DRBC Flood Advisory Committee Meeting
July 1, 2004
At DRBC Office in West Trenton, NJ – Starting at 10 a.m.
Meeting Summary

The July 1 meeting of the Delaware River Basin Commission Flood Advisory Committee (FAC) was called to order by Chair Alan Tamm of the Pennsylvania Office of Emergency Management. Meeting participants were introduced.

The minutes for the March 10th FAC meeting were approved with a request by Alan Tamm for overall meeting summaries rather than detailed content in future minutes.

Reports on Progress Toward Implementation of the Flood Warning Recommendations
Mr. Fromuth described handout B-1, a report from John Talley of the State of Delaware Geological Survey. This report details upgrades to telemetry for stream gaging stations in New Castle County, Delaware. The upgrades provide for satellite telemetry and on-line display of stage and discharge on the USGS web site. The report also lists gages with automated phone dialing capability based on stream stage height. These upgrades are a significant addition to Delaware flood warning capabilities and are consistent with Recommendation S-7 of the DRBC Flood Warning Recommendations report of May, 2002.

Also attached to handout B-1 was a description of the Delaware Environmental Observing System (DEOS), a system of automated weather stations intended to provide immediate information on weather conditions throughout the State. Development of the DEOS system and associated web site is being administered by the University of Delaware. Handout B-1 included a list of organizations that are cooperating in the development of DEOS. Development of the system is expected to take five years and one of the goals is the integration of meteorological and hydrologic information. Mr. Hainly noted that the PA District of the U.S. Geological Survey operates the stream gaging equipment in Pennsylvania used in hydrologic portion of the DEOS network and had made telephone line upgrades to those gages.

Mr. Petrewski noted that new weather equipment is being installed at Lake Wallenpaupack in association with a new water release temperature regulation program, and asked if there was potential for it to be tied in to the National Weather Service network. Mr. Gabrielsen stated that Mr. Chiaramonte of the National Weather Service's Binghamton Office could coordinate with Mr. Petrewski on the protocol for data communications. Mr. Gabrielsen also outlined the work by the National Weather Service in obtaining meso-net weather data, and making representative meso-net data available in its web products.

Mr. Fromuth discussed recent press releases concerning the installation of automated precipitation gages in the New York City reservoir headwaters region through a cooperative program between the New York City DEP and the National Weather Service. A total of 21 gages have been installed west of the Hudson River. These upgrades are consistent with, and expand upon, Recommendation S-1 of the DRBC Flood Warning Recommendations report of May, 2002. Mr. Gabrielsen stated that the NYCDEP is also working to make reservoir elevation

and release data available to the Weather Service on a real time basis using its SCADA monitoring system.

Mr. Fromuth briefly described a grant received by the DRBC from the New Jersey Office of Emergency Management in the amount of $10,000 for public education and outreach activities. Work will include upgrades to the DRBC flood information web site. The grant was made possible through the efforts of Mariana Mossler of NJOEM and is consistent with Recommendations G-4 of the DRBC Flood Warning Recommendations report of May, 2002. Work is to be completed by the end of the calendar year. The concept is to provide an information center for flood warning and mitigation specific to the Delaware River Basin.

Work funded by NJOEM for $30,000 to develop E-19 statements for New Jersey stream gages was also summarized. These E-19 statements tie flood stages and general qualitative impacts such as road or property submergence to stream elevation. There are a number of gages in the Delaware Basin where this correlation has not been done, and this work will address the deficiency for the New Jersey portion of the Basin. The work is being conducted by Stevens Institute under direction of the USGS, National Weather Service, and NJOEM. The work is consistent with Recommendation S-6 of the DRBC Flood Warning Recommendations report of May, 2002.

The NJOEM is also investigating potential funding sources for the Riegelsville and Belvidere USGS stream gages on the Delaware River. Corps of Engineers local sponsorship of these gages is being discontinued.

Mr. Fromuth noted that Bob Schopp of USGS had informed him that new precipitation frequency tables have been finalized and are available on the web. These replace the frequencies of National Weather Service Technical Release 40 (TR-40), which were based on data through 1960. Precipitation durations provided by the new product are from 5 minutes to 60 days and recurrence intervals from 2 to 1000 years. The product is available at http://www.nws.noaa.gov/ohd/hdsc/. Mr. Tamm noted that the data can be downloaded and incorporated with GIS, and that the Pennsylvania Emergency Management Agency is doing so.

Coordination Efforts for Vulnerability Modeling

Alan Tamm explained that federal legislation requires the preparation of hazard mitigation plans by states and local governments. These plans involve the evaluation of hazards and prioritization of mitigation steps. In general, this type of activity has been undertaken in Pennsylvania for many years. New software is being developed such as the effort by the Corps of Engineers in inundation mapping or HAZUS software development by FEMA.

Mr. Tamm distributed a handout which provided a comparison of a HAZUZ MH evaluation for Bucks County of damages from a repeat of a storm similar to Tropical Storm Allison with observed damage for the event. The comparison showed that HAZUZ MH damage results were in close agreement with observations for Bucks County.

Mr. Tamm is seeking a way to coordinate efforts among the various agencies involved with vulnerability modeling – either by using HAZUS as the vehicle, or making a recommendation on which method should be used. He asked if there was interest by the group in convening a sub-committee to explore this. The HAZUS model offers a means of assessing disasters before they occur so that mitigation priorities can be set and potential damage understood before disasters occur.

Mr. Gabrielsen stated that the Weather Service would be willing to work with Mr. Tamm in determining ways to get real time storm event information available to emergency managers as soon as possible after the event. This would help reduce the work load on NWS staff after severe events. Joe Zagone of FEMA stated that he would be willing to host meetings of a sub-committee formed to further investigate vulnerability modeling. Meetings could take place at the FEMA Region 2 office in Philadelphia. Ms. Mossler noted that she would be attending an advanced HAZUS training course and would like to integrate this with work by NJOEM.

Mr. Tamm noted that it appears that organizations in the Basin are working through multiple avenues to address the same questions regarding hazard vulnerability. A decision should be made as to what is technically appropriate to use. He circulated a sign-up sheet for participation on a vulnerability modeling sub-committee. Ms. Mossler stated that she feels there is a growing interest in New Jersey in HAZUS modeling. Mr. Tamm asked about the possibility of the DRBC serving as a repository for HAZUS technical expertise.

GIS/National Map Presentation by U.S. Geological Survey

Scott Hoffman of the USGS Pennsylvania District in New Cumberland, PA and David Terrell of the USGS National Mapping Division provided a presentation on GIS data and the development of the National Map.

Mr. Hoffman noted that there are four basic components of GIS: hardware, software, people, and data. GIS software products with the greatest market share at this time are Anagraph and products from ESRI.

Data is the critical piece to GIS, and the single most expensive task for a project. Meta-data documents who created the data set, what the data set consists of, and the limitations. As a federal agency, USGS is required to supply meta-data for all GIS data that is made available to the public.

In order to obtain legally defensible data, surveying is usually required, because the scale of most data sets is not that precise. Decisions are required to determine how much error is reasonable for a given project. GIS provides both spatial and tabular information which makes it particularly useful for analytical and decision support.

Projects conducted at different scale levels would yield different data scales. For instance, regional projects might use data scaled at 1 to 250,000. For more detailed study areas, it becomes critical that data is at a scale of at least 1 to 24,000. The error associated with 1 to 24,000 scale data is about 40 feet horizontally. In other words, lines on a map are accurate

within 40 ft to either side of the line. On a 1 to 24,000 scaled map where the contour interval is 10 feet, the vertical accuracy is 5 feet.

USGS will provide information describing their existing electronic data upon request.

The National Spatial Data Infrastructure (NSDI) was developed during the Clinton administration. Locations where GIS data is stored are often referred to as GIS clearing houses. State agencies have their own clearing houses. In Pennsylvania, the PASDA website is the main repository for all state generated data. New York does not have a particular site, but there is a site at Cornell University that is useable. New Jersey has a GIS department from which data is available, and there are links to other data sources. Delaware has the "Datamil" which was a cooperative project between USGS and the National Map. In addition to the states, other sources of data include municipalities, watershed associations, river basin commissions, colleges and universities, and private companies. There may be a charge for some data, and data is sometimes proprietary. Three questions which should be asked about data are: Will the data be accurate enough?, Will it need to be enhanced? and, Is good meta-data provided?

USGS-Pennsylvania District is using LIDAR (light detection and ranging) generated contours combined with field survey data to evaluate some FEMA flood insurance studies. LIDAR is expensive but accurate.

Enhancement of existing data is also an option. USGS is generating an elevation model for the state water plan. They are taking existing national elevation data (NED) that is downloadable for free and adding vector-digitized watersheds to it, as well as the center line flow path that has been extracted from the national hydrography data (NHD) set. For the Delaware River Basin, NHD has been completed. These data sets can be taken and processed within ARC GIS and the ARC Hydro data model.

Mr. Hoffman then turned the presentation over to Dave Terrell, of the USGS, National Mapping Division. Mr. Terrell noted that the USGS is not going to make or print the topographic quadrangle maps anymore, yet the need for the information contained in those maps is greater than ever. The mission is to promote, facilitate and build a national map.

The national map consists of at least eight layers of digital cartographic data from which someone with GIS expertise can build a map that looks like a USGS topographic quadrangle map. A mapping system based on digital layers has several advantages. First, the data can be kept more current than the printed maps which now average almost 25 years old. Second, the data layers fit into GIS applications. Finally, the layers can be distributed rapidly over the internet. There is still a need for a national consistent seamless set of cartographic data. Mr. Terrell's job is to build partnerships within the state of Pennsylvania to produce these data layers.

Mr. Terrell discussed the eight data layers which comprise the national map. First, and most important, is high resolution digital ortho rectified imagery, which is processed to establish the geometric mapping properties. The second layer is high resolution surface elevation data. Additional vector layers include hydrography, streams, lakes, transportation, structures, buildings and boundaries, and geographic names. It is important that a database of names be maintained so

that every place and every feature has only one official name. Other data layers include land use and land cover data.

The USGS already has a significant amount of data available for the Delaware River Basin area. While much of the effort involves elevation data, elevation data changes the least frequently of all the layers. It costs about $125 per square mile to collect and process the orthophoto. USGS has access to very high resolution orthos for the basin. LIDAR coverage is roughly $500 per square mile. The Delaware Basin already has good ortho coverage and it is possible through photogrametric processes to derive DEMs at multiple large scales from this data for less than $130 per square mile.

USGS will not produce new data for a particular region such as the Delaware Basin, nor will they bring major funding into partnerships designed to collect the data. The USGS devotes limited money to research projects. If there is a need for scientific research and the USGS can contribute to and cooperate in the research, there is money available. USGS can help find the data, look into all possible sources for data acquisition, and help build the partnerships required. Finally, they can find technical advisory services and route them to you.

Mariana Mossler asked what types of research projects the USGS would have money for and what the application process is. Mr. Terrell gave two e-mail addresses: his for PA, dterrell@usgs.gov and one for Roger Barlow in NJ, rbarlow@usgs.gov. Roger Barlow has devoted a lot of effort, which has resulted in a lot of success. He should be contacted in cases where there is a well-defined problem and a project in NJ.

Mr. Tamm said that they are dealing with standard 1 to 24,000 maps having a horizontal accuracy of plus 40 feet, and they are being asked by communities if their dog house is in the flood plain or if their house is in the flood plain. Mr. Hoffman said that analysis with 1 to 24,000 scale data cannot reasonably be used to delineate with this kind of precision. He said LIDAR collected data would be suitable for such delineations. Mr. Hoffman explained that the reason USGS went with the process called the New England approach for hydrologically enforcing the elevation model was that good data was available for hydro and for watershed boundaries, and the NED data was the best available. Mr. Tamm wanted to know what the practical limits are for this ortho photography for developing a DEM. Would it be possible to take an elevation every three feet? Mr. Terrell responded five feet.

DRBC Services Reduction Implementation

DRBC lost its federal share of funding, which is approximately 20% of the budget, in 1996. That deficit has built over the last eight years, and it has finally gotten to the point where it is difficult for the DRBC to continue to perform the level of services it has in the past. There has been an effort this past year not only to go to congressional representatives to try to get the federal money restored, but also to show what is going to happen if it is not restored. That information has been placed on the DRBC website as a services reduction plan, and part of what is included in that plan is the loss of DRBC's work in supporting the Flood Advisory Committee (FAC).

Mr. Fromuth noted that handout E-1 is a list of representatives and senators who are on financing committees. The House has already drafted an appropriations bill for the next fiscal year which has no funding in it for the DRBC. The Senate, through the efforts of Tom Carper, has drafted language for a Water Resources Development Act Authorities bill which includes funding for DRBC. This is the first time that has happened in the last eight years. This bill would have to go to the Appropriations Committee. There is an Appropriations sub-committee that meets on July 6, a full Committee meeting with the Senate is on July 8, and then a meeting between the House and Senate to work out the differences in their bills meets on July 23. Any inputs that could be given to these people on the finance committee by that time would be helpful. Some of the congressional representatives have already written letters supporting the DRBC. Clarke Rupert, who is the acting public information officer for the DRBC, says the best way to contact people is with a fax or e-mail. Letters of support have thus far included those from governors, congressional letters, senators' letters, and a letter from the Greater Philadelphia Chamber of Commerce.

Until March of 2004, there was a staff of five people in the Operations Branch, and traditionally it has been the Operations Branch that has been involved with flood loss reduction. In March, a technical position which had previously supported flood loss reduction was suspended. Accordingly, staff is recommending suspension of the next meeting of the Flood Advisory Committee and schedule it for January 2005, to allow time for possibly filling the Operations Branch on a temporary basis.

Bob Tudor noted that when the budget was put together in January, the Commissioners directed that a plan A and a plan B (services reduction) budget be prepared. If DRBC is not successful in getting the 20% share of federal revenues to meet the $5 million operating budget, then the services reduction plan will have to be implemented. Over the last year and a half, the organization has gone from 49 people to 41 as a function of attrition, and so it is by that attrition that DRBC is trying to keep a balanced budget. In terms of the services reduction, DRBC is at a point now where Congress is saying if you have gotten along for seven years, why do you really need the federal money.

DRBC intends to have at least enough operating money for a cash load purpose to keep it viable for six months so it can pay the checks and salaries of the staff. The money required for this is about $2 million. Right now, the balance is below the $2 million level. The cutbacks are being implemented as a function of who left the organization, and the staff resource is no longer here to support the flood function. Senator Specter, who is on the Appropriations Committee in the Senate, is supporting DRBC funding, but it has not been the case in the House.

Mr. Gabrielsen said that he is disappointed that the Commissioners made that decision and that the Weather Service is willing to continue to implement the flood warning recommendations that were made by the FAC as well as the recommendations that went into the Comprehensive Plan. He is concerned that if the suspension lasts as long as twelve or eighteen months, the FAC may be difficult to restart with any efficiency. The people who are behind the scenes should start thinking of ways to continue communication to keep this core function going. He asked if it was okay to have members of the FAC contact the Commissioners to say that they feel they did not make the best decision. Mr. Tudor responded that it is appropriate to communicate to the

Commissioners. Part of this suspension is strategic to provide visibility to the issue. There needs to be something tangible so people could say, oh, that is what the Commission does.

Dave Burd said that visibility is very important because if you can get by without money, then why do you need the money. He also supports Mr. Gabrielsen, and if there is a way that they can continue to move forward on the initiative without the DRBC being the official coordinator, he thinks that will be good for the Commission. Mr. Burd asked how DRBC is doing relative to the funding by the other parties to the Decree and is there any long-term plan to say to the feds that they have an obligation. Mr. Tudor responded that the governors' letters basically say that they have maintained their full fair share, and they have not passed that cost on, so they are trying to make that statement to the administration. Pennsylvania has provided it's full share every single year. For the last couple of years, New Jersey's share has been higher than the other states, and they came in $10,000 short this year out of $860,000. Delaware is providing full funding this year. New York has not provided it's full share for a number of years.

Mariana Mossler noted that she will be managing two grants this year for flood warning systems for New Jersey. The money is never a guarantee, but they are willing to try to fill in some of the gaps for the DRBC. If the other states would like to meet as well and their state OEMs have the EMPG funding from FEMA, maybe they can have some parallel contributions so that there is a basinwide initiative rather than just having each state doing different things. Mr. Tudor noted that for DRBC to provide the deliverable, it will be necessary to acquire the staff resources, so there has to be a sufficient amount of money. Ms. Mossler said that NJ OEM can work it out where they will determine what the needs are and then they will arrange with a third party to do the work.

Mr. Gabrielsen noted that in January, if DRBC's resources are inadequate, the FAC can find another location to hold the meeting and get together to figure out the future directions for the FAC, which is dealing both with the original flood warning recommendations, as well as flood mitigation and vulnerability analysis.

Joseph Zagone said he agrees with the strategy that the Commission has taken at this point. If the FAC does not have the next meeting, that sends a message. In the interim, the Region has some facilities to support a meeting. It should not be called a FAC DRBC meeting, but the Committee can continue without actually visibly continuing the coordination. Mr. Tamm said that he is anxious to move these coordination efforts.

Mr. Tudor said that there are other things that the DRBC is going to have to cut back as well. Mr. Gabrielsen asked if DRBC would like him to do a press release from the Weather Service. Mr. Tudor said yes, and he thinks there is a different message if it comes from a partner than if it comes from DRBC.

The motion to postpone the normal September meeting until January 2005 was approved. The meeting was scheduled for January 5th. (This meeting was subsequently rescheduled for January 26, 2005). Mr. Tamm urged everyone to sign up on the sub-committee on vulnerability analysis. If there is an accurate vulnerability analysis, people can see what is at risk.

Mr. Gabrielsen suggested, without putting a motion on the table, that they vote to have that vulnerability analysis meeting some time in the September time frame and at that meeting one of the agenda items would be an update of where things stand.

The meeting was then adjourned.

FLOOD ADVISORY COMMITTEE
ATTENDANCE

July 1, 2004

NAME	AGENCY
ANASTASIA, Robert	US Army Corps of Engineers
BURD, David K.	Merrill Creek Reservoir
CHIARAMONTE, John	National Weather Service (NWS)
FROMUTH, Rick	Delaware River Basin Commission (DRBC)
GABRIELSEN, Peter	NWS/Eastern Regional Headquarters
HAINLY, Bob	U.S. Geological Survey (USGS) – PA
HOFFMAN, Scott	USGS
KANE, John F.	NYC Department of Environmental Protection (DEP)
MOSSLER, Mariana	NJ – Office of Emergency Management (OEM)
PETREWSKI, Gary	PPL
REUBER, Michael	National Park Service (NPS) – Upper Delaware
TAMM, Alan	Pennsylvania Emergency Management Agency (PEMA)
TERRELL, David	USGS
WESTFALL, Greg	U.S. Department of Agriculture (USDA) – National Resources Conservation Service (NRCS)
ZAGONE, Joseph N.	Department of Homeland Security (DHS) – Federal Emergency Management Agency (FEMA) Reg. III