EXHIBIT DD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

Drafted Date: November 3, 2017
Finalized Date: December 1, 2017

Subj: Inspection Report
Springfield Regional Wastewater Treatment Facility

From: Jack Melcher

Thru: Douglas Koopman

To: File

I. Facility Information

A. *Facility Name:* Springfield Regional Wastewater Treatment Facility

B. *Facility Location*: 190 M St Extension
Agawam, MA 01001

C. *Facility Contacts:* Josh, Schimmel, Executive Director, Springfield Water and Sewer Commission
(413) 452-1333, josh.schimmel@waterandsewer.org

Mickey Nowak, Operator, Suez North America
(413) 246-3915, Mickey.Nowak@suez-na.com

D. *NPDES ID Number:* MA0101613

II. Background Information

A. *Date and time of inspection:*
Facility entrance: October 27, 2017, 10:00
Facility exit: October 27, 2017, 14:45

B. *Weather Conditions:*
Clear

C. *US EPA Representative(s):*
Jack Melcher

D. *State/Local Representative(s):*
Brian Harrington, Deputy Regional Director, Massachusetts Department of Environmental Protection ("MassDEP") Western Region Office ("WERO")

Dan Kurpaska, Inspector and Combined Sewer Overflows Coordinator, MassDEP WERO

E. Federally Enforceable Requirements Covered During the Inspection:
National Pollutant Discharge Elimination System ("NPDES") Permit No. MA0101613, re-issued on December 8, 2000.

F. Previous Enforcement Actions:
Last CSO enforcement action: Administrative Order Docket No. 14-007, dated September 15, 2014.

III. Type and Purpose of Inspection

EPA conducted a Focused Compliance Inspection of Springfield Regional Wastewater Treatment Facility's (the "facility's") treatment processes and operations to evaluate the facility's compliance with its NPDES permit.

IV. Facility Description

The facility provides wastewater treatment as part of Springfield Water and Sewer Commission's ("SWSC's") Publically-Owned Treatment Works. The facility has a design flow of 67 million gallons per day ("MGD"). The facility receives flow from SWSC's Collection System in Springfield, plus from Collections Systems in the following seven satellite communities:

- Agawam,
- Chicopee,
- East Longmeadow,
- Ludlow,
- Wilbraham,
- Longmeadow, and
- West Springfield.

The Springfield Collection System is, in part, combined sewers that were designed to convey both wastewater and stormwater.

The facility is operated by Suez North America.

V. Inspection

V.A. Inspection Planning

The inspection was announced to the facility on approximately September 22, 2017.

Prior to the inspection, the facility provided EPA with the following documents summarizing facility history, equipment, and operations:

- 1977 Functional Design Features report,
- Circa 2000 Operation and Maintenance Manual excerpts,

- Facility schematic diagram,
- 2016 High Flow Management Plan,
- Changes to The Process Control Strategy In 2015 To Present presentation, and
- Process Control Strategy Optimization for Low Nitrogen presentation.

The facility schematic diagram is provided as Attachment A of this report.

V.B. Opening Conference

Mr. Melcher, Mr. Harrington, and Mr. Kurpaska arrived at the facility at approximately 10:00.

An opening conference was held in the Springfield Water and Sewer Commission ("SWSC") building conference room. The following facility representatives were present:

- Josh Schimmel, Executive Director, SWSC;
- Mickey Nowak, Operator, Suez North America;
- Bill Fuqua, Director of Operations, SWSC; and
- Ryan Wingerter, Deputy Director of Wastewater Operations, SWSC.

Mr. Melcher explained the purpose of the inspection and presented his credentials.

Facility representatives summarized recent and anticipated changes at the facility.

In 2009, the facility's solids handling system was changed. The belt filter presses were replaced with centrifuges.

Since 2015, the facility has changed its secondary treatment process to increase flow through secondary treatment and to maximize nitrogen removal. The facility's 2016 High Flow Management Plan states that the facility now plans to direct up to 180 MGD through both primary and secondary treatment. The 2000 Operation and Maintenance ("O&M") Manual stated that the primary treatment capacity was 180 MGD and the secondary treatment capacity was 135 MGD.

Increasing flow through secondary treatment has resulted in increased energy costs of approximately $500,000 annually, plus additional solids management costs.

Facility representatives stated that Suez's contract expires on October 1, 2020.

In approximately 2021, SWSC will finish improvements to the York Street Pump Station. As a result of these improvements, SWSC will be able to convey additional flow to the facility. The facility is currently modeling various scenarios for utilizing this additional capacity.

Facility representatives stated that they are evaluating a number of alternatives to improve service and maintain affordable rates. One alternative being considered is to offer wastewater treatment services to the City of Chicopee. Currently, SWSC provides wastewater treatment for only a small proportion of Chicopee customers.

Facility representatives stated that in approximately 2015, they updated contracts with satellite communities. One issue addressed in the updated contracts was to improve the accounting of wastewater flows from the satellite communities to the facility.

V.C. Facility Tour

Inspection photos are provided as Attachment B of this report.

V.C.1. Control Room

The EPA representative, the MassDEP representatives, and the facility representatives (the "inspection team") visited the Control Room.

The inspection team viewed display screens from the facility's Supervisory Control and Data Acquisition ("SCADA") system (Photos 1 and 2).

Facility representatives explained that the SCADA system integrates the major pump stations in SWSC's Collection System. Pump station conditions can be viewed and pumps can be controlled from the Control Room. The operator on duty was performing a remote inspection of a pump station. SWSC also performs weekly on-site inspections of pump stations.

The Influent Structure includes influent metering for flows from West Springfield and Agawam. Longmeadow wastewater flows through Agawam's Collection System to the facility. The other satellite communities' flow is conveyed by SWSC interceptors: the Connecticut River Interceptor and the Main Interceptor.

Three of the four influent channels were operating at 10:37. The total influent flow was 36.52 MGD at 10:37.

The SCADA system displayed seven inches of freeboard in the secondary aeration basin. Facilities representatives stated that seven inches was the target.

Facility representatives stated that the water height differential between the influent and effluent sides of the bar screens was monitored to operate the screens. When the differential rises, flow is diverted to a different screen.

Facility representatives stated that since 2000, the facility has added additional rakes to the bar screens and changed the screen spacing from 1-inch to ½-inch.

Facility representatives stated that in February 2017, the bar screens were clogged with excessive rags and leaves and the influent bypass was activated with a flow of less than 180 MGD.

Facility representatives stated that the York Street Pump Station and the Indian Orchard Pump Station also have bar racks; the bar rack spacing at the pump stations is more course than at the facility.

Facility representatives described their provisions for alternative power supplies. The facility has three generators. One generator powers the influent gates; the effluent gates; lighting; and heat, ventilation, and air conditioning. A second generator, added more recently, powers the bar screens and the SCADA system. A third generator, added most recently, powers the administration building. The facility has two lines from its electric utility, Eversource. The two lines come from the same substation and travel to facility on some of the same utility poles.

V.C.2. Influent Structure

The inspection team visited the Influent Structure (Photos 3 - 6). The Influent Structure is located on the facility side of a berm along the Connecticut River.

A sign was observed showing the location of the influent bypass outfall (Photo 4). Facility representatives stated that no sign was posted for boaters along the river near the outfall. Facility representatives stated that it would be challenging to install a sign above high flow elevations. Facility representatives stated that they have experienced theft and vandalism of signs on the Springfield side of the river.

An influent bypass flow meter control panel and alarm were observed on the river side of the Influent Structure (with a red light on top; Photo 5). The chamber conveying flow to the influent bypass overflow was observed (Photo 6). Facility representatives stated that flows are measured using an ultrasonic measurement of bypass flow over a weir. The ultrasonic device is calibrated regularly, but the facility has not attempted to verify flow measurements using depth and velocity meters installed on the discharge pipe. Facility representatives stated that the measurement of height over a weir is more accurate than depth and velocity meters on the discharge pipe would be and that installation of such meters would be impractical.

Facility representatives stated that the influent gates were located in the Influent Structure, but they would not be visible due to their depth. Flows from the influents structure travel beneath a parking lot in four 66-inch diameter pipes that act a siphon conveying flows into the Screening Building.

Automatic sampling units were observed on top of the Influent Structure. Influent samples are taken for Agawam (and Longmeadow) flow, West Springfield flows, and in two locations in a channel into which both the York Street Pump Station river crossing and the Main Interceptor river crossing discharge flows from Springfield (and the other satellite communities).

V.C.3. Screening Building

The inspection team visited the Screening Building (Photos 7 - 10). The Screening Building includes a grit cyclone separator, bar screens, influent metering, and a skimmings rotary screen.

The grit cyclone separator was observed (Photo 7). The grit cyclone separator receives grit and sludge from the primary clarifiers.

The influent flow meters were observed (Photo 8). Facility representatives stated that these are regularly calibrated by a third-party.

Facility representatives stated that the elevation of the Screening Building was such that high flows would go out the influent bypass before flooding the building.

A rotary screen receives skimmings from the primary clarifiers.

Screenings, skimmings, and grit are hauled away.

V.C.4. Primary Treatment

The inspection team visited the Primary Treatment area (Photos 11 - 16).

Channels convey flows from the Screening Building to the primary clarifiers (Photo 11).

Facility representatives stated that it had rained approximately four inches on the night of October 24, 2017. Flows to the facility had exceeded 180 MGD and the influent bypass had been activated. Large amounts of solids had flowed into primary clarifiers and the facility was still in the process of removing solids and restoring normal operations.

Sludge and grit are removed from the bottom of the clarifiers and scum is skimmed from the top of the clarifiers by traveling bridges. The traveling bridges traveled on cog tracks (Photo 12).

During high flows, the traveling bridges are not able to keep up with solids removal. During the storm, shorter passes are made with the traveling bridges to keep the influent end clear of solids. Following a storm, the height of the traveling bridge blade is raised to allow for gradual removal of accumulated solids from the entire clarifier.

Facility representatives stated that the traveling bridges require frequent maintenance. Only three of the four primary clarifiers are in service at any one time to allow for maintenance. Traveling bridges must be rebuilt using custom-fabricated parts approximately every six months.

Solids and grits are collected in eight sumps at one end of the clarifiers. Air lifts are used to pump materials to a trough (Photo 13). Only two of the eight sumps have drains to facilitate maintenance of the air lifts. Following a storm, air lifts are operated at high pressure to remove accumulated solids.

Facility staff were in the process of removing excess grit from the sludge and grit trough (Photo 14). Facility representatives stated that the trough is subject to clogging following high flows.

Thick scum was observed on the top of one clarifier (Photo 15). Facility representatives stated that this amount of scum was due to limited motion of the traveling bridge during and following high flows.

The facility adds potassium permanganate to the primary clarifiers for odor control.

The sludge and grit pumps were observed (Photo 16). There are six sludge and grit pumps to service the four primary clarifiers – three pumps are dedicated to two primary clarifiers and three pumps are dedicated to the other two primary clarifiers.

V.C.5. Secondary Treatment

The inspection team visited the secondary treatment area (Photos 17 - 24).

Facility representatives explained the operation of the secondary treatment system. The facility employs a Ludzack-Ettinger Process: primary effluent and Return Activated Sludge ("RAS") from the secondary clarifier are combined in an anoxic zone at the influent end of the secondary aeration basin (Photo 17). Nitrification occurs in the aerated majority of the aeration basin (Photo 19). During normal flows (dry weather), 100% of RAS is recirculated to the anoxic zone for denitrification. The facility's maximum recycle rate is 60 MGD. During high flows (wet weather), the facility performs a modified step feed of the aeration basin, adding some of the primary effluent to the middle of the aeration basin (in the aerated zone).

A mechanical aeration mixer is present near the influent end of the aeration basin, but is not turned on (Photo 18). The mechanical aeration mixer is seldom used. The facility replaced its mechanical aeration system with air diffusers in the 1990's; only the influent-end mechanical aeration mixer remains in each aeration basin.

All four aeration basins are operated in the same manner.

The facility does not add chlorine for control of filamentous bacteria.

The facility does not add carbon for denitrification.

The secondary clarifiers provide physical treatment, settling out solids in two chambers. The first chamber has a traveling bridge (Photo 20), the second chamber has chain and flights (Photos 21 and 22).

A channel conveys secondary effluent to the disinfection system (Photo 23). Effluent samples for all parameters except fecal coliform bacteria and total residual chlorine are taken in this channel.

V.C.6. Disinfection

The inspection team visited the chlorine contact chambers (Photo 24). The facility uses a gaseous chlorination system.

The facility has a target dosing level of chlorine of 0.7 milligrams per liter.

According to the 2000 O&M Manual, the chlorine contact chamber detention time is 13 minutes at flows of 180 MGD.

The facility uses a Hach CL-17 to monitor free chlorine at the influent end of the contact chamber. The Hach CL-17 is tied to the facility's SCADA system. Chlorine dosing is performed automatically based on the observed free chlorine, the flow observed in the influent channels following the bar screens, and an assumption of the chlorine demand in the chlorine contact chamber.

The facility has a chlorine dosing capacity of 3,000 pounds per day (lb/d). The facility has one unit with a 1,000 lb/d capacity and another unit with a 2,000 lb/d capacity. Capacity could be increased by replacing the 1,000 lb/d unit with a 2,000 lb/d unit, but this would result in some loss of precision in dosing.

Sodium bisulfite is added to the discharge of the chlorine contact chamber as it flows into the discharge channel (Photo 25). Sodium bisulfite is not dosed according to the total residual chlorine observed. According to facility representatives, when the facility attempted to meter the sodium bisulfate dose according to the total residual chlorine, the lag between the two led to unacceptable chlorine destruction when sodium bisulfate was under-applied. Now, a constant dose of sodium bisulfate sufficient to destroy the maximum anticipated residual chlorine is added.

Facility representatives stated that the water level in the discharge channel was approximately equivalent to the river water level. When river was levels increase, the facility activates its discharge pumps.

Compliance samples for fecal coliform bacteria and total residual chlorine are taken from the discharge channel. Facility representatives stated that it would be difficult to perform all compliance monitoring in the discharge channel because when the river is high, river water can enter the discharge channel.

V.D. Records Review

Due to time limitations, only a brief records review was performed.

The *Changes To The Process Control Strategy In 2015 To Present* presentation provided prior to the inspection was reviewed by Mr. Melcher. The presentation shows the location of the secondary bypass line. An excerpt of the presentation is provided in Attachment C.

The Flood Insurance Rate Map ("FIRM") prepared by the Federal Emergency Management Agency ("FEMA") for the area of the facility was reviewed by Mr. Melcher (an excerpt of which is provided in Attachment D). The FIRM shows a Special Flood Hazard Area in the area of the facility at an elevation of approximately 60 feet above sea level.

Mr. Nowak stated that a flood control dike was present providing flood protection for the facility. The dike provides protection to an elevation of 26 feet above the Springfield datum, which is 36.5 feet above sea level. The dike is maintained by the facility, not the Army Corps of Engineers.

Mr. Melcher reviewed bypass reports submitted by the facility to-date for calendar year 2017. One bypass of secondary treatment (on July 24, 2017) was reported by the facility. Mr. Nowak stated that the secondary bypass was performed because one of the secondary clarifiers was off-line for maintenance.

Mr. Nowak stated that the one secondary bypass performed in 2016 was not necessary and the operator who initiated the bypass had done so prematurely.

V.E. Closing Conference

A closing conference was held at approximately 14:00.

Mr. Melcher stated that his primary compliance concern was the provision of an alternative power source via a second connection to the same utility substation. Mr. Melcher suggested that the facility re-evaluate its alternative power as it updates its Integrated Wastewater Plan.

Facility representatives stated that the provision of on-site generators for the facility would cost at least $10 million. The facility did not lose power during the 2011 tornado.

Mr. Kurpaska asked several questions pertaining to satellite community's operations.

Facility representatives stated that the new contracts signed with Longmeadow, East Longmeadow, and Wilbraham (communities who own the flow meters from which SWSC bills the communities), will allow for SWSC to supervise third-party calibration of the meters. In addition to this effort, SWSC is attempting to better account for customers whose flow is not metered prior to leaving the satellite community. In some member communities, the meter is at a pump station which flows to a gravity main before crossing the municipal border. Connections to this gravity main near the border are not included in the metered flow.

Mr. Kurpaska stated that extensions of the requirements of 314 CMR 12.04(2) have been received from Wilbraham and East Longmeadow.

Facility representatives stated that the Main Interceptor project was not included in the Integrated Wastewater Plan. Although this asset is located in Springfield, satellite communities whose flow goes through the Main Interceptor contributed to the cost of its refurbishment.

Satellite communities are not contributing to the upgrade of the York Street Pump Station and river crossing.

Mr. Melcher stated that he would provide his inspection report to the facility.

The inspection was concluded at approximately 14:45.

Attachment A - Facility Schematic

SPRINGFIELD REGIONAL WASTEWATER TREATMENT FACILITY
PROCESS SCHEMATIC

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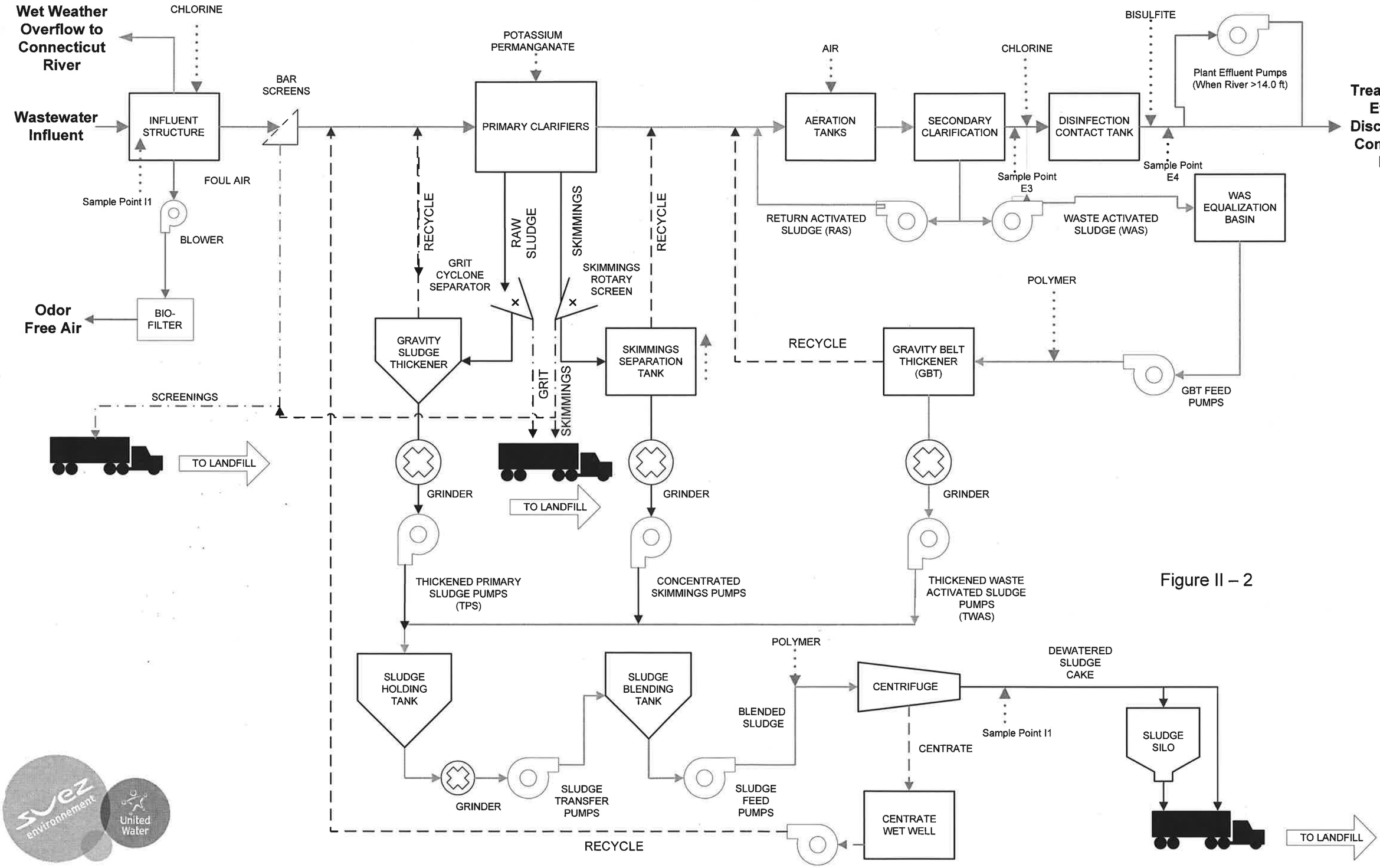

Figure II – 2

Attachment B - Photos

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Photo Log
Springfield Regional Wastewater Treatment Facility
September 27, 2017
All photos taken by Jack Melcher, EPA

Number	Area	Subject
1	Control Room	York Street Pump Station SCADA view
2	Control Room	Headworks SCADA view
3	Influent Structure	Influent Structure exterior - plant side
4	Influent Structure	Influent bypass discharge location
5	Influent Structure	Influent Structure exterior - river side
6	Influent Structure	Influent bypass pipe in Influent Structure
7	Screening Building	Archimedes screw to grit cyclone separator
8	Screening Building	Influent flow metering
9	Screening Building	Bar rack
10	Screening Building	Bar rack screen
11	Primary Treatment	Channels to primary
12	Primary Treatment	Primary basin (out of service)
13	Primary Treatment	Air lift
14	Primary Treatment	Sludge and grit trough
15	Primary Treatment	Primary basin (in service)
16	Primary Treatment	Sludge and grit pump
17	Secondary Treatment	Influent end of secondary aeration basin

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Number	Area	Subject
18	Secondary Treatment	Mechanical aerator platform
19	Secondary Treatment	Secondary aeration basin
20	Secondary Treatment	Secondary clarifier influent side
21	Secondary Treatment	Secondary clarifier effluent side 1
22	Secondary Treatment	Secondary clarifier effluent side 2
23	Secondary Treatment	Channel at the end of secondary clarifier
24	Disinfection and Discharge	Chlorine contact chamber
25	Disinfection and Discharge	Discharge channel and outfall pumps

EXHIBIT DD

Number	Area	Subject
1	Control Room	York Street Pump Station SCADA view

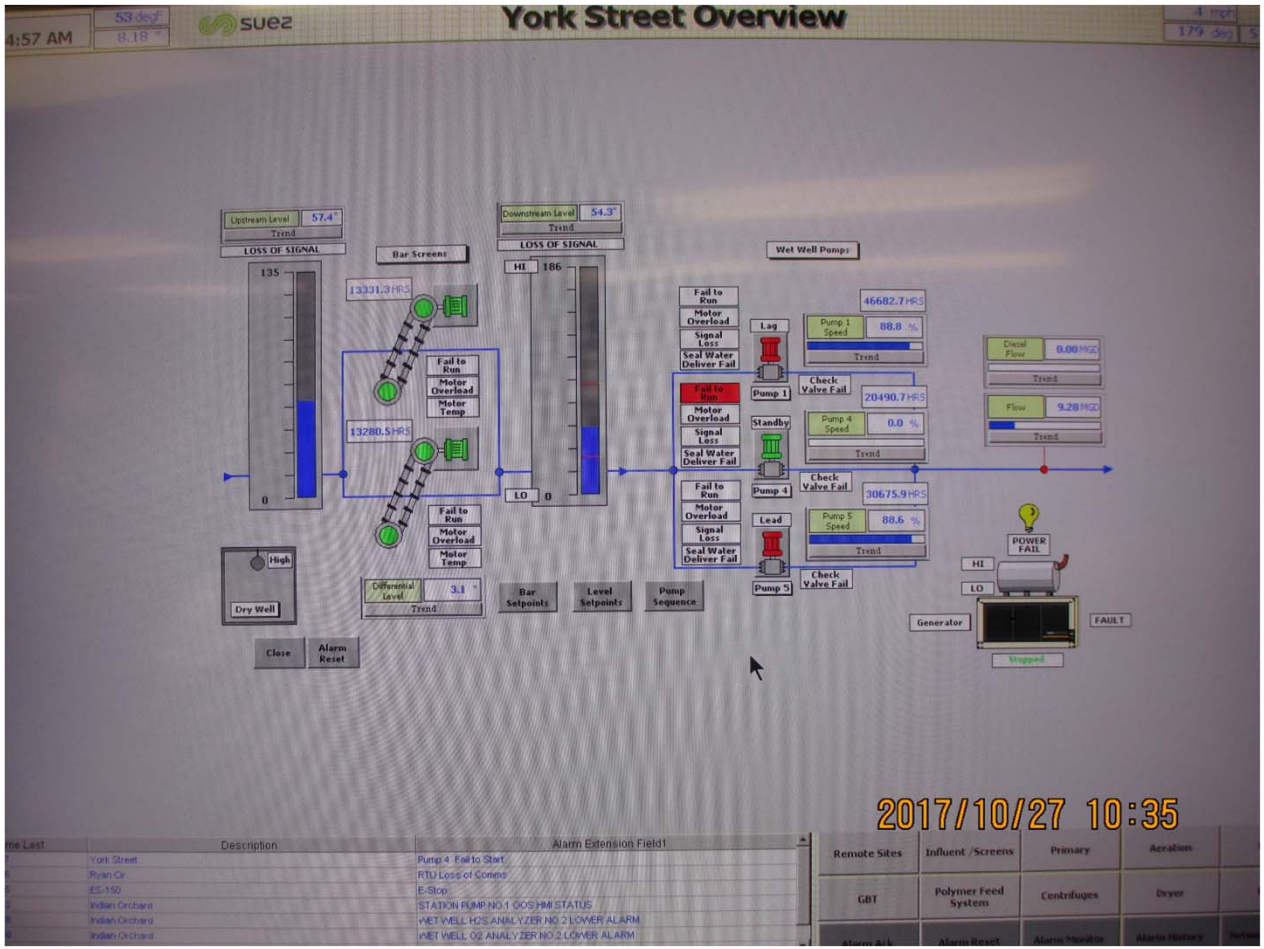


EXHIBIT DD

Number	Area	Subject
2	Control Room	Headworks SCADA view

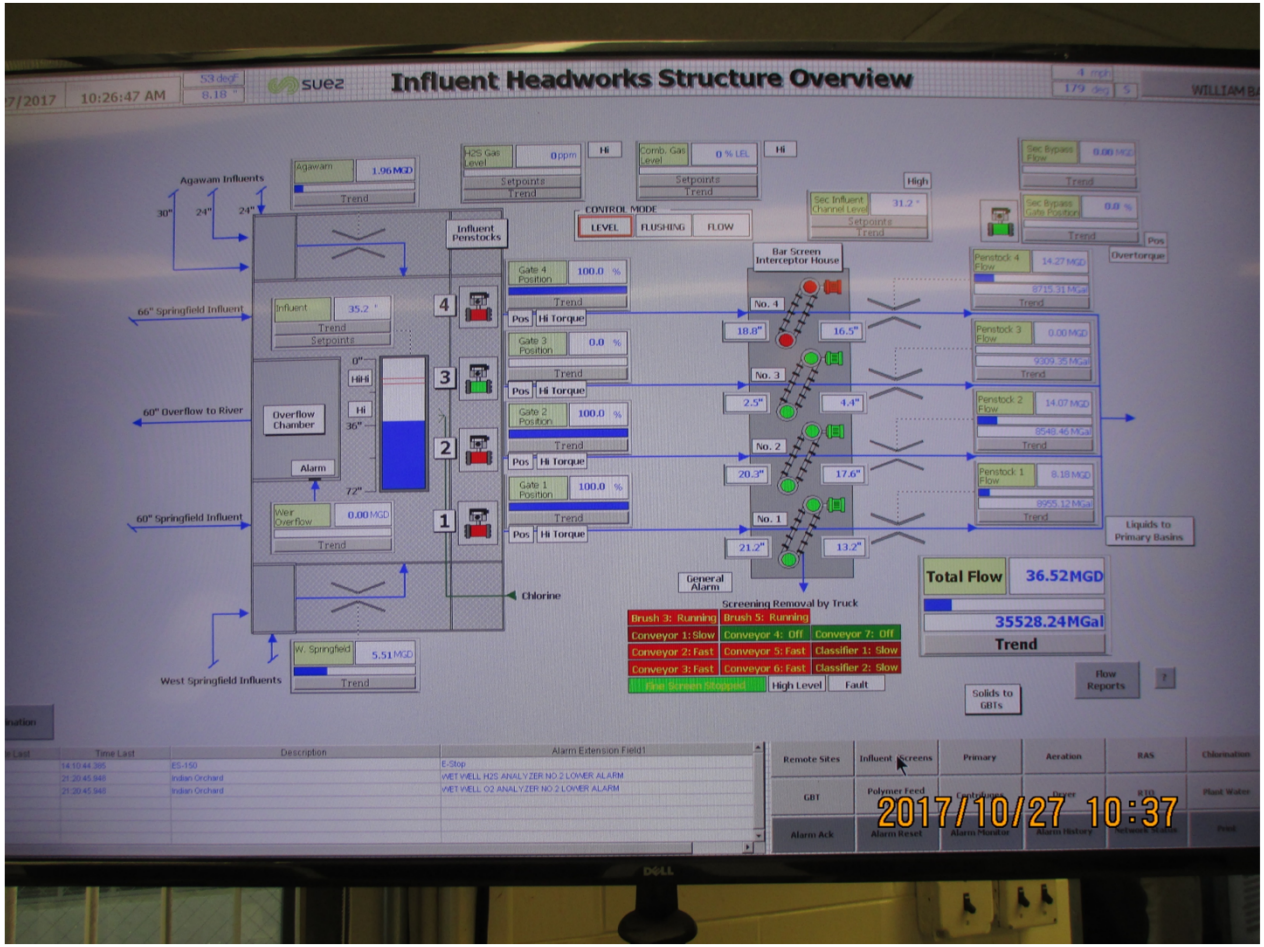


EXHIBIT DD

Number	Area	Subject
3	Influent Structure	Influent Structure exterior - plant side

EXHIBIT DD

Number	Area	Subject
4	Influent Structure	Influent bypass discharge location

EXHIBIT DD

Number	Area	Subject
5	Influent Structure	Influent Structure exterior - river side

EXHIBIT DD

Number	Area	Subject
6	Influent Structure	Influent bypass pipe in Influent Structure

EXHIBIT DD

Number	Area	Subject
7	Screening Building	Archimedes screw to grit cyclone separator

EXHIBIT DD

Number	Area	Subject
8	Screening Building	Influent flow metering

EXHIBIT DD

Number	Area	Subject
9	Screening Building	Bar rack

EXHIBIT DD

Number	Area	Subject
11	Primary Treatment	Channels to primary

EXHIBIT DD

Number	Area	Subject
11	Primary Treatment	Channels to primary

EXHIBIT DD

Number	Area	Subject
12	Primary Treatment	Primary basin (out of service)

EXHIBIT DD

Number	Area	Subject
13	Primary Treatment	Air lift

EXHIBIT DD

Number	Area	Subject
14	Primary Treatment	Sludge and grit trough

EXHIBIT DD

Number	Area	Subject
15	Primary Treatment	Primary basin (in service)

EXHIBIT DD

Number	Area	Subject
16	Primary Treatment	Sludge and grit pump

EXHIBIT DD

Number	Area	Subject
17	Secondary Treatment	Influent end of secondary aeration basin

EXHIBIT DD

Number	Area	Subject
18	Secondary Treatment	Mechanical aerator platform

EXHIBIT DD

Number	Area	Subject
19	Secondary Treatment	Secondary aeration basin

EXHIBIT DD

Number	Area	Subject
20	Secondary Treatment	Secondary clarifier influent side

EXHIBIT DD

Number	Area	Subject
21	Secondary Treatment	Secondary clarifier effluent side 1

EXHIBIT DD

Number	Area	Subject
22	Secondary Treatment	Secondary clarifier effluent side 2

EXHIBIT DD

Number	Area	Subject
23	Secondary Treatment	Channel at the end of secondary clarifier

EXHIBIT DD

Number	Area	Subject
24	Disinfection and Discharge	Chlorine contact chamber

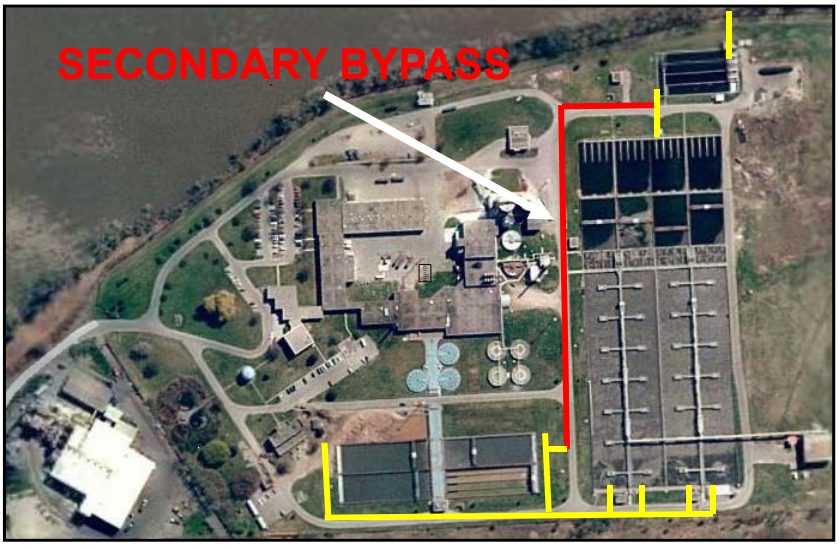
EXHIBIT DD

Number	Area	Subject
25	Disinfection and Discharge	Discharge channel and outfall pumps

Attachment C - Secondary Bypass Location

EXHIBIT DD


CHLORINATION
SOLIDS HANDLING
SECONDARY
PRIMARY


SECONDARY BYPASS

Attachment D - FEMA FIRM

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FEMA FIRM

Tuesday, October 24, 2017

Zone A: The Special Flood Hazard Area (except coastal V Zones) shown on a community's Flood Insurance Rate Map. Unit 3, Section F. There are five types of A Zones:

- A: SFHA where no base flood elevation is provided.
- A#: Numbered A Zones (e.g., A7 or A14), SFHA where the FIRM shows a base flood elevation in relation to NGVD.
- AE: SFHA where base flood elevations are provided. AE Zone delineations are now used on new FIRMs instead of A# Zones.
- AO: SFHA with sheet flow, ponding, or shallow flooding. Base flood depths (feet above grade) are provided. AH: Shallow flooding SFHA. Base flood elevations in relation to NGVD are provided.