Delaware County Regional Water Quality Control Authority
CSO Long Term Control Plan Update

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Section 3 Flow Meter Monitoring

3.1 Flow Monitoring Program

The site locations of the existing and newly installed flow meters are shown in **Figure 7**. **Figure 8** shows the newly installed flow meters on a larger scale, mostly in the combined area. These new meters were installed to investigate surface runoff from the combined area and CSO discharges, rainfall-derived inflow and infiltration (RDII) from the separated area, and system response to the wet weather conditions. The schematic of the newly installed flow meters is included in **Figure 9**.

The newly installed flow meter locations are categorized into the following four types:

- Category 1: Located on the influent pipe to CSO regulators, this is to measure the influent flow to CSO regulators and for combined area runoff calibration. Sixteen (16) meters were installed for this category.
- Category 2: Located on the effluent pipe and overflow pipe of CSO regulators, this is to measure the CSO overflows and calibrate CSO regulator parameters. Twelve (12) meters were installed for this category. They are on the effluent and overflow pipe of CSOs 02, 03, 05, 08, 14, & 19.
- Category 3: Located on the side-line from the combined areas (flows from the combined area tie into interceptor instead of CSO regulator). This is to measure flows from the combined area and to calibrate combined area runoff parameters. Two (2) meters were installed for this category.
- Category 4: Located upstream of the combined area, this is to measure flows from the upstream separated area for RDII characterization. Three (3) meters were installed for this category.
- Category 5: Located in the main interceptors to measure level and flows in the major interceptors. Five (5) meters were installed for this category.

One meter was proposed at manhole MH3029 to measure flow from the separated area upstream of the combined area (CSO#018). The site was severely surcharged during field investigation. Meanwhile it was found that at manhole MH3002 (four manholes upstream of MH3029, approximately 800 feet upstream) another CSL flow meter (Ridley Creek MH-28) was already installed for DELCORA. It was determined that instead of installing a new flow meter around the site, the team will use the existing meter Ridley Creek MH-28 for this flow monitoring program.

In total, 39 flow meters are included in this monitoring program. Details of the installed flow meters are included in **Table 3**.

3.2 Flow Meters Field Calibration/Verification Procedures

As part of the operation of flow meters, verifications of meter accuracy are performed on a regular basis. Calibrations are performed at a minimum every eight weeks, or more as needed.

The procedure used for performing meter calibrations is outlined below. This procedure only defines the required result. Any specific equipment function issues should be referred to the equipment manual or the manufacturer's technical support department.

Figure 7: Existing and Newly Installed Flow Meter Locations

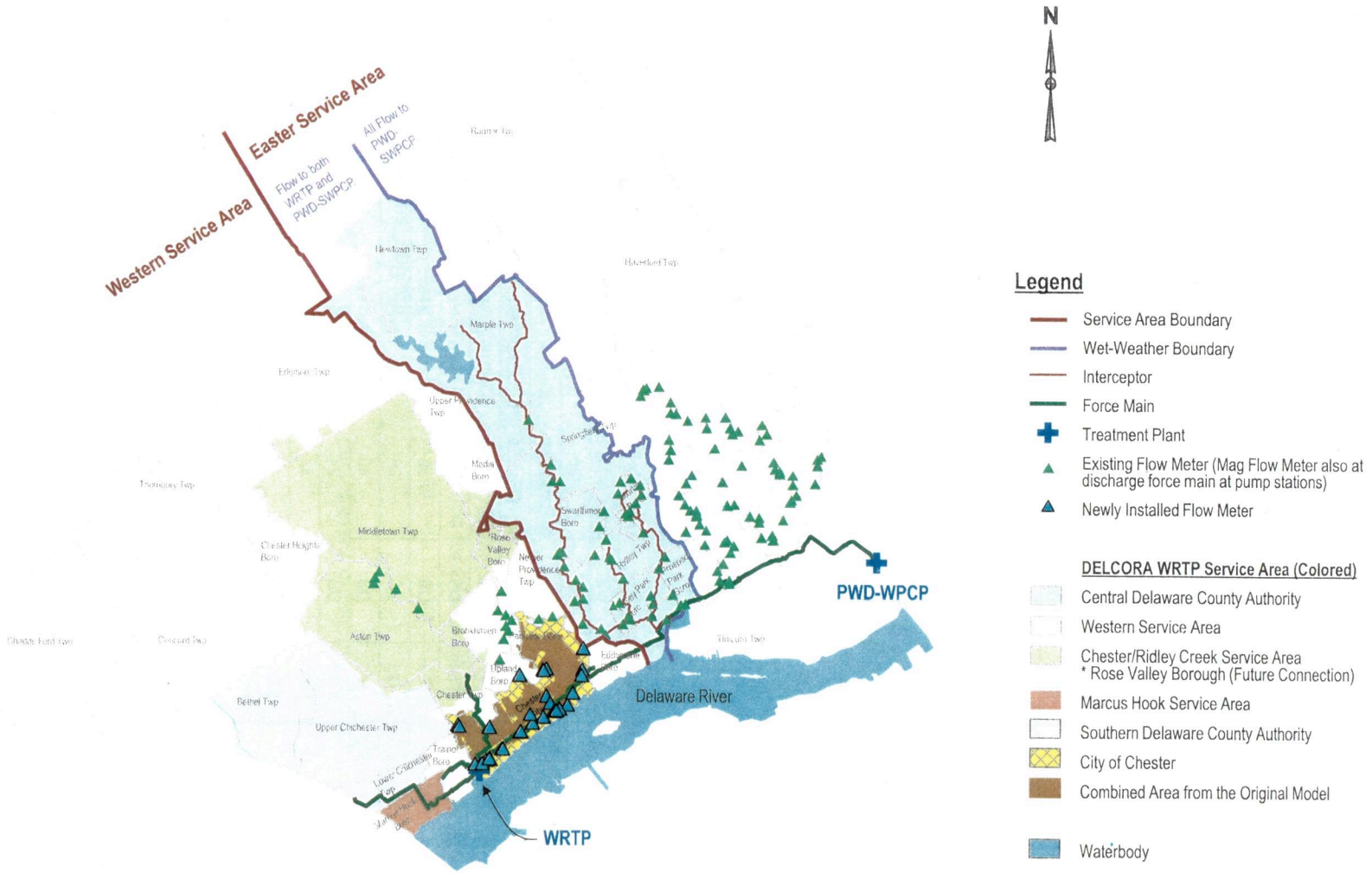
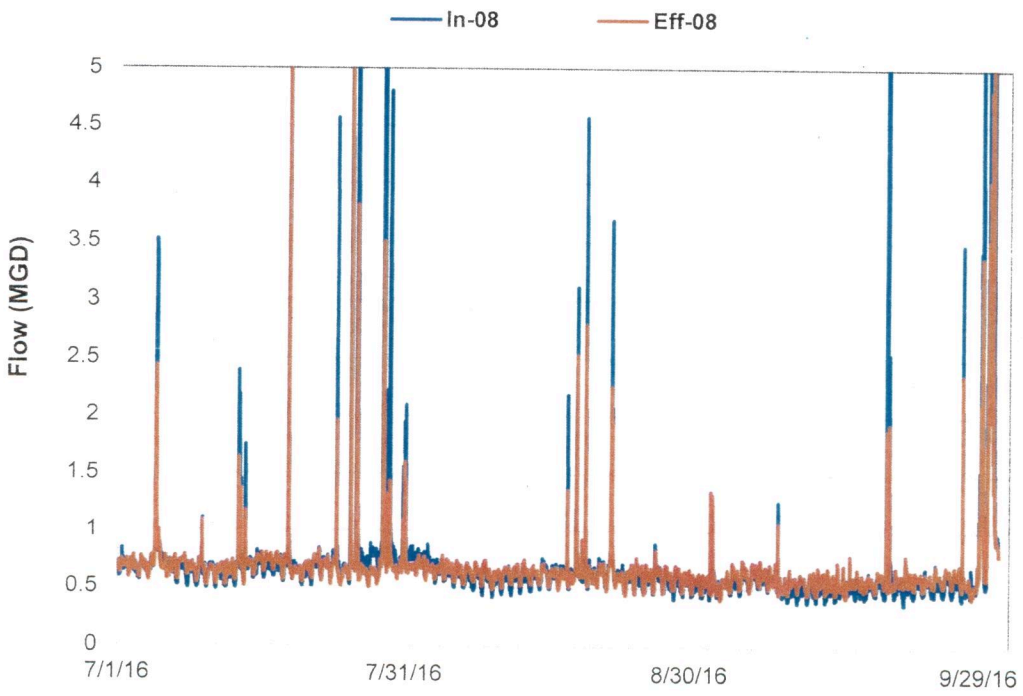
Figure 11: Flow Hydrograph In-08 and Eff-08