



**DEPARTMENT OF THE NAVY**

NAVAL WEAPONS STATION EARLE  
201 HWY 34 SOUTH  
COLTS NECK, NEW JERSEY 07722-5001

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From: Commanding Officer, Naval Weapons Station Earle  
To : Distribution

Subj: MINUTES OF NAVAL WEAPONS STATION EARLE RESTORATION ADVISORY  
BOARD (RAB) MEETING OF 22 JAN 98

Encl: (1) "Bioslurper Progress," prepared by Mr. Gregory Goepfert, Naval Weapons Station Earle,  
21 Jan 98.

(2) Upcoming Projects: "Sites 4 and 5 Landfill Capping," "Site 19: MK8 Ordnance  
Stripping," and "Site 26: Solvent Removal."

1. A meeting of the Naval Weapons Station Earle RAB was held on Thursday, 22 Jan 98 at  
7:00 p.m. in Building C-54 (Conference Room), Naval Weapons Station Earle. The following  
Station and community representatives attended:

NAME	ORGANIZATION
Robert M. Honey	Commanding Officer, WPNSTA Earle
Kevin Bova	Executive Director, WPNSTA Earle
Deborah Sciascia	Office of Counsel, WPNSTA Earle
Gus Hermanni	Safety Director, WPNSTA Earle
Dennis Blazak	Supervisory Environmental Engineer, WPNSTA Earle
Robert Jones	Regional Enviro.Coordinator, COMSUBGRU II
Gregory Goepfert	Environmental Engineer, WPNSTA Earle
Mike Brady	Public Affairs Office, WPNSTA Earle
Ben Forest	Monmouth County Friends of Clearwater
Lester Jargowsky	Monmouth County Health Department
John Kolicius	NORTHNAVFACENGCOM
John Mayhew	NORTHNAVFACENGCOM
Russ Turner	Tetra Tech Environmental
Tim Kinsella	Birdsall Engineering
Zach Lewis	Birdsall Engineering
Sharon Jaffess	EPA Region II, Project Manager
Jeff Stern	Monmouth County Environmental Coalition
Bob Marcolina	New Jersey Department of Environmental Protection
Mary Lanko	Resident, Howell Township
Larry Harris	Colts Neck Board of Health
Marilyn Boak	Colts Neck Board of Health
Mike Heffron	Foster Wheeler Environmental
Will Stephan	Resident, Howell
Janet Coakley	Resident, Howell
Carl Tippmann	Foster Wheeler Environmental
Sharon Brown	Tinton Falls
Greta Deirocini	NORTHNAVFACENGCOM, Stenographer

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[Note: The minutes of this meeting are in transcript format and are the official record of discussion and comment on the Proposed Plan for Site 26].

Greg Goepfert: We had a notice in the newspaper several weeks back which talked about a proposed plan for one of our sites which is site number 26. That's where a solvent was found in the groundwater at that location, and we are going to talk tonight about the Navy's proposed plan to clean up that particular area.

First, what I would like to do is get started with quickly reviewing the minutes from the last meeting which everyone who was a member got copies of. Looking over some of the action items we had talked about doing the Site tour in December but agreed to delay that after the hunting season. We were going to invite the members to witness the bioslurping operation. We're going to do that once we get into full operation.

Mrs. Balmer had called today to let you know that she couldn't make the meeting but she would be still interested in witnessing the bioslurping operation and to give notice a week in advance before we bring anyone through.

We talked about the bioassessment team that Mr. Jargowsky has set up with the Brookdale students. We expected to set something up in the Fall but it turned out that we had some scheduling conflicts and we will do the bioassessment in the Spring/April time frame.

Mr. Marcolina was going to follow-up on the issue of the treatment works approval permit for the bioslurper discharge. We now have a permit. Thank you very much. It moved through well and was issued on January 2, 1998.

So, if I didn't see any other issues in the minutes from the last meeting, do I have a motion to approve the minutes?

The minutes are approved and will be officially entered into the record.

As planned, I want to get right into discussing the issue of the proposed plan. John Mayhew has put together slides on the plan and I have a short video I'd like to show. John, you want to describe the site?

John Mayhew: For some of our new members, we have a G-I-S [Geographic Information System] to track our analytical data results.

John Mayhew is showing the slides.

Greg Goepfert: Site 26 is in the Manasquan watershed. The material of concern is trichlorethylene, which is a solvent. The levels are in the parts per billion levels in the groundwater. John, who is a geologist has said there is a confining layer which fortunately surrounds that site, which keeps the solvent localized.

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John Mayhew has continued with the slides.

Ben Forest: Do your wells go across the water level?

John Mayhew: No. The layers are about 22 inches. Generally, the screen is probably three or four feet off the bottom of the clay. In doing the hydropunch work the thing we noticed was although we have high concentrations, in some areas parts per billion, it's a thin ledge along this clay layer. While the concentrations may be high, movement of the contaminants is not all that great.

John Mayhew has continued with the slides.

John Kolicius: To follow-up, do we have any wells beneath the clay area?

John Mayhew: When we did punch through the clay areas in a couple of areas to determine the depth and see if there was anything showing up in the water beneath the clay layer, we basically found non-detect levels of solvents down there, and we immediately sealed those holes back up so there wouldn't be any leakage through. The entire volume where we punched through the clay were sealed with a bentonite clay which was tighter than the surrounding formation.

We used a cone penetrometer. It gives you the soil classification as you go down. It allows you to see what you're about to encounter and target those zones where you expect to find those contaminants. So, that's what we did here. This is just a simplified air sparging vapor extraction schematic.

This is what we are proposing for the site.

Greg Goepfert: I have copies of the proposed plan which is also in the public record in the Shrewsbury Branch of the Monmouth County Public Library. If anyone would like to take home a copy to read through this, feel free to take a copy home. Looking for public comments by the end of January and what this report explains is the current situation, the alternatives that we considered and our proposed plan which is basically what John has just explained.

Lester Jargowsky: Are there vapor treatment units? What kind of technology do we have there?

John Mayhew: With some of these technologies they may be effective in reusing or breaking down the compounds before they get to the treatment system. Right now we're going to anticipate that we need it.

Greg Goepfert: Foster Wheeler who is our contractor has a unit that's currently operating at Atlantic Electric and I have a short video on the actual operation of that unit that I wanted to show everyone.

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Lester Jargowsky: I think it is important to note for members of the RAB that air sparging is not anything new. We have leaking underground storage tanks around the county and it's technology that's in use already.

John Mayhew: It's another form of pump and treat rather than using water as the carrier, you're using air which is much more effective.

Larry Harris: What is the radius of effectiveness?

John Mayhew: We'll have a soil gas probe that will be the first thing to do to see what the radius of influence is as we start up.

John Kolicius: We should be able to get a fair radius of each sparge point because of the sandy soil. A lot of that is trial and error. Rather than putting a lot of money into the design, put a couple points down and take measurements and see pressure changes.

Kevin Bova: Is the injected air tempered?

John Mayhew: There's a lot of variations. One of the things with air sparging if there is non-anaerobic biodegradation that may be occurring, the addition of oxygen may not be so good for the bugs initially. In terms of mass removal, which is the immediate goal of the EPA, we see this as being a good technology to start. Eventually, it will reach a point of diminishing returns and we'll have to revisit it, and basically see when it's time to deactivate the system because there will reach a point where the amount that we're able to get will be reduced or limited by diffusion. If there is any D-N-A-P-L (dense, non-aqueous phase liquid) in the air, it will be very hard to eliminate by air sparging. Overall, I think it's appropriate.

John Kolicius: In our remedial investigation and feasibility study, we've seen it's a limited area that's been effected and a lot of modeling says that since it's in a remote area in the base, the nearest drinking water wells are miles away. Even if we did nothing there, this stuff would never get to these wells, but to be protective, the regulators would like to see as much of the volume removed. That just helps any natural breakdown that would be occurring. Going to be going into the areas of highest concentration first and do as much removal as we can as quick as we can to get the volume of solvent out of the ground so we never have to worry about it anymore and beyond that once we get to the point where this technology isn't working, we can refine some of our previous designs and see conclusively there isn't going to be a problem even a hundred feet down gradient instead of saying right now it will never reach a source. We don't want it to get anywhere near that source. We want to limit the area where we know we have the problem.

John Mayhew: Part of that we will be implementing institutional controls. Most of the other sites I see the plumes are relatively stable, the older plumes. If VOCs [volatile organic compounds] were to discharge to wetlands, they don't pose a threat very much to aquatic organisms. They would volatilize and you wouldn't find it in the sediment. From the risk perspective I really see the only risk driver as being somebody who may place a drinking water well in an aquifer. I don't know

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how likely that is. As far as the institutional controls, this is a more secure area of the base which it makes it all that more easier for us to implement the institutional controls.

Greg Goepfert: Any questions?

Ben Forest: You actually asked the question, how is the Navy committed to operating this base for a long term basis because I know there's talk of base closing?

Captain Honey: I think we'll be here long into the future. There is no discussion of shutting down Earle at any time that involves our lifetime.

Ben Forest: Has there been testing done outside of the base to see if there's been any unusual migration outside the base into Colts Neck?

John Mayhew: As part of the remedial investigation at the request of EPA we sampled every stream leaving Earle. Sediment samples were taken; we do not have any sites that we see chlorinated solvents moving offsite in groundwater.

Ben Forest: More specifically, when we read that report we didn't see any references to groundwater, well water. I believe I think there are people who do get well water. Has there been testing done of that?

John Mayhew: We haven't seen any need to do that based on --

Greg Goepfert: There was some testing done years ago when the first study came out. I believe it was the County Health Department that was involved and there is some record back ten years ago that there was some testing done.

John Kolicius: In general, of all the sites at Earle only at a few of them have we seen any groundwater contamination at all and at this site here was surely our most significant groundwater impact was shown by going in with the hydropunch sampling. We've gone to the edge of the plume. We were following out a way from where we had a known concentration and went to where we're at the front edge; where we're getting a non-detect concentration there's no reason to believe if we've gotten a hundred feet down gradient and getting down to non-detect if we went further beyond that. We generally concentrated around the areas of no impact and expanded and the idea of sampling the streams leaving the base is if any of these areas the groundwater was surfacing, we'd pick up on this and the stream all came out non-detect levels.

Lester Jargowsky: Way back when we started we asked the base, the RAB, if they would start off by doing a full analysis of water and sediment on every stream leaving the base. That's not typically how it's done. We wanted to be comfortable from the beginning that nobody was being harmed and the results were very favorable. We started off on a solid foot there. On the other side of the coin I can tell you that not too far off the base, nothing to do with the base whatsoever, is a hazardous waste site. It does have the volatiles. It's Pioneer Furniture Stripping. It has nothing to do with the base. You might read about that. I'm sure you've seen something about that data. It has nothing to do with the base. They had furniture stripping done there. There's a good amount

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of contamination there. If you hear about Pioneer furniture stripping on the map, you're going to see it's really close to Earle, but it has nothing to do with Earle.

John Kolicius: Any sites that had any impact for groundwater we've done sampling in the vicinity of the site. If we found anything, we've expanded out to make sure we determined the extent of anything. We have gone to the edge of the base or beyond the base with groundwater samples. You're talking a ten thousand acre area. Trying to find out what direction something flowed is difficult versus if you started at a source area and went as far as it goes.

Larry Harris: Our health officer had sampling done for many years. He had certain wells he takes samples from. Bill McBride took these samples.

John Kolicius: We did have something called the technical review committee which had representatives of several of the local townships as well as the EPA and the State and Bill McBride and a couple other health officers were on that panel.

Greg Goepfert: I would imagine that was in Colts Neck?

Larry Harris: Yes. Nothing showed up.

Greg Goepfert: He does sampling at private wells.

Larry Harris: Nothing showed up.

Ben Forest: I did notice an absence of groundwater sampling outside the base so it seems like a sensible question.

Greg Goepfert: There is a drawing inside the Remedial Investigation Report that shows all private wells within a one mile radius of the base.

Lester Jargowsky: When they were building the Manasquan Reservoir, New Jersey Water Authority put in monitoring wells. One of those wells is right up there on 34 within the watershed just outside of Earle's fence. There's a monitoring well in there from back when the reservoir was being built. They could not risk having groundwater contamination feeding into the reservoir. I recall they were all sampled and there wasn't a problem.

In addition, tonight I have copies of the rapid bioassessment data the state just let out. I want to make a fast point. The State DEP has done some profiles of the Watmadison pond in terms of rapid diversity of biologic life. It carries the whole watershed as moderately impaired except all the way at the headwaters up by Long Pine Landfill up by Freehold. That area over there is severely impaired. But the whole rest of the watershed is moderately impaired. We know from our work before here on rapid bioassessment that you wouldn't get a "no impairment" [designation] in New Jersey. Moderately impaired is actually doing really well. So, [with the existence of] the aquatic life in itself -- there's nothing toxic going through there or you wouldn't get that kind of a result.

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Greg Goepfert: Anyone who would like to take a look at the proposed plan that we have, you're free to take a copy of this with you if you like, and any comments that you have, if you would provide them in writing by the 30th of January.

(Ben Forest has comments.)

Greg Goepfert: You have them formally? They are written up? We have to have them in writing and the address is in here.

John Kolicius: If he has comments now, we can take it in the minutes of the meeting. This is the reason for the meeting tonight.

Ben Forest: I would say that we were basically pleased with what we saw there. Bear in mind that we're laymen on this not engineers, but we noticed that you went for the most comprehensive option, alternative five, I remember. Basically, I mean, as I'm sure everyone would agree, we're also concerned whether Earle stays open or not. Maybe things beyond your control that may change things, who knows. We're pleased that you're going with the most aggressive approach to that.

The other thoughts, we just really were surprised. To be honest with you I'm cynical after dealing with the government, good and bad experiences. I was expecting that you would go for alternative two or the less aggressive approaches. I was very pleased to see that you went with the most aggressive, and thought it was unusual and was very happy to see it.

John Kolicius: The Navy was looking at the reactive wall and everything we looked at said it would be protective of the surrounding environment. The immediate area of the site would remain impacted for 30, 40 years but beyond the reactive wall area it should have been nondetect; but EPA in particular had some concerns about the difference in time frame. Thus, we can go in and do a lot of work very rapidly. Can get a lot of mass removal and the other solution may still be 30, 40 years before there's no impact but we have that much volume of contaminants removed before we get to a point where we say we can't do anymore. So, through some discussions with EPA and having brought it up at a couple previous RAB meetings, we changed our decision on how we wanted to treat this site and went to the air sparging approach.

John Mayhew: If you look at the slide, if you were to trying to pick a place in the middle of the base it's about as central as you can get.

John Kolicius: EPA's concern was what if Earle would close down and some other use was desired. It's not anticipated but if something's removed it's removed and we don't have to worry about it.

Ben Forest: The other comments were we would like -- you said you did some testing below the clay line. We would like to see that done as precaution. It certainly sounds like it's not necessary.

Greg Goepfert: It's been done.

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Ben Forest: The other thought, we didn't see anything about testing beyond the borders of the base. Although, I gather there has been some testing done in regards to the various issues at Earle, you know, just as a precaution.

John Kolicius: Our approach with some of the samples that we did is any time you have something like a deep well going through basically a confining layer, if you have something above the layer there's also chances for some leakage right at well points so we really wanted to avoid having any permanent intrusion through that layer. That's why we're trying to focus on top once we took initial samples to show it once already impacted.

Ben Forest: Thank you for your patience.

Captain Honey: The Navy is very committed to the remediation process at all our sites. I think you'll see that in some of the other site remediations we've done or in the process of doing, the extent to which we go. We don't take the short cuts in the process. It's a quality effort all around.

Greg Goepfert: I'd like to press on with showing you a video of the operation. Another positive to the aggressive nature of the process, other sites have had similar experiences to Earle as this particular site and at one of the sites there that was cited in the literature from the Hazardous Waste Consultant, back in March/April time frame 1991 there was one site that had solvent contamination similar to Earle's, and using this air sparging process they removed 7800 pounds of solvents within 240 days, less than a year. I'm not saying that's how much we have in the ground, however, this is more proof of this process being very aggressive and a process that actually works. We're getting out of the lab phase and into the reality phase, and I wanted to show you a site that Foster Wheeler is operating an air sparging system [as a remedy to a gasoline spill]. I just wanted to show you what that setup actually looks like. The [similar] type of process that we're going to see up here at Earle.

Greg is showing the video.

Greg Goepfert: Thank you to Mister Dan Walsh of Foster and Wheeler. That happened yesterday afternoon on his way home from work. To show you the exact setup I put on the overhead the schematic of the process. It blows down the air through the sparging pipe and volatilizing the organic vapors coming through the extraction wells and then into the separator unit, so basically absorbing the contaminants off of the carbon material and transferring from the actual groundwater to the air phase and then selectively taking that contaminant out of the air stream.

I put together a short synopsis of the proposed plan which is basically what we plan on doing is removing the process leach tank which is out there now and an old grease trap which at one time was connected to a paint spray booth which we believe was the source of the solvent. Going to remove and dispose of the grease trap and septic tank and the cost of that is \$46,500. That's part of the proposed plan. The installation cost of the extraction unit will be about \$1.7 million, and we will have to invest in operations and maintenance cost of about half a million dollars a year to operate this unit. So, what we want to do is evaluate at the end of the year our progress so we can get to the point where we're comfortable with the progress of removal and at that point in

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consultation with the regulatory agencies we'll judge when we will shut the process off. As a I said before, the proposed plan is out for public comment.

Ben has given us his comments. If anybody else has additional comments on the plan, we would hope they would get us some comments by the end of the month and if you're out in your area if you have any other interested parties in your neighborhood that would like to take a look at the plan, please do. It's available in the library and would welcome any comment that you would have on that. So, that's basically the story on site 26. Is there any other comments on this particular action?

Sharon Brown: What's the duration of the soil vapor extraction phase?

Greg Goepfert: Every year basically we're going to look [at its progress].

Sharon Brown: I mean anticipated duration.

Greg Goepfert: The proposed plan evaluates all the alternatives. The longer alternatives are up to 45 years. One of the other alternatives was natural attenuation which is basically do nothing, and that's prognosticating 45 plus years to do it [i.e., bring the groundwater in conformance with standards]. This system is anticipated to clean up the site to regulatory standards in the five year time frame so at least right now by the current modeling that we have we're hopeful that after five years of operation of this unit, or less, that we would be achieving the regulatory standards.

John Kolicius: When we put together the estimates we don't want to put forward too optimistic. I think the time frame will be much less than five years because we have concerns that are favorable but in order to make a fair comparison between the different options we want to say this process could take up to five years. It's very unlikely that it would take any longer than that. It's a good chance it will take a shorter duration.

John Mayhew: Eventually it will reach a point of diminishing returns. And that's going to be a cost benefit analysis. Depending on what's in that clay layer which is going to be very difficult to deal with, the reality of the situation is it may be very difficult to achieve those standards. For New Jersey they are one part per billion. So, we're going to try to bring the concentrations down as much as we can but eventually you'll reach a point with DNAPL there's residual there and you will get diffusion. At that point the concentration should be way down. That's what we're looking for. So, maybe Greg put a little too optimistic of a spin on that. That's more or less the reality with this type of contamination. It's very difficult to remove the source and as long as the source is there, there will continue to be some diffusion. So, we'll have to investigate that as the process goes on if the DNAPL are bound in the vadose zone. I see this process being very effective. DNAPL stands for Dense, Non-aqueous Phase Liquid.

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Greg Goepfert: If there wasn't any other questions on the process, I wanted to move on to another big set of projects that we have coming up over the next couple of months, and that's the site 4 and 5 landfill capping work-- as you see a rather significant price tag on this work as well. We're talking about Site 4 which we talked about before which is located at Lake Earle and Site 5 which is an area adjacent to our ordinance disposal range, which were old landfills. They contained solid waste material which is basically metals and paper and the types of things that fall out of file cabinets. All types of domestic and industrial wastes as well.

Based on the R-O-D [Record of Decision] which was signed between the USEPA and Navy in September 1st of '97, we're moving onward with capping the landfill at both sites. We expect to mobilize by mid February and have the job at both landfills complete by the middle of August this year. The job value, the current working estimate for the work, is about \$4.9 million. These are the records of decision that were made, and we found that we've agreed and concurred with the EPA to go forward and do this work. Just to give you some idea as to what landfill capping really is, I have a video. I also wanted to pass around to you a sample of capping material so that you can feel what landfill cap material really is. It's basically a polyethylene product, and this is what the cap is and also after the video, Mr. Carl Tippman from Foster Wheeler would like to explain how this material is bound together so that the infiltration and separation during the life of the cap is minimized or completely mitigated. Also, while the video is up you can look at it. There is a lot of earth work that goes along with this project. That is primarily a big reason for the price tag is the fact that removing a lot of dirt to make sure the liner has integrity. I have to thank Russ Turner of Brown and Root for finding us this video. This one's a little bit shorter than the other one.

Greg Goepfert showed the video.

Greg Goepfert: I'll turn it over the Carl to explain how it all works.

Carl Tippmann: Capping is to keep water from going into the landfill. The landfill's multi-layered; we'll reshape the landfill so it drains properly, and we'll be putting in twelve inches which is a sand which will allow gas to come through. Then we would put the 40 mil liner which is actually the most interesting part of the job. Here's an example of how we splice it. It comes in rolls, and we join the layers together. We'll have a hot iron set up on wheels that runs down the joint of the two and they pull the two layers together and they will double weld it and will actually put a small probe in there and pressurize with air so we know there are no leaks. The textured material they use for the slide slopes will keep the upper layer from slipping off. On top of that we have twelve inches of very granular stone type material. Any water that does penetrate will run down into the perimeter basins so it won't go into the landfill itself. Then there's a cover layer of select fill which is a buffer and then you have your six inches of top fill where we plant grass. The primary layer of select fill is to provide an additional layer so you don't have frost action underneath the liner.

Lester Jargowsky: What's the average lift height?

Greg Goepfert: Four to one slope.

Carl Tippmann: I believe on Site 4, we have four to one.

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Greg Goepfert: He's talking about above grade what's the height above grade at the highest point.

Carl Tippmann: On site four. It might be as high as twenty foot. I don't have the exact figures.

Lester Jargowsky: But existing right now it's not twenty foot above grade.

John Kolicius: An example of the edges we have a very steep drop off so we have to make more of a gradual slope to protect the cap over the long term.

Carl Tippmann: It's not very high at all. A decent slope to shed the water real well.

Greg Goepfert: The nominal design slope was about four to one. It's not as high. We were going to make a little bit of a change in that area because of the decision that was made that we shut down the Shooter's Club in that area, and the reason why we had put a high slope originally was that shooter's club needed the additional height. The grade was to be enable the Shooter's Club to be certified as a working range and we have since cut that requirement out of the job.

John Kolicius: Part of the decision right now working on any type of remediation to close the Shooter's Club range could be done relatively easily. Once a cap was in place it would be difficult to work around the edges of the cap to collect lead shot that had gone beyond that area. The maintenance to the area would have been increased by the range ; it really wasn't worth it to the Navy [to continue to operate the Shooter's Club range]. We were able to build the cap more on the sense of what's needed for the best cap rather than trying to accommodate other uses.

Ben Forest: I assume these are not lined landfills?

John Kolicius: Right. These were closed. Thirty years ago they were closed. Again, when you have a 7 acre site, you're not going to dig it up and put it in a lined containment. The best thing to do is cover over the top and make sure there's no infiltration going through.

Ben Forest: This is primarily household stuff, some possible panels? No weapons were disposed of at these landfills?

John Kolicius: That's correct. Any ammunition that were damaged would go to ordinance disposal area which would be blown up or propellants blown off. There may be some scrap metals after some of this work has been done. Inert shell casings, things like that which again we would have the ordinance disposal team on call just in case during some of their movement if they come across anything that looks suspicious the job would shut down and it would be inspected.

Ben Forest: Is there monitoring of the landfill?

Greg Goepfert: There are monitoring wells in place and will be additional wells installed after the installation of the landfill cap. That will be part of the final remedial action which will not only be the installation of additional wells, which they call sentinel wells, around the cap, there will also be what they call a CEA issued for that area which is called classification exception area, which is something new that came out of the State and as of a year ago. If any water is withdrawn from

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that area for drinking water purposes, that we'll specifically state that treatment might be required. So, that document, the public document, will be filed with the State after the completion of the landfill cap.

Bob Marcolina: Once the sentinel wells are in place, we'll set up a monitoring program and we'll take samples from the sentinel wells.

Ben Forest: Are the sampling dates in the report?

Bob Marcolina: Yes. They are in the RI [Remedial Investigation].

Greg Goepfert: Any other questions on the landfill cap? We have one other job of remedial action work that's also occurring that we're looking to complete by the end of April this year and that's at site number 19. It is located west of Highway 34 at the perimeter; that's over by Farmingdale perimeter fence area. Ordinance was stripped of it's paint and reworked to clean. It was the Mark 8 ordinance item that was stripped there and then the paint was deposited in the soils years ago when this operation took place. We've identified where the high levels of lead in the soils are and we are going in to excavate the lead in that area and dispose of it properly. We're looking to complete this job by the end of April this year. A ROD has been signed on this along with the Site 4 and 5 landfill jobs back in September of last year and the total excavation cost [for Site 19] is about \$180,000.

Foster Wheeler will be doing the work. They will be the general contractor on that job. We should be finished with this by the end of April and we'll have that site closed out. We don't anticipate any further work on that site.

Sharon Brown: Have you begun that work?

Greg Goepfert: We expect to start probably by the end of February, maybe March.

John Kolicius: Foster Wheeler has presented some health and safety concerns to us before they do any work in the area they have to make sure the equipment they use is proper and the people have proper training. Going through that now.

Larry Harris: What happens to the soil?

Greg Goepfert: It will be tested for metal content. If there's a facility that can accept it that's a recycling facility, that's where we'll send it to and recycle it into an asphalt mix. Before any wastes are exported off this station, we thoroughly test the waste using the leachate procedure and any other tests that the disposal site would require of us.

John Kolicius: In worst case it could go to a hazardous waste landfill. It would be a controlled situation with liners in place with the proper techniques. If it's possible that we can reuse this in some way and not pay for hazardous waste disposal we will try to do that. Make sure the analysis proves what we're doing is protective of the environment.

Janet Coakley: How many cubic yards?

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Greg Goepfert: 260.

Janet Cookley: That cost isn't assuming hazardous waste disposal.

Greg Goepfert: The cost assumes it is hazardous waste.

Mike Heffron: We anticipate it not to be hazardous waste.

Greg Goepfert: It's a cost plus contract, we only pay for what we get. That could be a high estimate of the total job.

John Kolicius: The cost would be minimized. We will try to avoid that if all possible.

Greg Goepfert: So, that's site 19. There is another site where we're proud of our progress. The bioslurper just commenced operation last week [at Site 16/F]. The bioslurper is taking care of an old diesel spill site from years ago, and it's basically going to separate the oil from the groundwater. Our plant operator is here, Mike Heffron, who can tell you. These are the jars of material that is coming out of the extraction wells after the oil is separated from the process. The emulsified water looks like this and after the clay and carbon treatment in the unit itself the effluent water looks like this. The unit is very efficient.

John Kolicius: The effluent water coming out of our system is going to the Earle's water treatment for further polishing before discharge.

Greg Goepfert: Pump 1 which is operational has pulled out 50 gallons of oil which was 50 gallons of oil separated from the 1500 gallons of water in the five hours of operation.

John Mayhew: One of the things that helped, we used Navy technology called the SCAPS [Site Characterization and Analysis Penetrometer System] unit. We found this to be an excellent screening tool. I think Mike could shed light where we've kind of put wells based on that information.

Greg Goepfert displays color slide of the extent of subsurface diesel fuel delineated by SCAPS at Site 16/F.

Mike Heffron: Based on where we put our wells where John said the SCAPS was done we put wells in the middle where you see the red area. We have anywhere from two to three feet of oil in the areas right now.

John Mayhew: Big help on this job because it's an active rail yard and access is somewhat difficult.

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Greg Goepfert: As far as the cost is concerned, for about one year operation and maintenance of the two units which are two process units, two foot by forty four foot trailers is going to run the taxpayer about \$225,000 for the whole year which includes \$50,000 worth of analysis work. The analysis is to make sure we're discharging clean effluent on a regular basis. The plan calls for evaluating the effort after one year to see how much product we've removed from the ground in that vicinity. We're very concerned. We want to get this job done efficiently. This site is in the Hockhockson watershed.

Lester Jargowsky: Will you be able to recycle at all?

Greg Goepfert: Foster Wheeler has made arrangements with a local recycler to take the oil.

Kevin Bova: Mike has the iron been a problem more than you expected?

Mike Heffron: No. We still get a block but it's manageable from where we've withdrawn the oil. It's keeping all our pipes clean.

Lester Jargowsky: The block that you're adding is that what's causing the yellowish color?

Mike Heffron: Part of the process when you introduce air and pull up the oil with air some of the air emulsifies in the water.

Lester Jargowsky: What happens when you add FeRemede [the sequestering agent]? Does it change another color?

Mike Heffron: It's to keep the iron in the solution so the iron doesn't come out and form. When you pull the iron up, the iron forms a flux layer floating below the oil that caused problems. That's from the iron coming out of the solution and what the FeRemede chemical does is keep the iron in the solution therefore it doesn't come out of the solution and cause an iron problem in the oil water separator.

During the pilot study we had problems with pipes and pumps being crusted with iron; once we used this FeRemede chemical it has helped out.

Greg Goepfert: Any other questions on the bioslurper? We will be having a tour. If anyone is interested in seeing it in operation we'll bring you through. We'll put out a notice at least a week advance. Lester, did you have something to say of interest on lyme disease?

Lester Jargowsky: The only thing that's really new is they've come up with a vaccine for lyme disease. It will be available for adults only in the latter part of April. The drug manufacturer requires three doses spaced apart; cost is going to be \$50 a dose. They are still doing trials in Europe on children. So far the trials look pretty good. Maybe by June or so they will have our approvals here to use the vaccine on children.

Bob Jones: Is that an actual cure or preventative?

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Lester Jargowsky: If you have lyme you shouldn't get the vaccine. This is for someone who's starting fresh.

Sharon Brown: Is this pertinent to this because of site workers coming in contact?

Lester Jargowsky: It's close to being a tick capital of New Jersey. It's very pertinent here.

John Mayhew: One of the factors is there's a lot of deer and white-footed mice. Although they open it up for hunting, I guess it's not efficient enough. There's deer all over the place.

John Kolicius: Do you have any more information on testing that's been done with the "shunts" for deer that is through USDA?

Greg Goepfert: The deer tick feeder, the study that's going on, Dennis?

Dennis Blazak: It's still going on. Anecdotal medicine evidence says there's less deer ticks on the deer. It's going to take a year or two. You have to go through two cycles. In a one mile radius on the western side of the base there's a series of 26 deer feeders. They are four or five feet long. There are four posts on the corners. They are coated with a chemical called Pointguard. It is a regularly available chemical, and it kills fleas and ticks. It has no particular affect on humans or mammals. It's really dangerous to fleas and ticks. No particular systemic effect to the deer in pilot studies that they did on penned herds. They had 89 percent reduction in tick population in Texas. They wanted to see if this would have a same effect over a wide area in a forest location. This is one of five sites up the east coast. The other sites are all suburban. This is the only full forest site. They are trying to see what the effect is inside the treatment area and out so many miles. The west side is the action side and this side of the base is the control side. There are all kinds of places where they are doing sampling. It will take five years or so. I think the active part of the study is four years and the fifth is a roll-out plan to do it in larger areas of the country. It's being sponsored by the USDA.

Greg Goepfert: Thank you for letting us know and we'll take that into consideration.

Lester Jargowsky: That will be wonderful.

Greg Goepfert: Any fact sheets come out that say the risks?

Lester Jargowsky: We buy a lot of vaccines and why he stopped by is he anticipated that there might be select groups of people that are in the woods a lot like engineers and surveyors. So, what he was doing is he stopped by and they have public health rates on their vaccines and regular physician rates. Public rates are lower than what a physician pays for them. Monmouth County has a reputation. He was trying to get an idea of how many associations or groups of people might be interested in having this vaccine because he would give the groups that want it. If it came through us we could order it and get it at a lower price and agencies could save some money. We do that with hepatitis vaccines and all kinds of vaccines. It's MERCK pharmaceutical company.

*Smith/Kline/Beecham*

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Greg Goepfert: Thank you very much Lester for letting us know. I wanted to put in a plug for the people who are here this evening for the first time and would be interested in further participating in our restoration board if you would just stop by after the meeting and I'll give you a copy of our candidate form and if you would like to fill it out we'd like to have additional interest and membership from the community.

I'd like to say thank you for your interest tonight in the program. At the request of Mr. [Merwin] Kinkade, who represents Tinton Falls Borough, I've been asked to pass on this information: they [Tinton Falls Environmental Commission] had put in a grant application to the New Jersey DEP to take a look at the Pine Brook. Merwin had asked us to give a letter of support for the grant and we've provided a short letter of support saying we were in the watershed, that we did have some data ourselves from the watershed that we would be willing to share with his organization. Actually we're willing to share with anyone because it's all in the library.

Through his Boy Scout group, Mr. Brandstetter had been doing field testing work of the watershed area so basically he just wanted to bring it up that he was happy that we were able to give a few words of support to his application and I said we would encourage that type of work and we've done that.

John Kolicius: Part of the study was getting Pine Brook reclassified as something stream. The sampling that has been done recently has been encouraging as far as the diversity in the stream and there's evidence that it may actually be some producing trout in the stream. They want to do some studying to get it reclassified.

Greg Goepfert: So basically just as a matter of record Merwin asked me to put in a letter of support. Not to say that he was going to get it [the grant] based on that. Is there any other questions or comments or concerns? Anybody who would like to add?

Lester Jargowsky: Just wanted to make sure the group knew the State is pushing for a major watershed management plan development in the Manasquan River Basin. I brought along some material here if anyone is interested in looking at what's going on here. There's significant activity that's going to take place determining maximum daily loads sustained determining the assimilation capacity of the watershed. They've already stated that Monmouth County leads the pack in determining of new treatment loading and discharge. Nitrogen and phosphorus levels are very high. The nitrogen and phosphorus will be keyed on when they get daily loads. The EPA basins model will be entered into GIS to do modeling of all watersheds. What this goes back to the reason why they are doing this the DEP [Department of Environmental Protection] was sued and lost a lawsuit. The suit was based on the fact that the point source discharge permits like you would get for a sewage treatment plant were issued and they didn't have information. They were ensuring the permit without information of the assimilation capacity of the watershed. If you don't know what the loading that the water shed can handle how can you set up a permit for discharge. So, now through the court's okay they are making them develop a model as to what is the assimilation capacity of the watershed. They will work backwards now. January is going to be the first one. This packet has a lot of information related to that. Why I'm bringing this out now they will go through various watersheds in Monmouth County. Earle, you're the keeper, like it or not, I think you're in every study. I wanted you to know what was going on. Also a key factor here in these

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documents is that they are using rapid bioassessment which was first piloted here last year in Earle when we were doing some work. They are using rapid bioassessment to profile streams to make determinations on whether they are healthy or not. I think we have some good momentum. There's going to be good science put on the table with fancy models.

Bob Marcolina: Lester, didn't they do some stream evaluations last year?

John Kolicius: They are looking at the loading along the whole length of the watershed. I think some of the areas in particular where there has been much industrial activity the streams are almost pristine but as you go through the actual areas, you want to see what the loading area is and that could afford denying permits down stream to say we're adding too much nitrogen or this land is adding something the stream can't handle.

Ben Forest: Don't forget residential.

Larry Harris: I think what they want is get the whole system on GIS and know what's going on.

Lester Jargowsky: One word we have to take out is pristine.

John Mayhew: The very interesting thing about this base I'm not aware of any streams that come off base onto this base. Every stream is basically the head waters of the county. It's very unusual when you look at the amount of acreage that's basically no streams come on to. Everything leaves.

Lester Jargowsky: That's why I'm bringing this out. This is going to go on for years and years and what we're talking about here and what they are remedying here has direct impact on watershed plans.

Kevin Bova: Everyone in the Pine Barrens?

Lester Jargowsky: What's interesting in this packet is air pollution. Up to <sup>40</sup> percent is coming in via air pollution. That is amazing. I had no idea it would be that high.

Bob Marcolina: What is that contact with the surface water or from rain?

Lester Jargowsky: NO<sub>2</sub>. You have sulfates going in, acid water as acid rain phenomena. Got lots of particulates. Heavy metals can be transported through the air. Keep in mind the most west winds, the prevailing wind in the area, so anything that's up above us has a negative impact on us. We're just down range of that but the EPA has proved through their remedial studies that Philadelphia, Ohio, when they launched the balloons it can come from long distances.

Greg Goepfert: Thanks for that information. Right up-to-date on everything in the local area and we appreciate that. At this point I would ask if we have covered all those topics? Do I have motion to adjourn?

The date for the next meeting will be May 14, 1998.

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We haven't set a date for the tour yet. We were looking in the March time frame for the tour.

Kevin Bova: Is that for all the IR [Installation Restoration] sites or new people?

Greg Goepfert: We would like to do it on a Saturday because it would be difficult to do it during the week. I could set a date for March 21. Are we out of the hunting season at that point? We could set a tentative date for the site tour, if anybody else would like to come and take a look at the sites. Take a look at some of the sites at the landfills and some of the construction you'll be able to see.

Kevin Bova: I wouldn't push it too much past that. If they want to get out of the car and look around, tick season is going to start.

Greg Goepfert: The next meeting we were looking at is May 14, second Thursday in May at Earle.

Meeting adjourned at 8:57 p.m.

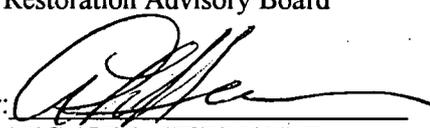
## 2. Milestones

(a) Mr. Goepfert to arrange for tours of the Bioslurper and Installation Restoration Sites. [Arrangements have been made for March 20th tour of Bioslurper and March 28th tour of Installation Restoration Sites].

Submitted by:

  
GREGORY J. GOEFFERT  
Navy Co-Chair  
Restoration Advisory Board

Approved/Reviewed by:

  
AUGUST L. HERMANNI  
By direction

Distribution:  
RAB Members/Attendees

# *oslurper Progress*

- *Operation Start: 14 Jan 98*
- *Unit #1: 50 gallons of oil separated from 1500 gallons of water in 5 hours of operation.*

## *Poslurper Cost/Schedule*

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- *One Year Operation and Maintenance: \$225,000 (includes \$50,000 in analysis)*
- *Evaluate Remedial Effort Following One Year of Operation*
- *Unit One: in Operation*
- *Unit Two: Start \_\_\_\_\_*

## *Sites 4 and 5 Landfill Capping*

- *Site 4: 2.7 acres; Site 5: 7.9 acres*
- *Start: 11 February 1998*
- *Complete: 15 August 1998*
- *Total Cost: \$4,903,464*

## *es 4 and 5 Landfill Capping*

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- \*12" bedding/landfill gas management layer*
- \*40 mil LDPE geomembrane*
- \*Cushion Fabric*
- \*12" layer of granular drainage material*
- \*A nonwoven geotextile (filter)*
- \*12" select fill (part of vegetative layer)*
- \*6" topsoil (part of vegetative layer)*

## *Task 19: MK8 Ordnance Stripping*

- *Lead-laden soil removal*
- *To be completed by end April 1998*
- *Cost: \$181,576*

## *Slide 26 - Solvent Removal*

- *Interim Action to be completed by the end of April 1998 - Remove and dispose of grease trap and Septic tank - cost: \$46,500.*
- *Proposed Plan: Soil Vapor Extraction / Air Sparging; Capital:\$1.7M, Operation and Maintenance: \$0.5M*
- *Public Comment by 30 Jan 1998.*