

DELAWARE RIVER BASIN COMMISSION
FLOOD ADVISORY COMMITTEE MINUTES

OCTOBER 2, 2003

The Flood Advisory Committee (FAC) meeting chaired by Bob Hainly began at 10:00 AM in the Commission office (DRBC) in West Trenton, NJ

Review of the Draft Minutes from the June 4, 2003 Meeting

Mr. Fromuth had one comment regarding the last sentence on the bottom of page 1. The phrase “stage at which the data is provided to AHPS” should be changed to “a stage be established at which the data is provided to AHPS.”

There being no other comments, corrections or additions, the Minutes were accepted.

Addition to Agenda from Alan Tamm

Mr. Tamm reported that the Commonwealth of Pennsylvania as well as the states of New Jersey, New York, Maryland, and Delaware are all under a federal mandate to prepare hazard mitigation plans. These plans are long range planning documents that will be legally adopted and made part of the philosophy and funding priorities for each state. Mr. Tamm is in the process of writing the Commonwealth’s hazard mitigation plan, and would like to include the efforts DRBC has made in water, environmental and flood control efforts that are on-going in the Basin. Mr. Tamm has the proposed text taken almost wholly from published sources, and he would like to offer these several paragraphs of pages as an avenue for the DRBC and the FAC to tout what we have been doing and the coordination that we have been offering within the state and within the Basin. Mr. Tamm would like the Flood Advisory Committee to take on embellishing this and making contributions to the Commonwealth’s hazard mitigation plan.

Mr. Hainley asked how Mr. Tamm would like to disseminate the text that he has and any comments that are made, and if there is a deadline. Mr. Tamm suggested that he could send the text out via e-mail with instructions for replying, and will discuss any comments at the next meeting.

Natural Resources Conservation Service Flood Mitigation Efforts

Neshaminy Watershed - Jeff Mahood, NRCS Pennsylvania District and Dick Manna, County of Bucks

Jeff Mahood works at the National Resources Conservation Service (NRCS) in Harrisburg, and they assisted the County of Bucks in planning a project for the Neshaminy Creek Watershed. He also introduced Dick Manna who is with the County of Bucks. Mr. Mahood said that NRCS has delegated the implementation to the County level. Implementation is not a federal responsibility.

Neshaminy Creek Watershed is about ten miles from the DRBC office and is just north of Philadelphia. It is a 149,000 acre watershed. The primary flood problems focused on in the plan are houses, utilities, docks, bridges, roads, etc. The primary purpose of the plan was to reduce flood damages. The county commissioners were the plan sponsors along with the County Conservation District. The goal was to target assistance to residential/non-residential buildings. The major components of the plan are the flood warning system, voluntary property acquisition, elevation and flood proofing of the buildings, enhancement of floodplain regulations, encouraging the use of flood insurance and maintaining eligibility under the flood insurance program, and storm water management. Because of heavy development in the watershed, the plan is contingent on a storm water management plan being implemented. There is a very good comprehensive storm water plan to prevent increased flood levels as new development occurs.

Flood Warning System - The County Emergency Management Agency (EMA) monitors the weather and five real-time gaging stations that USGS has put in place. When the National Weather Service issues a flood watch or warning, the EMA performs around the clock monitoring of the situation. When the streams reach a specified height, they trigger direct consultation with the National Weather Service in Mount Holly, New Jersey, and the municipal emergency coordinators are contacted. As soon as a flood watch goes into effect, the Citizen Alert Network (CAN) is activated. CAN is a computer run telephone system that calls and alerts all 589 households and non-residential owners in the watershed in about five to ten minutes. If a watch changes to a warning, CAN calls again to say that there is an eminent threat, and local officials who make decisions about evacuations, etc. are contacted.

Bucks County is starting to clear out the floodplain with voluntary acquisitions. Not everybody is participating. Some people elect to have their houses elevated instead of being acquired. John Kane asked who is responsible for the maintenance of the property. Mr. Mahood responded that it becomes County property. Dick Manna also added that any site where the County acquires the property and takes a building down because of the flooding becomes County parkland.

Mr. Mahood showed pictures of sites along the creek that were being elevated and the various stages of the elevation. The beneficiaries of this project include about 1,200 residents and about 500 employees from various businesses. The project will also benefit the emergency workers if more of these businesses and houses participate. There will also be less work for the County and local officials in terms of flood clean up and complaints.

This is one piece of a bigger watershed project. Eight flood control dams were built in the original plan, with a ninth not built. NRCS replanned that section and reconsidered the alternatives because the original plan and the environmental impact statement were old. What resulted was the voluntary, non-structural approach for the lower end of the Neshaminy Creek. The total scope for that piece is 45 acquisitions, 120 elevations and assistance to non-residential buildings. The most effective approach was to put up floodwalls and flood proofing for the businesses. There is flexibility in the program to switch back to different methods as long as program costs do not increase. The NRCS and Bucks County split the cost for the non-structural components. The construction acquisition activities and the project administration is a 75-NRCS/25-local split. NRCS is covering 100 percent of funding for the engineering.

The original plan called for dams, and for twenty years local flood victims thought they were going to get an additional dam. During the reevaluation of the unbuilt dam, a non-structural approach came out as the most economically beneficial approach for this particular watershed, so the sponsors selected that alternative. Their primary objective was to accelerate help to the victims and, since the dam was so controversial, it would have taken several years to complete.

Mr. Manna added that although there's a lot of controversy, when Hurricane Allison hit, it helped to justify not getting the dam built. Allison hit downstream of where the dam would have been built, and flooded the lower basin, so the dam would not have helped at all. Mr. Mahood also added that the dam was going to reduce flood damages about 30 to 35 percent in the lower end of the watershed; however, everybody who participates and takes one of these alternative options is going to have an estimated 95 percent reduction in damages to their property.

One issue is that costs for elevating structures are coming in a lot higher than was planned. Clark Gilman asked who selects the contractor, NRCS or the local county. Mr. Manna responded that it's the County's responsibility to handle a state or county bid. Mr. Gilman then asked what the average cost for elevation was. Mr. Manna said that the homes they're doing now are the worst-case homes which require additional rooms to protect utilities, etc., and the average was about \$160,000 for each of these homes. That number is coming down as they get further in the project. Mr. Mahood stated that the structures are all prioritized. Mr. Manna said that the County originally tried to buy out all the worst cases. He said that FEMA tried to buy them, but owners refused the FEMA program. About four out of every 25 owners that they offer this option to, refuse to do anything. Mr. Mahood mentioned that there is a bit of a joint project going on with FEMA. FEMA/PEMA are buying out and elevating some of the homes. One of the issues is the funding; they only have \$1.5 million so far out of \$4 million requested. Mr. Manna said that after FEMA did their buyouts, they came back and gave authorization to elevate 25 homes. Those homes overlapped into the County project, so it helped to take some of the pressure off of the NRCS/County money.

Mr. Mahood noted that, starting October 1, they are in fiscal year 2004. They have a continuing resolution; they can have the same amount of money as last year except there is no financial assistance money at all in the resolution. The Senate cut the program in half in their proposed budget, but may have mistakenly done so. The Senate has usually been supportive of this program, and there is every indication that the program will be funded. If it is fully funded, \$6 million may be made available.

Bob Hainley said that as far as elevating houses, it appears that the goal is just to get the items that would be damaged out of the water. There is no intent to eliminate the impact of the structure on the stream itself as far as causing back water. Mr. Hainley asked if the target elevation is above the 100 year mark. Mr. Mahood said that they reevaluated the watershed and redid the hydraulics and came up with new flood elevations, different from what FEMA has. NRCS is using the new elevations for the program, plus a foot and a half more. Mr. Gilman asked that if part of the project is being funded by FEMA, are they elevating to the 100 year flood or to NRCS' flood level. Mr. Manna responded that the County told FEMA that they have a plan in place and as long as the Neshaminy watershed plan is acceptable to them, they're going

to do it according to the Neshaminy watershed plan. FEMA said that was fine. They have some other restrictions that are different, but they are using the basic plan. Mr. Mahood said that there are actually a couple of spots where their elevation is lower, and they have a provision in the plan that they follow FEMA elevations in such cases.

Mr. Hainley asked how flood insurance works if a structure is elevated above FEMA's 100 year floodplain, and are they still required to get the flood insurance. Mr. Mahood said that they would encourage the continuation of flood insurance, and owners are supposed to get a rate reduction. However, there was no requirement to carry flood insurance, and when the study was completed; many residents did not have flood insurance. He also reported that anybody who stays in the floodplain and participates in the program has to add a deed restriction concerning maintenance and evacuations. Homeowners are not supposed to be storing anything in the lower levels of the structure.

Mr. Hainley wanted to know if the Neshaminy flood control dams are actually controlled reservoirs or, if they were just overflow structures. Mr. Mahood said that they are passive systems. When rains occur, flow moves through the principle riser and then there is an emergency spillway set at the 100 year event. Mr. Manna said that the dams have no controlled release works.

Millstone, Assunpink Watersheds – Greg Westfall, NRCS New Jersey District

Greg Westfall stated that his presentation would be more of an overview of what NRCS, New Jersey has been doing historically in the Delaware Basin. He said they do not have any active projects at this time in the Basin and that they've been working more in the Raritan Basin. NRCS looks at development of watershed plans using an interdisciplinary approach. It is a locally led planning process and sponsorship can come from one or more of the state agencies, counties, municipalities, etc. Generally, NRCS works in watersheds that are 250,000 acres or less, and tries to resolve multiple problems. There are approximately 1,600 watershed projects in operation nationwide, and in New Jersey, 15 have been completed. There were roughly \$10 million in annual benefits from these projects. Mr. Westfall then focused on the Millstone Watershed where NRCS has been working ever since Hurricane Floyd, which caused approximately \$245 million in flood damages. There are many historic buildings, and there is little that can be done without changing the historic significance of some structures and changing the character of that area.

A steering committee was formed by NRCS to go through the planning process, and it was made up of federal, state, and county representatives. There are five counties and 26 municipalities in the watershed. Roughly seven or eight of the municipalities continue to add representatives, and those seven or eight are predominately those that are in the high-priority flood areas. The steering committee identified seven objectives, with their primary objective being flood damage reduction. A flood damage inventory of the watershed was performed, and considered the national flood insurance program and flood damage database to determine where damages are occurring, and where people have flood insurance and where they don't.

During the summer of 2001, structure elevation data were collected for about 180 structures in the valley, and flood mitigation alternatives were considered, including flood water storage structures. That was a controversial alternative from a benefit-cost and public acceptance standpoint. The cost of the land required by the structures reduced the benefit to cost ratio. NRCS also looked at large levees and floodwalls using costs that the Corps of Engineers developed, and again the cost of the large levees and floodwalls was prohibitive. NRCS is looking at non-structural measures and has focused on Millstone Borough, which is an area that has had the highest per structure flood claims under the FEMA National Flood Insurance Program. NRCS looked at elevating structures, but couldn't show that the benefits exceeded costs and couldn't consider relocation because of real estate costs. Currently, NRCS is looking at smaller levees and flood walls. NRCS is in the process of doing photo simulation to show what the area would look like once the levees and flood walls were complete.

Other projects in the watershed have been the Assunpink Creek watershed project and Furnace Brook, which is a small tributary. The Assunpink project is located in Mercer and Monmouth Counties. There are six different flood retarding dams; several are multi-purpose. One is used as the centerpiece of Mercer County Park, which is used for fishing, boating, and Olympic tryout runs. The upper watershed was purchased by the State Department of Environmental Protection, and the N.J. Division of Fish and Wildlife is managing approximately 5,400 acres there, which surround four of the seven structures. Those facilities are heavily used for fishing and boating. NRCS estimated the number of recreational user days as part of the benefit cost analysis and the numbers today exceed that number. In the Raritan Basin, NRCS looked at benefits and costs from a recreation standpoint on the Millstone, and benefits for recreation alone would have nearly justified every dam site, but the program also must have significant benefits for flood damage reduction, so there is a shortage of free flowing water at recreational sites.

Furnace Brook is another project where a flood retarding structure is used as a multipurpose recreation area for boating, fishing, and swimming. It is located upstream of Oxford, New Jersey, which has had heavy flooding for many years. There is a real concern about the projects that have been built over the last 200 plus years. Many of these dikes were built under King George III, and they were built for groups of agricultural land owners who wanted to protect the land. As time has gone on, many of these areas have become developed, and the structures are referred to as orphaned dikes because they have no responsible operators. The people who take care of them do not want that responsibility. There is no national or state inventory of dikes and levees, and no federal funding through the federal 566 program for rehabilitation of these structures. Unless the voters approve it, there is no state funding for repair of orphaned dikes and levees that protect life and property.

John Kane asked if there are any complaints from the fishing and other wildlife groups about flow impacts of flood control structures. Mr. Mahood replied that he has not heard any negative feedback. All structures have a principal spillway, and are maintaining a base flow. Mr. Kane wanted to know what happens during a drought. Mr. Mahood responded that the concern hasn't reached them, to his knowledge. He also said that the dam that was considered on the Neshaminy Creek was going to be a dry dam, and fish passage was to be through the principle spillway with back water only during flood events.

Mr. Tamm commented that what FEMA does through the national flood insurance program is look for structures with two claims of \$1,000 or more within the last ten year period. FEMA has multiple definitions of repetitive loss, and the definition is constantly changing. NRCS in both New Jersey and Pennsylvania appear to have identified hazards and are looking at what could be done and then seeking the funds to actually do it. A couple of counties were undertaking hazard mitigation plans on a county-wide basis in Pennsylvania within the Delaware River Watershed Basin, and if NRCS would like to participate, PEMA would be willing to have NRCS assist in the communities. Mr. Mahood replied that NRCS usually works on requests from local entities, so if they want help and the programs fit, NRCS could help.

Mr. Gilman said the surprising thing is that in New Jersey and Pennsylvania, the cost of elevating a structure is three times what FEMA said it is for most of the country. The cost is about \$150,000 to elevate a single structure, and that's just the construction, not including the engineering. He also said that New Jersey has done very little renovation; most were buyouts. Mr. Tamm said that in the upper regions of the Pennypack in Bucks County, contractors from Lancaster came in that were associated with one of the religious orders. They were telling the residents of that area that they would raise their house for \$10,000 to \$15,000. Mr. Mahood said that's the price of getting the house elevated and doesn't include the costs that are involved in the structure you need to build under the house so it will withstand flood flows. This has to be reinforced concrete or reinforced block, and the utilities have to be moved.

Mr. Tamm said that PEMA is being asked to look at projects from the perspective of safety of the emergency personnel. He asked if NRCS looked at the transference of risk from these people that want to elevate, because essentially they will remain in their houses until they have to be rescued by emergency personnel. Mr. Mahood said that these owners sign within their deed indicating they will evacuate when directed to do so. If they do stay, the hope is that the structure that was built will withstand the flood. You don't want them to stay, and you don't want anybody to think they should stay, but they are built to withstand flooding.

FY06 National Weather Service Budget Initiative Related to Delaware River Flood Warning Recommendations Implementation (NWS)

Peter Gabrielsen discussed Agenda item C1, which is correspondence between the Delaware Basin Commission and the Northeast Midwest Institute. He said the important thing is the quote in the second paragraph. "Prior to the release of funds for the Delaware River Basin Flood System and the North Carolina Flood Warning System, NWS is directed to submit reports on the total costs of these systems, including installation, operation, maintenance, and upgrade, as well as the need for the systems, based on historical flood data and the current level of development in the flood plains. Also, funds provided for flood systems require a 100 percent match from State, local, or private sources." This is in reference to a budget line item for \$900,000 passed back from the Senate for the Delaware River Basin flood forecasting warning system. It was \$1.3 million for the North Carolina flood forecasting warning system. The information that was provided from Scott Carter from NOAA legislative affairs is that the Susquehanna Basin flood forecasting and warning system is considered an established NOAA line item, so there was no need to go back and add any new language to that; that's been on-going for almost 15 to 17 years so there will be no changes. Concerning the Delaware Basin flood warning system, there was

some acknowledgement in the Senate budget pass back because they mentioned the program. The language that's in the budget is a concern because it is going to be very difficult to come up with \$900,000 of cost sharing. There is some discussion in the e-mail from the Northeast-Midwest Institute on looking for some changes to the language. Mr. Gabrielsen read the original Senate budget language that's included in an item under microforecasting and mezonets. This is a project that also needs matching funding. "Funds provided under this heading require 100 percent match from state, local, and private sources. Should participants' match fall short of appropriated levels, the Weather Service may, on a dollar-to-dollar basis, partially release matching, but lesser amounts available to participants as long as the Weather Service can certify that at least the minimum operating capability will be achieved. The balance of the funds in such an eventuality shall be transferred to the NWS maintenance lines on a priority basis." What that means is that there are some items in the Senate pass back budget where NWS was given the ability to show if funds are matched, then we can proceed at some lower matching level. Last week Mr. Gabrielsen was given an assignment for the FY04 Senate appropriations report language that by December 30, 2003, he needs to provide to his assistant administrator the cost data that was requested in this budget language. The Flood Advisory Committee and the DRBC prepared quite a bit of this information already, so he and Mr. Fromuth can work on this off-line and come up with estimates based on recommendations that the Flood Advisory Committee has made. NWS also spoke with the State of North Carolina and they had no idea where this language came from. There was some discussion in Carolina that Senator Dole was doing this to show that she supported the flood issues in the state of North Carolina, but realized that the Senate was not going to fund this but wanted to identify that it was an issue.

Mr. Gabrielsen also stated that he was in the process of working on the FY06 budget initiatives for the Weather Service's Hydrologic Services Program, called Rivers, Lakes, and Open Fresh Waters. Admiral Waddenbacker, the new administrator in NOAA, is from the Navy, and is applying a matrix management approach. Essentially, this means taking the entire NOAA budget and cutting it across all the line offices in NOAA and even going outside NOAA looking at partners like USGS, who NWS depends on for data and infrastructures. This is going up for review internally with the Weather Service within the next couple of weeks. NWS is not clear about when or how any of these programs are going to fit in from the internal NOAA perspective to outside budget activities such as the request for funding to the Delaware program or the North Carolina program. NWS has been able to make clear to NOAA senior management that there is a requirement to have a gaging infrastructure, and a requirement to have partnerships with other agencies to produce a successful flood warning system. For example, the AHPS program, which is a small portion of this future budget proposal, requires information, data, and cost sharing with other agencies and requires NWS to provide resources to the USGS and the USGS to provide resources to NWS. NWS is making some headway helping NOAA understand NWS requirements for support of the recommendations of the Flood Advisory Committee and other groups throughout the country.

Mr. Hainley asked if there was any information regarding the FY06 initiative. Mr. Gabrielsen said no; right now it's a draft. It is going to be reviewed internally by NOAA around October 15, 2003. We want to see how the Admiral, who is the director of NOAA, is going to take this information and present this to the Department of Commerce. Mr. Hainley said that in previous discussions, there was mention about how to get the stream gaging part of the Delaware

forecasting system folded in to what the Weather Service needs are and as far as funding is concerned. There are some efforts going on in the USGS to try to get more of a direct appropriation for funding through the national stream flow information program, and that's something the USGS should look at in the headquarters' levels. USGS is developing the 05 and 06 budgets also, and trying to convince Congress that the funding should be more directly through USGS rather than relying on other agencies to provide support. Mr. Gabrielsen said that NWS provides a list of the top priority gages for the entire country. The Weather Service has a national meeting where they pass them on, but there's open competition at that time.

Mr. Hainley noted that USGS is looking at this as a way to help supplement some funding in the Corps of Engineers. Certain programs in the Corps of Engineers have been hit with budget cuts, and a way to augment those budget cuts and maintain the stream gage network nationwide is being sought. Mr. Hainley asked if the 100 percent match requirement is adopted, can sponsors use existing funding. He also asked if existing local funding can be applied. Mr. Gabrielsen said that NWS has asked that question to their OMB representative and they haven't gotten an answer yet. He also asked OMB what happens to the money if local sponsorship is not provided, but that hasn't been identified clearly. Mr. Gabrielsen reported that there was some discussion that these items were put into the Weather Service's budget to say that they would rather that they don't come through line item budget requests anymore. It's saying what we want to do is this matrix management type, identifying projects that would be cross-serving to a number of different federal and state agencies to meet the needs of requirements. The public record for the actual Senate budget for NOAA and the National Weather Service were very critical of some of the agencies within, particularly the Office of Atmospheric Research. They said that since OAR hadn't provided specific baseline goals, OAR is playing a very dangerous game with their budget.

Mr. Tamm said that he was interested in the report providing the current flood data, and he wanted to know how he anticipates answering those questions. Mr. Gabrielsen said that he was going to use the Flood Advisory Committee recommendations. The overall plan was to leverage information that the Delaware River Basin has collected and has on record. Mr. Tamm said that FEMA has spent millions of dollars on a new program called HAZUS-MH, which takes a DEM, develops a surface, looks for the low areas in that surface, and then develops that stream morphology. HAZUS then goes back and looks at the USGS stream gage data and looks at the statistical analyses of the streamflow to derive the precipitation, and then dumps that precipitation on the Water Basins in that study area and develops a flood height. It intersects that flood height with critical facilities, residential facilities, to get a damage estimate of how many people are going to be displaced, how many people could possibly lose their lives, and the debris that is generated by that flood. He said that he anticipates that FEMA is going to ask PEMA to utilize this program as a response tool. It would be very beneficial for them to have this cross-checked with existing data. HAZUS is extremely computational and intensive.

National Weather Service – New York City Precipitation Network Progress (NWS)

Mr. Gabrielsen said that this item has to do with some collaboration that's been going on with the NYC DEP and the Weather Service over the last two years. Starting back in October 2001, the Weather Service and NYC DEP water supply folks started having semi-annual meetings to

discuss data sharing. To quote the hydrologist in charge of operations west of the Hudson, “Pending approval of capital funds by the NYC OMV, DEP hopes to soon embark on enhancing its precipitation measurement network by adding 15 to 30 state-of-the-art rain gages to the existing network and upgrading current sites to the new rain gages.” The rain gages will be the same ones that are used by the federal government in a nationwide U.S. climate reference network which is designed to collect top quality climate data for the country. All rain gages will have radio telemetry to provide frequent updates of rainfall amounts throughout the watershed. The cost of the project is estimated to be \$500,000. This enhanced network will provide more and better quality data for the DEP to use in managing the reservoir system and would further advance the Weather Service’s mission for protection of life and property through the transmission of timely warnings. A subcommittee of the larger Weather Service DEP coordination committee has been formed with representatives from the Albany Weather Forecast Office, the Binghamton Weather Forecast Office, and the State College RC as well as folks from the DEP to site the networks based on elevation and spatial distribution.” This is assuming that funding is received. If NWS matches DEP’s contribution with other monies, it would show that NWS is putting \$500,000 toward flood improvement recommendations, and perhaps additional funding could be secured.

Mr. Kane asked if we could use some of the existing stations as local cost sharing. Mr. Gabrielsen responded that it’s another thing that we could possibly do with the annual maintenance to run the local networks. This is very good news for the upper portions of the Delaware watershed, and it’s really going to help improve the timeliness in receipt of this data. The DEP and the National Weather Service have worked through a number of people to have this information transmitted to our regional headquarters in Long Island and then to the appropriate weather forecast offices that need it in the upper reaches of the Basin. The project is essentially building an infrastructure to transfer that precipitation data in real-time when it’s collected to provide increased information for the increased forecasted warning program. Tom Carroll met with the DEP to review what he’s doing with his snow water equivalent measurement estimation, and NWS is updating the network that Tom uses for his snow water equivalent measurements. NWS is also sharing hazmat information with DEP for emergency evacuations and operations based on chemical spills and other types of civil defense emergencies, and also sharing information with DEP on the grid forecast information.

Mr. Hainley asked about the rain gage information. He wanted to know how the data will be available for people outside of the Weather Service and the DEP. Mr. Gabrielsen said that the data is being collected at the control facility up in Grahamsville, it’s being placed on an FTP behind a fire wall and transferred down to the Weather Service, and it’s being sent out to the weather forecast offices that are responsible for that area. It will be released in the public products coming out of the Binghamton and the Albany forecast offices. It will also be collected and provided in the data summary products that the River Forecast Center puts out.

Mr. Hainley wanted to know how the local emergency management staffs will get that information. Mr. Gabrielsen said it will come over the automated flood warning system network which is run through a computer server in Louisville, Kentucky. NWS has taken web operations to a 24x7 real-time operation.

Committee Inputs to NWS on AHPS Deployment Priorities

Mr. Gabrielsen referred to Agenda item E1, and said that based on the continuing resolution funding for FY04, the Weather Service Middle Atlantic River Forecast Center plans on completing stage one basic AHPS deployment for the entire Delaware Basin by the end of FY04. This includes enhanced river level or water supply forecasts, observed river levels at flood only forecast locations when the location is not in flood, and flood probability information. NWS is working to provide the basic service at all the existing forecast points within the Delaware Basin. NWS will be done with the basic implementation by the end of FY04, and can start to look for opportunities in new locations that are deemed important. Based on the fact that NWS AHPS is only functioning as a continuing resolution, they can take recommendations and can look at priorities for further deployment within the Basin. But until they actually see what the budget is for 2004, further deployment is unknown.

Mr. Fromuth said that Agenda item E2 is the latest inventory of the gages in the Basin that have DCP platforms. This listing is kept up to date by DRBC staff. As far as the potential for adding mapping to forecasting, the Corps of Engineers at different times has done digital floodplain mapping and flood stage forecast mapping for the city of Reading on the Schuylkill River. Also, the entire Delaware River main stem has digital contour mapping available.

Mr. Gabrielsen said once the basic deployment of AHPS is complete for the Delaware Basin, NWS would be ready to start embarking on some of this enhanced deployment in the Delaware Basin. Another year is needed to complete the calibration to move forward.

Mr. Gabrielsen reported that Tom Baumgardner, the hydrologist in charge of the Mid-Atlantic River Forecast Center, is retiring, and that his last day of service is October 3, 2003. Ted Rodgers was at the meeting representing the RFC.

Status Report on Basin Plan and Changes to Narrative Language Related to Flooding (DRBC)

Rick Fromuth said that at the last Flood meeting there were comments that were presented for the narrative portion of the plan. DRBC staff tried to change the language to make it more accurate, and tried to recognize different programs on-going in the Basin, and reflect the potential work that could be done. Attached to the status report (Item F1) is the narrative with the changes. This is still going to go through a public review process, and there will be a number of public meetings held on the plan. There will be six different meetings at different locations throughout the River Basin. Comments from the FAC are still sought. A professional editor will go through and look at the language. Mr. Fromuth thanked Mr. Gilman for his comments.

The last page of the handout is a table that shows the flood related objectives as they stand now; they have been modified a number of times, but objectives 2.1A and 2.1B are basically the flood committee's input. One relates to flood warning and the other is the characterization of flood damage. There was some wording added about the ecological impacts of flooding. Although, those responsibilities were outside the work that this committee does.

Corps of Engineers Reconnaissance Study

Mr. Fromuth referred to Agenda item F2 and mentioned that the Corps of Engineers went through a reconnaissance study looking at the Delaware River Basin for possible feasibility assessment projects. Two areas they focused on were flood loss reduction and stream corridor evaluations. This (Item F2) is the final reconnaissance report. In the Corps' process, the reconnaissance studies are a baseline for what they call feasibility studies, and the feasibility stage looks a lot more closely at options that are identified in the reconnaissance report. The process was used to see if projects would have feasibility studies done, and if the feasibility studies were positive, the Corps would move on to a project. The planning objectives that the Corps has listed in this report, on page 11, are consistent with objectives identified by this Committee for the comprehensive planning process. They are consistent with the recommendations in terms of general areas of work. On page 12, item F lists a series of measures. This establishes a general framework for work that the Corps can support through cost sharing. On page 17, there is a list of feasibility study task items, and a cost of over \$3 million with costs shared 50/50 towards feasibility studies. There are a number of areas of work; one would be hazard assessment which includes flood mitigation planning and is the basis for the type of work the NRCS presented today. Mr. Fromuth noted that it would be interesting to see if some of the cost sharing opportunities that are available could go directly towards hazard assessment or directly towards the deployment of AHPS.

Lowering Water Supply Reservoir Levels in Advance of Flooding

Another item that Mr. Fromuth wanted to bring up was an issue of lowering water supply reservoir levels prior to storms such as Hurricane Isabel. Citizens in the upper basin, interest groups, and councilman have contacted governor's offices asking to release water from the NYC reservoirs during this time when the reservoirs are full and have been spilling. From a technical standpoint, if there were a program in place to lower the storage, it could be lowered at a maximum rate of maybe a billion and a half to two billion gallons a day during the non-freezing months. With a near certain percent chance of refill, the storage level could probably be lowered as much as 20 billion gallons during the late fall and early winter. The water rights and legal issue is that the reservoirs are not designed for flood storage; there is no flood storage allocation purpose. The parties to the Supreme Court Decree and the City of New York do not want to jeopardize their water supply rights in any way. If they release water, and in some way it aggravates flooding downstream, they do not want to assume any liability for that flood damage. Prior to Hurricane Isabel, there was much public pressure to release something out of the NYC reservoirs even if it were only a couple billion gallons. DRBC received a call from the Pennsylvania DEP asking how it had responded. DRBC has a web page that was posted explaining the staff and the decree parties' position on this issue. DRBC also sent a detailed letter to the Upper Delaware Council explaining that this is really not the most reliable means of flood loss reduction, and other alternative should be considered as long term solutions to flood loss. This issue continues to be controversial. Mr. Gilman said that New Jersey has recently had the same problem with the northern water supply reservoirs.

Mr. Fromuth said that he was not seeking a Committee recommendation, but to apprise them of the issue. The Committee would not be able to make a recommendation without development of stage vs. damage curves below the reservoirs and an analysis to support the benefits of the flood storage that could be made available. DRBC staff asked the Decree parties about whether they

would consider staff looking at a cost estimate or starting to look at stage damage curves below the reservoirs and seeing if a plan could be worked out to lower the reservoir levels, and their decision was not to pursue this further.

Next Meeting

The next meeting of the Flood Advisory Committee was scheduled for December 2, 2003 at 10:00 a.m. Mr. Hainly reminded everyone that at this meeting the Committee will be electing a new Chair and Vice Chair. He asked for nominations or volunteers. Due to a scheduling conflict at the DRBC, the date of the next meeting was moved from December 2, 2003 to Wednesday, December 10, 2003.

**FLOOD ADVISORY COMMITTEE
ATTENDANCE**

October 02, 2003

NAME	AGENCY
BURD, David K.	Merrill Creek Reservoir
FROMUTH, Rick	DRBC
GABRIELSEN, Peter	National Weather Service (NWS)/Eastern Region Headquarters (ERH)
GILMAN, Clark	New Jersey Department of Environmental Protection
HAINLY, Bob	U.S. Geological Survey (USGS)– Pennsylvania
KANE, John F.	New York City Department of Environmental Protection
MAHOOD, Jeff	U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS)
MANNA, Dick	Bucks County
MCKILLOP, George	NWS – ERH
NICKELSBURG, Walt	NWS
REISER, Robert	USGS
REUBER, Michael	National Park Service – Upper Delaware
RODGERS, Ted	NWS – Middle Atlantic River Forecast Center
SCHAFFER, David J.	USDA – NRCS
TAMM, Alan	Pennsylvania Emergency Management Agency