

Department of Civil, Architectural, & Environmental Engineering

Drexel University College of Engineering

The following item is made available as a courtesy to scholars by the author(s) and Drexel University Library and may contain materials and content, including computer code and tags, artwork, text, graphics, images, and illustrations (Material) which may be protected by copyright law. Unless otherwise noted, the Material is made available for non profit and educational purposes, such as research, teaching and private study. For these limited purposes, you may reproduce (print, download or make copies) the Material without prior permission. All copies must include any copyright notice originally included with the Material. **You must seek permission from the authors or copyright owners for all uses that are not allowed by fair use and other provisions of the U.S. Copyright Law.** The responsibility for making an independent legal assessment and securing any necessary permission rests with persons desiring to reproduce or use the Material.

Please direct questions to archives@drexel.edu

Drexel University Libraries
www.library.drexel.edu

University Archives and Special Collections:
<http://www.library.drexel.edu/archives/>



<http://www.drexel.edu/>

Rainfalls of 12 July 2004 in New Jersey

J. Richard Weggel, Ph.D., P.E.
Samuel S. Baxter Professor
Civil, Architectural & Environmental Engineering
Drexel University
Philadelphia, PA 19104

The recent rainfalls in southern New Jersey appear to have broken all records. Rainfall at Tabernacle, NJ was reported at 11 inches. If this much rainfall fell during a 24-hour period, it would be the 5,000-year event for the southern New Jersey - Philadelphia area. That is, on average – over many millennia – this much rainfall could be expected to occur once in 5,000 years. A better way to express it is that it would have a probability of $1/5000 = .0002$ or a 0.00002% chance of occurring in any one year. The graph below shows the return period of rainfalls for various durations ranging from ½ hour to 24 hours. For example, the 100-year, 24-hour rainfall for the Philadelphia area is about 7 inches. If those 7 inches fell in only 12 hours, it would be a 250-year rainfall; if it fell in 3 hours, it would exceed the 1,000-year rainfall. Thus, if the 11 inches at Tabernacle fell in less than 24 hours, say 12 hours, its return period would exceed the 10,000-year point rainfall. The data used to create the graph is from the Weather Bureau's (now the National Weather Service) Technical Paper # 40, "Rainfall Frequency Atlas of the United States," by David Hershfield, May 1961. Note that the lines have been extrapolated out quite far from the original data used to create the graph; hence, these return periods are very approximate!!

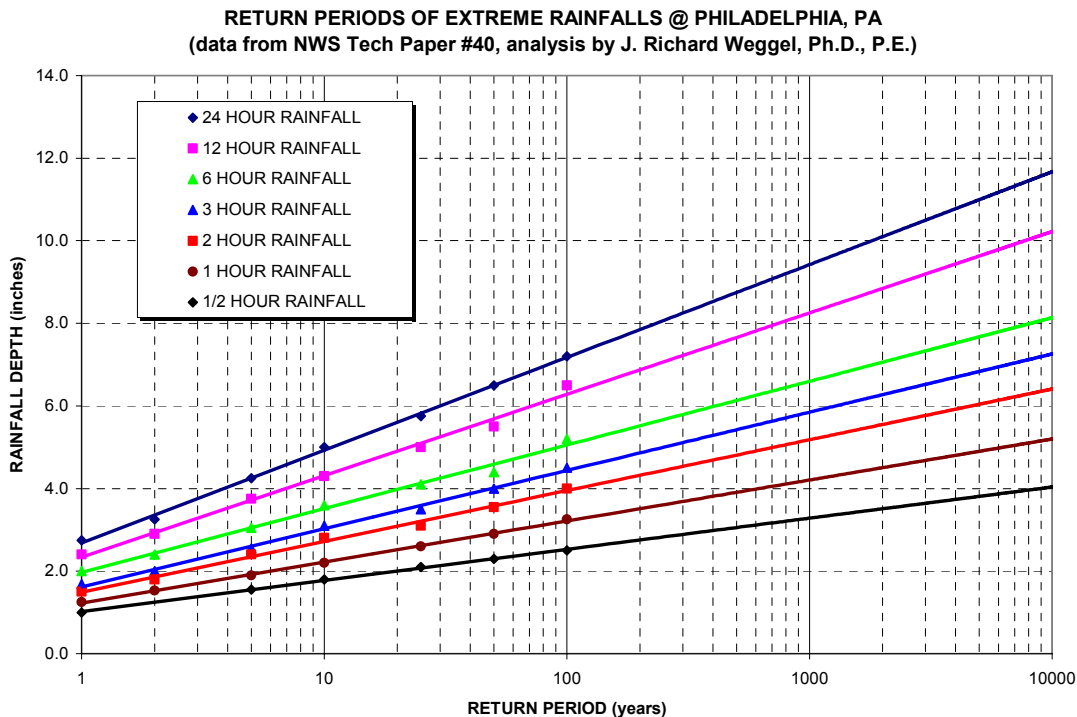
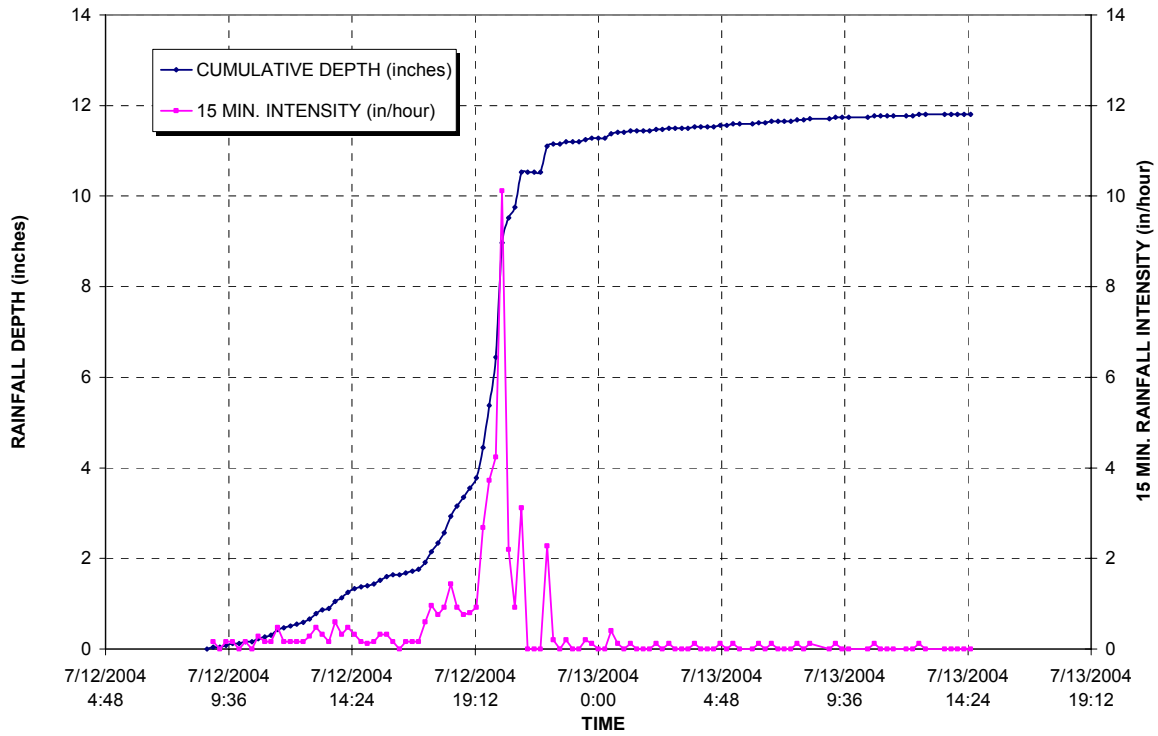


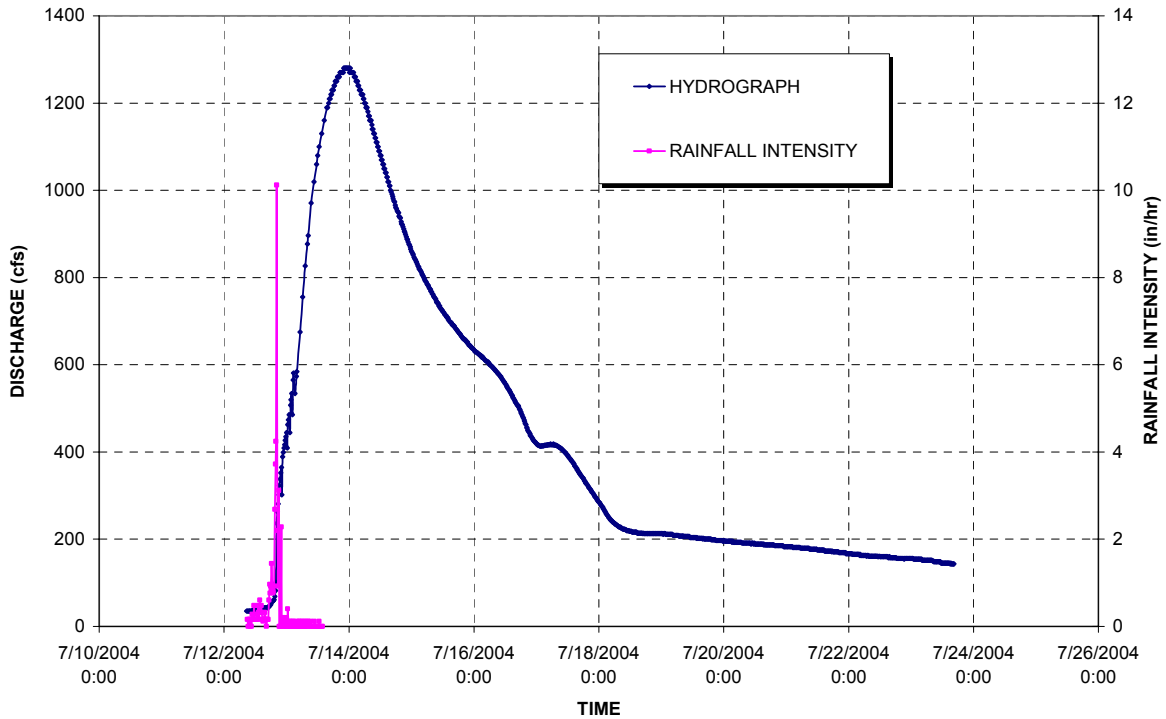
Figure 1 Return Periods for Extreme Rainfalls in the Philadelphia, PA Area

RAINFALL @ NEW LISBON, NJ - 12 JULY 2004



Rainfall at New Lisbon, NJ, 12 July 2004

HYDROGRAPH - STORM OF 12 JULY 2004 - NEW LISBON, NJ



Hydrograph and Hyetograph, New Lisbon, NJ, 12 July 2004