Community Advisory Council
November 12, 2009
Action Items/Notes

Final

These notes are in the following order:

1. Attendance
2. Correspondence and Handouts
3. Administrative Items
   - Briefing on NASA Research, Derek Lowenstein
4. BGRR & HFBR Decommissioning Projects – Chuck Armitage, Director Environmental Restoration Projects
5. Community Comment
6. My Experience with the Marshall Islands Project – Ed Kaplan, CAC Member
7. Agenda Setting

1. Attendance

Members/Alternates Present:
See Attached Sheets.

Others Present:
C. Armitage, M. Bebon, P. Bond, N. Canavor, J. D'Ascoli, N. Detweiler, K. Geiger, M. Holland, C. Janovsky, S. Johnson, M. Johnston, J. Kaplan, T. Kneitel, S. Kumar, D. Lowenstein, R. McKay, B. Needrith, F. Petschauer, D. Quinn, V. Racaniello, A. Rapiejko,

2. Correspondence and Handouts

Items numbered one through three were mailed with a cover letter dated November 6, 2009. Items four through six were included in the member's folders.

1. Final notes for September 10, 2009
2. Draft notes for October 8, 2009
3. Draft agenda for November 12, 2009
4. Copy of BGRR & HFBR Decommissioning Projects presentation
5. Copy of My Experience with the Marshall Islands Project presentation
6. List of Future agenda topics

3. Administrative Items

The meeting began at 6:34 p.m. Reed Hodgin reviewed the ground rules and the agenda. Those in attendance introduced themselves.

Member Talbot announced that a new location has been found for the soup kitchen that was reported to be looking for space last month.

Jeanne D'Ascoli told the CAC that Member Jane Gibbons passed away and expressed her sympathy. She said that a card would be sent around the table for Members to sign.

D'Ascoli also said that the prescribed burn that was scheduled for last month was cancelled because the prescription was not met and that a holiday reception would be held from 6 – 7p.m. and the December meeting would follow.

D'Ascoli told the CAC that the tour of the Peconic River will be next Tuesday at 9:50 a.m., those attending will be meeting in the lobby of Building 400.

- Briefing on NASA Research, Derek Lowenstein

Derek Lowenstein, C-AD Chair, told the CAC that NASA recently announced a Grant award to McLean Hospital in Boston to study the long-term radiation effects on non-human primates. The proposal has not been received by BNL but there have been several newspaper articles and blogs by groups that are upset by the proposal. NASA intends to understand the neurobehavior of the primates and extrapolate that information to astronauts. NASA's two major concerns about space travel are the effects of radiation exposure and the psychological effects. The proposal calls for exposing squirrel monkeys to doses at or near the limits astronauts are permitted to get. The plan is to study them for several years at McLean Hospital and then they will be retired.

Member Giacomaro asked if the squirrel monkeys would get smaller doses since they are smaller than humans.

Lowenstein said he hasn't seen the proposal but he believes the dose would be calculated to be comparable for the monkey. He said NASA put out a call for proposals in March. A Grant was approved recently and the next step is for Brookhaven to receive a proposal. He explained that there are several committees that the proposal will have to go through. The Scientific Advisory Committee will make a judgment on the scientific merit and the feasibility of the experiment. The Institutional Animal Care and Use Committee (IACUC) at Mclean Hospital will have to approve this proposal as well as the IACUC at Brookhaven. Finally, the Brookhaven Directorate will make a decision whether or not to approve the proposal.

Member Shea asked what the lifespan is of the monkeys and how long will they be studied.

Lowenstein said they live about 20 years. He wasn't sure how long the study will last, but assumes 5 years or so.

Member Shea thought a longer study would be needed to determine the long-term effects of radiation and asked if there would be any input from CAC members.

Lowenstein said that will be part of the review process. He said that it has not been the case in the past for the public to participate in the experimental review process.

Member Giacomaro asked if this is part of the NASA project for protection of human beings in space travel.

Lowenstein said that it was. He explained that there are two aspects of the space radiation program – what are the risks involved, and how are the risks mitigated. The information will be applied to the medical community. There's a symbiosis between space radiation research and medical research.

<u>Approval of Minutes</u>
Reed asked for corrections, additions, or deletions to the October 8, 2009 draft notes. The notes were approved as written with two abstentions.

4. BGRR & HFBR Decommissioning Projects – Chuck Armitage, Director Environmental Restoration Projects

Chuck Armitage explained the history of the Brookhaven Graphite Research Reactor (BGRR). He said the Record of Decision (ROD) was finalized in March 2005 and includes: removal of the graphite pile, removal of the biological shield, installation of an engineered cap, ground water monitoring, and land use and institutional controls. He talked about the Contamination Control Enclosure (CCE) and explained that the graphite will be removed remotely. The graphite will be loaded into supersacks and then lowered into industrial packages and sealed. The waste will then be transported to the Nevada Test Site in shielded multi-use Type-A containers (SMAC), where it will be buried. He said an airlock system will be used and explained the use of HEPA filters and ventilation exhaust. He said steps are being taken to ensure worker and public safety.

Member Garber asked if there was any way to reuse the graphite.

Armitage said no, it is contaminated.

Member Sprintzen asked what the cost of cleanup is and what the value is of the project versus the expense of the cleanup.

Armitage said the total project cost will be about $40M and the decommissioning is important because we are reducing a source term and risk. BNL is a leader in decommissioning reactors. There are a lot of other reactors across the country and others are evaluating our process to learn and study ways to decommission reactors.

Member Giacomaro asked how the graphite blocks are held in place and how are they removed.

Armitage said they are machined to fit together and spring loaded with reinforcement bars. They will be scooped out by layers and excavated using hydraulic shears.

Member Esposito asked how the $40M cost of cleanup compares to the projected cost. She asked if it was a good investment of funds to remove a highly radioactive source and about the timeline.

Armitage said the Lab is operating within the project budget and timeline. The Lab has looked at a lot of different scenarios, trying to anticipate anything that could possibly happen.

Member Jordan-Sweet asked how the first piece is removed.

Armitage said there was some concern that the graphite would flake and break into pieces. There is an air gap in the middle of the pile, so it is possible to get in there. The removal will be done remotely with TV cameras.

Member Shea asked if there is a backup system in case the power goes out and about computer security.

Armitage said there is a backup diesel generator with emergency power and the building is secure. There is a disaster recovery system in the software with two backup systems.

Member Talbot asked if there were any challenges to the plan.

Armitage said a lot of suggestions were made. The key is that our safety management programs are secure. We also have a secondary hydraulic system.

Member Sprintzen asked how the cost of construction, monitoring, and decommissioning compares to the value of the research that came out of the BGRR.

Armitage said everything has a design lifetime. This is part of the life cycle.

Member Giacomaro asked if graphite blocks were used during the simulation.

Armitage said yes, blocks that had not been in the reactor were used.

Member Chaudhry asked why the process is taking so long if it began in 1972.

Armitage said the fuel was removed in 1972, but a decision wasn't made until 2000 to start decommissioning. As he has only been at the Laboratory for just about a year, he was unsure why the process took so long. [Editors Note: Between the time when the BGRR was permanently shutdown in 1968 and defueled in 1972 and now, there has been periodic decontamination and decommissioning (D&D) work conducted at the facility. This work was primarily to maintain the facility until sufficient funding was available to complete the planning for and the execution of D&D. After the Laboratory was included on the EPA National Priorities List in 1989, and during subsequent site environmental investigations, certain structures, components and soils associated with the BGRR were discovered to be radiologically contaminated as a result of normal operation, water intrusion, and leaks. These findings resulted in the acceleration of D&D planning for the reactor, including extensive characterization under the Comprehensive Environmental Response and Compensation Liabilities Act (CERCLA). This resulted in the development and regulatory review of, and public comment on, proposed remedial action plans and records of decision. In the meantime, a number of removal and other actions were taken to reduce the radiological footprint of the BGRR complex and reduce the potential threat of contamination leakage to the environment. More detailed information is available in the CERCLA Administrative Record.]

Armitage discussed the history of the High Flux Beam Reactor (HFBR), which was permanently shut down in 1999. He said the Record of Decision was finalized in April 2009 and includes the completed actions, near-term actions, removal of large activated components after a safe storage period, ground water monitoring, and land use and institutional controls. Most near-term actions have been accelerated to be completed by 2011 using American Recovery and Reinvestment Act funding. He said the final remedy incorporates the CAC's recommendation for five-year technical reviews and addresses the CAC's recommendation for reducing the safe storage decay period to 50 years.

He reported on the other environmental restoration projects currently in progress; remediation of the former Hazardous Waste Management Facility perimeter area soil, removal of waste transfer pipes, and planning for the removal of the fan houses and stack.

Armitage offered to set-up a tour of the BGRR for the CAC. D'Ascoli said a sign-up sheet would be passed around for members who were interested in attending the tour.

Member Bush asked how the ARRA funding accelerated the work.

Armitage said the Lab has been able to do several projects at once. The additional funds allows for a larger work force to be hired.

Member Mannhaupt said the HFBR is unique. She asked about the decommissioning of the HFBR compared to the BGRR and if the work was as cutting edge.

Armitage agreed that the HFBR was unique, but he didn't think what could be learned was anywhere near what can be learned from the BGRR.

Reed said if there is time following the Marshall Islands presentation, the CAC would be asked to set a new list of agenda items for the future. He told them there is a list of potential agenda topics in their folders for their review.

Member Mannhaupt said perhaps the CAC members could prioritize the topics on the list and e-mail them to Jeanne D'Ascoli.

5. Community Comment

There was no community comment.

6. My Experience with the Marshall Islands Project – Ed Kaplan, CAC Member

Ed Kaplan spoke about his experiences with the Marshall Islands Project in response to an article in *Newsday* that the CAC had previously discussed. He gave some background information on the U.S. nuclear testing in the Marshall Islands and explained how the people were exposed to radiation fallout as a result. He said that he was a member of the team working on the project to keep track of the people following their exposure and the opinions expressed during his presentation are entirely his own and not representative of BNL or DOE.

Kaplan showed maps of the atolls in the Pacific Ocean that make up the Marshall Islands. In 1946, when the testing began, the people were led to believe that the testing would "result in kindness and benefit to all mankind" and they would be able to return to their island after the testing was completed. A test on Bikini Atoll in 1954 resulted in fallout that exposed the Marshallese to radiation because of a shift in wind direction. The people did not seek shelter, but stayed outside to experience the "snow" that was raining down from the sky because they were not aware of the dangers of being exposed to the fallout.

In discussing radiation dose, Kaplan said the most significant pathway for human exposure to residual fallout contamination was through the food chain and inhalation. He said that the people were then evacuated and treated. The United States sent in food and asked them to stay away from the contaminated areas for a period of time. Kaplan explained that societal standards were very different than they are today and people were not aware of the long-term effects of radiation exposure. He explained that the largest contributor to radiation doses in the Marshall Islands came primarily from Cesium-137.

The BNL Medical Surveillance Program was a four-week mission setup twice a year to provide medical care and treatment for the Marshallese exposed to the fallout. They were given annual physical exams and people with medical findings were referred to a secondary or tertiary medical facility. Kaplan said that although the medical program was designated a "study", the primary goal was always the treatment of the exposed population and the data collected was intended to benefit the Marshallese first and foremost.

Kaplan described the BNL Marshall Islands Radiological Safety Assessment that he participated in. One to two missions were conducted per year and their objective was to monitor uptake of radionuclides and assess radiological information. The whole body counting portion of the program evaluated the present and lifetime dose cesium-137 in the body. Urine was collected to evaluate the present and lifetime dose of plutonium-239. The results were recorded and given to the people with an explanation of the findings in their language. The program was transferred to Lawrence Livermore Lab.

Kaplan went through the questions that the CAC had previously asked in regard to the *Newsday* article and provided answers to some of them based on his knowledge. He said that he was unaware of any information that was suppressed or of any secret documents. He reported that the BNL program began in 1955 and that it grew over the years, and that Lawrence Livermore Laboratory did most of the environmental sampling. He explained that the University of Utah had developed a technique for plutonium analysis that BNL improved upon and used. Kaplan said the program ended for BNL when it was transferred to the University of Hawaii and Lawrence Livermore Lab. He explained that the program was put in place because of an accident, it was not a program to do human studies research.

Member Guthy asked if the newspaper had contacted BNL or talked to him.

Kaplan said no one from Newsday contacted him.

Member Shea asked if the radiation levels are currently down to pre-event levels. Were people purposely exposed during the early years? She said she is concerned about the future. She has heard stories of deformed babies resulting from all this.

Kaplan said that he has heard those stories, but never saw any evidence of the birth defects. He said it came up at annual meetings. They asked for proof, but no one has come forward with any.

Member Chaudhry asked why the people didn't move before detonation and if they were warned of the danger?

Kaplan said it wasn't expected to reach the population of the islands, but the wind changed and people were affected.

Member Garber asked how global warming might affect this area. Sea level could rise over the contaminated islands and spread it into the Pacific Ocean. He asked if there was a book available on this topic.

Kaplan didn't know what effect global warming could have and said there were several books available.

Member Conklin asked what the "snow" was made of.

Kaplan was it was radiated, pulverized coral that looked like snow.

Member Schwartz asked if the information obtained during the medical studies was being correlated to the various types of cancer being found in the people.

Kaplan said yes, Lawrence Livermore Lab and the University of Hawaii are doing the analysis.

Kaplan said the orders that were given at the time spoke about research, but the doctors didn't look at it that way. They viewed their role as doctors helping patients.

Member Jordan-Sweet asked for information on the thyroid issue.

Kaplan said thyroid nodules are common. He said he wasn't sure it was related to exposure.

Member Garber said some bodily organs, including the thyroid, attract specific elements.

Member Mannhaupt reported that information on BNL and Marshall Islands is on YouTube.

7. Agenda Setting

Reed said, there will be a holiday celebration with wine and hors d'oeuvres before the December meeting. The agenda will include a presentation on the Site Environmental Report and a look at the agenda topics. The list of agenda items will be e-mailed to members so they can prioritize and return to Jeanne D'Ascoli before the next meeting. If you have any additional topics of interest, they should be added to the list.

The meeting adjourned at 9:29 p.m.

Agenda Topics	Votes
~~Global Warming, Stony Brook, Pine Barrens~~ (1-10-08)	15
~~CAC as a conduit/resource to the community~~ (11-08-07)	13
~~Emergency Operations Center tour and drill~~ (6-12-08)	12
~~Nano technology~~ (Colvin presentation 5-14-09)	11
~~CERN – problems and implications~~ (4-10-08)	11
~~Site Environment Report – good and bad~~ (11-8-07)(10-2-08)	11
~~Nano safety~~ (3-13-08)	10
Regulator presentations on areas they oversee	10
Energy	9
Overview of programs	9
~~Deer Management~~ (4-10-08)	8
Anti-terrorism update	7
~~NSLS-II briefing~~ (12/11/08)	7
Nuclear power plant safety	6
~~Education Programs~~ (10-2-08)	6
~~Energy efficiencies~~ (9-13-07)	6
Sustainable transportation	4
~~Natural Resources management~~ (11-13-08)	4
~~Nano ES & H~~ (10-11-07)	3
Safety and Security	3
Experimental Review Process	3
Latest RHIC findings	2
How the Lab supports nuclear facilities in the N/E region	2
Status of P-2 road show	2
~~Heating plant and efficiency research~~ (12-11-08)	2
~~Lyme Disease~~ (6-11-09)	2
CAC process	2
Alternative fuels	2
Update on phyto/bacterial contamination remediation research	1
Deforestation	0
Work planning process	0

New Topics Added After September 2007 Vote

~~Global warming – BNL research~~ (5-8-08)
~~Nano toxicology~~ (5-14-09)
~~Nano ES&H issues at BNL and beyond~~ (5-8-08)
Nanotechnology/science at BNL
~~Nano management policy issues~~ (5-14-09)
Nano panel discussion with the DOE, EPA, and FDA
Renewable energy research at the Lab
BNL/CSHarbor/Stony Brook collaboration

P = Present 2009 Affiliation		First Name	Last Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
ABCO (Garber added on 4/10/02)	Member	Don	Garber	P	P	P	P	P	P			P	P	P	
ABCO	Alternate														
Brookhaven Retired Employees Association (Peskin replaced Campbell 09/09)	Member	Arnie	Peskin	P	P	P	P	P	P			P	P	P	
Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)	Alternate			P				P							
CHEC (Community Health & Environment Coalition (added 10/04)	Member	Sarah	Anker						P				P		
(added 12/08) (R. Andrejkovics removed 9/09)	Alternate			P		P	P								
Citizens Campaign for the Environment	Member	Adrienne	Esposito	P	P	P	P					P		P	
Citizens Campaign for the Environment (Ottney added 4/02-taken off 1/05 Mahoney put on)(7/06 add Kasey Jacobs)(K. Jacobs off 1/08)	Alternate														
Colonial Woods Whispering Pines (added 06/09)	Member	Christine	Birben						P			P	P	P	
Colonial Woods Whispering Pines (added 09/09)	Alternate	Joan	Milner									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) (Feinman 2/09)	Alternate	Bob	Feinman		P	P		P	P			P	P		
Educator (changed 7/2006)	Member	Adam	Martin						P			P			
Educator (B. Martin - 9/01)	Alternate	Bruce	Martin					P							
Educator (A. Martin new alternate 2/00) (Adam to college 8/01)(add. alternate 9/02) (changed 7/2006)(Bush 5/09)	Alternate	Greg	Bush					P	P			P	P	P	
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												
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)	Member	Ed	Kaplan		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			P	P	P	
Health Care	Member	Jane	Corrarino			P	P						P		
Health Care	Alternate														
Huntington Breast Cancer Coalition	Member	Mary Joan	Shea	P	P	P	P	P				P	P	P	
Huntington Breast Cancer Coalition	Alternate	Scott	Carlin			P									
Intl. Brotherhood of Electrical Workers/Local 2230 (S.Krsnak replaced M. Walker 1/11/07)	Member	Scott	Krsnak	P		P						P	P	P	

P = Present 2009 Affiliation		First Name	Last Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
IBEW/Local 2230	Alternate	Philip	Pizzo												
L.I. Pine Barrens Society	Member	Richard	Amper	P			P		P						
L.I. Pine Barrens Society (added P. Loris 6/05)(Alayeva off 6/08) (Itriyeva 02/09) (Motschenbacher 6/09)	Alternate	Beth	Motschenbacher		P	P			P				P	P	
L.I. Pine Barrens Society	Alternate	Susie	Husted												
L.I. Progressive Coalition	Member	David	Sprintzen	P	P		P	(P - On speaker phone)	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		
Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99)	Alternate	Joe	Gibbons												
Long Island Association (Groneman replace 10/05)	Member														
Long Island Association	Alternate	William	Evanzia				P								
Longwood Alliance	Member	Tom	Talbot	P	P			P	P			P	P	P	
Longwood Alliance	Alternate	Kevin	Crowley												
Longwood Central School Dist. (switched 11/02)(Castro replaced Henigin 6/09)	Member	Maria	Castro			P		P	P			P	P	P	
Longwood Central School Dist.	Alternate	Allan	Gerstenlauer												
NEAR	Member	Jean	Mannhaupt	P				P					P	P	
NEAR (prospect taken off ¾) (Blumer added 10/04)	Alternate	Karen	Blumer			P		P	P			P			
NSLS User	Member	Jean	Jordan-Sweet	P	P	P	P	P					P	P	
NSLS User	Alternate	Peter	Stephens												
Peconic River Sportsman's Club (added 4/8/04)(resigned 6/09)	Member	John	Hall	P					P						
Peconic River Sportsman's Club (taken off 6/09)	Alternate	Jeff	Schneider												
Ridge Civic Association	Member	Pat	Henagan			P			P			P	P	P	
Science & Technology (added 1/13/05)	Member	Iqbal	Chaudhry		P	P	P	P	P			P		P	
Town of Brookhaven (Graves made member 6/06)	Member	Anthony	Graves	P	P	P	P					P		P	
Town of Brookhaven	Alternate	None	None												
Town of Brookhaven, Senior Citizens	Member	James	Heil	P	P	P	P		P			P	P	P	
Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate														
Town of Riverhead	Member	Robert	Conklin						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												