

Final

These notes are in the following order:

1. Attendance
2. Correspondence and Handouts
3. Administrative Items
4. NSLS II Environmental Assessment; Dr. Steve Dierker, Associate Lab Director for Light Sources and NSLS II Project Director
5. Community Comment
6. Overview of g-2 Focused Feasibility Study Remedial Alternatives; Doug Paquette
7. Agenda Setting

1. Attendance

Members/Alternates Present:

See Attached Sheets.

Others Present:

S. Aronson, D. Bauer, M. Bebon, J. Carter, B. Casey, J. D'Ascoli, M. Davis, B. Dorsch, T. Green, M. Gocs, N. Gmur, G. Goode, K. Henagan, S. Hoey, M. Holland, B. Howe, K. Jacobs, J. Kaplan, E. Lessard, S. Kumar, M. Lynch, C. Ng, D. Paquette, A. Rapiejko, S. Robbins, R. Schandel, A. Sprintzen,

2. Correspondence and Handouts

Items one through four were mailed with a cover letter dated September 8, 2006. Items five through six were provided in the member's folders.

1. Draft agenda for September 14, 2006
2. Draft notes for July 13, 2006
3. Final notes for June 8, 2006
4. Copy of presentation on the ROD for the USTs, BLIP, and g-2 Tritium Source Area
5. Copy of presentation NSLS II Environmental Assessment, Dr. Steve Dierker
6. Copy of presentation Overview of g-2 Focused Feasibility Study Remedial Alternatives, Doug Paquette

3. Administrative

The meeting began at 6:51 p.m. Those present introduced themselves. Reed Hodgkin went over the ground rules and the draft agenda.

Reed introduced Jeanne D'Ascoli. Jeanne congratulated and thanked the CAC as they celebrated eight years of collaboration. Jeanne said the Laboratory and the Department of Energy were fortunate to continue to have the valuable advise of the CAC. Jeanne noted the gracious contribution of time and effort the members make to the community as well as to the Lab.

Jeanne also told the group the HFBR alternatives are being worked on as a result of the input received from the CAC and she will present the new alternatives as soon as they are available.

Jeanne expressed her appreciation to the New York State DEC, Chek Beng Ng and the Suffolk County Department of Health Services for their steadfast commitment to their involvement with the CAC.

Elizabeth Bowman introduced herself as a substitute for Jean Mannhaupt, the representative of NEAR.

Member Guthy thanked Jeanne, Sherry Johnson and Amy Csorny for the work they do to keep the CAC running smoothly. Additionally, she expressed sincere appreciation for the efforts Reed Hodgins has put forth to facilitate the meetings over the past eight years.

Reed commented he has observed the importance of the CAC grow over time and he looks forward to seeing what the group takes on next as it is phenomenal to watch as the CAC contributes its efforts to the community, Long Island and the Laboratory.

Reed asked for corrections, additions or deletions to the July 13, 2006 Notes and Action Items. Member Jordan-Sweet asked for a correction to the term "Blue Jean" computer to read "Blue Gene". Member Chaudhry asked for a correction to reflect his statement on page 13 as follows, "It appears we have to segment them because the technology doesn't exist." The notes were approved, with no objections or abstentions.

Bill Dorsch spoke about the 5-Year CERCLA Review, which was completed and forwarded through the regulatory review process. The report is available for public viewing on site at the Research Library, at the Mastic-Moriches-Shirley Community Library, and the EPA Library as well as on the BNL website at www.bnl.gov/erd. During the process the CAC requested the Department of Conservation (DEC) and Environmental Protection Agency (EPA) return when the report was finalized to provide their comments on the report. The meeting is being arranged.

George Goode gave an update on control rod blades from the HFBR that had been in storage at the Hazardous Waste Management Facility. They were taken out of the reactor in the 1970's, and 1980's and stored in the spent fuel pool. In 1997, the pool was drained and they were stored in MH1A heavy, lead lined, casks. The control rod blades had been shipped to the Nevada Test Site on September 8, 2006. They arrived on September 13th and were buried on September 14th. The disposal of these materials resulted in a reduction of approximately 6,000 curies of activity on site.

Member Giacomaro: Does this mean the same site could be used for disposal of the control rods if you went that route?

Goode: That is the most likely location.

Member Heil: How were they shipped?

Goode: The rods were shipped on two trucks, each approximately 3,000 curies. Due to the configuration of the casks and the shielding used, the dose rates were almost undetectable.

Member Evanzia: Was Homeland Security involved at all?

Goode: We have a formal notification process that is used when we make a Type B shipment, which is what this was. We have a procedure in place to notify the key people here on site and also to notify the emergency response authorities. We notify the State Emergency Management Office and then they notify all the appropriate authorities that would be involved with that shipment. We then follow up with some of our local contacts as well.

Member Evanzia: When you say local contacts, are you including the Coast Guard?

Goode: Yes, Suffolk Country and Nassau County.

Member Jordan-Sweet: Were you able to recover the Super Tiger casks or do they have to be buried?

Goode: The Super Tiger's certification was due to expire at the end of this year so we were able to negotiate a purchase of the casks for the price of renting the containers and they were buried along with the control rod blades.

Member Kaplan: You said this was roughly nine years in the making?

Goode: Ten.

Member Kaplan: How long did it actually take to get those shipped and out there from the time you actually started the process of going through the applications and permits to do this?

Goode: We went down a couple of roads that turned out not to be possible first. The original plan was to ship them with the rest of the material coming out of the HFBR to Barnwell, South Carolina but the activity was too high so we could not ship them there. At that time we were making most of our shipments to the Hanford facility, which is a DOE facility in the state of Washington. They wouldn't accept them because of the quantity of lead that was contained in the casks. Hanford subsequently banned all out of state waste two or three years ago and that's when we began to look at the Nevada Test Site. We started the certification process at about this time last year and we were certified to their requirements in February.

Member Kaplan: Does this encourage you that the HFBR work will proceed more quickly than originally planned now that you've gone through this process at least once?

Goode: I think it all depends on the dose rates and the availability of casks that meet the Department of Transportation (DOT) requirements. Because these (control rod blades) were pulled out in the 70's and the 80's they had a good length of decay time, which is what made them shippable. That was a critical factor.

Member Giacomaro: As a follow up, you would expect that if you start to dismantle the HFBR that it would take less than a years time to get the rods out to the Nevada Test Site?

Goode: If you could put all the right pieces together so that they were shippable. That's the difference here. There were configurations that met the DOT requirements so these were shippable. The current blades are a newer generation and much hotter and there has not been a cask identified that would render them shippable.

4. NSLS II Environmental Assessment, Dr. Steve Dierker

Mike Holland, Site Manager for the U.S. Department of Energy gave an introduction to the NSLS II presentation. He noted NSLS II would eventually replace the existing Light Source, which has been a research facility at Brookhaven for approximately 23 years. It has reached the point where it cannot be improved upon. In order for the Department of Energy, its laboratories and the country to continue to be competitive in the Light Source research facilities area, an upgrade is needed. The Laboratory has proposed a new Light Source that would be state-of-the-art.

Next generation Light Sources are in operation around the world and the United States does not have as many as it needs. The Department Of Energy reviewed the Brookhaven proposal and

approved Mission Need, which recognized the need within the DOE and the country for a next generation Light Source. The Laboratory and the DOE have been working to put that project together and continue plans and designs for the facility. That includes an Environmental Assessment that will be completed by the end of this month. The next phase of the process is to ask Washington for approval, called Critical Decision I, during which time the location of the facility will be agreed upon and an estimate of cost will be determined. There is a lot of support for the facility to be located at Brookhaven from the DOE and the Office of Science. NSLS II is in the 20-year plan devised by the Office of Science because of its unique design. The DOE has requested \$45 million of support in the 2007 Budget for continued design, engineering and research needed to build the facility at Brookhaven. There is local DOE support, support from Suffolk County regulators that have been briefed on this project and the Governor's office. A show of support was indicated through a promise letter, which would allow for additional funding once building is commenced. New York State would support the Joint Photon Science Institute facility, a research institute that will be associated with NSLS II. There is work to do between now and February, but there is confidence and support for this project. We are excited about this coming to Brookhaven.

Member Evezia: Considering we are about to get a new Governor, has the administration been approached? What kind of support has been given to this project?

Holland: As administrations change, that kind of support is bridged across to the next administration and that's being looked at.

Member Giacomaro: What kind of competition is there for this type of facility in another location?

Holland: Actually, I forgot to mention that there is support in the research community for this facility and the fact that it should be located here at Brookhaven. The Northeast region needs a next generation Light Source and it makes sense to put it near the NSLS because the researchers come from the Northeast region.

Member Giacomaro: No competition?

Holland: I wouldn't say there is competition.

Member Esposito: Would you be using anything from NSLS I for NSLS II? Will it be the same site only bigger? How does that work?

Holland: Steve Dierker will give you a presentation that will explain that in detail. Briefly, it will be a separate facility across the street, however some of the instrumentation could conceivably be moved across the street.

Member Giacomaro: If you do get NSLS II, what would happen to NSLS I?

Holland deferred the question to Steve Dierker's presentation.

Member Sprintzen: Does this suggest an increase in the budget for the Lab?

Holland: Over the course of time there would be an increase in the budget, first for the construction of the building, a multi-hundred million-dollar project. Once the construction is finished and it is put into operation, funding would have to be put into place to operate it, so yes.

Member Esposito: Are you anticipating a particular amount of revenue in the 2007 Budget from New York State?

Holland: They talked about \$30 million. It would not be in 07' necessarily. A commitment is needed from the DOE to build the facility here. Once construction of the new facility began, more money would be committed.

Member Esposito: This is not going to be part of the budget battle in January?

Holland: Not that I'm aware of.

Dr. Steve Dierker, ALD for Light Sources gave a presentation on the NSLS II, its significance, development and the Environmental Assessment process. Dr. Dierker provided a copy of his power point overview to the CAC and attendees, which detailed the purpose and need for NSLS II. He spoke about the advance of Synchrotrons worldwide and the unique benefits NSLS II would provide to its User community. NSLS II is designed to be a world leading facility that will uniquely enable researchers to study the correlation between nanoscale structure and materials properties and functions, the mechanisms of molecular self-assembly in both the living and non-living worlds and the science of emergent behavior. The NSLS II Environmental Assessment considers impacts to soils, water resources, air resources, ecological impacts, radiological impact and soil activation. Additionally it examines ecological and cultural resources, socioeconomic factors, transportation, construction and operational hazards. Consideration is given to Nanoscience ES&H, accidents or natural hazards, and waste management and pollution prevention. In summary Dr. Dierker concluded NSLS II would deliver world-leading performance for the United States, which will be essential for energy security and gain a competitive advantage for U.S. industry. NSLS II will provide substantial economic and social benefit to the local region and will enable 'grand challenge' science in many diverse fields.

During Dr. Dierker's presentation the following questions were asked:

Member Henagan: Where are the other two Light Sources?

Dierker: The other two Light Sources of this generation are in Chicago, the Advanced Proton Source and in San Francisco, the Advanced Light Source. Both are operated by the Department of Energy. There's another one in San Francisco, the Stanford Synchrotron Radiation Lab. I don't include it in the number of Light Sources.

Member Giacomaro: For clarification, is there any particular country that is outpacing all the others in this area?

Dierker: There is a high concentration of Light Sources in Europe, Southeast Asia, and Japan. China is building one of the most advanced Light Sources ever under design and construction. Australia has a machine, and Canada has a machine. They are really distributed throughout the world.

Member Esposito: Can you define minor? (In reference to possible encroachment on the habitat of the Tiger Salamander)

Dierker: At this point it is not clear there will be any encroachment, and if there is it may be a few hundred feet at maximum, if at all, out of a thousand.

Member Sprintzen: What role will the trades have on the construction site?

Dierker: Any work that is covered by union rules will be carried out by union labor. There will be certain parts of the work scope that will be carried out by contracted union labor.

Member Sprintzen: Have they been involved yet?

Dierker: Not as yet but we would go through a competitive bid process for all the construction contracts associated with this facility.

Member Sprintzen: Have you done an analysis such as the kind of thing Pearl Kamer did in respect to the economic benefits to the Lab or the local economy?

Dierker: Not a detailed analysis.

Reed asked Mike Holland to speak to the CAC about what the progress of the Environmental Assessment is expected to be and what role it is expected to serve. Holland responded that the EA has been drafted and the Laboratory and the DOE have been working with the regulators to collect their input. The responses to New York State are being completed and are expected to result in a finding of No Impact in early October.

Member Anker: What energy source will be used, where is it coming from? Keyspan? Are you going to supply your own energy?

Dierker: Keyspan is the electricity supplier for the Laboratory.

Member Anker: Are they aware of this plan?

Mike Bebon, Deputy Director for Operations: Our energy comes to us through the New York Power Authority. It comes through the grid. It depends on a particular day and what the loads are on Long Island as to whether it's generated locally by Keyspan or imported through the grid from surrounding areas. This will be less than a 10 to 15 percent increase to the Laboratory overall, about 12 megawatts when Light Source I goes down and II is fully built out. Currently, we're running on the order of 55 – 65 megawatts. We have to provide projections of our power demands on a daily basis. We're intimately in contact with the power suppliers and this is within the normal range of how we operate.

Member Anker: I asked because we have local issues, for example, like with Caithness.

Member Kaplan: You say you are going to insure the safety and health of the workers, especially in the area of Nanoscience. We know so little about these effects, so what do you anticipate doing?

Dierker: The Laboratory has been considering that as have other groups around the country and has developed a policy for that which I believe is going to be the subject of a presentation at a future CAC meeting. I think it would be most effective and efficient to suggest, not to put you off, that you receive a briefing in detail, which would properly explain what our plans are.

Member Kaplan: Is that scheduled?

Marge Lynch: I don't think we have that on the schedule yet. We have been looking at it. I think we are looking at the October/November timeframe for the presentation.

Member Kaplan: Can you write that down on your flip chart page?

Reed: I will do that. This is a presentation you asked for at the last meeting and it was planned for the fall. I think October/November is the timeframe. I will capture that for you.

Member Shea: Who is working on the criteria for the safety in the nano technology area?

Dierker: There are many experts at the Laboratory who have been evaluating the potential hazards especially with Nanoscience research and developing controls to make sure that work is carried out safely. It is not a single individual; it's a broad number of people.

Member Shea: Just here at the Lab?

Dierker: This is a subject that is being studied throughout the country. Nanoscience research is done in many places and we are in contact with others who are also studying this question. We are all developing and exchanging controls to insure we all are using the best... as much as can be done to...(Tape Inaudible)

Steve Hoey: I am with the Environment, Safety & Health (ESH) organization for Center for Functional Nanomaterials (CFN) and we've actually been working with the other DOE nanocenters developing guidelines for best handling practices for nanomaterials. We've recently published a document on how to control these materials. We've been looking at ongoing experimental activities in the area of nanoscience, as well as design controls in new facilities, for both the CFN and NSLS facility. We're actively working with our colleagues at other universities, industry and DOE facilities to stay ahead of that.

Member Shea: How many years experience do you have to refer to in this field?

Hoey: With respect to nanomaterials?

Member Shea: Yes.

Hoey: There's more out there than you could imagine because many of the behaviors of nanomaterials are mimicked by larger particles. We have a lot of experience with monitoring and putting controls in place for aerosols and particulates. It's not a huge leap in technology to try to control nanoparticles.

Reed: It sounds like the nanoscience and nanosafety topic is one that deserves a whole session. I've got it captured. Can you make Jeanne D'Ascoli aware of how these folks can get that document? That might be good background information.

Member Sprintzen: I have three questions. First you talk about mixed radioactive waste, could you tell us what they are and what amounts you expect? Second, what is expected in terms of net new staff for the Lab? Thirdly, you spoke about emergent behavior. Can you describe that as systemic properties, which are not deducible from the properties of the individual elements?

Dierker: Mixed-waste, chemical waste or materials that have been removed from a beam line might have a small amount of activation that would be a kind of radioactive waste, but no materials per say.

Nick Gmur (NSLS): If I could add to that, one of the techniques we employ is called decay in storage. Until two months ago, there was one experiment that used phosphorus-32. In order to decrease the radioactive waste we would segregate it, keep it for a certain period of time until the radioactivity had (inaudible) and then we would dispose of it as hazardous or industrial waste. In a typical year we dispose of less than a cubic foot of any kind of radioactive waste. It's very small.

Member Jordan-Sweet: Will there to be any increase of activation of samples or soils as compared to NSLS I?

Dierker: Not significantly. The energy used will be similar to that used currently.

Member Giacomaro: The Nobel Prize from 2003 was won roughly three years ago? So the Light Source was top in its field three years ago. As follow up to that, would you say that the facilities that are being built are based on knowledge that was attained from scientists attending Brookhaven National Laboratory or coming to the U.S. to get knowledge about Light Sources?

Dierker: It is true that the present NSLS is still scientifically productive with some very dramatic scientific results coming out of it. That is why we plan to continue to operate it for the next eight years while we build the new facility. But we need to look beyond what can be done today and ask if this going to continue to be competitive 10, 20 or 30 years in the future. The numbers of significant findings coming out of the present Light Source have been declining. If we want to insure a long future for this we need to act now to make sure that we continue provide the capabilities necessary. With respect to whether or not work here has benefited the design of foreign synchrotrons, the answer is clearly yes. We have had exchanges and scientific interactions with other colleagues overseas, just as we are benefiting from the advances from overseas and incorporated some of those into the design of the NSLS II. It's gone both ways.

Member Jordan-Sweet: One of the resources I imagine you will use a lot of and didn't mention is cryogen. Is the insertion of isistic magnets going to use a lot of this? Are there plans to generate liquid nitrogen or helium on-site or recycle it?

Dierker: There will be some cryogenic usage; it will be somewhat larger than the present facility. There is no plan to generate it on-site. What would be required could easily be provided by liquid nitrogen that is transported on-site. We plan to utilize closed-loop filters to minimize the use of cryogens.

Member Henagan: You mention that NSLS II will only be dealing in bioreserch levels one or two. Are there any other Light Sources doing research on levels three or higher? Many of the viruses that are of major concern to us are of type three, four or five. This would definitely be of aid in determining protein shell structures enabling us to develop vaccine structures.

Dierker: There are sites that are capable of operating at higher hazard levels; they require very extensive controls to insure safety. Our Users have not expressed a strong demand for those capabilities. We do not plan to do so but if there were to be a strong demand from the User community we would come before this group and discuss it extensively prior to deviating from what we have currently planned which is level one and two.

Member Chaudhry: The statement on slide number seven states this new facility will be 10 times better than any other facility. I was wondering, since we are behind many facilities already, that in the seven or eight years it will take to build this, others may already have advanced. This statement seems like it could be overly optimistic, if not questionable.

Dierker: This is being compared to facilities that are in design, under construction or presently operating. Based on those designs we know what their performance will to be, and what the performance will be from our machine. We can say with confidence that our machine will exceed their current or anticipated performance based on the designs. It's always possible that there will be another machine which will be proposed and designed between now and when we begin operating. However, it's not obvious to anyone right now how to achieve higher performance than we're proposing to achieve. We've incorporated all the techniques that are known in this design. But this is science, and there could always be other discoveries out there. If improvements come along, we will try to maintain some flexibility so that we could incorporate them in our design to continue as a world leader.

Member Esposito: I do not want Sarah's question or comment to get lost. This one facility will add 17 megawatts to the Long Island base load and that's equivalent to energy for 53,000 average-size Long Island homes. Is the Laboratory thinking about how they may self provide some of the added the electricity that they require for these very important facilities without adding to the increasing energy supply and demand that Long Island is facing?

Dierker: If I may clarify, the facility will use 17 megawatts but the 5 megawatts used by the present facility is using will no longer be....(Tape Switched).....

Member Anker: That was a great follow up. That was my concern. Are we going to have enough energy and is this going to put a burden on Brookhaven or Suffolk County? When you describe what is happening within the circle, a light is going to shine through what...chemicals? Elements? You're going to try to find what they are made up of. Is it radioactive? (The light)

Dierker: No, it's just light like this light, just different energy.

Member Anker: Will radioactive materials be studied?

Dierker: There may be some samples that have a low level of radioactivity, but that will be an inherent property of the samples. It will have nothing to do with the beam of light that is produced by the facility and used by the researchers to study the samples. The vast majority of the samples have no intrinsic radioactivity.

Member Anker: What have the safety concerns been at the existing facility and what may be something that we need to be aware of in the new facility?

Dierker: The safety concerns were those that I communicated that are associated with any scientific research laboratory that you would find at a university. Some of the light that is used is in the x-ray energy region and there are controls put in place to limit the exposure to the workers. There are controls to contain the x-rays and controls put in place to insure that whatever x-rays are appropriate in the experiment, it is not possible for an individual to be inside the hutch.

Member Anker: What are the soil shields used for?

Dierker: The soil shields do not function as they do at RHIC for containing radiation. These are electrons as opposed to the higher energy particles at RHIC. The radiation produced is confined to the storage ring itself. It is contained in a heavy concrete tunnel that contains the radiation and the soil is not used to contain the radiation.

Member Anker: How is the water used?

Dierker: For cooling. There is electrical heat produced by operating magnets.

Member Graves: Has the EA addressed the lighting to be used and the potential to design or use natural drainage basins given the proximity to the Tiger Salamander habitat?

Dierker: There are drainage basins that exist. If they were not sufficient enough it would be re-evaluated. Some of the rain runoff will run into the habitat area, which is actually expected to be beneficial. With respect the night lighting, I don't recall.

Tim Green, Cultural and Natural Resources Manager: The distance of the proposed facility is well over a thousand feet from the closest habitat so lighting wouldn't be a problem. The Laboratory has been moving toward night friendly lighting, the light goes down instead of up into the sky.

Member Graves: As a CAC member I encourage we look at and try to minimize impacts on the night sky.

Member Sprintzen: What is the net staff increase foreseen at the Lab related to this project?

Dierker: During construction we would anticipate a workforce in excess of 100 – 250 people as compared to current levels. During operations we would anticipate an increased operation staff

for the new facility of approximately 100 – 200 people beyond what is required for the present facility. Those would be new employees at the Laboratory.

Member Shea: Are there any standards that exist for electromagnetic exposure to researchers? Do you study if there would be any kind of effects to the environment in the Lab or outside of the Lab and to communications?

Dierker: The light that is produced by this facility would not interfere with communications technology. There are standards for exposure to light when it is in the x-ray energy region.

Member Shea: What about electromagnetic?

Dierker: The light is electromagnetic.

Member Shea: But you're talking about...I'm talking about electromagnetic rather than the ionized irradiation.

Dierker: This is not ionized irradiation, this is electromagnetic irradiation. It is wavelengths of energies that range from neutral to the visible to the x-ray. It's all electromagnetic.

Member Shea: There's nothing in the x-ray?

Dierker: The x-ray region is also electromagnetic irradiation. There are standards for exposure for individuals. We have controls in place to insure none of the workers or Users are exposed to anywhere near those levels.

Member Walker: Do you have postings that deliver cautionary messages for people with pacemakers in your current facility?

Dierker: Yes. They are posted around pieces of equipment that generate high levels of power. In a very limited proximity to those you could have potential effects on pacemakers. Those are all signed with controlled access procedures. The new facility will be similarly labeled.

Member Kaplan: Is the EA looking at the draw down that might affect any nearby remediation of groundwater?

Nick Gmur, ESH Coordinator, NSLS: The EA does look at that. No new wells are going to be required as a result of the needs of NSLS II, but you want to balance the amount of water that's taken from the site wells. At the same time you want that balance to have minimal or no impact on the plumes that are going on under the Laboratory. Yes, that is a significant part of the EA.

Member Conklin requested that Jeanne D'Ascoli arrange for the CAC to take a tour of NSLS. Jeanne asked for a time of convenience and Jean Jordan-Sweet volunteered to lead a tour one hour prior to the next meeting. Jeanne D'Ascoli will confirm with the group via e-mail with the time and location of the tour.

ACTION ITEM: Arrange for CAC tour of NSLS with Jean Jordan-Sweet.

Jeanne commented that the reception for Dr. Aronson was scheduled around the CAC meeting because it was valued to have the CAC present to represent the community. Jeanne also mentioned that Dr. Joanna Levelt Sengers of the National Institute of Standards and Technology was scheduled to speak at the Lab about the under representation of women in science and technology. Jeanne requested the talk be taped so it could be made available to CAC members interested in this topic.

Member Conklin: Just to finish, I have similar concerns to Pat. When you go to bio-level three and four, if this is going to be a state-of-the-art facility, don't you see a tremendous potential for experimentation at those crucial levels? Would it be worthwhile to put some money into the facility so that you could work at level three or four if the potential presented itself? Or is that too expensive?

Dierker: It's not too expensive, so far it is not something the scientists have demanded of us. Often it is possible to learn all you need to know about a particular molecule by studying a related but safe molecule. There are ways around having to work on hazardous materials. If our scientists had a compelling need to conduct those kinds of experiments we would consider that and do whatever was necessary. But of course, we would come and discuss that with you before we were to do anything like that.

Member Conklin: I would think you'd just want to think that scenario through.

Reed and the group thanked Dr. Dierker for his presentation.

5. Community Comment

No public comment was made.

Member Mannhaupt arrived and joined the CAC members at the table when the meeting resumed after the break.

6. Overview of g-2 Focused Feasibility Study Remedial Alternatives, Doug Paquette

Doug Paquette focused his presentation on the g-2 alternatives presented in the Focused Feasibility Study (FFS). The particle physics experiment called g-2 ran from June 1997 through April 2001. Paquette reviewed the rainwater infiltration controls put in place at that time to mitigate the anticipated soil activation. Wells were installed for groundwater monitoring to verify effectiveness of the controls. In November of 1999, tritium was discovered in a monitoring well downgradient. Corrective actions were taken including re-focusing the beam, installing a concrete cap and additional groundwater monitoring wells. The plume is in the central portion of the BNL site. It is not a threat to drinking water, and measurable reductions of concentrations are evidenced. The plume is expected to attenuate to non-detectable levels entirely on site.

Member Esposito: Is the reduction of the concentrations at the leading edge or closer to the source?

Paquette: The 52,000 pCi/L that we are currently seeing is right at the source, indicating that the concentrations have dropped and the controls are effective.

Member Esposito: What is the depth to groundwater from the surface soil at the source?

Paquette: The depth is about 20 feet at the source. It is fairly shallow.

Member Esposito: Was the original issue not so much that the rainwater seeped through the cap but that the groundwater level rose to meet the contamination?

Paquette: No. It was rainwater infiltration.

Member Esposito: Infiltrating the concrete cap?

Paquette: There was no cap on this area, that was the issue. This was an area of soil activation that was not protected.

Member Esposito: Since it has been capped has the water risen to meet the contamination?

Paquette: No. The zone of contamination extends above the land surface, because there is a soil berm. It is slightly below the concrete slab. The distance between the direct activation to groundwater is about 17 feet at the higher water table stand. There has never been an instance where the water table has risen into the directly activated soils. The issue was the smearing that had occurred because the rainwater was able to infiltrate into those soils and carry it down to the groundwater.

Paquette presented the five remedial alternatives described in the Focused Feasibility Study, which were evaluated using CERCLA criteria for selecting remedial actions. The alternatives were presented detailing the strengths, weaknesses and cost of each action. The five alternatives are: Maintain Source Controls, Source Controls and Groundwater Monitoring, High-Flow Pumping, Low-Flow Pumping, and Source Removal. The elements of each of the alternatives were detailed in the presentation.

Member Biss: The first sentence in Alternative 1 states "Maintain cap over soils until facility is decommissioned". There should be a continuation of that sentence that adds "and the source of the contamination has gone down."

Member Giacomaro: The first alternative does not include continued groundwater monitoring. Does that mean you're not doing monitoring?

Paquette: We are doing groundwater monitoring right now. This is just one alternative. It is part of the process to go through a series of alternatives, including a no action alternative.

Member Giacomaro: Would you still do monitoring but at intermittent times or would it be stopped totally?

Paquette: Under this alternative, it would be stopped totally. But we've proposed other alternatives that would include monitoring. Eventually the most appropriate alternative will be picked.

Member Giacomaro: Do all of these alternatives fit within the scheme of remediation in 2010 or 2015?

Paquette: These alternatives are actually over a 30-year time period. That's what the cost estimates were based on. The 2010 – 2015 timeframe pertains to a model that is predicting the fate of the plume, its reduction in size and concentrations. By 2015 the concentrations would be barely detectable.

Member Giacomaro: If nothing happened?

Paquette: If none of the alternatives were executed, by natural decay.

Reed clarified the question to ask why there would be a 30-year consideration when the plume will go away in 2015. Paquette replied it is a requirement of the process to develop these alternatives for examination. He also explained that as long as the source remained, monitoring must continue.

Member Esposito: The plume may go away between 2010 and 2015 but the activated soil is still there, which is why monitoring would have to continue past the timeline of the plume. You want to continue to monitor to make sure the cap does continue to work.

Member Mannhaupt: State-of-the-art is only as good as tomorrow. Come 2010 or 2015 something may be found that causes these alternatives to be updated. Groundwater monitoring is always something this community wants to see happening and we want everybody doing it.

Member Giacomaro: A strength of Alternative 4 is that it slightly reduces the amount of time needed to reach 20,000 pCi/L?

Paquette: If we were to implement this alternative, it might reduce the amount of time that is needed for the plume to attenuate by a year or so.

Member Esposito: Do you have an estimate of how much soil would need to be removed if Alternative 5 (Source Removal) was chosen?

Paquette: A rough estimate would be 8,000 cubic yards. However, that is a rough estimate and there might be opportunities for segregation of various levels of contamination.

Paquette presented the schedule for the PRAP, Public Comment period, CAC discussion of the PRAP, and preparation leading to the final ROD. It is expected the ROD will be finalized by Spring 2007.

Member Anker: Is the facility that caused this problem still being used?

Paquette: The g-2 experiment ended in April 2001. The facility is not being used presently but there are some plans to possibly reuse it.

Member Anker: Is RHIC causing any problems with creating more contamination?

Paquette: There are things called collimators at the RHIC facility. They are beam stops. There was soil activation expected in two areas. Prior to startup, caps were put over those areas and we began groundwater monitoring to verify the effectiveness of those caps. Thus far we have not detected any tritium.

Member Anker: There is no work being done right now that is contributing more to the problem?

Paquette: Not to the existing problem here. There's no additional beam line going into this since the conclusion of the experiment in 2001.

Member Mannhaupt: Does the \$80 million in lost work effort mentioned in Alternative 5 pertain to just RHIC itself? Is that a number that involves the entire site or a trickle down effect RHIC is shut down?

Ed Lessard, Accelerator Division: That was figured based on the staff needed at the site.

Member Mannhaupt: So this number does not incorporate how that trickles down.

Lessard: We only did that first level because people work at the facility.

Member Mannhaupt: In other words, it escalates from there. I'd like to complement the team on the Feasibility Study. It was done in layman's terms, I like the strengths and weaknesses and I appreciate it.

Member Giacomaro: Alternative 3 calls for pumping 50 gallons of water per minute, which will reduce tritium levels to below 20,000 pCi/L but you don't say in what time frame you'll do that. Then you mention the 2010 – 2015 timeframe and in Alternative 4 it will be slightly reduced, less than a year maybe 2009, or 2014. What would be the effect of spending \$2 million? Are we gaining 10 years? 5 years?

Paquette: The gain is a slight advantage of controlling additional downgradient movement of the tritium plume.

Member Giacomaro: But how does it effect....?

Paquette: The pumping would have to run for several years at least. During that time period in the model you are indicating, there is an overlap. It's something we have to evaluate as part of the alternatives. You need to look at the cost benefit and the benefit of implementing a particular action. That's part of this process, evaluating the ability to implement and the feasibility of these projects.

Andy Rapiejko (SCDHS): The whole plume is not going to reach 20,000 pCi/L in 2015.

Paquette: Right. The model for 2005 onward is assuming there's no additional release from the source area.

Member Esposito: So you're saying the whole plume will reach 20,000 pCi/L or less?

Paquette: Yes. We're seeing a drop off of tritium concentrations at the source and we're hoping that those concentrations continue to drop off to below drinking water standard. But there's always a possibility that because the tritium could ease out over a long period of time that we might still see a low level of tritium at the source area. But it will be at such low concentrations that it will attenuate into the aquifer within a relatively short period of time.

Member Guthy: I just want to remind everyone that aside from spending the \$2 million on that alternative there is also a chance of adding the strontium-90.

Member Esposito: I am questioning the two years needed to shut down the facility in order to get at the activated soils. Are you sure that can't be expedited?

Paquette: It might be able to be done in less time, but we wanted to look at the complexity associated with taking things down. It's not just removing activated soils. There are beam lines that have to be shut down, caps and other structures to be removed, and excavation of soil. Once the soil is removed we have to carefully backfill the area and make sure there is no settling, reconstruct the base pad for the beam line, the beam line structure has to go back up and then the beam line itself has to be reconstructed. All of this takes time. Once it's put back we have to make sure there is a recommissioning process. There are a lot of steps that go along with this alternative.

Goode: The infiltration controls would be critical.

Member Guthy: Would the weather affect the pace of the work?

Paquette: There would be some sort of temporary structure over the area to insure rainwater water would not infiltrate it.

Member Biss: Does the tritium stay on the surface or does it sink down further?

Paquette: When tritium first enters the aquifer at the water table, it's right at the water table.

Member Biss: It doesn't go down further?

Paquette: It does as it migrates downgradient.

Member Biss: Will it go down to the next level of water?

Paquette: No. Right now it's about 16 feet. It's about 25 to 30 feet below the water table. It will get slightly deeper as it migrates down but again, we're expecting the plume to degrade or attenuate by 2010 to 2015. It will become less and less concentrated.

Member Anker: What's involved with onsite recharge?

Paquette: We would pump the water from the ground, very similar to what was done at the HFBR. The water is pumped out of the ground to a recharge basin. Assuming there is only tritium and the concentrations are standard, the water would be discharged through the basin.

Member Anker: What's in the basin?

Paquette: Sand.

Member Anker: Are there any other chemicals used to draw out the tritium?

Paquette: There is not much you can do. It can't be filtered because it's water. The options are limited to pumping the water out, evaporating it or mixing it into concrete.

Member Mannhaupt: What is the ratio of tritium in water molecules? Isn't one in every 6,000 tritium? Deuterium?

Paquette: There is naturally occurring tritium that is produced in the atmosphere and washed out. There is a baseline tritium level in all water that we drink.

Member Chaudhry: I just want to comment that \$80 million in lost work would be bad public relations and give a bad image to the community. It's \$80 million lost so I would be against this action.

Paquette: Part of the Feasibility Study process is to evaluate a number of actions that could potentially be implemented. We also have to look at what the cost of the action is and what the benefit of the action is. So we go through the process using the nine CERCLA criteria, and work with the regulators to pick the best fit; the alternative that makes the most sense.

Member Jordan-Sweet: When you talk about the RHIC beam line that has to be taken apart, is that actually a single beam line or a projection straight from RHIC? Would it shut down the entire facility?

Paquette: Right, it's a projection going forward.

Reed concluded by summarizing next month's overview. The CAC will have a question and answer period to obtain technical information in order to move to discussion of the proposed alternatives and formulate a recommendation for the Laboratory.

Jean Mannhaupt announced that NEAR will not be dissolved as previously announced and she will continue to represent the organization.

7. Agenda Setting

There will be a presentation of the g-2 PRAP with a questions and answer session. Jeanne D'Ascoli will work with Jean Jordan-Sweet on the NSLS tour that will take place one hour before the October 12th meeting. There will be a presentation on Nanoscience Risks and Safety.

October 06 Agenda

g-2 PRAP

Nanoscience Risks and Safety

NSLS Tour

Meeting adjourned 9:50 p.m.

2006	Affiliation		First Name	Last Name	JAN	FEB	MAR	APR	No Mtg MAY	JUN	JUL	No Mtg. AUG	SEP	OCT	NOV	DEC
Chart Key - P = Present																
ABCO	(Garber added on 4/10/02)	Member	Don	Garber	P	P	P	P		P	P					
ABCO		Alternate	Doug	Dittko												
Brookhaven Retired Employees Association		Member	Graham	Campbell		P	P	P		P	P		P			
Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)		Alternate	Arnie	Peskin		P				P						
CHEC (Community Health & Environment Coalition (added 10/04)		Member	Sarah	Anker	P		P			P	P		P			
		Member	Adrienne	Esposito	P			P		P	P		P			
Citizens Campaign for the Environment (Ottney added 4/02-takenoff 1/05 Mahoney put on)(7/06 add Kasey Jacobs)		Alternate	Kasey	Jacobs	P	P					P					
E. Yaphank Civic Association		Member	Michael	Giacomaro	P	P	P				P		P			
E. Yaphank Civic Association (J. Minasi new alternate as of 3/99) (M. Triber 11/05) (Munson 6/06)		Alternate	Brian	Munson						P						
Educator		Member	Audrey	Capozzi												
Educator (B. Martin - 9/01)		Alternate	Bruce	Martin						P	P					
Educator (A. Martin new alternate 2/00) (Adam to college 8/01)(add. alternate 9/02)		Alternate	Adam	Martin							P					
Environmental Economic Roundtable (Berger resigned, Proios became member 1/01)		Member	George	Proios	P			P		P						
Environmental Economic Roundtable (3/99, L. Snead changed to be alternate for EDF)		Alternate	None	None												
Fire Rescue and Emergency Services		Member	Joe	Williams												
Fire Rescue and Emergency Services		Alternate	Don	Lynch						P	P		P			
Fire Rescue and Emergency Services		Alternate	James	McLoughlin		P										
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)		Member	Ed	Kaplan	P		P				P		P			
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)(Schwartz added 11/18/02)		Alternate	Steve	Schwartz			P	P		P			P			
Health Care		Member	Jane	Corrarino	P		P	P			P					
Health Care		Alternate														
Huntington Breast Cancer Coalition		Member	Mary Joan	Shea	P		P	P						P		
Huntington Breast Cancer Coalition		Alternate	Scott	Carlin												
Intl. Brotherhood of Electrical Workers/Local 2230		Member	Mark	Walker	P	P	P	P		P	P		P			

2006	Affiliation	First Name	Last Name	JAN	FEB	MAR	APR	No Mtg MAY	JUN	JUL	No Mtg. AUG.	SEP	OCT	NOV	DEC
	IBEW/Local 2230	Alternate	Philip Pizzo												
	L.I. Pine Barrens Society	Member	Richard Amper												
	L.I. Pine Barrens Society (added P. Loris 6/05)	Alternates	Eiina Alayeva			P	P		P	P		P			
	L.I. Progressive Coalition	Member	David Sprintzen	P	P	P	P		P	P		P			
	L.I. Progressive Coalition	Alternate	None None												
	Lake Panamoka Civic Association (Biss as of 4/02)	Member	Rita Biss	P	P	P			P	P		P			
	Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99)	Alternate	Joe Gibbons												
	Long Island Association (Groneman replace 10/05)	Member	Lauren Hill	P					P	P					
	Long Island Association	Alternate	William Evanzia		P	P	P		P			P			
	Longwood Alliance	Member	Tom Talbot	P	P		P		P						
	Longwood Alliance	Alternate	Kevin Crowley												
	Longwood Central School Dist. (switched 11/02)	Member	Barbara Henigin	P	P	P	P		P	P		P			
	Longwood Central School Dist.	Alternate	Allan Gerstenlauer												
	NEAR	Member	Jean Mannhaupt				P		P			P			
	NEAR (prospect taken off ¾)(Blumer added 10/04)	Alternate	Liz Bowman									P			
	NSLS User	Member	Jean Jordan-Sweet	P	P	P	P			P		P			
	NSLS User	Alternate	Peter Stephens												
	Peconic River Sportsmen's Club (added 4/8/04)	Member	John Hall	P		P	P		P			P			
	Peconic River Sportsmen's Club	Alternate	Jeff Schneider												
	Ridge Civic Association	Member	Pat Henagan	P	P	P	P			P		P			
	Science & Technology (added 1/13/05)	Member	Iqbal Chaudhry		P	P	P		P	P		P			
	Town of Brookhaven (Graves made member 6/06)	Member	Anthony Graves	P			P			P		P			
	Town of Brookhaven	Alternate	None None												
	Town of Brookhaven, Senior Citizens	Member	James Heil	P	P	P				P		P			
	Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate	None None												
	Town of Riverhead	Member	Robert Conklin	P	P	P	P		P	P		P			
	Town of Riverhead (K. Skinner alternate as of 4/99)	Alternate	Kim Skinner												
	Wading River Civic Association	Member	Helga Guthy	P	P	P	P			P		P			
	Wading River Civic Association	Alternate	Sid Bail						P						