike?

MR. DUCHESNEAU: That is all I have, Randy.

MR. BATTAGLIA: We can hold that up. We have the whole corner blocked off there. If you walk out on the site, it is a big gravel pad. It is not above grade from the rest of the ground around there. When we did the EM surveys, pretty much --

MR. DUCHESNEAU: The way it would look following that same area here is the same orientation. Here are the two roads that are identified and the fence line area here. So the area of high magnetic anomalies are in this area here.

MR. CHAPLICK: Like the big red spot.

MR. BATTAGLIA: We are looking at right in here.

MR. DURST: Is that near the special weapons compound?

MR. BATTAGLIA: This fence line here is the perimeter of the special weapons area.

MR. CHAPLICK: That is on the inside?

MR. DUCHESNEAU: Yes.

MR. CHAPLICK: That is on the inside of the fence.

MR. BATTAGLIA: And if it is done in time, it will go into the SWMU classification on June 10th. But if it is not done and if the report is not done in time for that, it will go in the SI report with the finding of the investigation as far as the historical information about the site. And the SI reports the work plans. And the SWMU classification report would be added in the record down at Willard. Okay. Does that answer your question good enough?

MR. DURST: Yes. Thank you.

MR. BATTAGLIA: Okay. Anything else?

MR. COOL: You said you found barrels on that one site. Can you tell us what was in the barrels?

MR. BATTAGLIA: They told me it was lab waste. That is what they told me. They were disposed of in a radioactive waste burial

site in South Carolina.

MR. COOL: After you dug them up?

MR. BATTAGLIA: After we dug them up.

MR. COOL: Were they leaking?

MR. BATTAGLIA: I wasn't there. I wasn't there.

MR. COOL: Is there evidence of leaking?

MR. BATTAGLIA: I don't know. In our site investigation we are going to investigate.

MR. DUCHESNEAU: That is what we are apt to find out. I guess it would be hard at that point for them to determine if anything had leaked. They didn't do soil sampling and that kind of stuff. That is what we are going to be doing.

MR. BATTAGLIA: One of the things the Sandia people told me -- told us when we were out there was some of the waste potentially would have been radioactive; would be swipes of uranium dust -- uranium oxide dust on the swipes. So that is why uranium was one of the contaminants of concern that we are looking for out there.

MR. CHAPLICK: These are primarily dry

materials. I would say not 100 percent dry but they were not liquid materials in the drums. They were solids.

MR. BATTAGLIA: As far as what I know. Another thing --

MR. DUCHESNEAU: That is what they tell us.

MR. BATTAGLIA: When they are out there burying parts and things, who knows if they threw a drum of solvent in there. We are also looking for chemical contaminants, also porous.

MR. COOL: When you removed the materials, was the integrity of the barrels all right, though?

MR. BATTAGLIA: I don't know. They didn't tell me anything about it. If no one else has any questions, we can set the date for the next meeting.

MR. CHAPLICK: If you look at that same figure, there are three surface water and sediment sampling locations along the creek that is indicated there.

MR. DUCHESNEAU: You want me to put that up, 12?

MR. CHAPLICK: Twelve A. I am not sure if that is Kenda (phonetic) Creek there.

MR. DUCHESNEAU: This is 12 A, correct? These black triangles here.

MR. CHAPLICK: Is that Kenda (phonetic) Creek that is flowing down?

MR. DUCHESNEAU: I think that is a drainage ditch.

MR. BATTAGLIA: Drainage from that area.

MR. CHAPLICK: That is actually flowing to the west.

MR. BATTAGLIA: Kenda (phonetic) is over here.

MR. DUCHESNEAU: We have sediment and surface water sampling planned at these three locations. Instead of being at that point, it could be over at that point. It is hard to get a surface water sample when there is no surface water. You try to plan for it and you go there and get the surface water you can get it. Obviously, you can get sediment. We sample what we can sample.

MR. BATTAGLIA: We all seem to think the 17th of August is a good day for the next TRC. I don't know if anybody has any

conflicts with that. It is usually far enough ahead.

MR. ABSOLOM: Is that agreeable to everyone? Seventeenth of August it shall be. Does anybody have anymore questions? If not, thank you all for coming. I think it was an informative meeting. I look forward to seeing you all on the 17th of August at twelve thirty.

* * *

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

I, Patricia Ann Nelk, hereby certify that I reported in stenotype shorthand the proceedings had on the 18th day of May, 1994, in the matter of the TRC Meeting.

And that the foregoing transcript, herewith numbered pages 2 through 62, is a true, accurate and correct record of those stenotype shorthand notes.

Patricia Ann Nelk

DATED AT: Rochester, New York
this 6th day of June, 1994.