CDM Smith

Memorandum

To: *Claire Maulhardt*

From: *Terry Meeneghan, Jeff Eveland*

Date: *September 21, 2021*

Subject: *Selected Sites for CSO Activity Monitoring*

As part of the Partial Consent Decree negotiations, EPA has encouraged CRW to implement CSO monitoring as part of a system to notify the public when overflows are actively occurring. As a result, CRW is committing to installing monitors to measure CSO activity at 10 CSO regulators.

CSO Activation Monitoring Technology

CRW has decided to install ADS ECHO monitors at the selected sites. This is an ultrasonic-based monitor, which includes a real-time alert/notification system. A similar ADS monitor was installed and tested as part of the 2016 CAMP Study (see **Figure 1**), which was found to perform well for monitoring CSO activity.

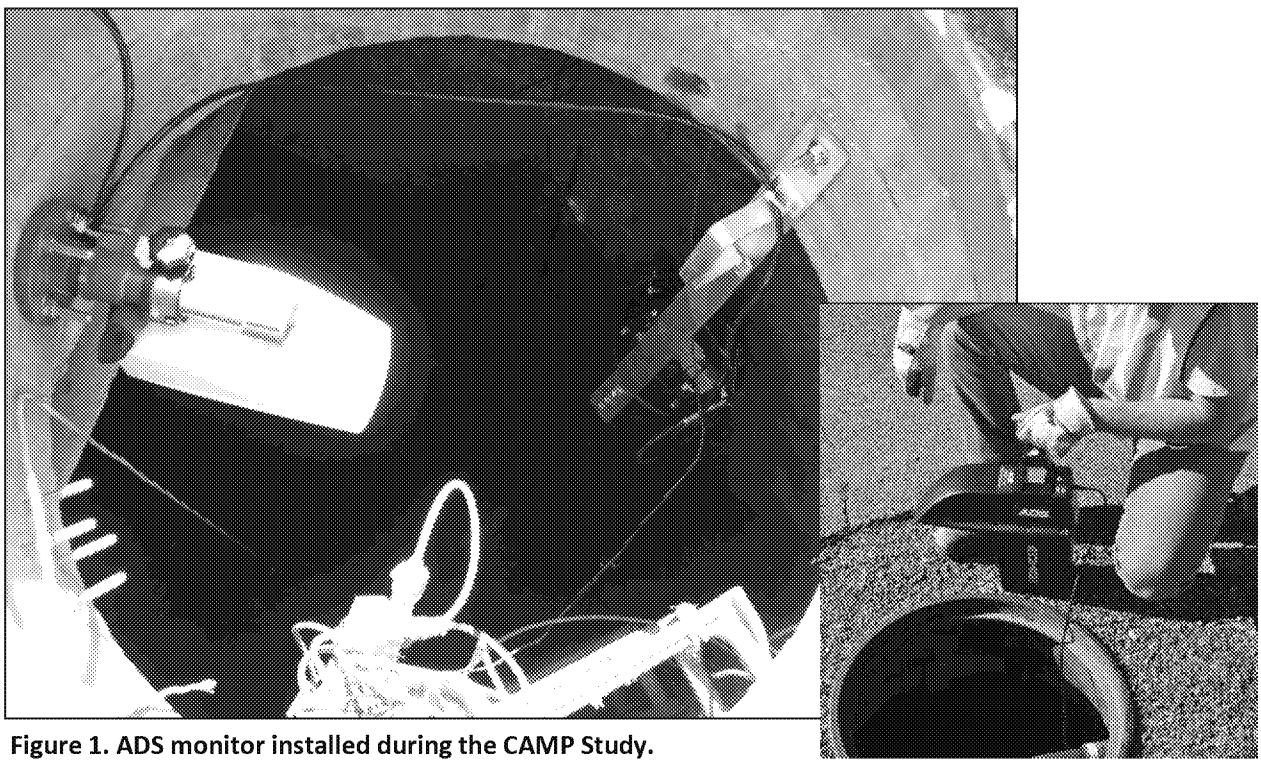

Figure 1. ADS monitor installed during the CAMP Study.

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For the purposes of public notification, only CSO activation needs to be monitored, rather than flow and velocity measurements. To measure CSO activity, the ultrasonic monitors will be installed near the diversion chamber rim of each selected CSO regulator (i.e., the chamber where the diversion weir is located). The elevation of the water surfaces in the diversion chambers will be measured by the meter, and given the known diversion weir elevations, overflows will be determined to occur whenever the elevations of the water surfaces exceed the diversion weir elevations.

Selected CSO Monitoring Sites

The following criteria were considered for selecting the CSO activity monitoring sites.

- **Geographic distribution** – To create a network for public notification, the sites should cover both the Susquehanna River and Paxton Creek, and be roughly evenly spaced apart (i.e., avoid selecting CSO regulators with outfalls adjacent to each other).
- **Overflow frequency** – To be able to reliably notify the public when a CSO is occurring within the CRW system, those CSO regulators with the highest annual overflow frequencies are included; additionally, to achieve an accurate representation of the entire system, CSO regulators with moderate overflow frequencies are also included.
- **Overflow volume** – Given that large volume overflows can have a greater impact on water quality, CSO regulators with particularly large annual overflow volumes are included.

Taken together, the above criteria were applied to determine an accurate representation of CRW's combined sewer system. **Table 1** lists the CSO regulators selected for CSO activity monitoring.

Table 1. CSO Regulators Selected for CSO Activity Monitoring for Public Notification

CSO Regulator	Water Body	CSO Regulator	Water Body
CSO-004	Susquehanna	CSO-024	Paxton Creek
CSO-051	Susquehanna	CSO-031	Paxton Creek
CSO-010	Susquehanna	CSO-042	Paxton Creek
CSO-054	Susquehanna	CSO-048	Paxton Creek
CSO-020	Susquehanna	CSO-061	Paxton Creek

Note that the list of selected CSO regulators may need to be modified if it is determined during field installations that a particular site is not suitable for the monitoring technology. If this occurs, CRW will select a replacement site using the same criteria previously defined.