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SOIL & WATER PROJECT

ALPHA BUILDING

AUGUST 7, 1997

7:00 P.M.

SOIL & WATER PROJECTS WORKSHOP

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MR. STEGNER: Good evening and welcome. My name is Gary Stegner and I work for the Public Affairs for the Department of Energy at Fernald. Tonight we are going to talk about water and soil as opposed to soil and water. You recall on the 29th of May we met and discussed primarily soils and we also devoted a good bit of that evening to the discussion of onsite disposal site. Well tonight while we're not going to go short on water. Water is going to get top billing. We're going to talk about that first and John Kappa from DOE will talk about acquifer restoration followed by Dave Brettschneider who will talk about our waste water management program and time permitting and I'm sure time will permit, Dennis Carr will give us a brief update on soils. You recall that September 9 when we get into our new clean up update public meeting format, soils, primarily onsite disposal facility will be the primary topic so we'll get a complete run down on what is going on with that subject. As the usual drill, we will have a couple of hours here tonight. We will be available afterwards to discuss anything that you want to discuss offline and answer your questions. We will try to go straight through considering there is a relatively small crowd here tonight. We will be very informal and if

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somebody has a question we'll treat it that way. So, Judy wanted me to mention that there is IEM piece here and anything else Jeannie?

MS. FOSTER: I think the RDR, remedial design remedial action is also there.

MR. STEGNER: All right, we'll proceed with John Kappa.

MR. KAPPA: All right, Gary, thanks. My name is John Kappa and I don't think I have had the opportunity to meet everybody in this room. I work in OU5 for DOE. Gary said our first slide we are here to talk about acquifer restoration and waste water. These slides follow pretty much what is in your handout so feel free to stop me at any time and ask questions. Just real simply, acquifer restoration we're going to address the site wide ground water remedy for the Great Miami Acquifer for the site. What I want to do with the next slide it is basically an outline of the presentation that I have for you tonight. These are the main topics that we are going to cover. CERCLA documentation since approval of the Rod for OU5 and we're going to discuss the baseline remedial strategy report. This is going to be an important link. We reapproached our ground water strategy knowing that the site and the accelerated

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clean up plan we said what can be do as far as regarding acquifer restoration to shorten that time from the 27 year time frame outlined in the rod and pull that in closer. To give you a little update from our South Plume removal action wells, new module, coming on line with the South Plume Optimization, our reinjection wells, the south field extraction system and future design projects that we have for the out years.

All right, jumping in to the CERCLA documentation, just a little background. Our record of decision was approved in January of 96. Since then we have received approval from EPA on our RD and RA work plan which we have copies of here. As outlined in the RD work plan there is another list of deliverables and most of them have been approved or under review by EPA currently.

All right, just jumping right into the baseline remedial strategy report. As I said, the RS and rod outlined the ground water clean up strategy that covered almost thirty years, 27 years. With the revised strategy that we outlined in the baseline report estimates that we can shorten that time significantly hopefully within a ten year time frame and again knowing that the rest of the site is in

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accelerated mode, we went through and evaluated different scenarios through pump and treat, using a technology such as reinjection to really shorten that time. The early start up is contingent upon the other projects accelerated. As we get into the waste pits area a little sooner, the South Field area and Plant 6 area and that will cut time right off the end. The addition of the south plume optimization wells, we know where the hot spots are and we can go in and put wells in that area and get those higher concentrations out of there and like I said, another module of this if we have success for reinjection technology, we will talk a little bit more in detail about this in the presentation but basically we are going to take treated ground water and reinject it back into the acquifer. We will discuss each of these in a little bit more detail.

The next slide is just kind of a place holder to show you what we have discussed so far and I will throw this up a couple of times. We have gone through documentation and the baseline report and the next series of slides we will hit on is the update of south plume and the optimization. Just to get everybody oriented, here is the former production area of the site and parking lots and the existing south plume

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Okay, our South Plume removal action, as you are aware, these wells have been installed for pumping for just about four years. There was a five well system that went in and after a period of time we realized that the eastern most well we did not really need that to maintain plume capture so EPA concurrence, we were able to shut that eastern most well off. As far as the uranium concentration, before we began pumping we had concentrations greater than 300 parts per billion in the off property portion of the plume and now generally we are less than 200 parts per billion so we are seeing some real progress. Continued monitoring indicates that the plume capture objectives are continuing to be met.

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All right, the South Plume Optimization

Module, if you remember back to the map this is going to be a series of two wells that are going in a hot spot, if you will, off the property and to get to the location of those we did a field study using a geoprobe technique and actually if you want to jump ahead to your next slide -- well, I will come back and discuss that in just a second. That is the geoprobe and we will flip that back up there in a minute. The geoprobe we performed at 19 locations and I'm going to come over to this map over here and here is Wiley Road that you can't see real well but we did these geoprobe locations in the south field area of the South Plume area, I'm sorry, on and off the property. We did that to refine our interpretation of the plume and wanted to make sure that we had good control over the contours of the uranium contours and just helped us select the optimal locations for these wells. Again, throwing this figure up real quick, just to discuss a little bit about the geoprobe. This is just a regular full sized, nothing too fancy. geoprobe is this hydraulically driven drill rods that are about an inch or so in diameter and the lead rod is slotted so when we get into the acquifer, water comes in and can lower the sampling to down inside the drill and check the ground water samples. It's a quick

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relatively inexpensive way to get really useful data.

MS. DUNN: What is the depth?

MR. KAPPA: I will let Bill Hertel chime in here.

MS. HERTEL: We actually went down to around 160 feet with that tool.

MR. KAPPA: Yes, they set a new world record for that depth. They did actually set a new world record and they broke their own world record.

MS. YOCUM: That was 160 feet?

MR. HERTEL: About 160 feet. We took samples about 150 feet. The tool gave us a whole profile and the thickness of the plume where before we had wells installed at the top of the acquifer and the bottom, but we really got a good profile of the plume now. That is what we needed for the design.

MR. KAPPA: Again, just to show you what we hit on so far. We just went through the South Plume update and discussed the South Plume Optimization and we will get into the reinjection and we're going to spend a little time on that because that is important. The South Field extraction system and future projects. All right, the reinjection as you are aware, we are going to be pumping ground water from our extraction well and send it through the AWWT

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MS. DUNN: Can I ask another question? Is this reinjection still tied pretty closely to the EM 50 or have you got it out of EM 50 funding and into the 40?

MR. KAPPA: It is funded through the EM 50.

MS. DUNN: They are not looking too good right now.

MR. KAPPA: I'm going to let Jack or Rob MR. JENKE: The majority for the money for this project is being committed this year so hopefully we will be in good shape.

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MR. HUGHES: The money for the construction portion of this contract is available and should be awarded and committed in the next two weeks including EM 50 funding.

MS. DUNN: I know the 98 budget for EM 50 is looking like it's going to get hit.

MR. KAPPA: That is all we need to get this awarded as soon as we can.

MR. JENKE: This is their flag ship project so we would hope that it would be a high priority. They, I guess advertised it as such across the complex so it is one of the single budget funded projects in the EM 50 this year.

MR. KAPPA: All right, just to throw a nice picture up here, I think, I'm not positive, this might be the installation of one of our injection wells. They are basically installed the same way as our extraction wells with the cable tool rig that drives the casing down and clean up the acquifer materials as they go and they install the well and pull the casing up. You have probably seen several of those pictures before. A lot of big equipment that they have to move around while they are out there. All right. Just a little location map here. What this map shows is again we have our South Plume

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removal action wells. Those are the ones that are already in and installed in our optimization wells. These have not been installed yet and the open circles are injection wells. They have been installed and we have our ten South Field extraction wells and those have been installed and what I want to really focus on is this dark line labeled A and A Prime. This is from north to south cross section that we're going to show.

MR. CARR: John, when you say installed, make sure which ones are installed in the piping system. They are installed, a lot of them, we have the wells sitting out there and there is no pipes hooked up to it.

MR. KAPPA: Right, basically north of Wiley Road, all of these wells are installed but there is no piping system in yet. These wells have not been installed and these wells are pumping.

MR. CARR: Meaning that there is pipeline and there is pipeline bringing the water back to the site?

MS. DUNN: Earlier when you said that like you had seen a drop from something like 300 to 200, that is mostly in the area close to the site, are you seeing the same reduction closer to 128 and down further, the contamination is further away from the site? Is there a drop showing in the reading there or

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is that at least stabilized?

MR. KAPPA: I don't know if we have any -- well, here is our map that shows our Uranium concentration. I don't know if you can see from across the room, these are our four pumping wells that are installed and this is our 20 part per billion plume. Really the 20 part per billion plume does not extend too far from our wells so we are maintaining capture of a plume at that leading edge.

MS. DUNN: There are some people down further on the dead end part of Patty's run off of 128 and some other folks on 128 that you all are supplying, that you supplied bottled water to because their wells had high rates. I am just wondering if we have seen a drop in that area down around there. We have not really been looking at it.

MR. BRETTSCHNEIDER: Those were below 20 if I remember, even when we supplied bottled water because we had to all agree that 20 is a clean up level but since we have established 20 and we really haven't --

MR. JENKE: Until we get the clean up levels established, anything above background was supplied water, which is 3.7 --

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Road up to the site?

MR. CARR: Yes.

MS. YOCUM: While we're on that subject, on the concentration that you reduced to 300 part, if you could just bring me up to date, what was the concentration before the reduction?

MR. KAPPA: Well, pre-pumping off the property portion of the plume, we had concentrations above 300. On property we still had some high levels, one part per million or a thousand parts per billion, but as far as what is actually off the property, we have seen reduced concentrations there, does that answer your question?

MS. YOCUM: Do you know the number?

MR. KAPPA: The exact number --

MR. HERTEL: It has been from over 300. We sampled in 1993 as part of the remedial investigation. There were some concentrations over 300 and now when we so the sampling as far as the monitoring, we find the concentration is between 150 parts per billion and 200 is the highest.

MR. KAPPA: Yeah, and on our map, really that 200 contour, this is based on the geoprobing date. The real recent data, the 200 dips slightly south of Wiley Road so even when we say greater than 200 off

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the property, it's really a small portion of the plume.

All right, we will spend a little bit of time in this slide. There is a lot that is shown on here. Just to orient you all, let me make sure we are centered here, well 15 on the previous slide is the northern well. Did you say you have those Dave?

MR. BRETTSCHNEIDER: No, I apologize, I don't.

MR. KAPPA: Well, 15 is this well here and we're going to go north to south.

MR. CARR: Along that line.

MR. KAPPA: Right. Well 10 is the injector well.

MR. BRETTSCHNEIDER: You are looking at well 10 which is basically Wiley Road.

MR. CARR: Show them what the ground surface, etc. on that map.

MR. KAPPA: Okay, we're looking north on property coming south, Wiley Road would be right about here (indicating) and continuing south to recovery well 3 which is one of our currently pumping South Plume removal action wells. What this figure shows is before we had any wells in and doing any pumping, this top-line is basically what the water table looked

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like. In 1993, August of 93, we began pumping the South Plume wells and that is what the center line indicates. It is basically the current water table map. What the bottom line --

MR. BRETTSCHNEIDER: You might mention the scale on the left.

MR. KAPPA: Yeah, the scale is kind of exaggerated. From pre-pumping to the line that I'm going to talk about now, our model, the ground water elevation, we are only looking at about 5 foot so the bottom lines are predicted ground water surface map and after we have the South Field area South Field Extraction System, those wells are installed and pumping and our injection wells are on the South Plume Optimization area is pumping along with the removal of the action wells. Everything that is on is what is depicted in this model. What you see obviously is we have further draw down in the water table and I would like to ask you to kind of picture injection well 10 not injecting and if that well was not in, the water table would look something like that. It would come down basically following these other wells and this is where injection plays a real important part by injecting the water into this well at our property boundary, we are raising the water level here and

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creating a mount. What we've done is we have created a high spot and it's a real simple thing. Water flows down hill so we have created a barrier or we will create a barrier when those wells are installed and running. Let me just slip back to this other picture, just keep that barrier in mind and again, that is going -- well, let me get that straightened out there. We will have that barrier, you know, along Wiley Road, just north so that should really minimize the amount of contamination moving off the property.

MR. CARR: That basically says that any water coming south in a southerly direction to our property line, it is not going to make it across the barrier. It will be drawn into the South Field recovery wells.

MR. KAPPA: Right. Do you all see that or do we need to discuss that any more?

MR. CARR: We will have two barriers, the South Plume Extraction and a barrier on our property line.

MR. KAPPA: By creating this high spot, it will help push the contaminated water back towards the extraction wells. It is increasing that gradiant.

MR. CARR: Splits the plume into two.

MR. KAPPA: It's going to help speed the Acquifer up that much quicker. Again, all these

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MR. CARR: Splits the plume into two.

MR. KAPPA: It's going to help speed the Acquifer up that much quicker. Again, all these

modules are tied into that baseline remedial strategy report. We have looked at all of these different scenarios and this is what we think is going to help us achieve our clean up.

MS. DUNN: So you would have like one plume between the RW3 and 10 and then the primary one is going to be the 10 back up --

MR. CARR: Right, cutting the distance between instead of pulling water all down off the property, look at the difference it is splitting the plume right in the heart of the plume on both sides of these barriers.

MS. DUNN: So the worst contamination will stay more concentrated on the site instead of having a tendency to dilute?

MR. KAPPA: Right.

MS. DUNN: Does that mean you pick it up better as you run it through the AWWT because there will be higher concentrations or does that matter?

MR. KAPPA: It would just be a more efficient removal.

MR. BRETTSCHNEIDER: It will be quicker as part of this speeding up and cutting it in half.

MS. DUNN: Because the further distance it would travel, the more it would be likely to spread

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MS. BRETTSCHNEIDER: The AWWT would take it down to pretty much the same level.

MR. CARR: We will get more mass out per volume of water. It comes out and the second thing that we would like to talk about here is that, you know, the acquifer will supply you so much water when you pump it and the reason we are reinjecting is we are trying to minimize the hydraulic impact. We are trying to get more water so we are trying to limited as to how much water we can pull out which that limits our ability putting the acquifer by reinjecting or putting water back in disallowing us to flush the acquifer that much more and hopefully pour more mass out quicker. That's the whole point behind this thing and get more mass out quicker.

MS. DUNN: So right now it has been so dry the acquifer is lower, right?

MR. KAPPA: Yeah, maybe just a foot or two, not significant. Even with all of the pumping systems on line if we weren't pumping at all, what we would be pumping, we're talking 5 or 6 foot maybe, not a whole lot.

MR. CARR: How much is the acquifer down, Bill?

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MR. CARR: How much is the acquifer down, Bill?

MR. HERTEL: Right now generally over a year's time in the dry season in the summer from that time to early spring of the next year, there is about 8 feet so we are going to add five more feet to that.

MR. KAPPA: I will jump back onto this slide. I wanted to talk real briefly about the South Field Extraction System Phase I wells. Again, these are the ten wells in the South Field area and the wells have been installed but no pipeline system.

MS. CAMPBELL: The pipeline system is basically going to be your pipeline that is going to pull it back to the AWWT?

MR. KAPPA: Right. Again, the ten wells have been installed and the contract should be led within the next couple weeks. Something important about this system, this is the water that we are going to send through the AWWT expension project which Dave will talk about and this will basically be the source of our injection water.

MS. DUNN: And that has a different system to take it back to the injection wells?

MR. BRETTSCHNEIDER: That will be another system, right.

MR. CARR: You going to explain all of the piping?

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MR. KAPPA: Not really. Basically what we are getting ready to do in a nutshell, this is -- the South Field Extraction System, the Optimization System and the pipeline for the injection system, that is going to be one contract that we are going to let loose in the next couple of weeks so the contractor will come in and kind of do all that work in one sweeping motion so hopefully everything will basically be ready to go at the same time.

All right, that pretty much covers it for the current activities that are going on. Some of the future projects that are going to be more in the other years, 2002, 2003 time frame, we have proposed a ten well system that will need to be installed in the waste storage area by the waste pits and Silos and the Plant 6 area system will be composed of probably two extraction wells and there is another 9 wells series that will be installed in the South Field area and another 5 injection wells will be installed and also converting for current extraction, that is a little confusing but more injection wells being installed. If our current injection demonstration project is successful so this one should have an asterick by it, it is contingent. Any other systems that we may deem necessary over the next couple of years.

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MS. DUNN: Are you guys having any like demonstrations here on this 3M 50 on the other site and people come in and see it?

MR. JENKE: We have not thought about that yet. This is something in terms of what kind of coordination we need to do on that. We are beginning to think about it now. I guess at this point what all of the time that is being spent on is what do we do, what do we need to put in place to bring these wells up and running without too many glitches. There are five wells with various diameters to each of those five wells and we want to evaluate which diameter provides the best reinjection rate. There is other issues that we need to deal with, chemistry issues --

MR. BRETTSCHNEIDER: Yeah, we have, we will be putting together papers through the EM 60 and I don't know how many people will be coming but I am sure it will be looked at.

MR. JENKE: This fall I think we need to start looking at EM 50. The EM 50 coordination for this project is a gentleman out of Chicago operations office and he has requested that we put the information on the groundwater program on the web so that himself and other interested stakeholders can pull the information off so as we get into these

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MR. CARR: John, I think EM 50 is hungry for success. If this is a success it will get communicated and they need it.

MR. JENKE: That is the bottom line.

MS. DUNN: If the new guy that took over for Clyde, is he into this --

MR. JENKE: We sold it to OMB very strongly and Clyde did before he went out. He tried. I don't know how much it helped, but I don't know.

MS. DUNN: You did not tie it to privitization so you're safe.

MR. KAPPA: Just as a last slide to beat these areas home and I know you've probably seen this a hundred times with the system that was just talked about in the waste pit area and plant 6 in the South Field, we have talked about that a lot tonight. Just one last thing, I don't know if you got a handout on the table, we put together a series of fact sheets and summary sheets with all of the various projects for waste water and acquifer, current projects as well as

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MR. KAPPA: Basically if everything works out okay, late spring or early summer we should have all of the groundwater systems in as well as the groundwater treatment.

MS. CAMPBELL: 98?

MR. KAPPA: Right, 98.

MR. BRETTSCHNEIDER: The good news is right now we're actually ahead of the schedule.

MR. CARR: You're going to see a lot of digging through the winter.

MR. BRETTSCHNEIDER: When money comes available we are always ready.

MS. DUNN: Something is working over there.

MR. CARR: We have always been low ones on the totem pole for priority, let's face it. We have always had little modules sitting there ready to go and money became available and now we're --

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MS. DUNN: We screamed about that to the field office. Did they bump that up?

MR. JENKE: It's priority went up and --

MR. CARR: It went up and we got, basically our early on strategy was to break everything from soil and water in pieces and have those pieces ready and available and sitting on a shelf in a procurement package and when somebody underruns, we take that money and go and this year basically that happened and we are, every single project is going at full speed right now in soil and water and things like you wonder why we put wells out there, it's sitting out there, it's because we had a little bit of money freed up and we were able to sever off one package and put the wells in and they will come type of thing, you know, and now the bite is coming. You've got to be a little bit innovative on the strategy and I think everybody here did that.

MR. BRETTSCHNEIDER: And even as John mentioned, those three projects is one of the nice thing that we have been able to do is to take those and combine it on one project so we will deal with one contractor and one issue which really I think should

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MR. CARR: One thing though is you are going to see a lot of digging all winter. We are putting almost two and a half miles of pipeline in. You will see a lot of excavation.

MS. DUNN: That is total pipeline to and from?

MR. CARR; To and from and back and forth and up and down.

MR. BRETTSCHNEIDER: Okay, for those of you who don't know, my name is Dave Brettschneider and I am the manager for the acquifer restoration and waste water project for Fluor Daniel. In the waste water arena, first of all we will be responsible for treating the waste water from all of the site. Okay, eventually it will come to us. There will be come pre-treatment systems out there and I will go into those. Essentially we will be taking all of the site waste waters, mostly focusing on Uranium and then our MPDDS permit discharge requirement which covers the non radio nuclei discharges. Within the project, basically, we are responsible for the design, construction, start up and operation and monitoring and reporting and tonight this is a team effort. I brought my whole team and had them all show up this

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evening to support me and I told them to interrupt them at any time if I don't answer a question correctly. I would like to introduce those people. First you have already talked to Bill here, Bill is responsible basically for monitoring and reporting MPDDS all the water, groundwater stuff and that John described for the thinking part of it, setting it up. Jack Hughes, Jack is my engineering construction manager and he is responsible to construct, you know, design and instruct them. And then on the operation side, I have Henry who operates all my treatment system.

MR. CARR: And the wells.

MR. BRETTSCHNEIDER: And the well, I'm sorry.

MS. DUNN: And Dennis and Rob over there crack the whip.

MR. BRETTSCHNEIDER: That's right. Again, like John, I would like to put this first slide up and walk through basically the rod requirements that we have that address waste water. John went through the Acquifer portion and this will be the waste water portion. What waste water treatment systems that we have are currently operating, a little bit about their capacity and location and so forth. Just to kind of go into discussion of the uranium treatment process,

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the proces that we use to get the uranium out of the water before we discharge it or reinject it. Recently completed construction activity have just been completed and we will talk a little bit about those. Current construction activities, current design activities, walk through you what we perceive as putting this all together, what does this spell and what does our final flow sheet look like? I'll try not to get too technical but give you enough information that you can understand the generalities of what we are doing and try to walk through a time line just real briefly and tell you how this all fits together, both pieces that we talked about this evening.

Okay, the OU5 Rod of course, covered both soil and groundwater and waste water but we're of course interested in this evening on the waste water and that includes groundwater and storm water and the sanitary waste water and the sanitary waste water also has uranium in it, fortunately. We, underneath the rod, we have responsibility to limit the discharge of uranium to the Great Miami River. What has been negotiated is the mass limit whereby we will not discharge more than 600 lbs. per year of uranium and then a monthly average of 20 ppb parts per billion, a

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monthly average and fortunately most of you are familiar with our storm water basin and so forth and once in a while we do get these massive rainfalls and we will have to bypass water. We will continue to have to do so. Again, that is perferrable to us rather than overflowing the basin which puts it back into Patty's Run and potentially goes back into the ground water so our first objective is not to overflow the basin so we do do bypassing and we are going to be limited to ten days per year on that discharge. Then of course we have our current national pollution discharge elimination system which is the non-radio nuclei item and we will continue, as a matter of fact, we are ready to permit negotiation shortly and we will continue to meet these parameters. So we will be walking through these and that pretty much covers that.

Okay, currently we have the four major systems that are operating, they have us operating out of the site and that is the advanced waste water treatment phase 1 and phase 1 is a plant where we currently treat mostly storm water. It is storm water that we collect in our storm water retention basin down here on the site, which covers roughly 165 acrea of drainage here off the site and it's contaminated run

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treatment which is a system that we built more or less to test out the treatment for groundwater and that sits down also at this storm water retention basin and it strictly treats groundwater and that is a 200 gallon per basin system. When they propose, that's your first inclination to say guys come up with another name. Again, just real quickly, just to show you the spit and the eye water down here in this corner here is the former production area looking north and building 51 over here is where we have the advanced waste water treatment plant both phases 1 and 2. For those of you who have not seen a picture of it this is a little bit closer of it and this is this area here (indicating) is the advanced waste water treatment system and a little bit later I will be talking to you about the advanced waste water treatment expansion which will occur in this part of the building right here. This part of the building here was not utilized in the original design of the building and we basically utilize the original design and basically filling that with equipment for groundwater treatment and that was by the way, that building was the department of the army building that was going to be torn down and we salvaged it to use it for the --

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MR. CARR: Which means you won't be applying it through groundwater because it does not have a lot of particle in it to drop out. It is clean going in so you don't need to coagulate it.

MR. BRETTSCHNEIDER: Correct, so this part of the plan, like I said, will only be in AWWT phases 1 and 2. Then after that we filter in any carry over in solids, we want to get those out into this area and the filters and then on phase 2 we go through

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activated carbon and that is because the waste waters that are in phase 2 there is some carbons in the waste water and we have to take those out of the carbon system there and then finally we go through, we do another PH adjustment if necessary and ION exchange and the ION exchange is really the key. We do take some uranium out here and this is the final unit where we will polish it and get it down to the low levels and then the final filtration before we discharge to the river. Like Dennis says, the groundwater portion where the water does not have the suspended solids, we will pick up and start, usually pick up our treatment systems here and then where we're going to be reinjecting, we actually have another step in front of this where we aerate the water to remove the iron because the iron is there and it goes into the reinjection test and plugs up the injection so we have to aerate the water and take it out in the filters.

Okay, then I'd like to go through and continuing on and go through with recent construction activities and current construction start up activities and current design activities that we have going on in the waste water arena. Two recent projects, larger projects that we have completed were installation of multi-media filter on the AWWT phases

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1 and 2 and parking lot storm water diversion. The backing up here just a second on that, this is a step right here, like I said, we have the multi-media filtration or right now we have the multi-media filtration and this is a project that we just completed. We used to have simpler filters there and what we found after operating for a while is the number of the solids either pass through and ended up plugging up the ION exchanges or slowing down the flow rate, they get on the surface of that and plug that unit up. What happened then is we ended up having to do a lot of backwash down in this area so we were using a lot of our clean water to do the backwashing of these units. These were new multi-media filters and what that means by multi-media is here I'm going to show you one first, this is a picture under construction. At this point they are completed. This is the 400 system or phase 2 system and what this is is they're in the multi-media, there are 3 deep bed filtrations so the water has to basically go through filtration pretty much this whole tank and then there is 3 medias here and each one becomes a little finer so if we take out the larger particles at the top and as it goes through that media it is a finer media material and then it just keeps working its way down.

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Those materials, to let you know how they work, when we backwash these things and flush out the particles that we have accumulated, those solids that we have accumulated, those three materials have different specific gravities so those will reseal back in that same ragation so we put in the multi-media filters both for phase 1 and 2 and since then we have been able to get out flow rates up some more in preparation for the remediation flow. This is the multi-media filters and the carbon tags on the phase 1 system and actually you go in there and it does look pretty complicated and that's because there is mounting and piping to do all this backwash and so forth. It looks probably a little more complicated than it really is, but it is complicated.

The other project we just completed, this is just a picture of it was a parking lot storm water diversion. What we did back when we put the storm water basins in, the main storm sewer came down through here and actually used the discharge and the storm sewer ditch and it was simpler just to go ahead and divert that pipe in to the storm water basin. Okay, now what we've done in preparation and again these were size per regulatory requirements for a 10 year, 24 hour storm so it gave us a volume of I think

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maybe 8 and a half million gallons or something like that so as we start in the remediation, we want to add some more area in to this basin. We need to either build more basins or free up the capacity and what we've chosen here is to free up the capacity so we took off the parking lot which did not really have uranium contamination and pulled that out of the system and that gave us 11 or 12 acres of area and of course that is a pretty high run off of the black top but equivalent to maybe about twice that many acres of grass so that gives us a fair amount of new capacity without having to either build, extend treatment capacity or build larger basins. The current construction start up activities, like I mentioned to you, we are taking part of building 51 that we did not previously use and we will be putting in there basically filling that up with a new 1800 gallon per minute groundwater treatment system. I have a poor quality document but I think it is kind of interesting and you can kind of get a feel for that system, too. We will be bringing that system or bringing the groundwater into that system like I said and we will be aerating that in this tank here and then pumping into the filter units and then the ION exchange column and the uration stuff that we are adding here is to

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In addition to that we have two other projects that we are currently working on. One is the resident regeneration system and as I mentioned to you earlier, the key polishing unit or in the case of the ground or key raining removal system is the ION exchangers and the resident we do, on that resident, it accumulates all of the uranium that we take out of the waste water and as of right now, we are just accumulating that resivoir but this project will have a project where we will take rain water and pull the uranium out of that and take it to our solids and put it back in there so it will regenerate and in the residence it is a fairly costly item because it is uranium specifically so it is strictly for taking the uranium out of the waste waters.

The other project that we have is a new and when I put that new in quotes, it is a new sewerage treatment plan and of course with the soil remediation project with Dennis, we have already cleaned up this here and we are getting ready to move down to this area. Our current sewerage treatment plant sits here.

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It is an old plant, it's about 45 years old and it's in pretty bad shape but we have to move it to remediate this area and also it needs a lot of work. It's just kind of run down and we have tried to not put too much into it and we're going to be building a new plant and I say new in quote because what we are really doing is taking the plant which we currently have now and this is a picture in the production area and this is probably as you have heard in the past of our biodenitrification facility (here) and after we came in to the biodenitrification facility we went through BD&F treatment plant and that was basically through the suspended solids and biochemical oxygen which is the same type of thing that you got out of the sand -- so what we're going to do is take this plan here and basically pick it up and move it over to, next to the AWWT and that's where we're going to divert the sanitary waste water and treat that there. So while it's new, it's really not a new facility. This is just a picture where the first phase is course getting the slab out there and this sits right there on the ground. It will have a construction site to sit it on so this is a picture of the force putting in that slab and so the slab is in and shortly we will be getting a contract to place the move and cleaning

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system and getting it already to move and clean it out and so forth.

Okay. Primarily what we are in the process of designing which will become then future construction start up activities at this point and we are going to have, as from remediation, like I mentioned to you in this storm water run off, we do get solids down in these basins and as we start more remediation with the earth deservants, there will be more solids coming down and those will accumulate and these basins and likewise when the waste pit, when the waste pit starts to work, again, we will get a certain amount of solids that will come into this waste water here and most of those heavier solids will settle out in these two basins, either by _____ or the storm water retention and because of that we are setting up two sludge removal system or the system in each one of those basins to remove those solids and do set in in that basin and pull those out. And decap the water at that point and truck that material over to our slur cover and slurry the water and dewater the packages and so forth.

Another one and again I use quotes here, Volatile Organic Compound Treatment System and we have two areas in the soil remediation arena. The fire

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training area up here and the sewerage treatment right here. We do have a volatile rep list of contaminants list in the waste orders and as such those have to be pre-treated for those contaminants before they are brought into the treatment system. So we have a treatment system now, a small one out in Plant A where we're been doing that for the last number of years and again Plant A is in the middle of the site and has to be taken out too so we will be taking that treatment plant up and moving that down into the AWT facility. There, we will move it and make it portable and at these sites, but right now, I think it looks like we will be moving that down to the AWWT and we will make some modifications so that if it works which is imposed in the soil remediation project.

MS. DUNN: What is the primary RCRA?

MR. BRETTSCHNEIDER: Gosh, let's see, Bill or Dennis?

MS. DUNN: It is lead in the firing range --

MR. BRETTSCHNEIDER: No it is --

MR. STRUMVIEW: (Inaudible)

MR. CARR: As far as the waste, actually the rain water will be accumulating in any excavation ditches and when you take that out of there and we have to pre-treat it and remove that, those

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constitutents before we send it through the AWWT and basically it is a regulatory requirement that that has to be pre-treated before mixing of the water. If we don't do that, then you have to treat all of the water as though it contains hazardous waste and that would be fairly expensive. We don't want to do that.

MR. KAPPA: A major reconstruction for the facility.

MR. CARR: Besides the facility is fairly small so it has to be done and the quantity of water is not large but it has to be done.

MR. KAPPA: And again then going back to the outline, I'm going to now go through the Effluent Flow Diagram and when you put this all together what does it look like and then basically go back through the Acquifer Restoration and Waste Water time line which kind of summarizes a time line of where we will be on this project. I won't go into great detail but this is pretty much what it sums up to. We will be treating storm water and AWWT phase 1. Remediation waste water for the most part will go under AWWT phase 2. As I mentioned the volatile organic compound pre-treatment will be permanent with that and then the water discharge from that goes through the AWWT for removal. The sludges that come out of these treatment

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plants all come out at the slurry dewatering facility. As well some of the OU sludges and slurrys that have heavy metals and contaminants that exceed our MPDDS we will pre-treat those and the slurry dewatering facility also. The acquifer or the groundwater acquifer goes into of course the spit that I mentioned to you and the LAW or advanced waste water treatment expansion into the larger system and the AWWT or LAWWT will mostly use that for ground water too. Then sewerege has its own and will continue to have its own plant. These dotted line, we just put together operation and maintenance master plan, management plan which basically says how all this will work and if you go through there which what we found right now the remediation waste water usually runs into the range of about 1500 parts per billion so that is our high strength waste water. So that gets first priority so it goes to AWWT phase 2. In an event that we do run into problems we have too much water because it does get some storm water out there if we have some unusually large storms, we will divert some water to AWWT phase 1 so this is our highest priority stream and storm water ends up in the range of 700 parts per billion so it's our highest stream and as you can see there is a bumping order as the basins get higher we

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will switch this from groundwater over to treating the storm waters so it's kind of a domino effect where we will switch notes and going after the stream with the highest amount of uranium and try to do that so we can get that out of there.

This over here, right now when you aerate, just before we discharge we have an aeration tank. Under the NPD our water has to have the five per million of oxygen and we will aerate the water to make sure that this is oxygen.

In summaizing on a time line which John spoke to you about on the acquifer that I spoke to you about this evening on the waste water. This is kind, I guess you would call a crude diagram but you can kind of see what the facilities have been in existence before 1987. These are what we built in the years that we built them along with the South Plume Extraction well that are in place and then you go out here toward the end of this year, the calendar year we will have the resident regeneration system in the SL pipe and that is the piping modification to allow more water to come from the biosurge and like I said as remediation costs start to come up, we will have to get more water down to the AWWT so we will have that water going down there. Then you can see some of the

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different expansions that should be coming on about next year and sludge removal systems the end of next year and so forth. Unless you have some questions, I will go through them but that kind of summarizes if you look ahead and of course we have some break lines here. There is not a whole lot of new stuff between 2000 and 2003. It is mostly operation and then we will come back and pick up some of these other fields inside the plant area once, as John said once the other facilities have been remediated. These actually go in the areas once the soil and stuff is probably will come back in and that is the key to of course trying to complete this in ten year time frame. Any questions, anyone?

MS. DUNN: Did you have to do any modifications like the filtering for the increased water flow or did they just have to be changed off?

MR. KAPPA: No, as soon as we started going into remediation here, as far as as soon as we start disturbing the soil, we will get a heavier load of solids coming down the plant but all it will require is maybe some modification for chemicals and then there will be an extra load on those first clarifying units. We will take those solids out of those units.

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_____ will they start working and being pumped up? Don't you have some type of something that catches the uranium discharge? Would that have to be modified for the increased volume or water and amounts of uranium or does it have to be checked?

MR. KAPPA: No, it won't have to be modified. We are putting in more, that's the extension. It's a matter of volume through --

MR. CARR: We have a fixed capacity you know, we can very slightly, don't get me wrong. There is flexibility with how much water you are putting in across on exchange and still be efficient, but the bottom line is there is a 6 capacity on the frequent capacity, how much it has. Our job is to use that the best we possibly can by directing it to the highest concentration and that's what we're trying to do throughout this entire system is build flexibility into every single piece. To any given piece whether it is turned on or turned off, we are always trying to have the highest peaks that are available capacity. You just get a lot more of the details with the bottom line, that is the fundamental flexibility for building all of the piping designs and basically all of the systems and what that basically means though is that any given minute some water in the future will

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gradually now and in the future will be going straight from the wells or somewhere and going straight through the river without treatment. It will be diluted into a water treatment stream and we will still -- the combined discharge has to meet out discharge limits of 20 parts per billion and we can't discharge more than 600 pound and in our job is to manage the treatment capacity to direct it to the highest concentration available and at the same time meet those discharge amounts.

MR. KAPPA: That whole strategy is outlined in the document that Dave was talking about, the operations, maintenance, management plan. That summarizes this whole strategy.

MR. BRETTSCHNEIDER: That's a draft document. It just went in a couple of weeks ago.

MS. DUNN: It's like all the other drafts in the past.

MR. KAPPA: It will be revised.

MR. CARR: Actually it comes from the agency and I don't see many major modifications. Okay, paper work, half the job or 3/4 of the job is paper and this job is not about dirt digging here. Okay, anyway this is kind of confining some of the major documentation that is at EPA right now. These are three pretty

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critical items that we've got here that require a lot of strategy formulation with EPA. It's what we call the ________________ excavation plan. What that basically does is lays out the sequence of work and it also lays out the general logic of how we're going to conduct soil excavation and identify what our approach to characterization is going to be being how we're going to supplement the existing RF data to define the limits of excavation and both vertically and horizontally and then it is also defining the rule of real time instrumentation in that process. It is also defining the methods of excavation and how we will control fugitive dust, how we will control run on and run off and it also defines our plans for restoration so it is very favorable also toward certification process. I'm sorry, certifying these statisticals methods, etc. It kind of lays that out so it's kind of a typical document. It's a major effort to put this document together and it was submitted on July 1 to U.S. EPA and July 14 it was submitted to the agencies and currently under review with them. Also two others, we talked a lot at many different meetings about real time instrumentation. We have what we call high period germanium which is basically a detector and we are looking at gamma radiating nuclei which is

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our primary concern, uranium and so are the daughter, the gamma metors and they are emitting energy and clearly we would be foolish not to take advantage of that energy that it's emitting and go find it. It's a fingerprint and they can be measured and by measuring it you can determine it's concentration so our objective then is to find it, the best possible method to detect it in the field and measure it and quantified in the field and then show it to EPA how this method is comparable with the process of taking a physical sample with the intent to reduce our sampling costs. That is the intent of this process and that's what we're trying to accomplish and again it's sometimes difficult for people to step outside of the protection of samples and move into a new area and it will take us a little while to work through that strategy and work through those issues of EPA. Sometimes we don't feel comfortable so it's kind of going to be a learning process and apply it on a limited basis and gradually as people start feeling more comfortable with it, and its increase with usage across the site. So we have used this in area 1 phase 1 and during that process we have followed a fairly large data set and we have compiled that data set, evaluated that data set and put it in our initial

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report called the comparability study and also submitted that on July 14 to the agencies and again, there is that heavy reliance on that report and formulation of the strategy that is in this document here of how many samples we have collected etc. We are also doing what we call an RTRAK report and especially a road transportable detect device in fact I have a picture of it here. Everybody is probably familiar with it.

MS. DUNN: A John Deere tractor.

MR. CARR: You've got it, a million dollar John Deere tractor. Anyway the idea here is that there is a detector range on the back end of this thing with a multi-channel analyzer that is in the back end of this that is driven by a teamster. I have a Ph.D. and a teamster in the same truck. So we'll see how long that lasts. See who kills who. Anyway, so the idea here is again we're trying to take advantage of the gammit. The high period germanium instrumentation is excellent and very good at quantifying at very low levels. It does however have some limitations in that it requires a fixed setting and it requires a certain duration of analysis so it basically fixed points analysis but it allows you to integrate over a larger area. It allows you to take

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a sample so it gives you a great benefit however it does take time. RTRAK, this system we can run the thing across the ground at a fixed rate of speed and with that we can correlate that to the energies and try to derive some meaningful information. What we're trying to do is try and look for its limitations and then try to determine what it's applications can be for the site. Clearly we feel it can be useful for discerning things that are high concentration that may seek a waste acceptance criteria. We have absolute confidence in that system that that system will do that. That we can run it across the ground and it will determine where you have exceeded the waste acceptance criteria there. What we're now trying to work with is how low can we go with confidence and how can we expand it's usefulness across the process and that's what we're doing right now and again we did tabulate a report that did show that we used it in area 1, phase 1 to help create a baseline for its future usage and all that data was tabulated into an RTRAK report and submitted to the agency on July 14 and now the ideas that we have all this information to go and let's hash through how we're going to gradually integrate the usage of these two instruments into our cycle excavation strategy and try to reduce analytical

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MR. CARR: If you have any questions.--

MS. DUNN: What if that gets like passed by everybody like, you know, the data and that, it would not require as much lab work, right?

MR. JENKE: Significantly less, yes. But really, for just the gamma emitting radia nuclei, primarily it's going to be uranium and thorium and Dennis spoke as to the waste acceptance criteria and the RTRAK should be able to pick up it's because the uranium waste acceptance criteria is pretty high in terms of concentration but you can pick it up by driving this vehicle and detecting it so it is just based on the gamma radia nuclei.

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MS. CAMPBELL: Same for U.S. EPA?

MR. CARR: Yes.

MR. STEGNER: Just on one of the subjects that to keep you update on this as well as the waste water and acquifer and the clean up session we will be starting again on September 9 and the first one will be at 6:00 right here in this building.

MR. CARR: I think if anyone wants to come up and have a tour, we certainly have a lot of work going on.

MS. DUNN: It would have to be through the day though, right?

MR. CARR: You tell me when and I'll bring it through.

MS. CAMPBELL: It's about time for FRESH to take a tour, we haven't taken a tour for a while.

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going on which is a road that is being built to haul material from the South Field up to the on property disposal so that's in the middle of construction. We have what we call the leachate conveyance system which is going to take a leachate from the cell and that's being installed across the site and we have the new north access road that is being installed by Barrett Paving along the eastern side of the site. We've got Dave Brettschneider's advanced waste water treatment sytem expension going on and a new sewerage treatment plants going on out in this area. The AWW regeneration system underway, we just got done with putting the site packet and immobilizing into next week. Actually about the next three weeks for the South Field area and the site prep and start taking those basins that I talked about. The two and a half miles of pipeline of course is down in this area and off to the site and coming back to the AWWT. The railyard which shows up on this location is still underway and the onsite rail, the improvments to the offsite rail is currently underway and also we have the completion of the site prep for the future ARASA contract out in the pit area, that will be completed within about one month of completion. We're finally getting done with that one. That's been a long

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project, a lot of work involved in that and of course outside our division we have the boiler plant demolition going on and I'm not sure of the other stuff going on but we have so much going on. We got the whole place tore up.

MS. DUNN: The waste pits contract has not gone out yet, right?

MR. CARR: Waste pit contract is at DOE requesting consent.

MS. DUNN: You mean headquarters?

MR. CARR: The size of the procurement is such that we must get consent to let the procurement and the Department of Energy. We have certain authorization approval thresholds but above that threshold we must get DOE concurrence before we place it for procurement.

MS. DUNN: So it is in a forest stall?

MR. CARR: No, it is at this site. Actually our contracting officer is evaluating the procurement site. This is an extremely complicated procurement and integrative work force has set up different issues and we have a package about yea thick and she is going through the review of that right now and you know, hopefully we will receive consent. We would like to avoid that before the end of the fiscal year and

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MS. DUNN: But that is another source of the contamination to the acquifer.

MR. CARR: Yes, there's no question about that. A lot of that has been come off, but yes, there's no question about that. It is also, it's a getting us to get additional wells in there. Gotta get that stuff out of the way and get the wells in and get the soil underneath.

MS. DUNN: Waiting on the Silo?

MR. CARR: Actually we are going to put a lot of wells around the site and suck the stuff right out of there.

MR. STEGNER: I want to thank you all for coming tonight. We'll be around to answer some questions for you.

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