Community Advisory Council
December 9, 2004
Action Items/Notes

Final

These notes are in the following order:

1. Attendance
2. Correspondence and handouts
3. Administrative Items
4. Discussion on the membership of Iqbal Chaudhry
5. Discussion on EPA requirements for making changes to CERCLA documents
6. Presentation on the Explanation of Significant Differences (ESD)
7. Community Comment
8. CAC Discussion on Strontium-90 and Magothy Aquifer ESD
9. Agenda Setting

1. Attendance

Members/Alternates Present:
See Attached Sheets.

Others Present:
M. Bebon, D. Bennett, T. Burke, P. Bond, A. Carsten, J. Carter, P. Chaudhari, J. Clodius, J. D'Ascoli, W. Dorsch, L. Hill, M. Holland, B. Howe, S. Johnson, E. Keveney, T. Kneitel, S. Kumar, M. Lynch, A. McNerney, D. Pocze, V. Racaniello, R. Rimando, S. Robbins

2. Correspondence and Handouts

Items one through three were mailed with a cover letter dated December 1, 2004. Items four through six were placed in the member's folders, and items seven through ten were available at the meeting as handouts.

1. Draft agenda for December 9, 2004.
2. Draft notes October 14 meeting
3. Final notes September 9 meeting
4. Revised agenda
5. Copy of email from Iqbal Chaudhry
6. Iqbal Chaudhry's resume
7. A copy of the presentation on Post-ROD Changes by EPA
8. A copy of the Draft Explanation of Significant Differences
9. A copy of the presentation on the ESD by Bob Howe
10. 2003 Site Environmental Report Summary

3. Administrative

The meeting began at 6:38 p.m. Reed welcomed everyone and went over the ground rules and the draft agenda.

Mike Bebon welcomed the CAC members and thanked them for their participation and for their commitment to improve the environment at the Lab. He wished them a happy holiday season.

Jeanne D'Ascoli said that she had received a request from Bob Conklin for a presentation on Broadwater Energy Corp's natural gas terminal that's being proposed for placement in the Long Island Sound. She said that the Lab is doing some research on this and she spoke to a gentlemen involved who said he could come to a CAC meeting to answer questions.

As a quorum was present the CAC reviewed the October 14, 2004 meeting notes. There were no corrections, additions, or deletions. The October notes were approved with two abstentions.

4. Discussion on the membership of Iqbal Chaudhry

Jeanne D'Ascoli reported that a copy of an email from Mr. Chaudhry, explaining that he could not attend the meeting because he was recovering from a fall, was in the member's folders. Mr. Chaudhry also reiterated his interest in the CAC and acknowledged that the vote on his membership request would take place. For purposes of discussion copies of his resume were again included in members folders. Jeanne said that there were openings in the Health, Environment, Business, and Civic categories. Reed said that the CAC also has the option of changing or adding a category.

There was discussion among the members on what Mr. Chaudhry would contribute to the CAC process, under which category he would fit into, who he would represent, and his engineering background. Member Garber called the question. Reed said that a 75% majority of those present would be needed. Fourteen members of the CAC voted to add Mr. Chaudhry as a member.

5. Discussion on EPA Requirements for Making Changes to CERCLA Documents

Emmet Keveney, EPA reported on the three types of post-ROD changes. They are non-significant or minor changes, significant changes (Explanation of Significant Differences), and fundamental changes. He said the type of change used is a site-specific determination. Keveney said that as the changes did not alter the overall remedy and DOE/BNL proposed to include public involvement that is typically done if there is a fundamental change to a ROD, they determined it was appropriate to use an Explanation of Significant Differences.

The CAC did not have any questions.

6. Presentation on Explanation of Significant Differences (ESD).

(Please note question marks mean the recording is unintelligible because the equipment did not pick up the comment or because multiple people are speaking.)

Bob Howe said that the concepts and proposed changes had already been presented several times over the past 18 months. He talked about two paths, the regulatory administrative path for the ESD and proposed changes, and the path that has some changes already in place – existing work the Lab is already doing. He said it gets confusing. He explained that things are being proposed while at the same time the Lab has already installed some of the systems. The Lab is being proactive by going ahead and starting the work. The CERCLA process and ESD guidance does provide for the opportunity to start the work when an ESD is being done. Howe said that it was very important to get the CAC's input and that of the regulators.

Howe went over the OU III Record of Decision (ROD), the investigations, the results of the investigations, feedback from the regulators on the changes and the path forward. The OU III ROD was signed in June of 2000 and included additional instructions on the Magothy Aquifer, the two Strontium-90 plumes, and the Building 96 anomalies. Howe said that there is VOC

contamination onsite and beyond the Lab property and showed the locations on a chart. He also showed the locations of the Sr-90 contamination that are onsite. He said that 16 out of 17 groundwater treatment systems have been installed. The one remaining is in the middle of the Lab site for the BGRR and Waste Concentration Facility Sr-90 plume.

Esposito: Are these into the Upper Glacial and the Magothy or just the Upper Glacial?

Howe: Most of the systems that are shown are addressing Upper Glacial contamination. There are a couple of instances, actually three wells that we have previously installed that are addressing the Magothy on and offsite. I'll explain that more during the presentation.

As the Lab addresses the plumes, the source area of the contamination is also addressed. The ROD instructions for the Magothy aquifer were to conduct additional groundwater sampling that would provide the information needed to make an informed decision and determine the need for remediation. It's important to work with the IAG partners to develop a remedy and obtain input from the community.

Howe went over the results of the investigation conducted from 2000 to 2002. VOC's were found in the Upper Glacial aquifer and through natural breaks in the clay layer between the two aquifers, the contamination is moving into the upper portion of the Magothy Aquifer. Howe showed the locations of the high concentrations of VOC's and described the systems in place to address the contamination.

Three alternatives have been proposed for the Magothy Aquifer. Howe went over each of them. The Lab wanted to be proactive so the two additional wells called for under Alternative 2 were already installed. Howe discussed the number of years it would take to reach drinking water standards and the costs of each of the alternatives.

Amper: You're operating more wells, but you're operating them to get down to drinking water standards in 30 years not 65 year, why is that more expensive. You're not operating them longer, you're…..

Howe: The two additional wells would be operated for approximately ten years. The additional five wells will be operated for 20 years. There is quite a big difference in the operation and maintenance costs.

Amper: Because of the number of wells you're operating not for how long you're operating them?

Howe: Correct, in order to get down to 30 years. Even if we pumped the two wells for 20 years, that wouldn't get us down to the 30 years.

Garber: The source of confusion might be that part of this is extracting the contaminants by pumping them and part of it is the natural diffusion. What you're doing here is sucking for a limited amount of time and getting it down and then to the 30 years, and 65 it diffuses away and it becomes less concentrated.

Howe: Exactly, let me just give you an idea. For both of these alternatives, after ten years of active pumping, concentrations in those plumes would be about the same. Less than 50 ppb of total VOC's, if you look at both alternatives. The size of that 50 might be a little larger in one area than the other after ten years but the concentrations are equivalent. What this comes down to is that with any typical treatment system during the initial operation of the first so many years most of that contamination is getting pulled out of the aquifer. The high concentrations are coming out. If operation of the system continues, the rest of that time a lot of time and a lot of money are being used to get those lower concentrations. Yes, it's a combination of active treatment and monitoring afterwards.

Reed: What we're doing is taking questions for clarification right now. We're looking for questions that you need to ask Bob in order to understand the slide so that we can continue with the presentation.

Sprintzen: What is the rationale for making these choices, they seem to be arbitrary, is there a rationale? Why couldn't it be nine, is there a reason?

Howe: Nine what?

Sprintzen: You talk about three options, the first is with three wells, then you have five because you add two more wells, then you say the third option is ten wells. Is there a reason for….

Howe: The reason is what the Lab is looking at in order to meet that number. By the way, that number was not in the Record of Decision, it's not a requirement that the Lab meets that.

Sprintzen: So you choose 30 years to reach the drinking water standards as an arbitrary number and said what are the conditions under which that would be reached?

Howe: It's not an arbitrary number. What happens is that for the Upper Glacial Aquifer one of the goals is to meet the drinking water standards in 30 years but that has not been stated for the Magothy Aquifer. It's used for comparison purposes.

Heil: Where are the two additional wells located?

Howe showed the locations of the two wells in question on the charts

Heil: Are they screened at the same depth as the existing ones?

Howe: No, these are Magothy and are deeper.

Heil: Relative to the existing Magothy that's…

Howe: Ok, the other existing Magothy's are in different locations. So they're definitely screened in different places then those existing wells. They're generally very deep, 250 feet plus below grade.

Giacomaro: The cost for the two additional wells roughly increased by double but when you go to the ten wells, the cost is more like four times.

Howe: That's just for the monitoring part of it….

Giacomaro: No, no that's capital cost…

Howe: It's capital cost for construction of the additional monitoring wells that are needed to monitor if those two additional wells are not installed. The costs for those three wells that are already installed are not included in this….

Giacomaro: I understand that, but when you went from the three to the five you went up approximately, let's say 100%. But when you go from the five to the ten your cost is approximately 400%.

Reed: There are two types of capital costs that are being considered here. The capital cost for the cleanup wells and the cost of the monitoring wells that are also installed. And those make it look, it doesn't quite….(can't understand)

Howe: We're going from three wells to another five on top of that. That just happens to be the difference in cost. They're running piping and installing wells. There's a lot of parallel costs involved with installing the extraction wells, the vaults, the piping…

Giacomaro: Are they total systems that you're talking about as opposed to just…

Howe: No, the capital cost is just the additional construction cost to install an additional five extraction wells and the piping in order to get to the existing treatment systems. The details of the cost estimate are in the backup and in the Administrative Record. I have a copy here for review.

Giacomaro: What you're saying is that it costs more to run the pipes than to put the wells in?

Howe: A combination of both of them. The cost here is the capital cost to install the extraction wells - those treatment wells, the piping, the vault, anything that it takes to get that system operating so we can get those additional five wells in.

Reed: We need to move on.

The proposed remedy is to continue operating the three previously installed wells, put the additional two in, which are already in and operating, for a total of five wells. The regulators have agreed with the need to be proactive and they're in favor of treatment at the two additional areas. Howe said monitoring would be continued and if something unexpected came up additional action may be needed. That might mean additional monitoring wells or an additional extraction well, but at this time they are not needed.

Esposito: Would Alternative 3 reduce the likelihood of that something like that happening? In other words….

Howe: Not necessarily.

Howe said the proposed remedy is to go after the high concentrations and reduce them. There are no receptors of the contamination. The Suffolk County wells are not in the path of the plume. With treatment it will not reach those wells. The Lab is protecting the environment to make sure that the contamination is removed before it reaches the Carman's River. The bottom line is there are no receptors and no risks but the high concentrations have to be treated. Howe explained each of the proposed actions.

Howe described the Strontium-90 projects. He said the contamination is all onsite and showed the locations at the BGRR/WCF and at the Chemical Holes. He indicated he would be referring to the Chemical Holes as the pilot study. He said the ROD requires that Strontium-90 be treated at two locations. The pilot study needed to be installed and conducted to determine the effectiveness of pulling out the Strontium-90 from the aquifer and treating it with the ion exchange resins. Howe said that the ROD identified the uncertainties associated with the Sr-90 extraction and treatment and said the remedy might have to be modified based on the pilot study.

The Chemical Holes are pretty self-explanatory and the high concentrations found there at the time of the ROD was why the pilot study was started there. He explained that supplemental sampling was conducted after the ROD so that treatment systems could be designed and installed at the two areas. Higher concentrations of Strontium-90 were detected at the BGRR/WCF plume then were initially found.

Esposito: What was the greatest depth that Strontium-90 was found in the Upper Glacial?

Howe: At the BGRR? The deepest is probably about 100 feet below the ground surface. The concentrations that are that deep are low. They've above the drinking water standards, they're not the high stuff.

Howe explained the Strontium-90 distribution at the Chemical Holes and said that the plume was very small and narrow. Strontium-90 adheres to the soil, it moves slowly, approximately 25 feet per year. Groundwater would normally flow around 300 feet per year.

Amper: If this is small and narrow and the concentrations are higher than anticipated…

Howe: Not higher than anticipated, higher than were originally seen at the time of the ROD.

Amper: The concentrations are higher and the area of contamination is relatively small, doesn't this indicate an increased effort for a shorter period of time in terms of the cleanup?

Howe: I'm sorry, I'm not following you.

Amper: If the concentrations are higher than at the time the ROD was done and we're dealing with something that's 100 yards long and very narrow. Why doesn't this indicate an expedited effort to clean up the very small high concentration in a shorter period of time?

Howe: I'm going to talk about that. We've started on this, it's been operating, it's the pilot study, the pilot study's been operating since February of 03, that's two years now.

Reed: I'll hold that for further discussion.

Howe reported that the former chemical holes were the source of the plume and they, as well as other pits, were excavated in the 1997/98 timeframe so the source is gone. He discussed the pilot study and explained the flow rates and resin use. He said that what they found was that Strontium-90 could be effectively extracted from the aquifer. It's harder than extracting VOC's but it can be done. The Sr-90 is captured as effectively at low flow rates as it is at high flow rates. Low would be six gpm, high would be roughly 50 gpm.

Amper: Why?

Howe: I'll jump to that. The resin usage is much higher at the higher flow rate. There's more interference, minerals such as calcium are contributing to that. The high flow rates exhaust the resin at a much faster rate then the low flow rate. He described the amounts of radioactive waste that will be generated by both the high (2800 cubic feet per year) and low (~950 cubic feet per year) flow rates. The ROD estimated $6.5 million to clean up the plumes. Based on what has been learned during the pilot study the actual estimate showed to be about $55 million. Under the ROD it was estimated that 30 years was needed to meet the drinking water standards. Low flow rates will get there, but more time is required.

Esposito: $55 million over how many years?

Howe: More than 30 years.

Esposito: Over 30 years or per year?

Howe: Oh no, this is a total. The $55 million is a total lifecycle cost estimate.

Esposito: So it's $55 million over…

Howe: 30 years.

Amper: It was estimated at $6.5 now it looks like it's going to be $55. We missed that, we didn't guess that right, is that what you're saying?

Several speakers are talking at once

Amper: We originally estimated, even at high flow it would be $6.5 million. Our experience has told us that was a low estimate and that the cost at the high flow rate is now likely to be $55 million. Is that accurate?

Howe: Yes.

Amper: My question is about the second portion, which is the years, the ROD said it would take 30 years to meet the goal. You're telling us that the low flow rates are as effective as the high flow rates in cleaning up the Strontium-90 contamination so why does it take longer to meet the goal?

Howe: The low flow rate is….

Amper: Are as effective as the high flow rates but it takes longer, I don't get it. I don't represent that I understand this, but one of the most compelling things that I've heard tonight is that the low flow rates are as effective at removing Sr-90 as the high, but it takes longer, s'plain that!

Tom Burke: What that means is it's as effective as pulling out the Strontium from a small area. What's happened is.. ?? the past assumption assumed you pumped a big area and …?? be okay. If we pump at a high flow rate at the Chemical Holes…

This is just the Chemical Holes we're talking about…

Burke: The plume is on let's say half an ??…a small area of this room and pumping at 50 gpm doesn't speed that up at all because pumping at 50 gpm at that area we're actually over pumping and we're pulling clean water that has calcium in it and the resin gets spent up. What the Sr.-90 plume at the Chemical Holes is in comparison to this room, is probably only this size, but the pump pumping at 50 gpm can pull in the whole room so we can turn it down and still capture the small stuff. So whether I turn it on at 50 or 5 to 10, I can still effectively pull it off and treat it and capture it.

Amper: So why does it take longer?

Howe: We're getting off on a tear..

Esposito: No, no let me jump in. This is an extremely important point. I think what we're saying here is how do you use the word effective. In one instance you're saying it's effective for removal of the actual radionuclide, but I think Dick's point which is (other's talking) doesn't encompass the volume and the magnitude.

Amper: Can I go one step further? This group I think has been absolutely fair about this and if we can do something at a slower rate, at lower cost, and clean it up as fast we'd be crazy not to do that. So we're trying to establish to what extent we can reach that conclusion.

Howe: I think I made a mistake when I didn't stress the pilot study, when I say it's captured as effectively, I was referring to the pilot study.

Unidentified speaker: But it doesn't capture it as quickly.

Howe: At the pilot study yes.

Sprintzen: It takes longer to get to the same place, is that what you're saying?

(Conversation between members)

Sprintzen: We don't know how long it's going to take at that low flow rate.

Howe: You're way ahead of me.

Howe: The comment about the low flow rates requiring more time to meet the goal. It's very important that I mention that Sr-90 moves very slowly in the groundwater. The plumes will stay on the Lab property.

The existing system will continue operating at the Chemical Holes - one extraction well that operates at 6 gpm at the low flow rate. The projection is that the Lab would operate this system for approximately ten years to get out the light concentrations. There were over 2000 pCi/l in that narrow plume. Based on projections after ten years the plume should contain less than 100 pCi/l. Monitoring will continue and the system will then be placed in standby. The pump will be maintained, groundwater will be monitored, if conditions change or are not what is expected the pump will be turned back on.

Esposito: So the pump will be shut off at 100 pCi/l?

Howe: I don't want to say a number. I'm giving you an idea based on modeling projections.

Monitoring will continue for 30 years for a total of 40 years to meet the drinking water standards. Howe showed modeling projections for the Chemical Holes on charts in his presentation. He said the plume was about 2000 feet from the site boundary. After ten years of pumping and twenty years of continued monitoring and natural degradation of the Sr.-90 plume going through the half-life process the concentration is expected to be less than 20 pCi/l.

Biss: Since it's moving, will your pump pick up what's there or has it gone beyond what you're pumping.

Howe: The high concentrations of the plume, we're pumping right now.

Biss: Now, but how about 30 years from now? Don't you have to move the pump further down?

Howe: No. If it turns out that we're seeing significantly different numbers 10, 12 or 15 years from now then we're projecting here, yes we may need to do something like that.

Biss: Really? You'd expect that the plume has gone beyond you so that even if you're pumping at the same spot, …if would be going down regularly because physically the plume is going away from you.

Howe: Right, we do have that hydraulic containment at the high concentrations. What you're seeing going past that well are the much lower concentrations of the plume. We're focusing on the high concentrations.

Biss: Even after 30 years at the same spot?

Howe: Yes, it actually goes away. If we need to do something additional as our remediation progresses we will.

Biss: You just have to worry where it is.

Howe: Oh absolutely.

Biss: It's going to move with time.

Howe: And we have a monitoring program to keep maintaining that, to keep on top of exactly where it moves.

Heil: At the low flow pump rates what's the radius of influence, or zone influence of the well in the aquifer?

Howe: At this well in particular, we're talking about 30 to 40 feet in diameter.

Amper: Translate this into language I can understand. There's a period of pumping and there's a period of attenuation.

Howe: Yes.

Amper: There's monitoring the whole time.

Howe: Correct.

Amper: At what level of pico curies that's detected by the monitoring do you want to stop the pumping and depend hence forth on natural attenuation?

Howe: We are focused on pumping the high concentrations of the plume. We're going to pull out the high concentrations.

Amper: So if it's 1000 you're pulling it out, but at some point you're going to stop pumping, you think you can stop pulling it out, what's that point?

Howe: We're probably looking at a rough order of magnitude if you want numbers, don't hold me to it, some where between 100 and 500, some where around there. You want a number, I'm going out on a limb saying that.

Esposito: That's not much of limb, that's a big limb.

(Many people talking at the same time.)

Burke: In the Chemical Holes situation, we have a plume and the extraction well is more in the center of the plume where the highest concentration is up gradient of it. The pump is on and we'll continue pumping until it gets all the high concentrations that are up gradient flowing down to ??…. And that will be on for approximately ten years. At the end of ten years, all those high concentrations are predicted to be gone. What the exact number is, I don't know. But the well won't be turned off if high concentrations are still being detected.

Amper: I guess what I'm trying to figure out here is, the ten years seems now almost arbitrary. If we don't know what the goal is in terms of..you're calling it high concentrations, we're trying to get this more specifically. What does high concentration mean, is it 500, is it 100 and if we can get it down to 100 in five years, why wouldn't we shut it off in five years?

Burke: I believe in the modeling predictions that were done, all high concentration numbers will be gone in ten years. I think we'd be below.

Unidentified speaker: It's less than a hundred. It's …

Burke: At this location.

Unidentified speaker: So the answer to your question is it's somewhere between 50 and 100.

(Tape switches.)

Unidentified speaker: What's edge distance of …

Howe: After ten years?

Unidentified speaker: What's the closest this plume ever gets to….

Howe: Approximately 1,000 feet, here we're saying 1,400 feet to the site boundary.

Garber: I think it's a combination, especially Rita's questions. I understand what's going on… the pump's situated in this high concentration flow coming down towards it. I understand what the strategy is, that as long as that big flow of stuff is heading down towards the well you're going to keep pumping and then the slug will essentially will go by so at that point, to do any more, if there's more to take out you have to re-dig the well further down stream. If I interpreted what you're saying is you're going to pump until this cigar shaped thing has passed by and at that point you're going to ??….presumably much of that is gone.

Howe: That's it, both of them are correct. If we do pumping and the concentrations after five years, are significantly low and that plume is going away quicker, and pumping and treating quicker, concentrations are low, we could petition to shut the well off and keep it in stand by at that point.

Amper: You're saying that continued pumping that would continue to decrease the amount the of time that it takes to reach drinking water standards, but that you at some point will reach the point of diminishing returns where that is not justified. Is that right?

Howe: If we pump longer in this plume what's happening is some of the lower concentrations are already beyond the capture well, the capture zone of this well, lower concentrations.

Esposito: The answer's Yes.

Howe: Yes.

Walker: If there's a monitoring well down gradient and all of a sudden you see a spike there, could you put a pump on it and suck it out? Or does the well have to be completely different?

Howe: Typically an extraction well has a pump in it that captures the contamination, pulls it in and pipes it to a treatment system below ground, so it doesn't freeze. To answer your question, anything's feasible, but that's not what is typically done.

Walker: So a monitoring well could become a pumping well? If suddenly there was a strike there?

Howe: Sure.

Esposito: On the reverse though, if you reach your goal in five years you can shut down quicker. What happens in ten years and we don't know what the goal is? If we don't know what the goal is, which I'm hearing we're not sure what the goal is, it's 50, it's 100, it's 500, it's a limb. What would trigger extending the treatment process?

Howe: Yes, if we see the concentrations…

Amper: High concentrations would require you to continue for longer?

Howe: It's not just the concentrations. It depends on the duration. How long we're seeing it in the monitoring well. If we see a spike and it's after one sampling period, it may be gone, so it's not a big area.

Esposito: I understand that, but when you see it, I guess what I'm saying is see what? What levels of concentration would cause a continuation in active treatment?

Howe: The numbers that Drew had mentioned.

Heil: Is the treatment system 100% effective?

Howe: In terms of what, pretreating…

Heil: Removal of the…

Howe: What we saw in the pilot study is that even the high concentrations that are coming in are getting captured and treated by the resins. It's absorbed onto the resin, absolutely, 100%.

Howe described the seven alternatives for the BGRR/Waste Concentration Facility plume. He explained the flow rate - gpm, the number of pumping wells, the total years to meet drinking water standards, approximately how many years the system will be pumping, and the monitoring that will happen after the active pumping in order to meet drinking water standards, and costs. He said the cost of the Chemical Holes cleanup (estimated to be $4,500K) will be added on top of the cost for the BGRR/WCF plume cleanup.

Howe said that the option the Lab is proposing and is in the process of installing is Alternative 3. There will be five wells pumping for approximately 10 years and monitoring. It will take a total of approximately 70 years total to reach drinking water standards.

The waste generation for the alternatives is directly related to whether the alternative calls for high flow or low flow pumping and the more waste resin generated and disposal costs. Alternative 7 generates approximately 70,000 cubic feet of low-level radioactive waste. Alternative 3 would generate approximately 10,000 cubic feet in waste.

Jordan-Sweet: Is your flow the total flow over all the wells, it's not the flow per well right?

Howe: Correct.

Amper: In Alternative 3 there's another fact that's missing that's interesting. You said that if you used Alternative 3 the plume would never reach within a thousand feet of the Laboratory's boundary line.

Howe: Wrong. Sorry, it's 6,000 feet. The 1,000 feet was the Chemical Holes plume, that's closer to the boundary. This one is 6,000 feet and that's essentially how far it will be from the boundary.

Amper: And how far is it today?

Howe: The 6,000 feet is the furthest point, today, it's a little bit more than 6,000 feet.

Amper: ….under Alternative 7?

Howe: 6,000 feet.

Amper: So no matter which…

Howe: I'm giving you an idea how far away it is. Over time what happens is, with the pumping and treating, the contaminants are getting less and less so the plume is shrinking. Strontium-90 doesn't move. If it moves, it moves very slowly. The furthest it will get….

Amper: The distance it travels has to be related in some way or other to which alternative you take, no?

Howe: Maybe I misrepresented the number of feet that I was saying. It is a point, I was using a road as a point to say that the plumes, no matter which remedy is used, do not get past that point.

Burke: For clarification, whether you have Alternative 1, which is monitored natural attenuation, or do Alternative 7, the plume basically doesn't move any differently. There are some small changes. Whether we get rid of the plume in 30 years or 120 years, it will basically stay in the center of the site. Right now the leading edge of the plume is 6,300 feet from the edge of the site. If you use monitored natural attenuation, the closest it will ever get is 5,700 feet. As time goes forward it decays and dilutes and disperses in the aquifer so if you look over the monitored natural attenuation and any of the treatment alternatives, the core of the plume is very similar for all the options. What we're doing on the option we're talking about is we're paying money to reduce the time.

Amper: Ok, so the distance from the boundary is not a factor in determining which of these alternatives we take?

Howe: No, it's a comparison just to give you an idea of where this is in relation to the boundary of the site.

Burke: And, if you want to know how far away it travels, 25 feet a year…????

Reed said the questions for clarification are good, but they're causing the CAC to extend the presentation considerably longer than expected. He suggested the CAC take the break and then continue the presentation.

The CAC took a break at 8:28 p.m. and returned at 8:40 p.m. to continue with Bob Howe's presentation, the Community Comment period, and begin their discussion.

Howe mentioned the documents in the Administrative Record that are available and indicated that some documents are on the web. He provided a graph of the information from the chart describing the seven alternatives. He said the Lab is about 80% complete with the construction of Alternative 3.

The proposed remedy is very similar to that presented for the Chemical Holes, go after the high concentrations. After ten years the plume will be less than 100 pCi/l with a small area projected to be about 200 pCi/l. Based on monitoring and regulatory approval the wells will be shut off. Monitoring will be continued and additional action will be taken if necessary. Howe showed a series of maps modeling the concentrations over time as pumping and natural attenuation take place.

Amper: Are you saying to us that after 30 years we're going to reach 50 and not 8 and does that not tell us that we are going to miss the objective of reaching drinking water standards after 30 years?

Howe: Correct.

Work has begun on both systems, Institutional Controls includes monitoring, maintaining systems, and performing five-year reviews. Howe talked briefly about the Bldg. 96 anomalies, discussed the feedback from the regulators and the path forward. The CAC will be updated on cleanup progress.

7. Community Comment

Sy Robbins, SCDHS, (cannot understand comments).

8. CAC Discussion on Strontium-90 and Magothy Aquifer ESD

Esposito: In the original ROD for the Upper Glacial for the Strontium-90 plume it's estimated it would be $6.5 million for remediation to get the plume down to drinking water standards over 30 years. How many of those years were active remediation and how many of those years were natural attenuation?

Howe: Most of that time frame was active remediation. I think it's between 25 to 28 years of actual active pumping.

Esposito: And the $6.5 is per year, or the total?

Howe: That was the total cost.

Amper: Let me summarize it slightly different than I presented it before. On the basis of your experience it seems like this is taking longer and is costing more than was anticipated at the time of the ROD. Why are you proposing that we do less, that we abandon the goal of obtaining drinking water quality in 30 years, and effectively doing less when it appears we have discovered that more is needed. That's as simply as I can put it.

Howe: I don't feel that we're doing less. You look at the time frame to cleanup, yes, the ROD said 30 years, we are proposing 65. There are a lot of changes that happened since the ROD was signed, one of them was what we learned from the pilot study. We learned that using those rates in order to obtain that goal in 30 years would create a tremendous amount of waste and cost more. You look at it and ask what are the impacts of this taking a little bit longer, another 30 years longer. It's a bit of a tradeoff. I don't like to put it that way, but you look at the extreme of $50 million to remediate it.

Amper: I don't mind you looking at it that way. I think in order for anyone to make an informed decision they have to evaluate the cost and the benefits. There's nothing the matter with you doing that, we're not making any judgment about that at all. I'm saying that it is also possible that you might have arrived at another conclusion and that is what was projected in dollars and cents was unrealistic and that the objectives were indeed worthwhile and that the information we now have would suggest that it will cost more to do that maybe something we need to be thinking about as opposed to simply saying we now don't think we can do what we thought we could do when the ROD was produced.

Giacomaro: Last year I had sent a letter regarding the Magothy Aquifer contamination and one of the questions was if it was left alone, the 7,000 ppb plume that we're seeing at Carlton Drive, what would the projected concentrations of Carbon Tetrachloride be down gradient? In the diagrams that you gave me, you said the enclosed maps predict the VOC concentrations after ten, 30, 60, and 100 years and that's just through attenuation. After 100 years it would be 15 ppb in one particular spot doing nothing. Now you're showing here on the table that with using three wells it will be 110 years to bring it down to five ppb? As opposed to doing nothing it would be 15 ppb at 100 years. I'm kind of….

Howe: I'd have to look at it to refresh my memory.

Unidentified speaker: The three wells that are existing did not address the contamination on Carlton Drive. The high concentration on Carlton….(can't understand)

Giacomaro: You're using three wells, you got it down to 110 years to drinking water standards not using any wells, you've got it …??? …and now you just mentioned that the other ten years would have brought it down to drinking water standards and that's just through attenuation so why would you add so much more cost for other wells. The numbers don't seem to jive. You have no wells, you're practically at drinking water standards, you have three wells and you're going for 110 years with all this additional cost. It seems distorted.

Howe: I'd have to go into a little bit more detail to look at what was sent back a year ago and what is being shown now, but the bottom line is I can't do anything about the wells. The wells have been installed. All of these wells for the Magothy are installed and they're pumping it and I know what you're saying, I just need to spend a little bit more time looking at the response and compare what was said and the modeling projections and just more accurately answer. Drew, if you've got a better idea.

Bennett: Simply stated there's five spots in the Magothy, the three wells that already exist are treating three spots, but the worse spot..?? it's that worse spot that drives the duration. The three existing wells are treating medium levels of contamination, it's this worse spot that ….(can't understand) has 7,000 ppb which only until very recently …?? When we said we do nothing it's that 7000 blob that drives the duration so when we have three wells in already and they're not treating the worse spot and that worse spot drives the duration for the time period….???

Multiple people talking.

Giacomaro: His answer to me was that they're doing,…? If you were just doing attenuation, you would have achieved the drinking water standard after 110 years.

Reed: Bob says he needs to look at the data more in order to answer your question.

Guthy: On the chart on page 12, you talked about doing seven wells and the reason that was so much higher than the rest of it was supposedly because you're pumping at 128 instead of whatever it is, 25 or higher. I was wondering what the cost is to put in wells. Maybe, could you put in more wells, maybe even ten or 15 wells and pump at a slower rate. Would that be more cost effective than putting in seven wells and pumping at such a high rate that would use up and waste so much?

Burke: There are seven alternatives on the chart. We looked at 18 simulations and reduced it to seven for further analysis. We scattered wells in different places and tried different pump integration and those wells were all pumping at small volumes, anywhere between five and ten gallons. We tried putting them in different places to see what different configurations we'd get as far as time to reach drinking water standards and time for pumping and everything. The best of those 18 were condensed into the seven or six on that page. What we did try to look at was more wells pumping smaller amounts. The experience we have with the Strontium, which is different from the VOC's, is when we had the feasible study and the ROD we said "Let's put in a well, we'll pump it and treat it, and we'll figure out a cost for it. But there were uncertainties with how well that would work so the ROD said do a pilot study and then the remedy can be changed. We did a pilot study and we learned that you can't pump Strontium like VOCs. It moves very slowly and experience has shown that it's more effective to precisely and more surgically pump it at smaller numbers than higher numbers. When high rates are used calcium and other irons in the water are captured along with the contaminated water and they use up the

resins. To answer the question, a number of other alternatives with smaller pumping in different places were tried.

Reed: ???

Burke: What we found were those six or seven were the best ones.

Garber: Back to the Upper Glacial Magothy where those clay lenses break there's vertical flow. Do you or Sy Robbins have any sort of idea how to characterize that vertical flow? Just how much transport is there at those points and how does that compare to the volume that you're pumping?

Howe: We have a good handle on the horizontal/vertical movement of the groundwater.

Bennett: The Lab has eight hundred monitoring wells that monitor both horizontal flow and vertical flow. We measure water quality, we also measure what we call what we call water ??? hydraulic pressure ??? We're able to measure the hydraulic gradient both in the horizontal direction, the slope of the water as well as the hydraulic gradient in a vertical ?? We have measurements of what the flow rate is through the hole. We've also done some modeling simulations to try to clearly quantify what the actual flows are through those holes so we do have estimates of what the flow rate is and we've designed our groundwater treatment system to optimally control the water to minimize the contamination that continues to go down the hole and also control the contamination that's already been through the hole.

Garber: So the pumping at the break-through points, do you feel that the volume of the pump is in fact going to reverse the downward contamination through to the Magothy?

Bennett: Well reversing ?? of something that's already in the Magothy and pulling it up from the Upper Glacial would require a huge ??? What we're doing is preventing additional contamination from going down the hole. One of the reasons that we're proposing to put wells into the Magothy is because that's a more efficient way to treat the contamination and treat it at a much lower flow rate.

Talbot: Slide 15 talks about the Strontium-90 investigation results, basically the whole root cause of what we're talking about tonight is that higher Strontium-90 concentrations were detected. In one of the bullets it says the plumes are generally the same size, same location, same depth as at the time of the ROD but the concentrations are higher. What were the mechanisms that, if nothing else changed but the concentrations became higher, how did that occur?

Howe: They were always there. When the remedial investigation and feasibility study were done a large area was looked at. Many monitoring wells and geoprobe sampling points were put in to try to find out where the contamination was. We knew there was a problem because we hit some high concentrations, some areas of concern. When it's determined treatment is needed and before we actually go in and put a well in, further investigations are done before the system is designed to try to really focus in on those high concentrations. It's inherent that we're probably going to find higher concentrations. That's what we want to do and it's not that they're all of a sudden there. They were there previously except as you're designing the system you have to really find it so the most optimal place to put the extraction well can be determined. So the answer is they were there, it's not all of a sudden that they appeared.

Talbot: So they were higher than you believed them to be?

Howe: At that time, yes.

Talbot: By looking further, now that you have some money to do it, now you've found it…

Howe: No, it wasn't the money. It was the …

Talbot: ??? when you prepared the ROD there was just some sampling.

Howe: Yes, before the ROD, the ROD's a final decision document. Before the ROD a whole remedial investigation, which takes a couple of years, is done. All sorts of samples are taken and we are trying to find out what the problem is at the whole site, in all of the different areas. There was money to do that. We found out that there was a problem specifically where the Strontium ??? Magothy. We knew we had to do something with treatment and a remedy in the ROD was stated. It had to be cleaned up. To make sure that the well to clean it up is in the most optimal place, the area is further defined by more sampling.

Talbot: Is it possible that two or three years from now we're going to be going through this again? At what point…

Howe: It's highly unlikely that we're going to find new areas of contamination.

Talbot: Or higher concentrations?

Howe: We may find a little bit higher concentrations. You can't tell exactly in the groundwater. You take one sample and move over a foot and it could be much different.

Burke: When we did the original characterization we went out and sampled. Use this room as an example. You come into this room and you put five geoprobes in. Then you go into design and ?? characterization and you go over to a corner and you put 20 holes in the ground. What happens is you start out doing samples that are spread out and then you focus in and focus in and that's when the high numbers were found. The number of samples from the early stage to the later stages or the pre-ROD and post-ROD were almost double but they were at a much tighter sample density which let us find the high concentrations which enables us to put the well much, much closer. Instead of the sample points being 50 feet apart sometimes they're only 5 feet apart. And that's how the numbers went up because we zeroed in on…??

Esposito: I want to go back to David's question which he had asked on the Magothy remediation for the VOC's. Why did you go with these scenarios? Why 110 years, 65 years and 30 years? I think that's an excellent question because what I believe I see is that those scenario's will be driven by the Strontium-90 remediation in the Upper Glacial aquifer and what I mean by that is it seems like you kind of figured, "What are we going to do here with the Upper Glacial contamination? Gee, we think 70 years is a reasonable amount of time to cleanup/let it naturally degrade so what are we going to have for the Magothy ??" On the whole, the only real scenario here is the 65 years which is similar to the 70 years so what I'm asking or speculating is that these three scenarios ?? with the Magothy remediation didn't really come from anywhere other than wishful thinking, not that they didn't come from anywhere but, you could have offered a fourth and fifth scenario based on reaching drinking water standards in 40 years or after 50 years of cleanup and how did we get the 30 years? I know why we get the 30 years because that was consistent with the Upper Glacial. Sixty-five seems to have come from the Strontium-90 which is 70 years, but why are the other two scenarios which would get us cleaned up with VOC's in the Magothy, which is I think even a larger problem than Strontium-90 in the Upper Glacial. Why don't we have better scenarios for a time line in this option?

Howe: ?? just to answer your question about tying this to the Strontium-90. As far as I know there's no relation as far as the 65 versus 70 years between the two. Thirty years here, yes, because that was what the Upper Glacial goal was. When we developed the alternatives our focus after the investigation is the very high areas of contamination. I'm going back to that again because that's fact. We knew we had to address them. The concentrations in the rest of the plumes in the Magothy were relatively low, mostly below 50.

Esposito: I'm a little confused because if it's under 50 why do you need to take 65 years to clean it up? You could do that in five years.

Howe: In order to clean up, we actually looked at that as an option, not for here, but for cleaning up the whole area within five years, you'd have to have so many extraction wells all over the place it would just ….

Unidentified speaker: (can't understand)

Howe: These were the options that we looked at. This is what we used.

Esposito: I know, but I guess what I'm suggesting is you could have used other amounts that would have been between 30 and 65…that's all I'm saying.

Sprintzen: I would assume that when you're cleaning up, you're extracting stuff out and you get waste and the waste has to go some place and the waste has some characterization which is potentially dangerous that's why you're taking it out. Could you give us some sense both with respect to the Strontium and with respect to the volatile organic chemicals as to the nature of the waste, some sense of the danger? Is it more bio-available when you're transporting it then it would be if you leave it in the ground? Can you characterize it some way, its content, its amount for the alternatives that we have and its potential health hazards in the different forms it would exist.

Howe: I'll just try to answer the question about what happens to the waste itself. For the Magothy and for other VOC treatment systems there are primarily two ways of treating it. One is with carbon. Most of our offsite treatment systems use activated carbon because there's not a lot of noise associated with it. The contaminants get captured in the carbon and it gets spent. Then a company comes in and transfers the waste carbon into trucks, it's piped in, all enclosed. And it goes to a facility where it's through a thermal treatment system and regenerated.

All the waste that's generated has to be characterized. We have to know what's in the carbon.

Sprintzen: ??

Howe: Right, for that type of system. Air stripping systems involve the process of stripping the contaminants out of the water and putting them, in the vapor phase, into the air. We can't discharge them if they exceed the air discharge standards. If need be we would have to have carbon to capture those. So in some cases, we do use carbon afterwards, but in many cases it gets discharged, it's below the safe limits.

The Strontium-90 gets spent within the vessels. It becomes a low level radioactive waste and currently the entire vessel itself is disposed of. It will be loaded onto a truck or train and sent to Envirocare, which is a secure facility, where it will be buried. There is no treatment process for the resin afterwards.

Sprintzen: Where is Envirocare?

Howe: It's in Utah.

Howe: It's being brought out of the ground but in some cases, depending on the option, significant quantities of waste are generated.

Walker: It seems to me one of the big problems is that the resins keep getting clogged with stuff that isn't a problem like the calcium and iron. Is there any way of pre-treating the water like the Culligan Man before it goes in to get rid of the calcium?

Howe: The water from the ground is run through bag filters just to take out any suspended solids before it goes through the resin vessels so it's as clean as it can get without doing some type of pre-treatment. With pretreatment there's a good chance the calcium will be captured and Strontium will also be captured so that will create waste.

(Tape switches.)

CAC members continue to ask questions about the decay products of Strontium-90, new technology, how long will it take the Carlton Drive well to reach drinking water standards, about a well at Flower Hill Drive and if the well is through the clay.

Giacomaro: To clarify what I was asking before, what you had proposed in 2003 and my question regarding continuation of the plume at Carlton Drive that's at 7,000 pico curies. What was the projected time that it would have taken because it would have been less than 100 years to reach… I mean you're saying now 100 years, what was proposed last year for it to be? I don't have the handout here.

Howe: Carlton Drive without any…

Giacomaro: No, no with, with the wells that you had proposed to do? You came to our meetings. You spoke about it. What was the number of years that it was supposed to take?

Howe: I'd have to look.

Unidentified speaker: You're asking the question how long do you have treat the Magothy plume at ???

Giacomaro: What was proposed in 2003? Is it the same as the number that you have here? I'm showing the attenuation reached 100 years, now you're saying 110 years to reach drinking water standards, but if I recall correctly what was proposed was putting in the systems to reduce that number a lot less than what you have here now.

Howe: The well wasn't in, this well at the Carlton Drive ?? high concentrations of 7,000 was not installed and operating until June of this year.

Giacomaro: I know but when you proposed to put that in, what were the years that it was going to take for it to reach drinking water standards?

Howe: With the well in? It should be the same as we see now.

Giacomaro: But now you have 110.

Unidentified person talking very softly.

Giacomaro: No, I think you're right, I think it was 65. It was a lot less than what we have.

Unidentified person: ….We have the 7,000 ppb plume.?? If we don't treat the 7,000 and just let it go we estimate it's going to take about 110 years to naturally attenuate by itself with no treatment. Here you have a proposal and we put a well in at Carlton Avenue and treat this 7,000 ppb flow we're projecting that we can reach drinking water standards in 65 years.

Unidentified: Is this years here?

Unidentified: Yes, but..

Howe: That's 110 years, but there's no extraction well to capture the contamination at Carlton Drive in this option.

Unidentified: The well at Carlton is really important. It's one of a cluster of wells?? As I tried to explain earlier the three existing….

Giacomaro: Isn't it there now?

Howe: Yes, but it's not in this option, maybe that's the key here. It's not in this option.

Giacomaro: But it's one of three wells that..

Howe: In Alternative 2. It's part of the five but not the original three.

Giacomaro: You lost me. But it's already existing? I mean….

Unidentified speaker: We've put two in since then. One of the two that was put in is precisely the one you're talking about.

Giacomaro: So it's not in the option for one it's in the option for two.

Esposito: The answer to your question is yes.

Unidentified speaker: Without it it's 110 years, with it it's 65 years.

Giacomaro: But it's already existing.

Esposito: It's already there existing, yes.

Giacomaro: And it's working?

Giacomaro : And it's operational?

Giacomaro: But it's an additional well that's going to be put in?

Unidentified speaker: No, no…???

Reed: ?? that option for the 110 years assumes, it's pretending that it hasn't happened.

Giacomaro: It's pretending it hasn't happened?

Esposito: You have to have a do nothing alternative.

Giacomaro: Okay, all right.

Howe: Option 1 is to take out the two that we've installed within the last year.

Giacomaro: Okay.

Jordan-Sweet: Of the three pre-existing wells, the southern most one on Flower Hill Drive, ???

Howe: The one on Flower Hill Drive. That's preventive.

Jordan-Sweet: Is it operating?

Howe: That well is operating, absolutely. We see very low concentrations there. The whole system at the airport is one of the newer systems that was put in and started operating in the last six months.

Jordan-Sweet: Then why are these three purple wells ?? are they pumping in through the break in the clay..

Howe: No, we don't…Each specific one. Let's see at Middle Road, do you know if we're actually in the, we're not in the clay, we're within the Magothy aquifer itself.

Unidentified speaker: We're in the Magothy, there's a hole in the Magothy. We don't have to go through clay.

Howe: We're not going through the clay in any of these.

Esposito: This is my last question. I don't understand the rationale for why for the Magothy remediation you preferred Alternative 2 as opposed to 3. Why aren't you going with Alternative 3, which is consistent with past preferred alternatives for groundwater remediation?

Howe: We put together these options probably a year ago. At the time we wanted to take an action to stop the contamination from getting further down there. Option 3 was put together for the 30 years to see what it would take, the costs that you're seeing in here, we made a big assumption, we assumed that the existing systems, that if we put in these other five wells, could actually take the additional capacity of the flow itself of the additional 200 gpm and also are the existing treatment vessels of carbon able to treat that well. This number may be very much underestimated in terms of what it may take to install these five wells. That's one part of the answer. It may be much higher.

Burke: It was looked at as a reasonable approach to treat to the Magothy. The ROD didn't prescribe a cleanup goal time frame, we went into that ?? and we looked at what it would take to get to different treatment times. And we also looked at the fact the entire area was hooked up to public water, and at the flows that would go to the Carman's River. In 65 years there are no receptors from a risk-based point. There's no one who will be drinking that water or is drinking that water and we were going to reduce the treatment time from the high end down to 65 years and thought that was a reasonable tradeoff in treatment given the fact that the risks weren't there. That was some of the logic.

Giacomaro: Why for the Magothy alternatives don't you have an Option 4 with all three wells just operating? One is basically is not using any of the wells, or two of them.

Howe: Option 1 is to use the three wells that we installed between 1999 and 2003.

Giacomaro: Including the one…

Howe: No. No, the three wells are several years ago. The two additional wells, Option 2, are within 2004 that they've been installed and operating.

Giacomaro: So that would be a total of five.

Howe: For Option 2.

Giacomaro: Is it just one well, you said both of them were installed in 2004, so really they're already operational now?

Howe: Absolutely. One became operational earlier on in 2004, the other one in June, so yes, both of those two became operational in 2004. Again these options were put together a year

ago, at the time those two additional wells weren't in yet. I think I remember briefing the CAC and said this is a good time to install those because we're also finishing up the construction from the other systems so we want to get in there at the same time so the streets don't have to be ripped up twice.

Giacomaro: Okay. That's good.

Unidentified speaker: If you go to the second figure at the back of the package there are five wells shown. The three that have circles are the existing three. And there are two that are diamond shaped.

Howe: These are the three that were installed between 1999 and 2003.

Reed said if there are no further questions, the CAC would convene at their next meeting to continue the discussion. The CAC objective at the meeting is to come back and answer the question that's been posed - for the Explanation of Significant Differences, do you agree that this is an appropriate approach to take or do you think they're off base. And you will decide at that point whether you want to provide the information that's in your discussion, if you want to do a poll, or if you want to try to go to a recommendation. That's your choice. Any of those will serve the purposes of getting the input from the CAC.

9. Agenda Setting

January Agenda

Groundwater ESD Discussion
Environmental Update

There was a request to have a presentation on the Broadwater Energy Corp. proposal for a 1,200 foot-long floating terminal in Long Island Sound at the next meeting. However, it was determined that this was not within the scope of the CAC's charter.

Member Walker requested a break down of the membership by category.

The meeting adjourned at approximately 9:55 pm.

2004 Affiliation		First Name	Last Name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Chart Key X = Present O = Absent					No Mtg.					No Mtg.				No Mtg.	
ABCO (Garber added on 4/10/02)	Member	Don	Garber	X		X	O	X	X		X	X	X		X
ABCO	Alternate	Richard	Johannesen	O		O	O	O	O		O	O	O		
Brookhaven Retired Employees Association	Member	Graham	Campbell	O		O	X	X	X		X	X	X		X
Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)	Alternate	Arnie	Peskin	O		O	O	O	O		X	X	O		
CHEC (Community Health & Environment Coalition (added 10/04)	Member	Sarah	Anker										X		
Citizens Campaign for the Environment	Member	Adrienne	Esposito	X		X	X	O	X		X	X	X		X
Citizens Campaign for the Environment (Ottney added 4/02)	Alternate	Jessica	Ottney	O		O	O	O	O		O	O	O		
E. Yaphank Civic Association	Member	Michael	Giacomaro	X		X	X	X	X		X	O	X		X
E. Yaphank Civic Association (J. Minasi new alternate as of 3/99)	Alternate	Jerry	Minasi	O		O	O	O	O		O	O	O		
Educator	Member	Audrey	Capozzi	O		O	O	X	O		O	X	X		X
Educator (B. Martin - 9/01)	Alternate	Bruce	Martin	O		X	O	O	X		O	O	O		
Educator (A. Martin new alternate 2/00) (Adam to college 8/01)(add. alternate 9/02)	Alternate	Adam	Martin	O		O	O	O	O		O	O	O		
Environmental Economic Roundtable (Berger resigned,Proios became member 1/01)	Member	George	Proios	X		O	X	X	X		X	X	O		
Environmental Economic Roundtable (3/99, L. Snead changed to be alternate for EDF)	Alternate	None	None												
Fire Rescue and Emergency Services	Member	David	Fischler	O		O	O	O	O		O	O	O		
Fire Rescue and Emergency Services	Alternate	James	McLoughlin	O		O	O	X	X		O	O	O		
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)	Member	Ed	Kaplan	X		O	O	O	O		O	X	O		
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)(schwartz added 11/18/02)	Alternate	Steve	Schwartz	O		X	X	O	X		O	O	O		
Health Care	Member	Jane	Corrarino	X		O	O	X	O		O	O	O		
Health Care (as of 10/02 per JD)	Alternate	Mina	Barrett	O		O	O	O	O		O	O	O		
Huntington Breast Cancer Coalition	Member	Mary Joan	Shea	X		X	O	X	X		X	X	O		
Huntington Breast Cancer Coalition	Alternate	Scott	Carlin	X		O	O	O	O		O	O	O		
Intl. Brotherhood of Electrical Workers/Local 2230	Member	Mark	Walker	X		X	X	X	X		X	X	X		X
IBEW/Local 2230	Alternate	Philip	Pizzo	O		O	O	O	O		O	O	O		

2004 Affiliation		First Name	Last Name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
					No Mtg.					No Mtg.				No Mtg.	
L.I. Pine Barrens Society	Member	Richard	Amper	O		O	X	O	O		X	X	X		X
L.I. Pine Barrens Society	Alternate	Jane	Geary	X		X	O	X	X		O	O	O		
L.I. Progressive Coalition	Member	David	Sprintzen	X		X	O	O	X		O	X	X		X
L.I. Progressive Coalition	Alternate	None	None												
Lake Panamoka Civic Association (Biss as of 4/02)	Member	Rita	Biss	X		X	X	X	X		X	O	X		X
Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99)	Alternate	Joe	Gibbons	O		O	O	O	O		O	O	O		
Long Island Association	Member	Matthew	Groneman	O		O	O	O	O		O	O	O		
Long Island Association	Alternate	William	Evanzia	X		O	X	X	O		O	X	O		
Longwood Alliance	Member	Tom	Talbot	X		O	X	X	X		X	X	O		X
Longwood Alliance	Alternate	Kevin	Crowley	O		O	O	O	O		O	O	O		
Longwood Central School Dist. (switched 11/02)	Member	Barbara	Henigin	X		X	O	X	X		O	X	X		X
Longwood Central School Dist.	Alternate	Candee	Swenson	O		O	O	O	O		O	O	O		
NEAR	Member	Jean	Mannhaupt	X		X	X	O	O		X	O	O		
NEAR (prospect taken off ¾)(blumer added 10/04	Alternate	Karen	Blumer	O		O	O		O		O	O	X		
NSLS User	Member	Jean	Jordan-Sweet	X		X	O	O	X		X	X	O		X
NSLS User	Alternate	Peter	Stephens	O		O	O	O	O		O	O	O		
~~PACE Union~~	~~Member~~	~~Allen~~	~~Jones~~	~~O~~		~~O~~	~~O~~	~~O~~	-		~~O~~				
~~PACE Union~~	~~Alternate~~	~~Philip~~	~~Plunkett~~	~~O~~		~~O~~	~~O~~	~~O~~	-		~~O~~				
	Member	John	Hall				X	X	X		X	X	X		X
Peconic River Sportsmen's Club	Alternate	Jeff	Schneider				X	X	X		O	O	O		
Ridge Civic Association (resigned in 03)	Member	~~Ron~~	~~Clipperton~~												
Ridge Civic Association	Alternate	None	None												
Town of Brookhaven	Member	Jeffrey	Kassner	O		O	O	O	O		O	O	O		
Town of Brookhaven	Alternate	Anthony	Graves	X		X	O	X	X		X	X	O		X
Town of Brookhaven, Senior Citizens	Member	James	Heil	X		X	X	X	X		X	X	X		
Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate	None	None												
Town of Riverhead	Member	Robert	Conklin	X		X	X	X	X		X	X	O		X
Town of Riverhead (K. Skinner alternate as of 4/99)	Alternate	Kim	Skinner	O		O	O	O	O		O	O	O		
Wading River Civic Association	Member	Helga	Guthy	X		X	X	X	X		X	X	X		X
Wading River Civic Association	Alternate	Sid	Bail	O		O	O	O	O		O	O	O		
~~Yaphank Taxpayers & Civic Association~~	~~Member~~	~~Nanette~~	~~Essel~~	~~O~~		~~O~~	~~O~~	~~O~~	-						
~~Yaphank Taxpayers & Civic Association~~	~~Alternate~~	~~None~~	~~None~~	-	-	-		-	-	-	-	-	-	-	-