

EASTWICK LOWER DARBY CREEK AREA COMMUNITY ADVISORY GROUP

TECHNICAL WORKING GROUP MEETING MINUTES

November 17, 2015

MEETING SUMMARY

The EPA met with TWG to present and discuss the flood modeling for the Clearview Landfill:

The tidal surge has not been factored into the flood model that is being currently being prepared. Once the model is functioning EPA's subcontractor will be able to add tidal surge into the model.

It was pointed out at the meeting by M. Richard Nalbandian (an experienced hydrologist) that Technical Publication-40, which is being used for the flood modeling uses 7.2" of precipitation in 24-hrs as the basis for the 1% storm (100-YR storm) and the data used to derive the 7.2" of precipitation is based on data up to 1959 and does not include more recent substantially larger storm events.

The FEMA flood maps for the site are still using 1977 data for determining flood elevations. The NOAA Atlas 14 is based on precipitation data up to 1999 and the upper bounds of the 90% confidence for the 1% storm is 8.6". Mr. Nalbandian said that he recently completed an annual maximum event series using data up through 2013 and it predicts a 1% storm event having 9.3-9.7" of precipitation. He found during his calculations that 5 of the 10 largest precipitation events have occurred since 1999 and that the four top events were in the last 52 years. This all indicates that the older precipitation data do not reflect recent precipitation trends.

The TWG recommends that the CAG strongly request that EPA use a comprehensive body of precipitation data and not limit it to what was used for the preparation of Technical Publication 40, and that EPA not rely on the landuse data/soil data used for the 1977 flood study that FEMA prepared, we believe that there is substantially more impervious land in the watershed above the site than there was in 1977. EPA should be able to get current landuse data from the Delaware County Planning Commission's Act 167 Plan that was prepared within the past 10 years, provided that was prepared using more recent landuse information.

The TWG believes that it may be in the best interest of EPA, the Corps of Engineers and the Phila. Water Department to have more frequent meetings to discuss the progress each agency is making so that the actions of one do not thwart the actions of another agency as they all work toward remediating the Clearview Landfill and addressing the flooding in Eastwick; therefore, we recommend that the CAG request that EPA take the initiative to coordinate more frequent meeting as all three agencies proceed with their plans.

President Obama's Executive Order No. 13690 contains some language that EPA must follow regarding the resiliency of the landfill cover. Based on our read of the Order, EPA since they are using federal funds to address Clearview Landfill they must comply with the Order. From our read of the Order, the flood plain must be determined in terms of "...elevation and flood hazard area that results from using climate-informed science approach that uses the best-available"... hydraulic data for the design. This the approach preferred by FEMA and the design is supposed to have resiliency based on that floodplain. Alternatively they are permitted to use a flood elevation based on the base flood elevation (currently 10' from what we have heard) plus three feet or the elevation of the 500-year floodplain. What resiliency means is that whatever they build must be designed and constructed to withstand those high-water events not the ones currently enforced by FEMA. In essence the Order requires flood-proofing the remedy to a higher elevation. EPA communicated to the TWG that they intend to use the Order as one of the main drivers for the design.

After the meeting Mr. Nalbandian provided the following bullet list of issues that he recommends that the CAG pass on to EPA so that they are fully considered during the flood modeling work and the subsequent design:

The revised Flood Insurance Rate Maps (FIRMS) issued by the Federal Emergency Management Agency (FEMA) in 2014 for the Eastwick neighborhood of Southwest Philadelphia do not accurately reflect the flood hazards faced by that community and neighboring areas in Delaware County. To summarize:

- “Special Flood Hazard Areas Subject to Inundation by the 1% Chance Annual Flood” (the so-called 100-year flood) and Base Flood Elevations (BFEs) of that 1% flood are shown on FIRMS issued by FEMA.
- During a period of dramatic climate change, the published BFEs on the FIRMS for the lower Darby Creek have not changed appreciably between 1979 and 2015.
- A wide range of estimated 1% chance peak stream flows derived from regression analyses of stream gage data have been used to revise the FIRMS between 1979 and 2015.
- The magnitude of the 100-year/24-hour (1% chance of being equaled or exceeded in any given year) rainfall event (taken from Technical Paper (TP)-40, a 1961 U.S. Weather Bureau report) that was used in the modeling to produce the original 1979 FIRM was approximately 7.2 inches, and that estimate was based on weather data through 1959.
- The magnitude of the 1% rainfall event is now estimated to be 9.3 inches in 24 hours, an increase of 29% over that given in the 1961 report. (Furthermore, it is interesting to note that five of the ten largest (including the top four) 24-hour precipitation events in the abovementioned 52 years of record have occurred between 1999 and 2014. In other words, all measured and projected precipitation values produced for this area in the past 15 years are significantly greater than the rainfall magnitude used to make the 1979 FIRM, and yet flood elevations on the 2015 FIRMS are virtually the same as those published in 1979.)
- It is only reasonable to assume that BFEs and “Special Flood Hazard Areas” inundated by the “1% Chance Annual Flood” should have increased since 1979 as a result of the greatly increased magnitude of the 1% rainfall event.
- FEMA’s Flood Insurance Study (FIS), which provides documentation for the FIRMS, states that the storm-surge elevation for the 1% event at the confluence of Darby Creek and the Delaware River will be 9.6 feet (NGVD 1929). (However, although they can certainly interact, BFEs produced by stream flooding and storm-surges are not simply additive.)
- Thorough new modeling efforts, using the best available precipitation and land use data and modeling techniques must be undertaken to accurately revise the FIRMS for the Darby-Cobbs Creek Watershed.

The TWG incorporated his comments into our meeting summary as we believe that they are important facts that the CAG should pass on to EPA for strong consideration.

ACTION ITEMS FOR NEXT TWG MEETING: (next meeting January 20, 2016 @ Location to be determined)

1. EPA response to comments received on 30% Design submittal.
2. Updates on progress of 30% Design (Conceptual Design).

3. Updates on progress of PDI work.

The TWG will develop a List of Up Coming TWG Meeting Dates for the next TWG meeting.