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1. Attendance

Present:

Members – R. Biss, G. Campbell, A. Capozzi, R. Clipperton, R. Conklin, D. Garber, M. Giacomaro, H. Guthy, J. Heil, E. Kaplan, J. Mannhaupt, G. Proios, M. Shea, D. Sprintzen, T. Talbot, M. Walker.

Alternates – A. Graves, J. Ottney, J. McLoughlin, K. Timmins

Others – M. Bebon, D. Bennett, P. Bond, A. Carsten, J. Carter, J. Clodius, F. Crescenzo, J. D'Ascoli, J. DiMatteo, Dan Duh, K. Geiger, P. Genzer, A. Givens, J. Granzen, R. Gordon, K. Grigoletto, L. Hill, R. Hodgins, A. Juchatz, B. Keeler, B. Kinkead, S. Kumar, R. Lee, L. Luckett, S. Layendecker, J. Lister, M. Lynch, R. Paulson, G. Penny, A. Rapiejko, M. Rowe, K. Shaw, T. Sheridan, K. White.

Absent:

Members – R. Amper, M. Barrett, M. Cohn, J. Corrarino, S. Cullen, A. Esposito, N. Essel, D. Fischler, A. Jones, J. Jordon-Sweet, J. Kassner, P. Martino, C. Swenson,

Alternates – S. Bail, S. Carlin, K. Crowley, W. Evezia, J. Gibbons, T. Guglielmo, B. Henigin, L. Jacobson, R. Johannesen, B. Martin, J. Minnasi, J. Pannullo, P. Pizzo, W. Prospect, K. Skinner, P. Stephens

2. Correspondence and Handouts

Items 1 - 7 were mailed with a cover letter dated May 3, 2002. Items 8 – 13 were included in the folders, and item 14 was available at the meeting as a handout.

1. Draft agenda for May.
2. Draft notes for April.
3. Final notes from February and March.
4. Draft template for CAC Press Releases.
5. EPA Fact Sheet on Risk Assessment.

6. Membership status letter.
7. Copy of letter from J. Lee Snead, EDF Alternate.
8. Copy of revised draft agenda.
9. Copy of verbatim transcription of discussion on contractors from April meeting.
10. Peconic River Subcommittee Report dated May 8, 2002.
11. Copy of Risk Assessment information from Member Robert Conklin.
12. Copy of NYSDOH letter to Dr. Clare Bradley dated April 30, 2002.
13. Copy of presentation on CERCLA Risk Assessment, Larry Luckett, URS Corp.
14. Copy of Environmental Update presentation by Lori Cunniff, Manager, ESD.

3. Quorum

The meeting began at 6:41 pm. A quorum was present.

4. Administrative

Changes to membership included: Don Garber as the alternate representative for ABCO, Jessica Ottney as the alternate for Citizens Campaign, and Rita Biss who replaced Joe Gibbons as the member from the Lake Panamoka Civic Association.

Jeanne D'Ascoli announced that there would be a workshop on June 11 from 7:00 p.m. to 9:30 p.m. on the off-site water treatment systems. CAC members will receive a mailing with additional details.

Reed mentioned that a letter was received from EDF re the action at the April meeting to remove them from the membership. EDF stated that they would allow the membership to lapse but indicated they may reapply in the future. There were no members present from the other two organizations, therefore the decision to remove the Environmental Defense Fund, the Long Island Builders Institute, and S.C. Legislator Fred Towle stood.

The notes from the April 14 meeting were approved with one abstention with the following changes: Ron Clipperton was added to the member's absent list, George Proios' comments on the 801 basement presentation were clarified slightly to read "Member Proios suggested that the Lab be more proactive and look at areas where water could enter other buildings..." and on the last paragraph of page 5 Member Esposito was changed to Member Mannhaupt.

The template for press releases was discussed. A motion was made and seconded to accept the template as written. Member Sprintzen explained that the appropriate wording should be included in the parentheses. There were no additional comments, the template was approved with three abstentions.

5. Environmental Update presentation, Lori Cunniff, Manager, Environmental Services Division.

Lori Cunniff gave an update on the 801basement flood. The Contingency Plan for Unusual Environmental Events is finalized and is being followed. Lori reported on the sampling results that were received after the April meeting. The results were: the last samples (for disposal) showed Cesium-137 levels ranged from 676 to 789 pCi/l and Strontium-90 ranged from 522 to 494 pCi/l. She noted the Strontium has the potential to impact the groundwater; If it reaches the groundwater, it is expected to move approximately 20 feet per year. Currently, there is a groundwater treatment system planned in the area to address the strontium from the BGRR. If the strontium from Building 801 reaches the groundwater, it would be captured by this system. Lori said that a technical team is evaluating the installation of additional wells. She also

reported that the storage tanks in the 801basement are being emptied and will be taken out of service.

Cunniff also reported that one of the procedures addressing the outdoor storage areas had been changed. It is now required that these areas be protected from rainwater because of the potential for contamination of surface and groundwater from stormwater runoff. Two outdoor storage areas are being built. One will be for the storage of Collider Accelerator shielding block and steel with an area for tanker trailers and process water in drums, the other is a covered storage area in the Scrapyard. There is a public comment period beginning on May 9 for the Collider Accelerator building because it falls within the Wild, Scenic, and Recreational River boundary.

CAC members asked questions and were given answers about the contamination in the Building 801 basement, the soil beneath the cement floor, the location of the 3,000 gallons that leaked out, the integrity of the cement floor, the potential of the strontium 90 to impact groundwater, if there was a need to accelerate the cleanup, and the possibility of doing soil borings. Members also asked about the location of the storage building for the shielding blocks, how the standard for strontium 90 was determined and when and how it was determined and do changing weather patterns affect its movement in groundwater. Member Giacamaro suggesting lateral drilling for obtaining test samples under Bldg. 801. There was also some discussion on the circumstances that allow cesium to bind to the soil.

6. OU V Subcommittee Report

Member Kaplan said that the Peconic River Working Group had met on April 23. He gave brief update on the wetlands restoration in Area D and the vacuum guzzling in Area A and said that the working group had made six recommendations on risk assessment. He noted that the numbers used in the risk assessment were important in that they affect the level of remediation that will ultimately be required. He said that they had hoped to see the data from the last round of fish sampling, but it was not released in time for their meeting. He noted that it has since been sent out and was in the member's folders.

Member Conklin read a statement concerning his opinion of the risk assessment process.

"These are my thoughts. They do not represent any consensus of our subcommittee because we have great differences of opinion on risk assessment within the subcommittee. Some may be inaccurate and I may make assumptions based on poorly interpreted data or not have enough background to see the whole picture. These thoughts are not based in economics or politics but a desire that most of us have to do what is best served for the ecology of the headwaters of the Peconic River and protect human health. That's why we're here. I support the posturing and positions of the Suffolk County Health Dept. I have spoken to Andrew Rapiejko many times. His function is to protect our health. I feel he is doing just that and I applaud him for taking the most protective positions. DOE, BNL, BSA, whoever ... that we have here, are trying to accomplish what is perceived as a need to cleanup the headwaters of the Peconic River. They have bent over backwards and spit nickels to include all of our various views. Their support in my search for answers has been excellent and at times frustrating. Economics and politics are potent underlying factors that infringe on the pure science that is being addressed here. Skip has told me repeatedly there is no smoking gun. He is most correct. I've settled for searching for bullets. So let's look at a bullet. Fish consumption rates of OU V, risk assessment. I hope you have glanced at the handouts that were presented at the last meeting and duplicated at this meeting and I have a one-page addendum. The 25 grams per day rate leading to a 40 pound plus of fish caught per person supported by the EPA's upper limit documentation and those who would be most protective of your health, to me flies in the face of reason when looked at

in the context of the 3.3 miles of the headwaters of the Peconic. As a fisherman, I do much better than 40 lbs. of stripped bass per season. I'm drawing from an ocean. The northwest salmon runs and east coast ... fish runs into freshwater, rivers and streams. Even at easterly extremes of the Peconic River itself with its native populations of fish may support a number of 40 pounds. But the headwaters of the Peconic? When this figure first arose I pondered and asked myself how could I get 40 pounds in the future or now out of these headwaters? And the only answer I could come up with was to raise the fish. So I called Norman Soule, Cold Spring Harbor Fish Hatchery, asked about stocking notes, various possibilities for how this could be done and his answers - I needed depths of at least four feet. I needed good oxygen etc, etc, etc. I'm not going to go through it with you. The headwaters are in a stream to swamp ecological succession. As the sediment accumulates year to year, the bed of the stream raises further and further from the groundwater source. Not a place to raise fish. What about the fish that are here in our 3.3 miles of swamp? Two survey's documented for you in the handout. September 19, 2001 done by Norman Soule. One hundred fifty-three accountable fish by electro-shocking. This onsite area around the gauging station in Area A. Average size being 4.9 inches. Not much to eat here. July 16, 17, and 22, professional survey's by crews of DEC used electro-shocking nets and traps. Schultz Road, Ice Pond, and North Street, off-site. One hundred twenty-nine fish, 6.3 average size. For four days of professional fishing with the latest and greatest equipment surely close to 200 man hours logged. Three legal fish, maybe a little over a pound of actual edible fish flesh. Large stretches of these swampy headwaters were dry at least four months of the last five years. One-foot average depth when wet. Depressed oxygen levels. How can you expect more than minnows? I ask you 40 pounds? I quote from the objective of the risk assessment, the final form that we have. The RME is not a worse possible case, but is an exposure that is both protective and reasonable. I ask you where is the reasonableness of 40 pounds of fish from our swamp? I don't wear a hardhat waiting to be struck by a meteorite. I don't really care how angels can stand on the head of a pin. I live in a real world."

Member Talbot said that he thought the numbers for the risk assessment were unrealistic and that he was in complete agreement with Member Conklin's comments and that it was extremely unrealistic thinking that someone would be affected by eating fish from that area.

Member Ottney commented about looking at the future and changes to the conditions, not all people only take fish of the size limit. Member Mannhaupt asked if there was any way to pull data based on the consumption rates to project what five years down the road would give with regard to fish and vegetation. Member Proios stated that ponds and streams go through a natural progression. He noted that The Nature Conservancy has been conducting a study that shows the ponds are in the final stages of succession and are all filling in. He said that it is virtually impossible for the stream to reach its old depth.

Member Kaplan asked for an update on the other points raised in the report and an update on the other pilots. Les Hill gave a brief report on the DOH letter and Kevin Shaw noted that Area D had been completed. The soil from Area A, from the vacuum guzzling, was bagged for shipment offsite. Completed Area A2 and A3 are waiting for final conformation samples. Re disposal offsite of the soil – there are several options. They will be looked at in the next 2 to 3 months. Member Conklin asked about comparing the information on Mercury in the fish to levels occurring naturally. The efficiency of the vacuum guzzling was questioned. Hill said it was more complicated and labor intensive than expected. Shaw said a good point was that it didn't require heavy equipment in the wetland area. Overall effectiveness in regard to wet versus dry conditions and whether powdery soil was a problem were also questioned. Member Mannhaupt asked if there was a more complete report to support the DOH letter. Hill said that he was not aware of anything else but he would find out.

7. Risk Assessment Overview, Les Hill, Manager, ERD and Larry Luckett, URS, Inc.

Les Hill gave some background information on the risk assessment protocols. He said that the protocols have been finalized and a good bit of the feedback received has been incorporated. He specifically mentioned the inclusion of deer meat consumption and the change in exposure frequency. He said that the objective for this meeting was to provide a broad and general overview on how risk assessments are conducted and that the risk assessment would be provided to the regulatory authorities when the report is drafted. The regulatory authorities will look at it in total and if there are any issues or problems, they will be addressed. Member Kaplan said that some CAC members had expressed views that were not incorporated in the protocols and that he was concerned that some of the numbers that had been included were not realistic. Hill said that how you get from risk assessment to cleanup goals is the next aspect, what is being done now is looking at a range of scenarios and attaching risk to them. He noted that there is a diverse range of opinion. Member Shea and others requested a copy of the protocols.

Action Item: Send copies of the protocol to the members who sign up for them.

Larry Lockett explained the CERCLA principles of risk assessment. He said that the CERCLA process provides a benchmark to measure the impact of the contaminants at a site. He discussed the four steps in the process, data collection and evaluation, toxicity assessment, exposure assessment, and risk characterization. He said that whatever process is used to come up with the risk assessment it is very important that the risk not be underestimated. He stated that a lot of the assumptions are made in exposure scenarios – people onsite that may be exposed to some of the contamination. The scenarios or assumptions are given values and then defined in the protocol document. The risk is then evaluated and summarized and a cleanup plan is proposed.

8. Community Comment

There were no comments from the audience.

9. Panel Discussion with Amy Juchatz, Dan Duh, and Larry Lockett

Panel discussion on Risk Assessment.

George Proios: is there any process that allows reality to be interjected into it. Where does reality set in? Is there really a threat to the public health. We went through this with the tritium plume and to my way of thinking there was no exposure, therefore was no threat. Is there a way to put this back together - does someone look at it and say, in spite of this, there is really a very low chance that an individual here in Suffolk County or anywhere else is going to be affected adversely by this contaminant?

Lockett: In the risk assessment process we identified risks that may need to be managed in order to meet the goal of 10^{-4} to 10^{-6} risk range. We've identified several risks and pathways and I'll go back to Bob's fish. The fish issue is one of contention obviously. We identify what the risk is associated with a certain amount of fish being consumed. And we identify whether that's a risk that needs to be managed. The reality comes in, theoretically, in the management. The management is one of several, A) we look at this and people consume 40 lbs. of fish a year, the risk is still within the range so we don't need to manage anything. B) The risk is outside the range so you have to do something. One of the options is to do something to the sediment to remove that part of the threat. Another management issue may be the recognition by the regulators that it's not possible for somebody to get 40 lbs of fish out of there in one year. So that the management is that we recognize that it's not possible and therefore we don't need to do anything further. The risk assessor has to make sure that the decision maker has that

data available, but the process then says, maybe not now but maybe in the future it could be possible - so we need to revisit it every 5 to 10 years. If you're not going to preclude it from happening then there's an ongoing responsibility. But it's those management issues in addressing the risk that you've quantified and identified that become the decision process of what is the realistic cleanup plan that gets into the ROD. The regulators, the CAC, should have an opportunity to have an input into that process. There are a lot of people that have different views of reality. Whether your vision of reality prevails over everyone else may not happen but at least you should have the opportunity to present your concerns.

Juchatz: I think, George, when you refer to everyday risk, comparing those kinds of risks to environmental contamination has been on the national level and that's why EPA has this risk target range. You're right in a sense that risk management will look at the risk assessment and weigh out these different ...scenarios so perhaps there is a reality check there. But, on the broader scale comparing it to every day risk, I think that's already been done at the national level.

Heil: Asked if the other panelists had anything to add to Larry Lockett's presentation.

Juchatz: I would just like to emphasize his point that there are a lot of assumptions that go into a risk assessment. There's no one way to do a risk assessment. I think that makes our job as a public health agency critical - that we need to look at all the assumptions that are going in the risk assessment, because again, it's not just one black box that we throw numbers into and each time what pops out is the same kind of exposure scenario. We really look at it very case specific, site specific. Therefore I think it emphasizes the role of our department to look closely at risk assessment and have a lot of input on it.

Duh: It was hard to make everybody happy with the way the protocol document was approached. It's impossible to look at everything and look at just a few things all at the same time and the wide range of possibilities -- from the one end, which is to be sure that we're being protective, to maybe that which is more likely to happen, as a range of things. Things will come out in the risk management end.

Mannhaupt: First we just went through this on the overheads: EPA makes a conservative process and over estimates the risk. No 1, we've gone through all these daily scenarios. We've got a good conservative tool that you start out with - even when there's contamination. You start out with that risk assuming something is contaminated and then you go and define it. There's built in risk assessment that the EPA has put forward in the process, so in CERCLA you haven't even defined your contamination but you've got a built potential for a risk assessment. We're over protective all along the way. If we're going to go to dose effects, we have a blatant statement that there is an effect. Because we have studies behind it. When we get to risk characterization, we put this all together to make this conservative risk assessment. Where does reality play in those conservative decisions? At what point did reality go into those conservative things so that you guarantee yourself when you come up with your risk assessment you got the best of best management practices for your scenarios. We can plug in all the crazy scenarios you want, that doesn't mean they're realistic.

Hodgin: I think the question is how do we guard against multiple conservatisms becoming unusable conservatisms overall.

Juchatz: In this situation, they are doing a reasonable maximum exposure scenario as well as a central tendency scenario. So right there there is sort of a bracket between the risks. They're not just doing the most possible worse case scenario you can envision. That conservatism has been entered into because there's also a lot of unknowns that we don't know about. There are a lot of things that we don't know about chemicals and their toxicity. We don't know how they interact ...we don't know how they interact when exposures are multiplied. We don't have a lot of information about exposure to children, so where we do know things we try to err on the side

of safety. We try to be conservative to help compensate for those things that we don't know about. I don't want you to go away feeling that we know all the answers and we're going to go 10 times 100 times more conservative. Don't know for sure about exposures, using wide range of assumptions.

Mannhaupt: I understand what you're saying, but the chemicals that we're dealing with are known. We've defined them.

Juchatz: We know what chemicals they are, we don't 100 percent, we don't know all there is to know about their toxicity, so EPA makes estimates on how their toxicity may play out in humans. But that's just one example, we don't know for sure when they're exposed to fish with a certain concentration on top of being exposed to sediment on top of drinking water. We don't have all the answers so what we do know we try to be conservative in those estimates.

Mannhaupt: Are you making a general statement or specific to the Peconic?

Juchatz: We have information on toxicity even in humans for PCB's but we don't have...you know a lot of that information is from higher doses and we're trying to extrapolate down to lower doses so we use animal data for that. We don't have the human data, we don't have good estimates of when we know someone was exposed to PCB's how much they were exposed to as an example. So I'm making that comment I guess both specifically because it's a contaminant here but then also just in general. That's an example of a chemical that we know a fair amount about. Mercury, there have been incidents where people have been poisoned and have experienced ...affects from contaminated fish. Not at the levels that we're seeing, so again we have to extrapolate down to...we don't want to see these...where populations are impacted. We want to get further down so we have to make extrapolations. Again we make that based on some of the human data but then also on animal data. So just using the toxicity end point. And again, there's a whole wide range of these other assumptions that we...you shouldn't go away feeling that like we know what PCB's at this level will do to people, we don't.

Mannhaupt: I just wanted to be sure we were just focusing only on the Peconic.

Sprintzen: These are related concerns, I guess and I don't know if I can say this clearly, but I'd like you're comment and thought. I guess they're cautions. First, the whole process is a quantitative process that assumes risk can be quantified. The question that comes to mind is what about qualitative elements and how does one get into them? That may be related to this question of reality. For example, what role does stress play with respect to vulnerability to toxic levels. It is perfectly conceivable that..and this leads to the other part of the question...there are cumulative synergistic effects. We don't really have a good sense of the synergistic effects of all ranges of chemicals or chemicals and radiation, etc. Secondly, those synergistic effects can be affected by psychological interpretations and perceptions. I don't know how one quantifies that kind of thing, but these are serious cautions. And then there's the question that you also hinted at. I mean unknown causal affects. I'm reminded of my involvement with the Shoreham commission. I had to combat a member of BNL on the commission... there being a questionreport. If I remember correctly the recent revelations of the shell...not included, fabricated report...I want to ask a question of unknown effects. I don't know how one deals with that question, and some missing factors, that was an element that was a concern to me. When you give us a document with a lot of numbers, it becomes a sense, an overwhelming impression that the scientific establishment has come down with a document that reveals what we need to deal with. Those issues don't get addressed, I welcome your comments and thoughts about it.

Hodgin: The comments are the non-quantitative aspects of risk.

Duh: Being that it can't be quantified, the only way that it's really addressed is within the uncertainties section of the report. Unfortunately that's the part that's probably not read by most people. They look at the numbers, they look at the summary, and they say ohbut there are

lots of uncertainties. There are uncertainties on the assumptions, on the toxic affects, on safety factors that are used to try to compensate for those unknowns. During the public feedback on the report itself I'm sure they'll be generated other unknowns that aren't addressed in the uncertainties section that need at least the credence to be acknowledged that they do exist, that there are uncertainties. And the preponderance of uncertainties is also something that comes into risk management process. The more certain we have that these things could occur, the more likely we are to go ahead and act to do something to get those likelihoods out of the way.

Juchatz: There has been some work on the national level to look at psychological impacts of living near a hazardous waste site and some of those are very real. Again, it's difficult to handle in a quantitative way. It can be handled in the uncertainties section but I think it can also be handled in the text of the discussion of the document.

And also maybe to get back to what you were saying, Jean, I'm sure more things will come up as the night goes on. But EPA has started out, you know we rely on them a lot for their estimates, and oftentimes as they get more and more information, contrary to the typical thought that levels always get lower and lower, sometimes their estimates, as you really start looking at exposure parameters, sometimes uncertainties can be narrowed down and you don't have to make such conservative assumptions. Hopefully, as the science develops, which it always does, that will continue to happen.

Kaplan: We've heard Amy, Larry, and Les use the term quantitative. Dan, you said it wasn't quantitative, and I have to tell you, I think to be precise about our usage of the word, risk assessment is not quantitative, it's qualitative at best. And I think we'll agree to that. It's arithmetic that's speculative. First question, Larry you say risk assessment under the CERCLA process is supposed to identify risk. That's what you say, so if the underlying assumptions are flawed would you agree that the risk identification will be flawed?

Luckett: No. You can identify risks and risks occur along a scale. It gets back to what David was saying about personal perceptions and psychological interpretations of risks. You identify situations, scenarios that are a combination of people on the site who are exposed to a toxin that has been identified. As Amy said we don't know whether there's a threshold or not. We don't know whether there is a set amount of exposure that causes an effect or whether it's a linear relationship. We're doing a lot of extrapolations from high level exposures down to low level. Yes it may be wrong, but hopefully it's a safe-sided wrong. And it's not an irreparable commitment of resources and government oversight that may prove to be unnecessary. You have constituents who have concerns the government says you have to address it. Whether it's wrong or not, again, is a value judgment of an individual. It may be, it's necessary, it's required, whether it's right or wrong, I can have an opinion but I can't make that determination.

Duh: I think that any risk identified is qualified with the risk to such and such scenario based on such and such assumptions and at that it's not as flawed. There are things that qualify that risk that's presented and it comes down to risk management to assume whether these are actual scenarios that are lived out.

Kaplan: That brings me to my second question. On the page that Bob handed out, took it out of the protocol, says here reasonable maximum exposure. It's supposed to be an exposure that is protective, and reasonable. My question, too, is about reality. Let me give you a hypothetical and you tell me where I went wrong. If you have a pathway that includes exposure to something and in reality there's no exposure, then there's no dose. And if there's no dose, there's no effect. Hence there's no risk to that particular contaminant through that pathway. Yet, if you go ahead and postulate that that pathway exists to that contaminant and start putting numbers in you come out with a risk number but there's no risk as we all know in this particular case. So that's what I mean by flawed. Where have I made a mistake?

Amy: There's been a lot of discussion about the fish consumption rate and perhaps if I could just take the opportunity to let you know where we're coming from and why we, as well as the State Health Department, have asked for the 25 grams per day. If you look in the risk assessment protocol, 25 grams per day is, I believe, 20 lbs per year not 40 lbs. per year. Again, we're considering a ...

Conklin: The 40lbs. is the whole fish. I'm talking about a fishing rate. You have to catch 40 lbs to have it relate down to an actual amount that you're going to eat. In order to get that, because you've got less than half of the amount of the weight of the fish which is going to be consumed. Unless you eat the head and tail and fins and that kind of thing, that's where the 40 lbs comes in. because you have to get 40 lbs. of fish out in the water in order to come up the your 20 lbs that you will actually eat.

Juchatz: We were not only looking at the headwaters of the Peconic River. We're using that estimate for right off of North Street on BNL property. So that 25 grams per day may sound impossible to get at the headwaters, that may be true. But we're using that number not only for the headwaters, we're using that number where we've been told people fish. Right off of North Street. You drive down there today and it's dry but you can see footpaths right down to the river. I assume that's from people parking their cars and going down. We've been told people fish there. It's also down by Schultz Road. There's contamination there. We're not just talking about the contamination at the Sewage Treatment Plant at the headwaters. We're talking about contamination as far down as they tested on Schultz Road. The levels, you had provided us with this table of Mercury contamination that's been detected in other states. That to me is not a good sign or a good thing. Forty states have issued fish consumption advisories base on mercury in fish. As of 1998, there have been 1931 fish consumption advisories issued by states for methyl-mercury in fish. So again, the fact that these fish may fall in this framework, I don't think you should pursue it as being purely background and purely a background risk that's acceptable. EPA has, again, we're not only looking at Mercury, we're also very concerned about PCB's in fish,. If you look at EPA prepared tables, there's been a lot of focus on PCB's and methyl-mercury in fish. EPA's prepared a table where the concentrations that we saw in this last sampling - if you look at the average not even the 96% confidence interval which will be done in the risk assessment. At Schultz Road, they recommend no more than one meal a month at the levels that have been found at Schultz Road. At North Street, again the same thing. So the 25 grams per day, I don't want you thinking we're looking at the STP, we're looking all throughout the river, that 25 grams per day is there. I had participated on a Task Force that the county had set up before I began working for the county and I remember when I first began, discussions there and we talked about the Peconic River. You know we were talking about fish consumption and then people let me know well half the time its dry. It's dry right now, and I said oh gee then what are we worrying about. That summer that spring, that river became wet and was wet for I think a couple of years. The fact that it's dry now, we don't know what it will be, we don't know what input. George you mentioned about the aging of streams. We don't know what input may happen in the future. Maybe a sewage treatment plant, maybe some areas will be developed and maybe a sewage treatment plant will discharge in there and the fisheries that are a more viable possibility. Also this comment was discussed quite extensively I'm sure you realize, between EPA and the state, the county and BNL. And EPA has the guideline that when you do a risk assessment if you're going to consider fish consumption, you should consider at least 25 grams per day. The state health department came back to BNL addressing their comments that they felt this was an unreasonable consumption rate and said, "Then show us. Provide us some basis more than just your observation that you do not believe it will withhold that population." And I believe DEC took a look at that and determined that based on the habitat, they could not tell us that the river could not support 25 grams per day. So the opportunity is there for BNL, for somebody to provide us with information, but it has to be specific information that we can really justify deviating from an EPA recommendation. But that's where the site-specific aspect of any risk assessment comes in. You look at it and say if it's reasonable or not. And I think that if the county and the state are willing to entertain that it's not reasonable if something can be brought forward to really show

that. It was a discussion, we have looked at it, we are willing to consider it, at this point we have nothing on the table that does not support it.

Shea: I would like to make a comment and then ask a question. Part of my comment is directed to the people here who talk about reality. I represent the Huntington Breast Cancer Action Coalition. I'm a cancer survivor, the reality is that we have one of the highest rates of breast cancer in the whole country right here on Long Island. The rates of cancer are increasing. We talk about conservative estimates being too conservative yet we have increasing cancer rates for childhood cancers. Breast cancer is a radio-sensitive cancer and these rates have been studied. There is an ongoing study. The Long Island Breast Cancer Study project, over \$20 million has been spent on this study and we don't really have definitive answers but we do know that environmental factors are probably the greatest reason for the increase in breast cancer. I have been very actively involved with breast cancer with environmental factors with studies being done about breast cancer and all these risk factors. And these conservative estimates do not take into account the genetic damage first of all that can be caused by all the exposure we're getting to these chemicals. Our water isn't -- people aren't telling us that our water is now safer to drink every year. More and more pesticides are going into our groundwater. The combination of radionuclides and pesticides together, we haven't really studied this definitively and we probably never will. It costs an awful lot of money and it takes a long time to do the proper studies, the long-term studies that will give us the answer. People are becoming much more sensitive to environmental pollutants. We have chronic fatigue syndrome, we have DNA damage which we have to also consider when we're making these risk assessments that maybe the small amount of radionuclides and chemicals combined will cause genetic mutations that may make future generations much more sensitive to smaller amounts of this. I see that as a factor that has to be looked at. Nursing mothers is another factor. Nursing mothers today, a child that receives the greatest amount of pesticides that it will ever receive in its lifetime, while the mother is nursing. Meanwhile the mother is getting rid of her pesticides by nursing. If it isn't safe for a mother to nurse her own baby any more I think this is a startling factor that we really have to consider. I mean it isn't just fish consumption, it's the whole total picture. My question is, I know you mentioned these rates for cancer in the risk assessment, but what about the non-cancer effects, some of them which I already mentioned like the DNA damage for instance, the effects on the immune system. Can you go into a little more detail about how that's done? For instance low birth weights? Has that been studied?

Hodgin: Non cancer effects.

Juchatz: We do look at that, and I say we meaning EPA and the scientists out there. But we're not just looking a cancer affects, we're also looking at developmental affects, birth defects, and this typically comes from animal data where they'll do generation studies. They'll exposure a mother or father and then watch what happens to pups that are born. And so Larry did mention how there are sort of two numbers that are, two quantitative estimates that are made, one in terms of cancer, one in terms of non-cancer. So they look at these studies and try to come up with a dose estimate that they don't think would produce these affects in humans and then enter that into the calculations as well. So basically, this risk assessment will show whether, what we think about the risk in terms of non-cancer and depending on the chemical, that might be birth defects, it might to immune toxicity, it might be nervous system, as well as estimates of potentials of cancer risk. So both are, it depends on the chemical and what data is out there. But both are looked at.

Shea: The other thing is the synergistic affects of these chemicals. There have been studies done that show that the synergistic affect can in many cases be much greater than each affect studied individually and that data justI know I've been at meetings with toxicologists from the EPA and they were getting together for the first time just a couple of years ago saying wouldn't it be a good idea if we studied these synergistic affects and I know that's one thing that

they are trying to do more of but we're not at the level. There are so many new chemicals coming out each year that we'll probably never be at any kind of level that we can depend on.

Hodgin: You mention that synergistic effects are mainly included in the conservatism at this point. Is there anything that you'd like to add to that?

Duh: The way that synergistic effects are handled on the cancer risk side is that they are added, they are used as an additive. It could be worse, that two particular types of things may be more than just...those are unknowns. The recommended way to handle it in a quantitative fashion is it an additive of cancer risk. With non-cancer issues, it's also done first additive and then target specific. ...specific on the PCB, besides looking at the cancer risk, it's target is the immune system. So we're also looking at the cancer probabilities, we're also looking at the effects on the immune system for PCB's. So there are two different health hazard cancer risks that come out of that on the risk assessment. Mercury on the other hand is the central nervous system. Mercury doesn't have reportable cancer risk to it and so it is just the non-cancer effects of mercury that are being looked at.

Shea: Well there have been some studies on Mercury and breast cancer I believe. I don't know the results of them, but there have been some studies done on that, I know.

Proios: There are two different issues that we keep wrangling with, we don't seem to get either of them quite clear. First is there an exposure, and secondly is there a risk. If you don't have exposure, the second question doesn't really mean anything. So if, we don't even have to say whether there is enough evidence to show that PCB's or Mercury cause cancer, if there is no exposure it's an irrelevant issue. If you don't eat it, if you don't ingest it, if it's not on your skin then you don't really, aren't really concerned with the next factor - whether it poses a potential risk. If we're not going to the risk issue, than that raises another whole set of questions. Synergistic fine, there's a lot of evidence now that we don't know. That's a given. Some of this stuff is actually positive. We know that some things, some medicines interact with something, and it may increase the effects. It may decrease the effects, and have the opposite effects. We have a number of instances now where we're finding things are canceling each other out. So that unknown doesn't always mean the negative. The unknown often times can mean the positive, it's just an unknown that's all it is. Thalidomide, if you did a risk assessment on Thalidomide 25 years ago you'd have one conclusion. If you did a risk assessment today you'd have a completely different conclusion. Evidence changed our understanding of how chemicals If you define the population at risk, the risk always changes. If it's a pregnant woman it's one thing, if it's people with leprosy it's going to be something different. So depending on how you put this scenario together, that's really determining whether there's a real or perceived risk out there. So the question that I come back to is that maybe we address it a different way. We only have about how many 6, 8 known carcinogens out there. There's less than a dozen right, where we know for sure. In almost all those instances, we know what the levels were that caused it and in almost everyone they were pretty fair amounts. The PCB's in the fishing villages in Japan where the women were eating this, we know what the levels of the... they were 10s of thousands of times greater than they are here. Huge concentrations they have them, we have them from the dolphin and the meat of fish that they were eating so we know what the concentrations were that caused the cancers. So in every case we have a known human carcinogen we're dealing on orders of magnitude -- far, far greater than we have here. I'm not saying you shouldn't be careful, but I'm saying you have reality and here you have animal studies showing concentrations much lower and no relationship to show that even if it was a carcinogen that it would cause it in a human being at that level, it'd have to be probably much higher. So again, I'm questioning is there a way of backing into this from where we do know levels to show that you'd have to have much higher levels. Where are you coming up with these very very small levels that are causing risks when in a few instances where we know we have carcinogens they're at much higher levels?

Juchatz: For the few instances of where we do, we don't always have good estimates of what the exposure was. But where we do, for example, benzene, the cancer risk of benzene is not based on animal data, it is based on human data. So where the data is sufficient, and can bring us down to levels low enough, again you have to realize that to see it in a population like Japan where the incidence occurred to see that increased risk you need a high dose exposure. We're trying to protect to below that risk that would be readily visible, readily observable in a population. It's difficult to observe a 10^{-4} to 10^{-6} risk in a population. So that's where that difference in the exposure level really comes in. But I do want to let you know that where data is sufficient in humans, that's the data that's used. If it's not sufficient, we rely on the animal data. You mention that if there's no exposure there's no risk, that's true. Are you specifically talking about fish consumption? Where is it that you think there's no exposure that the risk assessment is assuming that there is exposure?

Proios: Yes, the fish right now -- In the upper area where there's no water flowing in the Peconic River and we all have fish.

Juchatz: Right now the water is not flowing, there are no fish. But we know that people have consumed fish, we know in the past there was water in the river. It's been a very dry season there is no water now, but we know there is water, we know that people have fished. We've talked to people that have gotten fish, who have been exposed to the fish in the Peconic River and again I want to point out that we're not only talking about North Street, we're not only talking about the headwaters. We're talking about county parkland, we're talking about Schultz Road.

Kaplan: I'll give you a specific example, future land use conditions, residential exposure, this is on page 20, 10 exposure pathways, the last one and I'm going to read directly, "consumption caught from the on-site in the Peconic River." Right now certainly there are no edible fish you could catch onsite in the Peconic River and I defer to Bob who was born and raised and fished this whole area and knows it like the back of his hand, to answer whether or not just this specific case in the future, you can get edible fish portions, tissue from onsite Peconic River, onsite?

Juchatz: Onsite is right off of North Street.

Conklin: My problem is 40 lbs. Is there a possibility that you could have a large mouth bass or a pickerel, which again assuming that the person is going to be law abiding and goes to 12 inches or 15 inches depending. Before he takes that and consumes it maybe that's a bad assumption but to me it's a reasonable one. Number one it's not reasonable if they're going to be there fishing anyway because there's very definitely a lack of water, there maybe a few pools along the way that these fish could actually survive in. I'm not saying that it would be impossible, I'm saying in my mind, it's improbable, very improbable. That onsite you're going to end up with any quantity of edible large filletable fresh water fish.

Juchatz: I guess my response would just be that we turn to BNL and DEC to substantiate that and at this point that has not been case. Instead we heard from residents who live just offsite that they have seen people fish from North Street onsite and that this is not an unusual occurrence when there is water there. So you're telling us your side, but we have heard from other residents that fishing does occur there, that their children consume those fish and that there are other people who pull their car off and fish right onsite off of North Street. And I would not be surprised if they go further up when there's water. I'm not an expert in fish populations, I have to defer to other people to provide that information. But at this point we have not gotten that it would not support 25 grams per day.

Mannhaupt: I have three questions and one statement and I'll make them succinct. Amy, will you be at the EPA conference next week in Washington?

Juchatz: Are you referring to the Fast Track conference? No, my travel was not approved. .

Mannhaupt: The next question is in regard to the Peconic. You brought up that with regard to the fish you're looking all the way to Schultz Road. Where are you considering information on the impacts to fish in regards to the Calverton Naval Base or are we at all?

Juchatz: I would have to be looking at a map to tell you, I'm sure exactly where....

Kaplan: I think that's downstream.

Conklin: Sportsmen's Club.

Mannhaupt: So we're really not looking at the whole river. We're really just looking at the portion that's onsite at Brookhaven National Lab and where it comes offsite because people in that area feel impacted off of North Street because they've seen people fishing on North Street.

Juchatz: Well, we know the sediments are contaminated with PCB's and Mercury and those accumulate in fish.

Mannhaupt: There are contaminated sediments in the area that is the Calverton Naval Base too.

Juchatz: That could be and to be honest there's a lot of concerns down there because there is some evidence that there is subsistence fishery populations there.

Mannhaupt: Well I sit on the RAB board for that too, and we have data. The last question is just what I'm going to leave with but I wish to make a statement in regard to questions of reality. I have to be very serious about any entity that deals with a risk assessment and how we deal with an exposure. Reality is very important to me on what we perceive and how we go forward. Because I have documented medical evidence on one of my children who was environmentally contaminated at an early age, so I make reality based judgments wherever I go I don't know what will happen to my child so at no time am I making light of reality. The last question that I have is all these definitions and all these things we put together define risk management. When we get to that point, to come to the reality based portion, define risk management?

Hodgin: The question is...

Mannhaupt: Define risk management. We have protocols, risk protocols, we have risk assessment, we are told risk protocols go to risk assessment, risk assessment goes to risk management, which seems to me out of all of tonight's discussion that that's the definitive thing. That comes up with the meat and potatoes of driving cleanup goals, define it!

Juchatz: I can start with that, that it, the risk management portion considers other things aside from just purely health risks. It considers things such as cost, it considers things such as technical capability, and I'm sure other factors as well. So it takes the risk assessment and pools in a lot of other information as well to come up with what an alternative might be. Maybe the cleanup level based on a health risk assessment would be below what would be technically feasible. Or even the detection limits that you couldn't tell whether you cleanup to that amount, there are a lot of other factors that go into it beside just health risks.

Duh: I would say that there is no good definition of risk management, except one that would be a cyclical definition and wouldn't tell you anything. The process takes in from everything, it's a waiting procedure. All these scenarios, besides these scenarios that we're seeing here in this human health risk assessment, there are other risks identified within the original RI Report which aren't being brought up in here whichweighted in to the final risk management decision. So it's like protecting this particular section of a biota in a small area. Is that something we really need to bother about or should we bother about this guide our risk assessment.

Mannhaupt: David wants to know which one.

Duh: There were toxic effects to ... invertebrates, measured in toxicity tests, also screened because of the elevation of levels well above the screening numbers for sediments. There were documented in toxicity test two, that there is a toxic effect on ...invertebrates, that the invertebrates are the beginning of the food chain. The fish concentrations in onsite fish which are consumed whole body by fish-eating birds or wildlife at levels which could cause an affect if a good portion of the diet came from these areas also. So there's a potential affect on wildlife, potential affects on ... invertebrates from the basis of the food chain for the fishery. Those were actually the two first identified risks that need to be managed and taking that to the next step. Bringing more fish studies into the equation brought us to the point we're at today.

Giacamaro: I guess my dilemma was where do the fish come from if the river bed is dry? And I was assuming that the fish were coming from further on down stream and that they would fish upstream. I was assuming that down stream was not contaminated, but from what you're saying the fish that go upstream are in contaminated water? Is that what you're saying? Cause you mentioned that people on Schultz Road and further on the Peconic River are fishing and there's PCB's and other contaminants in that water?

Juchatz: Well I was specifically in terms of contamination talking to Schultz Road, because sediment sampling and fish sampling have gone to that point. I don't believe they've found, I could be wrong, but I don't believe too much further than Schultz Road. So from onsite BNL, from the headwaters all the way down to Schultz Road contamination has been found, PCB's and Mercury. As far as the question of when its dry where the fish come back from I'm not sure, maybe there are puddles that can maintain some level of a population that when the river is continuously in flow they repopulate it, I'm not sure. But it does bring up a very good point because fish swim in both directions. And also the fish that we find onsite typically seem to be smaller maybe that's because of all the sampling that's been done, maybe that's because of dry years, maybe that's because the young fish stay up here, when they get bigger they go down stream. And that's also a concern that we have because as young fish...doesn't mean that later on they're not further down site available in a larger size and edible portion for people to consume. I think you have to consider, when you look at the data, the Mercury concentrations and the PCB concentrations, we talk about how small those fish are but you also have to keep in mind that when they get bigger, if they were bigger those concentrations and they were living in the same environment those concentrations would likely be larger because PCB's and methyl-mercury levels accumulate and increase as the size of the fish increase. So our concern is that those fish may go down stream and be of edible size and be consumed.

Giacomaro: But isn't it also a concern that if you do have those contaminants down stream that they could be going up stream too?

Juchatz: You mean in the fish? They could be, I guess we'd have to know about the data down stream and I don't.

Giacomaro: You already said there are contaminants in there..

Juchatz: I was speaking specifically of the contaminants that have been detected from BNL sampling from onsite all the way to Schultz Road. Beyond that there are inputs as was mentioned from Calverton, there are other inputs and there could be other contaminations, specifically what that is I don't know. Maybe that data is available, I'm not familiar with it. Is there a concern that those fish are traveling up and contaminating, a source of contamination upstream?

Giacomaro: Only in that the numbers that you have for 40 lbs. per year. Are you looking at the total river or a good part of it and that would establish why its, or a good reason why it's so high? You want that number high? I assume that you do?

Juchatz: I don't know if we really considered that. We're relying on other entities to tell us what that river can support in terms of a population.

10. Agenda setting

June

OU V Risk Assessment

OU V Cleanup goal approach

801 Update

Counter-terrorism Research

Fire Management Plan