BUFFALO
SEWER AUTHORITY

**SPDES Permit No. NY0028410**

# Long Term Control Plan
# Annual Post Construction Monitoring
# Status Report
# Reporting Period: *July 2019 through June 2020*

**Amended Administrative Order**
**CWA-02-2014-3033**
**(Amends CWA-02-2012-3024)**

**September 2020**

# Table of Contents



**ATTACHMENT:**

# 1. INTRODUCTION

The Buffalo Sewer Authority (Authority) received approval of its Long Term Control Plan (LTCP) from the United States Environmental Protection Agency (USEPA) and New York State Department of Environmental Conservation (NYSDEC) on March 18, 2014. The Authority entered into an Amended Administrative Order on April 16, 2014 (herein after referred to as the AO), with the USEPA. This AO establishes a schedule for implementation of the Authority's LTCP, approved by the USEPA and NYSDEC.

The AO in part requires that the Authority submit written Annual Post Construction Monitoring (PCM) Status Reports to the USEPA and NYSDEC to be included with the Semi-Annual Status Report.

This report covers July 2019 through June 2020 which serves as Annual PCM Report No. 4.

# 2. DISCUSSION OF PCM TASKS BEGUN OR COMPELTED

Post construction monitoring of the Bird, Lang and Smith St. Real-Time Control (RTC) projects has continued in the last reporting period. For Bird and Lang RTCs, the number of SPP events and volume of overflow that the structures have prevented is being monitored. For Smith St. RTC, the total volume captured is being recorded. The monthly performance reports for the reporting period are included in Appendix A.

Post construction monitoring of Hazelwood, North Bailey, and Hertel at Deer RTC projects commenced in the last reporting period. The number of SPP events and volume of overflow that the structures have prevented is being monitored. The monthly performance reports for the reporting period are included in Appendix A.

Monthly KPI reports for Lang RTC were combined with Hazelwood RTC starting in August 2019. Operations at Hazelwood RTC are triggered by depth immediately upstream of the Lang RTC. In general, the Hazelwood RTC will start storing when the depth at Lang indicates wet weather flow. The Lang RTC control is based on the depth at the downstream SPP. In general, the Lang RTC will start storing when the depth at the SPP indicates wet weather flow.

Flow metering for the model calibration project has been used for preconstruction monitoring of the Willert Park Green Infrastructure project. Meters located in the sewershed have been reinstalled for post construction monitoring of the green infrastructure project. Monitoring will continue until April 2021 and analysis of results should be complete in summer 2021.

The Authority performs post-demolition inspections to ensure that vacant lots have had all impervious surfaces removed. In the reporting period, the Authority performed 1,251 post-demolition inspections.

## 3. RESULTS OF PCM EFFORTS

During the reporting period, a total of 56 SPP overflow events, or approximately 92.9 million gallons of overflow, have been prevented by the Bird, Lang, Hazelwood, North Bailey, and Hertel at Deer RTC projects. Since June 2017 a total of 153 SPP overflow events or approximately 201.4 million gallons of overflow, has been prevented by the Bird,Lang, Hazelwood, North Bailey, and Hertel at Deer RTC projects.

In October 2018, an email was sent to DEC & EPA with a detailed explanation of how we measure the performance of the RTCs. This email is provided in Attachment B.

The functionality of the Smith St. RTC differs from the other RTCs. It intercepts flows and sends them to the interceptor rather than just storing flows in-line. Upstream of the Smith St RTC are 41 SPPs that overflow into the Smith St. RTC storage area. These flows are now sent to the South Interceptor rather than the Buffalo River. During the reporting period, a total of 1,647.6 million gallons of overflow was captured by the Smith St. RTC project. Since July 2018, a total of 2,475.8 million gallons of overflow has been captured by the Smith St. RTC project.

## 4. MODEL UPDATES COMPLETED

The model calibration report has been completed and submitted for review. BSA is awaiting final approval of the report.

## 5. CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

*Oluwole A. McFoy, P.E., General Manager*

17 FEB 21
Date

# April 2020
# Hertel at Deer RTC
# KPI Report

BUFFALO SEWER AUTHORITY

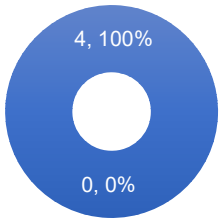
emnet

GHD

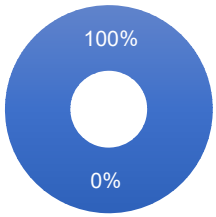
ARCADIS Design & Consultancy for natural and built assets

# Hertel at Deer RTC Monthly Performance Report — April 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| 4 | 0 | 8,908,380 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 4/19/2020 | 3,883,334 | - | 100% |
| 4/21/2020 | 186,938 | - | 100% |
| 4/26/2020 | 935,711 | - | 100% |
| 4/30/2020 | 3,902,397 | - | 100% |

# April 19, 2020 — 1

| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 4/19/2020 13:20 |
| Time All Gates Returned to Normal: | 4/21/2020 3:45 |
| Gate Activation Trigger Depth: | 1.47 (South Side) ft. |
| Return to Normal Depth: | 1.02 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,883,334 Gal. |
| Unused Storage Volume: | 22,866 Gal. |

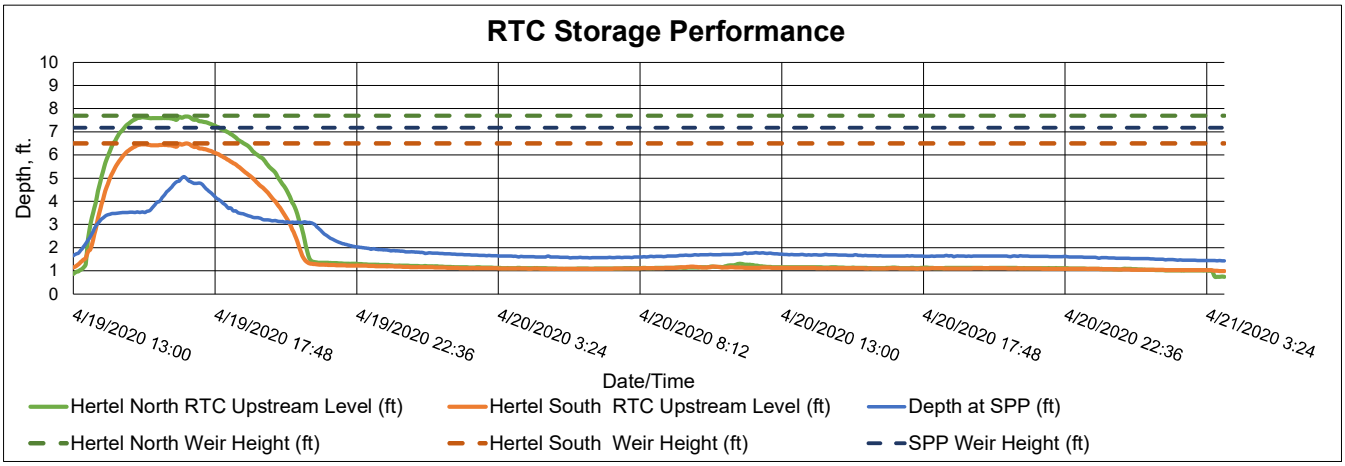
| | |
|---|---|
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/19/2020 13:20 |
| Event End Date/Time: | 4/21/2020 3:40 |

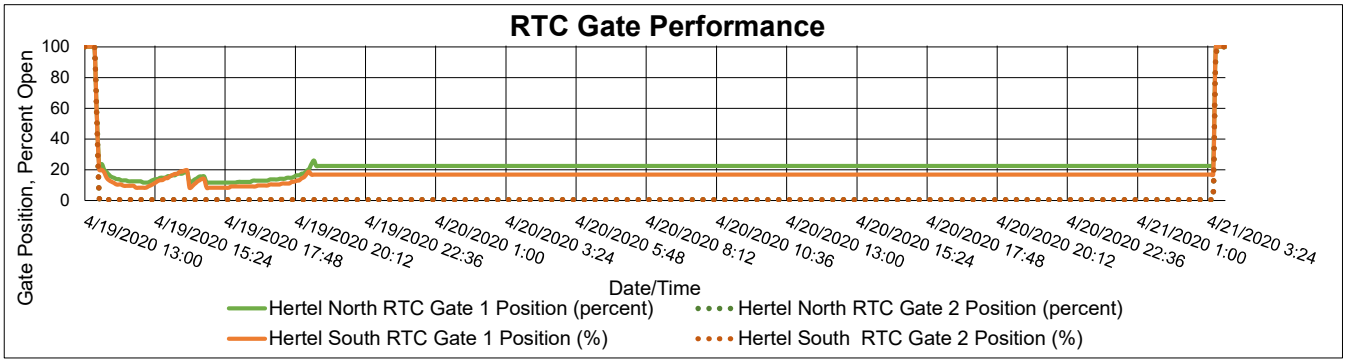
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 38 hr. |
| Storm Type: | N/A |

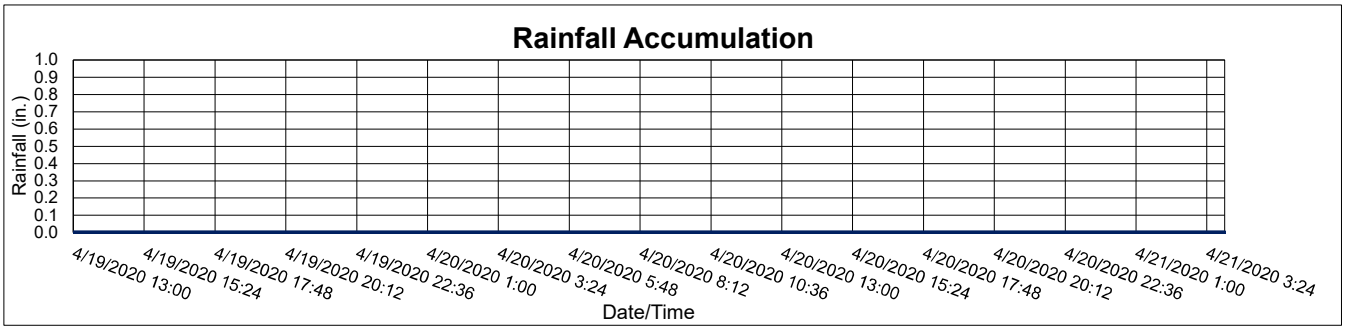
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 3,883,334 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.



# April 21, 2020 2

| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 4/21/2020 6:50 |
| Time All Gates Returned to Normal: | 4/22/2020 1:00 |
| Gate Activation Trigger Depth: | 1.55 (South Side) ft. |
| Return to Normal Depth: | 1.04 (South Side) ft. |
| Minimum Distance to Top of Weir: | 4.69 ft. |
| Volume Stored: | 186,938 Gal. |
| Unused Storage Volume: | 3,709,280 Gal. |

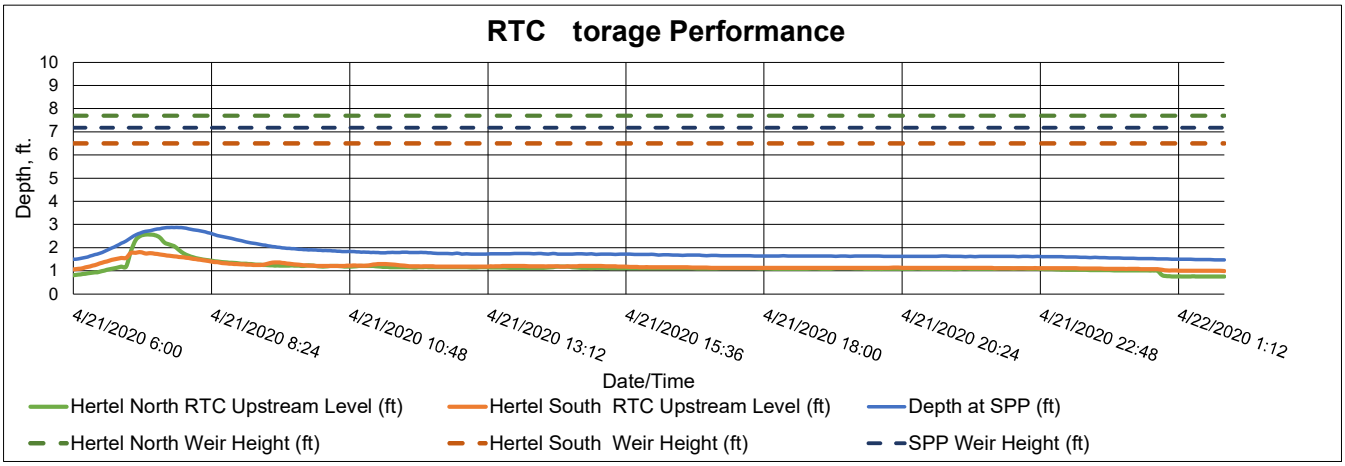
| | |
|---|---|
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/21/2020 6:50 |
| Event End Date/Time: | 4/22/2020 1:00 |

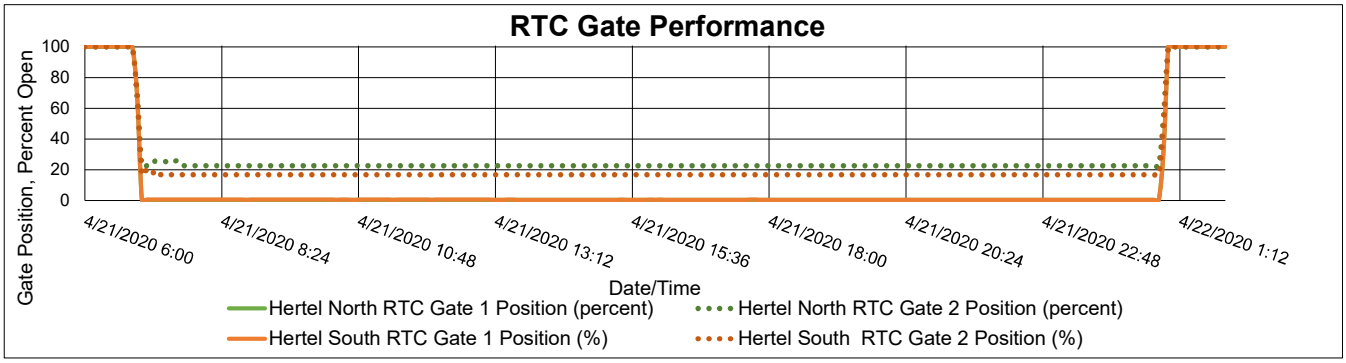
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 20 hr. |
| Storm Type: | N/A |

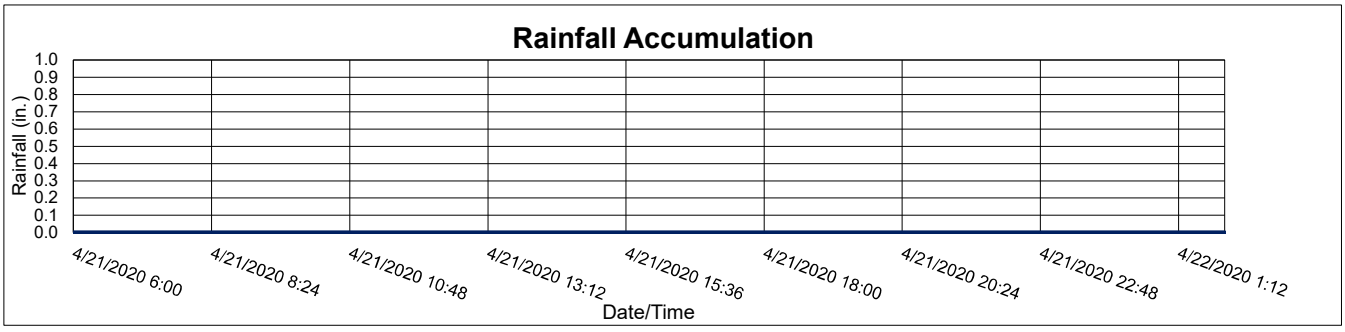
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 186,938 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.



# April 26, 2020 — 3

| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 4/26/2020 3:00 |
| Time All Gates Returned to Normal: | 4/29/2020 2:35 |
| Gate Activation Trigger Depth: | 1.51 (South Side) ft. |
| Return to Normal Depth: | 1.01 (South Side) ft. |
| Minimum Distance to Top of Weir: | 3.26 ft. |
| Volume Stored: | 935,711 Gal. |
| Unused Storage Volume: | 2,965,899 Gal. |

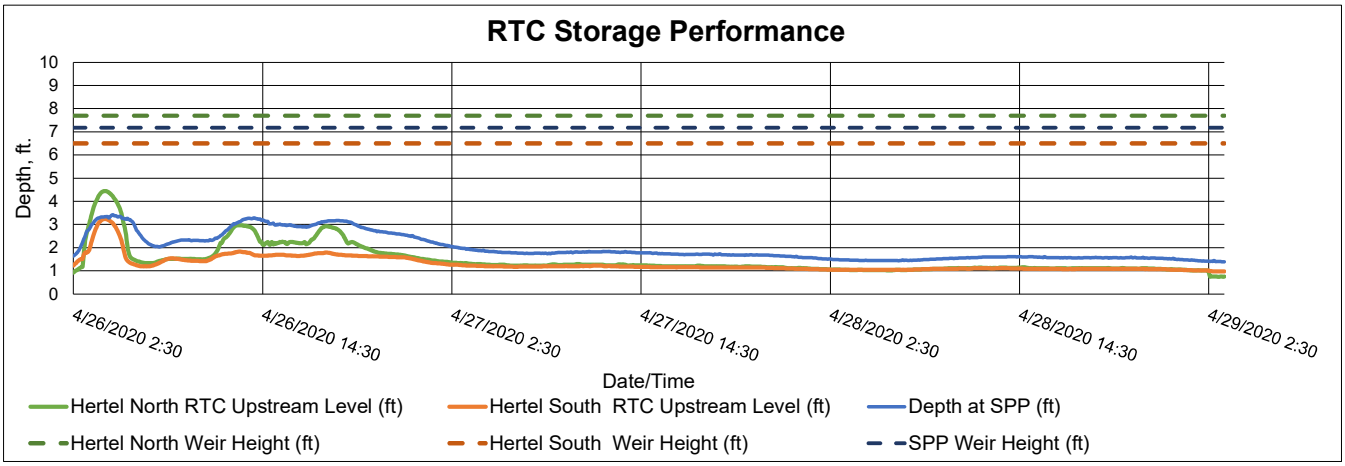
| | |
|---|---|
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/26/2020 3:00 |
| Event End Date/Time: | 4/29/2020 2:35 |

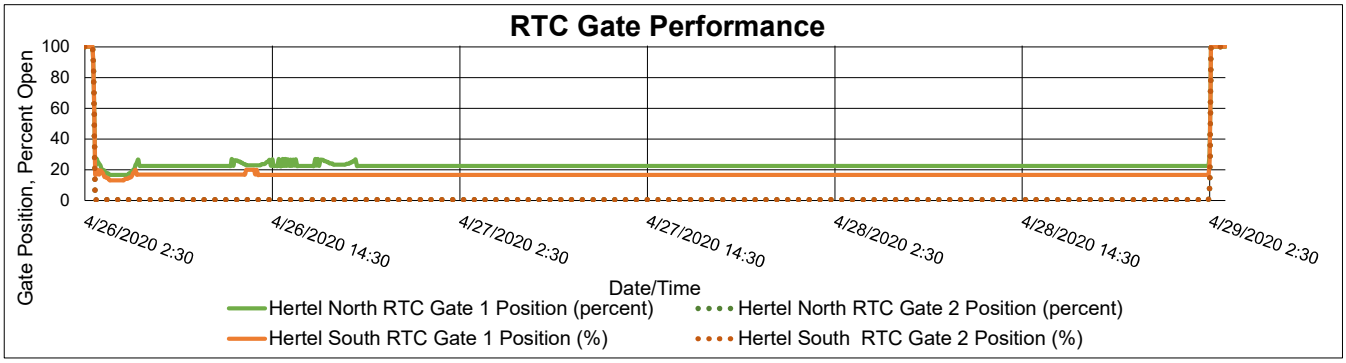
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.4 in. |
| Storm Event Duration: | 72 hr. |
| Storm Type: | Less than 1 year |

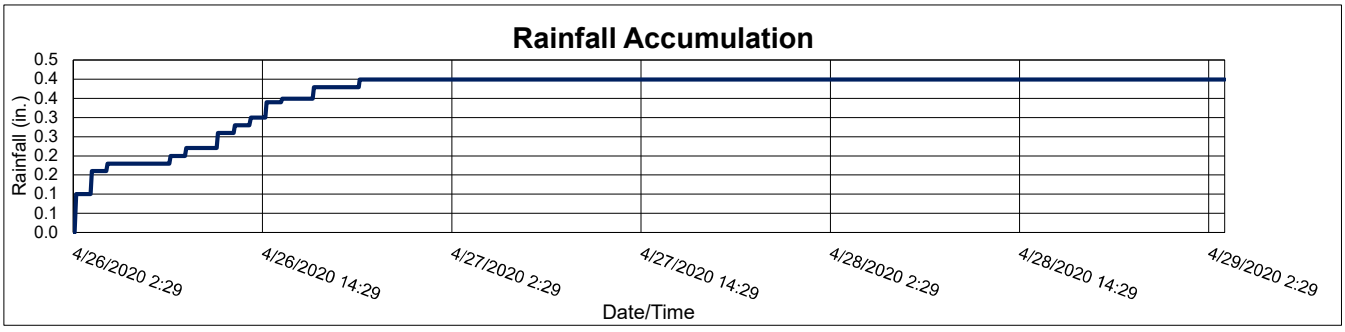
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 935,711 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.



# April 30, 2020 4

| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 4/30/2020 6:50 |
| Time All Gates Returned to Normal: | 5/3/2020 4:00 |
| Gate Activation Trigger Depth: | 1.52 (South Side) ft. |
| Return to Normal Depth: | 1.03 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,902,397 Gal. |
| Unused Storage Volume: | 0 Gal. |

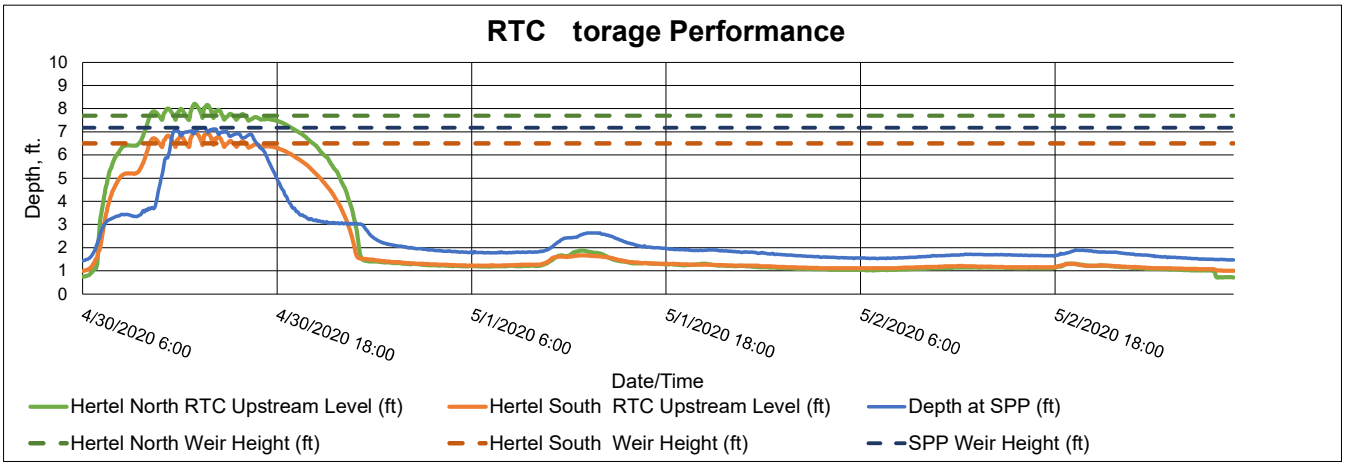
| | |
|---|---|
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/30/2020 6:50 |
| Event End Date/Time: | 5/3/2020 4:00 |

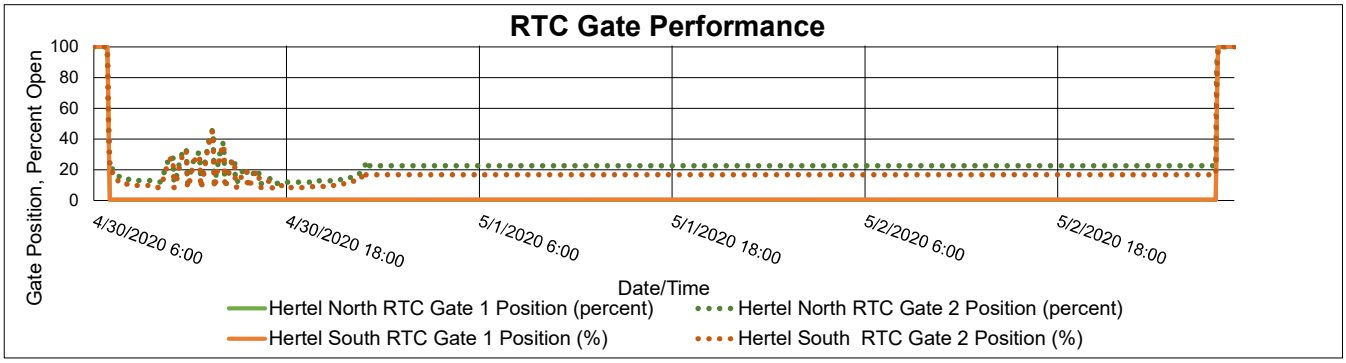
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.91 in. |
| Storm Event Duration: | 72 hr. |
| Storm Type: | Less than 1 year |

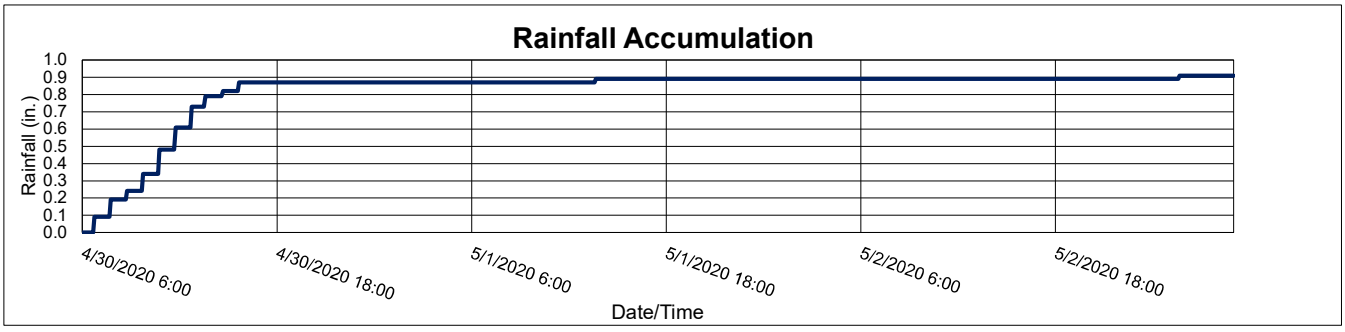
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 3,902,397 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.



# May 2020
# Hertel at Deer RTC
# KPI Report

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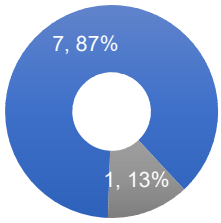
ARCADIS Design & Consultancy for natural and built assets

# Hertel at Deer RTC Monthly Performance Report — May 2020

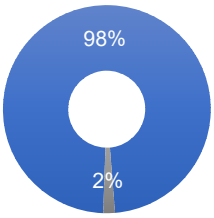
## Prevented SPP Events




Number of Prevented SPP Overflow Events

Number of Occurred SPP Overflow Events

## Prevented SPP Volume




Prevented SPP Overflow Volume (Gal.)

Occurred SPP Overflow Volume (Gal.)

| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| 7 | 1 | 22,352,051 | 419,335 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 5/11/2020 | 1,451,430 | - | 100% |
| 5/14/2020 | 138,207 | - | 100% |
| 5/15/2020 | 735,366 | - | 100% |
| 5/17/2020 | 4,991,847 | - | 100% |
| 5/22/2020 | 3,892,990 | - | 100% |
| 5/25/2020 | 3,946,542 | - | 100% |
| 5/28/2020 | 3,279,941 | - | 100% |
| 5/29/2020 | 3,915,728 | 419,335 | 90% |

# May 11, 2020 1

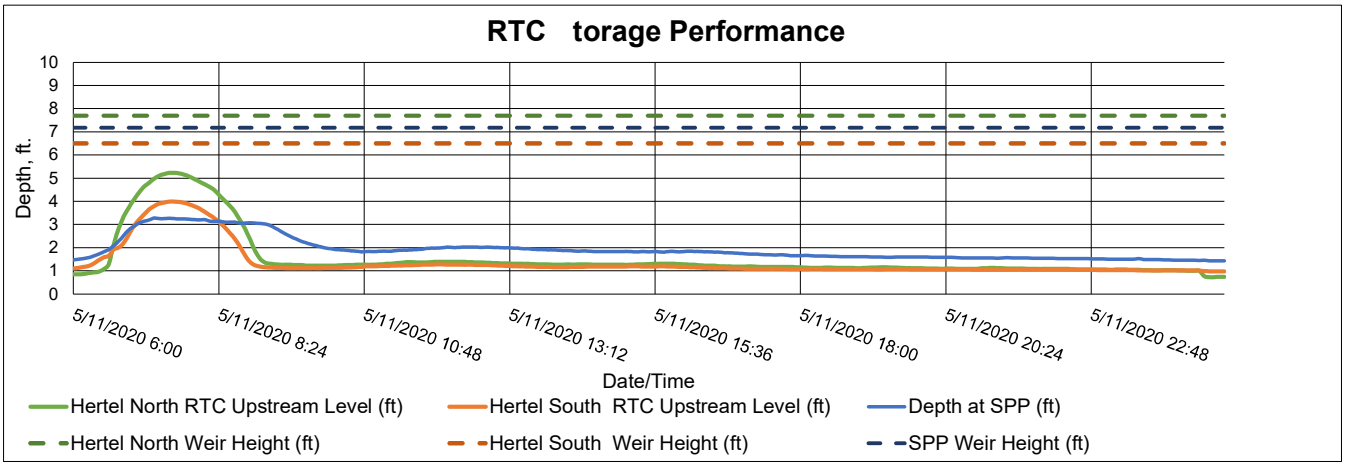
| | | |
|---|---|---|
| Site: | Hertel at Deer RTC | |
| Time All Gates Active: | 5/11/2020 6:30 | |
| Time All Gates Returned to Normal: | 5/12/2020 0:45 | |
| Gate Activation Trigger Depth: | 1.58 (South Side) | ft. |
| Return to Normal Depth: | 0.99 (South Side) | ft. |
| Minimum Distance to Top of Weir: | 2.47 | ft. |
| Volume Stored: | 1,451,430 | Gal. |
| Unused Storage Volume: | 2,448,016 | Gal. |

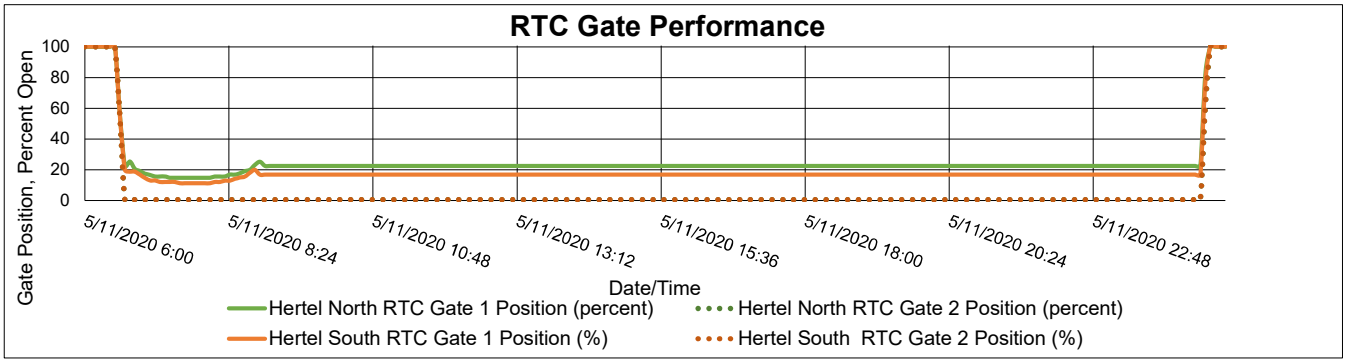
| | | |
|---|---|---|
| Percent Capture | 100% | |
| Overflow Volume: | 0 | Gal. |
| Overflow Volume Prevented: | 1,451,430 | Gal. |
| SPP Activation Prevented: | Yes | |
| If No, what is the overflow volume when storage was available upstream? | NA | Gal. |
| If No, could SPP activation have been prevented? | NA | |

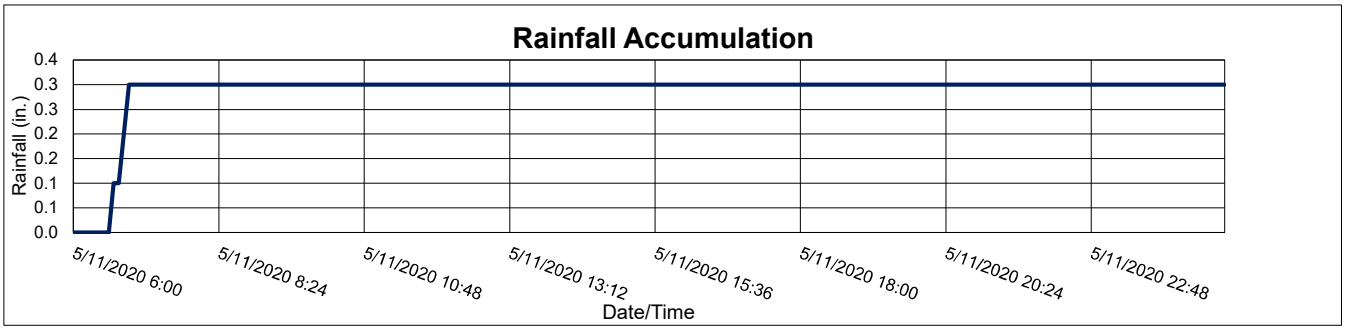
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/11/2020 6:30 |
| Event End Date/Time: | 5/12/2020 0:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.3 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | Less than one year |

**Recommended Operational Changes/Notes:**



# May 14, 2020 2

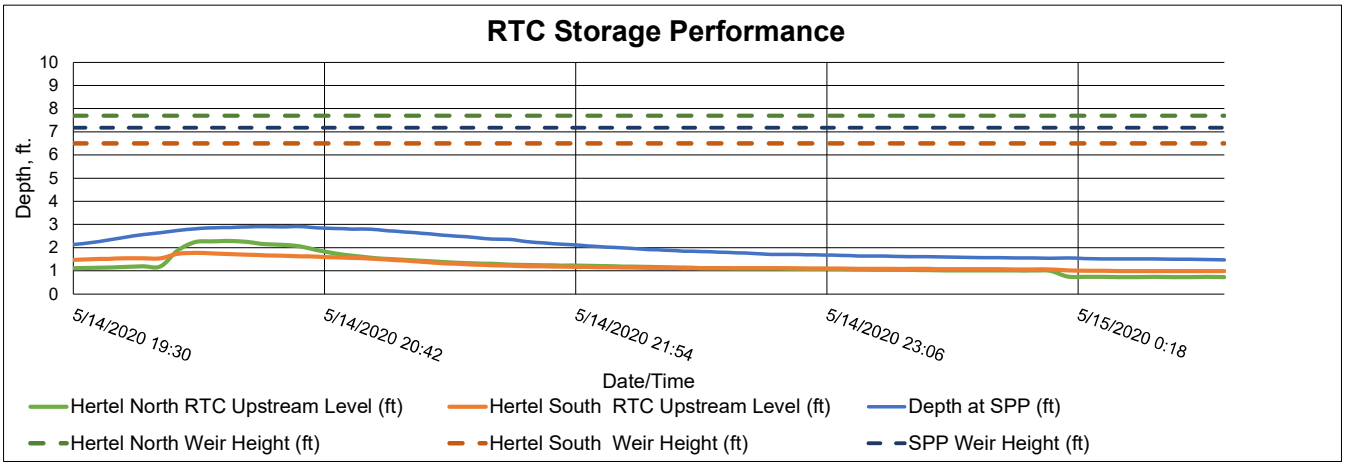
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 5/14/2020 19:50 |
| Time All Gates Returned to Normal: | 5/15/2020 0:20 |
| Gate Activation Trigger Depth: | 1.54 (South Side) ft. |
| Return to Normal Depth: | 1.02 (South Side) ft. |
| Minimum Distance to Top of Weir: | 4.73 ft. |
| Volume Stored: | 138,207 Gal. |
| Unused Storage Volume: | 3,758,338 Gal. |

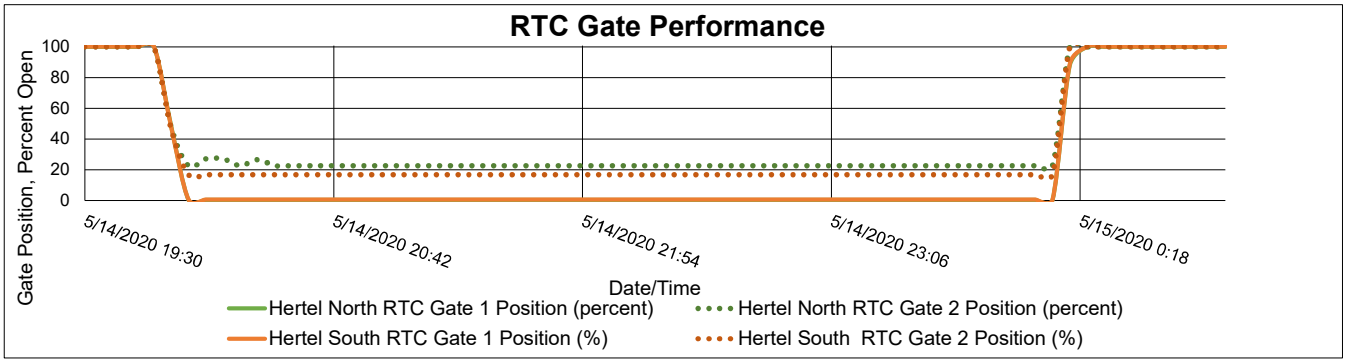
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/14/2020 19:50 |
| Event End Date/Time: | 5/15/2020 0:20 |

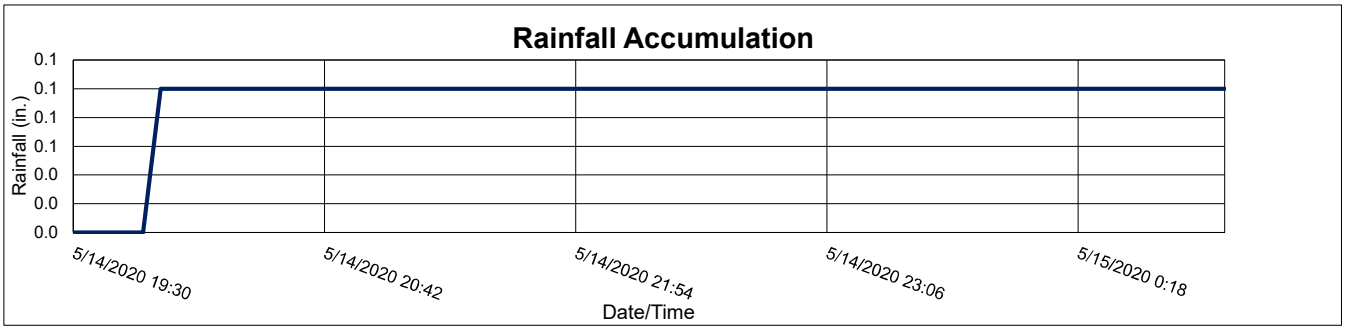
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.1 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 138,207 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**



# May 15, 2020 — 3

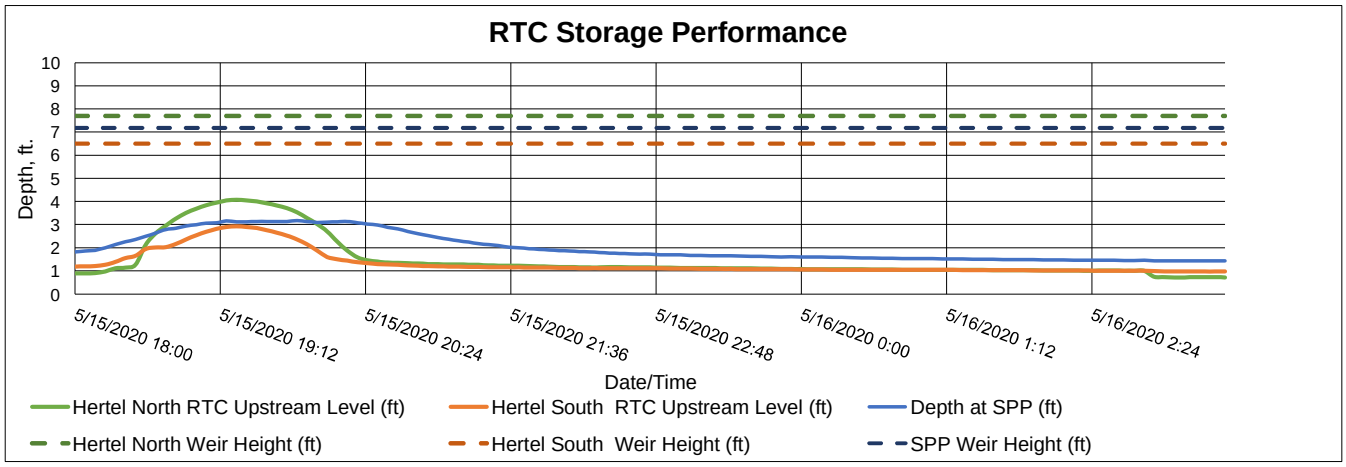
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 5/15/2020 18:25 |
| Time All Gates Returned to Normal: | 5/16/2020 2:55 |
| Gate Activation Trigger Depth: | 1.56 (South Side) ft. |
| Return to Normal Depth: | 1.01 (South Side) ft. |
| Minimum Distance to Top of Weir: | 3.58 ft. |
| Volume Stored: | 735,366 Gal. |
| Unused Storage Volume: | 3,162,234 Gal. |

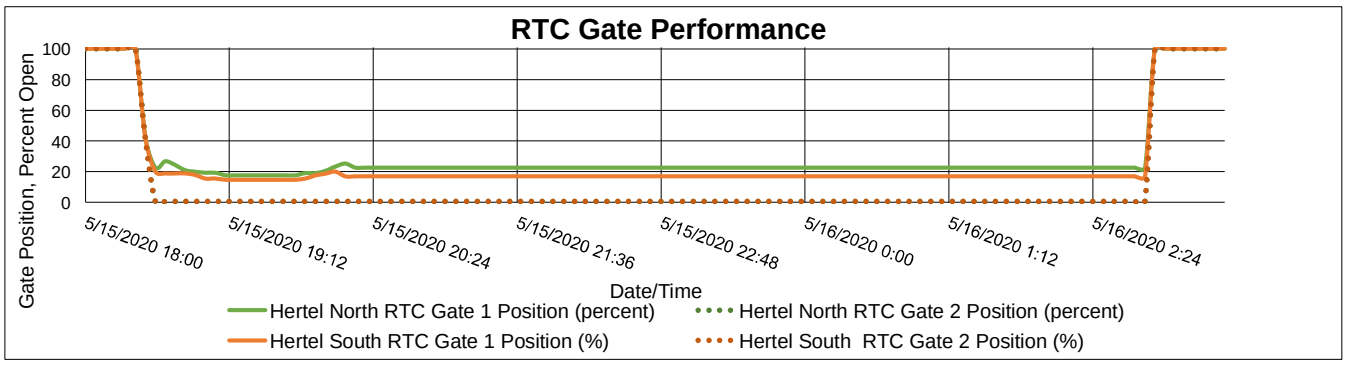
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 735,366 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

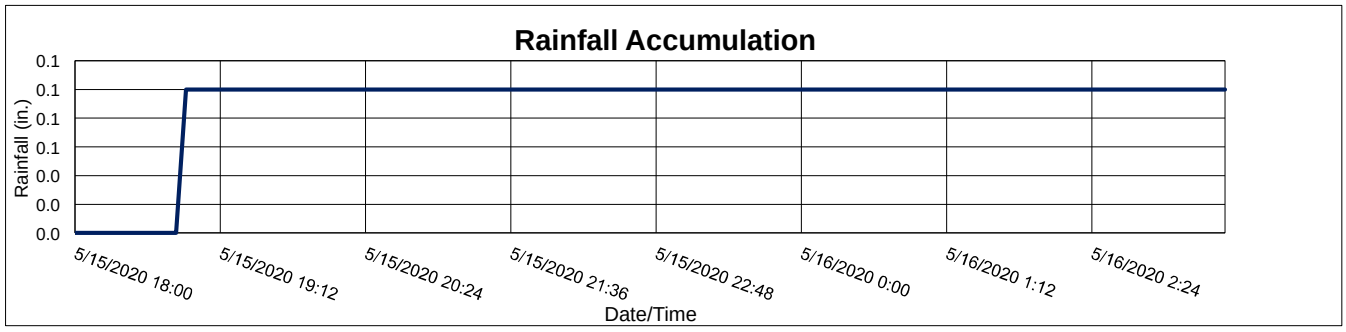
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/15/2020 18:25 |
| Event End Date/Time: | 5/16/2020 2:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.1 in. |
| Storm Event Duration: | 9 hr. |
| Storm Type: | Less than one year |

**Recommended Operational Changes/Notes:**



# May 17, 2020 4

| | | | |
|---|---|---|---|
| Site: | Hertel at Deer RTC | | |
| Time All Gates Active: | 5/17/2020 17:40 | | |
| Time All Gates Returned to Normal: | 5/18/2020 10:35 | | |
| Gate Activation Trigger Depth: | 1.53 | (South Side) | ft. |
| Return to Normal Depth: | 1.50 | (South Side) | ft. |
| Minimum Distance to Top of Weir: | 0.00 | | ft. |
| Volume Stored: | 4,991,847 | | Gal. |
| Unused Storage Volume: | 0 | | Gal. |

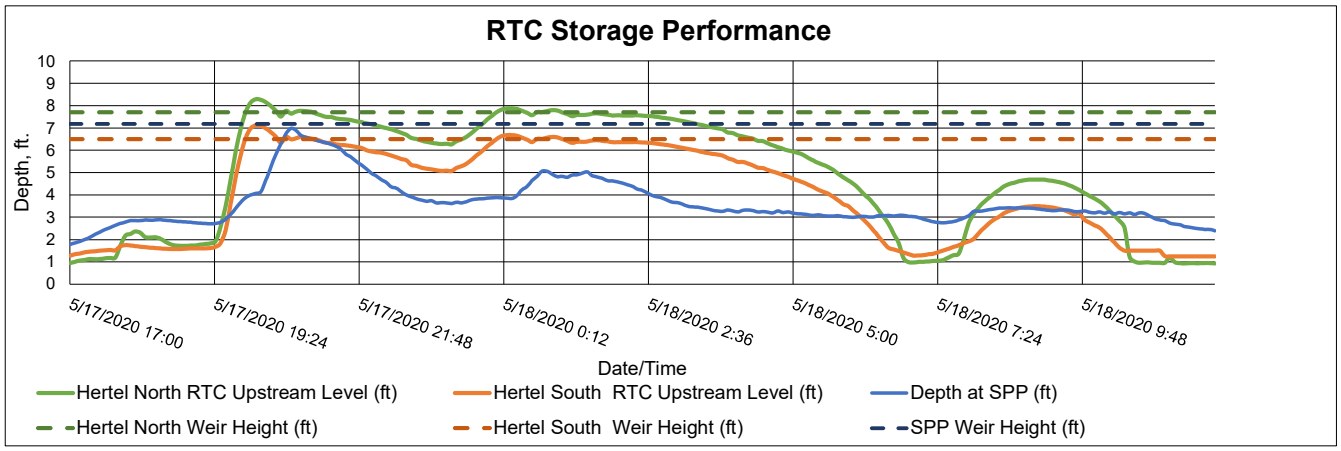
| | |
|---|---|
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/17/2020 17:40 |
| Event End Date/Time: | 5/18/2020 10:35 |

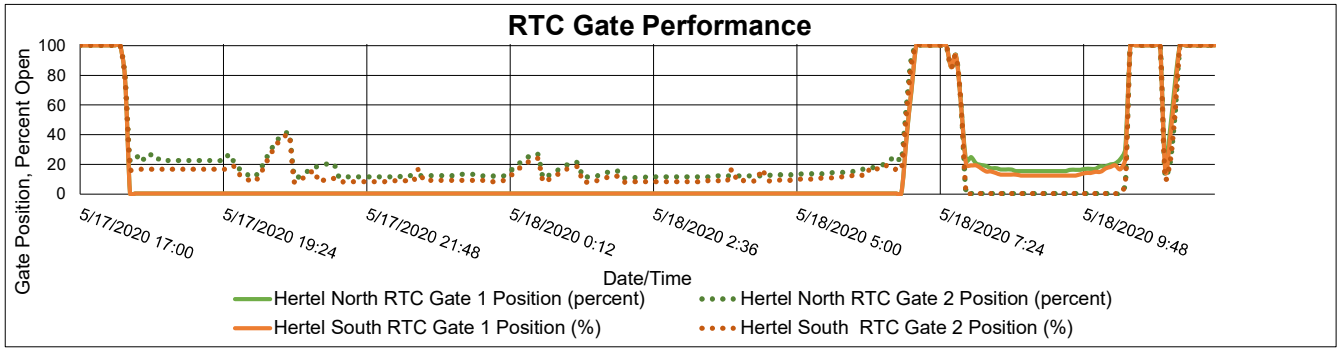
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 19 hr. |
| Storm Type: | Less than one year |

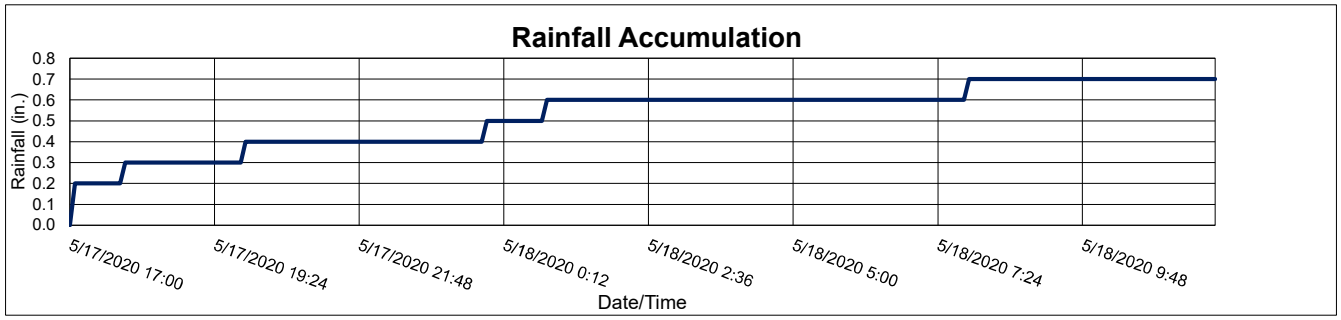
| | | |
|---|---|---|
| Percent Capture | 100% | |
| Overflow Volume: | 0 | Gal. |
| Overflow Volume Prevented: | 4,991,847 | Gal. |
| SPP Activation Prevented: | Yes | |
| If No, what is the overflow volume when storage was available upstream? | NA | Gal. |
| If No, could SPP activation have been prevented? | NA | |

**Recommended Operational Changes/Notes:**

Hertel South Upstream Level went out of range a few times but the site continued to operate normally by using the North Upstream level to make control decisions. Hertel South Upstream Level data was assumed for analysis during those times by using the good data obtained from EmNet as it follows a similar trend as the North Upstream Level.



# May 22, 2020 5

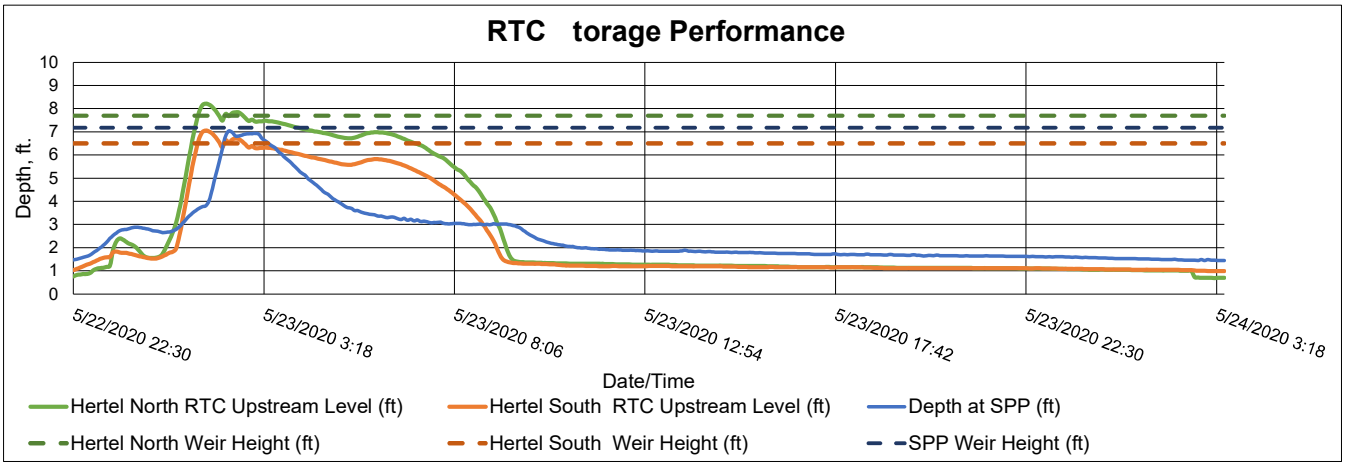
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 5/22/2020 23:20 |
| Time All Gates Returned to Normal: | 5/24/2020 2:50 |
| Gate Activation Trigger Depth: | 1.59 (South Side) ft. |
| Return to Normal Depth: | 1.03 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,892,990 Gal. |
| Unused Storage Volume: | 0 Gal. |

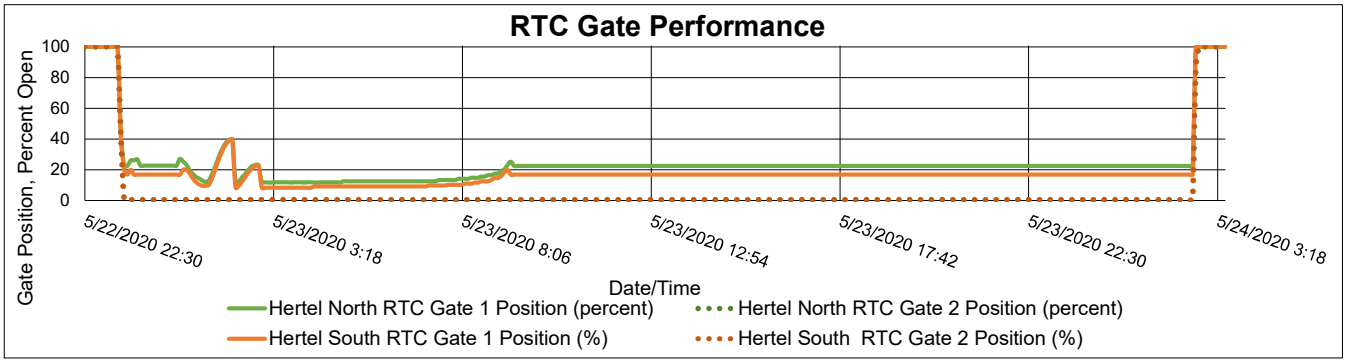
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/22/2020 23:20 |
| Event End Date/Time: | 5/24/2020 2:45 |

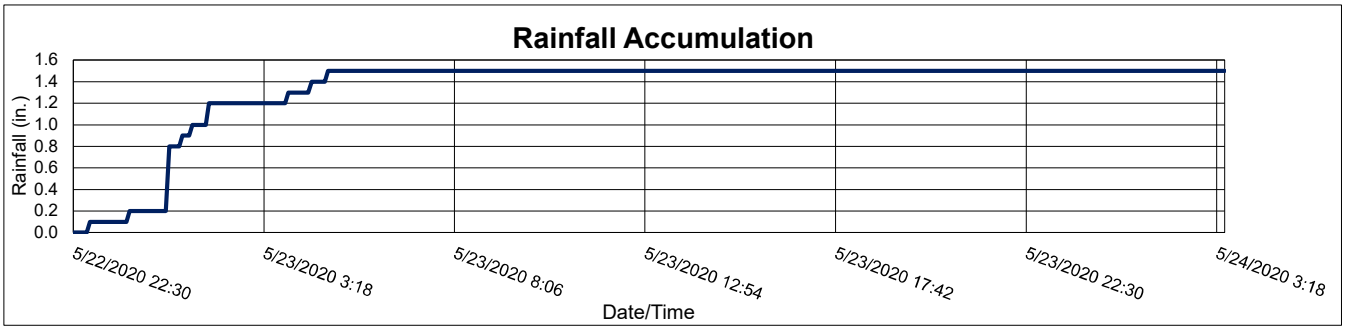
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.5 in. |
| Storm Event Duration: | 29 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 3,892,990 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**



# May 25, 2020 — 6

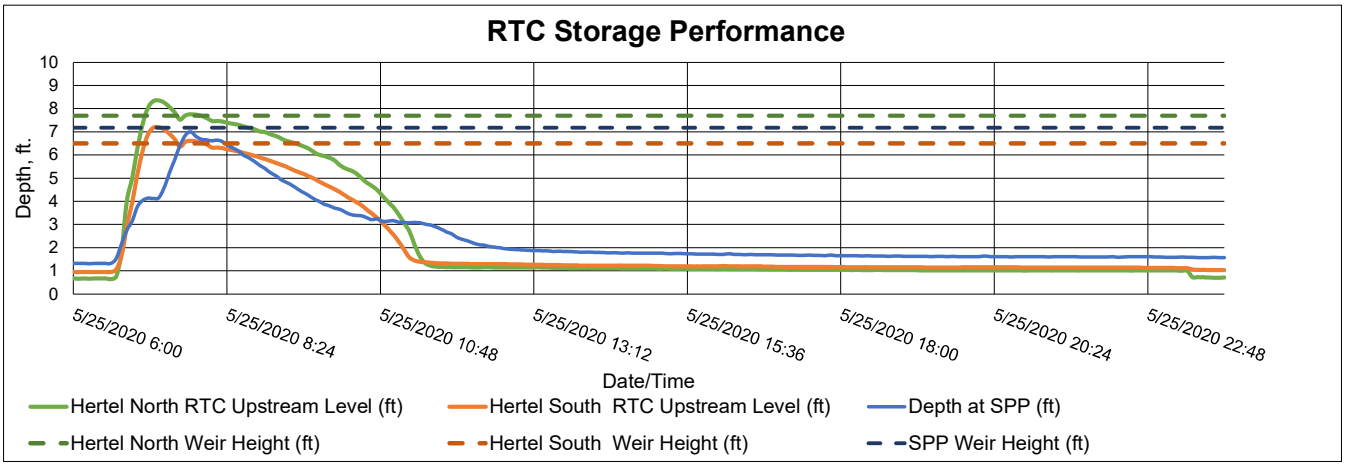
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 5/25/2020 6:40 |
| Time All Gates Returned to Normal: | 5/25/2020 23:30 |
| Gate Activation Trigger Depth: | 1.06 (South Side) ft. |
| Return to Normal Depth: | 1.12 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,946,542 Gal. |
| Unused Storage Volume: | 0 Gal. |

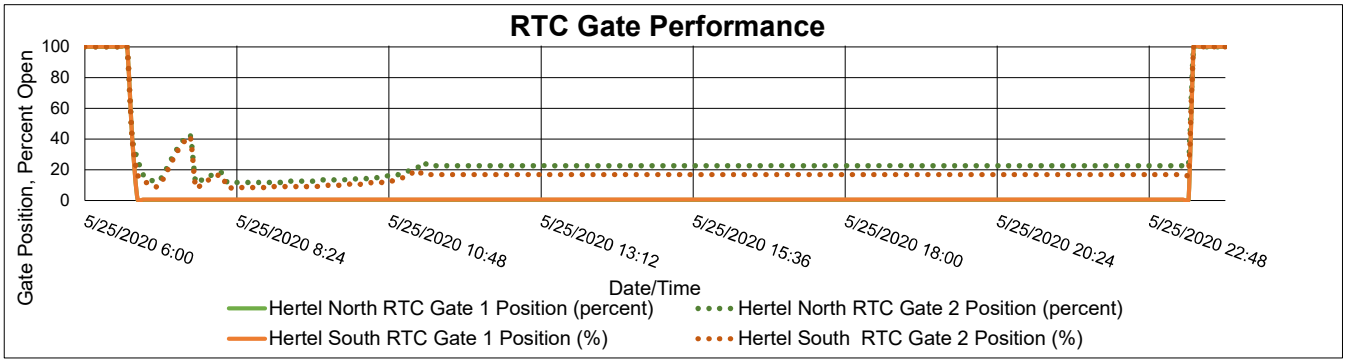
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/25/2020 6:40 |
| Event End Date/Time: | 5/25/2020 23:30 |

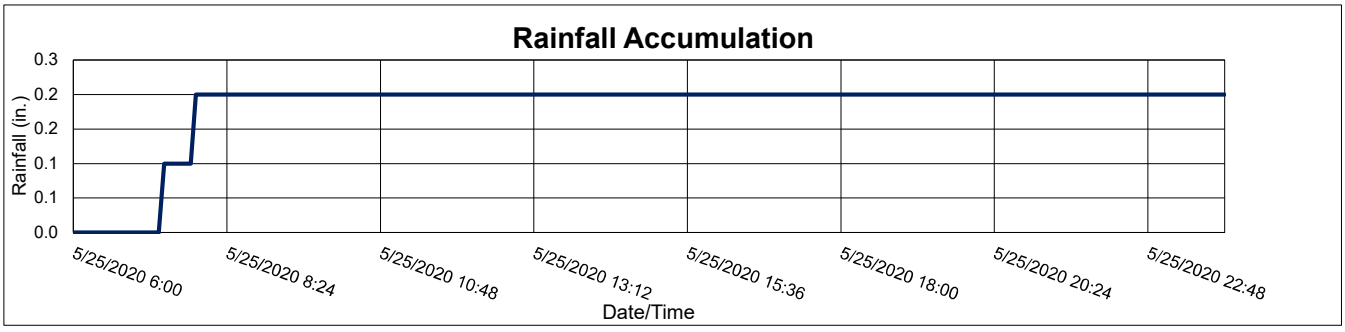
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.2 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 3,946,542 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**



# May 28, 2020 7

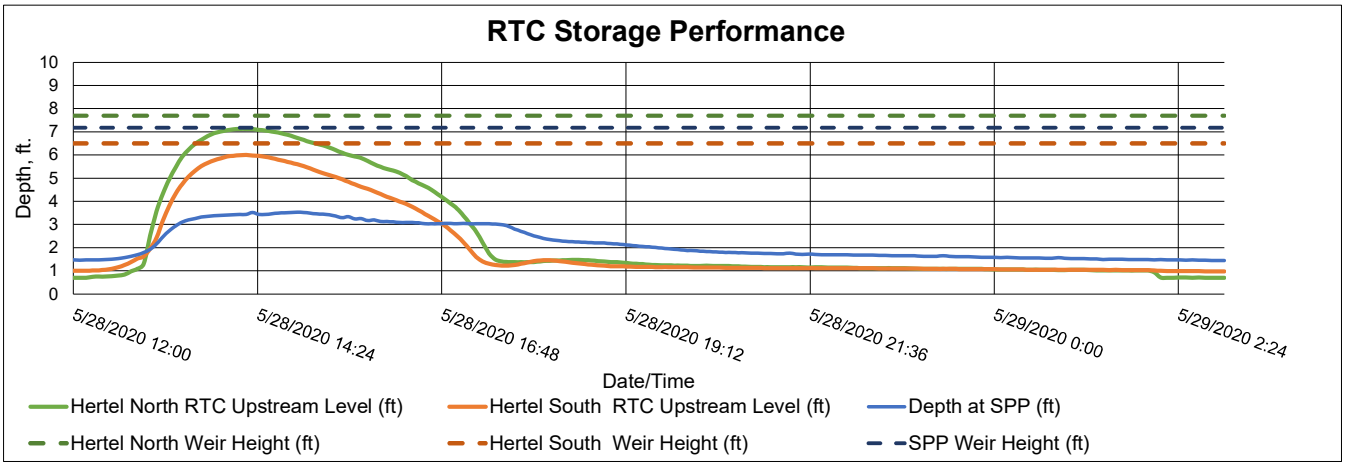
| | | |
|---|---|---|
| Site: | Hertel at Deer RTC | |
| Time All Gates Active: | 5/28/2020 12:50 | |
| Time All Gates Returned to Normal: | 5/29/2020 2:10 | |
| Gate Activation Trigger Depth: | 1.53 (South Side) | ft. |
| Return to Normal Depth: | 1.01 (South Side) | ft. |
| Minimum Distance to Top of Weir: | 0.50 | ft. |
| Volume Stored: | 3,279,941 | Gal. |
| Unused Storage Volume: | 623,682 | Gal. |

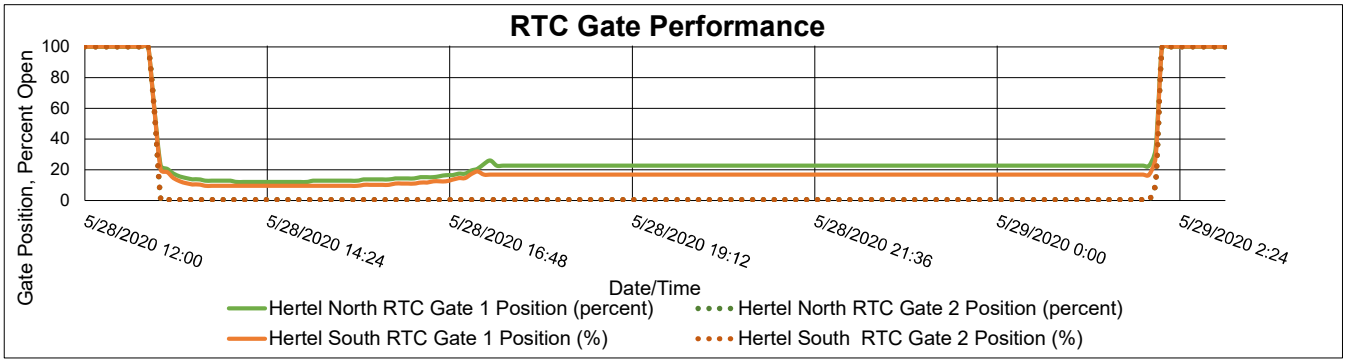
| | | |
|---|---|---|
| Percent Capture | 100% | |
| Overflow Volume: | 0 | Gal. |
| Overflow Volume Prevented: | 3,279,941 | Gal. |
| SPP Activation Prevented: | Yes | |
| If No, what is the overflow volume when storage was available upstream? | NA | Gal. |
| If No, could SPP activation have been prevented? | NA | |

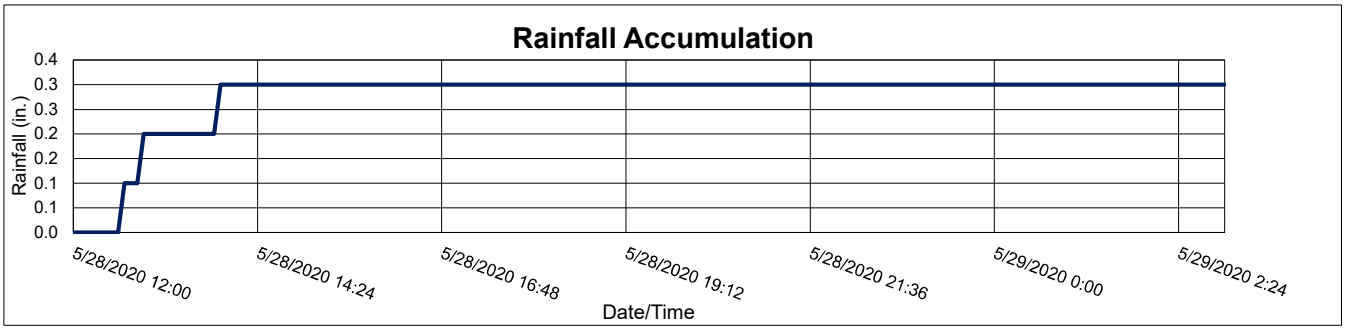
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/28/2020 12:50 |
| Event End Date/Time: | 5/29/2020 2:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.3 in. |
| Storm Event Duration: | 15 hr. |
| Storm Type: | Less than one year |

**Recommended Operational Changes/Notes:**



# May 29, 2020 — 8

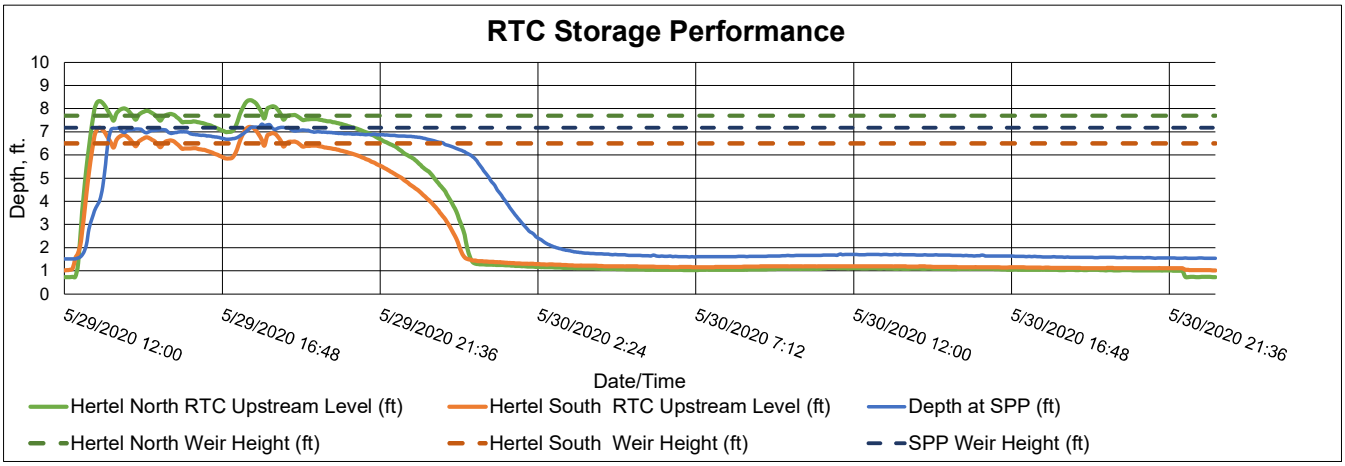
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 5/29/2020 12:20 |
| Time All Gates Returned to Normal: | 5/30/2020 22:10 |
| Gate Activation Trigger Depth: | 1.54 (South Side) ft. |
| Return to Normal Depth: | 1.05 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,915,728 Gal. |
| Unused Storage Volume: | 0 Gal. |

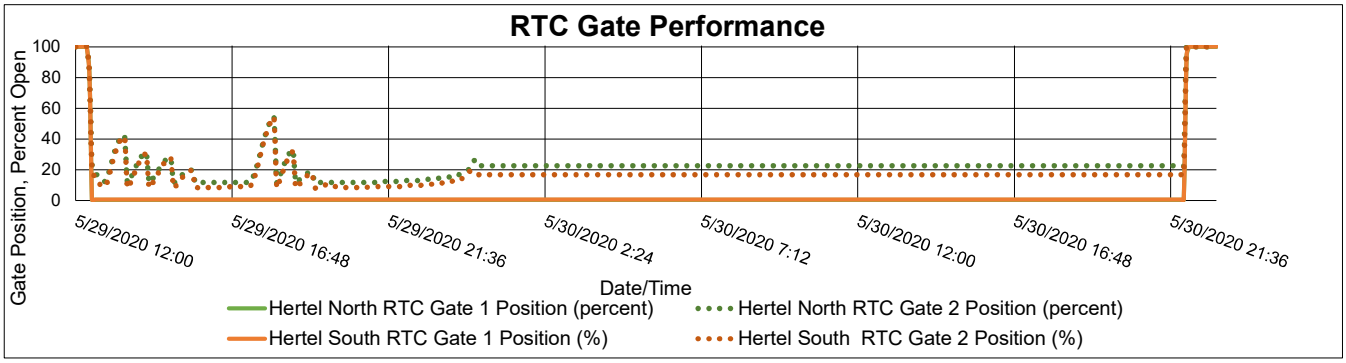
| | |
|---|---|
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/29/2020 12:20 |
| Event End Date/Time: | 5/30/2020 22:10 |

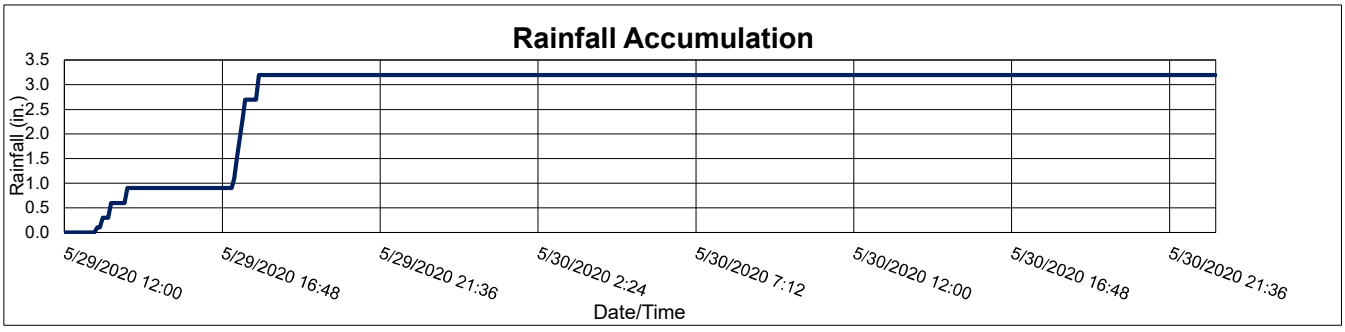
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 3.2 in. |
| Storm Event Duration: | 35 hr. |
| Storm Type: | Less than 10 years |

| | |
|---|---|
| Percent Capture | 90% |
| Overflow Volume: | 419,335 Gal. |
| Overflow Volume Prevented: | 3,915,728 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**



# June 2020
# Hertel at Deer RTC
# KPI Report

BUFFALO SEWER AUTHORITY

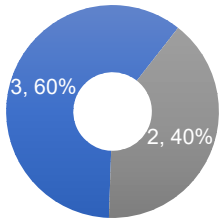
emnet

GHD

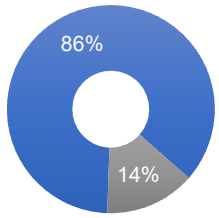
ARCADIS Design & Consultancy for natural and built assets

# Hertel at Deer RTC Monthly Performance Report — June 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| 3 | 2 | 18,539,563 | 3,033,155 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 6/2/2020 | 3,949,510 | 2,481,520 | 61% |
| 6/10/2020 | 3,900,141 | 551,635 | 88% |
| 6/22/2020 | 967,427 | - | 100% |
| 6/23/2020 | 3,931,361 | - | 100% |
| 6/27/2020 | 5,791,124 | - | 100% |

# June 2, 2020 1

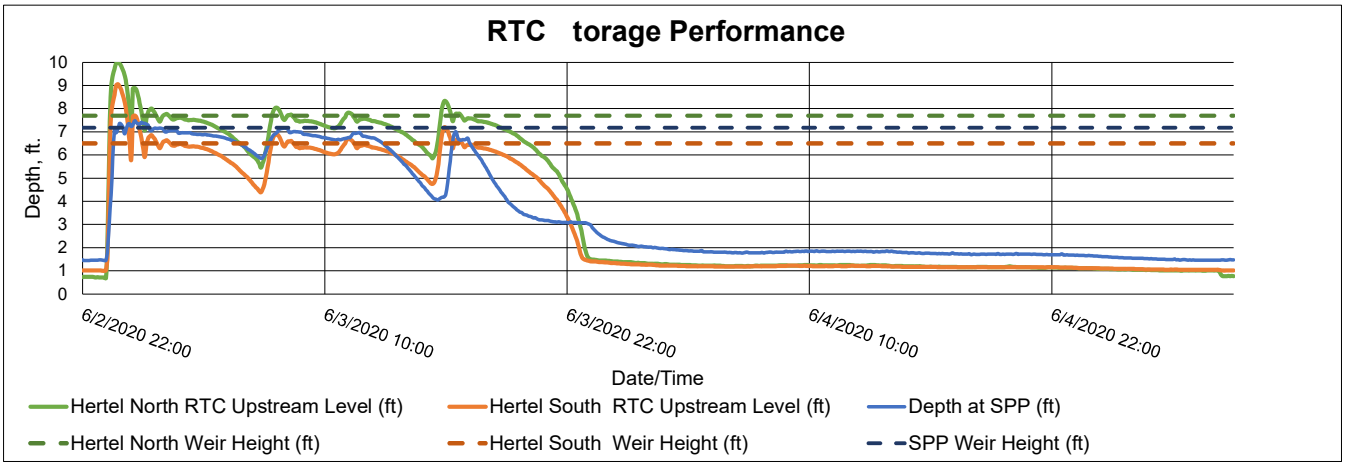
| | | |
|---|---|---|
| Site: | Hertel at Deer RTC | |
| Time All Gates Active: | 6/2/2020 23:10 | |
| Time All Gates Returned to Normal: | 6/5/2020 6:25 | |
| Gate Activation Trigger Depth: | 1.03 (South Side) | ft. |
| Return to Normal Depth: | 9.06 (South Side) | ft. |
| Minimum Distance to Top of Weir: | 0.00 | ft. |
| Volume Stored: | 3,949,510 | Gal. |
| Unused Storage Volume: | 0 | Gal. |

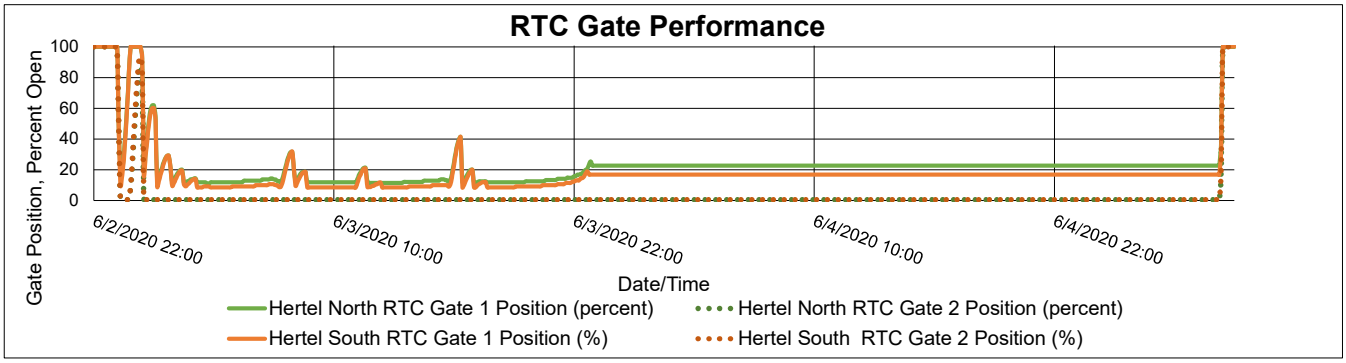
| | | |
|---|---|---|
| Percent Capture | 61% | |
| Overflow Volume: | 2,481,520 | Gal. |
| Overflow Volume Prevented: | 3,949,510 | Gal. |
| SPP Activation Prevented: | No | |
| If No, what is the overflow volume when storage was available upstream? | NA | Gal. |
| If No, could SPP activation have been prevented? | No | |

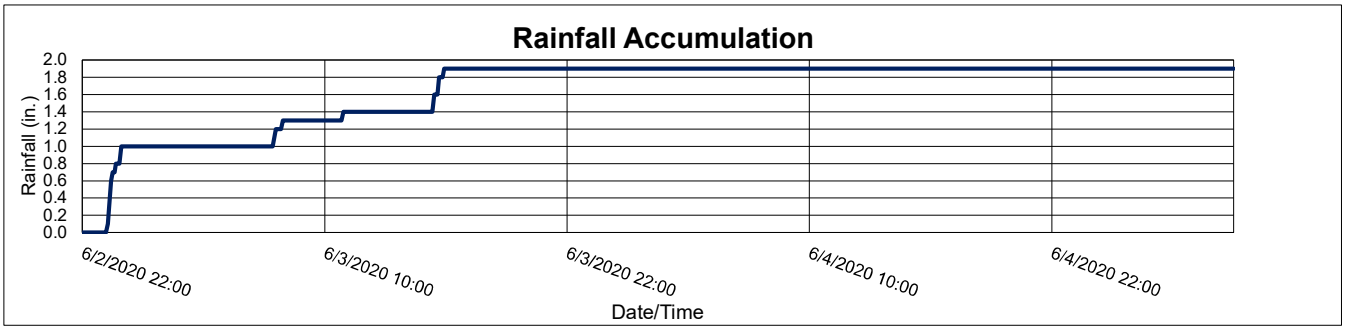
| | |
|---|---|
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/2/2020 23:10 |
| Event End Date/Time: | 6/5/2020 6:25 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.9 in. |
| Storm Event Duration: | 57 hr. |
| Storm Type: | Less than one year |

**Recommended Operational Changes/Notes:**



# June 10, 2020 2

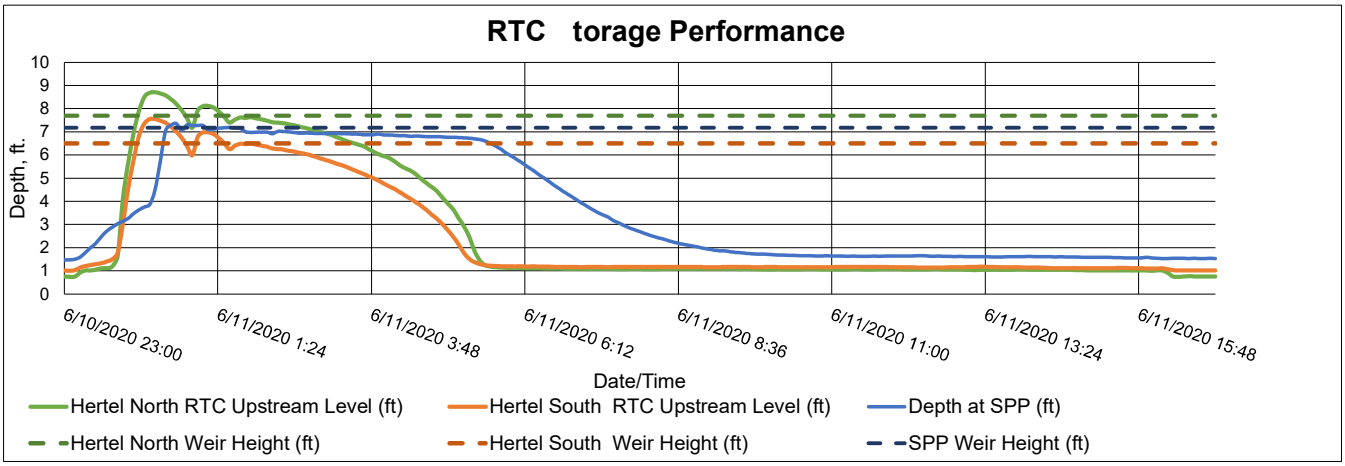
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 6/10/2020 23:45 |
| Time All Gates Returned to Normal: | 6/11/2020 16:20 |
| Gate Activation Trigger Depth: | 1.50 (South Side) ft. |
| Return to Normal Depth: | 1.07 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,900,141 Gal. |
| Unused Storage Volume: | 0 Gal. |

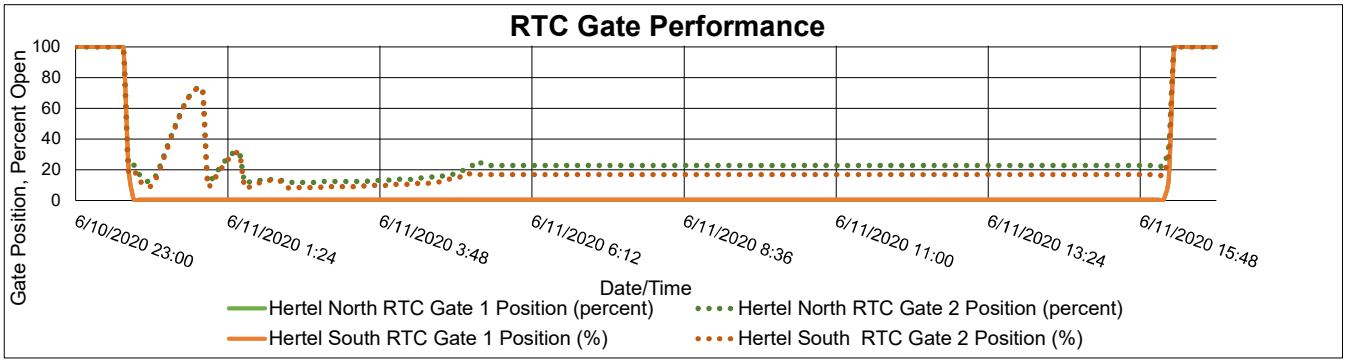
| | |
|---|---|
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/10/2020 23:45 |
| Event End Date/Time: | 6/11/2020 16:20 |

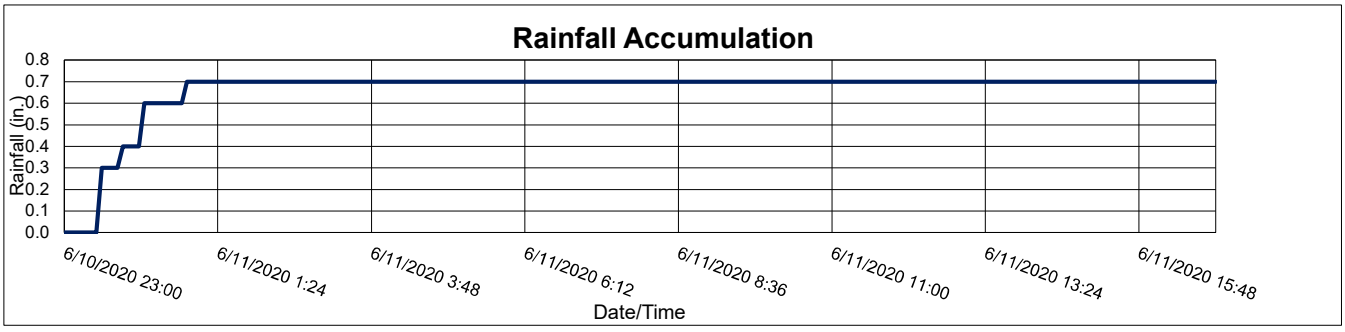
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 88% |
| Overflow Volume: | 551,635 Gal. |
| Overflow Volume Prevented: | 3,900,141 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**



# June 22, 2020 3

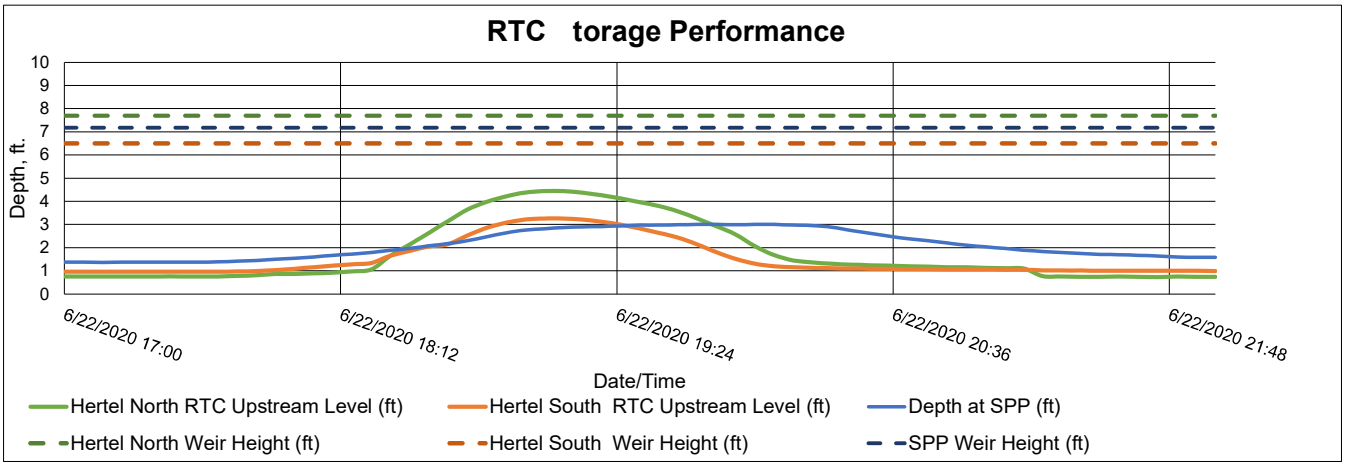
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 6/22/2020 18:15 |
| Time All Gates Returned to Normal: | 6/22/2020 21:20 |
| Gate Activation Trigger Depth: | 1.28 (South Side) ft. |
| Return to Normal Depth: | 1.05 (South Side) ft. |
| Minimum Distance to Top of Weir: | 3.24 ft. |
| Volume Stored: | 967,427 Gal. |
| Unused Storage Volume: | 2,960,228 Gal. |

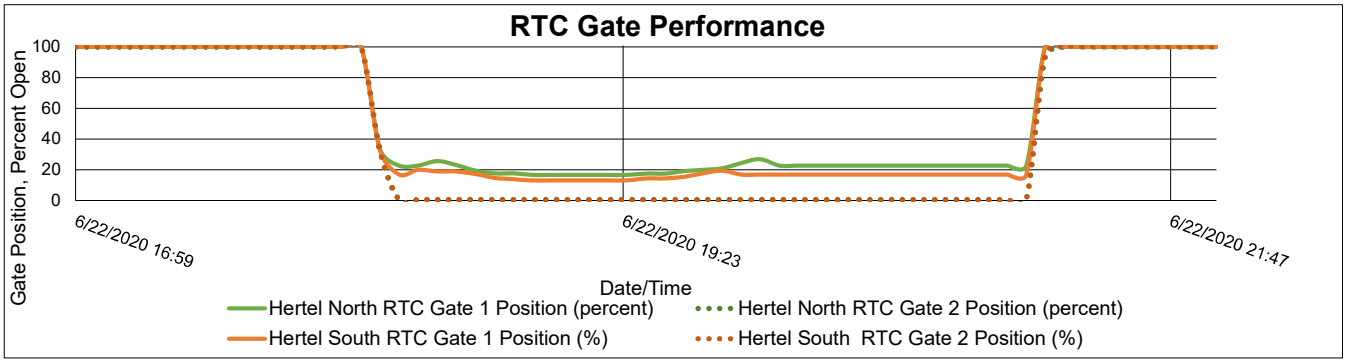
| | |
|---|---|
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/22/2020 18:15 |
| Event End Date/Time: | 6/22/2020 21:15 |

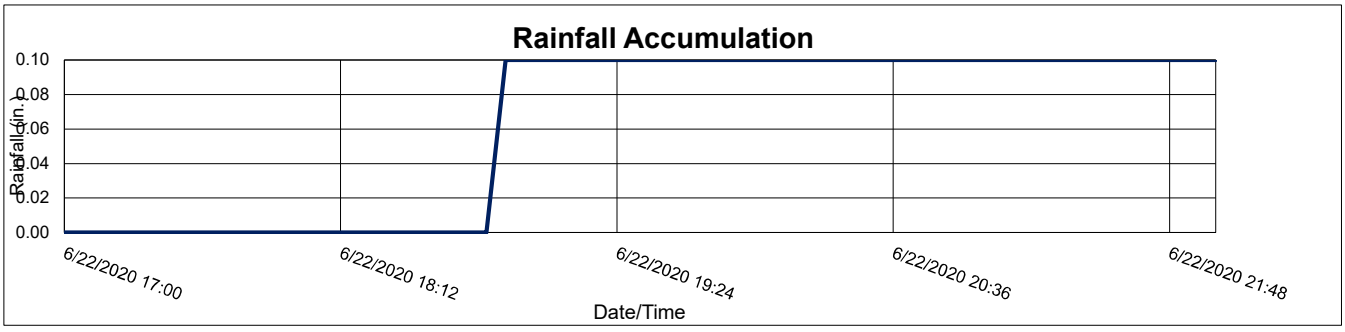
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.1 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 967,427 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**



# June 23, 2020 — 4

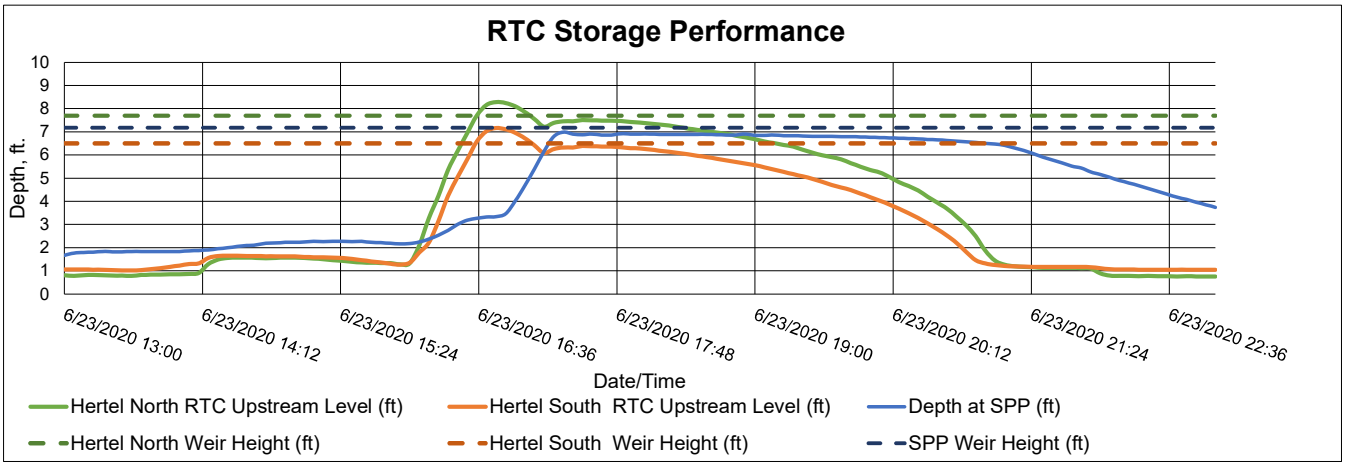
| | |
|---|---|
| Site: | Hertel at Deer RTC |
| Time All Gates Active: | 6/23/2020 14:05 |
| Time All Gates Returned to Normal: | 6/23/2020 22:05 |
| Gate Activation Trigger Depth: | 1.29 (South Side) ft. |
| Return to Normal Depth: | 1.11 (South Side) ft. |
| Minimum Distance to Top of Weir: | 0.00 ft. |
| Volume Stored: | 3,931,361 Gal. |
| Unused Storage Volume: | 0 Gal. |

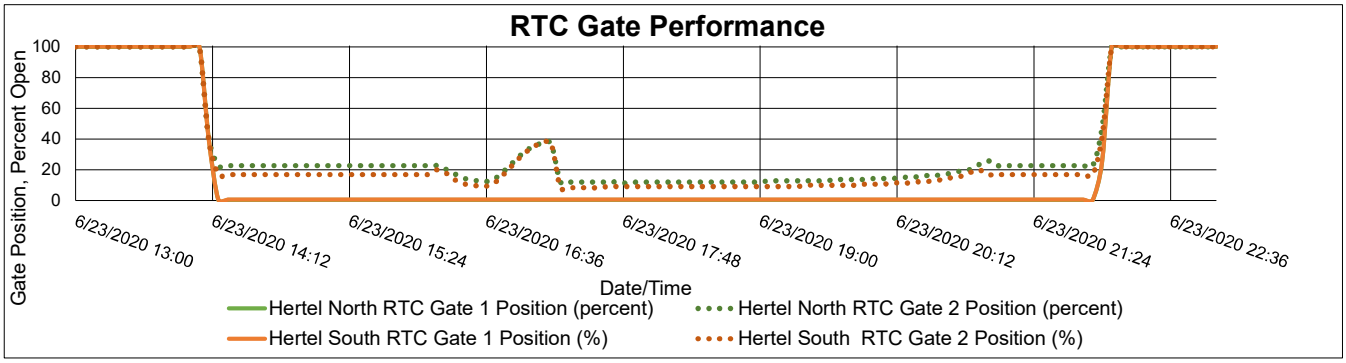
| | |
|---|---|
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/23/2020 14:05 |
| Event End Date/Time: | 6/23/2020 22:05 |

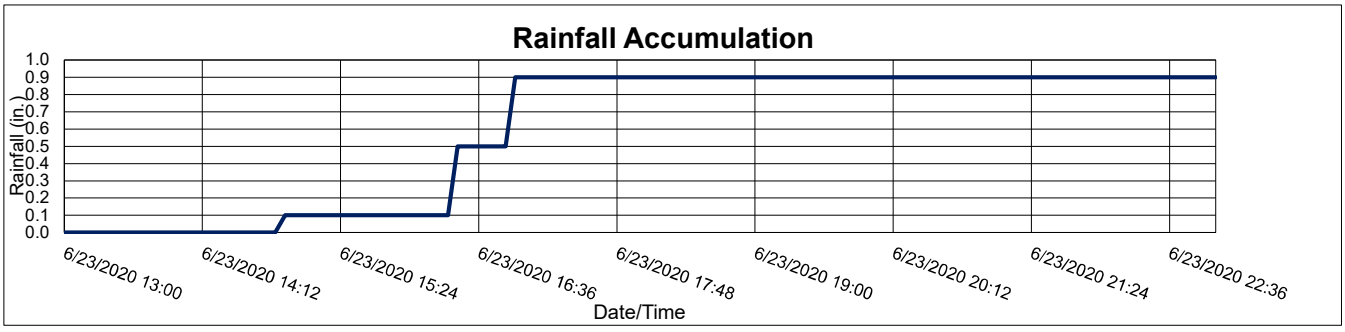
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.9 in. |
| Storm Event Duration: | 10 hr. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 3,931,361 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**



# June 27, 2020 — 5

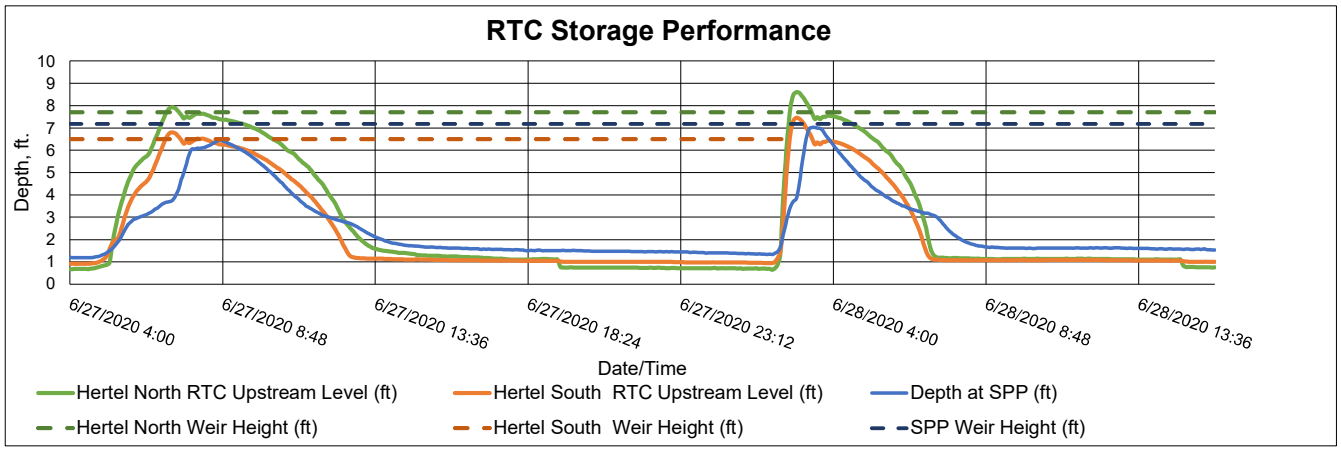
| | | | |
|---|---|---|---|
| Site: | Hertel at Deer RTC | | |
| Time All Gates Active: | 6/27/2020 5:10 | | |
| Time All Gates Returned to Normal: | 6/28/2020 15:05 | | |
| Gate Activation Trigger Depth: | 1.29 | (South Side) | ft. |
| Return to Normal Depth: | 1.03 | (South Side) | ft. |
| Minimum Distance to Top of Weir: | 0.00 | | ft. |
| Volume Stored: | 5,791,124 | | Gal. |
| Unused Storage Volume: | 0 | | Gal. |

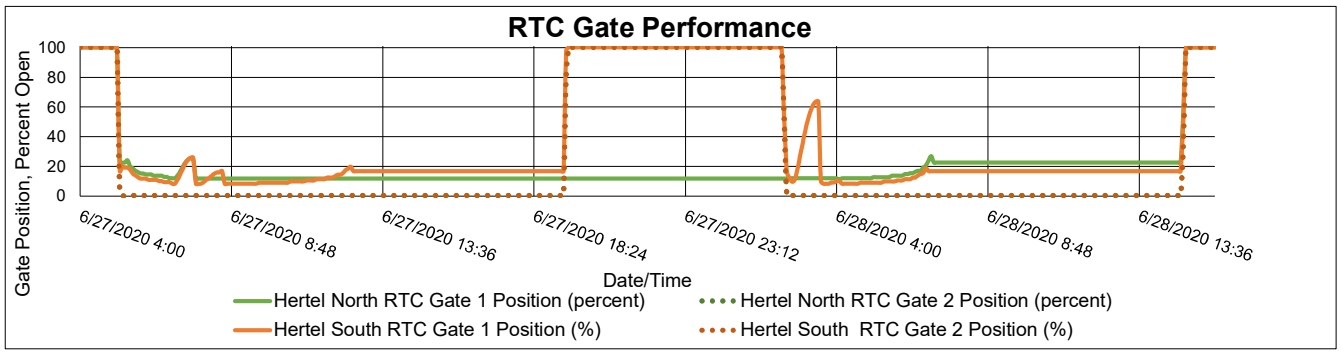
| | | |
|---|---|---|
| Percent Capture | 100% | |
| Overflow Volume: | 0 | Gal. |
| Overflow Volume Prevented: | 5,791,124 | Gal. |
| SPP Activation Prevented: | Yes | |
| If No, what is the overflow volume when storage was available upstream? | NA | Gal. |
| If No, could SPP activation have been prevented? | NA | |

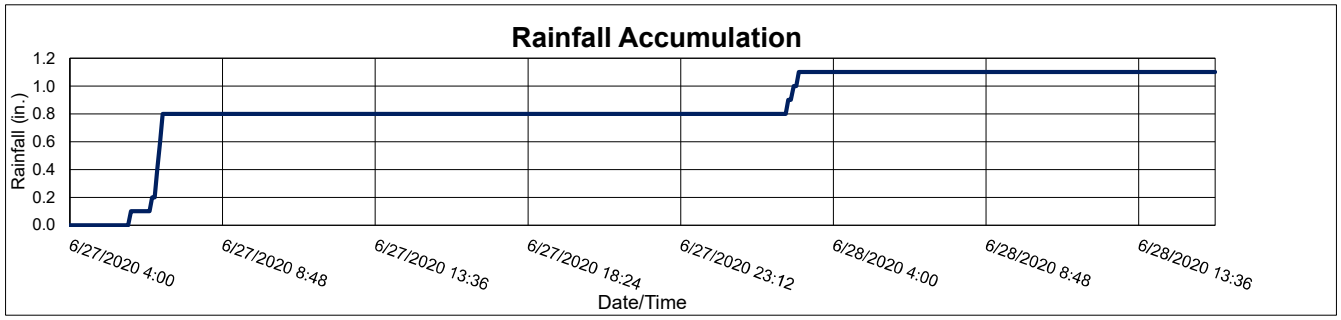
| | |
|---|---|
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/27/2020 5:10 |
| Event End Date/Time: | 6/28/2020 15:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 19 hr. |
| Storm Type: | Less than one year |

**Recommended Operational Changes/Notes:**



# July 2019 Lang Ave. RTC KPI Report

(Gates were in manual open due to maintenance issues with the upstream level sensor)

# August 2019 Lang Ave. and Hazelwood RTC KPI Report

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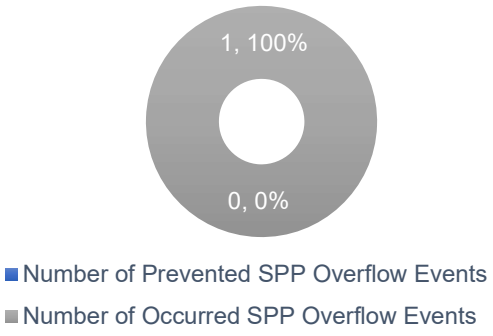
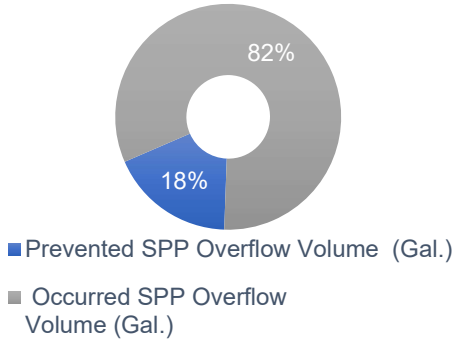
# Hazelwood Ave. RTC Monthly Performance Report August 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| 0 | 1 | 1,253,873 | 5,746,633 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 8/21/2019 | 1,253,873 | 5,746,633 | 18% |
| | | | |
| | | | |

# August 21, 2019 1

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 0.29 ft. |
| Return to Normal Depth: | - ft. | 1.63 ft. |
| Time Gate 1 Activated: | - | 8/21/2019 3:30 |
| Time Gate 2 Activated: | - | 8/21/2019 3:30 |
| Time Gate 1 Returned to Normal: | - | 8/21/2019 7:55 |
| Time Gate 2 Returned to Normal: | - | 8/21/2019 7:55 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | - ft. | 8.40 ft. |
| Volume Stored: | - Gal. | 1,253,873 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 0 Gal. |

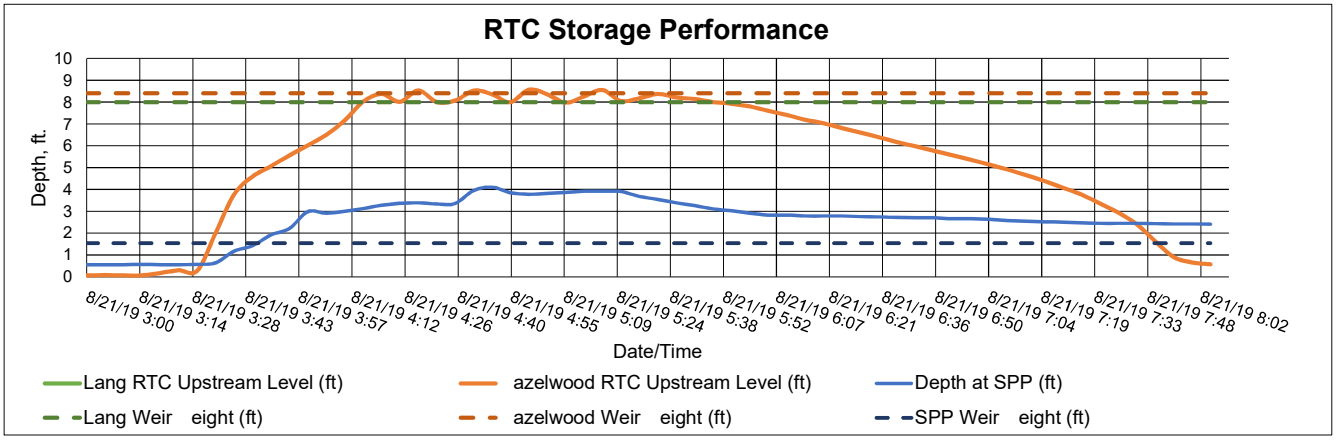
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 10/17/2019 |
| Event Start Date/Time: | 8/21/2019 3:30 |
| Event End Date/Time: | 8/21/2019 7:55 |

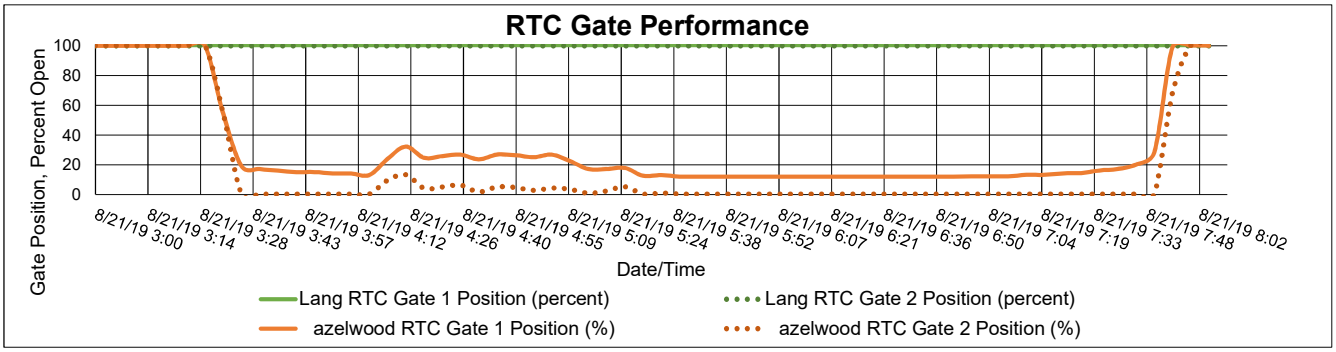
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.75 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than 5 yr. storm |

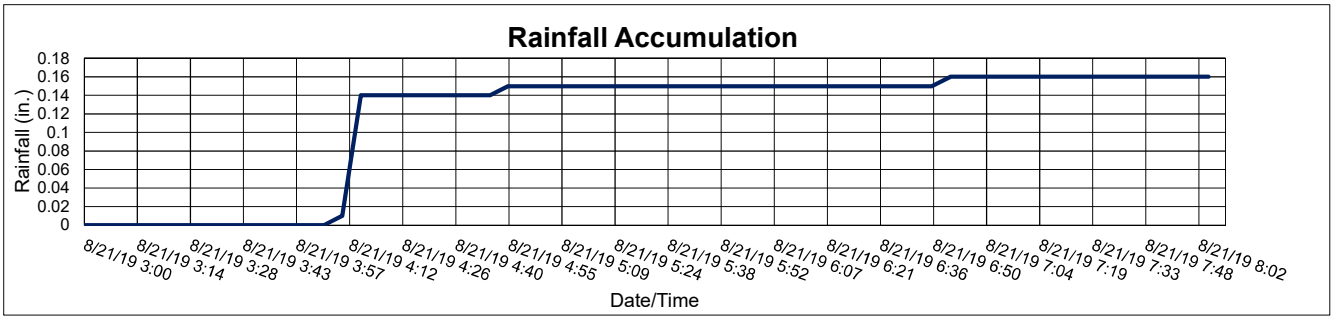
| | |
|---|---|
| Percent Capture | 18% |
| Overflow Volume: | 5,746,633 Gal. |
| Overflow Volume Prevented: | 1,253,873 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | 5,746,633 Gal. |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of August (waiting on an upstream level sensor replacement). Hazelwood was placed in emergency open mode from 8/2 to 8/17 and 8/24 to 8/26.



# September 2019 Lang Ave. and Hazelwood RTC KPI Report

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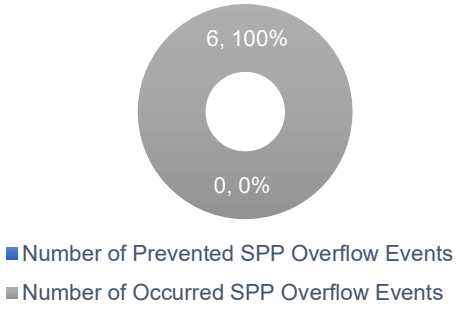
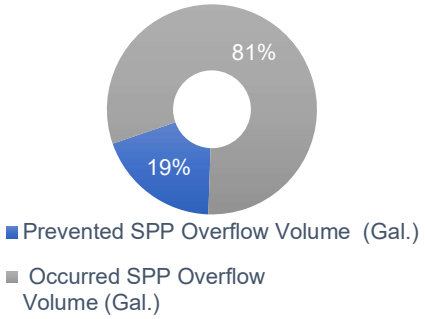
# Hazelwood Ave. RTC Monthly Performance Report — September 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| 0 | 6 | 3,808,340 | 16,098,195 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 9/2/2019 | 1,177,590 | 5,065,941 | 19% |
| 9/11/2019 | 1,152,606 | 4,856,365 | 19% |
| 9/11/2019 | 794,547 | 2,432,061 | 25% |
| 9/14/2019 | 7,077 | 941,171 | 1% |
| 9/23/2019 | 346,897 | 1,424,126 | 20% |
| 9/26/2019 | 329,623 | 1,378,531 | 19% |

# September 2, 2019 1

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 1.50 ft. |
| Return to Normal Depth: | - ft. | 1.14 ft. |
| Time Gate 1 Activated: | - | 9/2/2019 3:45 |
| Time Gate 2 Activated: | - | 9/2/2019 3:45 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 8.40 ft. |
| Volume Stored: | 0 Gal. | 1,177,590 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 0 Gal. |

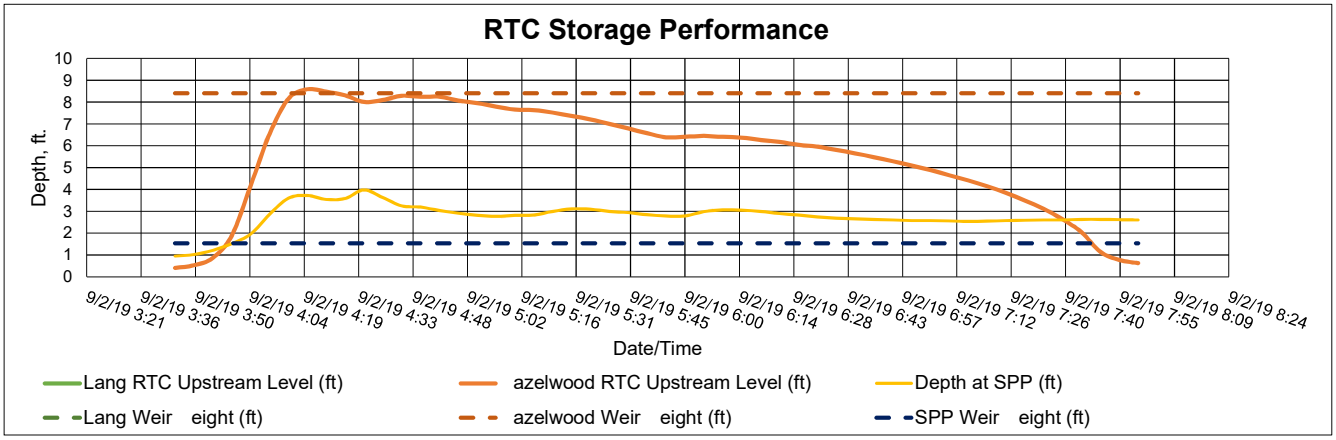
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/2/2019 3:45 |
| Event End Date/Time: | 9/2/2019 8:00 |

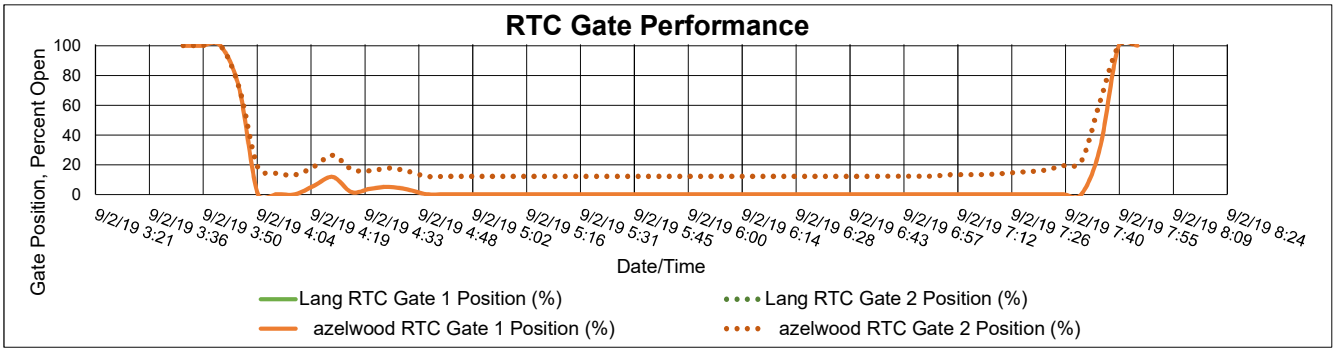
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.90 in. |
| Storm Event Duration: | 4 hr. |
| Storm Type: | Less than 5 yr. storm |

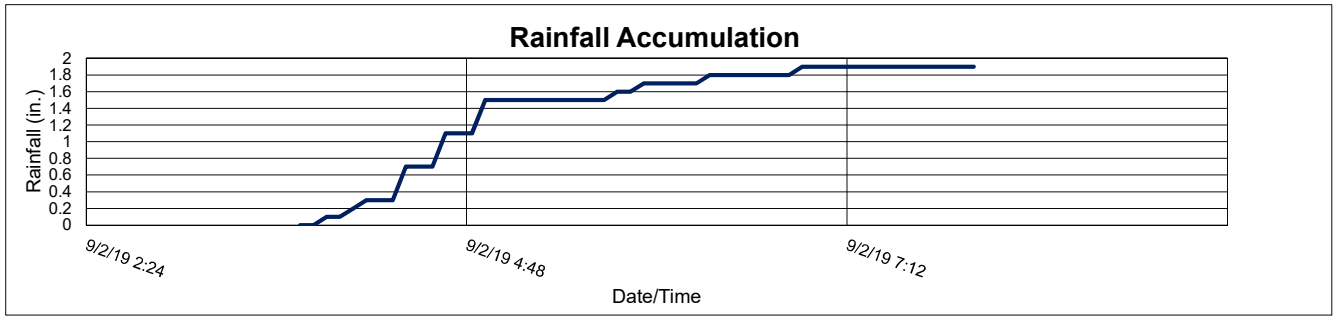
| | |
|---|---|
| Percent Capture | 19% |
| Overflow Volume: | 5,065,941 Gal. |
| Overflow Volume Prevented: | 1,177,590 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 5065941 |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# September 11, 2019 2

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 1.80 ft. |
| Return to Normal Depth: | - ft. | 1.16 ft. |
| Time Gate 1 Activated: | - | 9/11/2019 3:30 |
| Time Gate 2 Activated: | - | 9/11/2019 3:30 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 8.40 ft. |
| Volume Stored: | 0 Gal. | 1,152,606 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 0 Gal. |

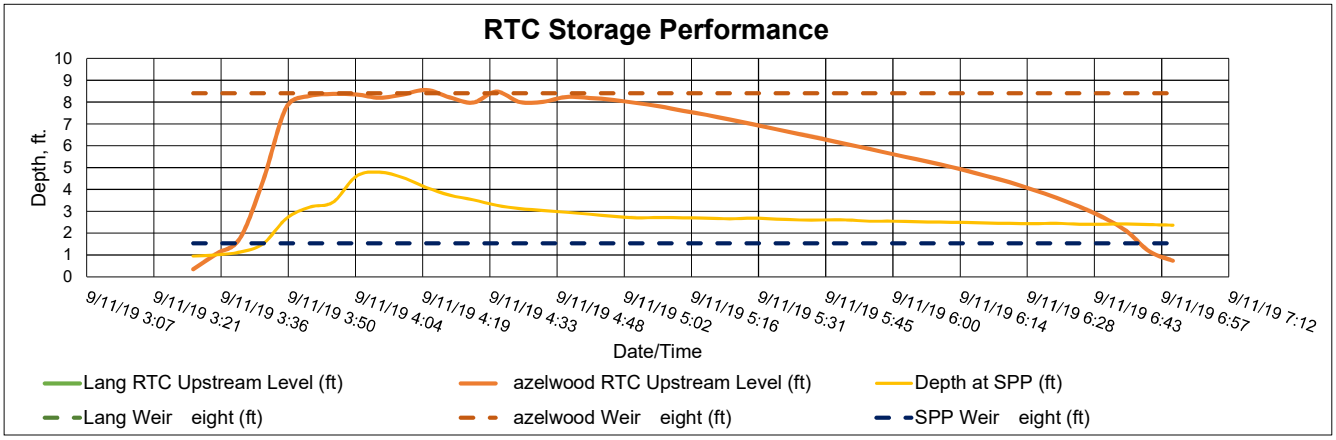
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/11/2019 3:30 |
| Event End Date/Time: | 9/11/2019 7:00 |

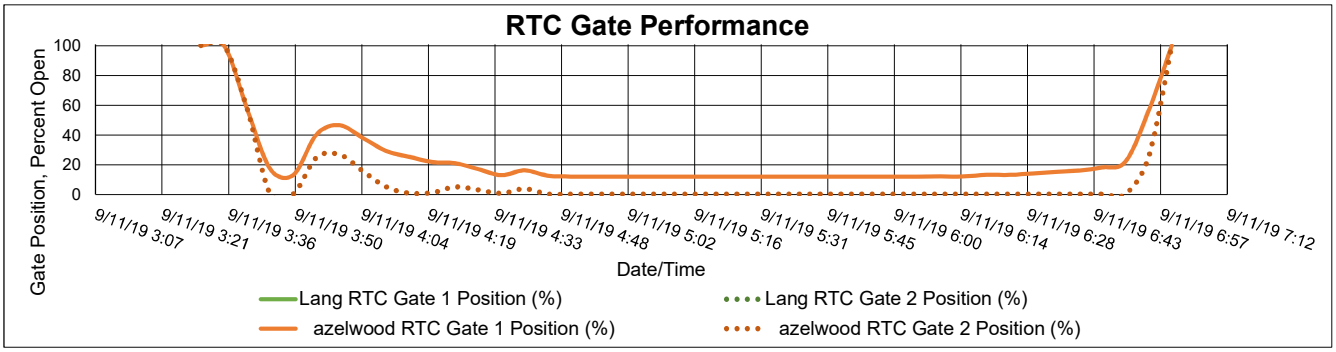
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 2.0 in. |
| Storm Event Duration: | 4 hr. |
| Storm Type: | Less than 10 yr. storm |

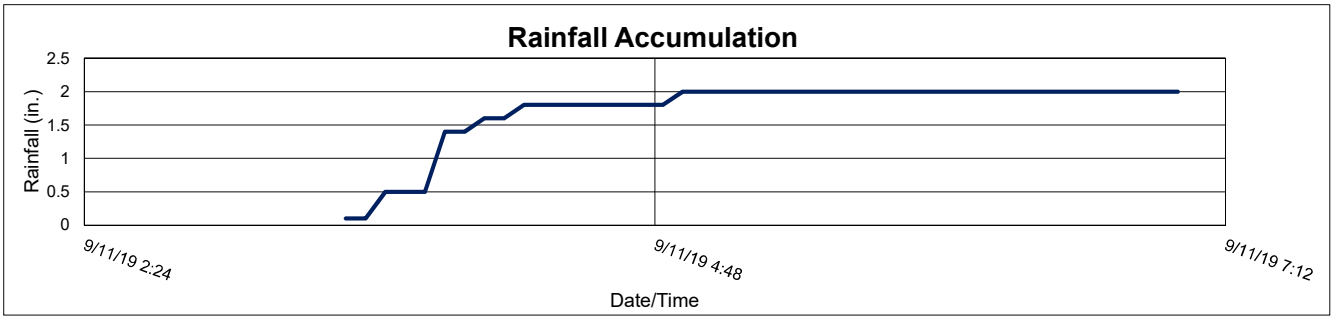
| | |
|---|---|
| Percent Capture | 19% |
| Overflow Volume: | 4,856,365 Gal. |
| Overflow Volume Prevented: | 1,152,606 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 4856365 |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# September 11, 2019 3

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 0.91 ft. |
| Return to Normal Depth: | - ft. | - ft. |
| Time Gate 1 Activated: | - | 9/11/2019 21:45 |
| Time Gate 2 Activated: | - | 9/11/2019 21:45 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 6.62 ft. |
| Volume Stored: | 0 Gal. | 794,547 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 425,026 Gal. |

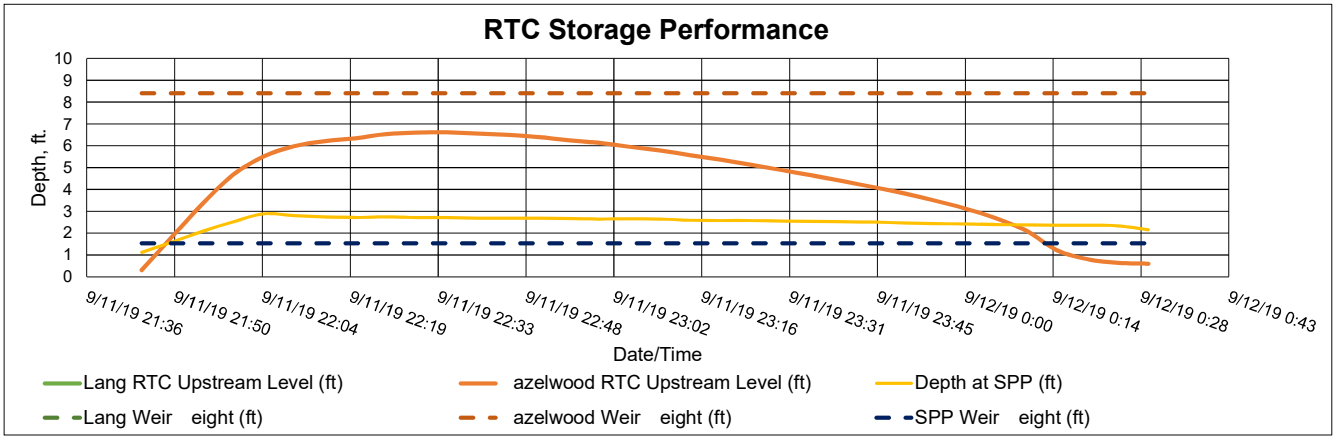
| | |
|---|---|
| Percent Capture | 25% |
| Overflow Volume: | 2,432,061 Gal. |
| Overflow Volume Prevented: | 794,547 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 2432061 |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

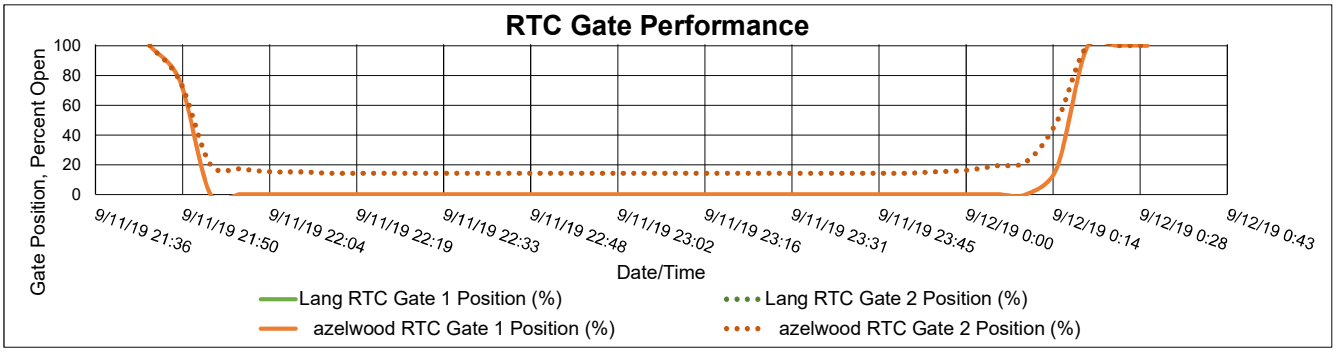
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/11/2019 21:45 |
| Event End Date/Time: | 9/12/2019 0:30 |

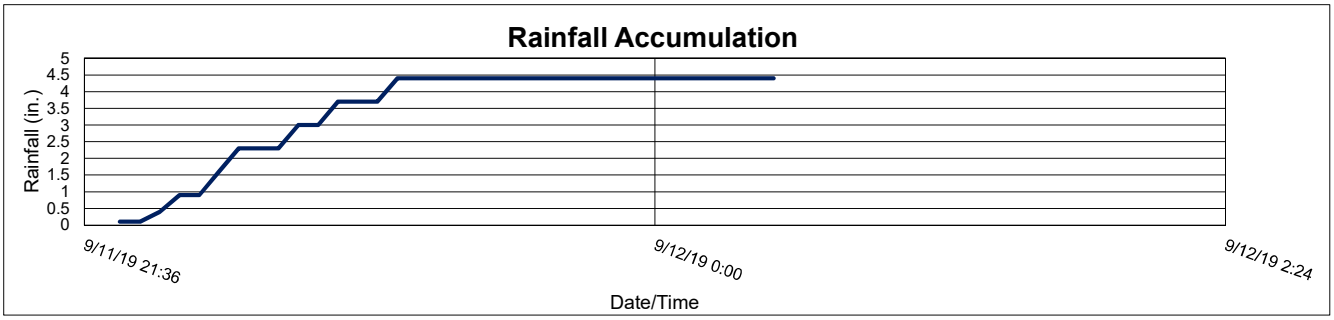
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 4.4 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | Less than 1000 yr. storm |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# September 14, 2019 4

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 2.38 ft. |
| Return to Normal Depth: | - ft. | 1.16 ft. |
| Time Gate 1 Activated: | - | 9/14/2019 1:30 |
| Time Gate 2 Activated: | - | 9/14/2019 1:30 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 2.44 ft. |
| Volume Stored: | 0 Gal. | 7,077 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 1,091,413 Gal. |

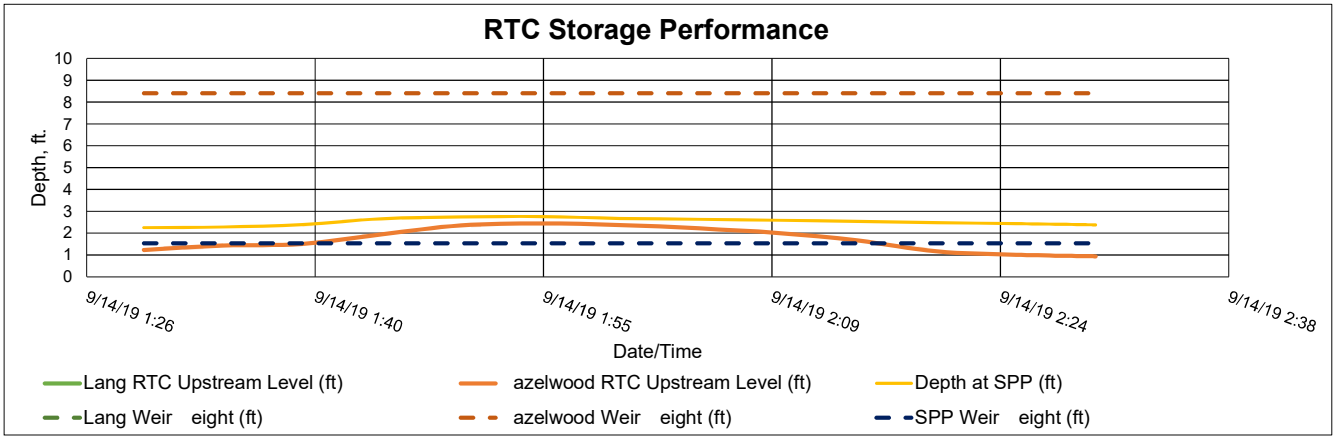
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/14/2019 1:30 |
| Event End Date/Time: | 9/14/2019 2:30 |

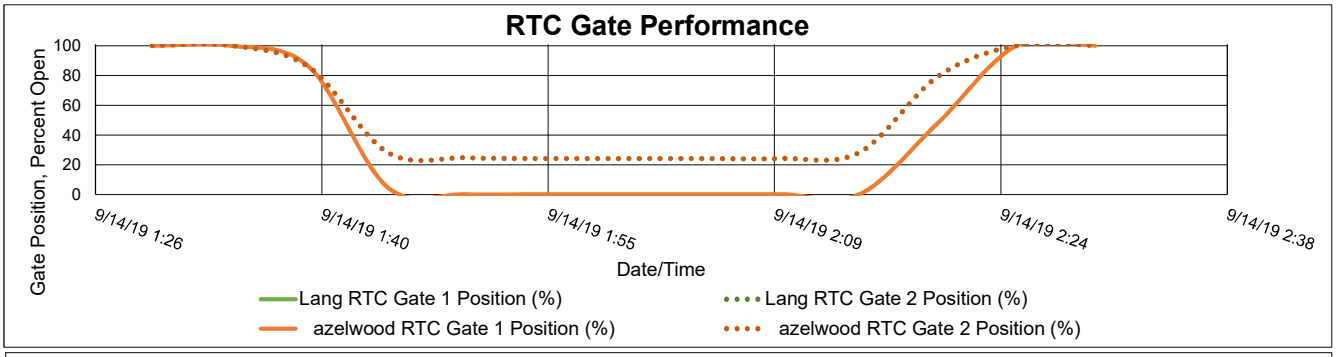
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.8 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | Less than 1 yr. storm |

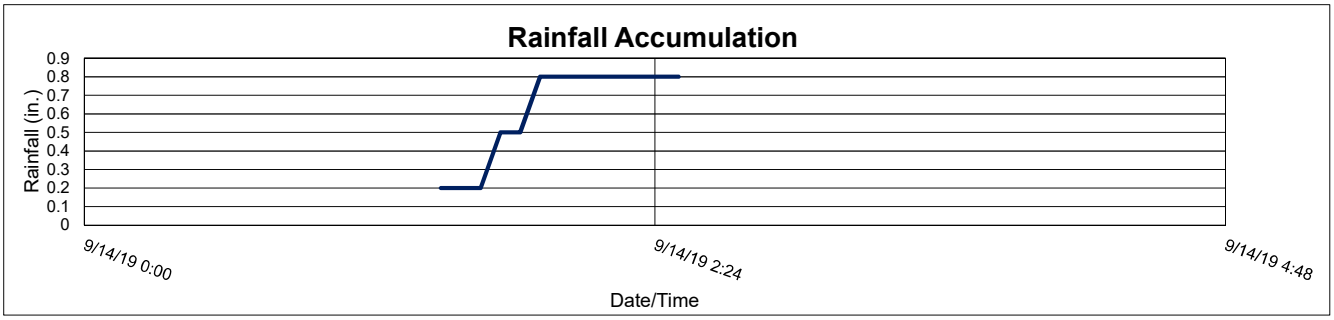
| | |
|---|---|
| Percent Capture | 1% |
| Overflow Volume: | 941,171 Gal. |
| Overflow Volume Prevented: | 7,077 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 941171 |
| If No, could SPP activation have been prevented? | Yes |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# September 23, 2019 5

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 1.86 ft. |
| Return to Normal Depth: | - ft. | 1.03 ft. |
| Time Gate 1 Activated: | - | 9/23/2019 18:00 |
| Time Gate 2 Activated: | - | 9/23/2019 18:00 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 4.63 ft. |
| Volume Stored: | 0 Gal. | 346,897 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 801,144 Gal. |

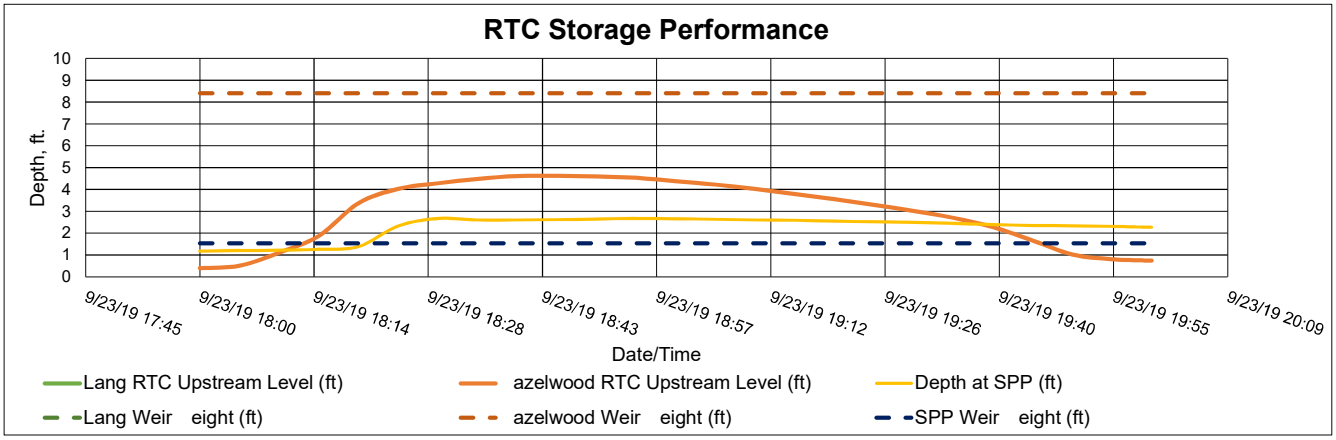
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/23/2019 18:00 |
| Event End Date/Time: | 9/23/2019 20:00 |

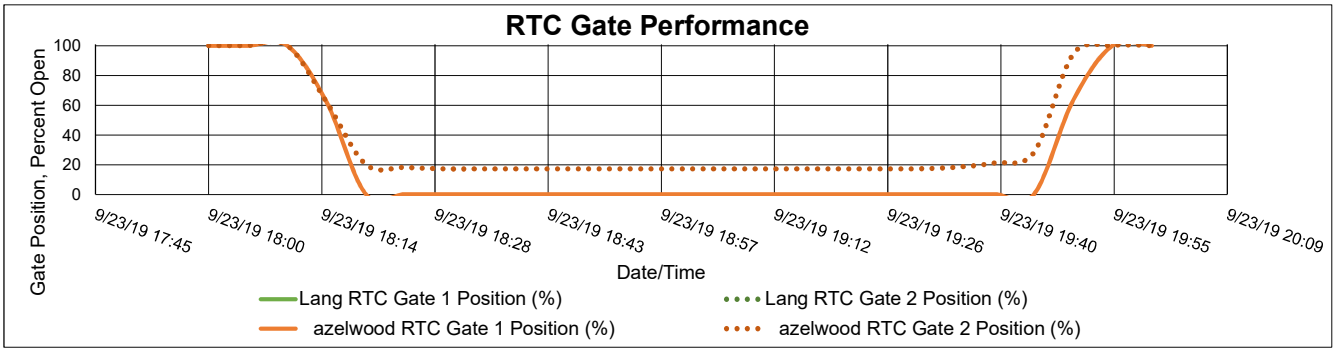
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 2 hr. |
| Storm Type: | Less than 1 yr. storm |

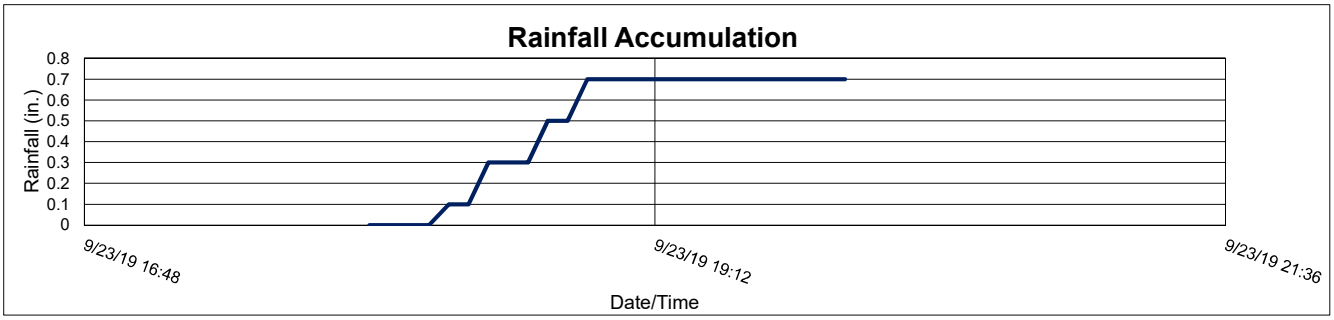
| | |
|---|---|
| Percent Capture | 20% |
| Overflow Volume: | 1,424,126 Gal. |
| Overflow Volume Prevented: | 346,897 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 1424126 |
| If No, could SPP activation have been prevented? | Yes |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# September 26, 2019 — 6

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 1.12 ft. |
| Return to Normal Depth: | - ft. | 1.01 ft. |
| Time Gate 1 Activated: | - | 9/26/2019 7:15 |
| Time Gate 2 Activated: | - | 9/26/2019 7:15 |
| Time Gate 1 Returned to Normal: | - | N/A |
| Time Gate 2 Returned to Normal: | - | N/A |
| Depth of Weir | 8 ft. | 8.4 ft. |
| Maximum Depth Reached: | 0.00 ft. | 4.14 ft. |
| Volume Stored: | 0 Gal. | 329,623 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 876,465 Gal. |

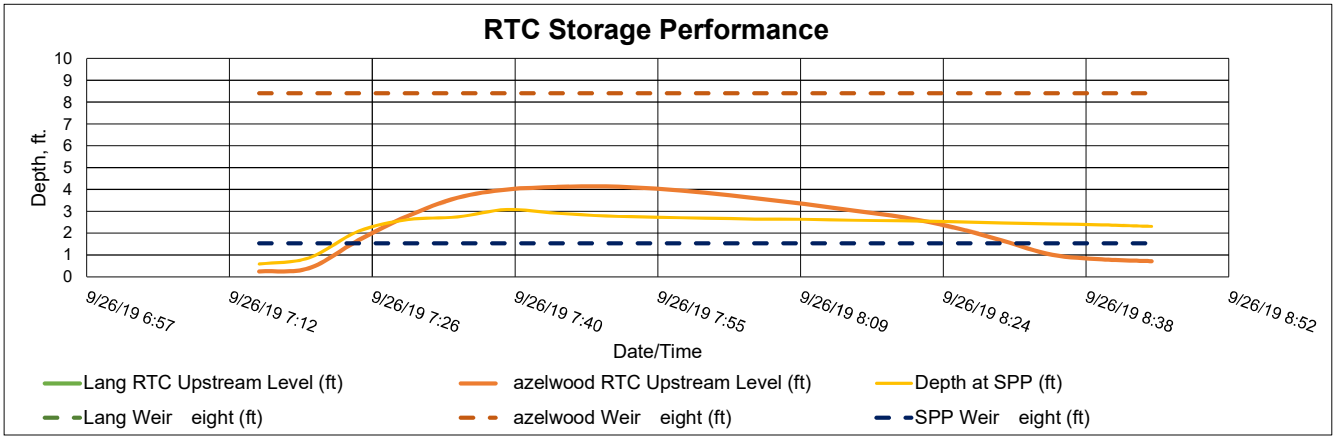
| | |
|---|---|
| SPP: | Hazelwood |
| Analysis Date: | 10/14/2019 |
| Event Start Date/Time: | 9/26/2019 7:15 |
| Event End Date/Time: | 9/26/2019 8:45 |

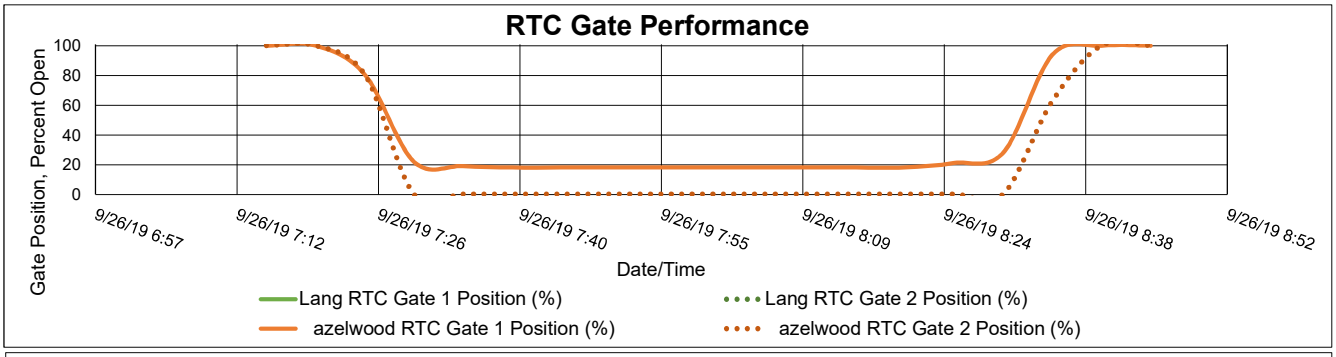
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.8 in. |
| Storm Event Duration: | 1.5 hr. |
| Storm Type: | Less than 25 yr. storm |

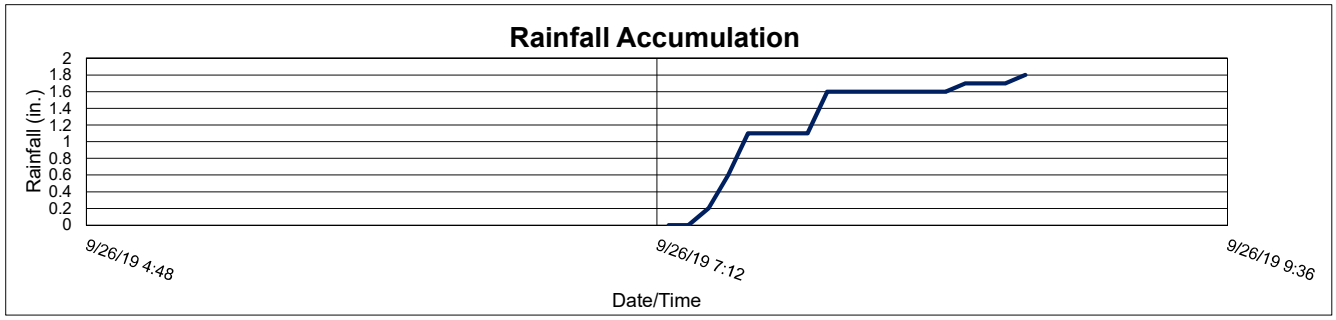
| | |
|---|---|
| Percent Capture | 19% |
| Overflow Volume: | 1,378,531 Gal. |
| Overflow Volume Prevented: | 329,623 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 1378531 |
| If No, could SPP activation have been prevented? | Yes |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**

Lang was in emergency open mode for the entire month of September (waiting on an upstream level sensor replacement).



# October 2019 Lang Ave. and Hazelwood RTC KPI Report

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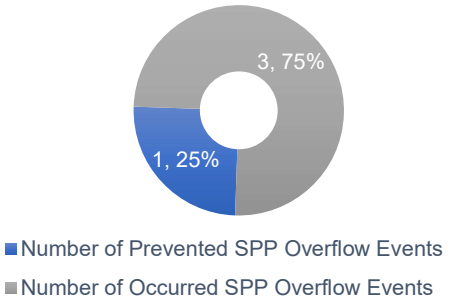
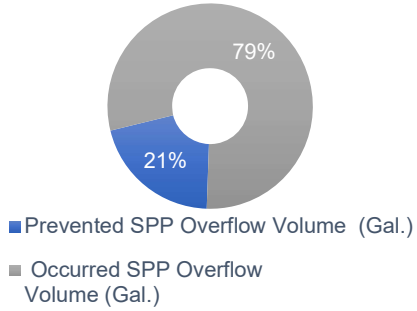
# Lang Ave & Hazelwood RTC Monthly Performance Report — October 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Overflow Volume (Gal.) |
|---|---|---|---|
| 1 | 3 | 4,090,093 | 15,765,967 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 10/2/2019 | 151,592 | 930,492 | 14% |
| 10/15/2019 | 2,626 | - | 100% |
| 10/27/2019 | 2,009,059 | 4,988,677 | 29% |
| 10/31/2019 | 1,926,816 | 9,846,798 | 16% |

# October 2, 2019 1

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 0.99 ft. |
| Return to Normal Depth: | - ft. | 1.05 ft. |
| Time Gate 1 Activated: | - | 10/2/2019 5:15 |
| Time Gate 2 Activated: | - | 10/2/2019 5:15 |
| Time Gate 1 Returned to Normal: | - | 10/2/2019 6:15 |
| Time Gate 2 Returned to Normal: | - | 10/2/2019 6:15 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | (1.28) ft. | 2.71 ft. |
| Volume Stored: | - Gal. | 151,592 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 1,063,070 Gal. |

| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/2/2019 5:15 |
| Event End Date/Time: | 10/2/2019 6:15 |

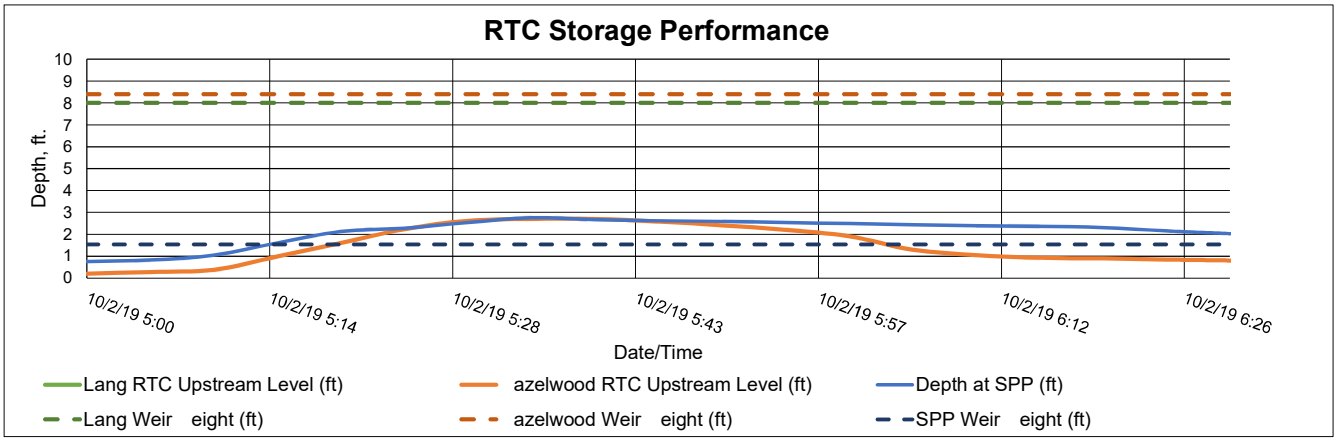
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 2 hr. |
| Storm Type: | Less than 1 yr. storm |

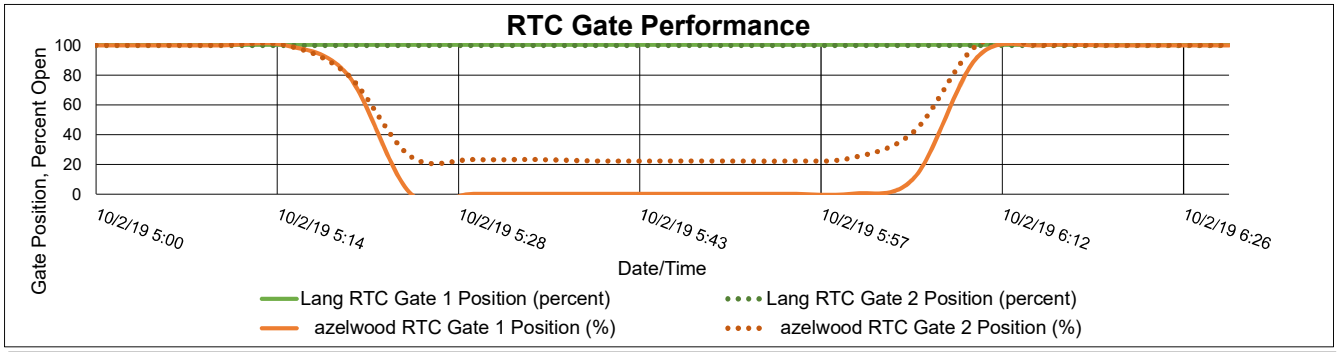
| | |
|---|---|
| Percent Capture | 14% |
| Overflow Volume: | 930,492 Gal. |
| Overflow Volume Prevented: | 151,592 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | 930,492 Gal. |
| If No, could SPP activation have been prevented? | Yes |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

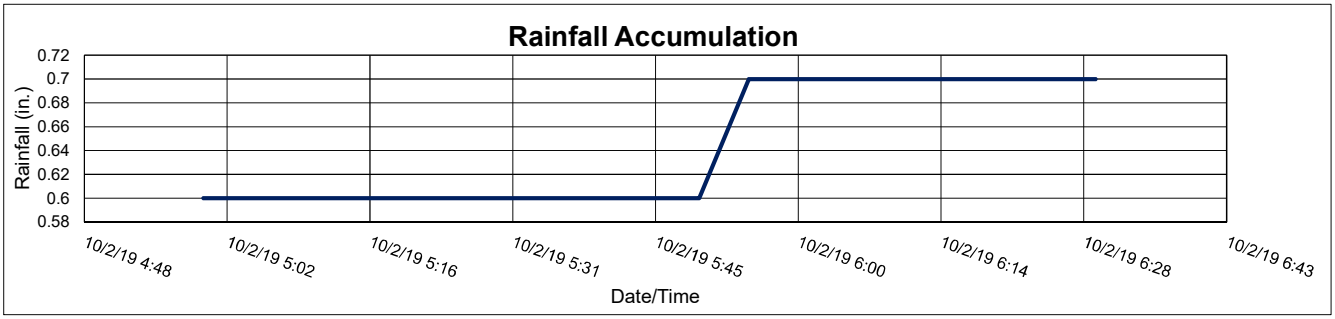
**Recommended Operational Changes/Notes:**

Lang upstream depth sensor was out of service during this event, returned to service on October 7, 2019.

Lang RTC did not activate during this event



# October 15, 2019 2

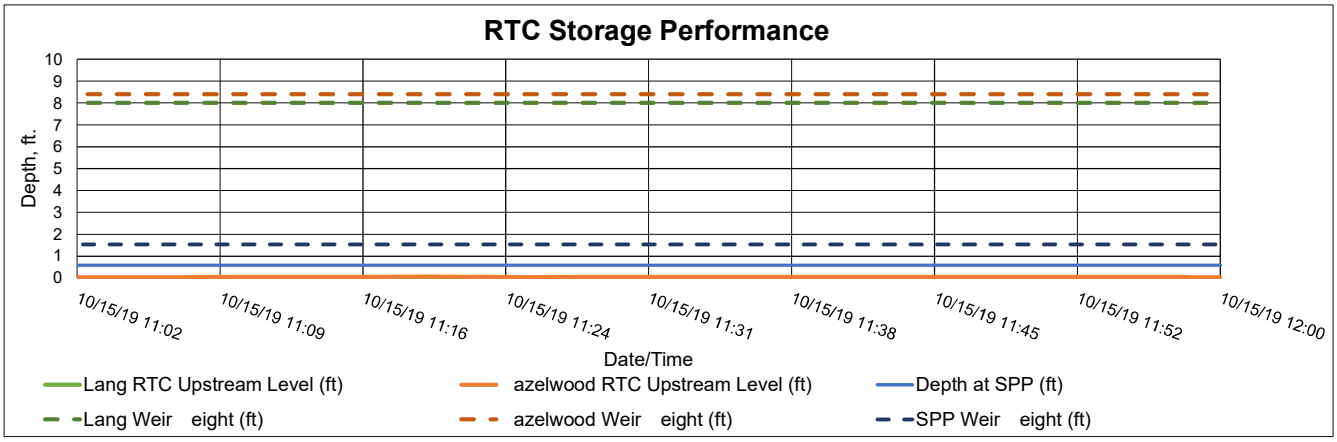
| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | - ft. |
| Return to Normal Depth: | - ft. | 0.06 ft. |
| Time Gate 1 Activated: | - | 10/15/2019 11:35 |
| Time Gate 2 Activated: | - | 10/15/2019 11:15 |
| Time Gate 1 Returned to Normal: | - | 10/15/2019 11:55 |
| Time Gate 2 Returned to Normal: | - | 10/15/2019 11:55 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | (0.02) ft. | 0.07 ft. |
| Volume Stored: | - Gal. | 2,626 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 1,263,545 Gal. |

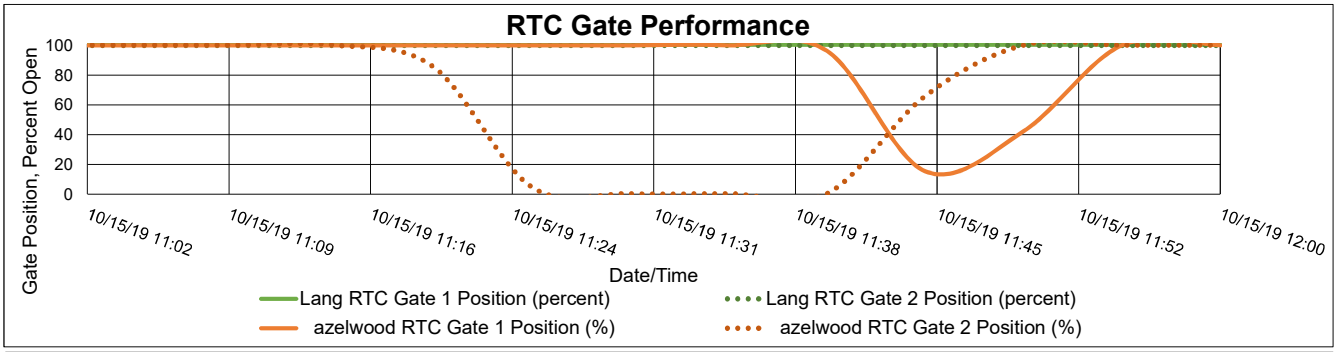
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/15/2019 11:10 |
| Event End Date/Time: | 10/15/2019 11:55 |

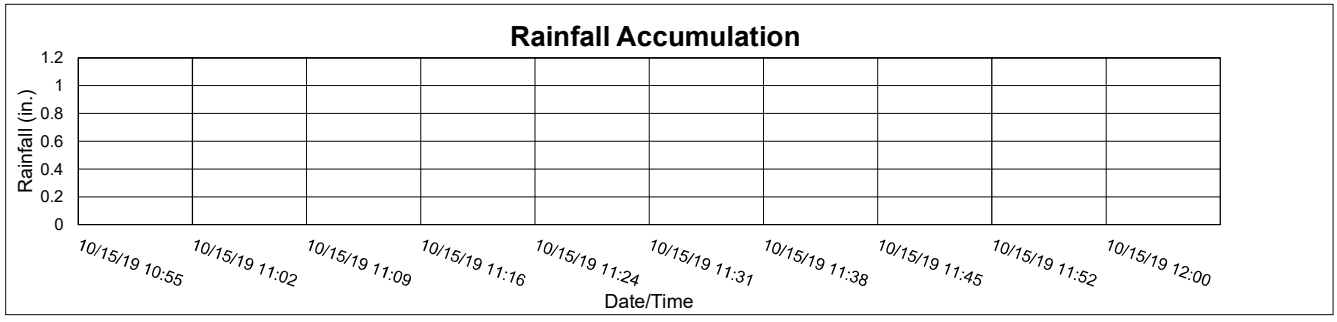
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 2,626 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |
| If es, could SPP activation have been prevented without azelwood storage? | Yes |

**Recommended Operational Changes/Notes:**



# October 27, 2019 — 3

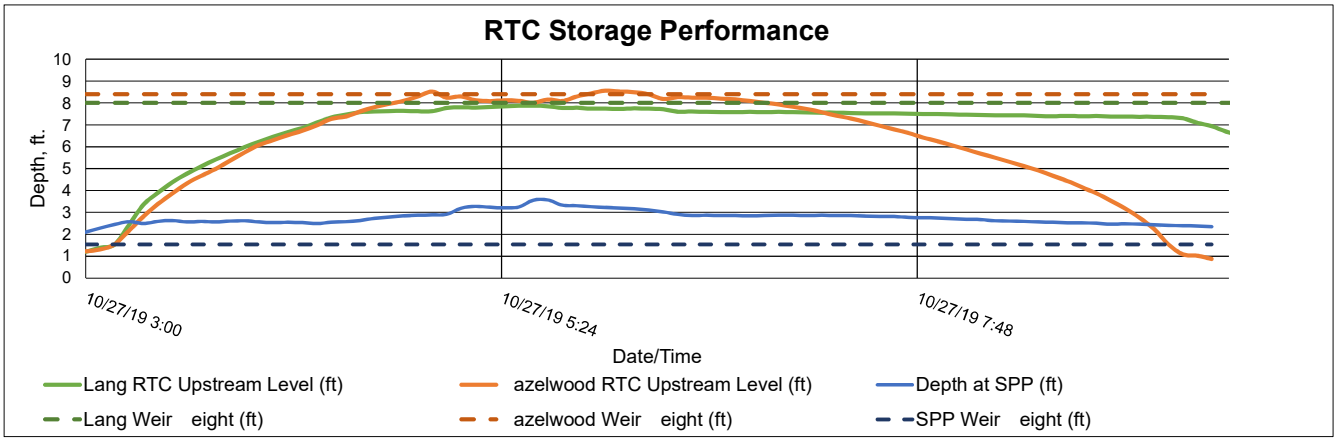
| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | 1.39 ft. | 1.31 ft. |
| Return to Normal Depth: | 0.64 ft. | 1.55 ft. |
| Time Gate 1 Activated: | 10/27/2019 3:05 | 10/27/2019 3:05 |
| Time Gate 2 Activated: | 10/27/2019 3:05 | 10/27/2019 3:05 |
| Time Gate 1 Returned to Normal: | 10/27/2019 10:45 | 10/27/2019 9:20 |
| Time Gate 2 Returned to Normal: | 10/27/2019 10:45 | 10/27/2019 9:20 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | 7.88 ft. | 8.40 ft. |
| Volume Stored: | 816,771.74 Gal. | 1,192,287 Gal. |
| Unused Storage Volume: | 29,275 Gal. | 0 Gal. |

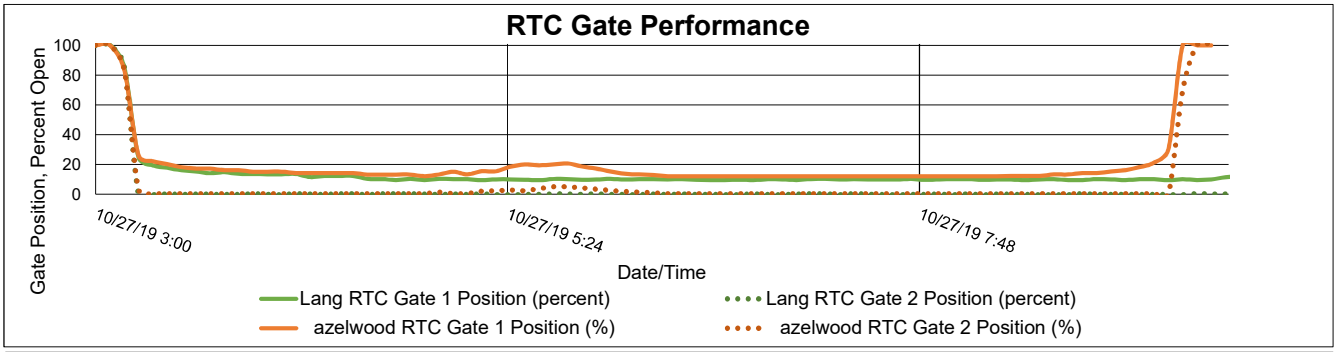
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/27/2019 3:05 |
| Event End Date/Time: | 10/27/2019 10:45 |

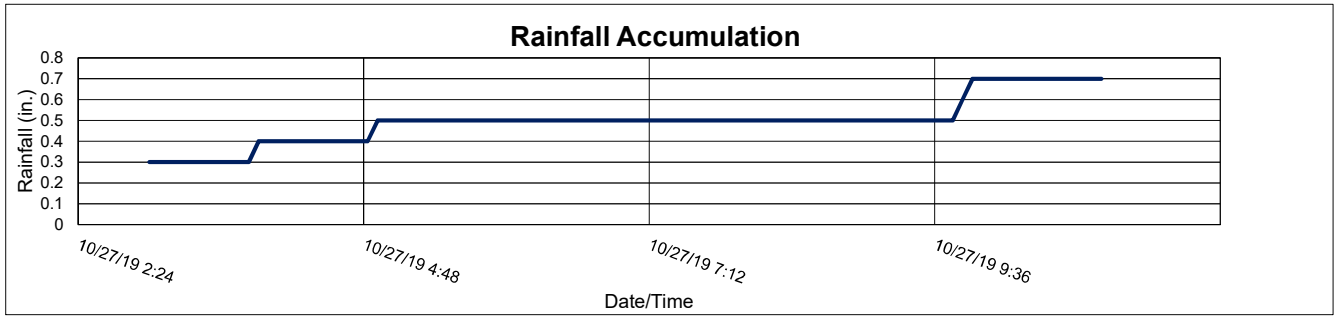
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Percent Capture | 29% |
| Overflow Volume: | 4,988,677 Gal. |
| Overflow Volume Prevented: | 2,009,059 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | 4,988,677 Gal. |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**



# October 31, 2019 4

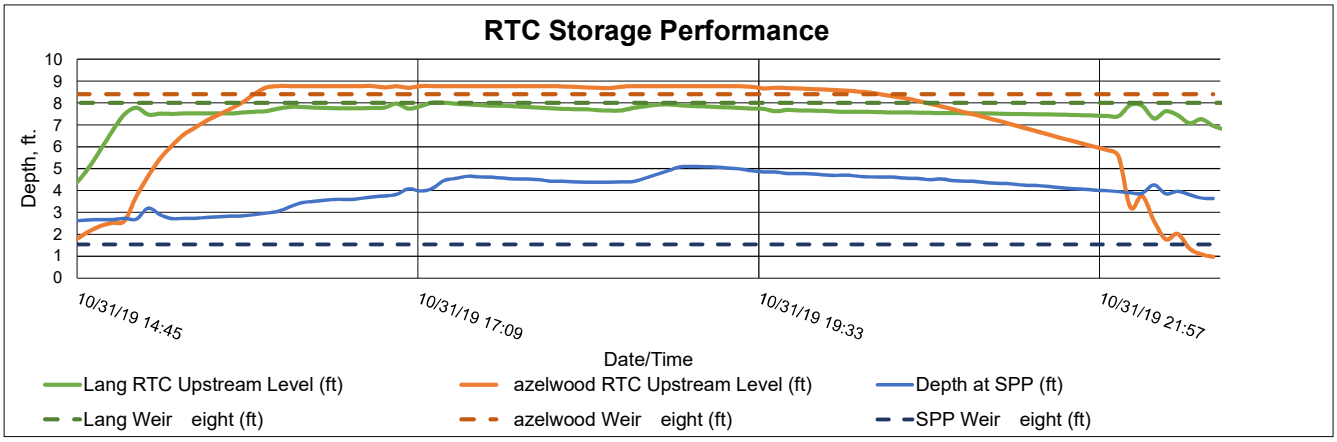
| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | 1.47 ft. | 2.52 ft. |
| Return to Normal Depth: | 0.75 ft. | 1.35 ft. |
| Time Gate 1 Activated: | 10/31/2019 13:55 | 10/31/2019 15:00 |
| Time Gate 2 Activated: | 10/31/2019 13:55 | 10/31/2019 15:00 |
| Time Gate 1 Returned to Normal: | 11/1/2019 0:00 | 10/31/2019 22:40 |
| Time Gate 2 Returned to Normal: | 11/1/2019 0:00 | 10/31/2019 22:40 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | 8.00 ft. | 8.40 ft. |
| Volume Stored: | 843,896.72 Gal. | 1,082,919 Gal. |
| Unused Storage Volume: | 0 Gal. | 0 Gal. |

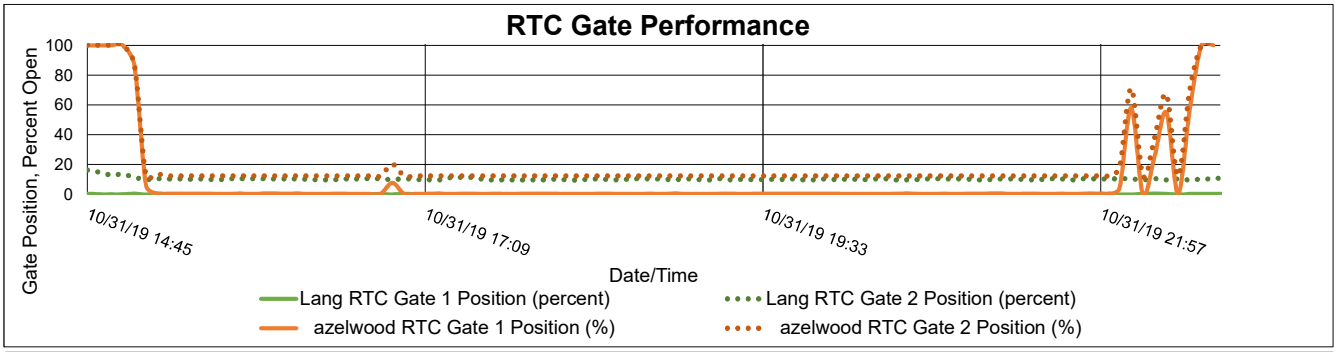
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/31/2019 13:55 |
| Event End Date/Time: | 11/1/2019 0:00 |

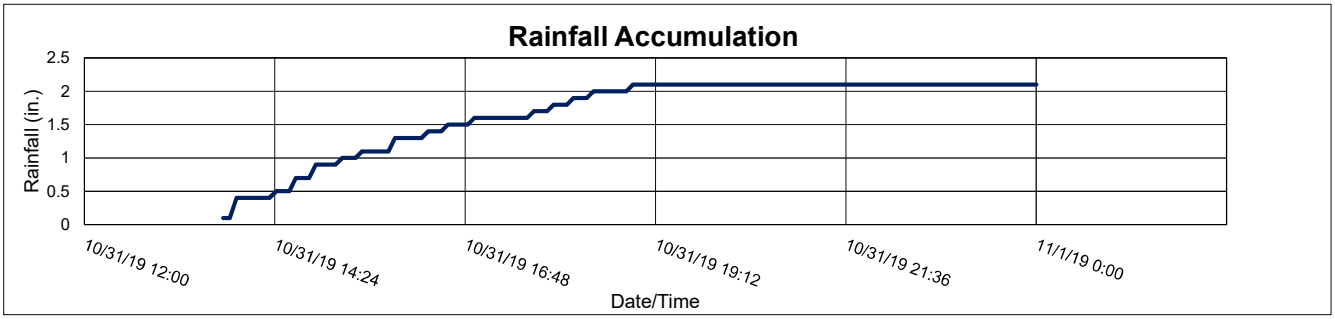
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 2.1 in. |
| Storm Event Duration: | 10 hr. |
| Storm Type: | Less than 5 yr. storm |

| | |
|---|---|
| Percent Capture | 16% |
| Overflow Volume: | 9,846,798 Gal. |
| Overflow Volume Prevented: | 1,926,816 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | No |
| If es, could SPP activation have been prevented without azelwood storage? | NA |

**Recommended Operational Changes/Notes:**



# November 2019 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)

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# January 2020 Lang Ave. and Hazelwood RTC KPI Report

(no events this month)

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# February 2020 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)

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# March 2020 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)

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# April 2020 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)

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# April 2020 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)

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# June 2020 Lang Ave. and Hazelwood RTC KPI Report

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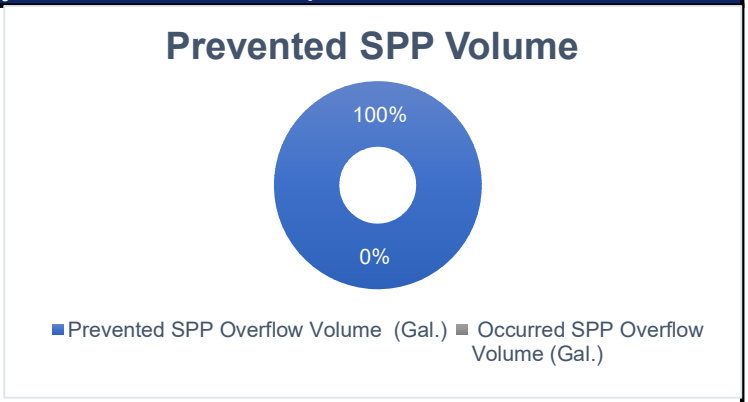
# Lang Ave & Hazelwood RTC Monthly Performance Report — June 2020




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.) |
|---|---|---|---|
| NA | NA | 2,994,423 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 6/2/2020 | 1,487,882 | - | 100% |
| 6/11/2020 | 875,736 | - | 100% |
| 6/23/2020 | 630,805 | - | 100% |

# June 2, 2020 1

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | 1.32 ft. | 5.55 ft. |
| Return to Normal Depth: | 0.79 ft. | 8.31 ft. |
| Time Gate 1 Activated: | 6/2/2020 22:40 | 6/2/2020 23:30 |
| Time Gate 2 Activated: | 6/2/2020 22:40 | 6/2/2020 23:30 |
| Time Gate 1 Returned to Normal: | 6/3/2020 4:15 | 6/3/2020 3:00 |
| Time Gate 2 Returned to Normal: | 6/3/2020 4:15 | 6/3/2020 3:00 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | 8.00 ft. | 8.40 ft. |
| Volume Stored: | 847,803 Gal. | 640,080 Gal. |
| Unused Storage Volume: | 0 Gal. | 0 Gal. |

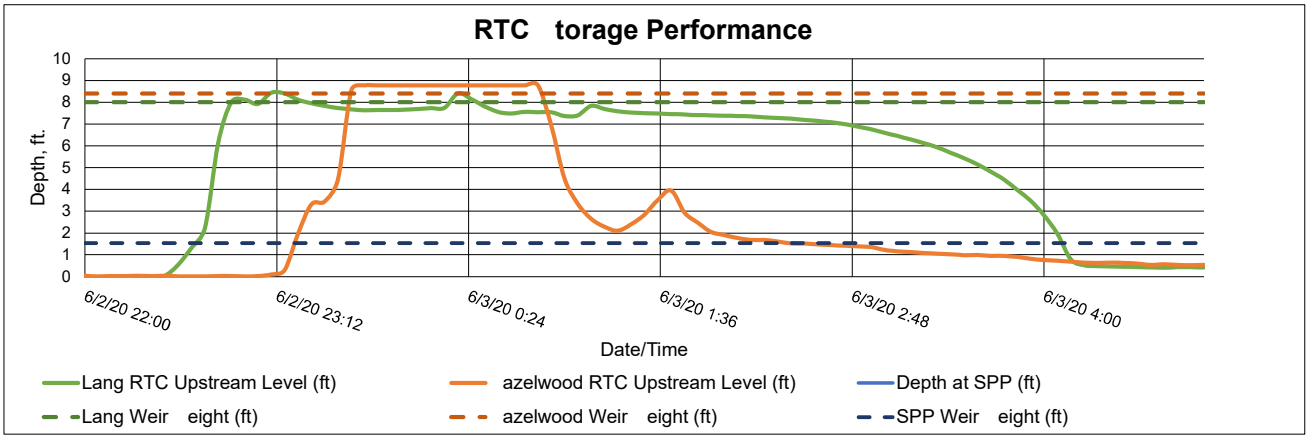
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/2/2020 22:40 |
| Event End Date/Time: | 6/3/2020 4:15 |

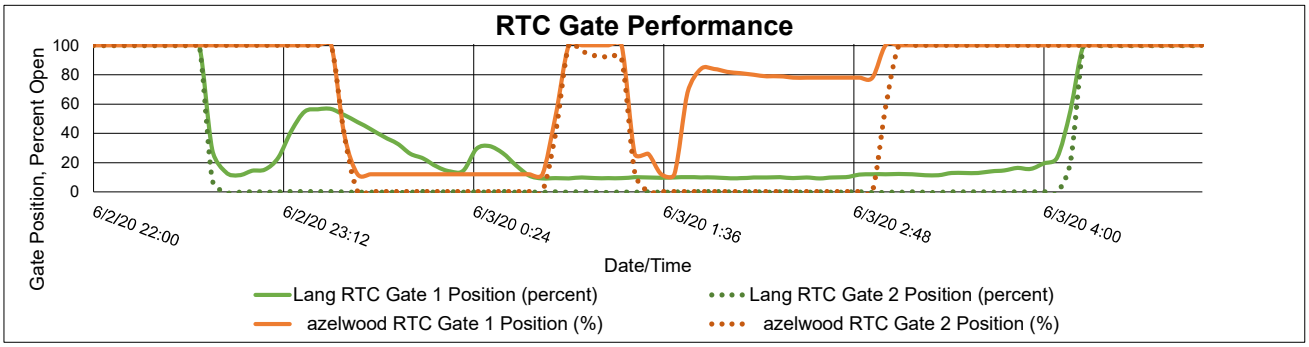
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | Less than one year |

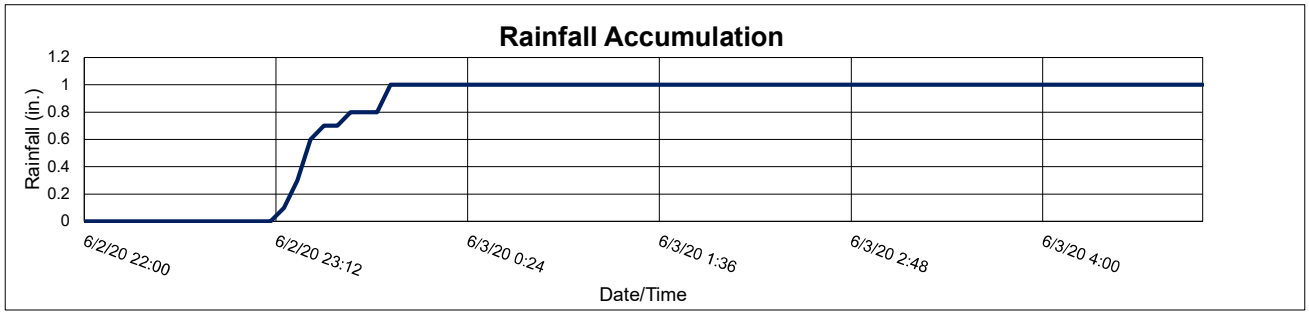
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | NA Gal. |
| Overflow Volume Prevented: | 1,487,882 Gal. |
| SPP Activation Prevented: | NA |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |
| If es, could SPP activation have been prevented without azelwood storage? | No |

**Recommended Operational Changes/Notes:**

Overflow volume for the event will be estimated and filled at a later date, if applicable. Lang SPP depth sensor is not working and good data to estimate Lang SPP level is not available.



# June 11, 2020 2

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | - ft. | 2.46 ft. |
| Return to Normal Depth: | - ft. | 0.48 ft. |
| Time Gate 1 Activated: | - | 6/11/2020 0:15 |
| Time Gate 2 Activated: | - | 6/11/2020 0:15 |
| Time Gate 1 Returned to Normal: | - | 6/11/2020 2:50 |
| Time Gate 2 Returned to Normal: | - | 6/11/2020 2:50 |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | - ft. | 7.55 ft. |
| Volume Stored: | 0 Gal. | 875,736 Gal. |
| Unused Storage Volume: | 861,799 Gal. | 214,331 Gal. |

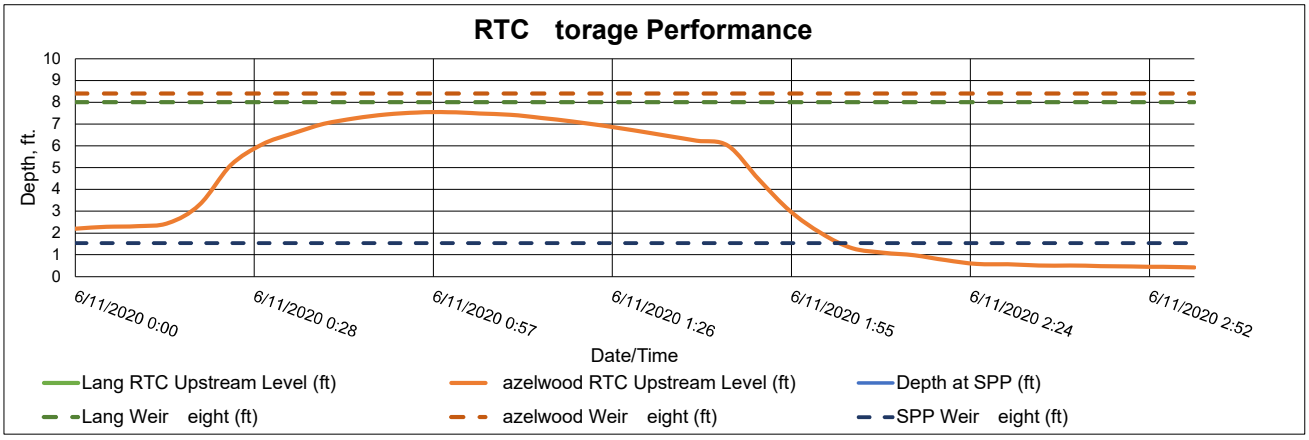
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/11/2020 0:15 |
| Event End Date/Time: | 6/11/2020 2:50 |

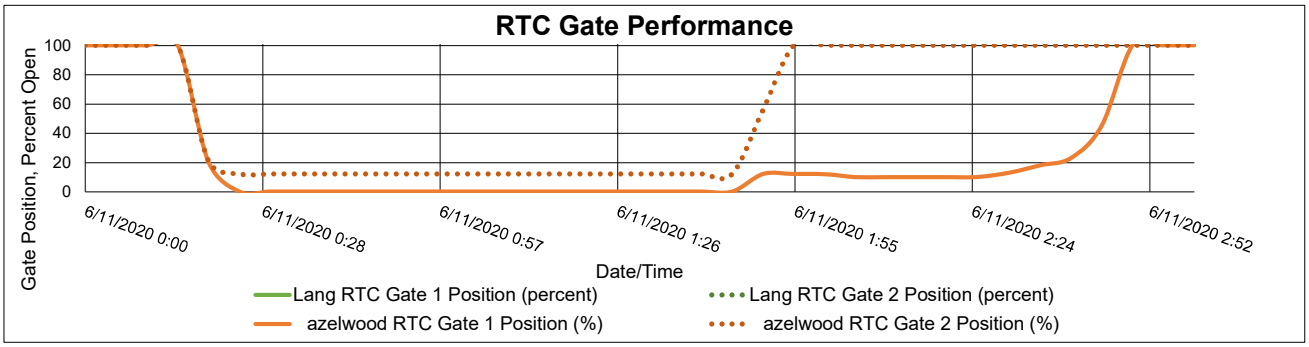
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.5 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | Less than one year |

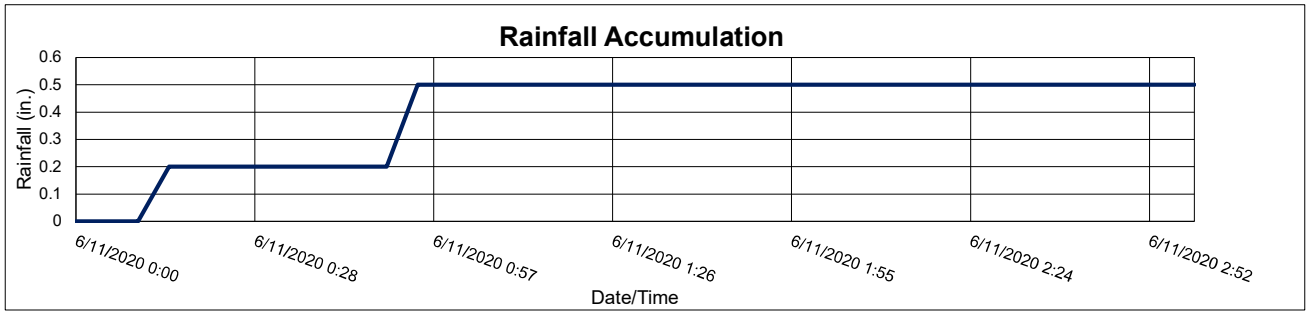
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | NA Gal. |
| Overflow Volume Prevented: | 875,736 Gal. |
| SPP Activation Prevented: | NA |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |
| If es, could SPP activation have been prevented without azelwood storage? | No |

**Recommended Operational Changes/Notes:**

No data available for Lang for this event. Overflow volume for the event will be estimated and filled at a later date, if applicable. Lang SPP depth sensor is not working and good data to estimate Lang SPP level is not available.



# June 23, 2020 3

| RTC Site | Lang | azelwood |
|---|---|---|
| Gate Activation Trigger Depth: | 1.55 ft. | - ft. |
| Return to Normal Depth: | 0.72 ft. | - ft. |
| Time Gate 1 Activated: | 6/23/2020 15:25 | N/A |
| Time Gate 2 Activated: | 6/23/2020 15:25 | N/A |
| Time Gate 1 Returned to Normal: | 6/23/2020 17:20 | N/A |
| Time Gate 2 Returned to Normal: | 6/23/2020 17:20 | N/A |
| Depth of Weir | 8.00 ft. | 8.40 ft. |
| Maximum Depth Reached: | 6.30 ft. | 2.22 ft. |
| Volume Stored: | 478,862 Gal. | 151,943 Gal. |
| Unused Storage Volume: | 362,728 Gal. | 1,114,227 Gal. |

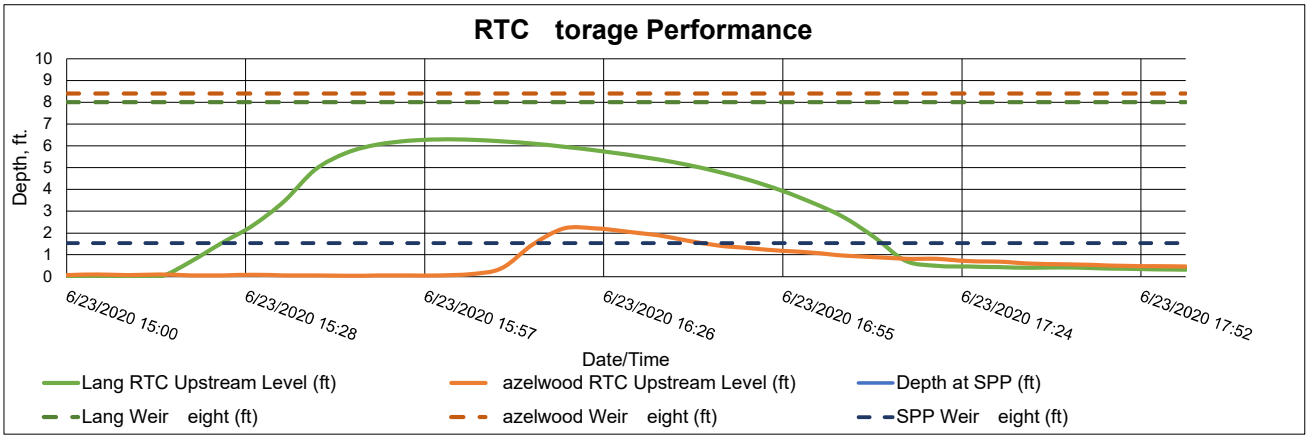
| | |
|---|---|
| SPP: | 340 |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/23/2020 15:25 |
| Event End Date/Time: | 6/23/2020 17:20 |

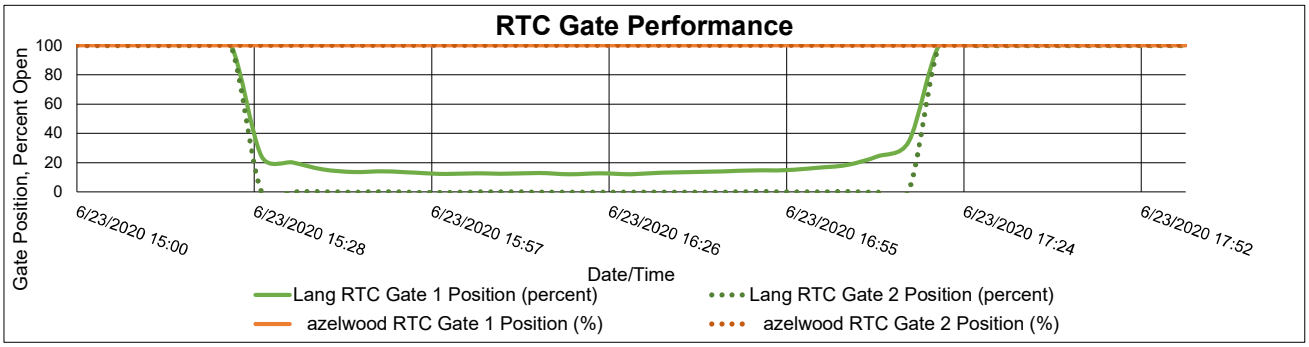
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.9 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | Less than one year |

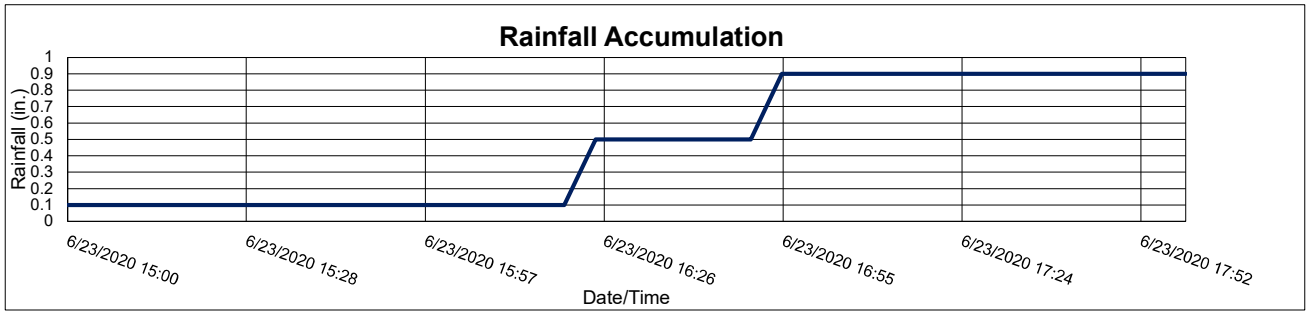
| | |
|---|---|
| Percent Capture | 100% |
| Overflow Volume: | NA Gal. |
| Overflow Volume Prevented: | 630,805 Gal. |
| SPP Activation Prevented: | NA |
| If No, what is the overflow volume when storage was available upstream? | NA Gal. |
| If No, could SPP activation have been prevented? | NA |
| If es, could SPP activation have been prevented without azelwood storage? | Yes |

**Recommended Operational Changes/Notes:**

Overflow volume for the event will be estimated and filled at a later date, if applicable. Lang SPP depth sensor is not working and good data to estimate Lang SPP level is not available.



# July 2019
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report — July 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 7/1/2019 | 126,377,833 | Yes | 1.25 |
| 7/7/2019 | 19,271,353 | No | 1.25 |
| 7/10/2019 | 96,456,708 | No | 1.25 |
| 7/16/2019 | 48,313,702 | No | 1.25 |
| 7/19/2019 | 93,791,670 | No | 1.25 |
| 7/23/2019 | 57,044,115 | No | 1.25 |
| 7/27/2019 | 68,496,355 | No | 1.25 |
| **Total Volume Captured (gal)** | **509,751,736** | | |

Note: The June report includes a preceeding event that ends on July 1st.

# July 1, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/1/2019 23:40 |
| Event End Date/Time: | 7/7/2019 3:00 |

| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 1.1 in. |
| Storm Event Duration: | 5 hrs. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/2/2019 2:00 |
| Time Lead Dewatering Valve Opened | 7/7/2019 3:15 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.50 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 126,377,833 Gal. |
| Did seiche occur during wet weather? | Yes |

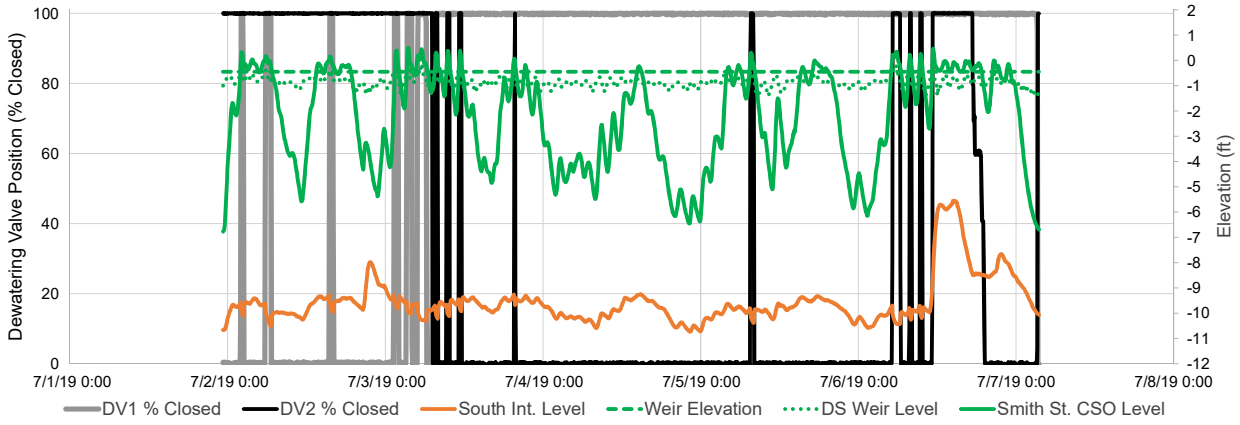
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

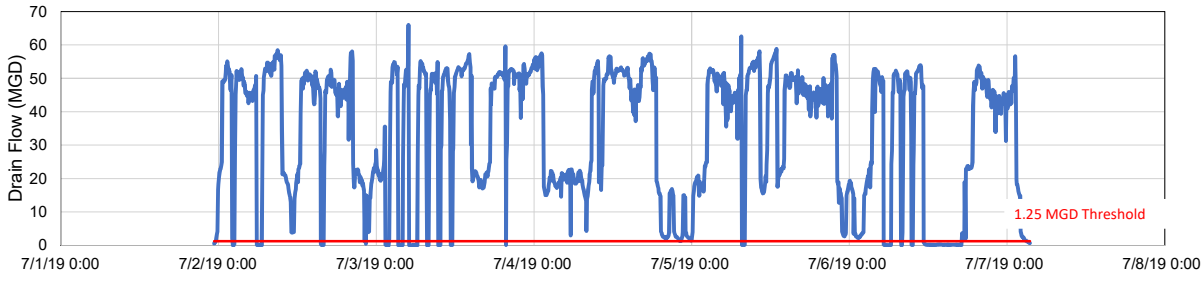
Rainfall data sourced from Buffalo Airport rain gauge website.

Rainfall events occurred on July 6, 2019.

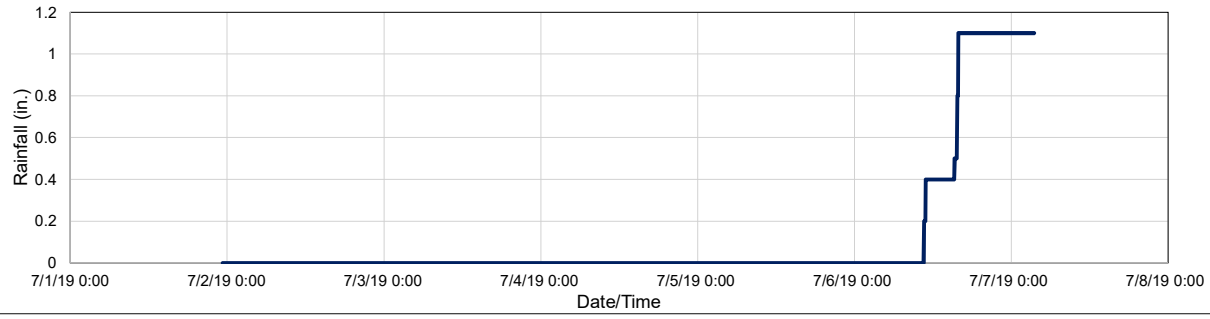
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# July 7, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/7/2019 15:35 |
| Event End Date/Time: | 7/10/2019 5:25 |

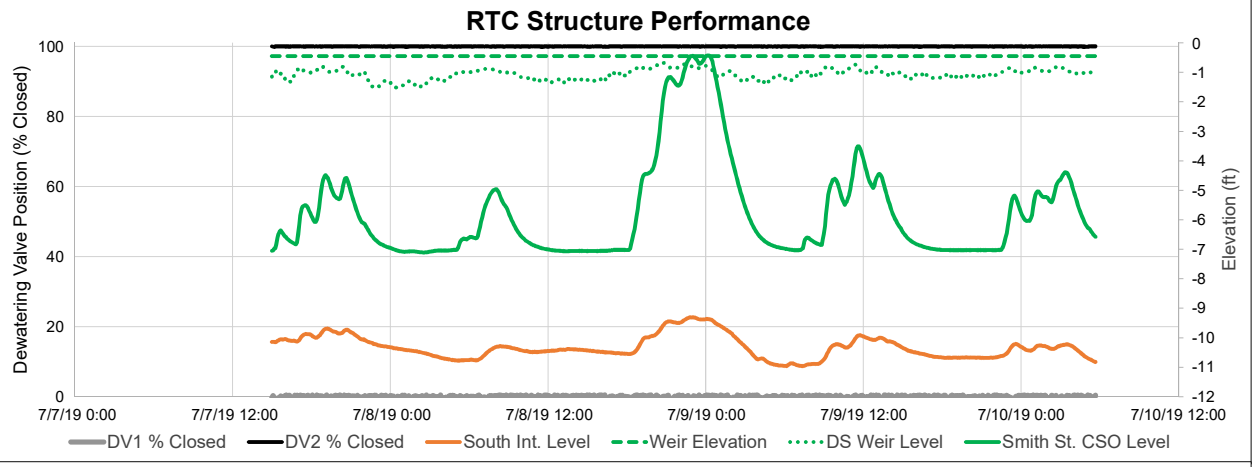
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | NA |
| Storm Type: | NA |

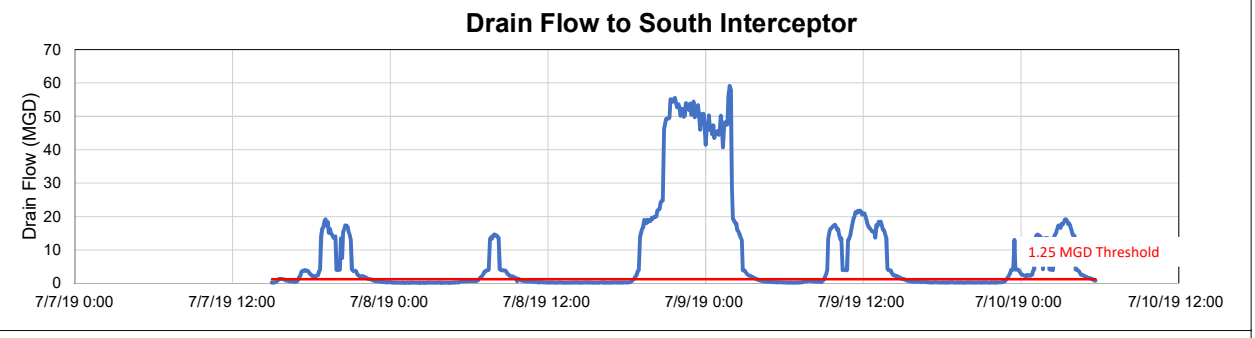
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | NA |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.43 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 19,271,353 Gal. |
| Did seiche occur during wet weather? | No |

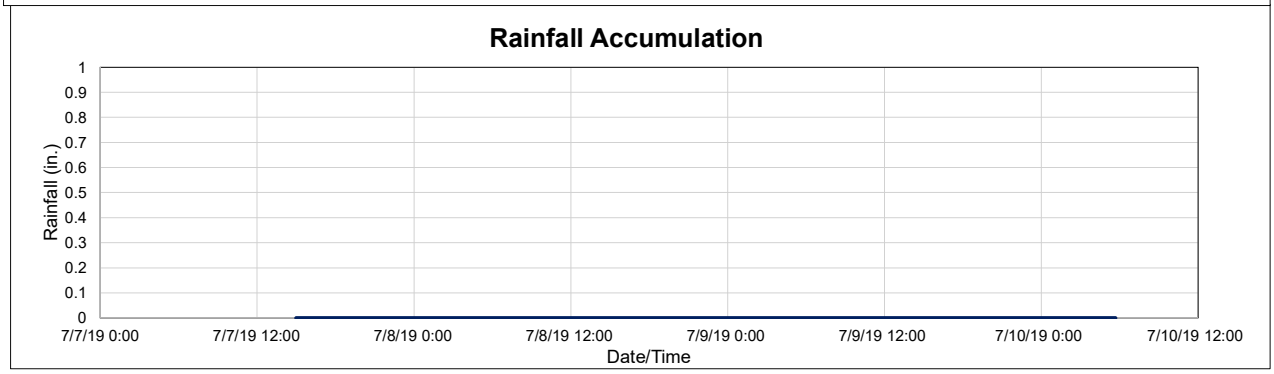
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# July 10, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/10/2019 10:25 |
| Event End Date/Time: | 7/15/2019 18:10 |

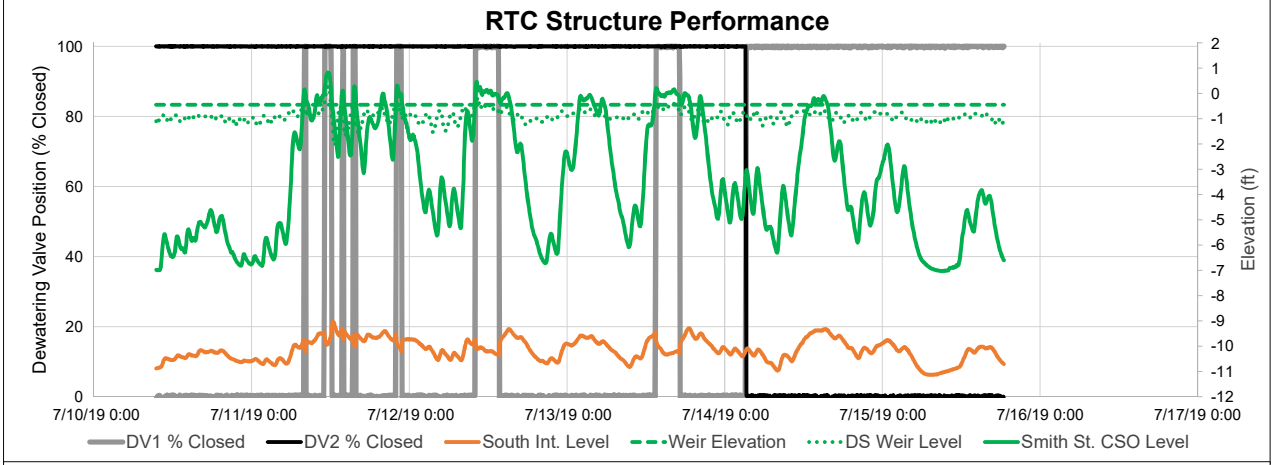
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | NA |
| Storm Type: | NA |

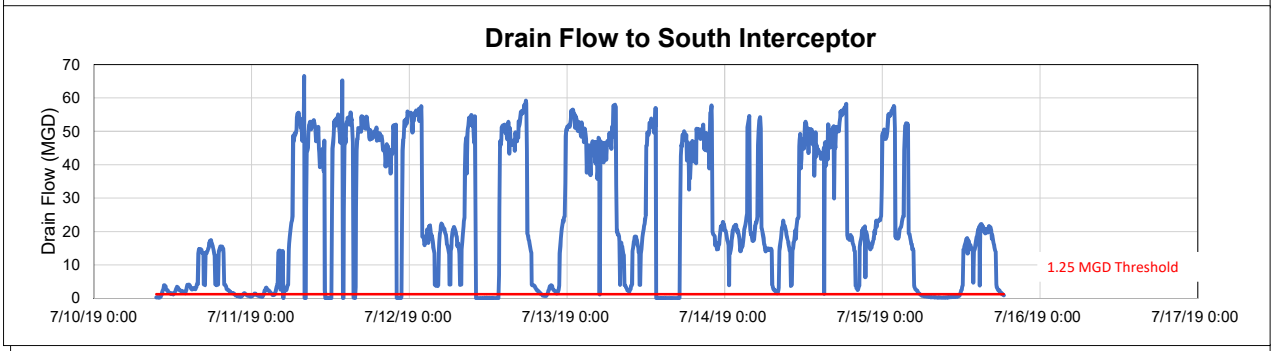
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/11/2019 8:00 |
| Time Lead Dewatering Valve Opened | 7/13/2019 17:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.83 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 96,465,708 Gal. |
| Did seiche occur during wet weather? | No |

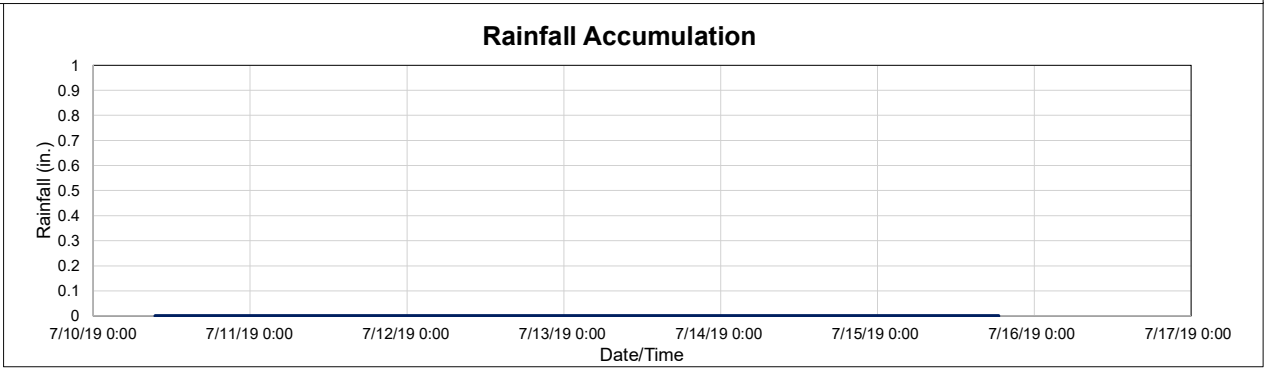
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# July 16, 2019 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/16/2019 1:45 |
| Event End Date/Time: | 7/18/2019 19:05 |

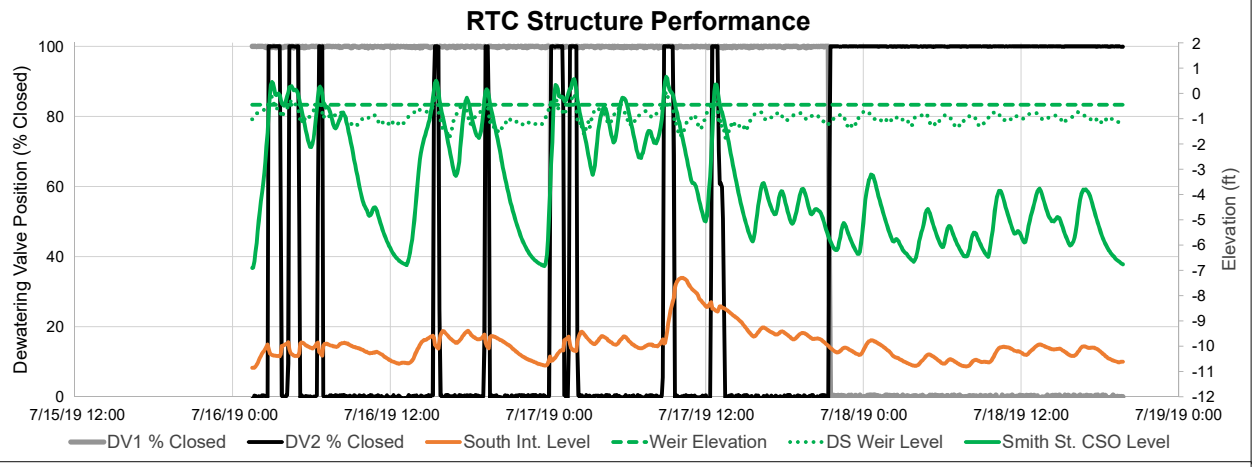
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 0.4 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than one year |

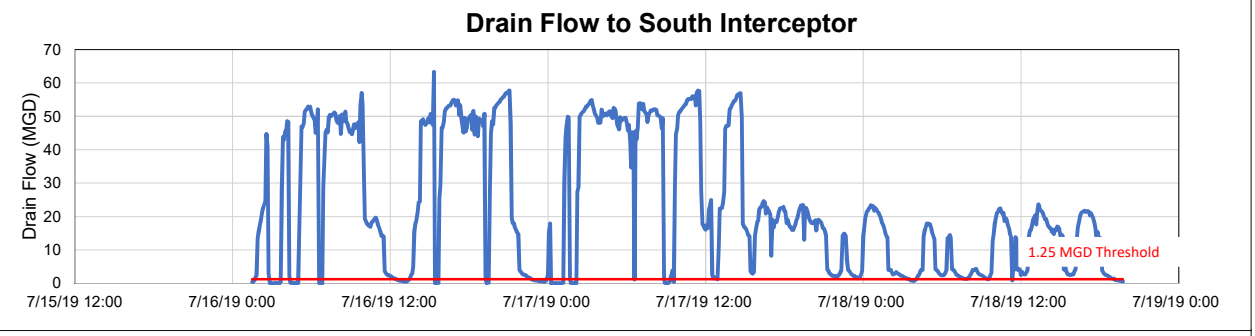
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/16/2019 2:45 |
| Time Lead Dewatering Valve Opened | 7/17/2019 21:25 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.65 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 48,313,702 Gal. |
| Did seiche occur during wet weather? | No |

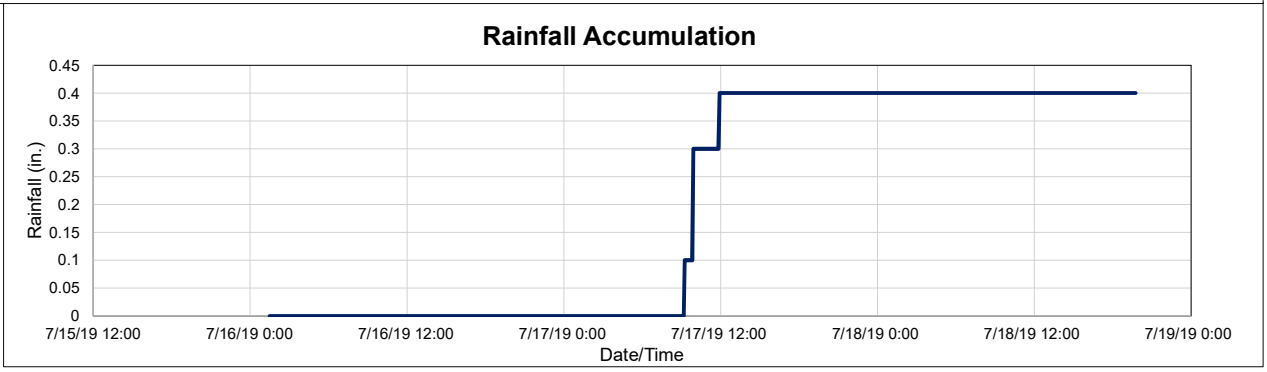
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# July 19, 2019 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/19/2019 1:10 |
| Event End Date/Time: | 7/23/2019 0:55 |

| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | NA |
| Storm Type: | NA |

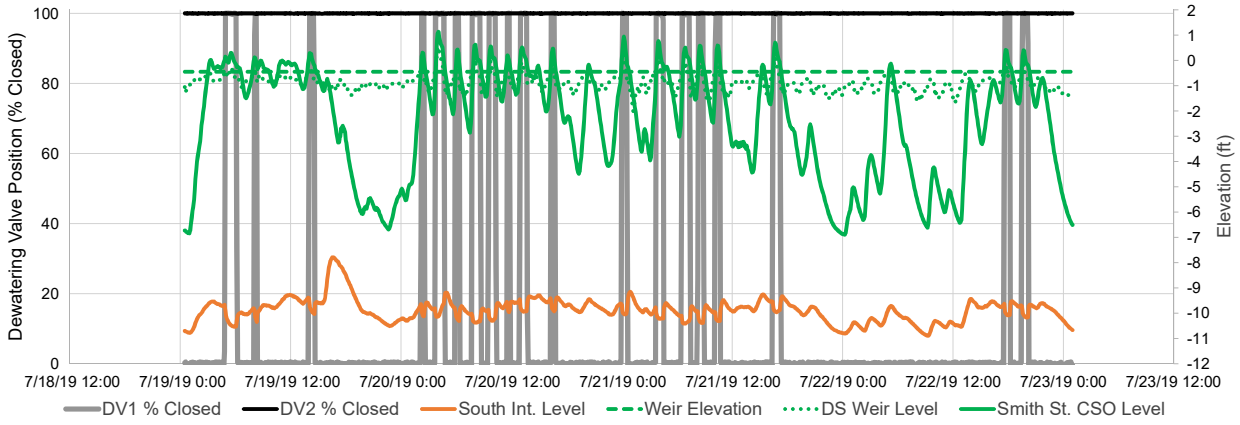
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/19/2019 4:50 |
| Time Lead Dewatering Valve Opened | 7/22/2019 20:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.13 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 93,791,670 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

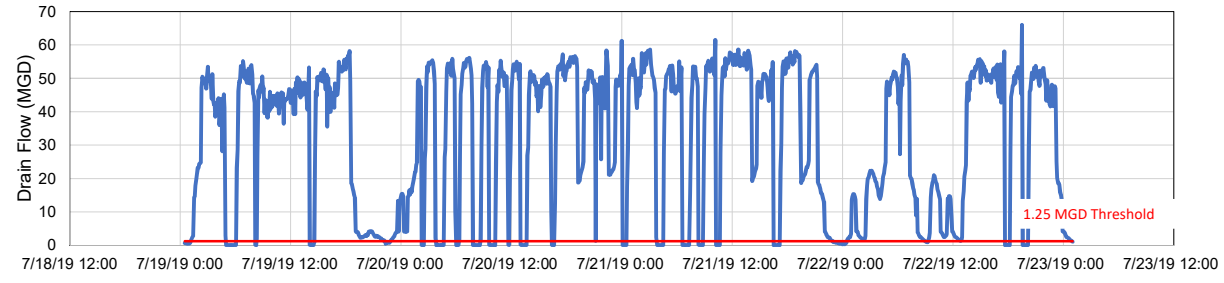
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

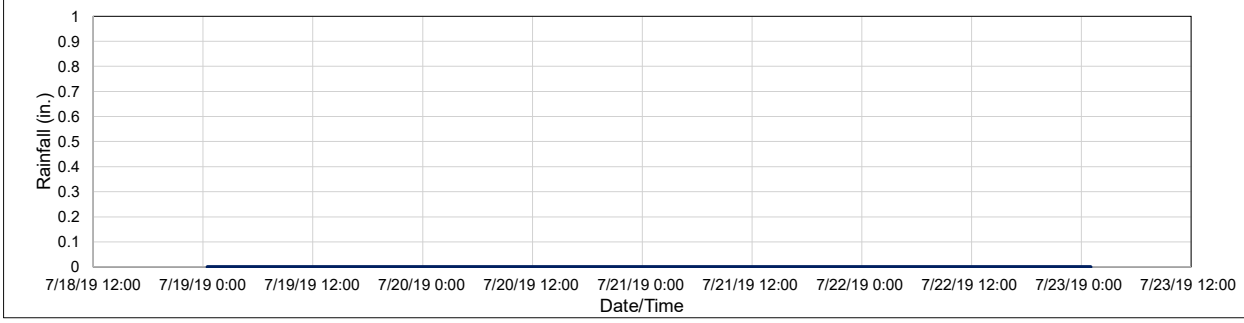
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# July 23, 2019 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/23/2019 7:00 |
| Event End Date/Time: | 7/26/2019 14:55 |

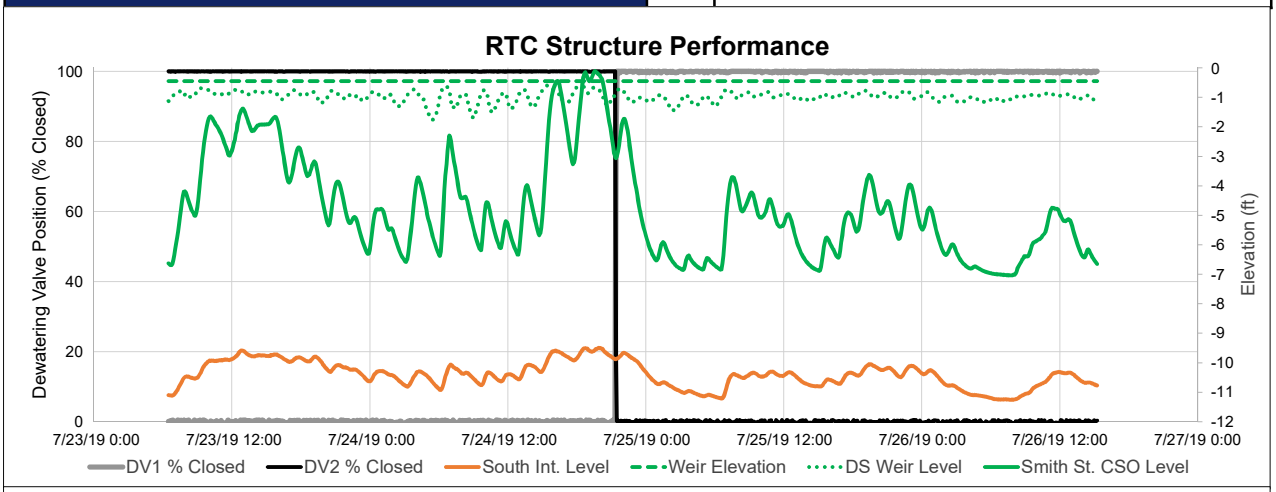
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | NA |
| Storm Type: | NA |

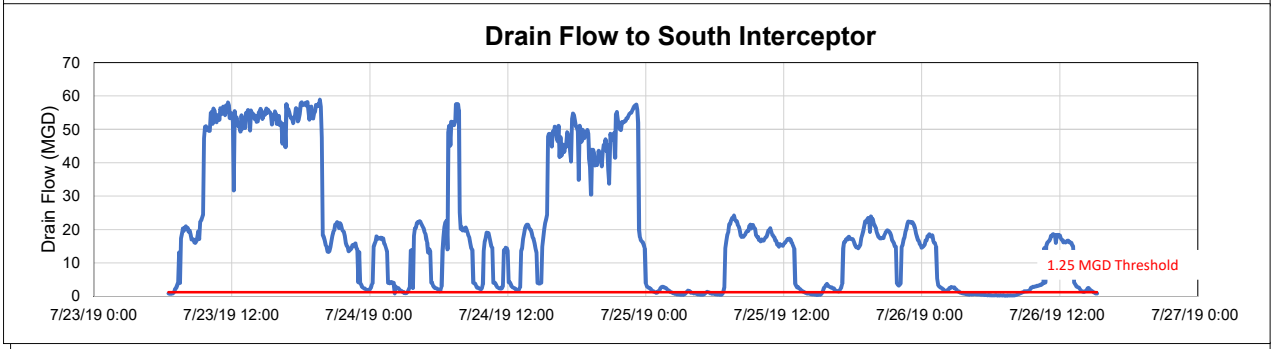
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/24/2019 21:25 |
| Time Lead Dewatering Valve Opened | NA |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.11 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 57,044,115 Gal. |
| Did seiche occur during wet weather? | No |

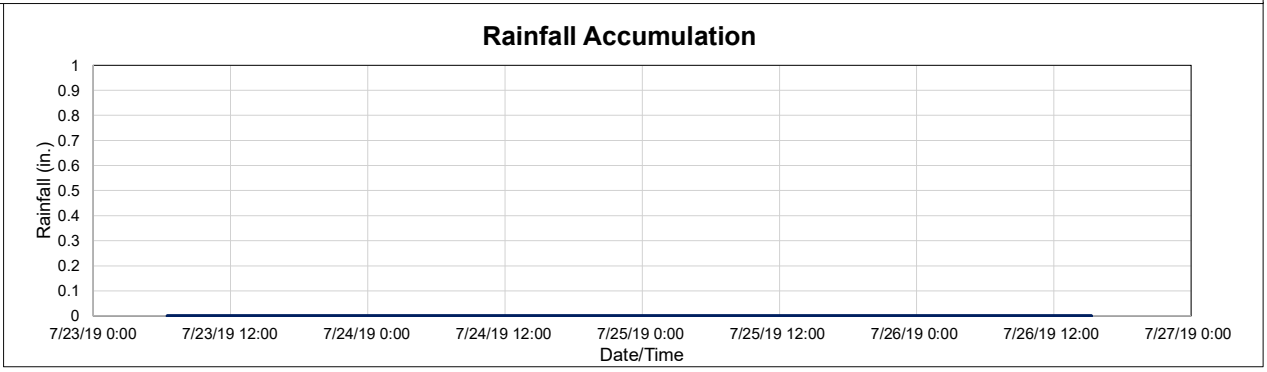
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# July 27, 2019 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 8/6/2019 |
| Event Start Date/Time: | 7/27/2019 6:35 |
| Event End Date/Time: | 7/31/2019 20:20 |

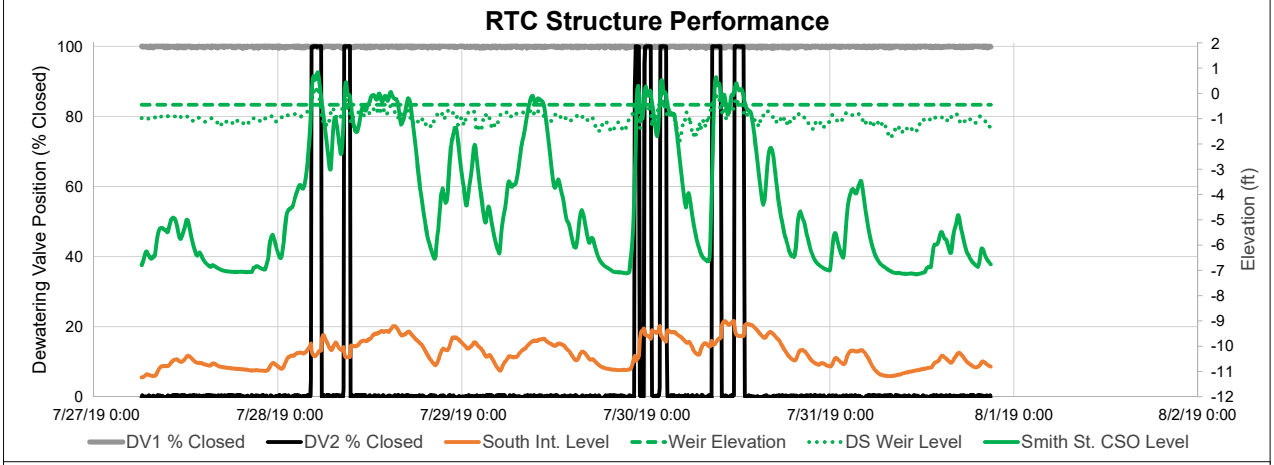
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 1.4 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than 2 years |

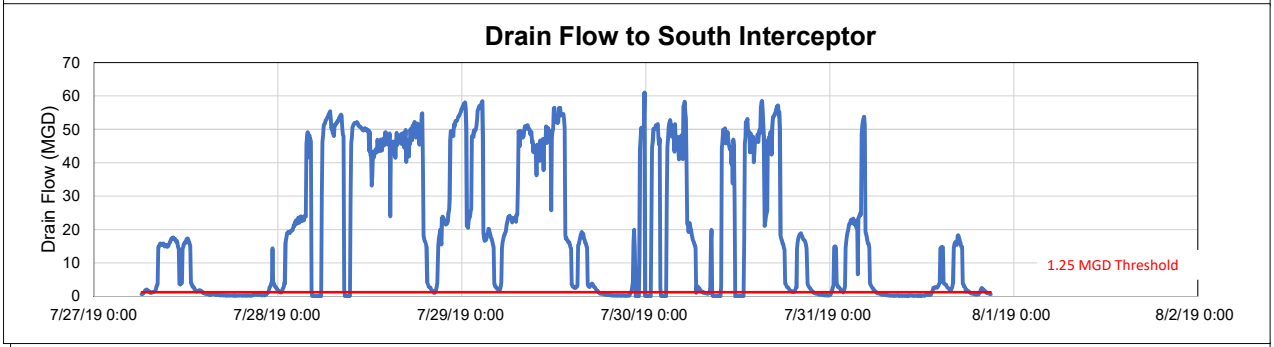
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 7/28/2019 4:20 |
| Time Lead Dewatering Valve Opened | 7/30/2019 12:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.83 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 68,496,355 Gal. |
| Did seiche occur during wet weather? | No |

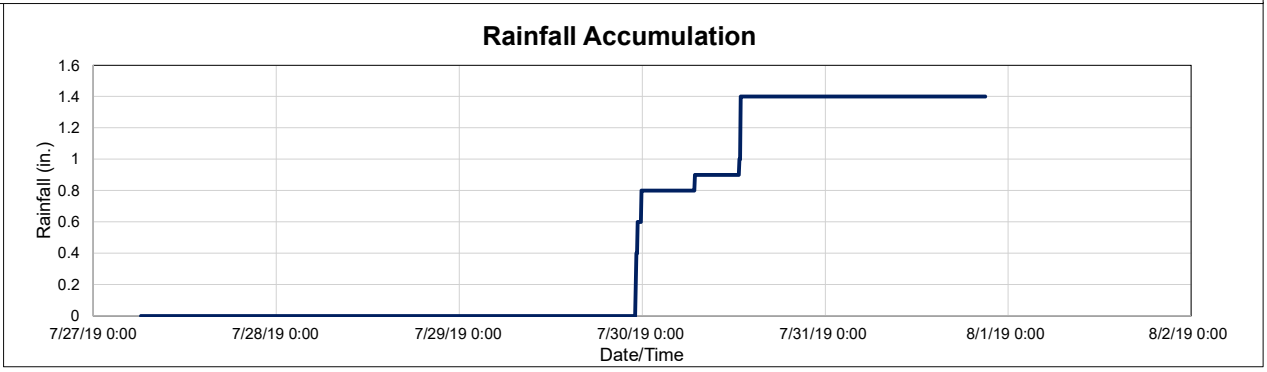
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# August 2019
# Smith St. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

emnet

GHD

ARCADIS Design & Consultancy for natural and built assets

# Smith St. RTC Monthly Performance Report — August 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 8/1/2019 | 58,545 | Yes | 1.25 |
| 8/5/2019 | 56,126,828 | Yes | 1.25 |
| 8/17/2019 | 23,875,519 | Yes | 1.25 |
| 8/21/2019 | 15,810,658 | Yes | 1.25 |
| 8/27/2019 | 10,522,401 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **106,393,951** | | |

# August 1, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 9/12/2019 |
| Event Start Date/Time: | 8/1/2019 14:30 |
| Event End Date/Time: | 8/1/2019 16:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

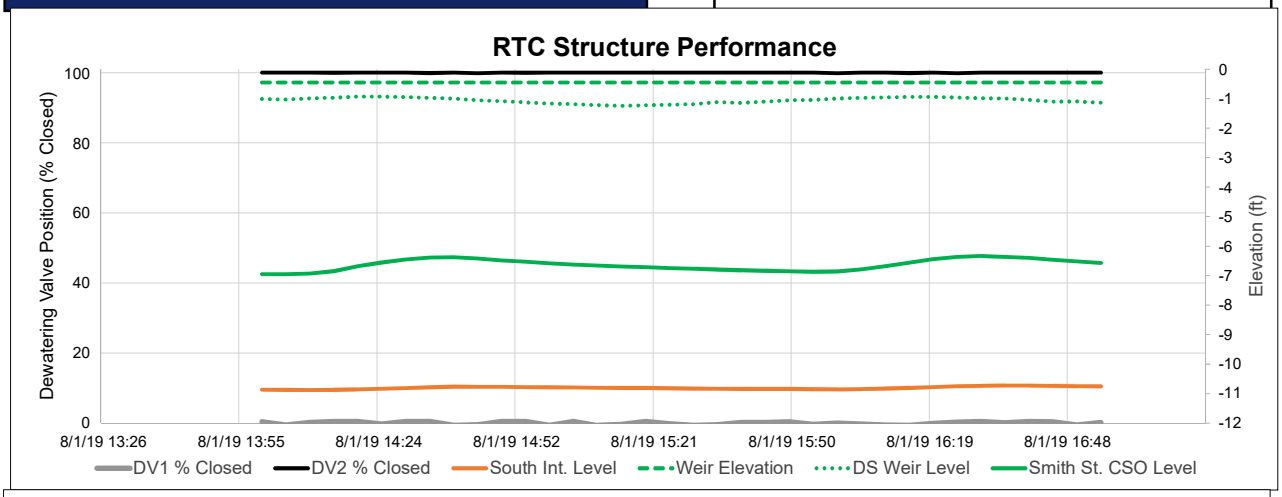
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.33 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 58,545 Gal. |
| Did seiche occur during wet weather? | Yes |

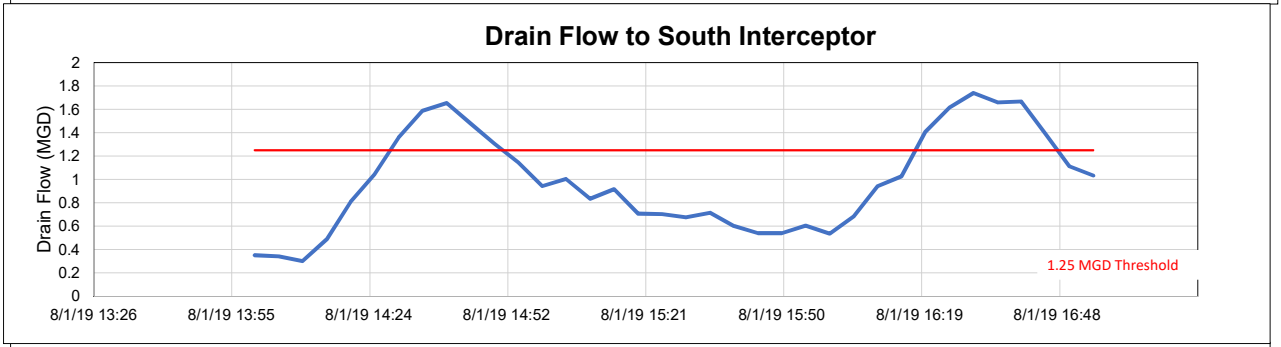
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

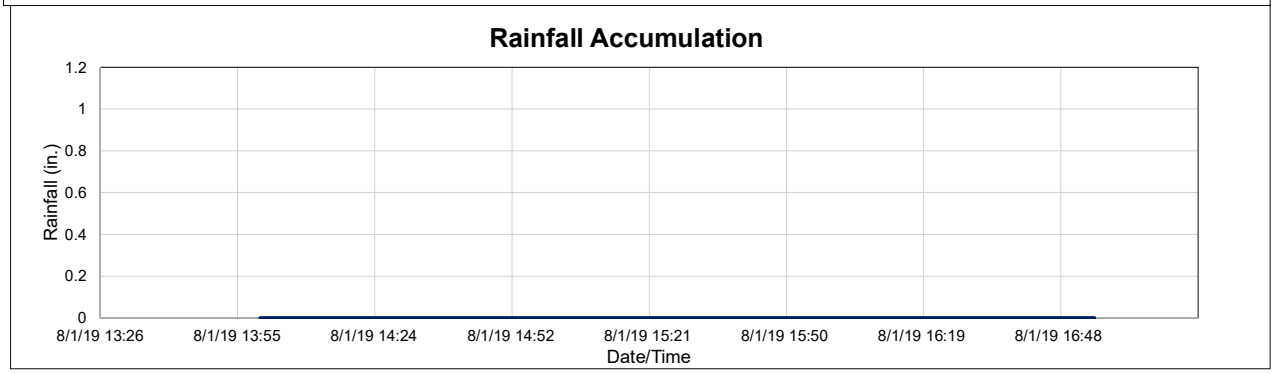
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

No rainfall data was recorded during this storm event. This was likely caused by a localized storm.



# August 5, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 9/12/2019 |
| Event Start Date/Time: | 8/5/2019 6:25 |
| Event End Date/Time: | 8/10/2019 0:40 |

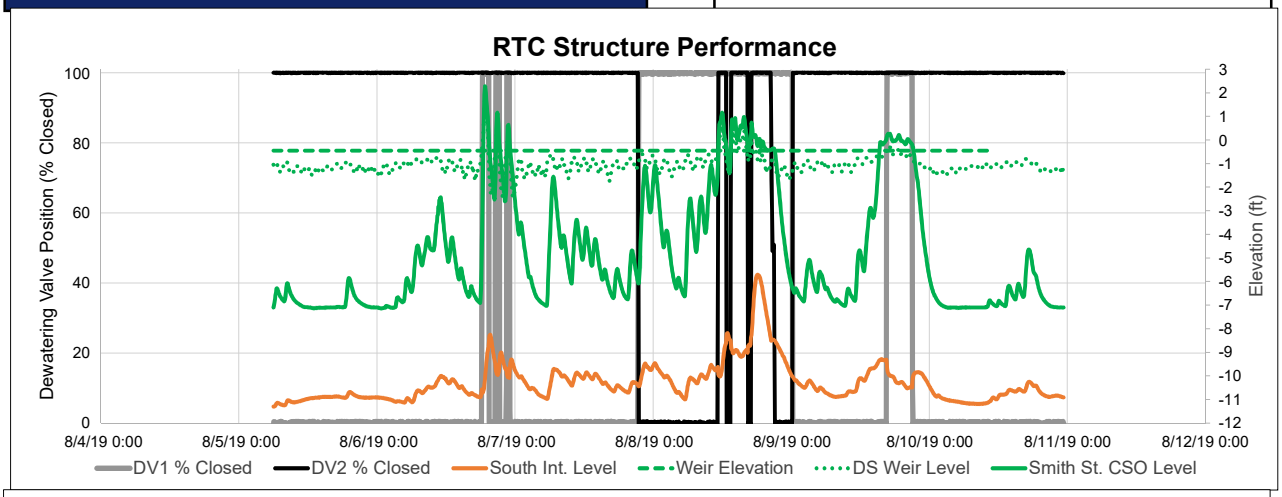
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.4 in. |
| Storm Event Duration: | 102 hrs. |
| Storm Type: | Less than one year |

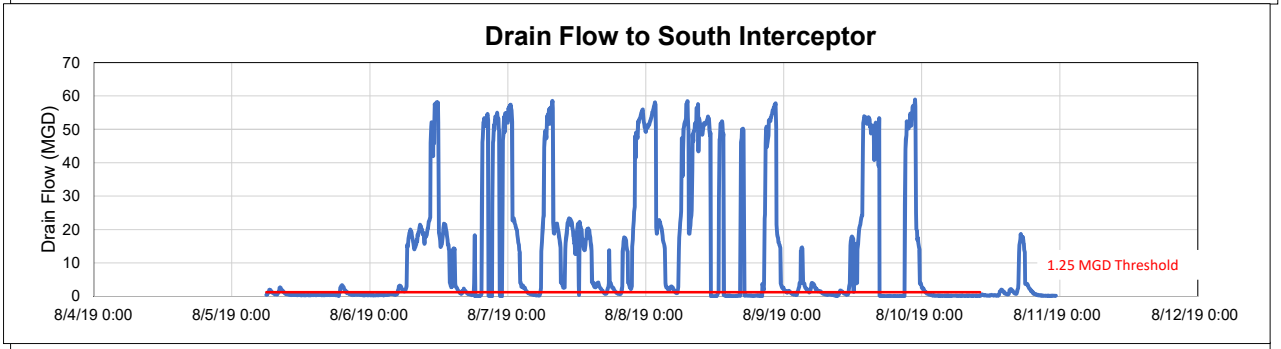
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 8/6/2019 18:15 |
| Time Lead Dewatering Valve Opened | 8/9/2019 21:05 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 2.28 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 56,126,828 Gal. |
| Did seiche occur during wet weather? | Yes |

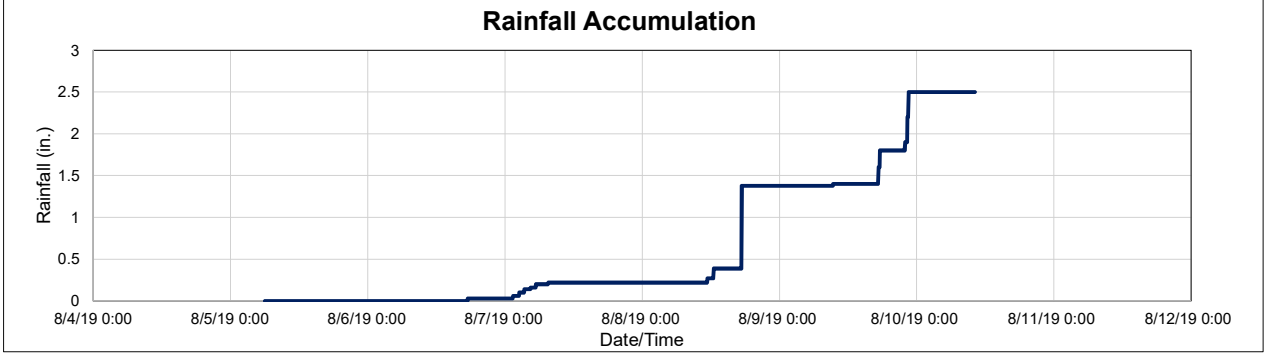
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# August 17, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 9/12/2019 |
| Event Start Date/Time: | 8/17/2019 10:45 |
| Event End Date/Time: | 8/19/2019 23:35 |

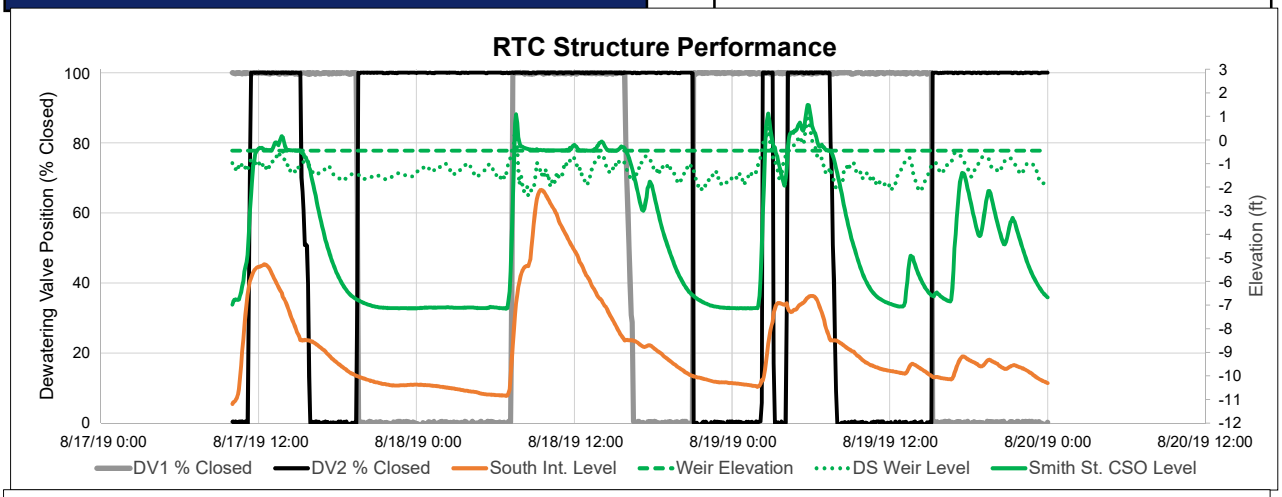
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.93 in. |
| Storm Event Duration: | 30 hrs. |
| Storm Type: | Less than one year |

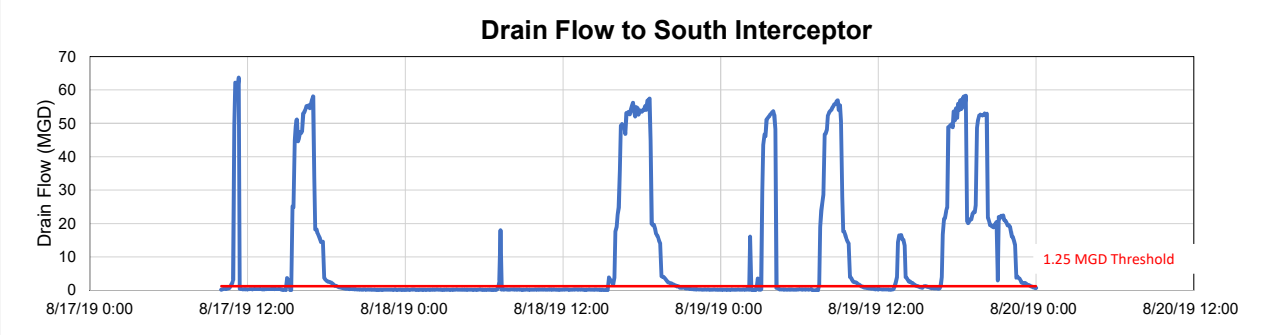
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 8/17/2019 11:15 |
| Time Lead Dewatering Valve Opened | 8/19/2019 15:15 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.49 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 23,875,519 Gal. |
| Did seiche occur during wet weather? | Yes |

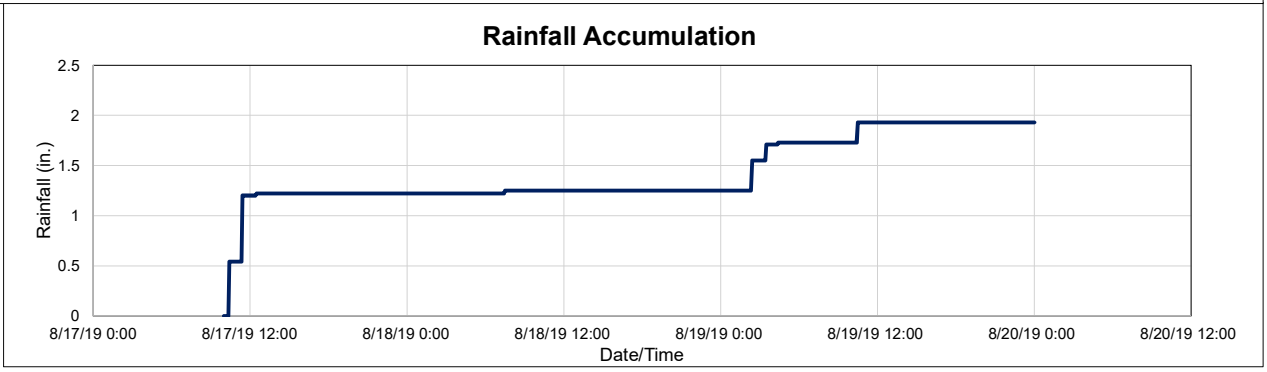
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# August 21, 2019 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 9/12/2019 |
| Event Start Date/Time: | 8/21/2019 1:30 |
| Event End Date/Time: | 8/22/2019 22:55 |

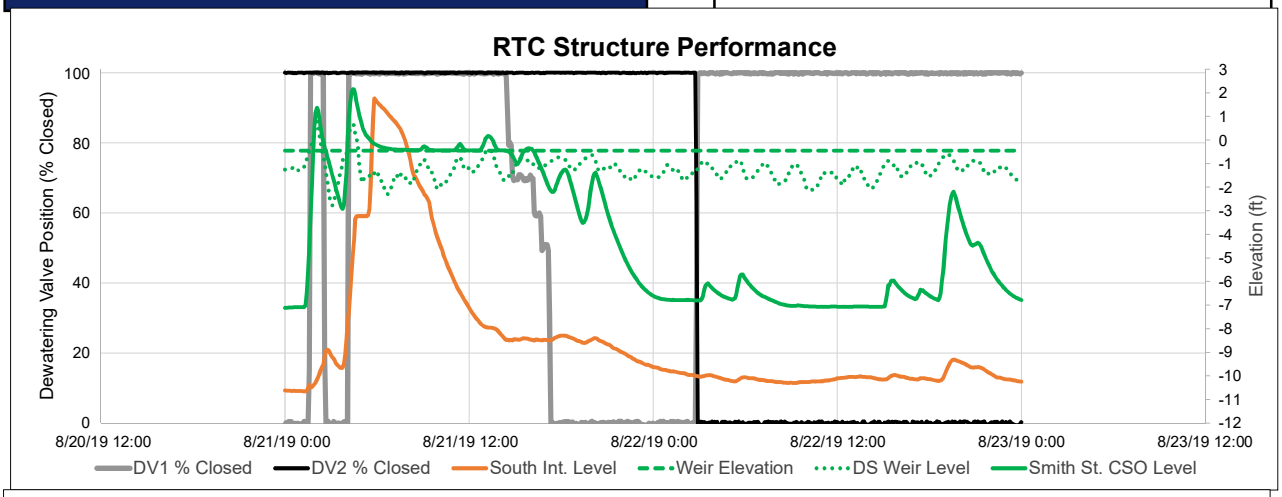
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.53 in. |
| Storm Event Duration: | 20 hrs. |
| Storm Type: | Less than one year |

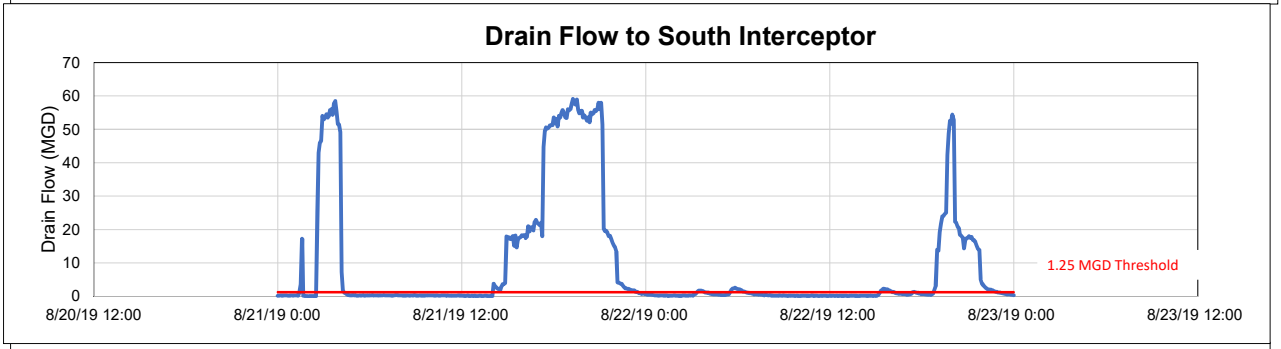
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 8/21/2019 1:35 |
| Time Lead Dewatering Valve Opened | 8/21/2019 14:30 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 2.15 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 15,810,658 Gal. |
| Did seiche occur during wet weather? | Yes |

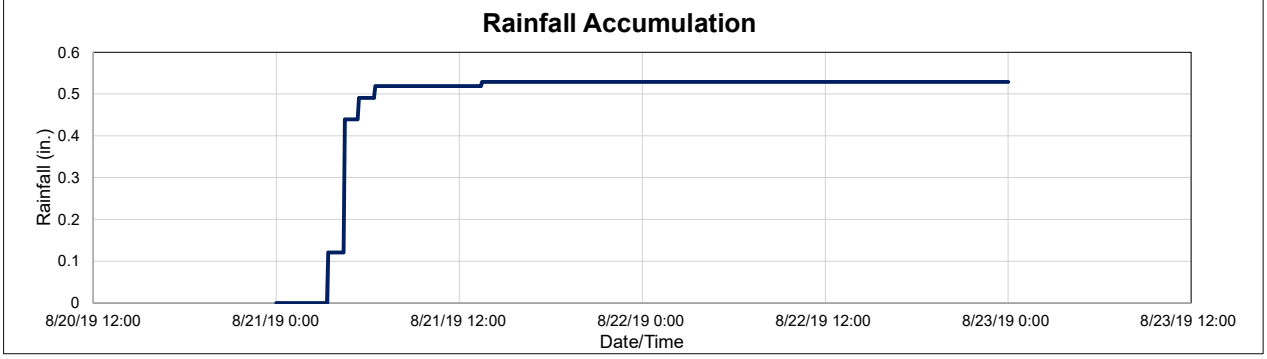
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# August 27, 2019 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 9/12/2019 |
| Event Start Date/Time: | 8/27/2019 6:45 |
| Event End Date/Time: | 8/30/2019 19:00 |

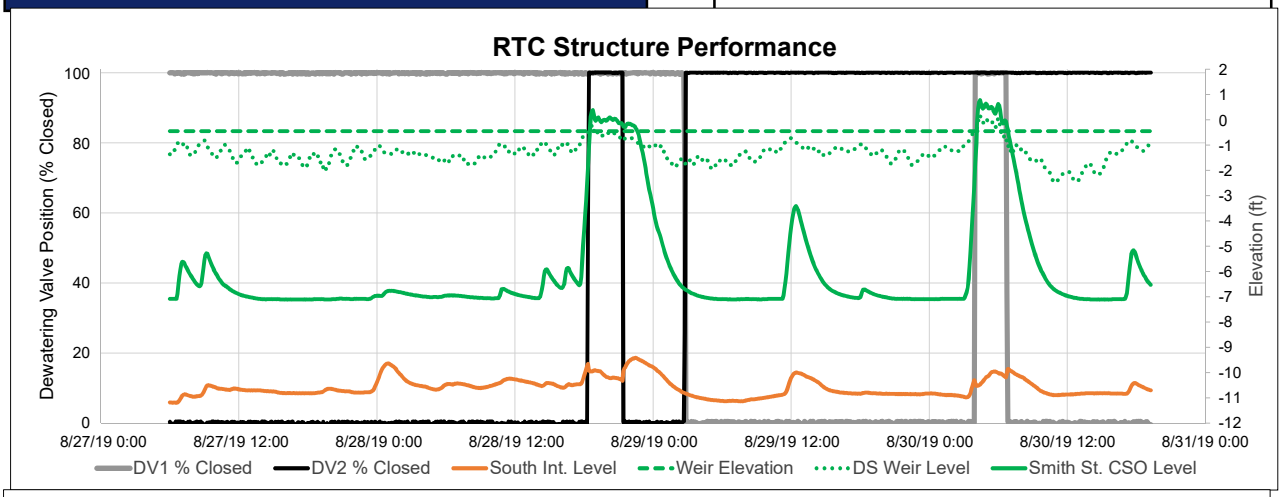
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.42 in. |
| Storm Event Duration: | 27 hrs. |
| Storm Type: | Less than one year |

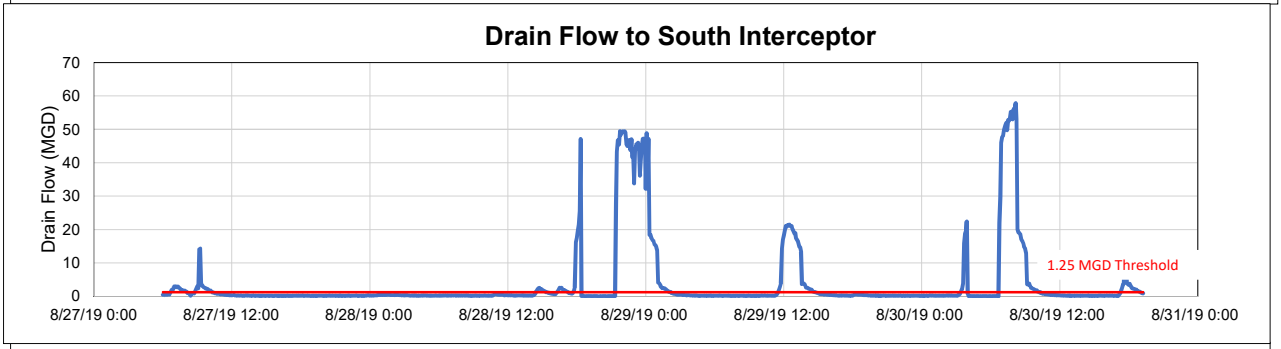
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 8/28/2019 18:20 |
| Time Lead Dewatering Valve Opened | 8/30/2019 6:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.78 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 10,522,401 Gal. |
| Did seiche occur during wet weather? | Yes |

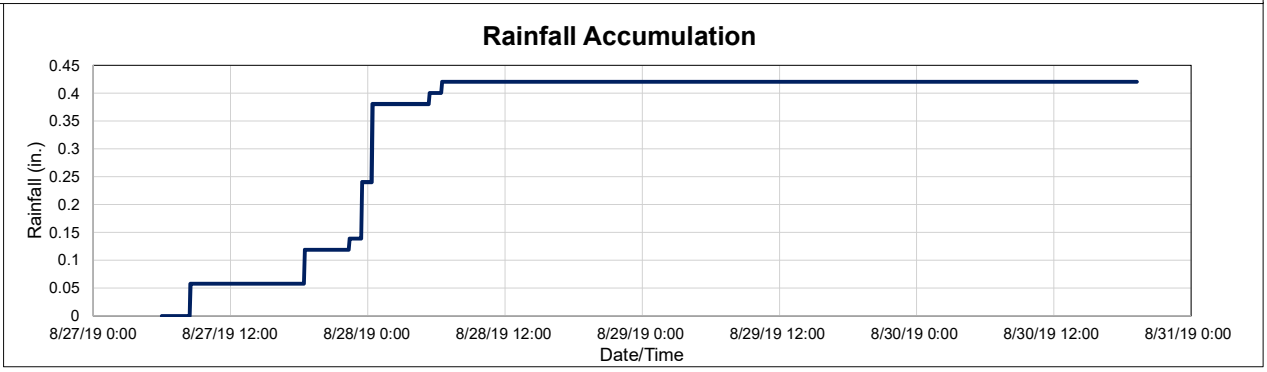
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 2019
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report — September 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 9/1/2019 | 5,031,826 | No | 1.25 |
| 9/4/2019 | 5,864,580 | No | 1.25 |
| 9/11/2019 | 895,917 | Yes | 1.25 |
| 9/12/2019 | 3,357,369 | No | 1.25 |
| 9/14/2019 | 11,524,473 | No | 1.25 |
| 9/23/2019 | 9,011,055 | No | 1.25 |
| 9/26/2019 | 6,201,408 | No | 1.25 |
| 9/28/2019 | 723,354 | No | 1.25 |
| **Total Volume Captured (gal)** | **42,609,982** | | |

# September 1, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/1/2019 19:45 |
| Event End Date/Time: | 9/2/2019 18:05 |

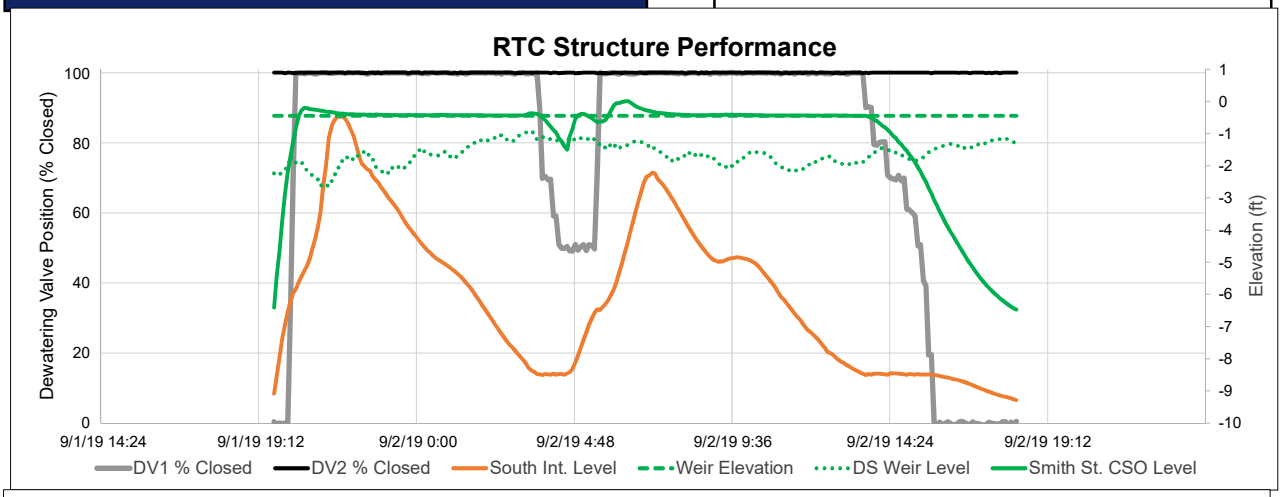
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.56 in. |
| Storm Event Duration: | 23 hrs. |
| Storm Type: | Less than 1 year |

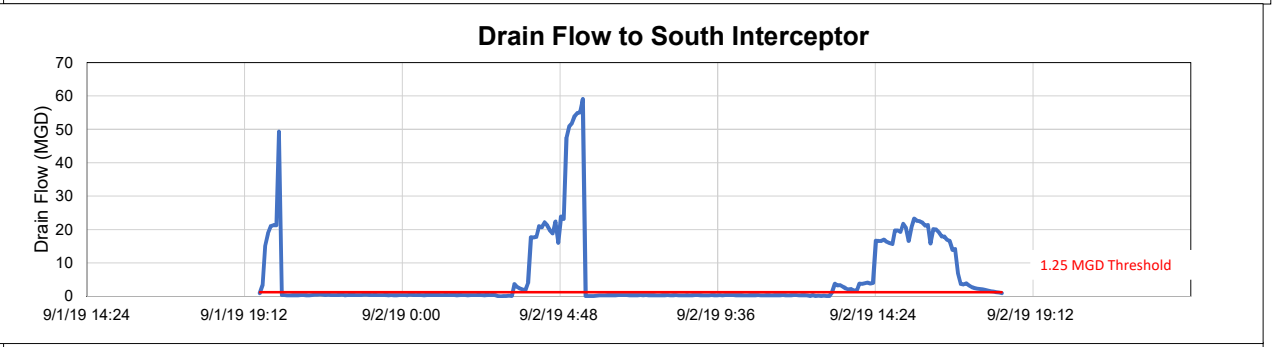
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/1/2019 20:10 |
| Time Lead Dewatering Valve Opened | 9/2/2019 13:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.01 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 5,031,826 Gal. |
| Did seiche occur during wet weather? | No |

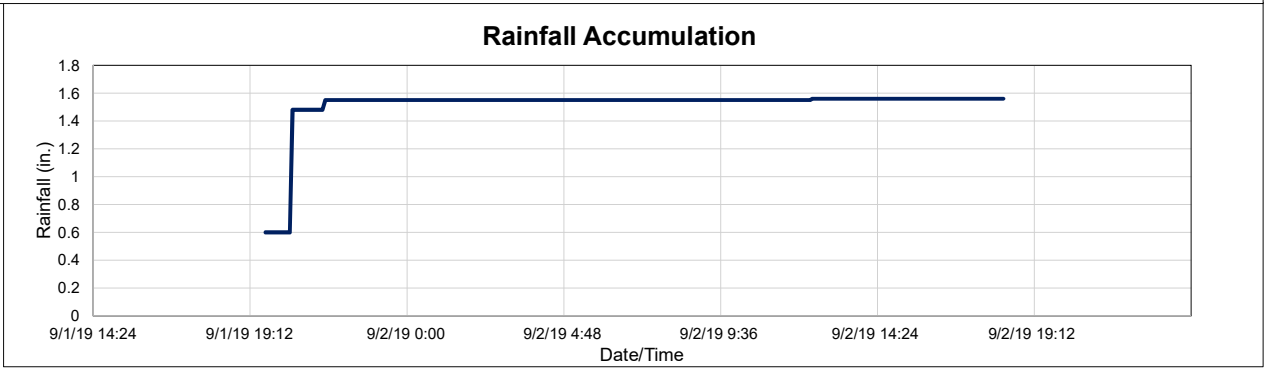
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 4, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/4/2019 3:10 |
| Event End Date/Time: | 9/4/2019 10:45 |

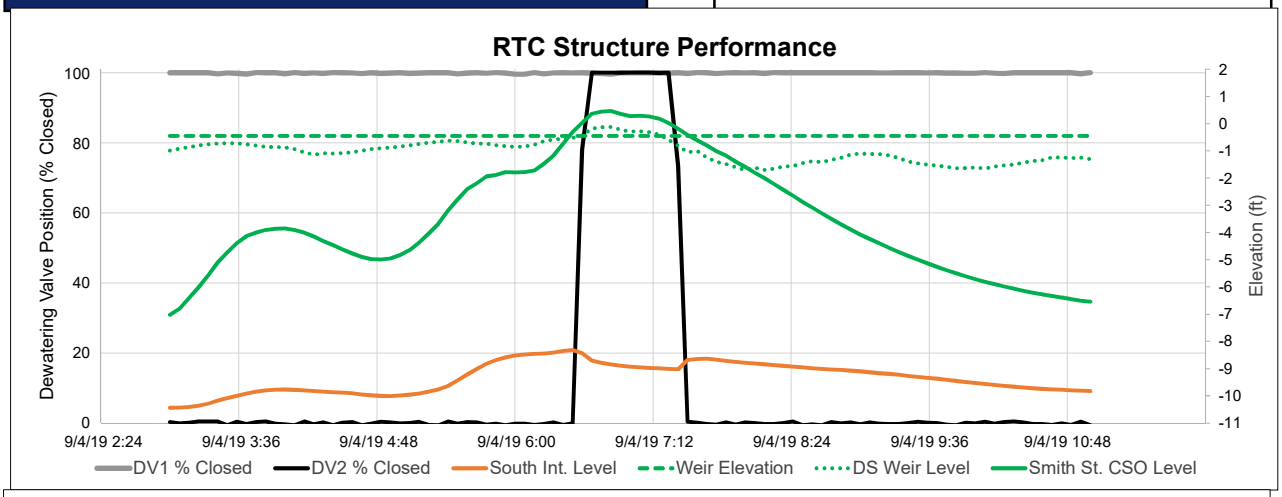
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.21 in. |
| Storm Event Duration: | 8 hrs. |
| Storm Type: | Less than 1 year |

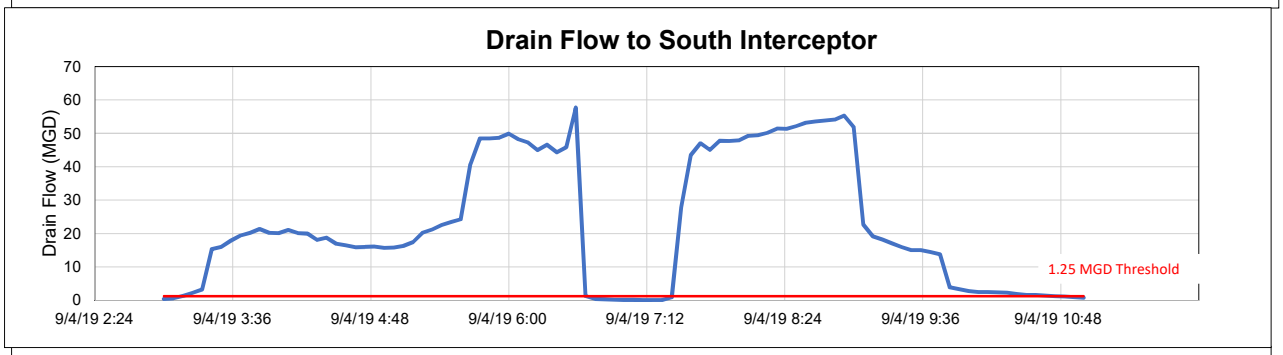
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/4/2019 6:35 |
| Time Lead Dewatering Valve Opened | 9/4/2019 7:25 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.46 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 5,864,580 Gal. |
| Did seiche occur during wet weather? | No |

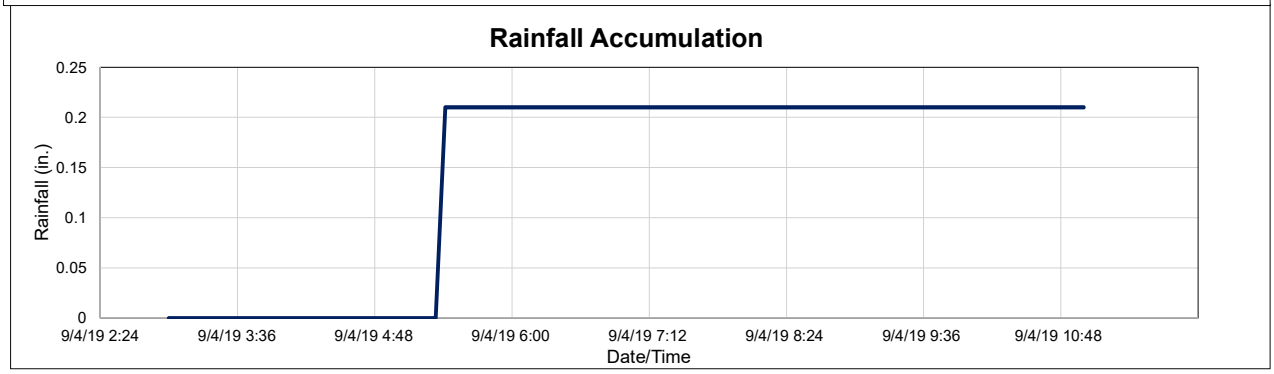
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 11, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/11/2019 3:20 |
| Event End Date/Time: | 9/11/2019 22:35 |

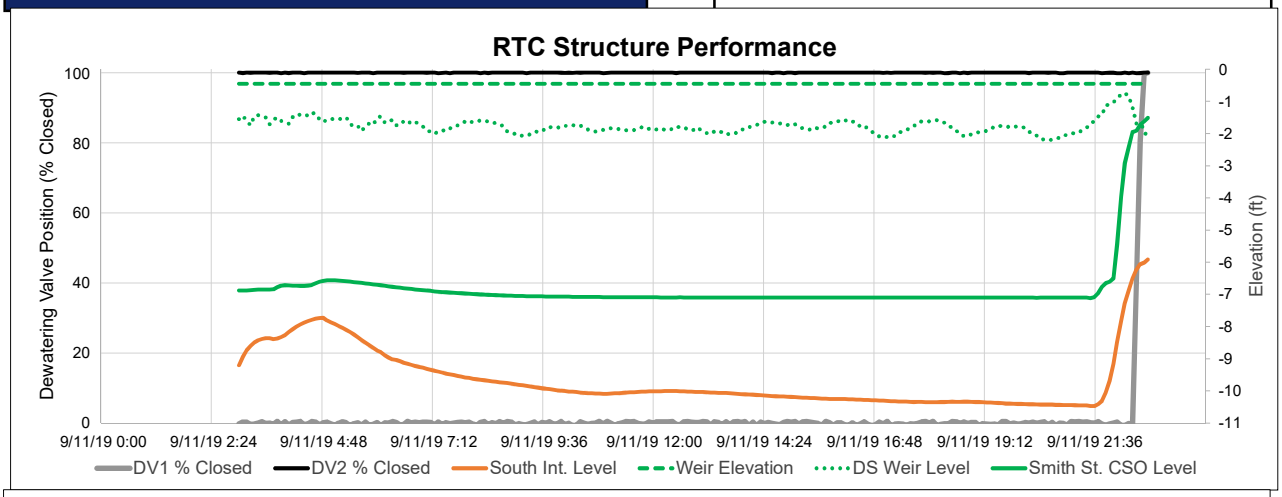
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.54 in. |
| Storm Event Duration: | 20 hrs. |
| Storm Type: | Less than 1 year |

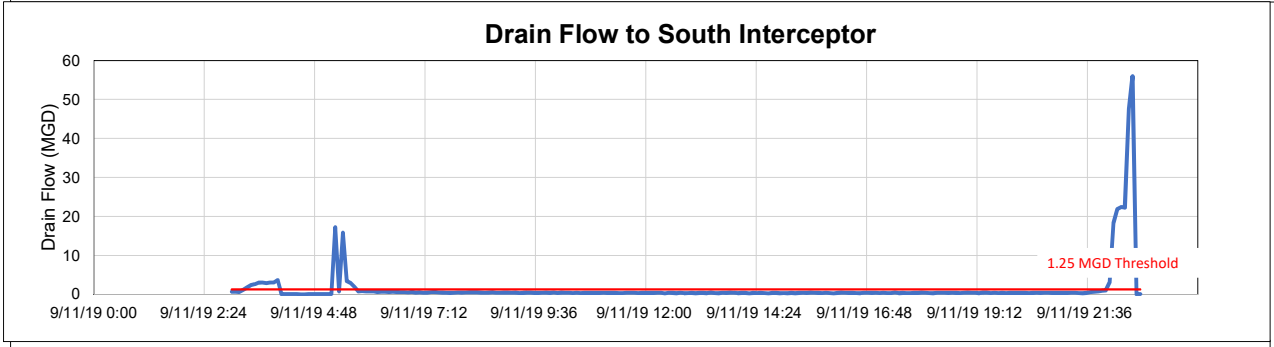
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/11/2019 22:30 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -1.51 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 895,917 Gal. |
| Did seiche occur during wet weather? | Yes |

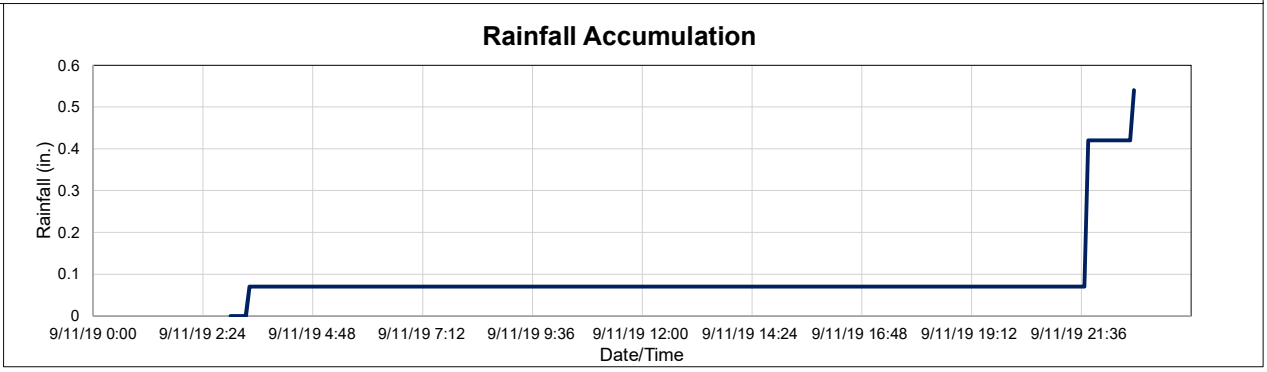
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 12, 2019 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/12/2019 2:10 |
| Event End Date/Time: | 9/12/2019 12:50 |

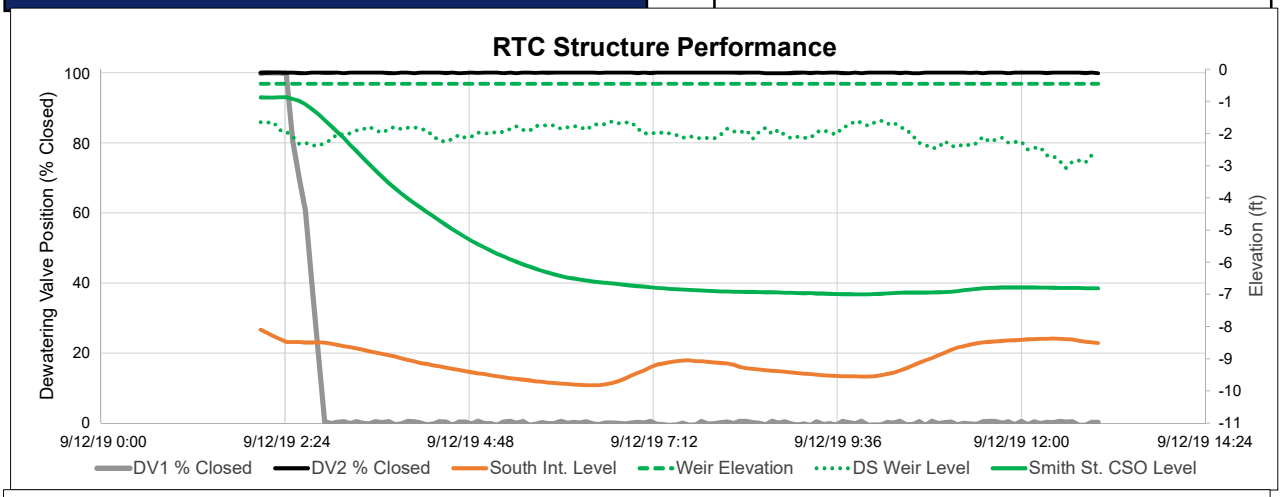
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.72 in. |
| Storm Event Duration: | 11 hrs. |
| Storm Type: | Less than 1 year |

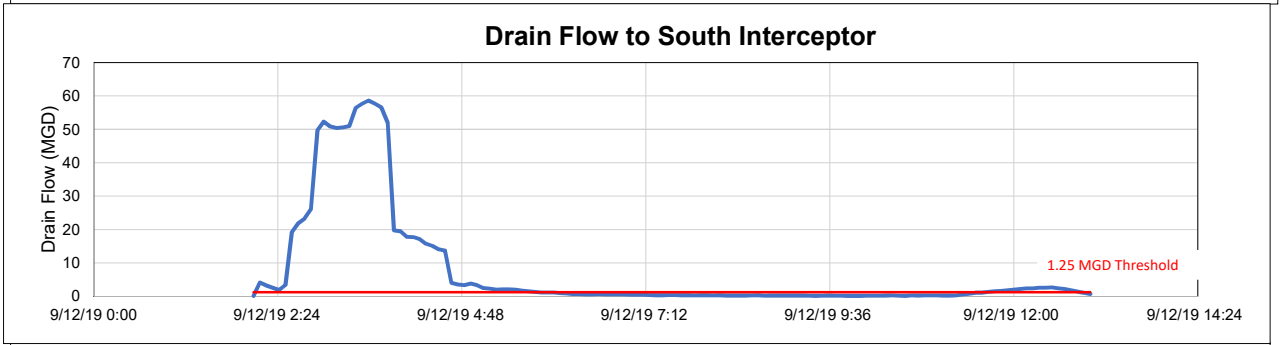
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/12/2019 2:05 |
| Time Lead Dewatering Valve Opened | 9/12/2019 2:30 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.87 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 3,357,369 Gal. |
| Did seiche occur during wet weather? | No |

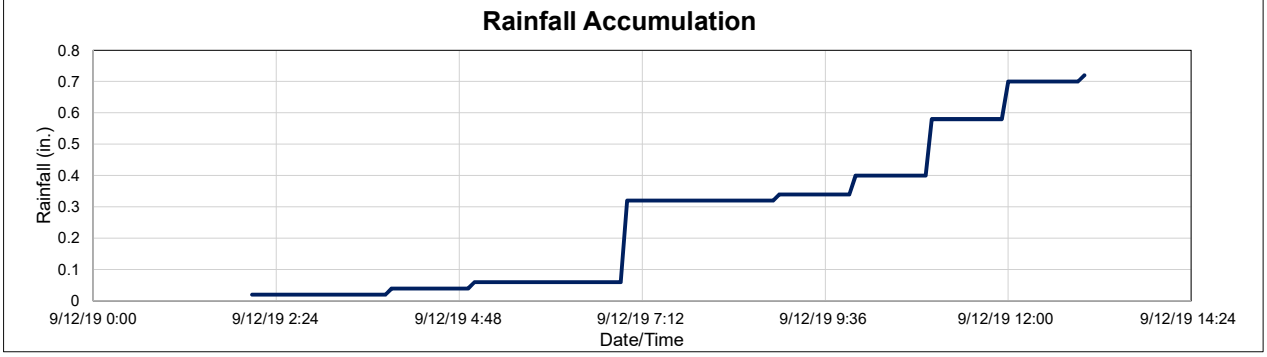
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 14, 2019 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/14/2019 0:00 |
| Event End Date/Time: | 9/14/2019 20:55 |

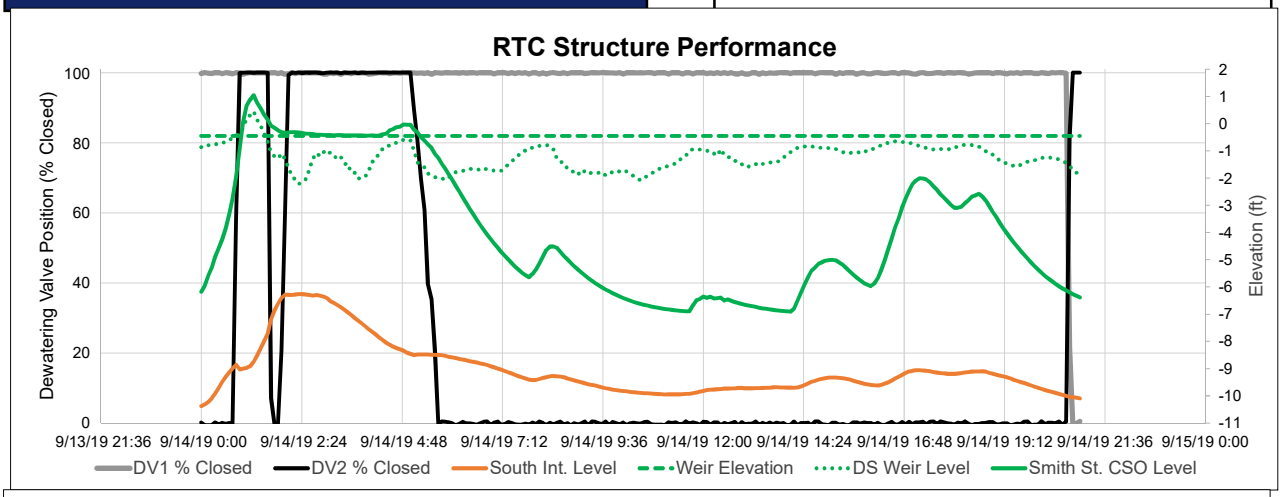
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.79 in. |
| Storm Event Duration: | 21 hrs. |
| Storm Type: | Less than 1 year |

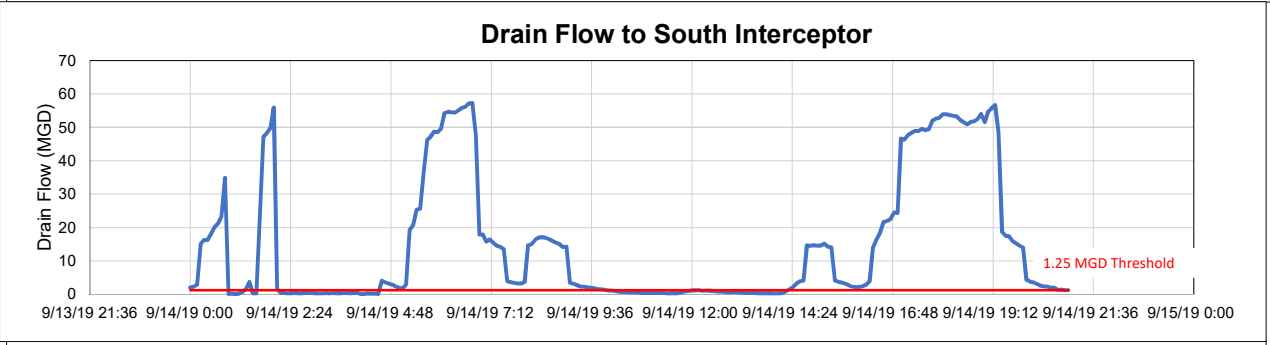
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/14/2019 0:50 |
| Time Lead Dewatering Valve Opened | 9/14/2019 20:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.04 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 11,524,473 Gal. |
| Did seiche occur during wet weather? | No |

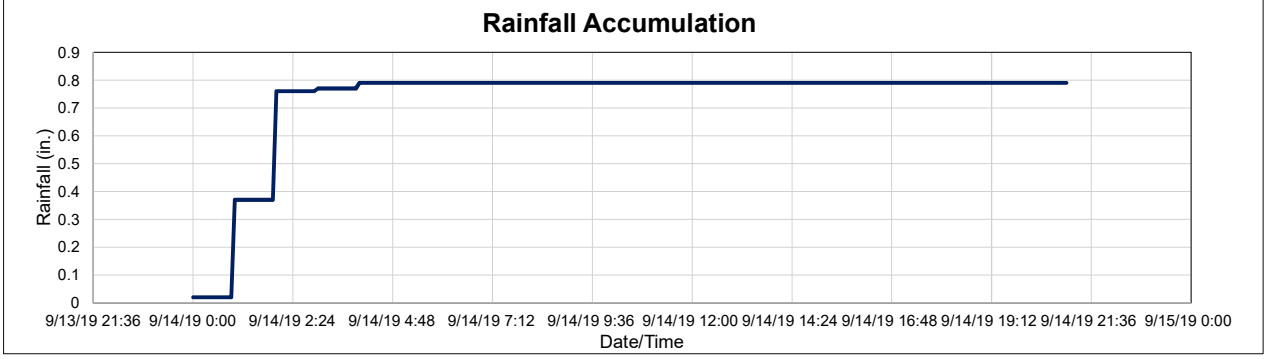
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 23, 2019 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/23/2019 6:15 |
| Event End Date/Time: | 9/24/2019 1:50 |

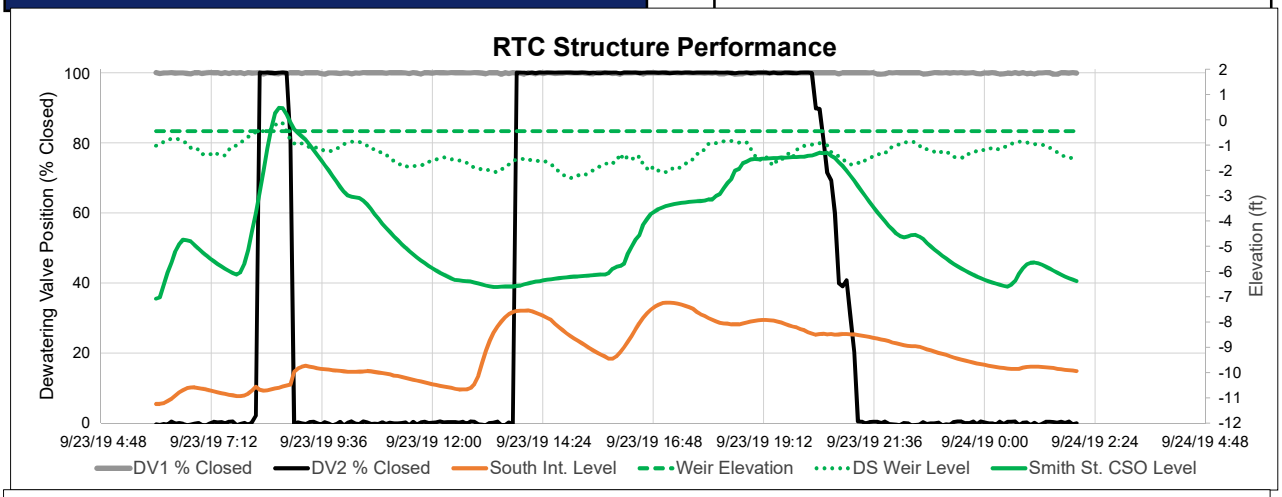
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.88 in. |
| Storm Event Duration: | 20 hrs. |
| Storm Type: | Less than 1 year |

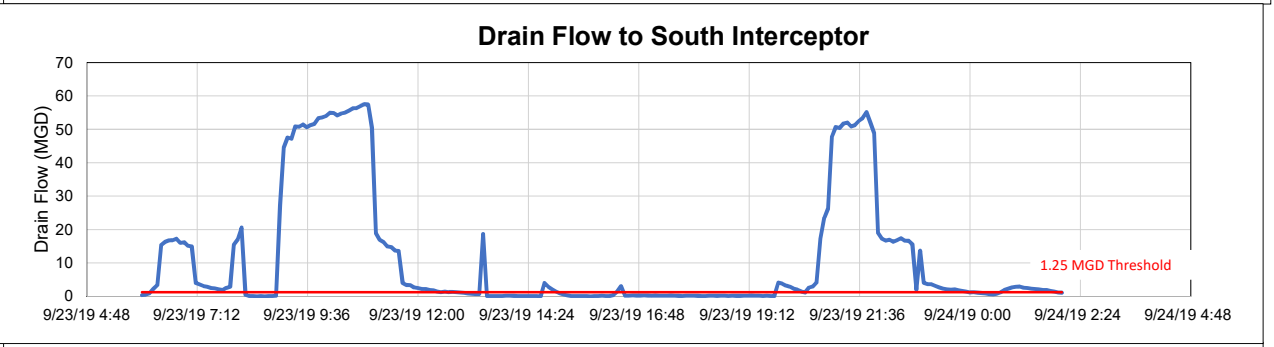
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/23/2019 8:10 |
| Time Lead Dewatering Valve Opened | 9/23/2019 20:20 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.47 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 9,011,055 Gal. |
| Did seiche occur during wet weather? | No |

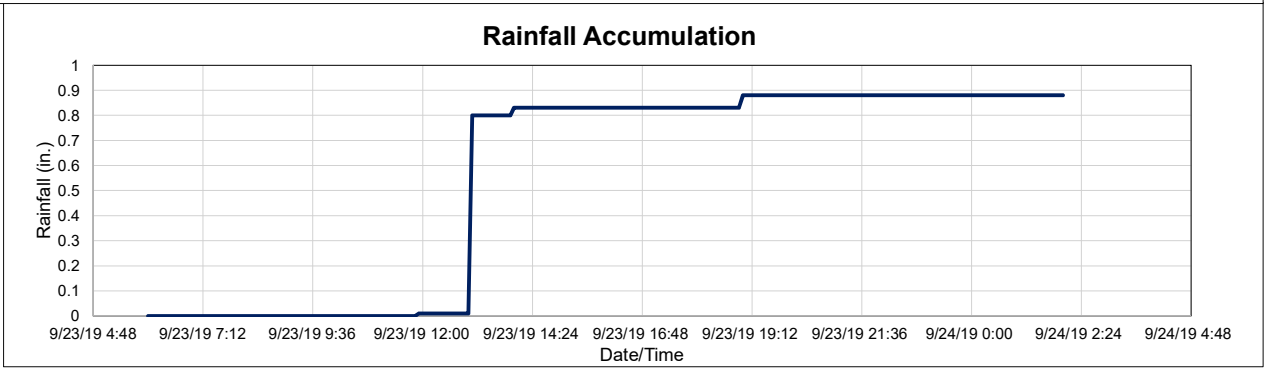
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 26, 2019 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/26/2019 8:00 |
| Event End Date/Time: | 9/26/2019 18:20 |

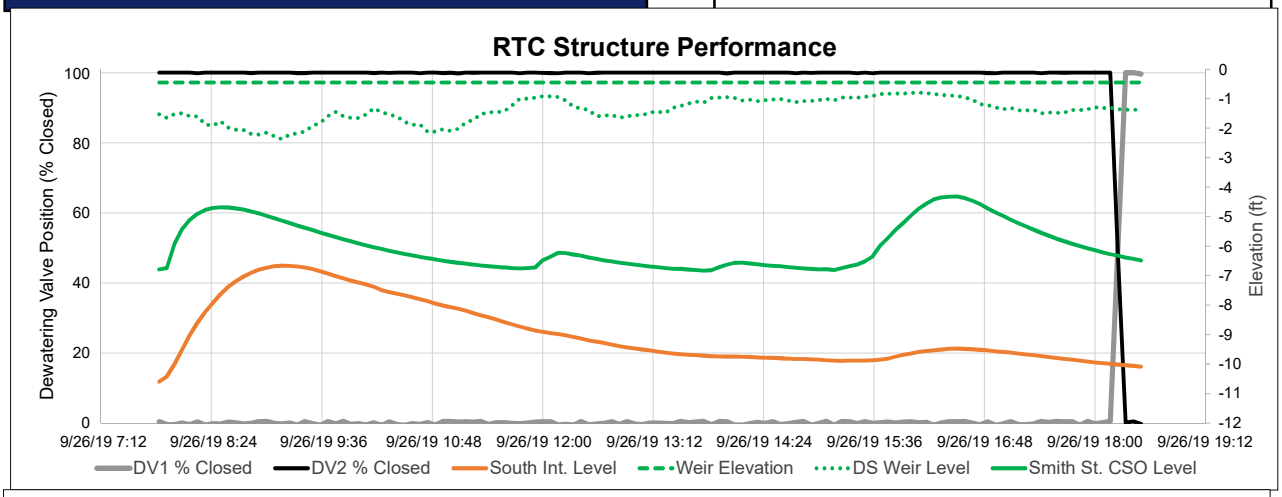
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.67 in. |
| Storm Event Duration: | 10 hrs. |
| Storm Type: | Less than 1 year |

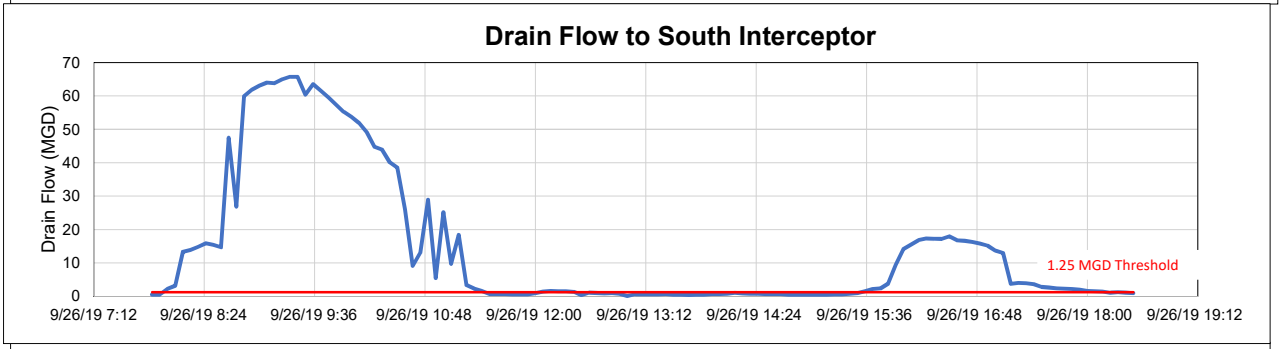
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 9/26/2019 18:15 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -4.32 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 6,201,408 Gal. |
| Did seiche occur during wet weather? | No |

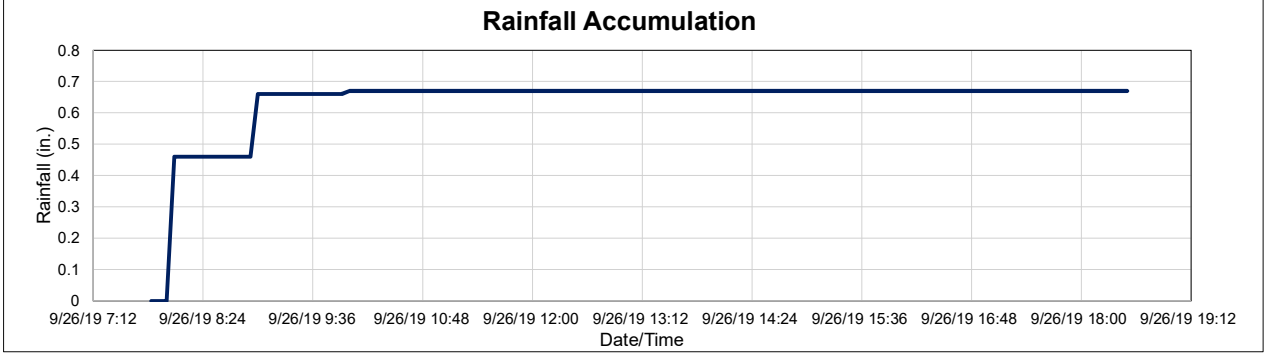
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# September 28, 2019 8

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 10/11/2019 |
| Event Start Date/Time: | 9/28/2019 1:40 |
| Event End Date/Time: | 9/28/2019 3:50 |

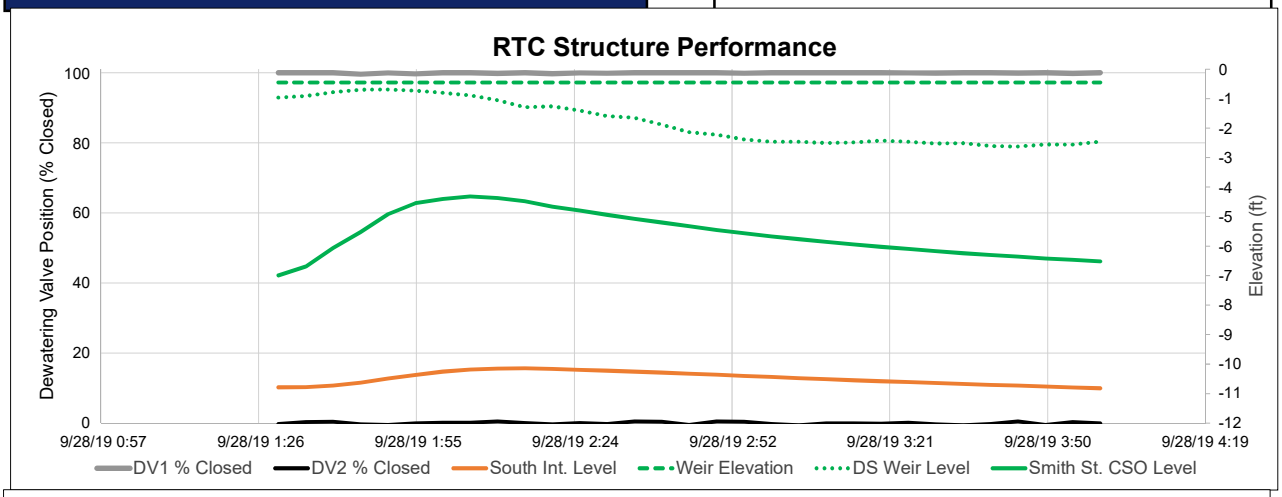
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | 2 hrs. |
| Storm Type: | Less than 1 year |

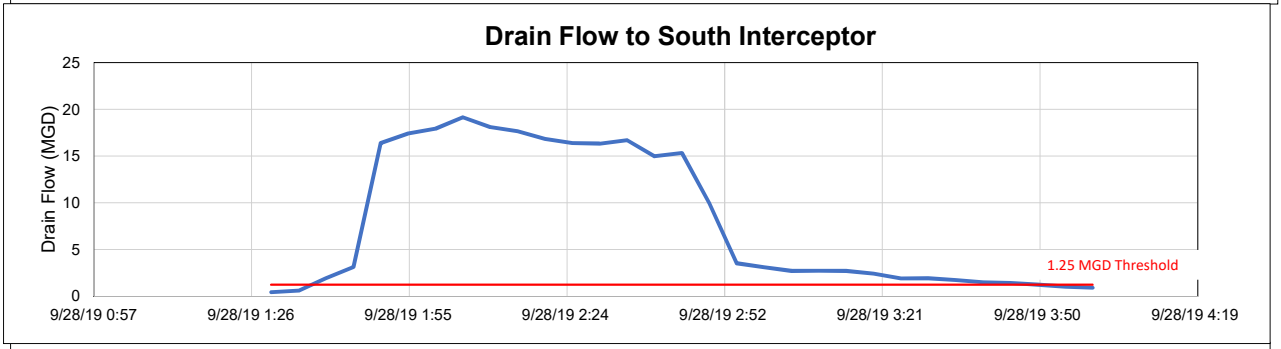
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -4.32 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 723,354 Gal. |
| Did seiche occur during wet weather? | No |

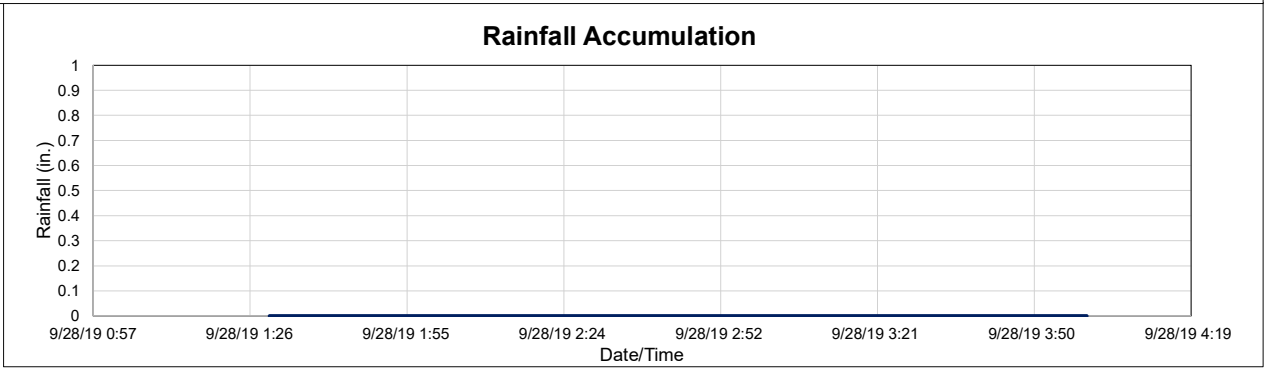
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.



# ctober 2019
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report ctober 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 10/1/2019 | 1,998,632 | No | 1.25 |
| 10/2/2019 | 4,205,646 | No | 1.25 |
| 10/3/2019 | 152,166 | No | 1.25 |
| 10/12/2019 | 12,565,898 | No | 1.25 |
| 10/16/2019 | 2,430,261 | Yes | 1.25 |
| 10/17/2019 | 4,859,143 | No | 1.25 |
| **Total Volume Captured (gal)** | **26,211,746** | | |

# October 1, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/1/2019 18:45 |
| Event End Date/Time: | 10/1/2019 22:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.07 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than 1 year |

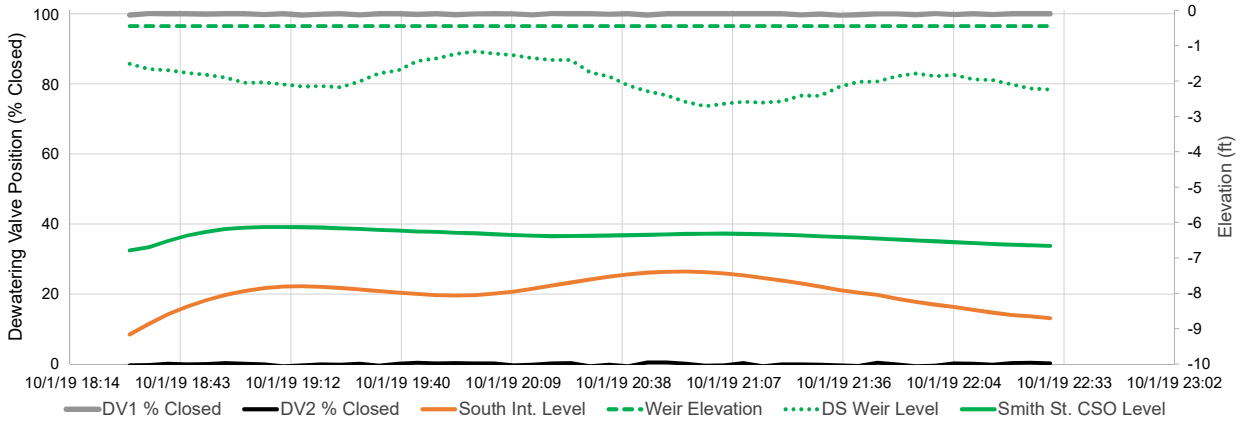
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.13 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 1,998,632 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

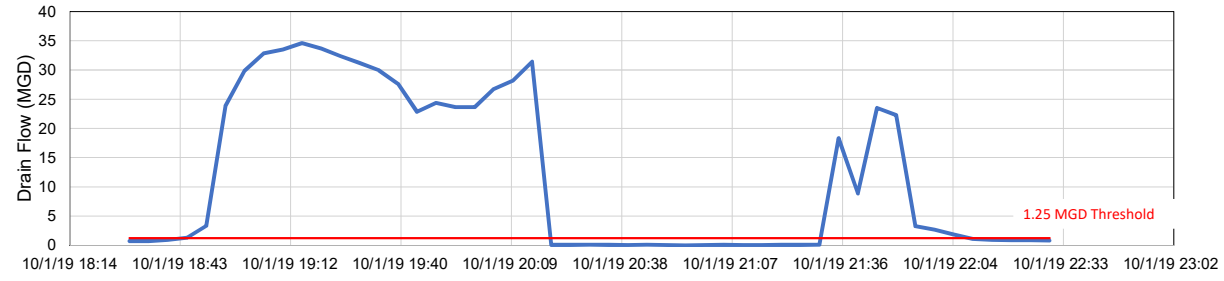
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
Communication was lost from October 19 for the rest of the month of October.

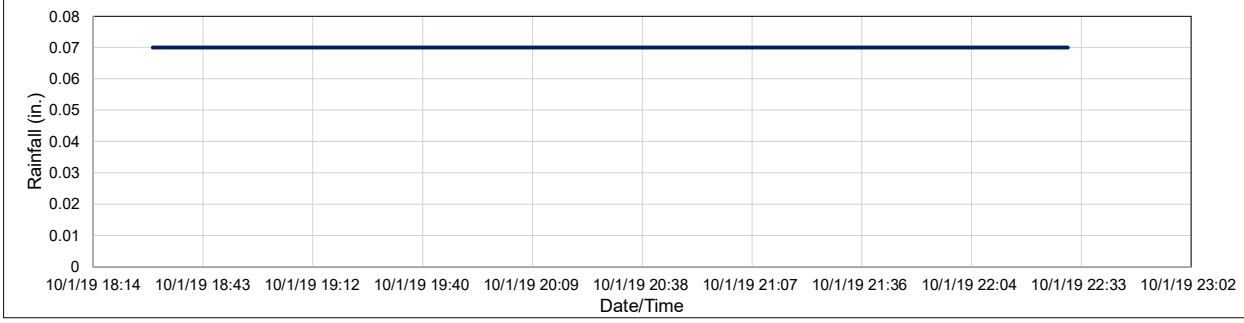
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# October 2, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/2/2019 5:30 |
| Event End Date/Time: | 10/2/2019 15:25 |

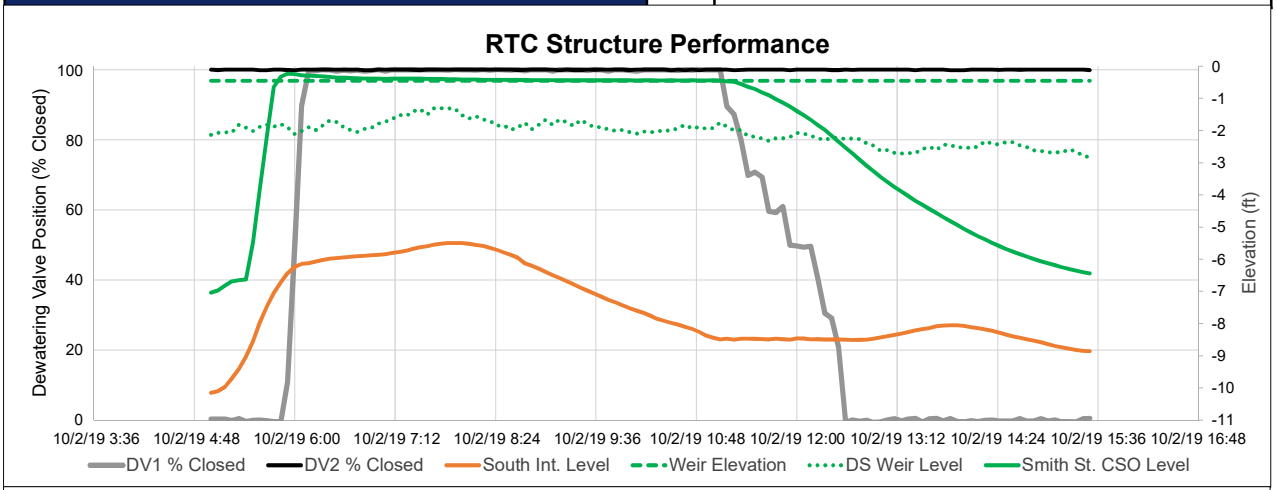
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 8 hrs. |
| Storm Type: | Less than 1 year |

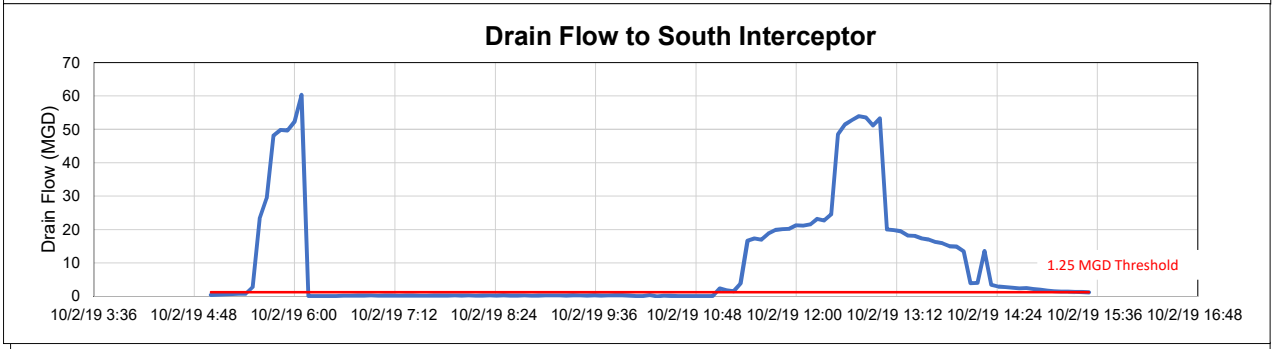
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 10/2/2019 5:55 |
| Time Lead Dewatering Valve Opened | 10/2/2019 11:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.23 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 4,205,646 Gal. |
| Did seiche occur during wet weather? | No |

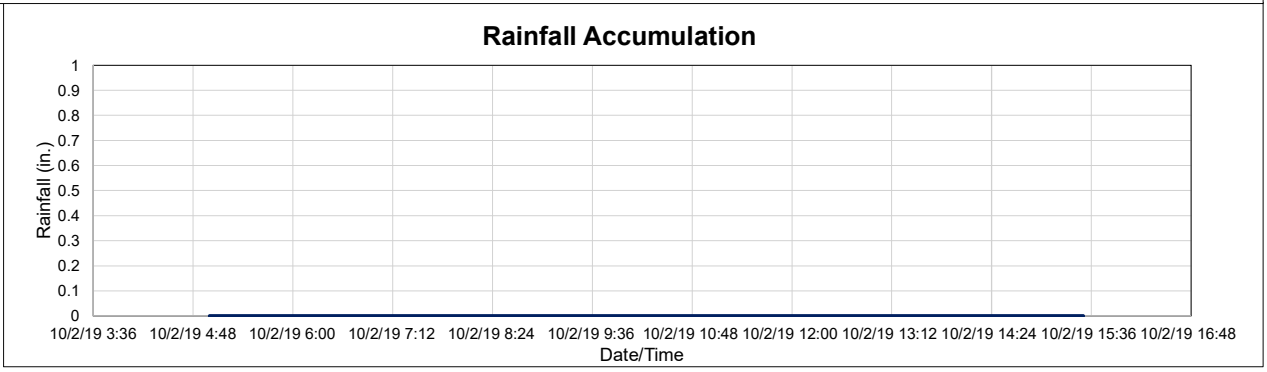
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.
Communication was lost from October 19 for the rest of the month of October.



# October 3, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/3/2019 12:45 |
| Event End Date/Time: | 10/3/2019 16:20 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.18 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than 1 year |

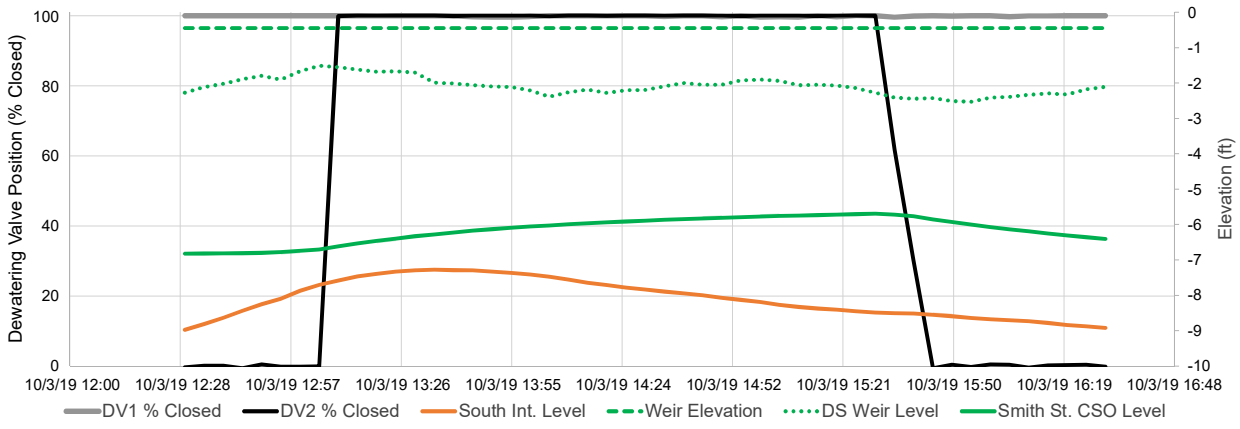
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 10/3/2019 13:10 |
| Time Lead Dewatering Valve Opened | 10/3/2019 15:35 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -5.69 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 153,166 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

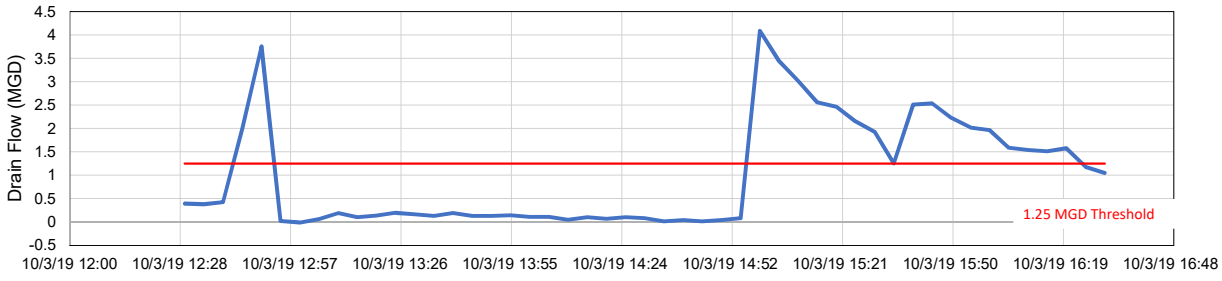
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
Communication was lost from October 19 for the rest of the month of October.

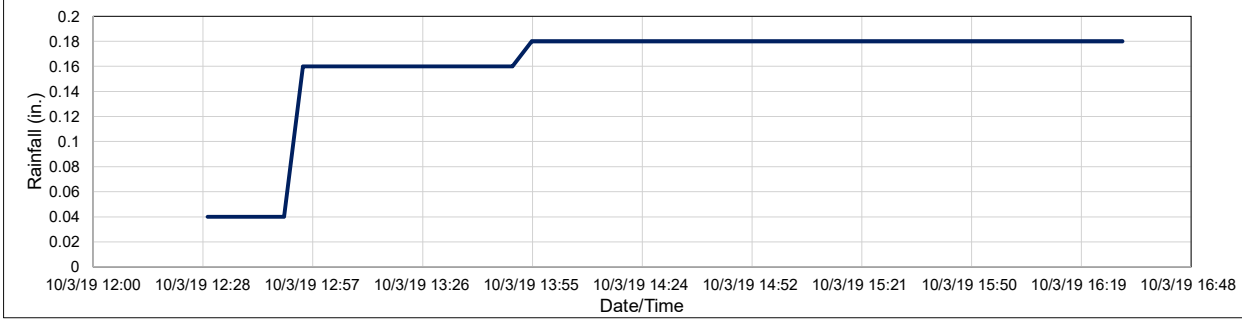
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# October 12, 2019 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/12/2019 6:25 |
| Event End Date/Time: | 10/12/2019 21:50 |

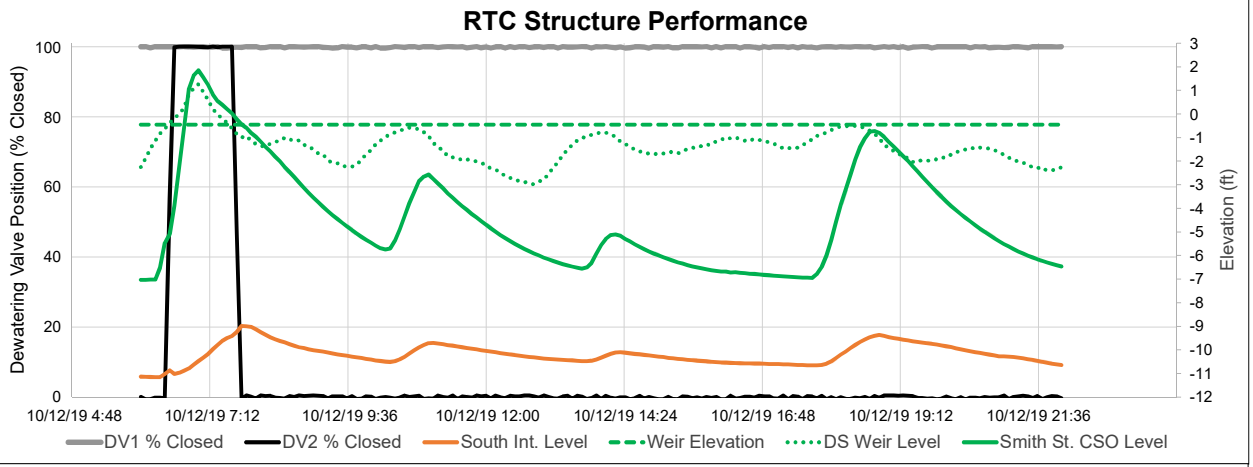
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.02 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than 1 year |

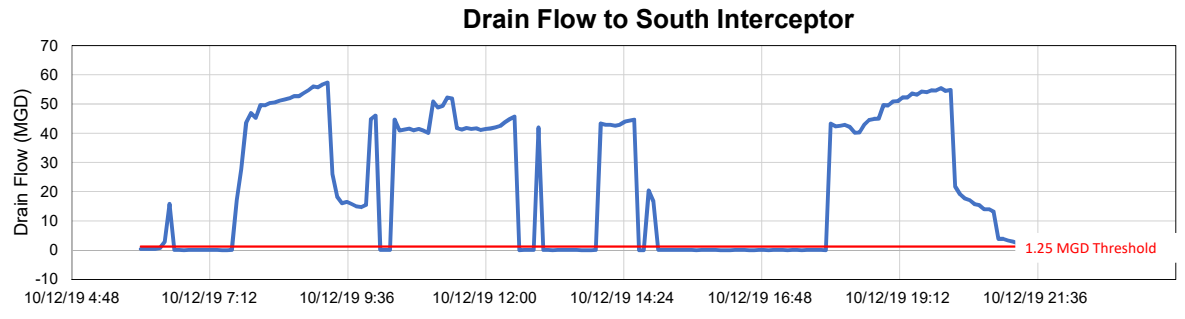
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 10/12/2019 6:30 |
| Time Lead Dewatering Valve Opened | 10/12/2019 7:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.85 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 12,565,898 Gal. |
| Did seiche occur during wet weather? | No |

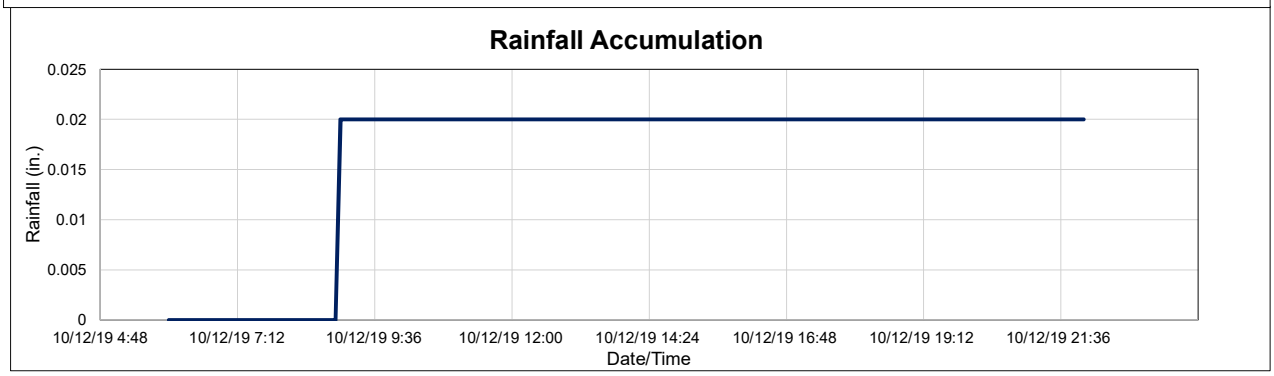
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
Communication was lost from October 19 for the rest of the month of October.



# October 16, 2019 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/16/2019 9:40 |
| Event End Date/Time: | 10/16/2019 11:40 |

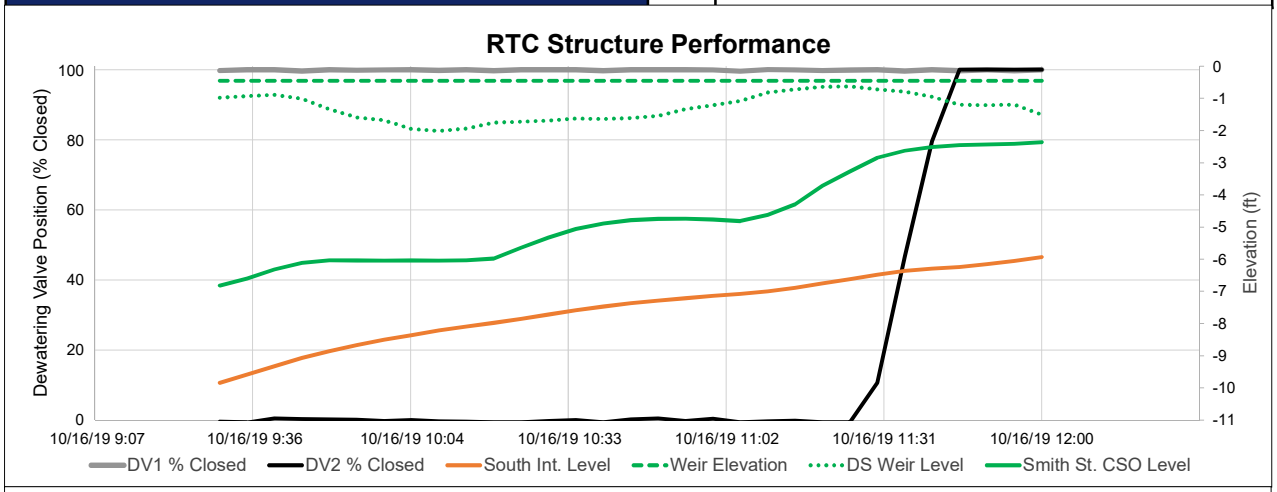
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.76 in. |
| Storm Event Duration: | 3 hrs. |
| Storm Type: | Less than 1 year |

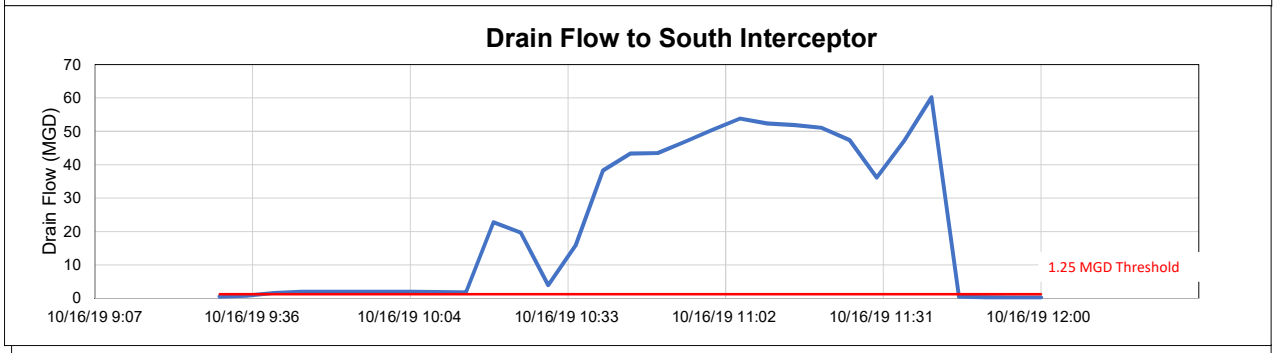
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 10/16/2019 11:30 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -2.36 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 2,430,261 Gal. |
| Did seiche occur during wet weather? | Yes |

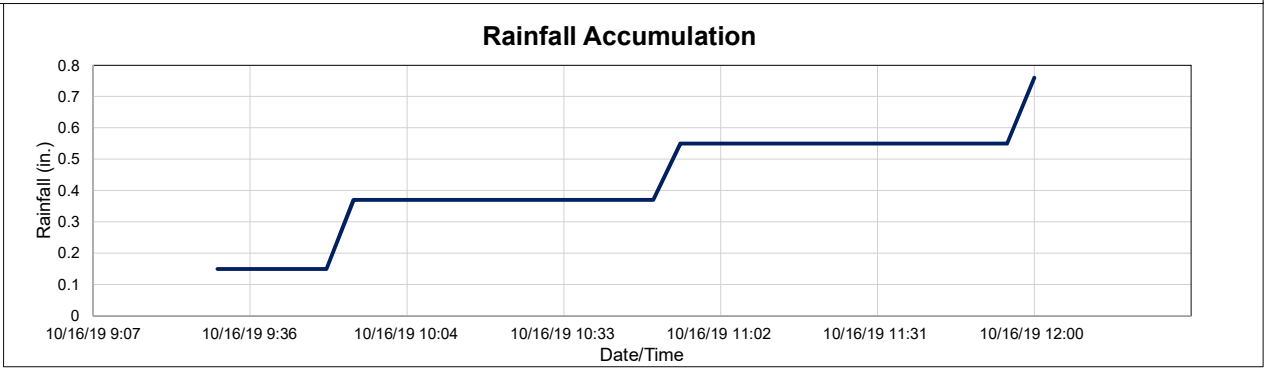
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
Communication was lost from October 19 for the rest of the month of October.



# October 17, 2019 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/17/2019 2:40 |
| Event End Date/Time: | 10/17/2019 8:55 |

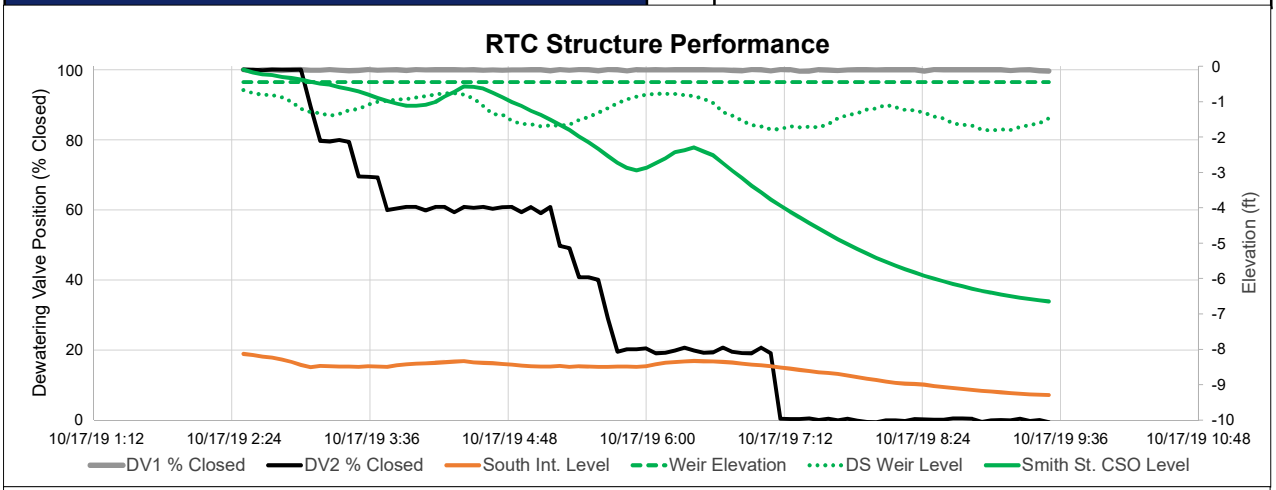
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.03 in. |
| Storm Event Duration: | 6 hrs. |
| Storm Type: | Less than 1 year |

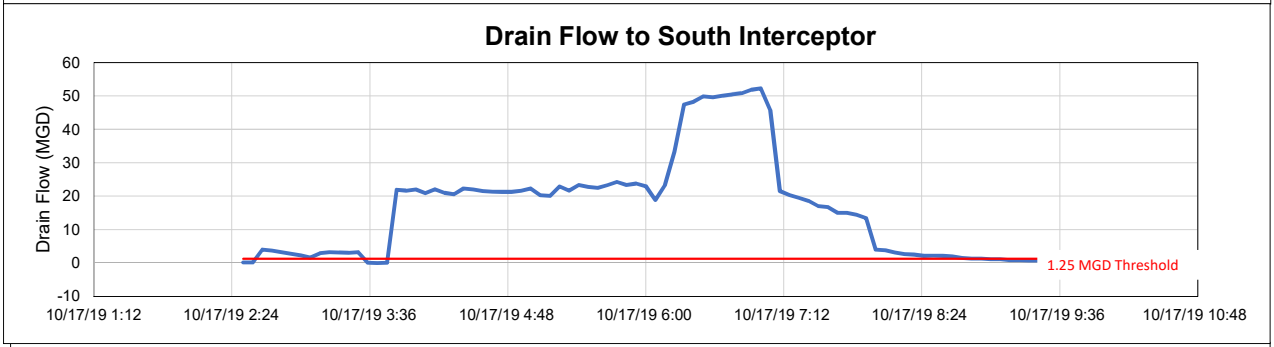
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 10/17/2019 2:30 |
| Time Lead Dewatering Valve Opened | 10/17/2019 3:05 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.09 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 4,859,143 Gal. |
| Did seiche occur during wet weather? | No |

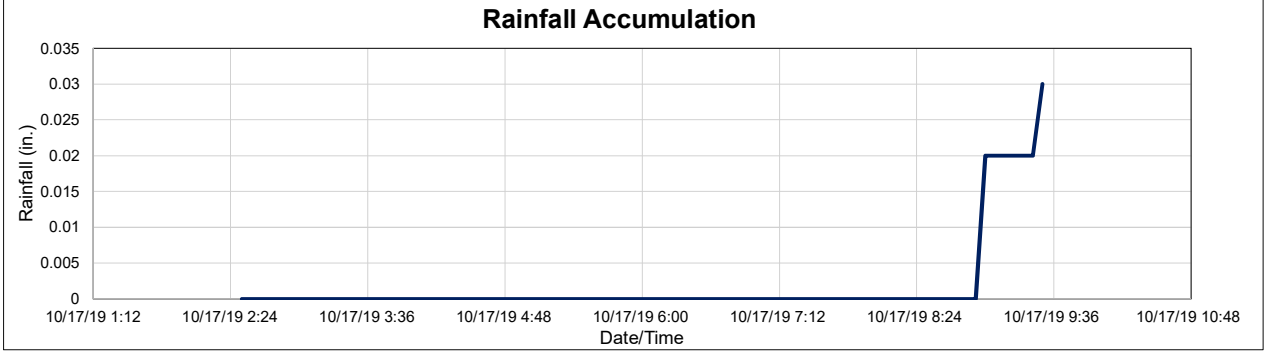
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
Communication was lost from October 19 for the rest of the month of October.



# November 2019
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report — November 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 11/21/2019 | 5,298,334 | No | 1.25 |
| 11/24/2019 | 47,864 | No | 1.25 |
| 11/28/2019 | 4,097,292 | No | 1.25 |
| **Total Volume Captured (gal)** | **9,443,490** | | |

# November 21, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 12/9/2019 |
| Event Start Date/Time: | 11/21/2019 23:05 |
| Event End Date/Time: | 11/22/2019 5:30 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 7 hrs. |
| Storm Type: | N/A |

| | |
|---|---|
| Time Lead Dewatering Valve Closed | 11/22/2019 1:45 |
| Time Lead Dewatering Valve Opened | 11/22/2019 2:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.22 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 5,298,334 Gal. |
| Did seiche occur during wet weather? | No |

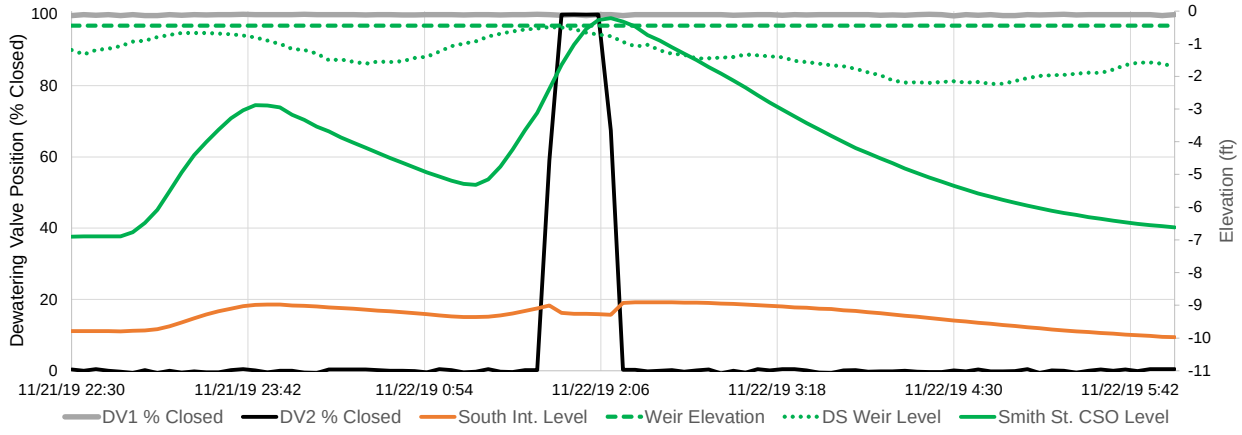
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

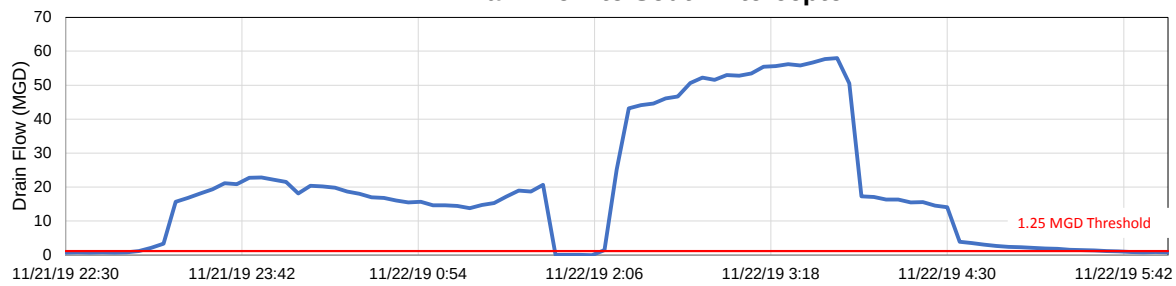
Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.

Communication was lost from November 1 to November 5.

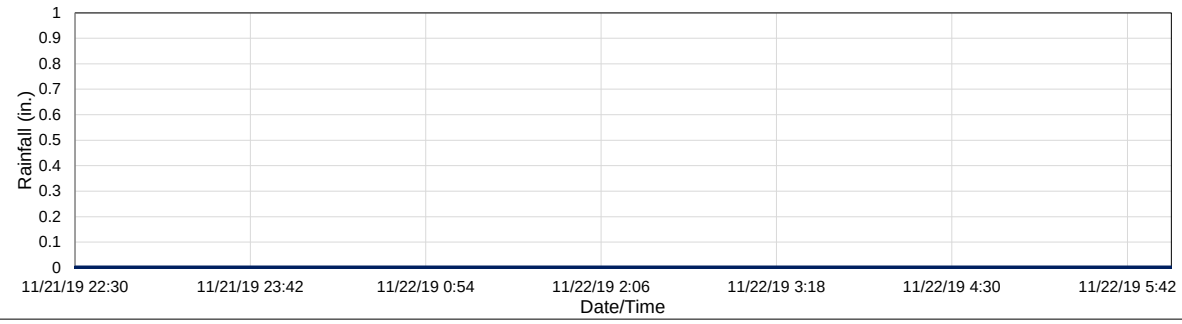
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# November 24, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 12/9/2019 |
| Event Start Date/Time: | 11/24/2019 18:10 |
| Event End Date/Time: | 11/24/2019 18:50 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | N/A |

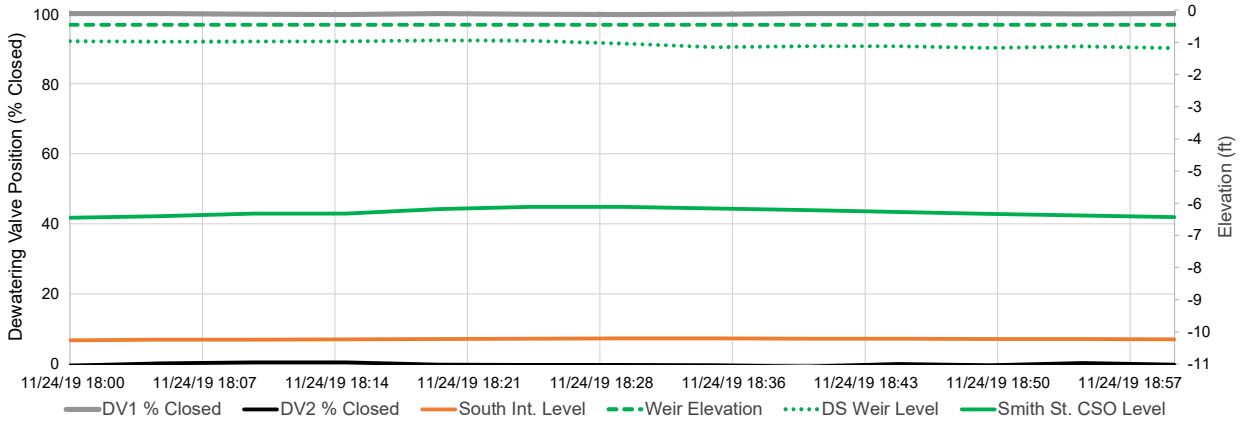
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.11 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 47,864 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

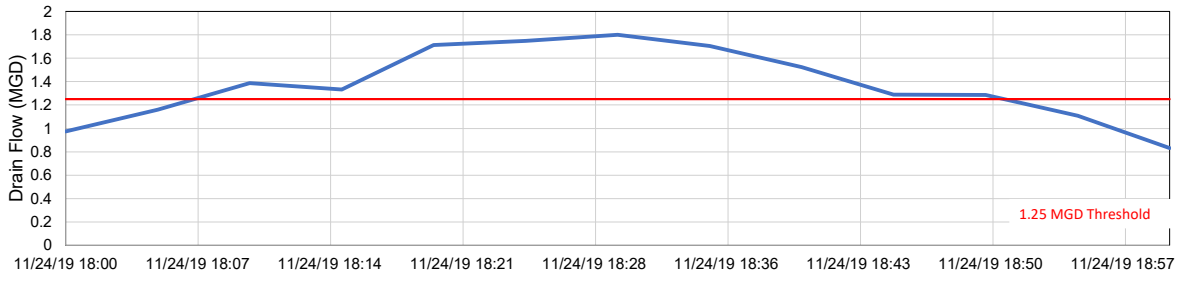
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.

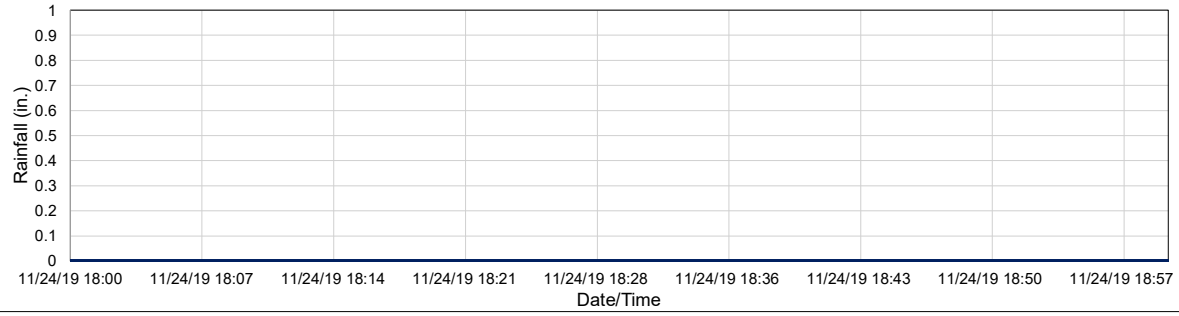
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# November 28, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 12/9/2019 |
| Event Start Date/Time: | 11/28/2019 1:45 |
| Event End Date/Time: | 11/28/2019 7:00 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 6 hrs. |
| Storm Type: | N/A |

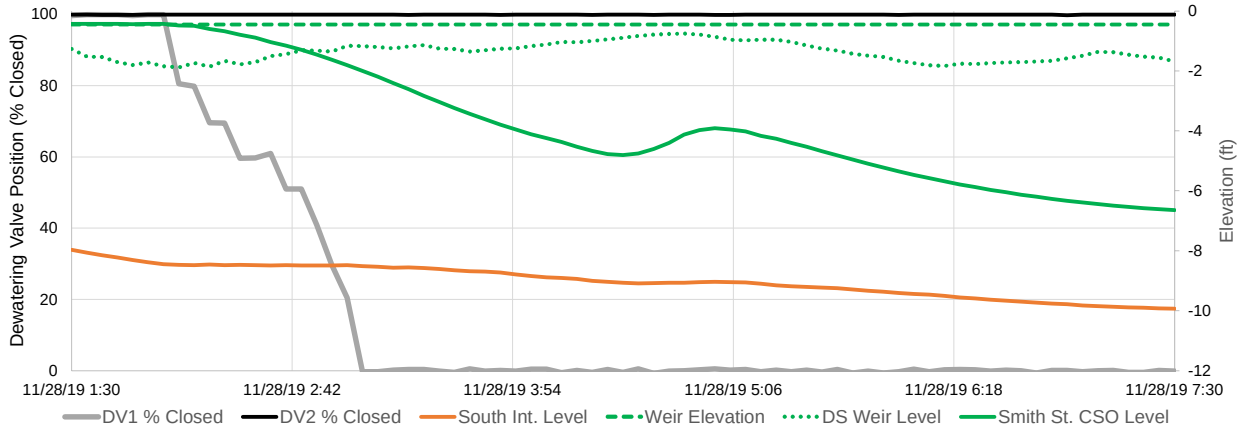
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 11/28/2019 1:30 |
| Time Lead Dewatering Valve Opened | 11/28/2019 2:05 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.43 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 4,097,292 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

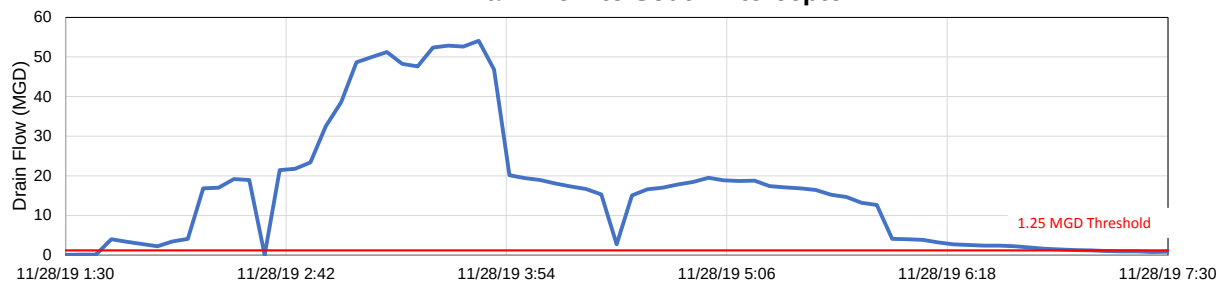
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.

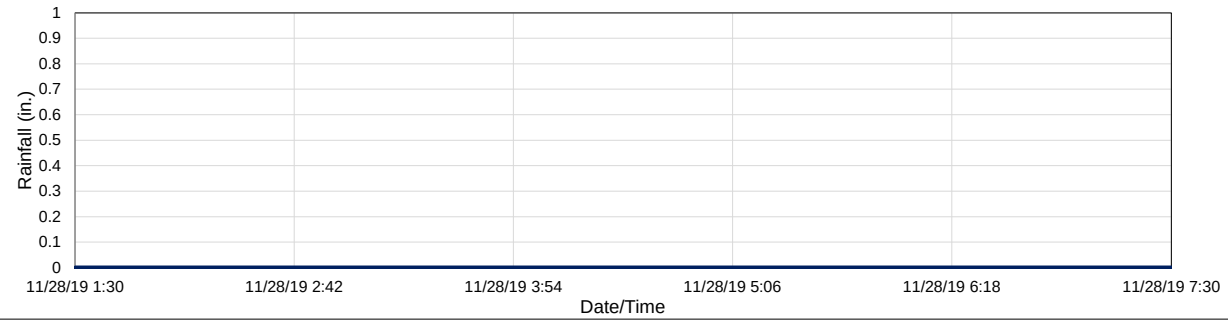
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# December 2019 Smith St. RTC KPI Report

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# Smith St. RTC Monthly Performance Report December 2019

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 12/1/2019 | 2,172,480 | No | 1.25 |
| 12/1/2019 | 2,196,125 | No | 1.25 |
| 12/2/2019 | 33,323 | No | 1.25 |
| 12/3/2019 | 20,204,863 | No | 1.25 |
| 12/6/2019 | 269,557 | No | 1.25 |
| 12/9/2019 | 629,189 | No | 1.25 |
| 12/11/2019 | 6,727,808 | No | 1.25 |
| 12/14/2019 | 524,336 | No | 1.25 |
| 12/15/2019 | 7,671,561 | No | 1.25 |
| 12/16/2019 | 34,242 | No | 1.25 |
| 12/18/2019 | 1,551,444 | No | 1.25 |
| 12/19/2019 | 27,022 | No | 1.25 |
| 12/29/2019 | 1,979,610 | No | 1.25 |
| 12/30/2019 | 7,348,967 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **51,370,527** | | |

# December 1, 2019 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/1/2019 11:15 |
| Event End Date/Time: | 12/1/2019 12:45 |

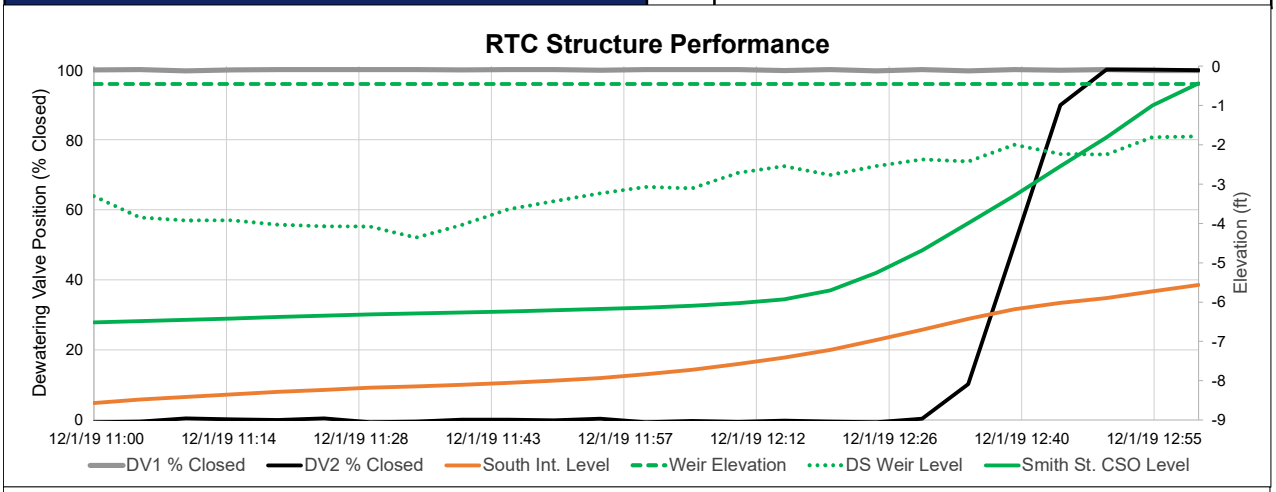
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.19 in. |
| Storm Event Duration: | 3 hrs. |
| Storm Type: | Less than two years |

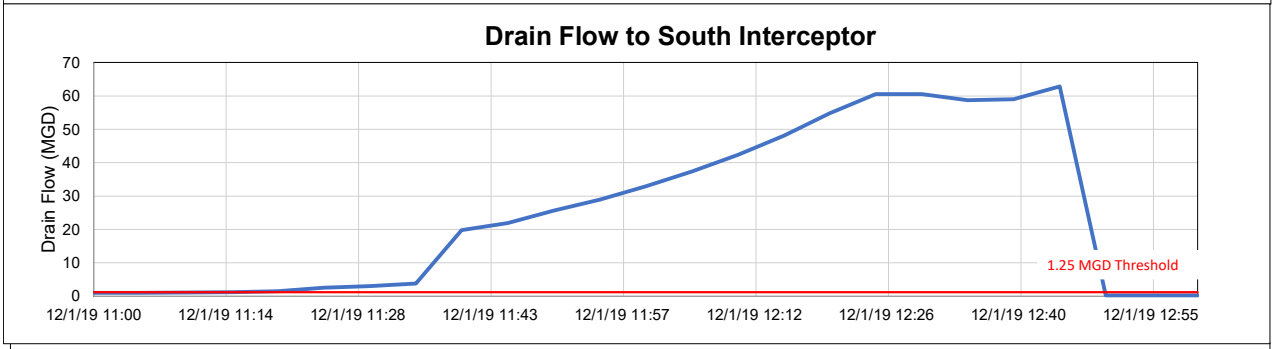
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/1/2019 12:35 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.44 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 2,172,480 Gal. |
| Did seiche occur during wet weather? | No |

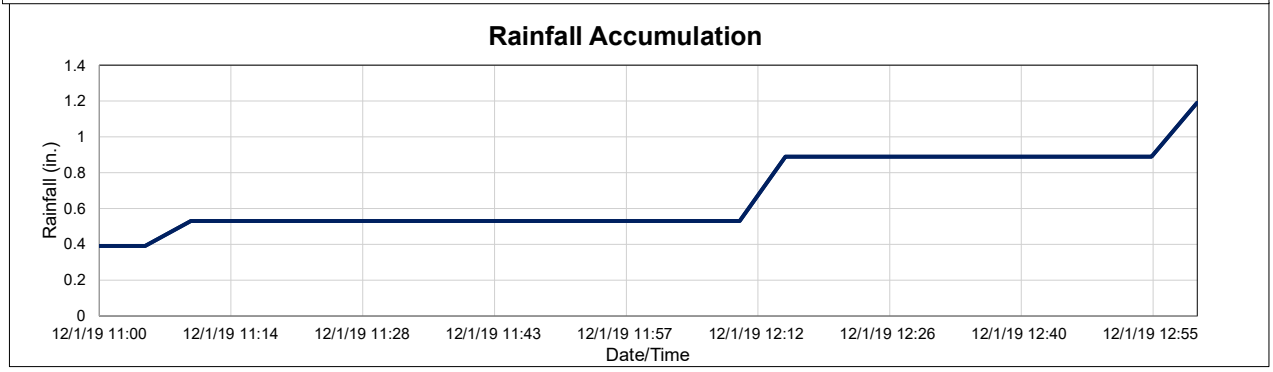
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 1, 2019 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/1/2019 19:50 |
| Event End Date/Time: | 12/2/2019 5:40 |

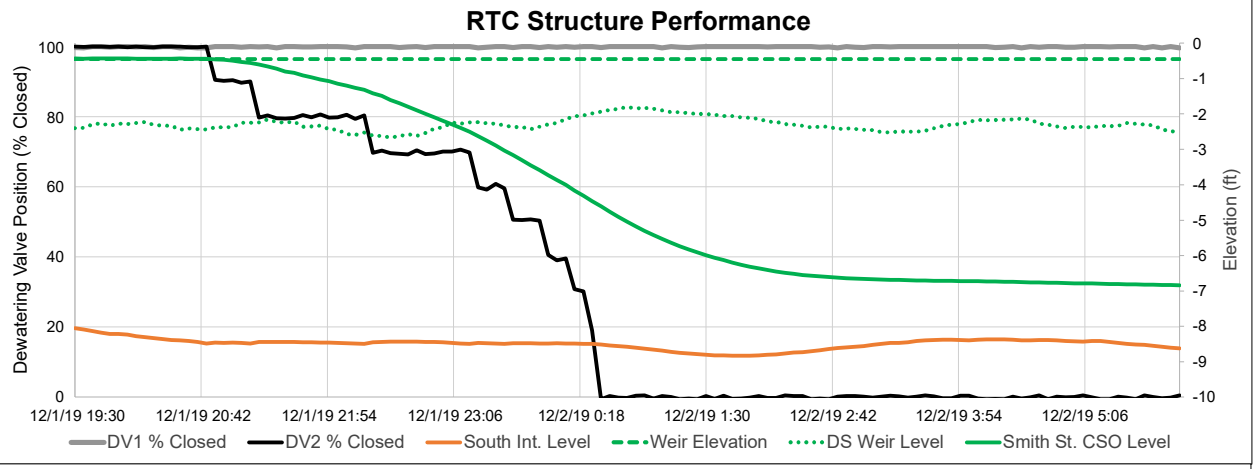
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.1 in. |
| Storm Event Duration: | 10 hrs. |
| Storm Type: | Less than one year |

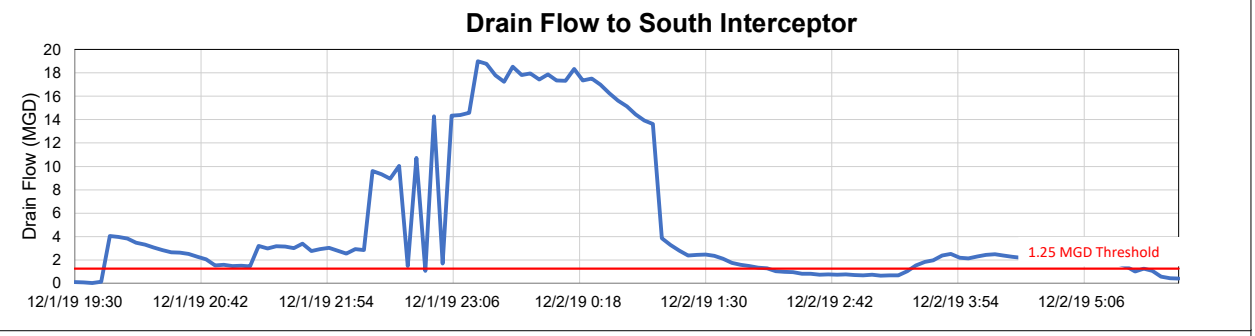
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/1/2019 19:30 |
| Time Lead Dewatering Valve Opened | 12/1/2019 20:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.43 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 2,196,125 Gal. |
| Did seiche occur during wet weather? | No |

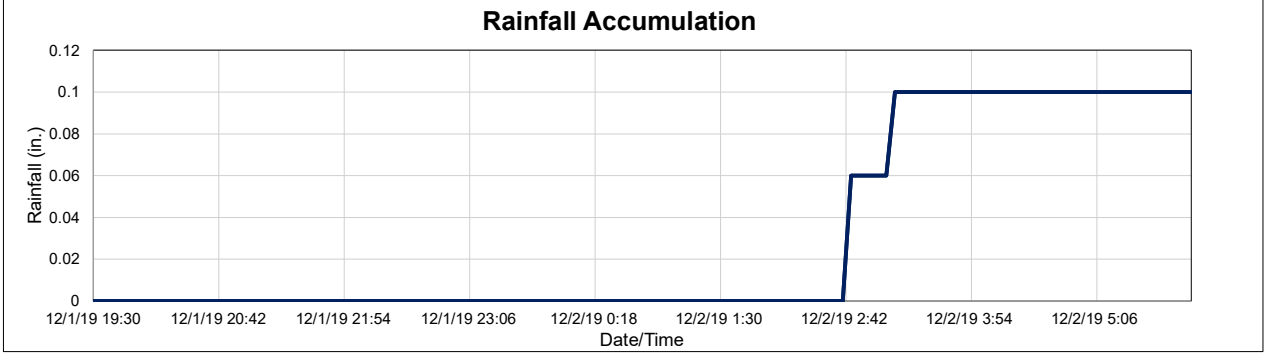
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 2, 2019 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/2/2019 14:35 |
| Event End Date/Time: | 12/2/2019 15:00 |

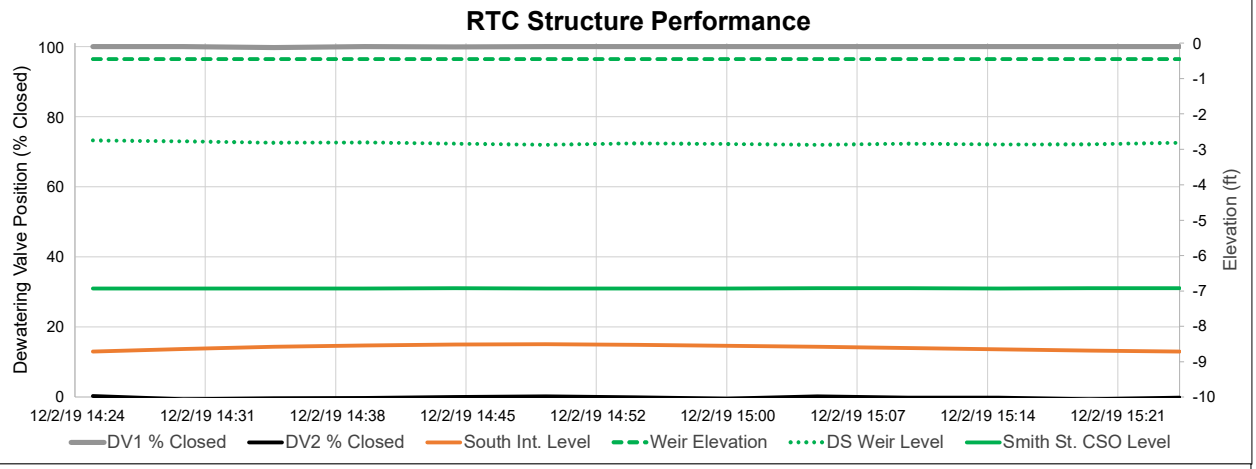
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.02 in. |
| Storm Event Duration: | 1 hrs. |
| Storm Type: | Less than one year |

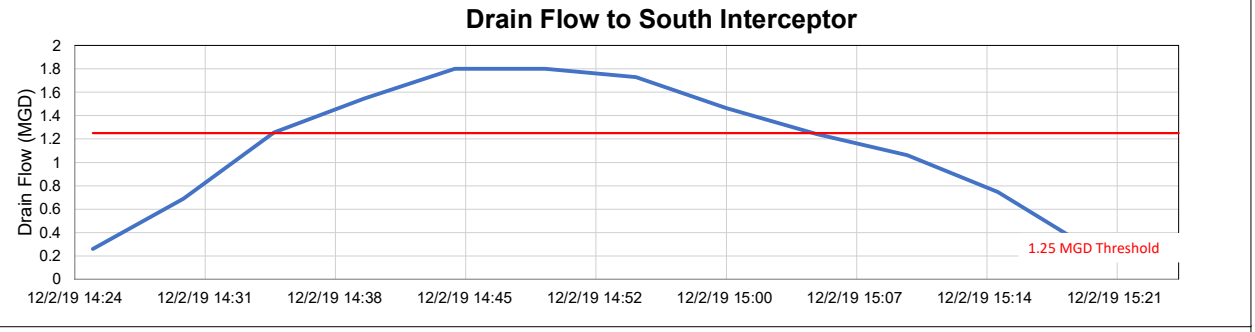
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.93 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 33,323 Gal. |
| Did seiche occur during wet weather? | No |

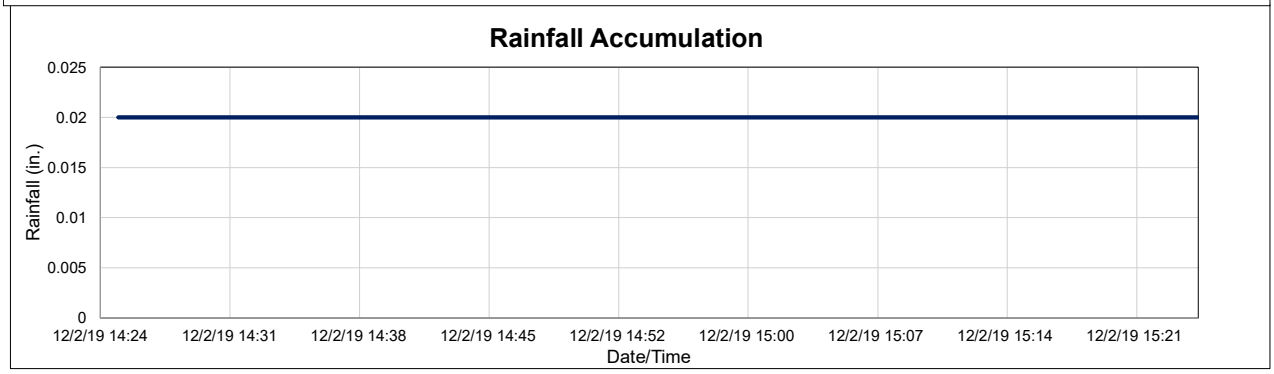
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 3, 2019 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/3/2019 22:20 |
| Event End Date/Time: | 12/5/2019 1:35 |

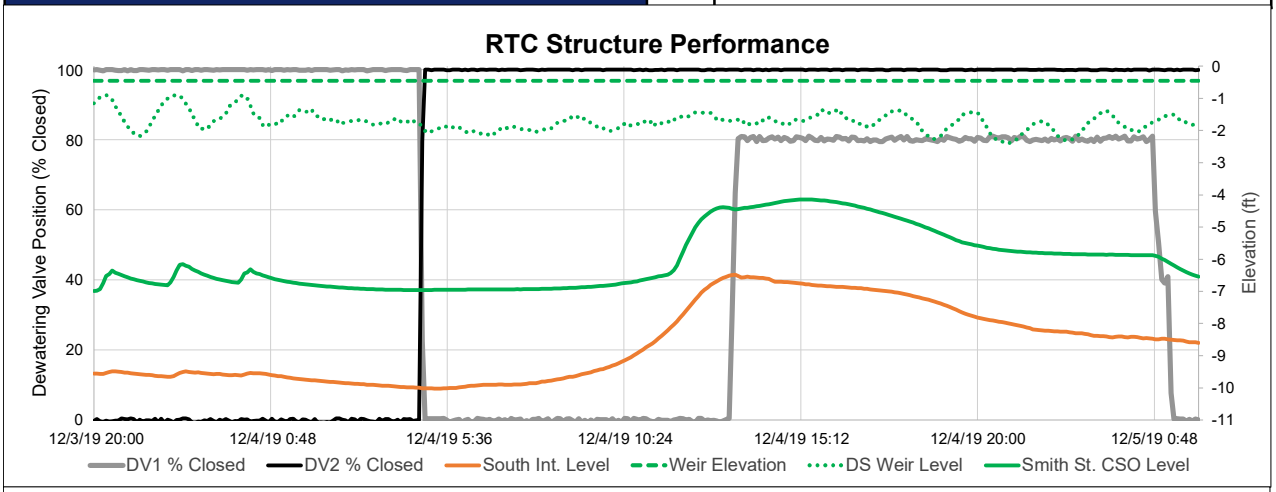
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.28 in. |
| Storm Event Duration: | 27 hrs. |
| Storm Type: | Less than one year |

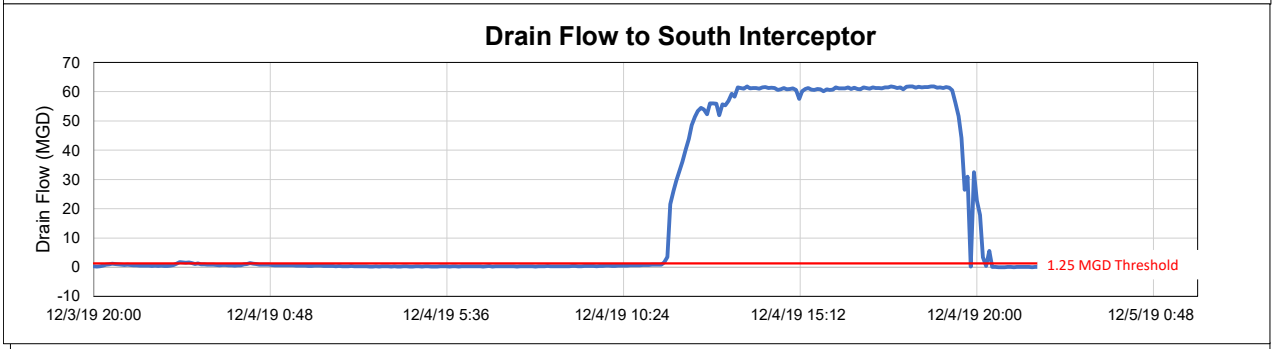
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/4/2019 4:55 |
| Time Lead Dewatering Valve Opened | 12/4/2019 4:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -4.14 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 20,204,863 Gal. |
| Did seiche occur during wet weather? | No |

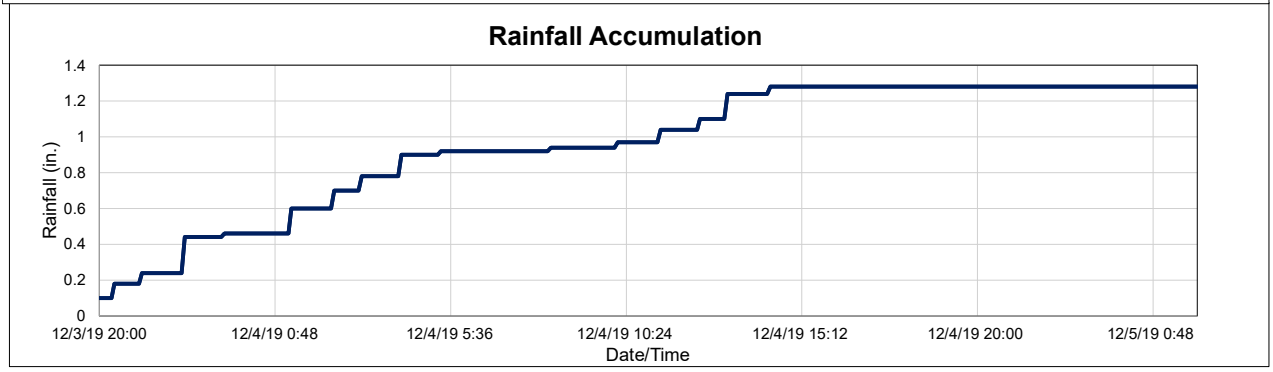
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 6, 2019 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/6/2019 11:15 |
| Event End Date/Time: | 12/6/2019 15:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.08 in. |
| Storm Event Duration: | 5 hrs. |
| Storm Type: | Less than one year |

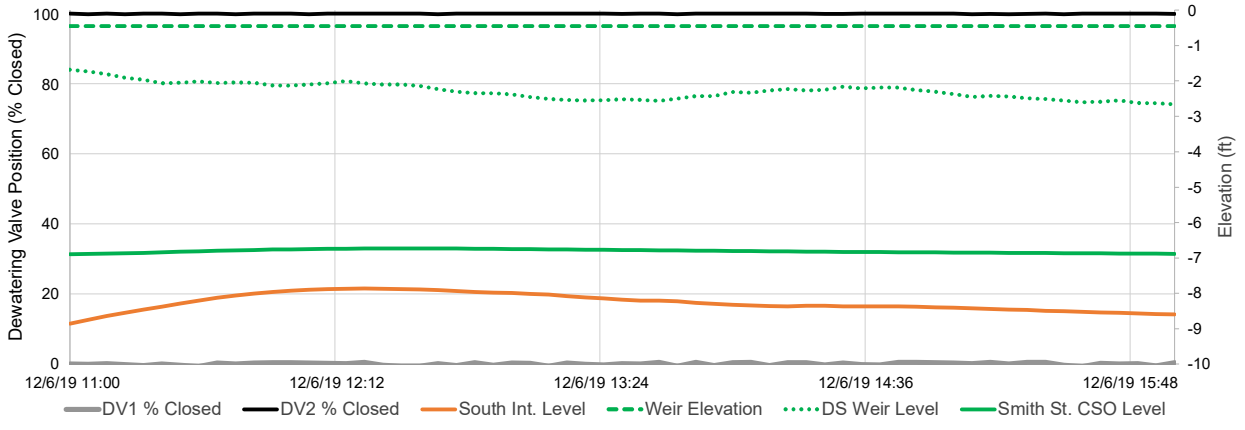
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.73 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 269,557 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

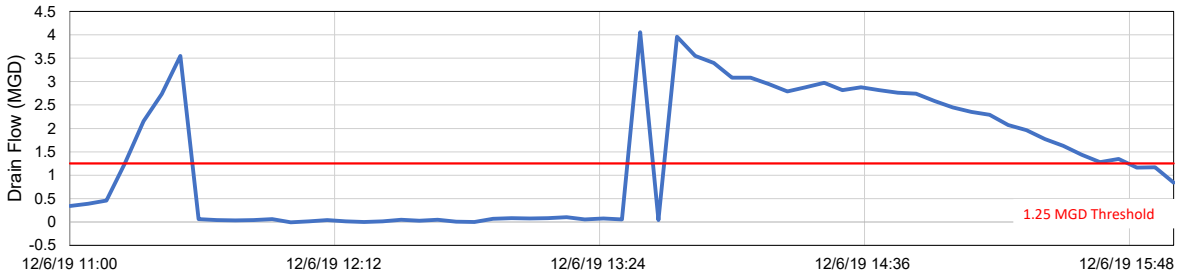
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

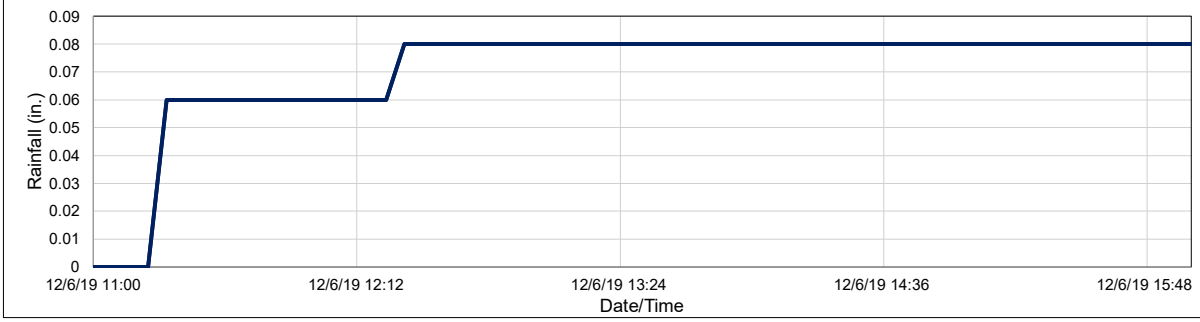
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# December 9, 2019 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/9/2019 13:30 |
| Event End Date/Time: | 12/10/2019 6:20 |

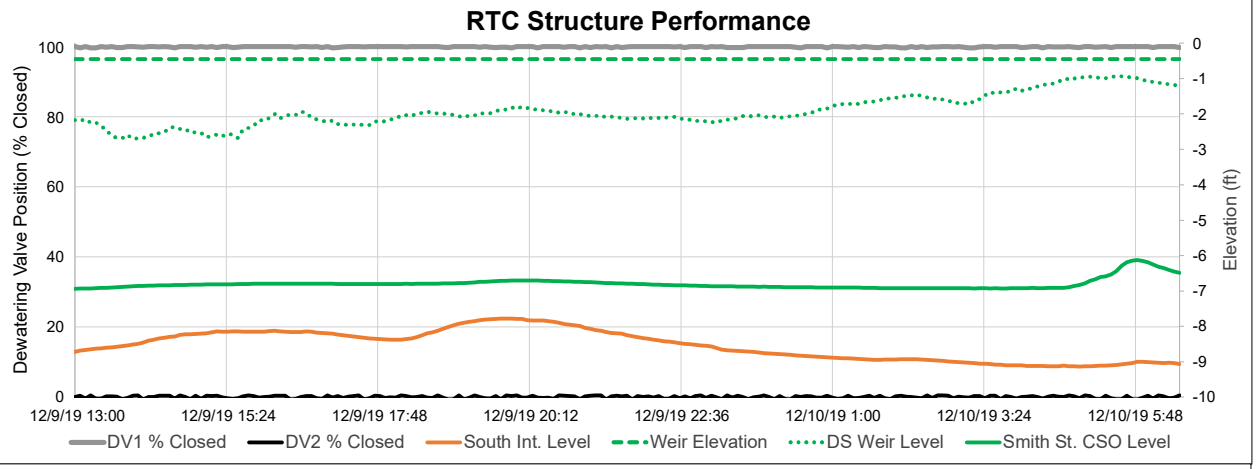
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.26 in. |
| Storm Event Duration: | 16 hrs. |
| Storm Type: | Less than one year |

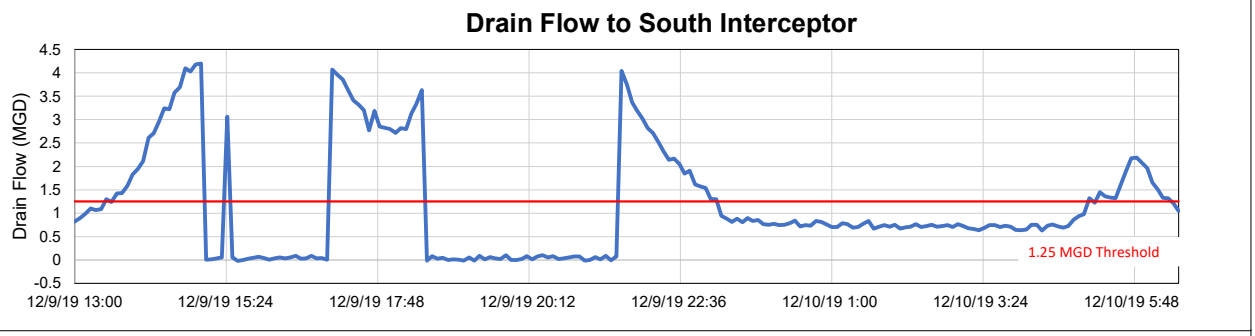
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.13 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 629,189 Gal. |
| Did seiche occur during wet weather? | No |

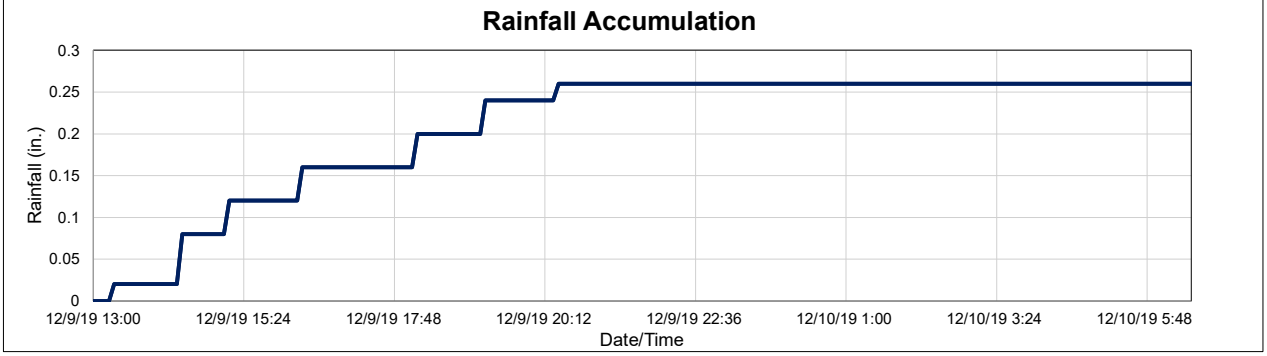
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 11, 2019 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/11/2019 10:20 |
| Event End Date/Time: | 12/11/2019 21:20 |

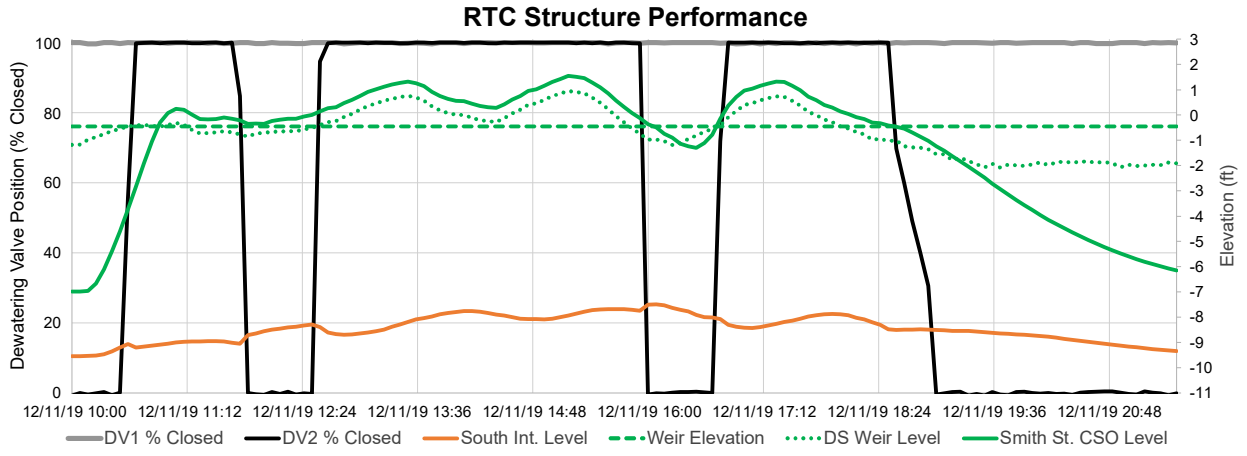
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.16 in. |
| Storm Event Duration: | 11 hrs. |
| Storm Type: | Less than one year |

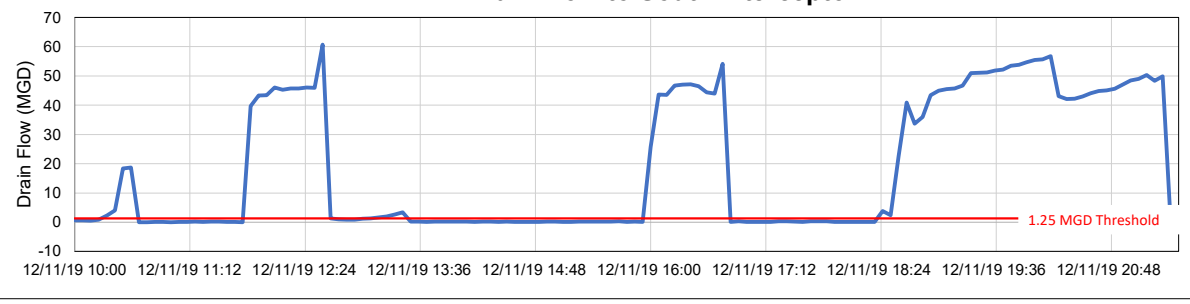
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/11/2019 10:35 |
| Time Lead Dewatering Valve Opened | 12/11/2019 18:35 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.54 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 6,727,808 Gal. |
| Did seiche occur during wet weather? | No |

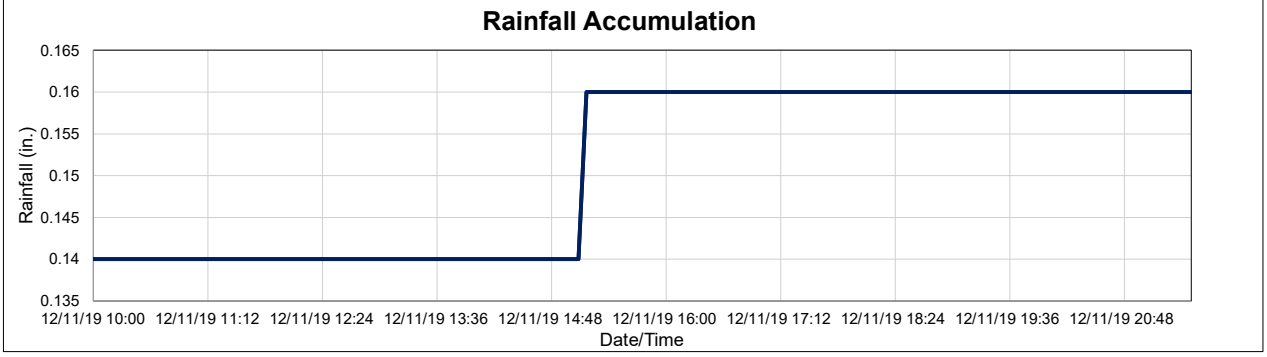
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# December 14, 2019 8

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/14/2019 10:40 |
| Event End Date/Time: | 12/14/2019 10:50 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.28 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | Less than one year |

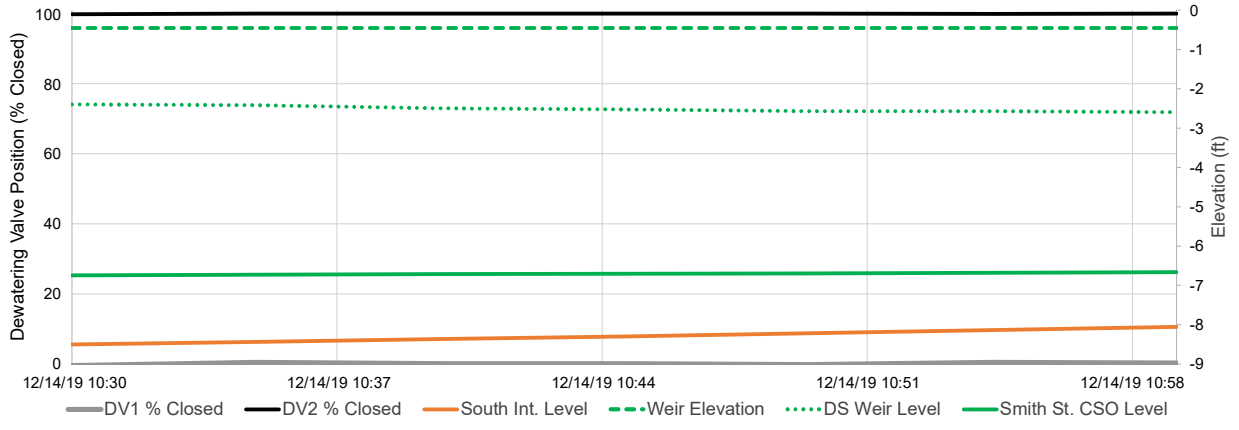
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.67 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 524,336 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

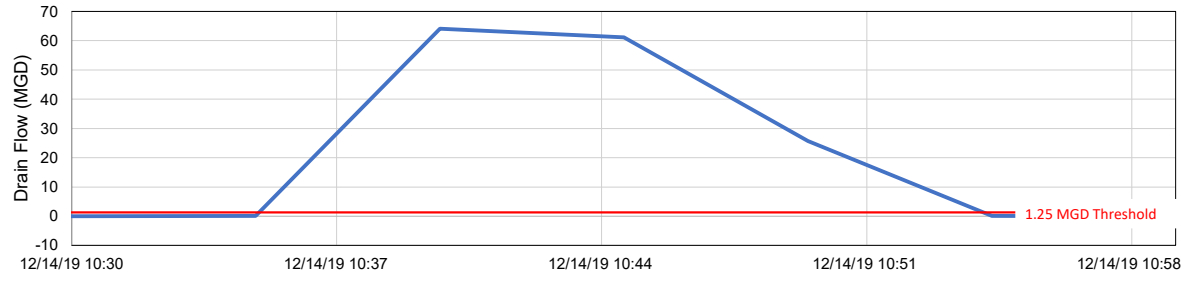
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

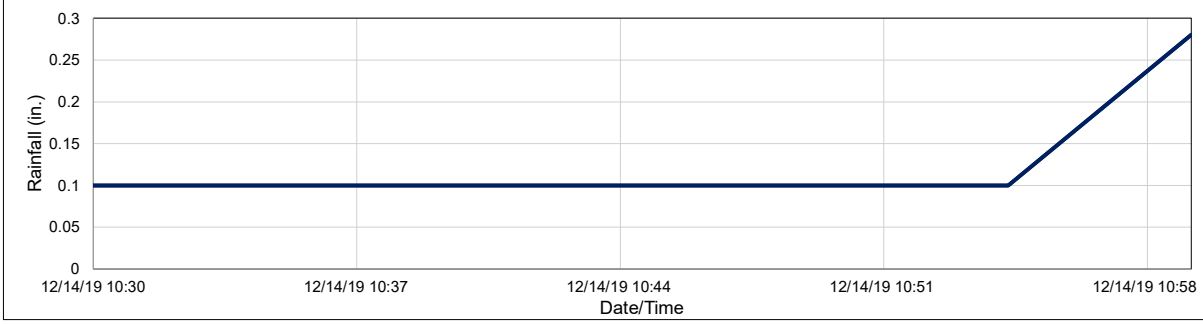
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# December 15, 2019 9

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/15/2019 12:20 |
| Event End Date/Time: | 12/15/2019 19:55 |

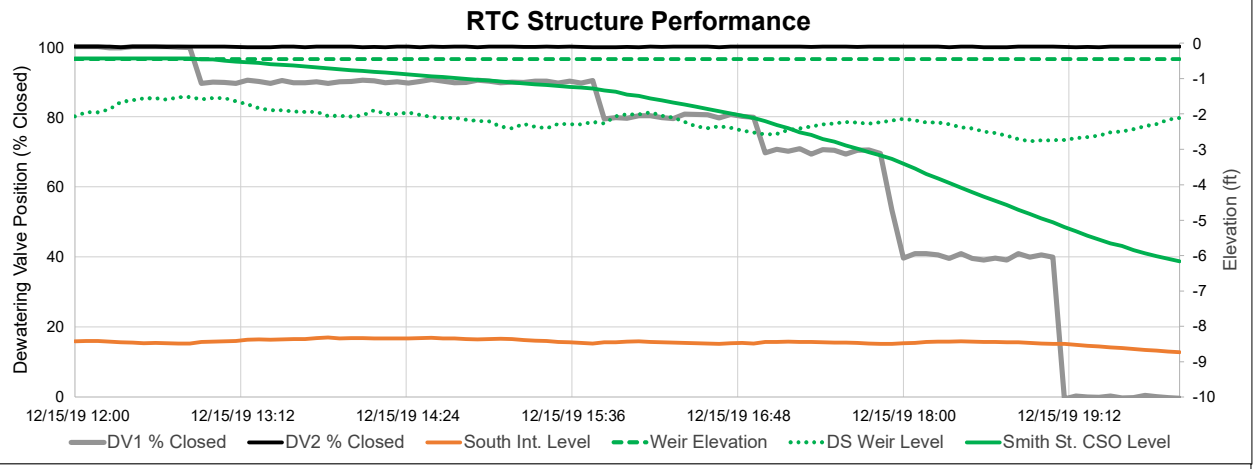
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 8 hr. |
| Storm Type: | NA |

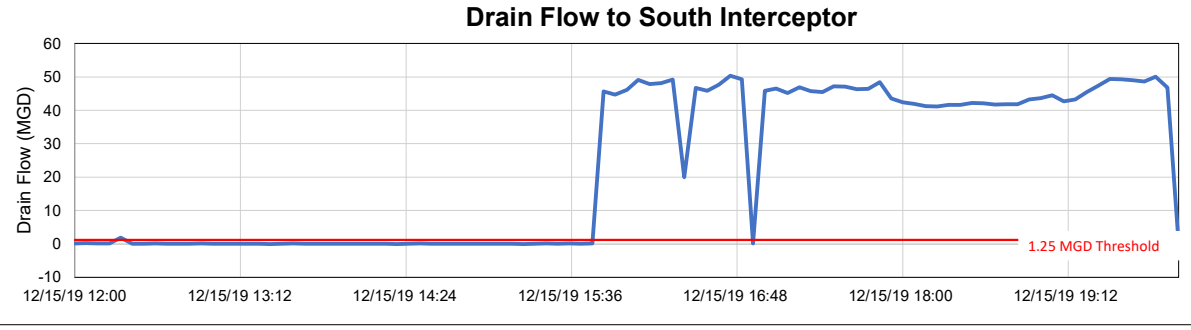
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/15/2019 12:00 |
| Time Lead Dewatering Valve Opened | 12/15/2019 12:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.43 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 7,671,561 Gal. |
| Did seiche occur during wet weather? | No |

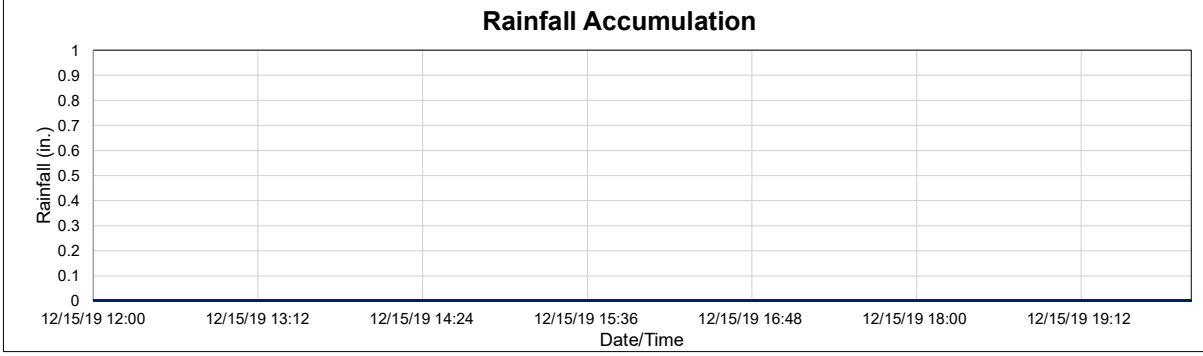
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.



# December 16, 2019 10

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/16/2019 11:05 |
| Event End Date/Time: | 12/16/2019 12:05 |

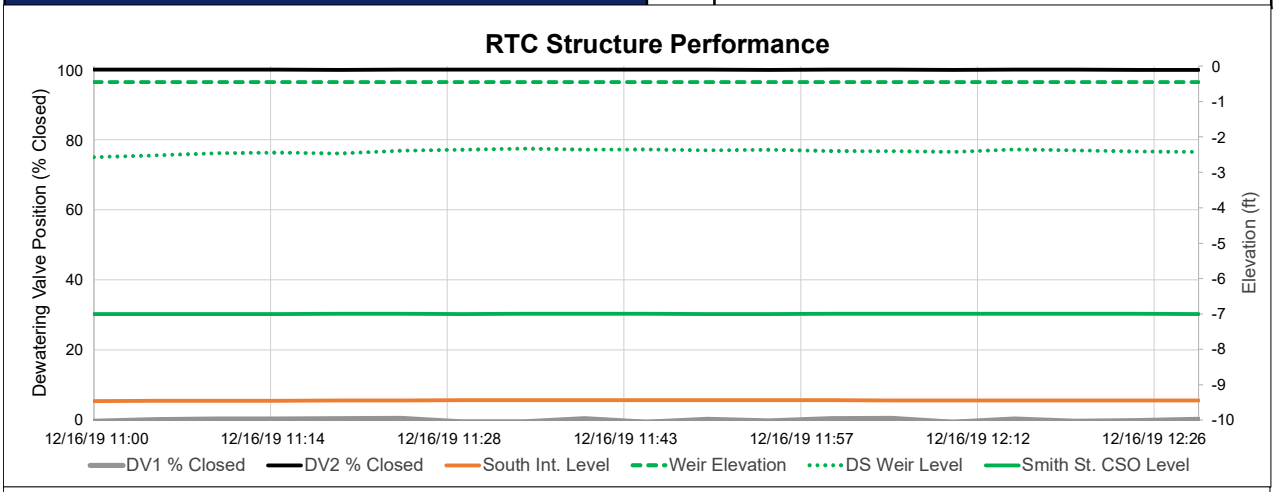
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | NA |

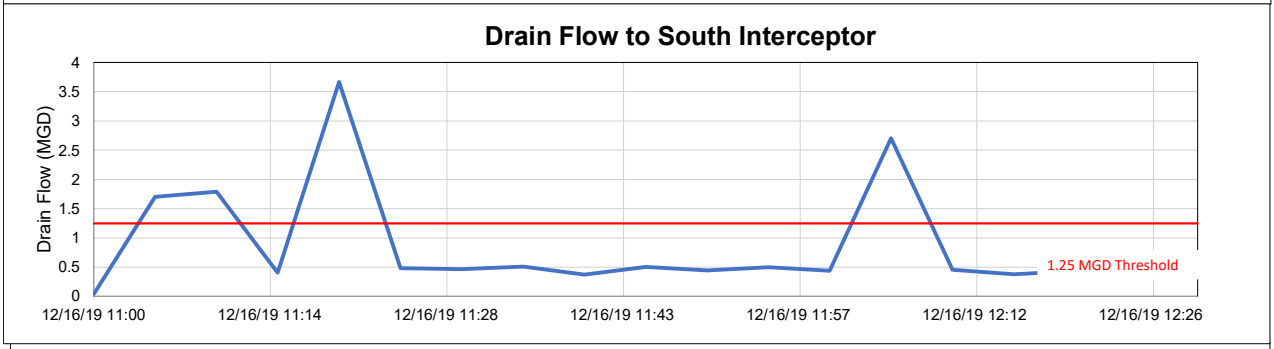
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -7.00 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 34,242 Gal. |
| Did seiche occur during wet weather? | No |

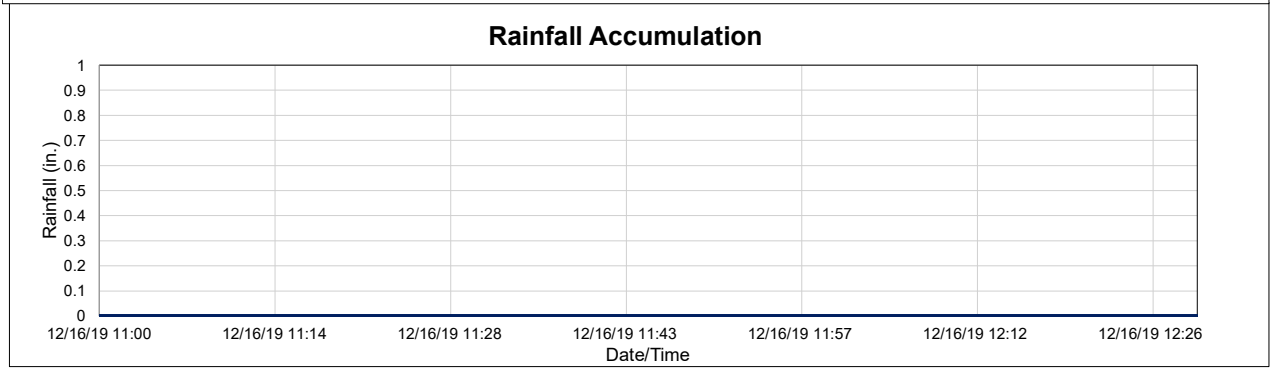
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm or probable snow melt.



# December 18, 2019 11

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/18/2019 3:10 |
| Event End Date/Time: | 12/18/2019 19:55 |

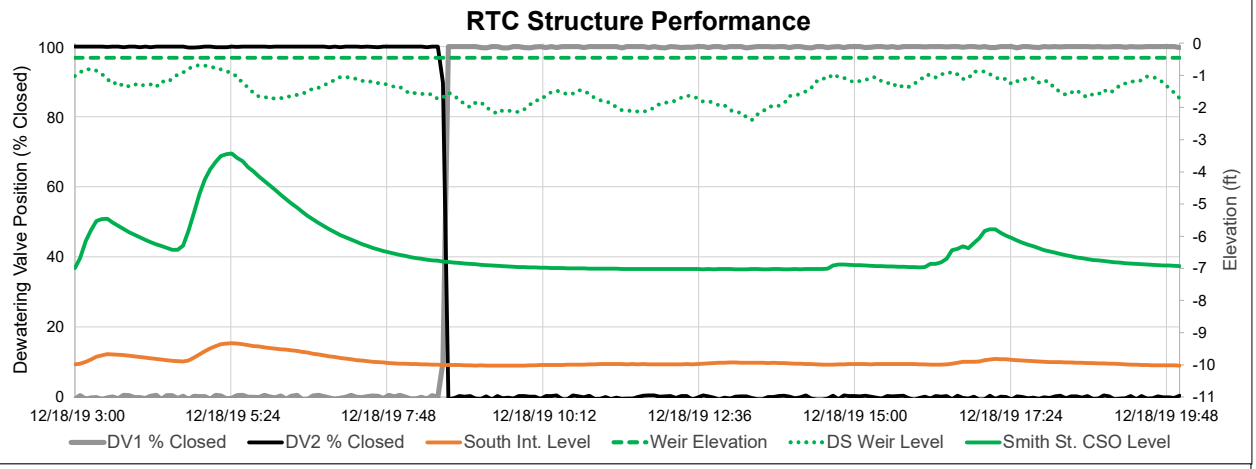
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | NA |

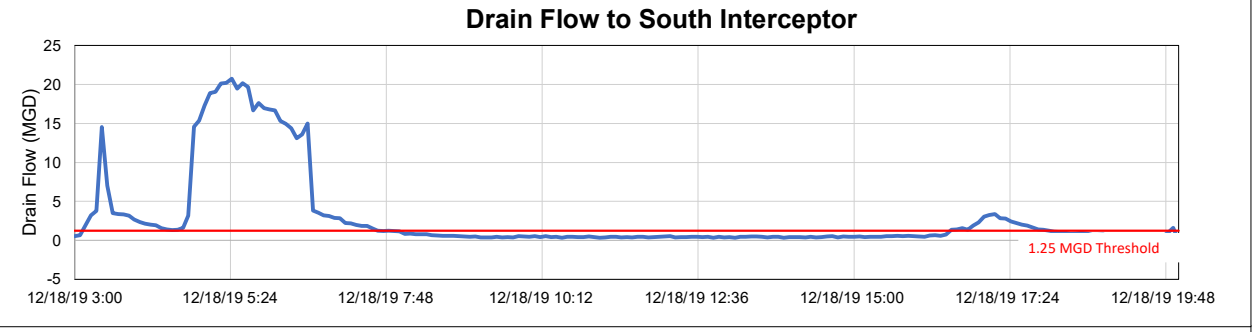
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/18/2019 8:40 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -3.43 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 1,551,444 Gal. |
| Did seiche occur during wet weather? | No |

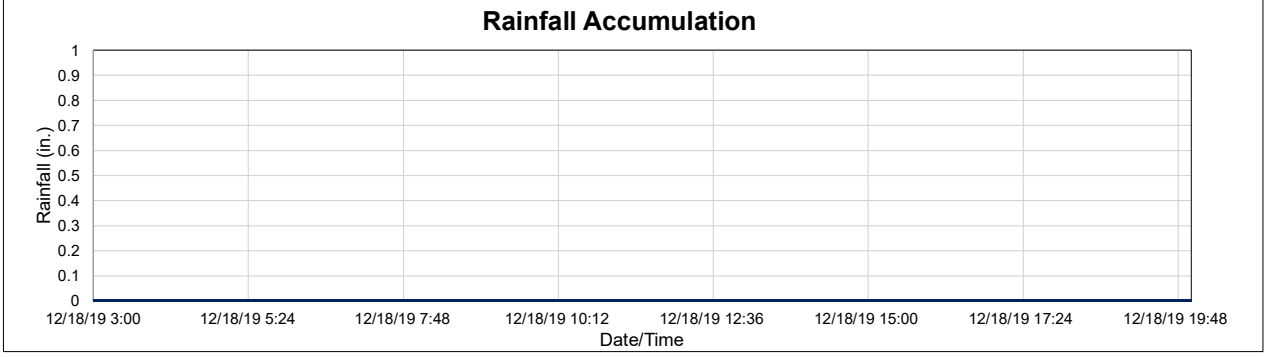
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.



# December 19, 2019 12

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/19/2019 18:05 |
| Event End Date/Time: | 12/19/2019 19:20 |

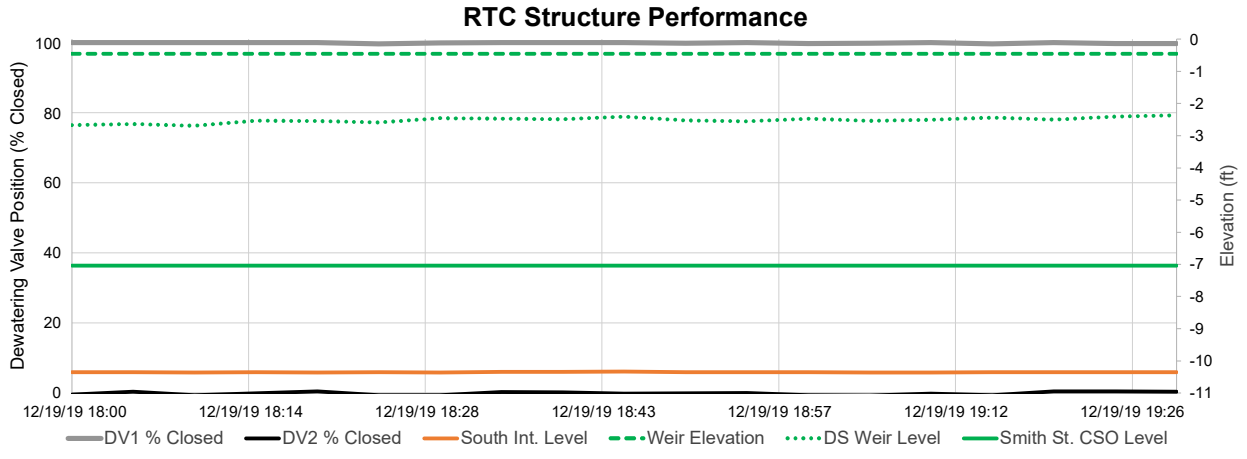
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1.5 hr. |
| Storm Type: | NA |

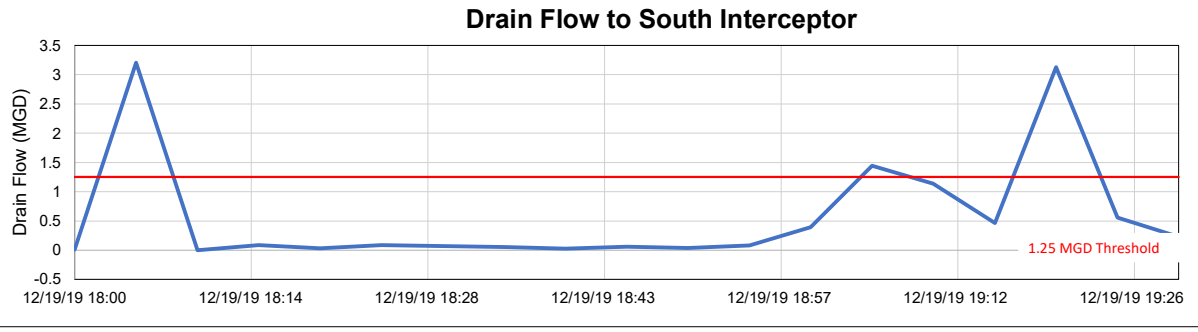
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -7.04 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 27,022 Gal. |
| Did seiche occur during wet weather? | No |

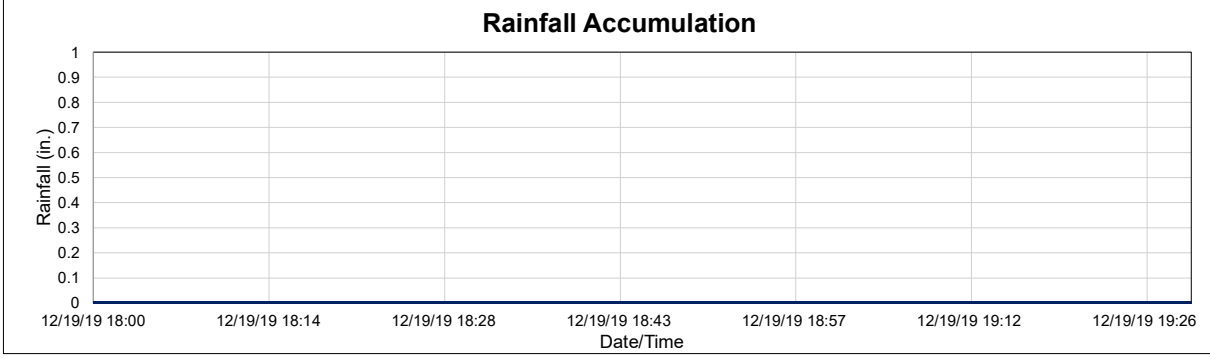
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm or probable snow melt.



# December 29, 2019 13

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/29/2019 14:50 |
| Event End Date/Time: | 12/30/2019 1:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.84 in. |
| Storm Event Duration: | 23 hr. |
| Storm Type: | Less than one year |

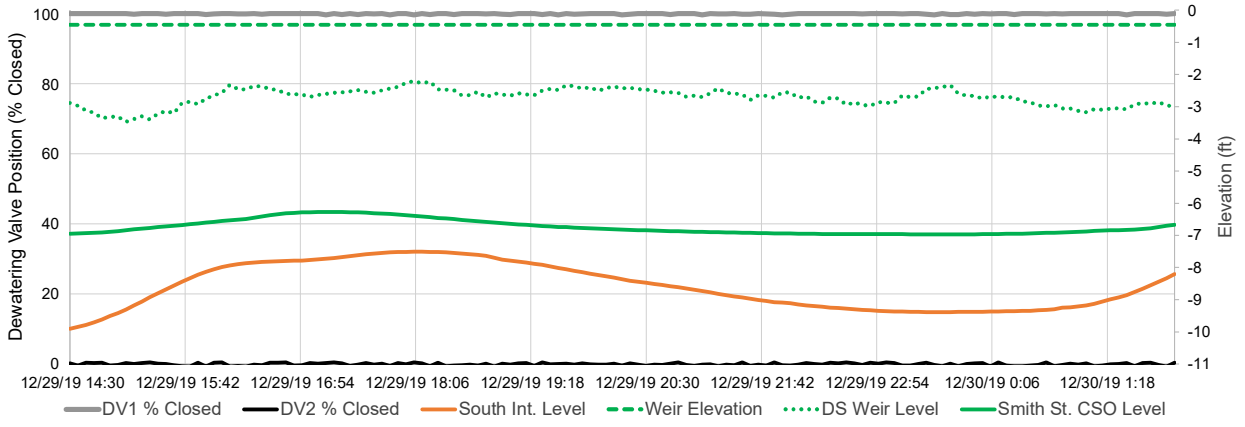
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.27 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 1,979,610 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

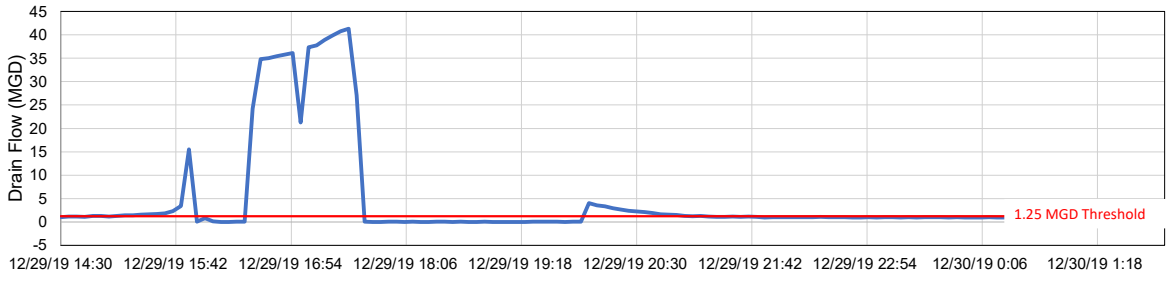
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

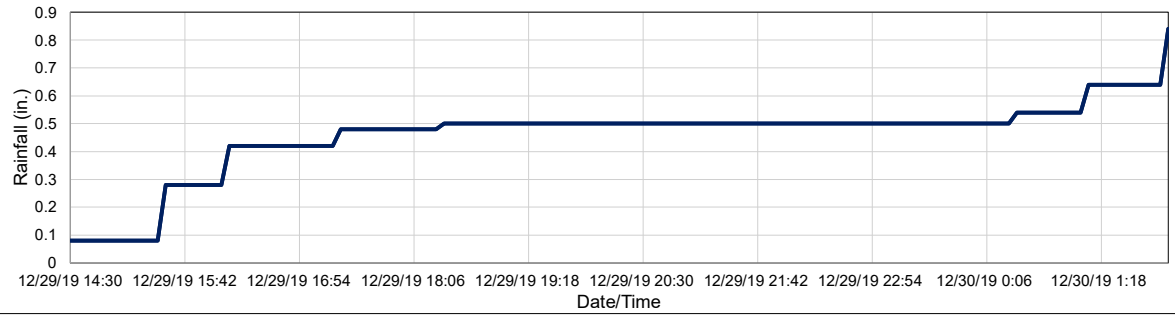
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# December 30, 2019 14

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 1/6/2020 |
| Event Start Date/Time: | 12/30/2019 17:20 |
| Event End Date/Time: | 12/31/2019 23:30 |

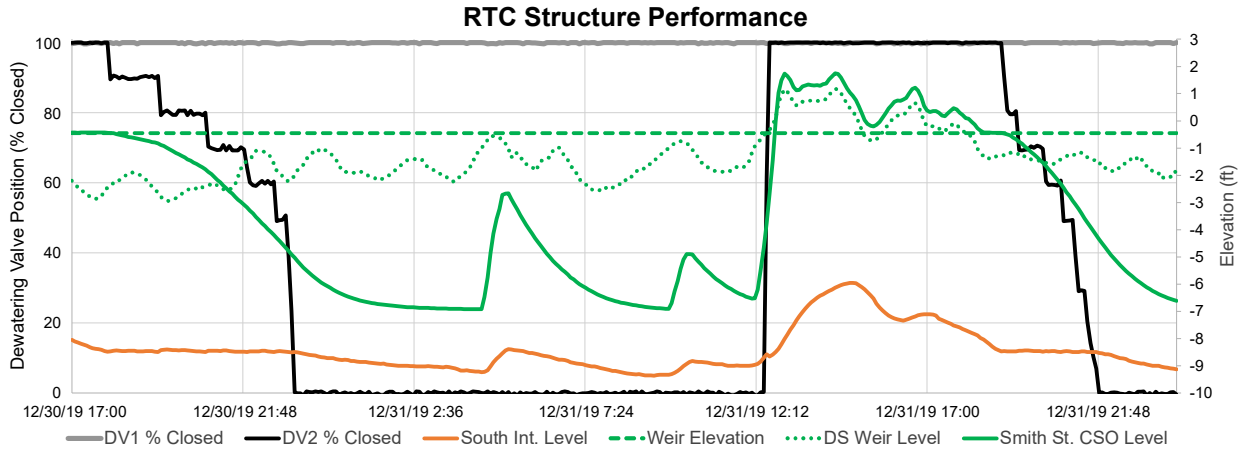
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.04 in. |
| Storm Event Duration: | 30 hr. |
| Storm Type: | Less than one year |

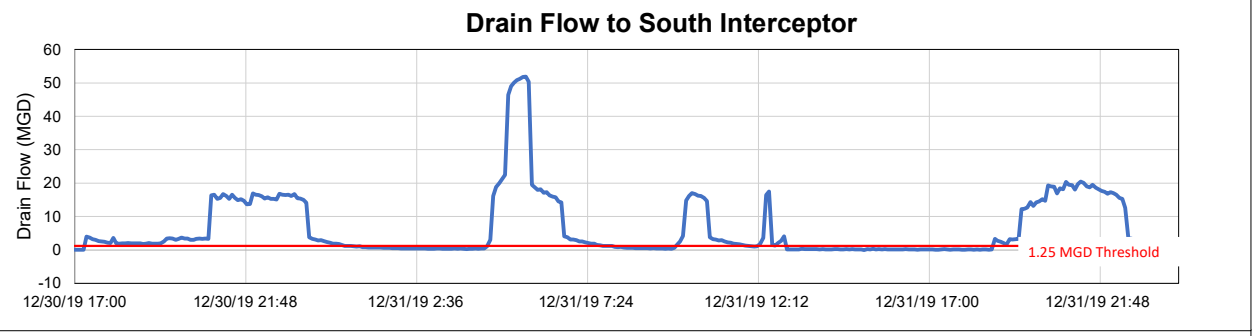
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 12/30/2019 17:00 |
| Time Lead Dewatering Valve Opened | 12/31/2019 19:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.75 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 7,348,967 Gal. |
| Did seiche occur during wet weather? | Yes |

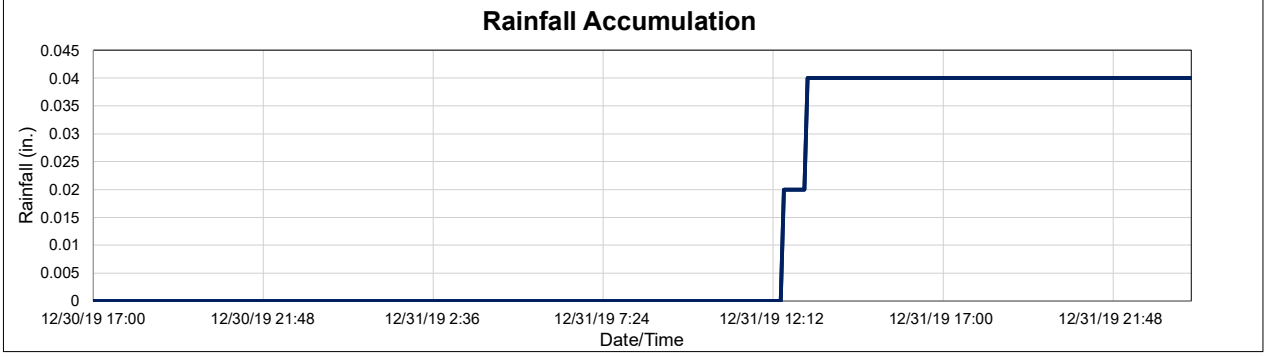
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.



# January 2020
# Smith St. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

emnet

GHD

ARCADIS Design & Consultancy for natural and built assets

# Smith St. RTC Monthly Performance Report — January 2020

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 1/1/2020 | 1,785,354 | No | 1.25 |
| 1/6/2020 | 19,113,517 | No | 1.25 |
| 1/7/2020 | 8,308,115 | No | 1.25 |
| 1/11/2020 | 3,471,252 | Yes | 1.25 |
| 1/14/2020 | 4,201,748 | No | 1.25 |
| 1/16/2020 | 9,188,855 | No | 1.25 |
| 1/18/2020 | 268,324 | Yes | 1.25 |
| 1/19/2020 | 10,127,520 | Yes | 1.25 |
| 1/25/2020 | 18,504,189 | Yes | 1.25 |
| 1/29/2020 | 15,037 | No | 1.25 |
| **Total Volume Captured (gal)** | **74,983,911** | | |

# January 1, 2020 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/1/2020 2:10 |
| Event End Date/Time: | 1/1/2020 7:55 |

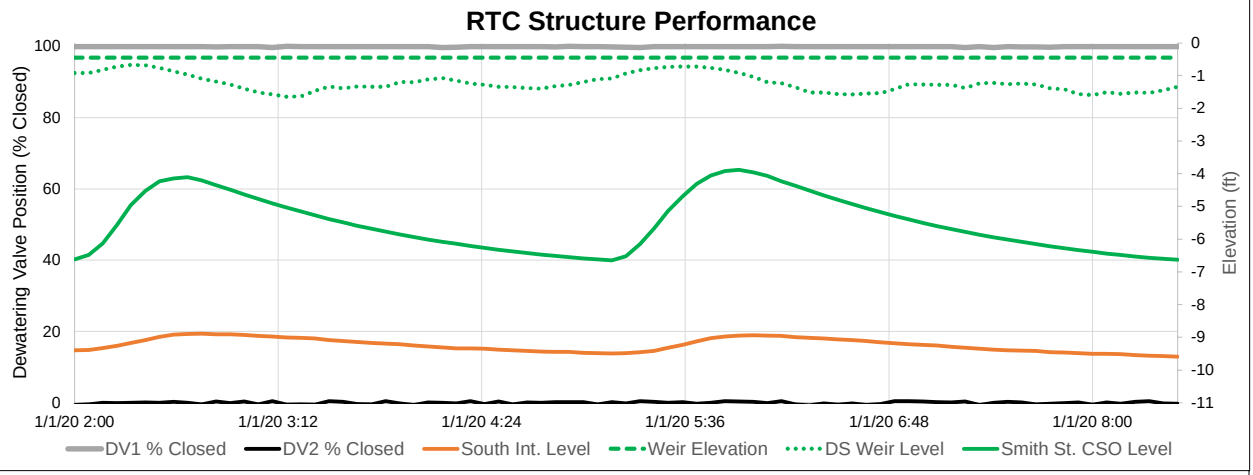
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

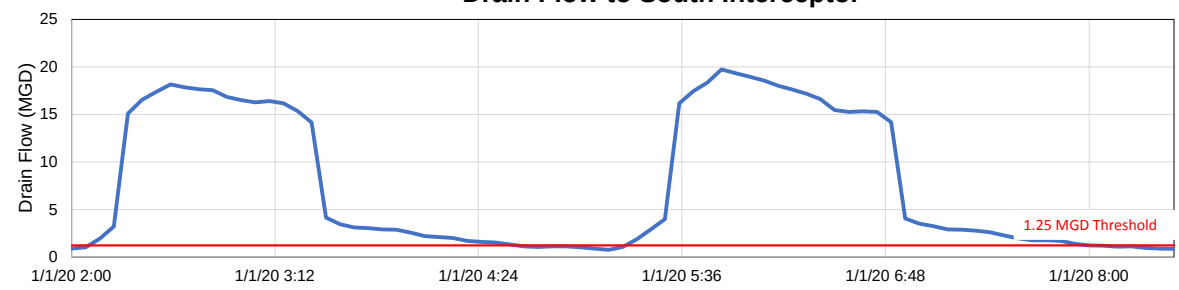
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -3.87 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 1,785,354 Gal. |
| Did seiche occur during wet weather? | No |

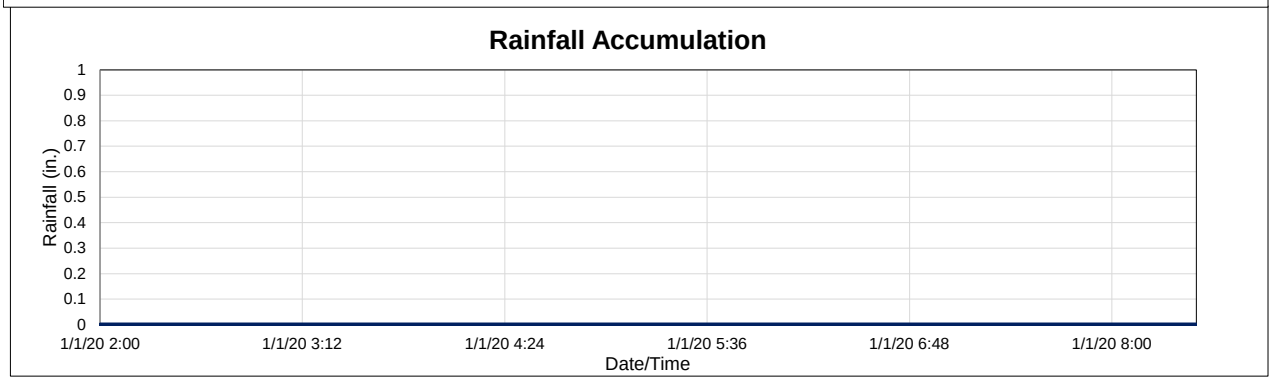
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rain observed but temperatures hovered around freezing, indicating possible snowmelt.



# January 6, 2020 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/6/2020 2:05 |
| Event End Date/Time: | 1/7/2020 1:00 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

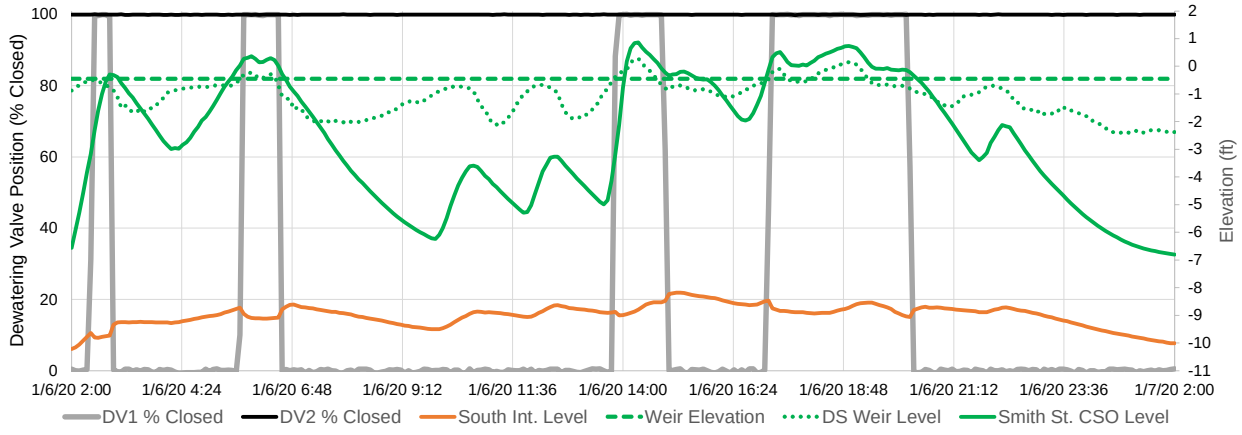
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/6/2020 2:25 |
| Time Lead Dewatering Valve Opened | 1/6/2020 20:15 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.86 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 19,113,517 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

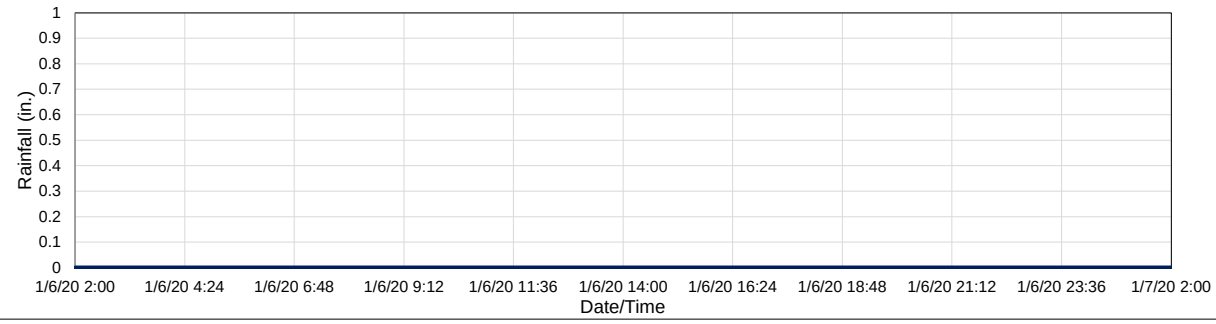
Rainfall data sourced from Buffalo Airport rain gauge website. No rain observed during event, but rain recorded late in the day on January 5. Temperatures for most of Jan. 6 were above 35 degrees, indicating snow melt could also have occurred.

## RTC Structure Performance




## Drain Flow to South Interceptor


## Rainfall Accumulation



# January 7, 2020 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/7/2020 22:25 |
| Event End Date/Time: | 1/8/2020 9:15 |

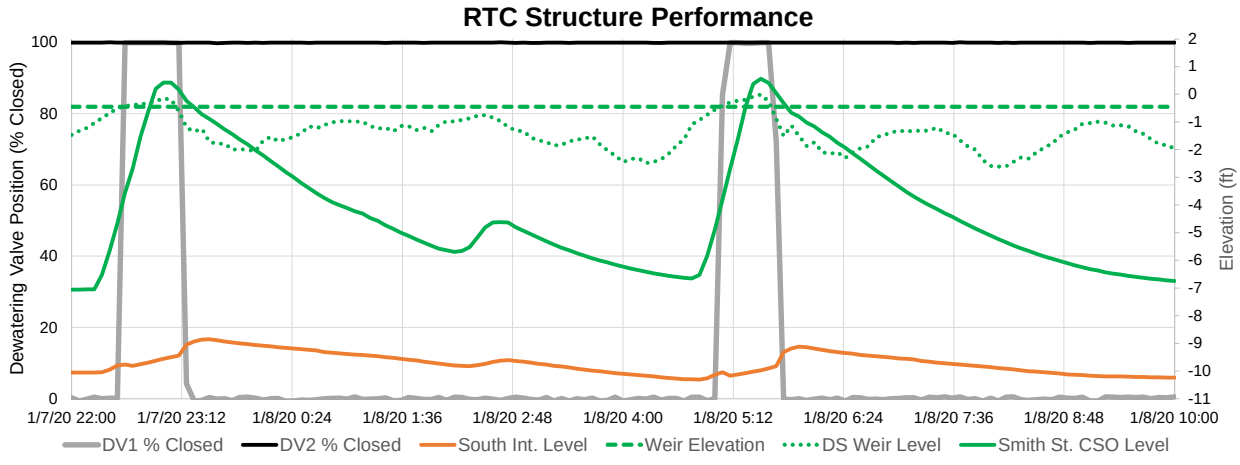
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

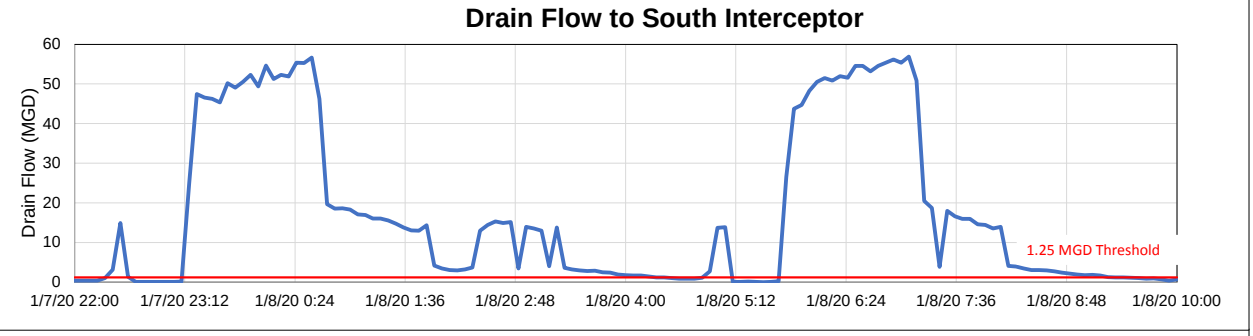
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/7/2020 22:35 |
| Time Lead Dewatering Valve Opened | 1/8/2020 5:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.56 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 8,308,115 Gal. |
| Did seiche occur during wet weather? | No |

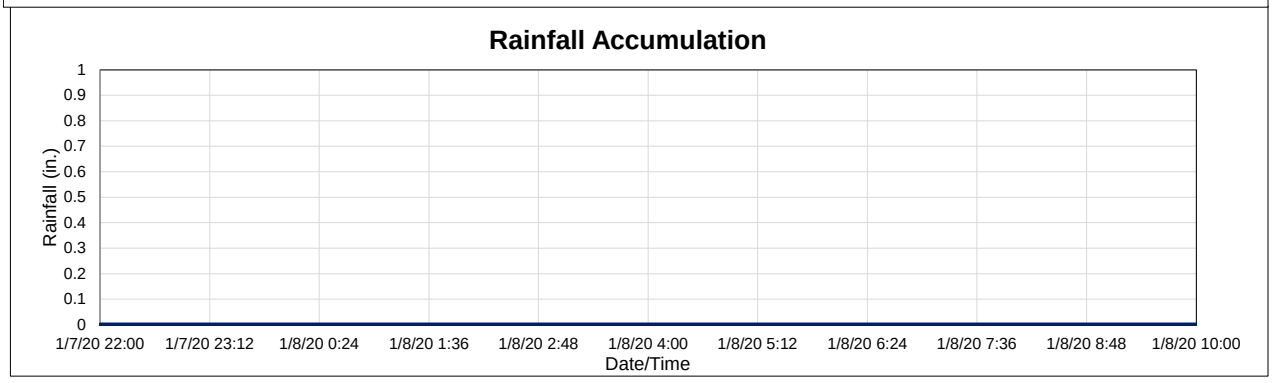
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA South Buffalo rain gauge. No rain observed during the day, but rain late on Jan. 5 and warmer temperatures on Jan. 6 and the last half of Jan. 7 may have indicated snowmelt conditions.



# January 11, 2020 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/11/2020 0:40 |
| Event End Date/Time: | 1/12/2020 17:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.93 in. |
| Storm Event Duration: | 32 hrs. |
| Storm Type: | <1 yr. |

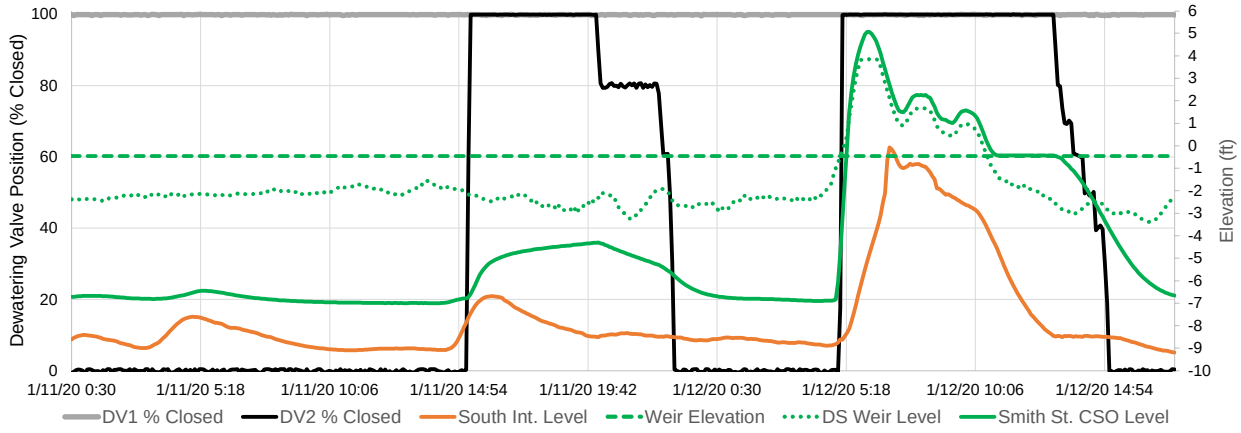
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/11/2020 15:15 |
| Time Lead Dewatering Valve Opened | 1/12/2020 13:05 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 5.07 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 3,471,252 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

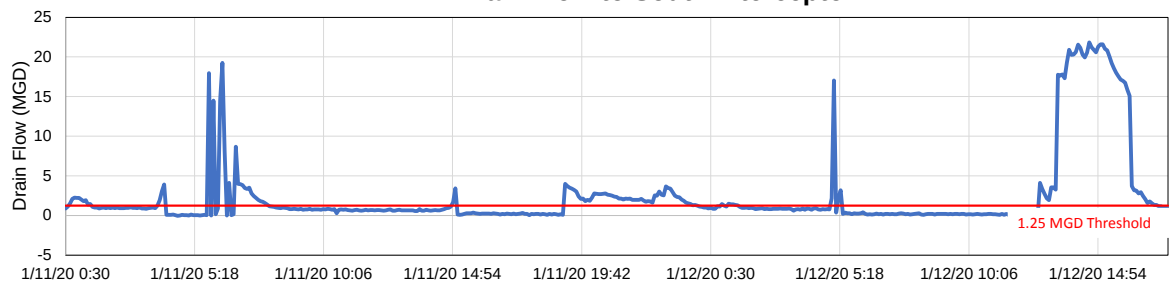
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

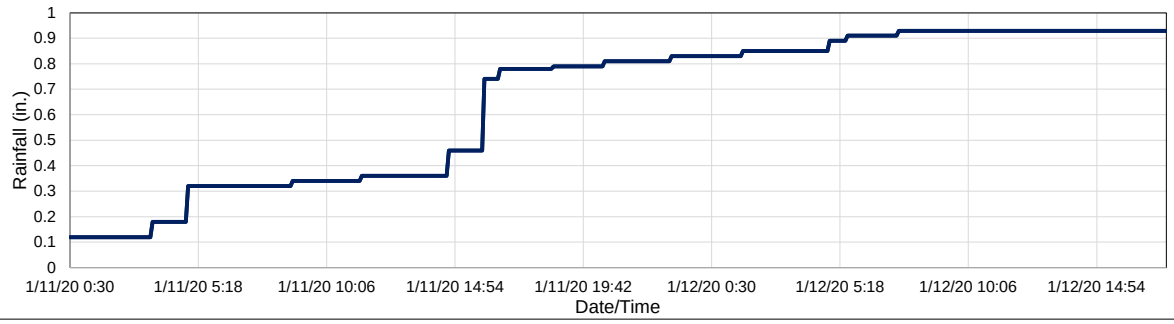
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# January 14, 2020 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/14/2020 17:45 |
| Event End Date/Time: | 1/14/2020 22:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

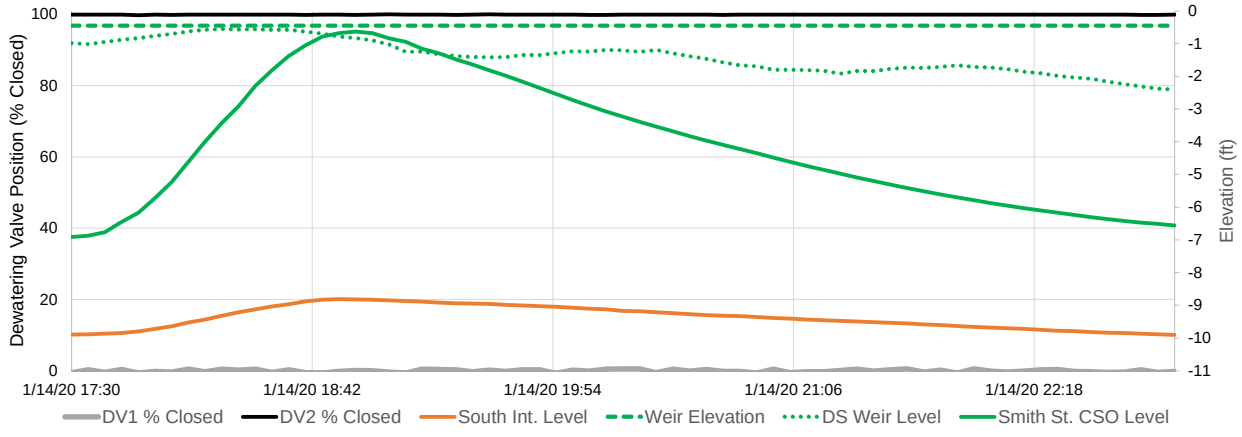
| | |
|---|---|
| Time Lead Dewatering Valve Closed | NA |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.63 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 4,201,748 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

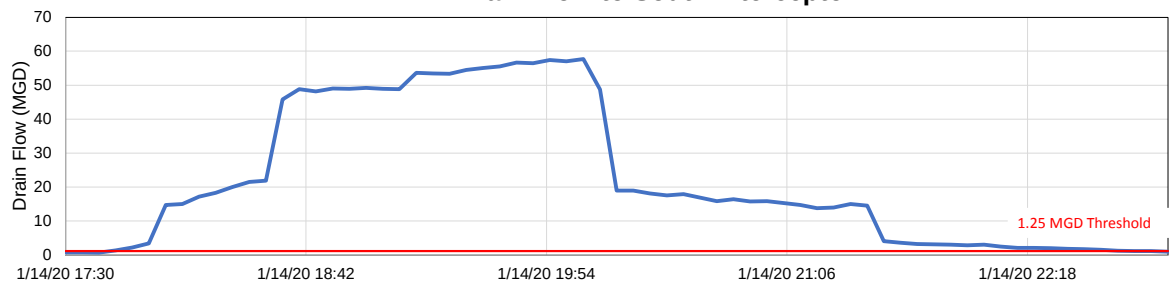
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rain recorded, but temperatures were in the upper 30's and 40's all day, suggesting a snowmelt event.

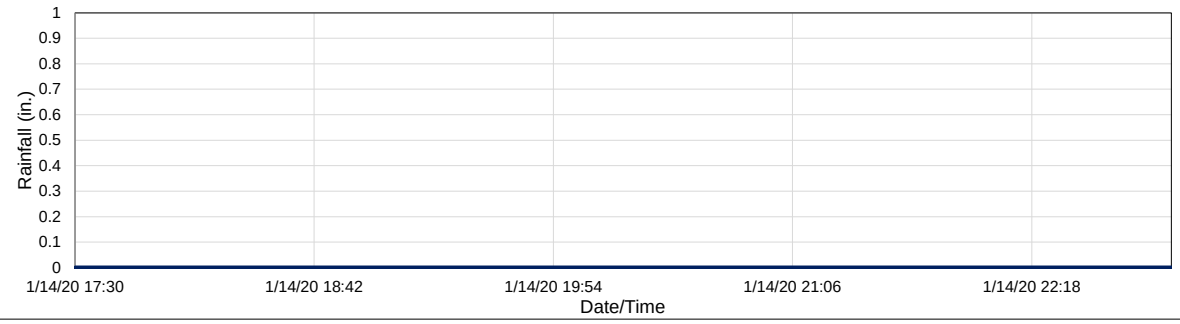
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# January 16, 2020 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/16/2020 3:40 |
| Event End Date/Time: | 1/16/2020 21:25 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.04 in. |
| Storm Event Duration: | 5 hrs. |
| Storm Type: | <1 yr. |

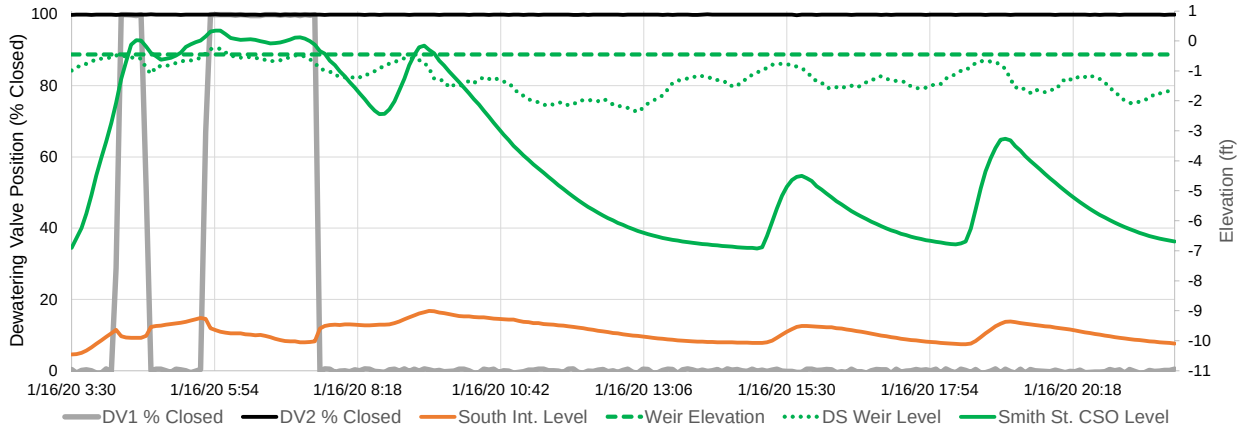
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/16/2020 4:15 |
| Time Lead Dewatering Valve Opened | 1/16/2020 7:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.34 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 9,188,855 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

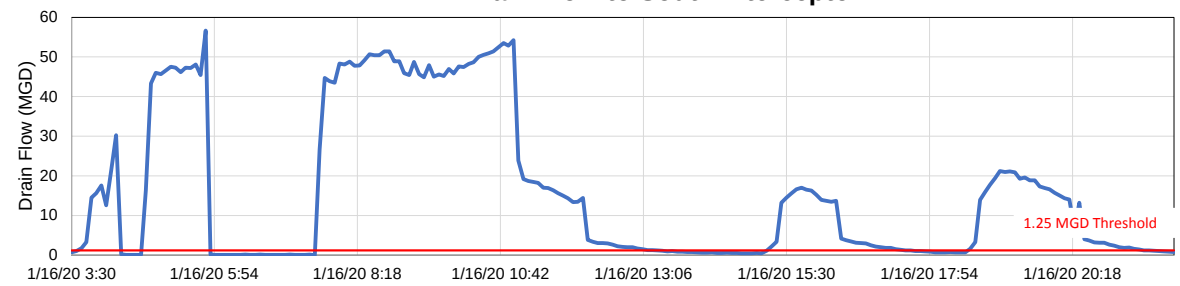
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.

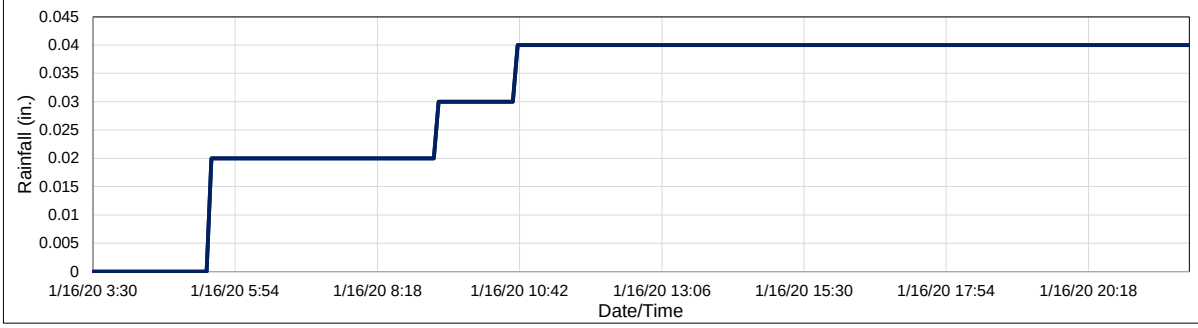
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# January 18, 2020 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/18/2020 14:00 |
| Event End Date/Time: | 1/18/2020 20:35 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.54 in. |
| Storm Event Duration: | 6 hrs. |
| Storm Type: | <1 yr. |

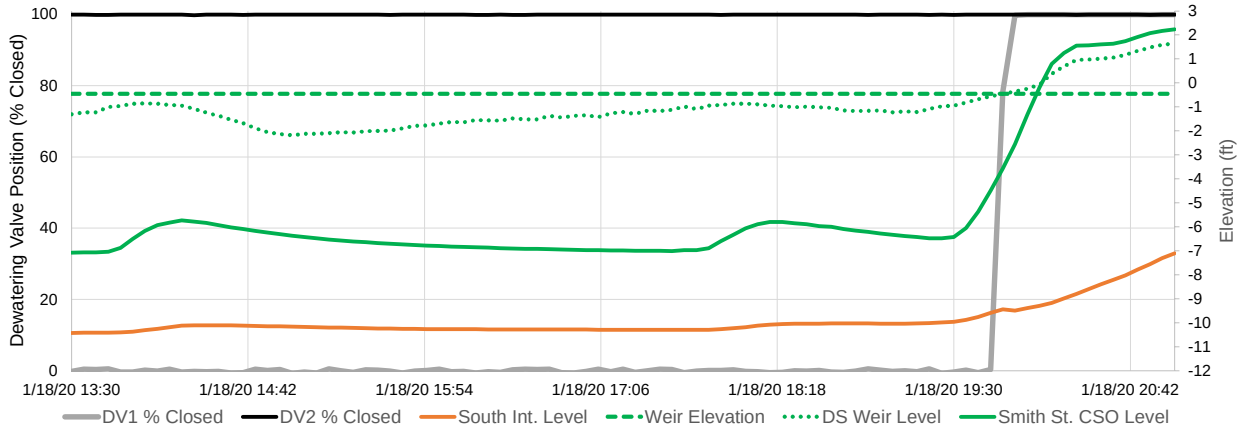
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/18/2020 19:50 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 2.23 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 268,324 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

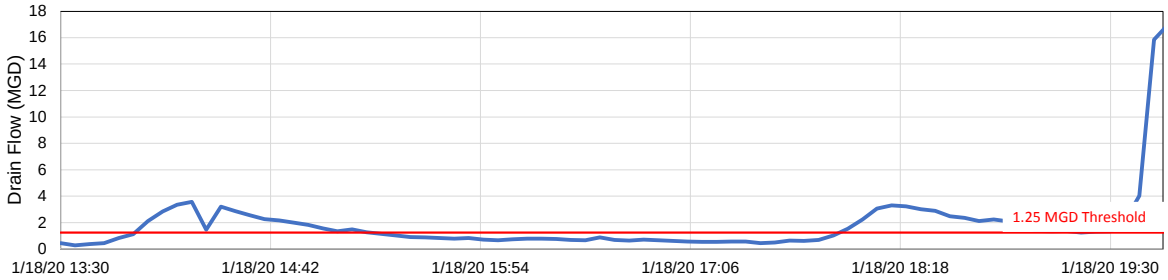
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

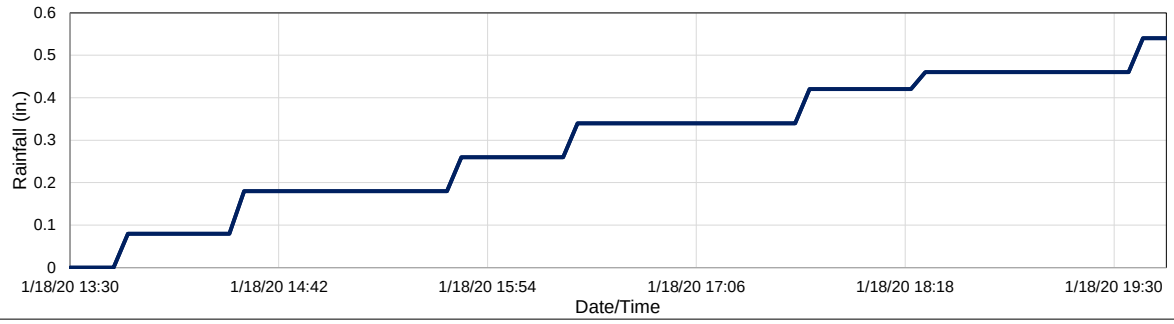
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# January 19, 2020 8

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/19/2020 3:15 |
| Event End Date/Time: | 1/19/2020 19:30 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

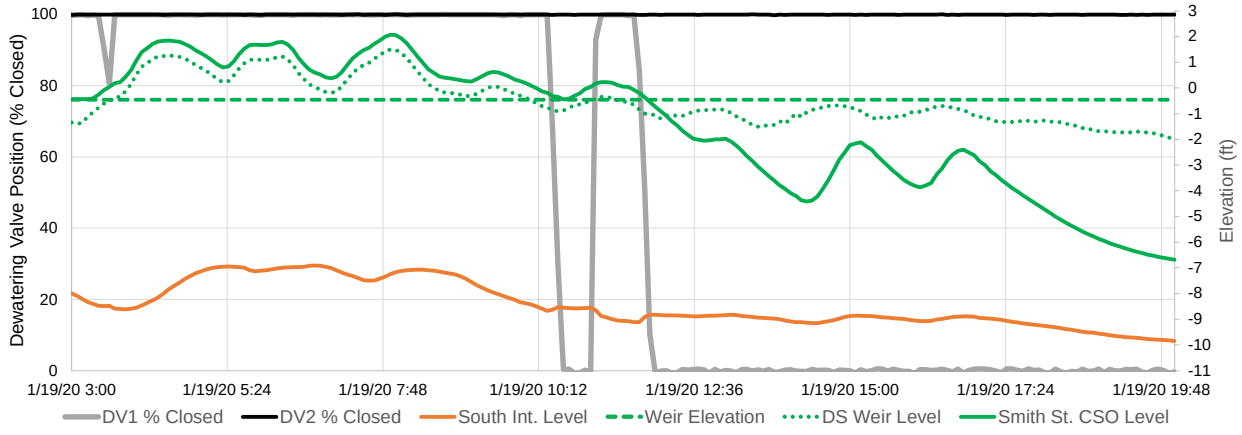
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/19/2020 3:00 |
| Time Lead Dewatering Valve Opened | 1/19/2020 11:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 2.08 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 10,127,520 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

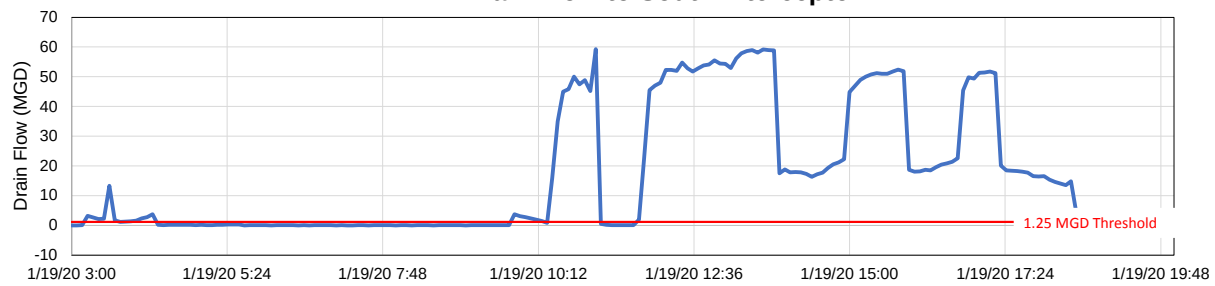
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rain recorded. Temperatures were above freezing for first 6 hours of the day.

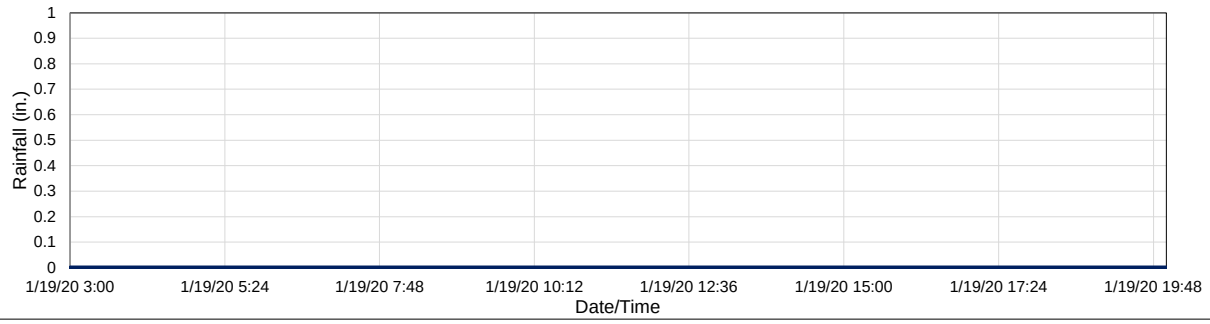
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# January 25, 2020 9

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/25/2020 0:15 |
| Event End Date/Time: | 1/27/2020 3:30 |

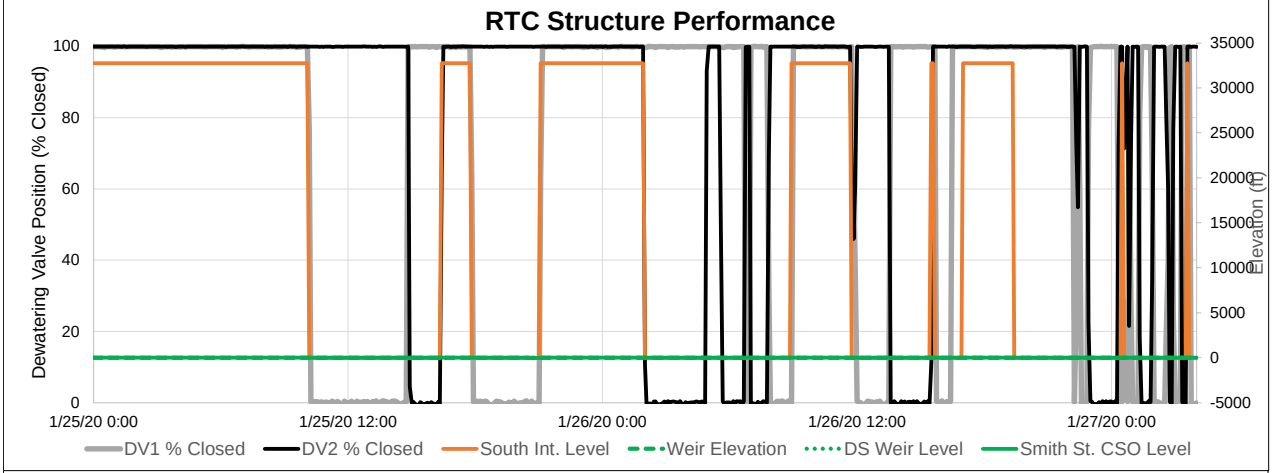
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.46 in. |
| Storm Event Duration: | 50 hrs. |
| Storm Type: | <1 yr. |

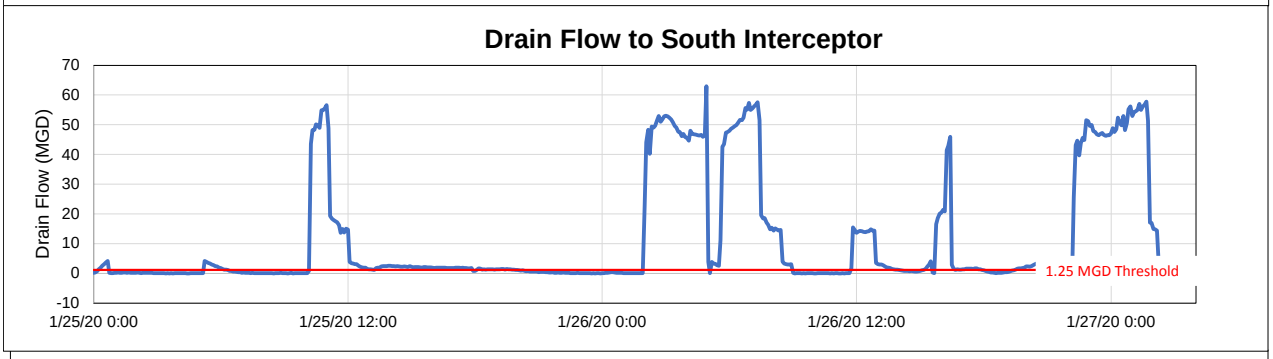
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/25/2020 0:00 |
| Time Lead Dewatering Valve Opened | 1/27/2020 3:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.51 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 18,504,189 Gal. |
| Did seiche occur during wet weather? | Yes |

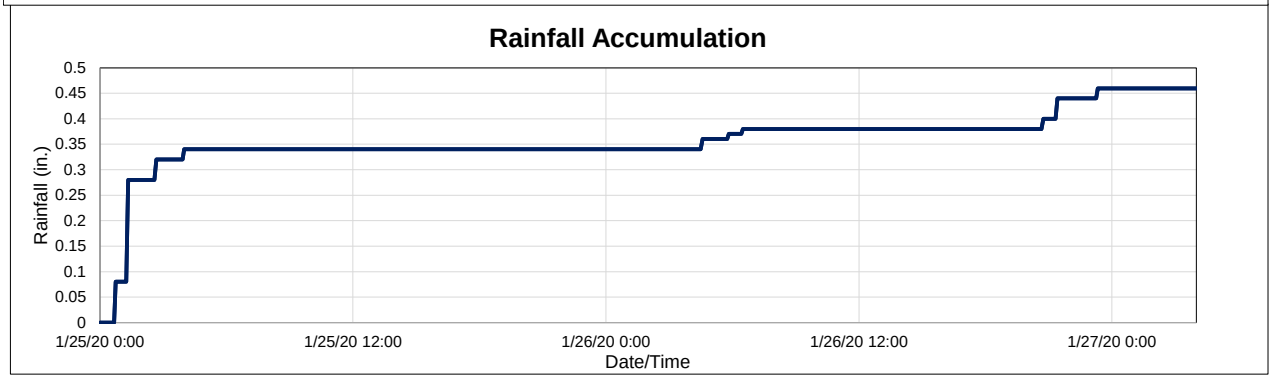
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. South Interceptor level sensors from January 24, 2020 for the rest of the month affected gate activations.



# January 29, 2020 — 10

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/29/2020 18:20 |
| Event End Date/Time: | 1/29/2020 18:30 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 0.2 hrs. |
| Storm Type: | NA |

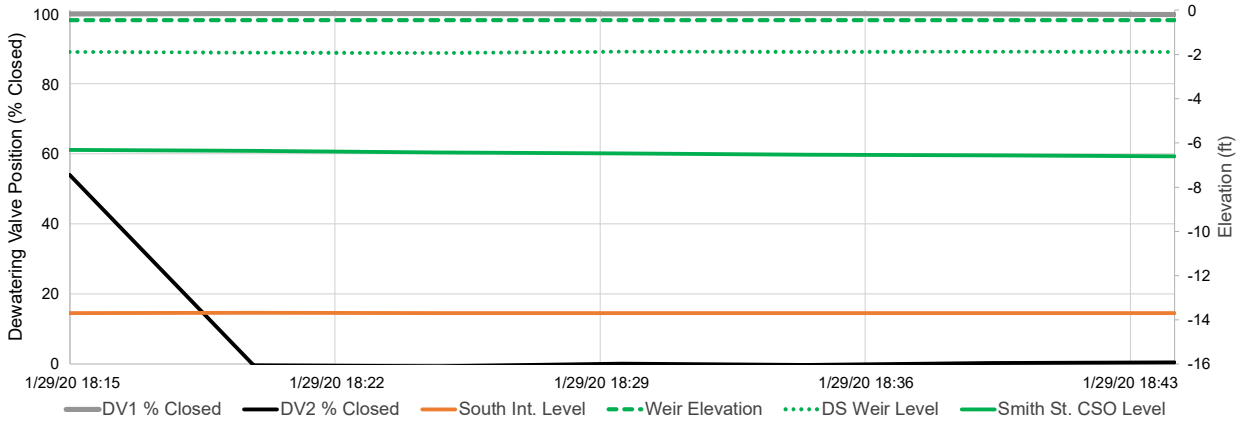
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 1/29/2020 18:15 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.32 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 15,037 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

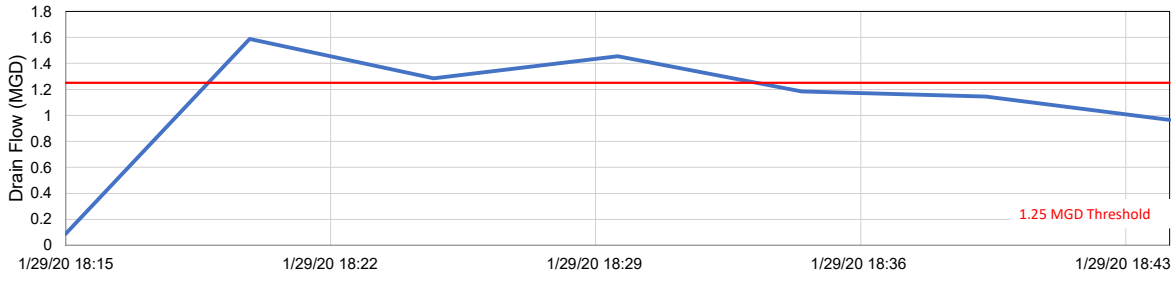
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website. No rainfall was recorded for this event. It was likely caused by a localized storm.

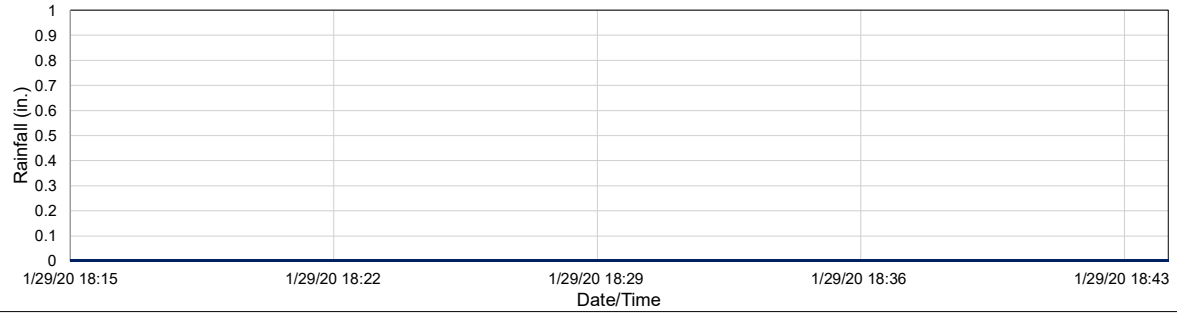
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 2020
# Smith St. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

emnet

GHD

ARCADIS Design & Consultancy for natural and built assets

| Smith St. RTC Monthly Performance Report | | | ebruary 2020 |
|---|---|---|---|
| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
| 2/2/2020 | 4,523,246 | No | 1.25 |
| 2/8/2020 | 19,394 | No | 1.25 |
| 2/10/2020 | 3,774,818 | No | 1.25 |
| 2/11/2020 | 7,043,327 | No | 1.25 |
| 2/13/2020 | 91,413 | Yes | 1.25 |
| 2/15/2020 | 5,504,963 | No | 1.25 |
| 2/18/2020 | 10,841,235 | Yes | 1.25 |
| 2/21/2020 | 14,252,048 | Yes | 1.25 |
| 2/26/2020 | 263,210 | Yes | 1.25 |
| 2/28/2020 | 51,892 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **46,365,546** | | |

# February 2, 2020 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/2/2020 6:35 |
| Event End Date/Time: | 2/2/2020 22:10 |

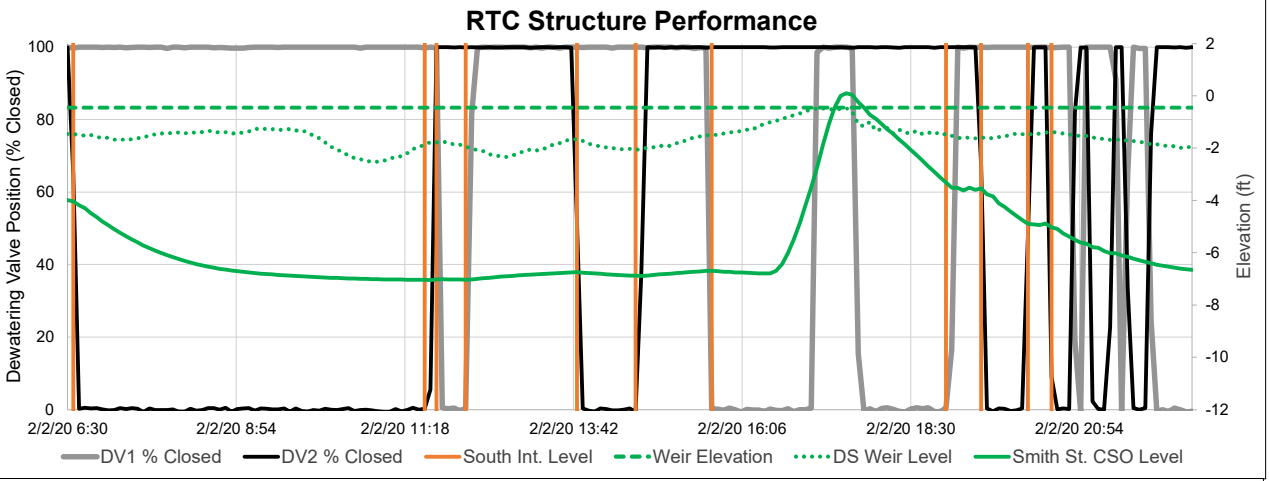
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.42 in. |
| Storm Event Duration: | 16 hrs. |
| Storm Type: | Less than one year |

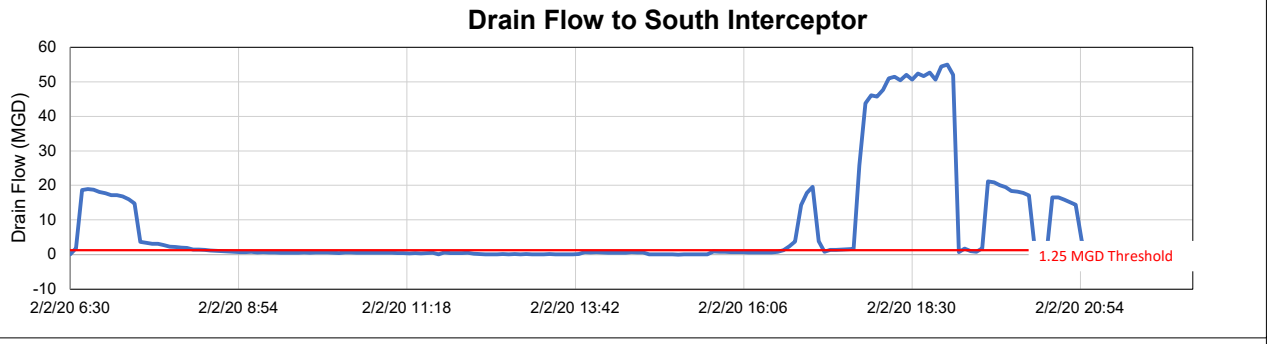
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/2/2020 6:30 |
| Time Lead Dewatering Valve Opened | 2/2/2020 21:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.11 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 4,523,246 Gal. |
| Did seiche occur during wet weather? | No |

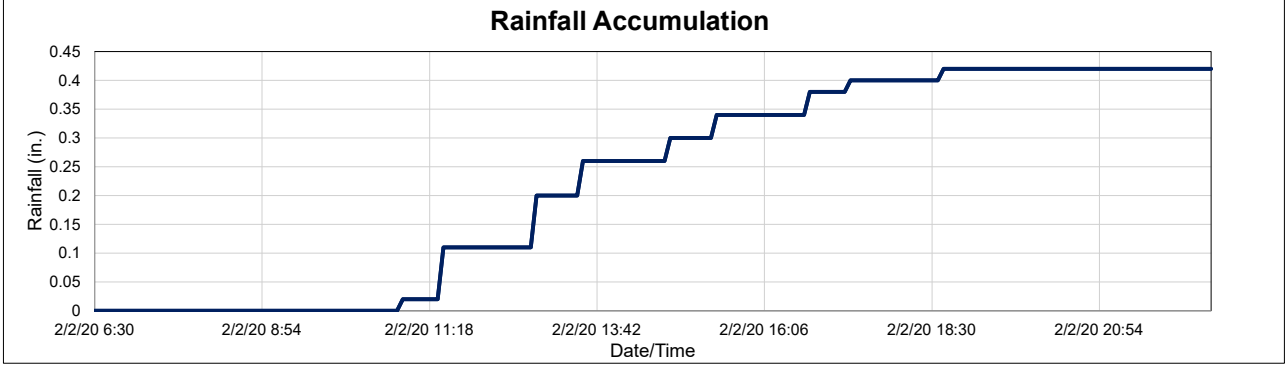
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.



# February 8, 2020 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/8/2020 7:55 |
| Event End Date/Time: | 2/8/2020 8:30 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | NA |

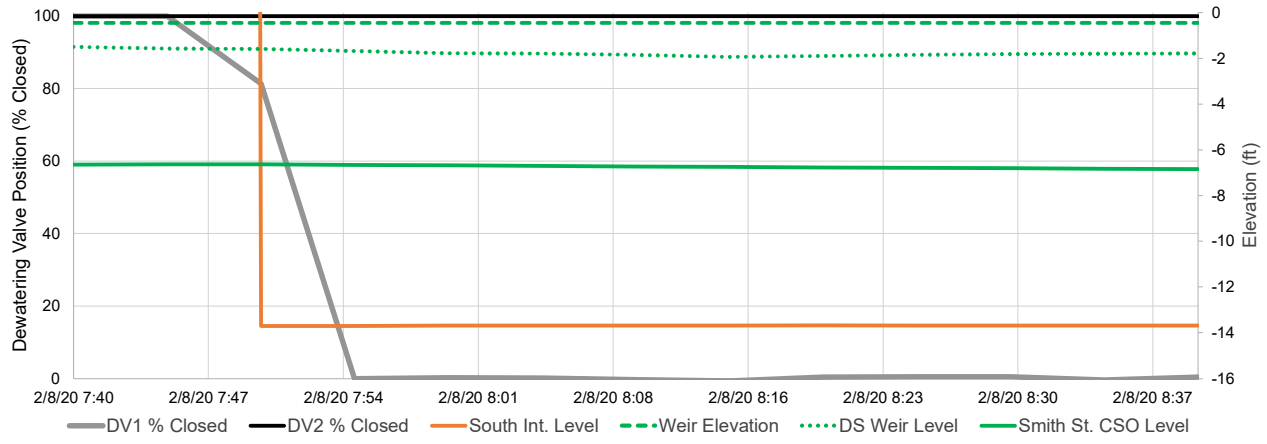
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/8/2020 7:40 |
| Time Lead Dewatering Valve Opened | 2/8/2020 7:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -6.63 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 19,394 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

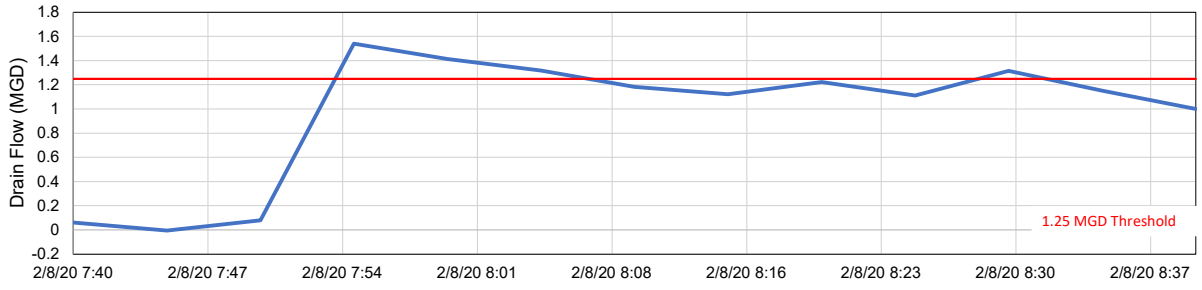
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. Valve 2 was manually set to 100% closed due to south interceptor level issue.

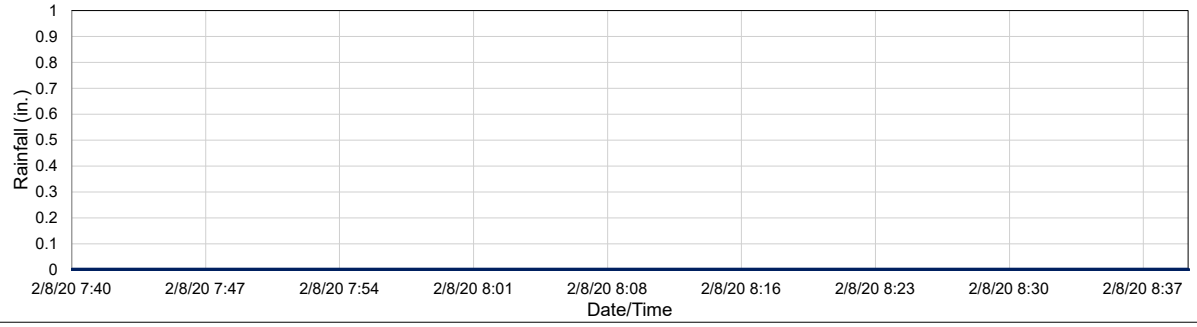
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 10, 2020 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/10/2020 1:55 |
| Event End Date/Time: | 2/10/2020 18:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.1 in. |
| Storm Event Duration: | 17 hr. |
| Storm Type: | Less than one year |

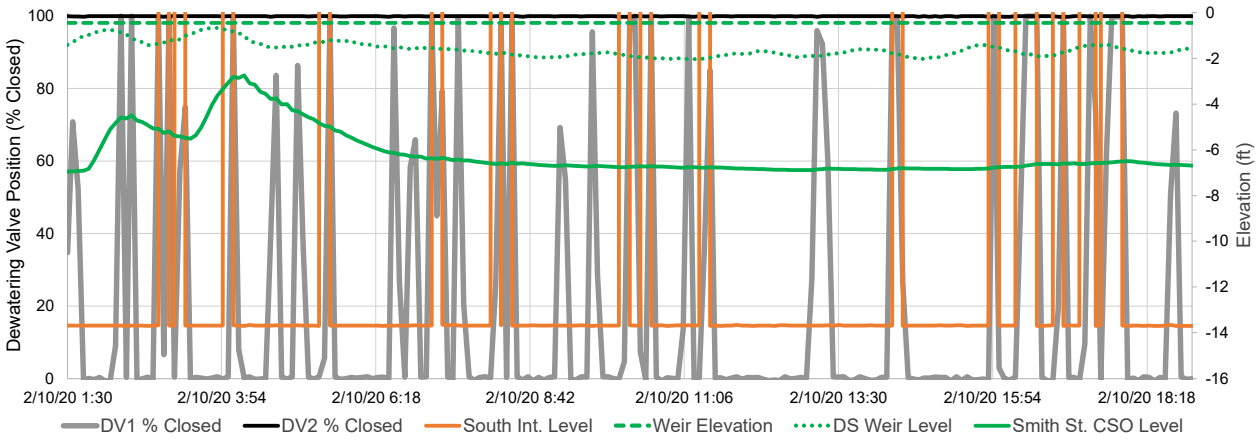
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/10/2020 1:30 |
| Time Lead Dewatering Valve Opened | 2/10/2020 18:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -2.74 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 3,774,818 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

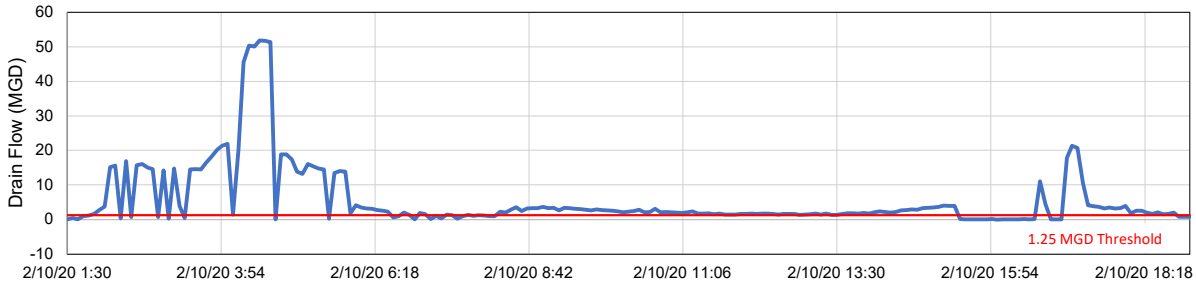
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. Valve 2 manually set to 100% closed due to south interceptor level issue.

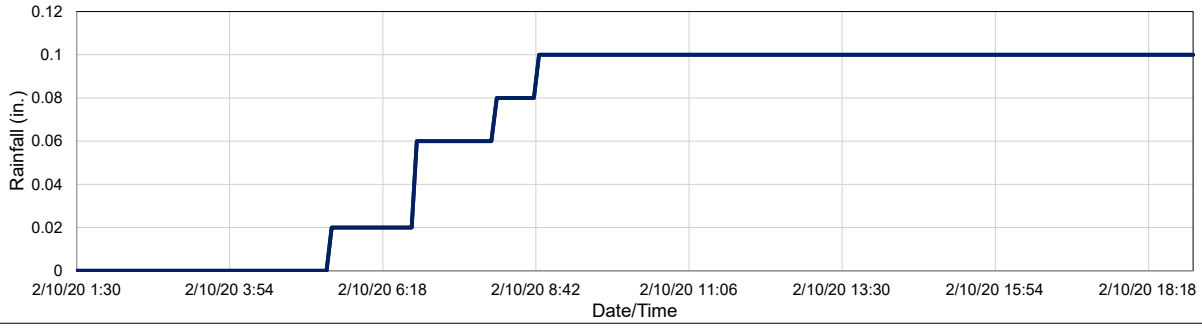
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 11, 2020 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/11/2020 16:55 |
| Event End Date/Time: | 2/12/2020 3:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.02 in. |
| Storm Event Duration: | 12 hr. |
| Storm Type: | Less than one year |

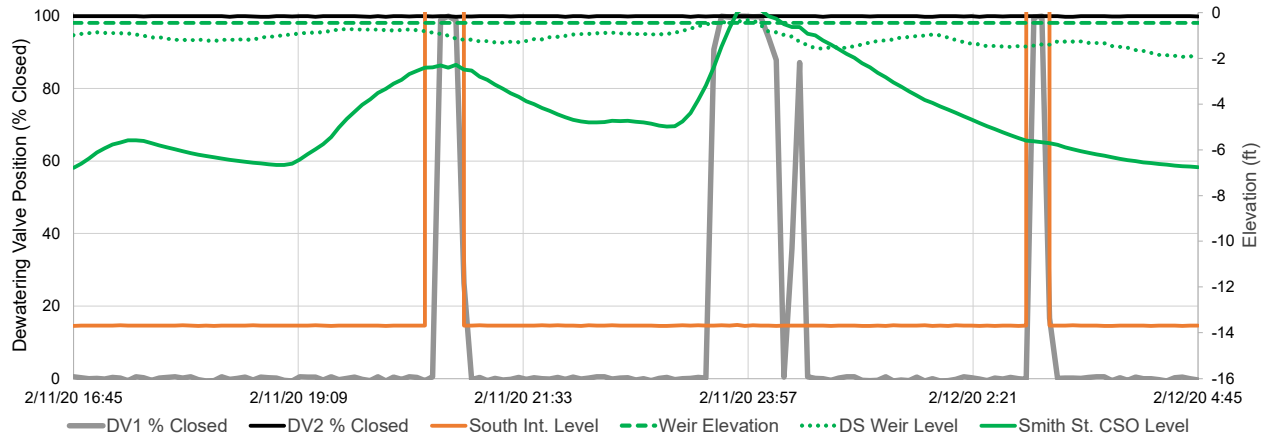
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/11/2020 20:40 |
| Time Lead Dewatering Valve Opened | 2/12/2020 3:10 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.26 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 7,043,327 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

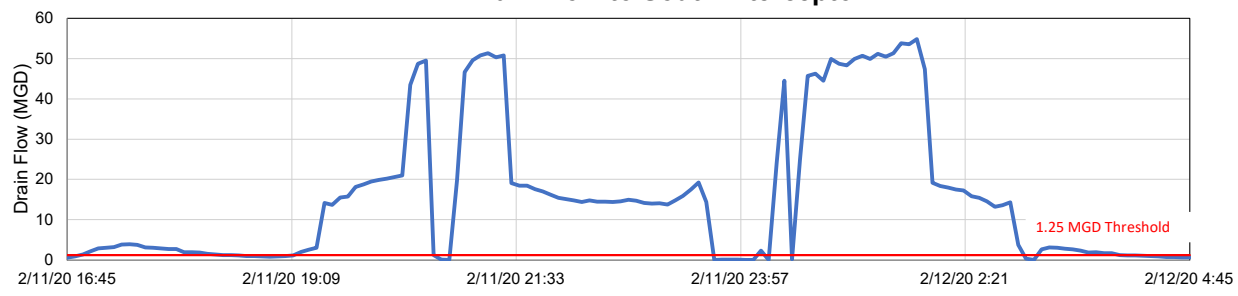
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. Valve 2 manually set to 100% closed due to south interceptor level issue.

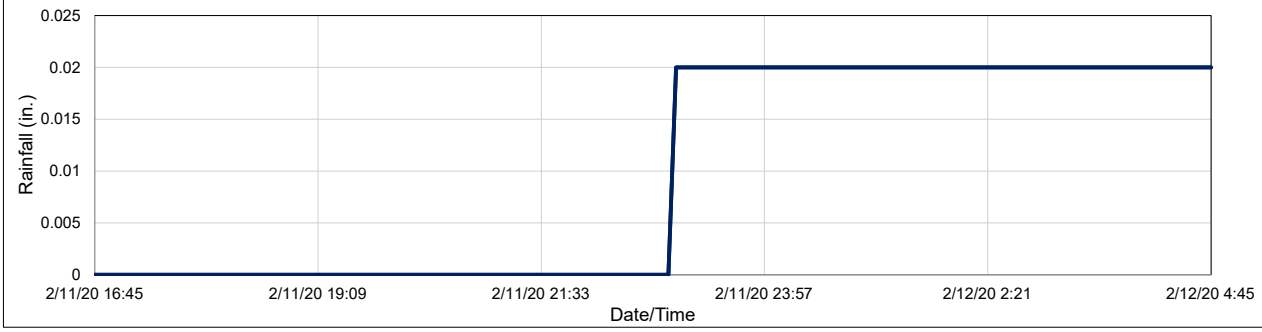
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 13, 2020 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/13/2020 5:45 |
| Event End Date/Time: | 2/13/2020 22:20 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.18 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | Less than one year |

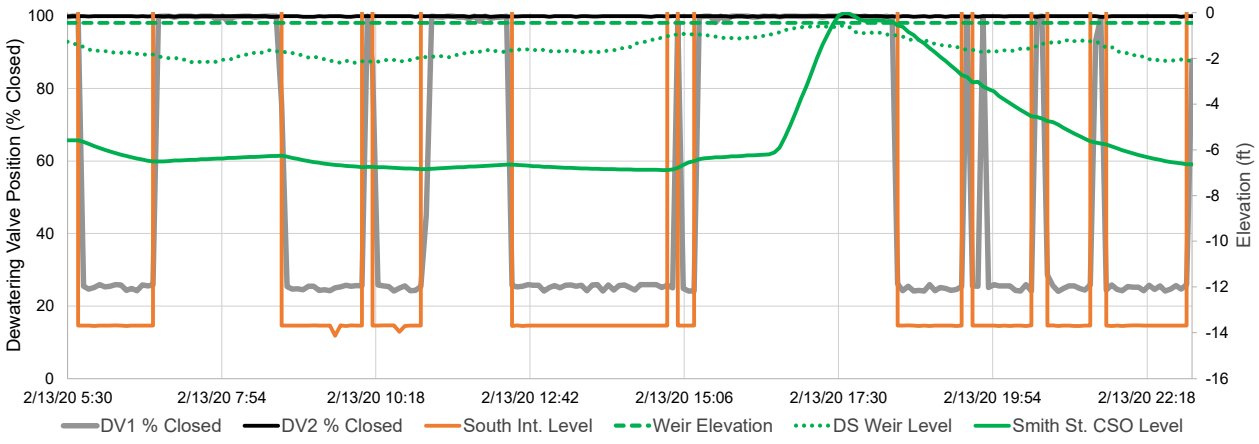
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/13/2020 5:30 |
| Time Lead Dewatering Valve Opened | 2/13/2020 21:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.01 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 91,413 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

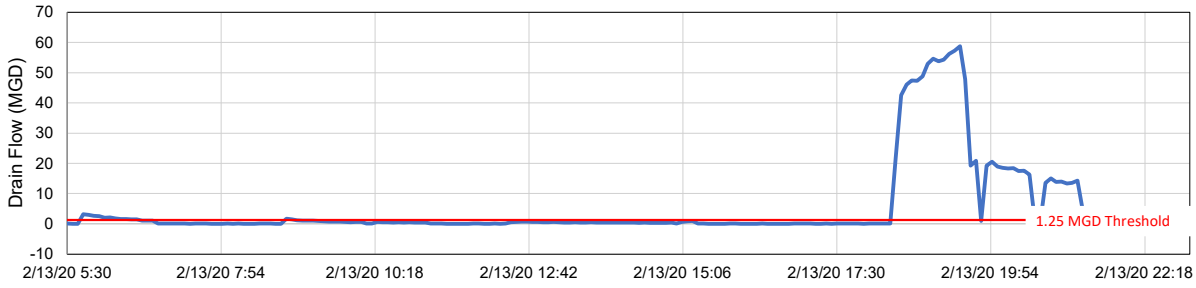
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. Gates were manually set to 25%/100% closed due to south interceptor level issue.

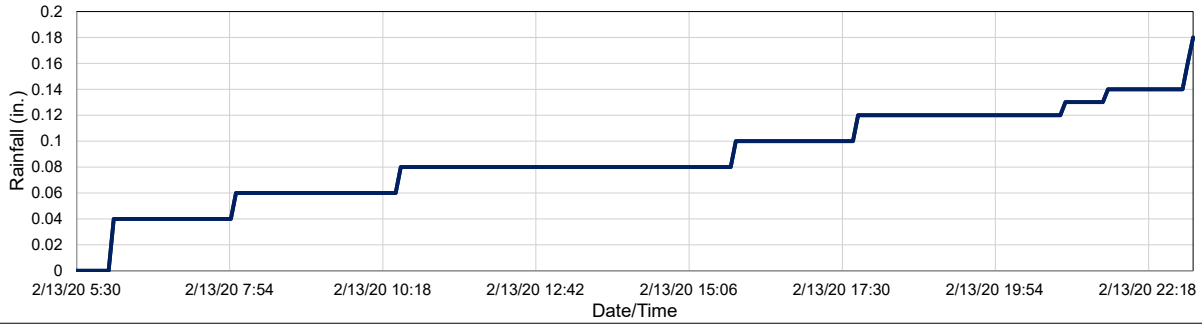
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 15, 2020 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/15/2020 23:50 |
| Event End Date/Time: | 2/16/2020 17:20 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | NA |

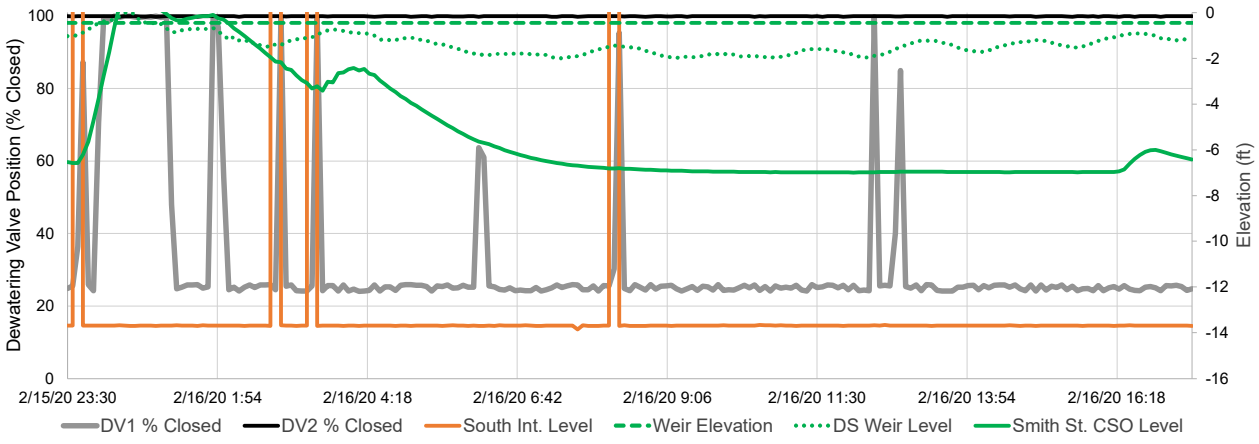
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/15/2020 23:30 |
| Time Lead Dewatering Valve Opened | 2/16/2020 12:30 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.65 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 5,504,963 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

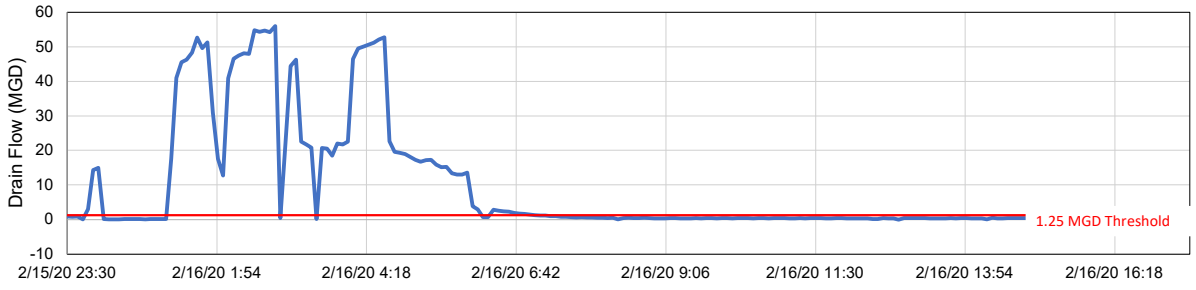
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. But temperatures hovered around freezing, indicating possible snowmelt. Gates were manually set to 25%/100% closed due to south interceptor level issue.

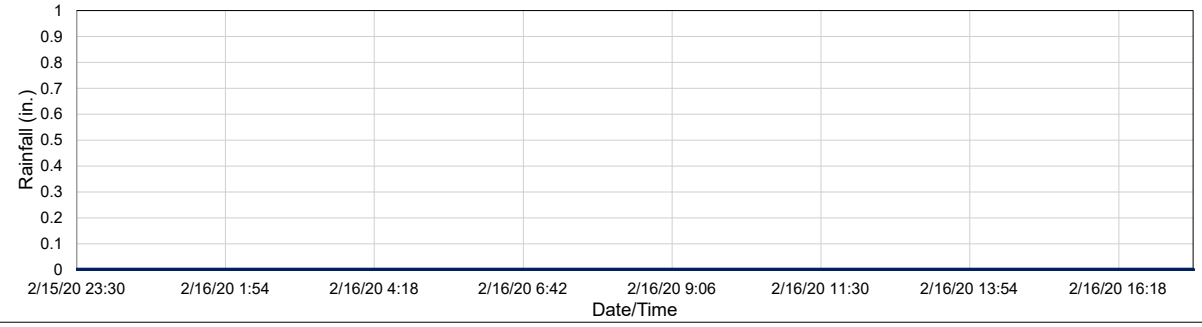
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 18, 2020 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/18/2020 10:50 |
| Event End Date/Time: | 2/19/2020 9:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 23 hr. |
| Storm Type: | NA |

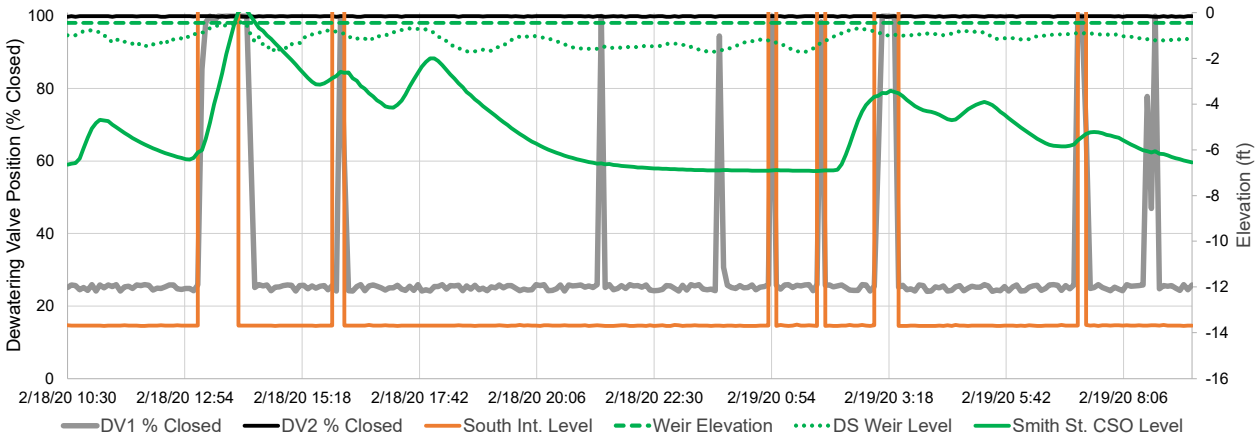
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/18/2020 10:30 |
| Time Lead Dewatering Valve Opened | 2/19/2020 8:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.16 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 10,841,235 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

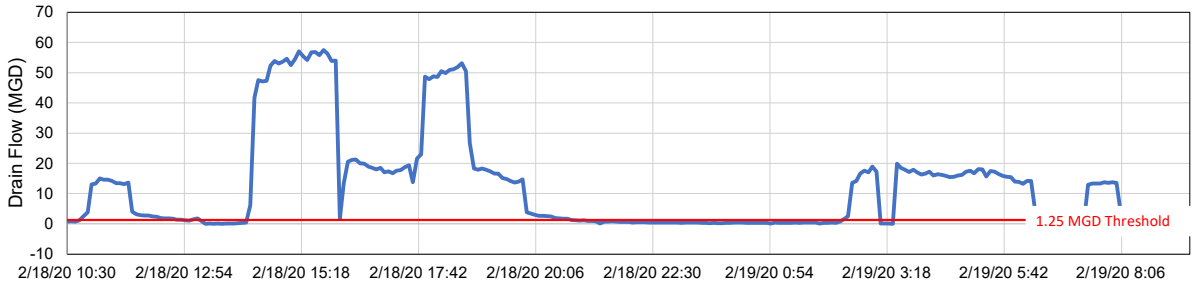
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. But temperatures were higher than the previous day, indicating possible snowmelt. Gates were manually set to 25%/100% closed due to south interceptor level issue.

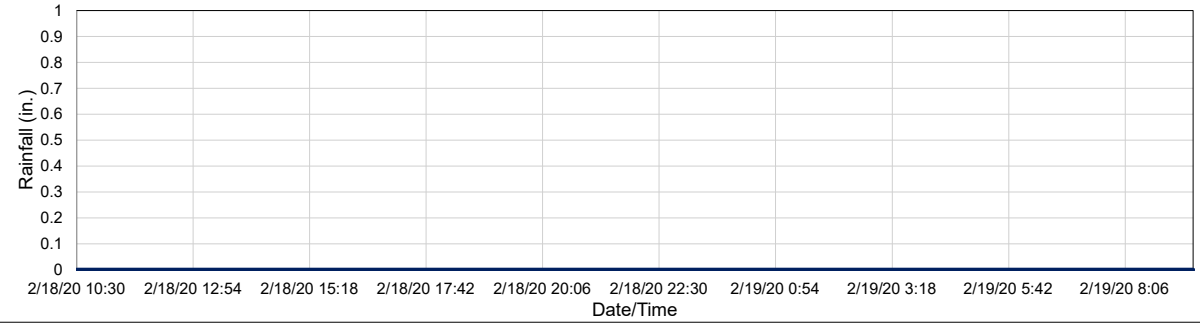
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 21, 2020 8

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/21/2020 13:15 |
| Event End Date/Time: | 2/22/2020 16:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 27 hr. |
| Storm Type: | NA |

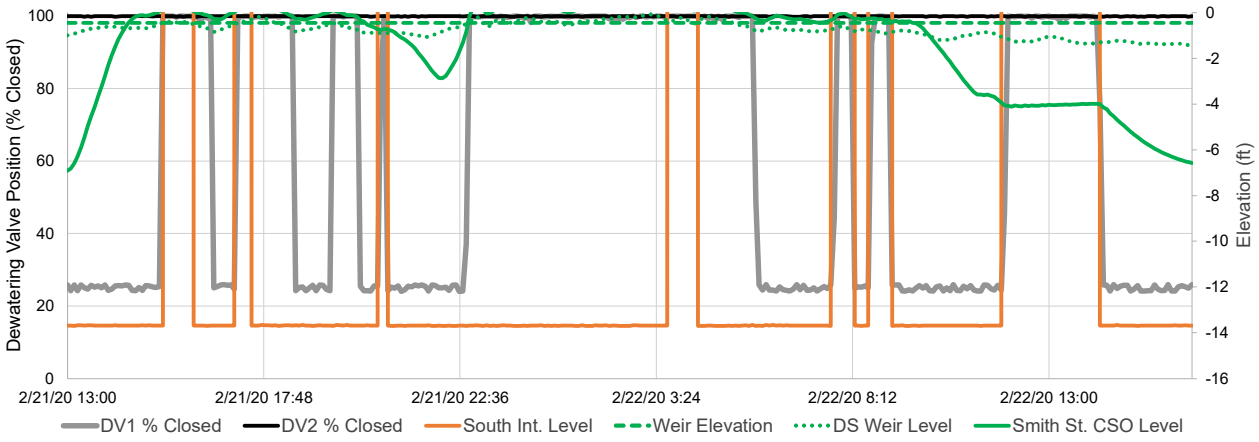
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/21/2020 13:00 |
| Time Lead Dewatering Valve Opened | 2/22/2020 14:15 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.48 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 14,252,048 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

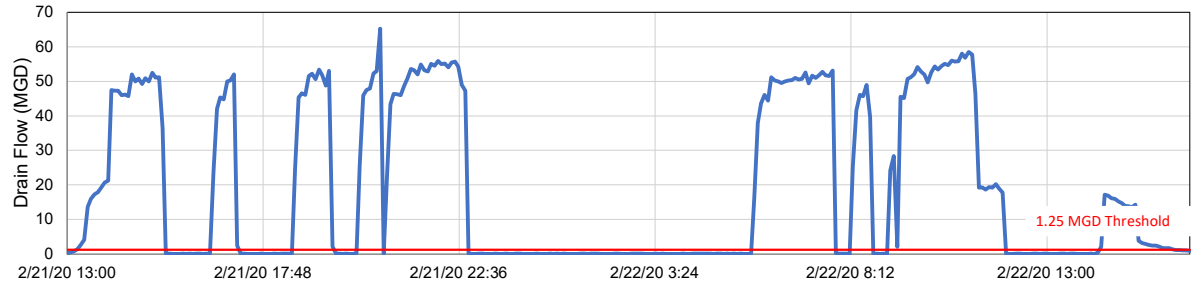
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. But temperature hovered around freezing, indicating possible snowmelt. Gates were manually set to 25%/100% closed due to south interceptor level issue.

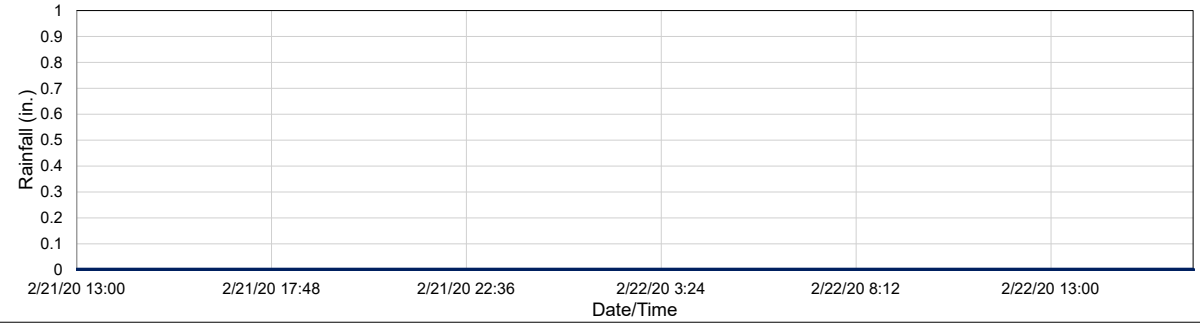
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 26, 2020 9

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/26/2020 20:55 |
| Event End Date/Time: | 2/27/2020 4:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.5 in. |
| Storm Event Duration: | 8 hr. |
| Storm Type: | Less than one year |

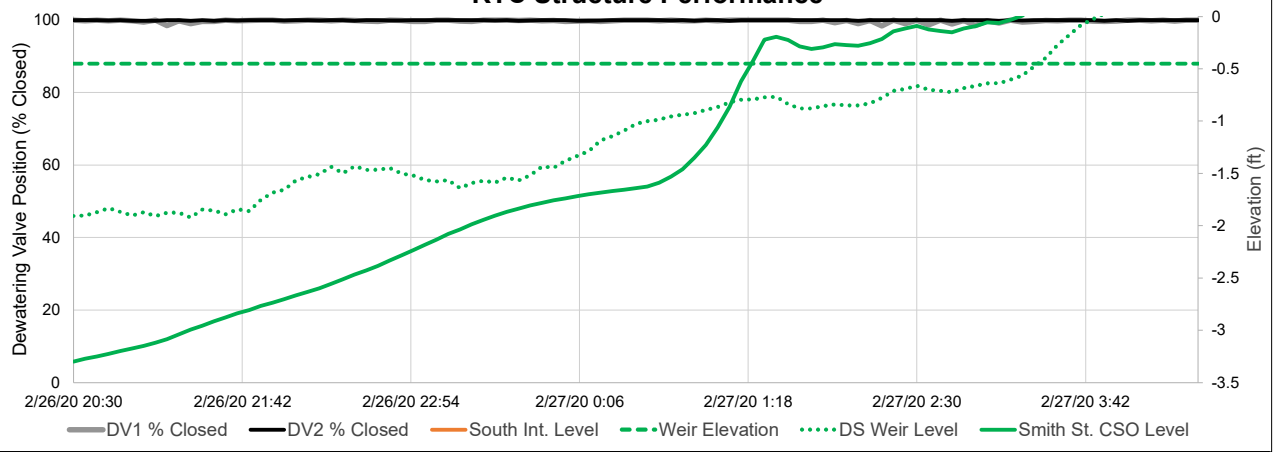
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/26/2020 20:30 |
| Time Lead Dewatering Valve Opened | 2/27/2020 2:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.75 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 263,210 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

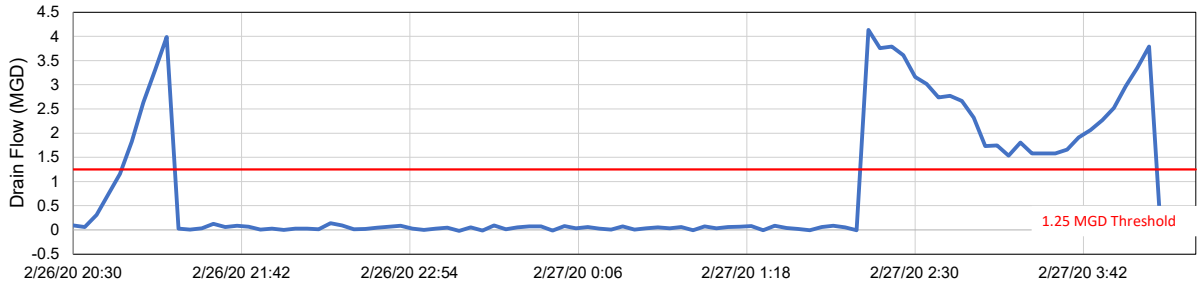
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. Gates were manually set to 25%/100% closed due to south interceptor level issue.

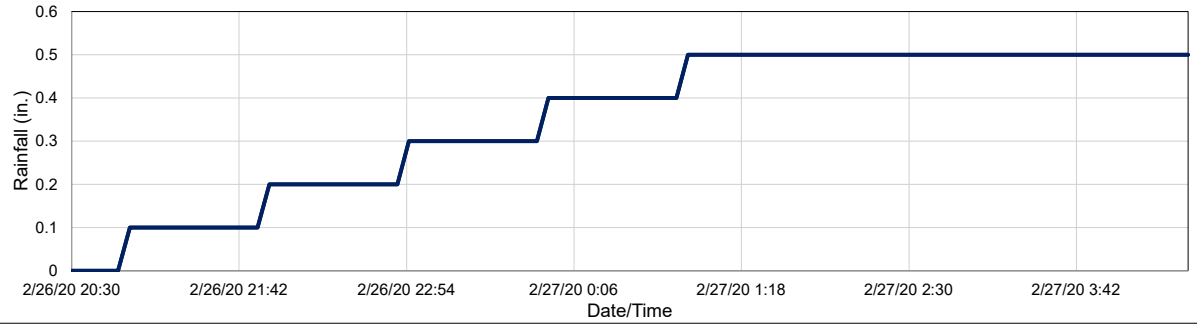
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# February 28, 2020 10

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 3/10/2020 |
| Event Start Date/Time: | 2/28/2020 2:35 |
| Event End Date/Time: | 2/28/2020 3:00 |

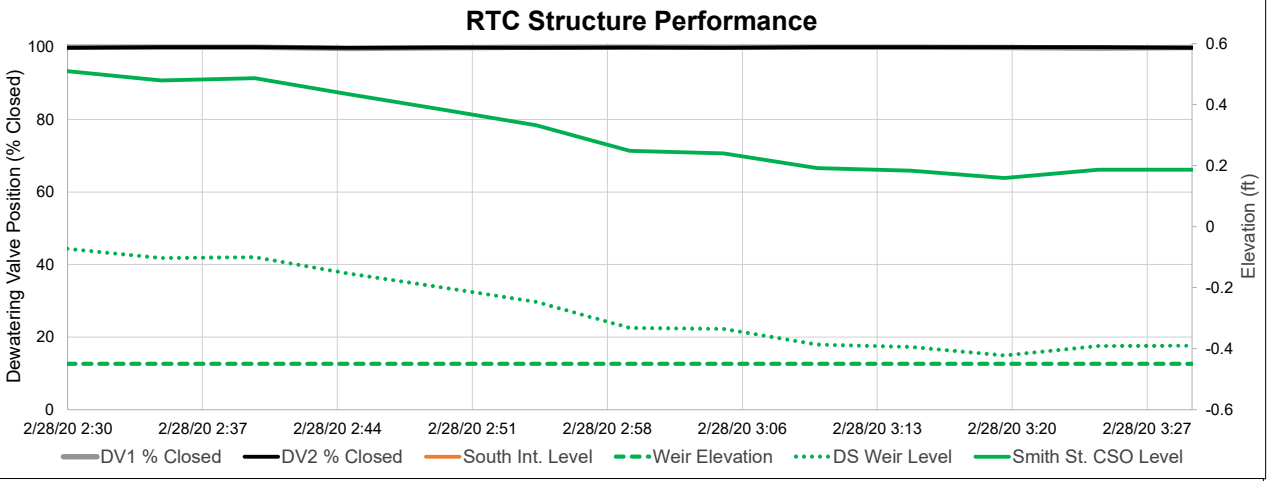
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | NA |

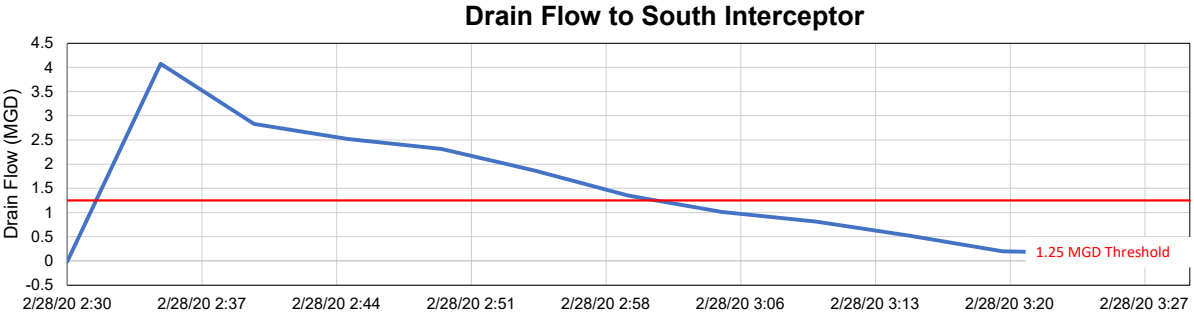
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 2/28/2020 2:30 |
| Time Lead Dewatering Valve Opened | #N/A |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.51 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 51,892 Gal. |
| Did seiche occur during wet weather? | Yes |

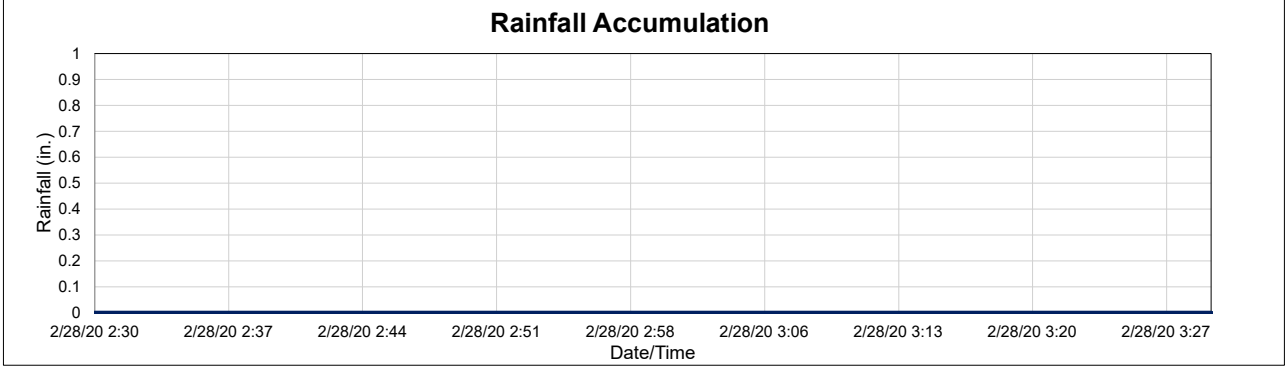
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. Gates were manually set to 25%/100% closed due to south interceptor level issue. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



# March 2020
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report — March 2020

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 3/2/2020 | 576,829 | Yes | 1.25 |
| 3/10/2020 | 162,075 | Yes | 1.25 |
| 3/13/2020 | 135,991 | Yes | 1.25 |
| 3/20/2020 | 284,031 | Yes | 1.25 |
| 3/28/2020 | 195,440 | No | 1.25 |
| 3/29/2020 | 352,978 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **1,707,344** | | |

# March 2, 2020



| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/2/2020 14:30 |
| Event End Date/Time: | 3/4/2020 4:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.56 in. |
| Storm Event Duration: | 39 hrs. |
| Storm Type: | Less than one year |

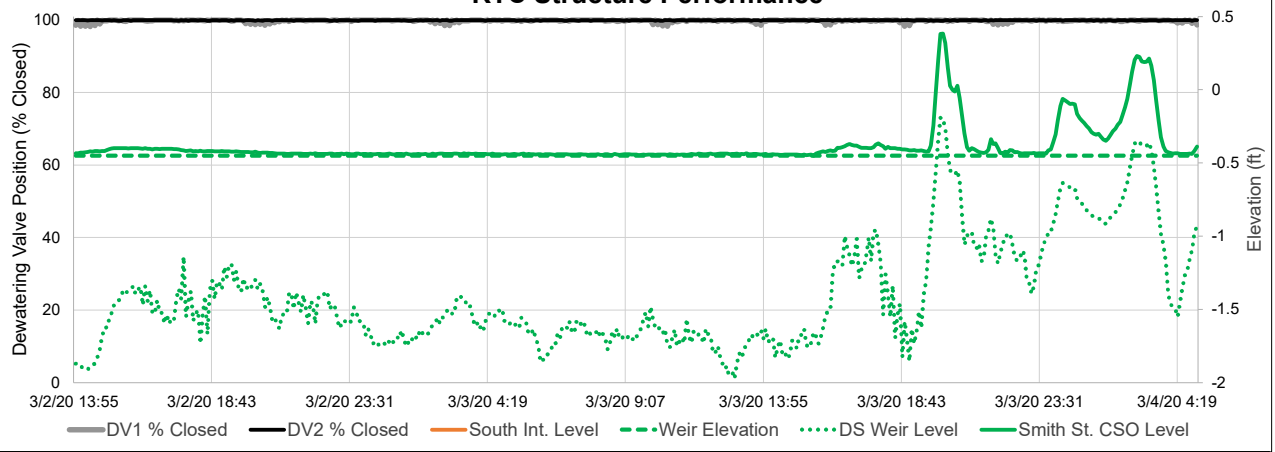
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/2/2020 14:00 |
| Time Lead Dewatering Valve Opened | 3/4/2020 5:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.38 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 576,829 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

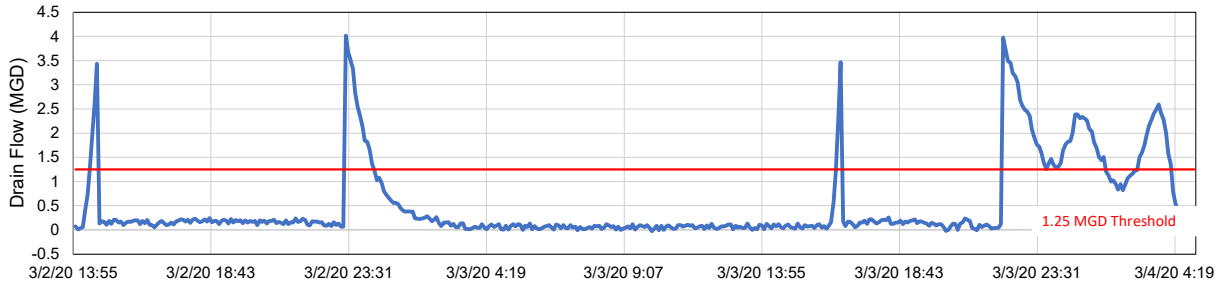
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

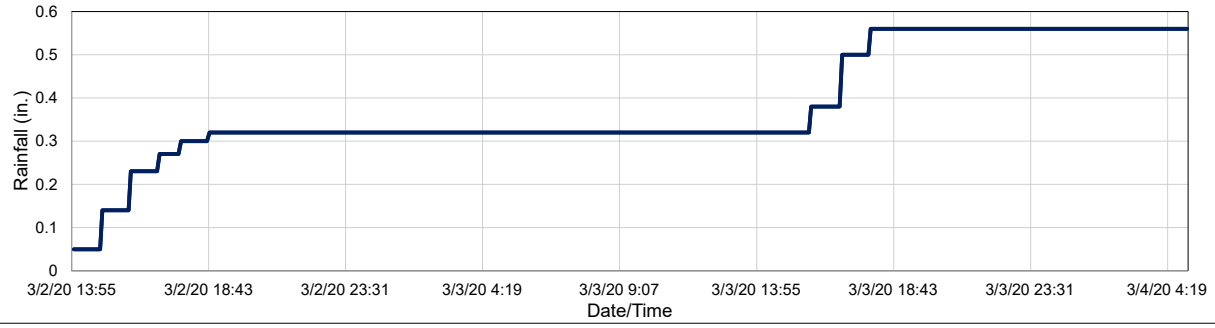
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# March 10, 2020 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/10/2020 12:40 |
| Event End Date/Time: | 3/10/2020 17:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.28 in. |
| Storm Event Duration: | 7 hrs. |
| Storm Type: | Less than one year |

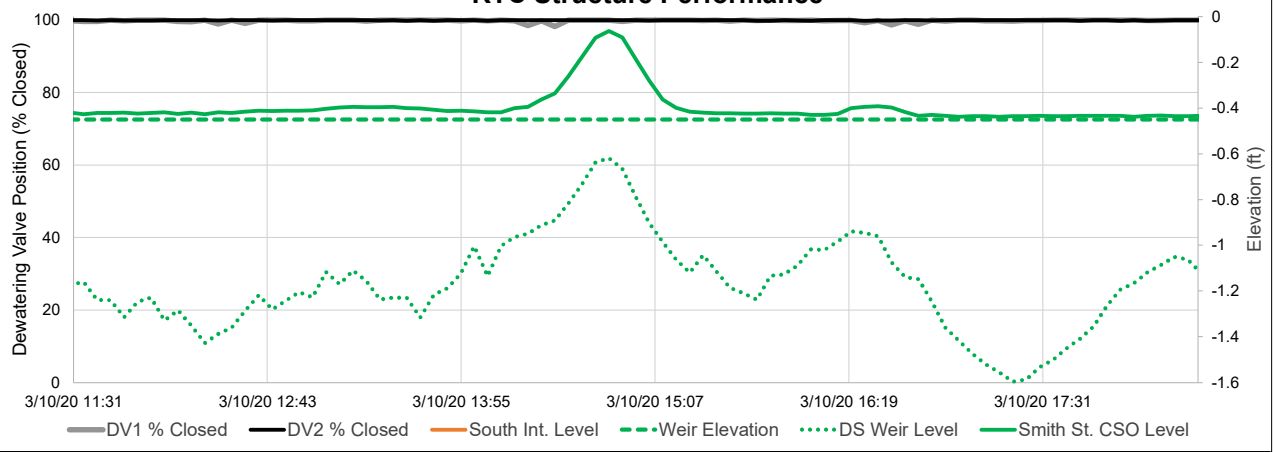
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/10/2020 11:30 |
| Time Lead Dewatering Valve Opened | 3/10/2020 16:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.06 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 162,075 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

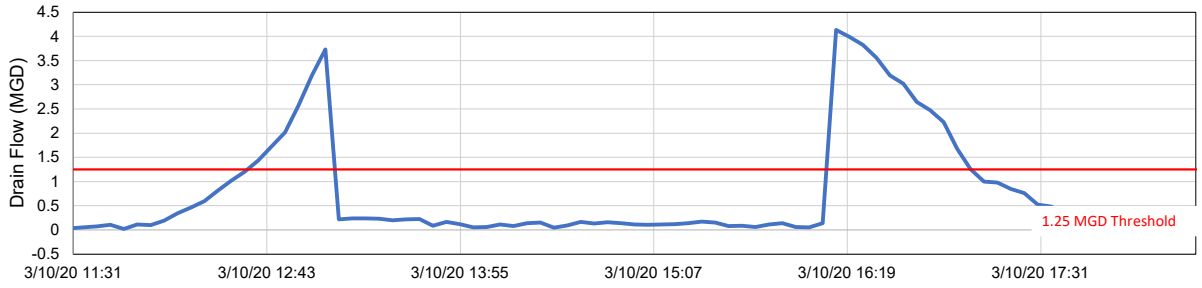
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

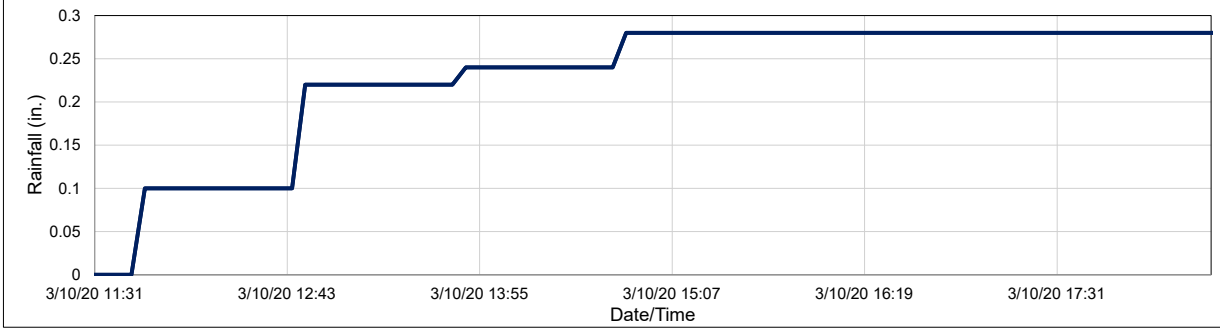
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/13/2020 7:45 |
| Event End Date/Time: | 3/13/2020 10:05 |

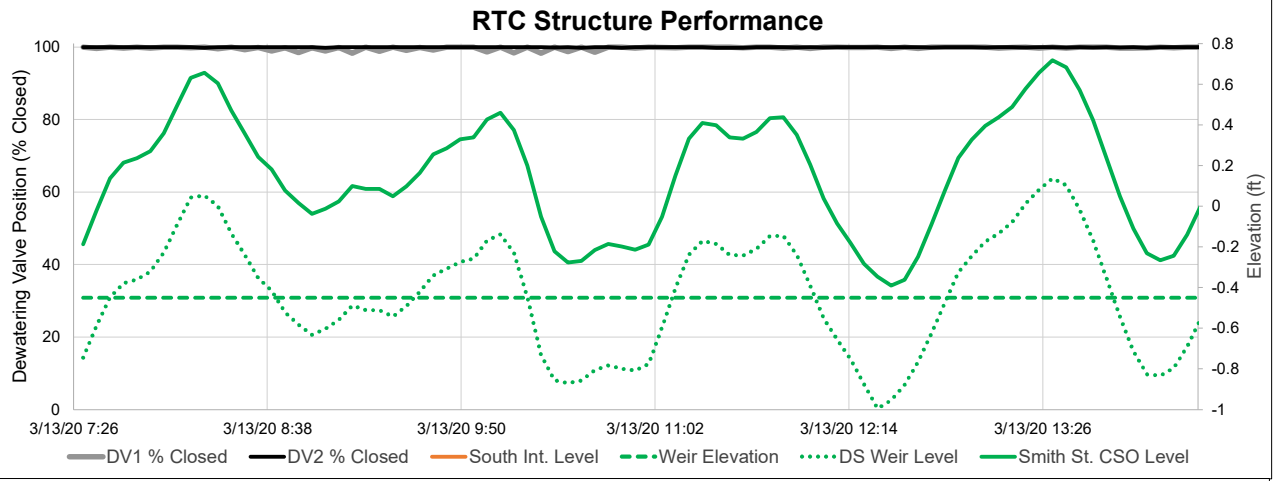
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.2 in. |
| Storm Event Duration: | 5 hrs. |
| Storm Type: | Less than one year |

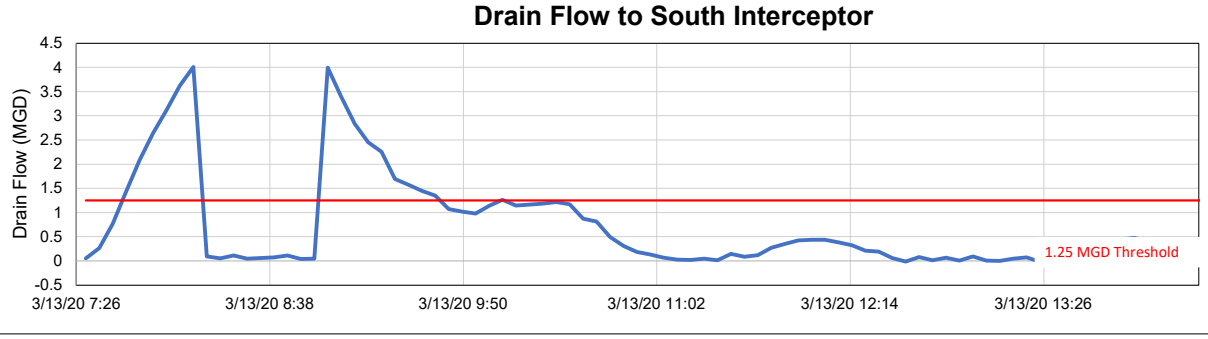
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/13/2020 7:30 |
| Time Lead Dewatering Valve Opened | 3/13/2020 10:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.72 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 135,991 Gal. |
| Did seiche occur during wet weather? | Yes |

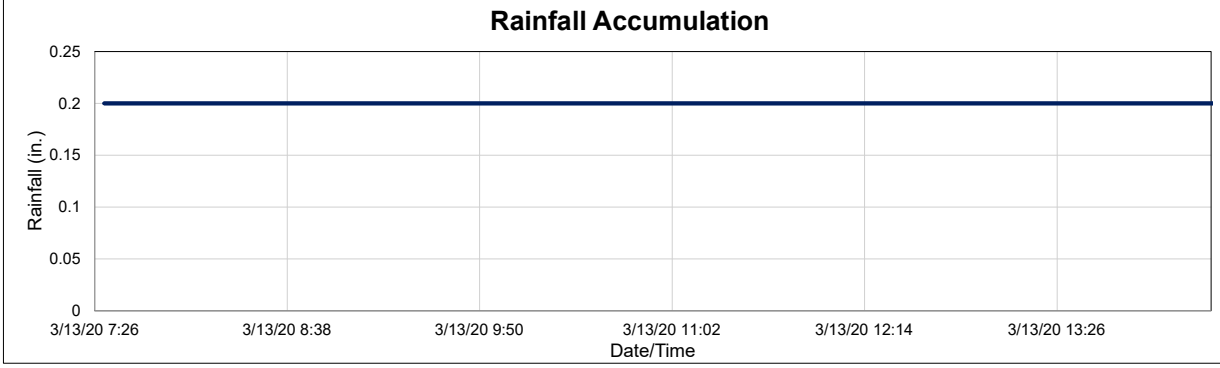
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



# March 20, 2020 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/20/2020 2:20 |
| Event End Date/Time: | 3/20/2020 14:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.5 in. |
| Storm Event Duration: | 14 hrs. |
| Storm Type: | Less than one year |

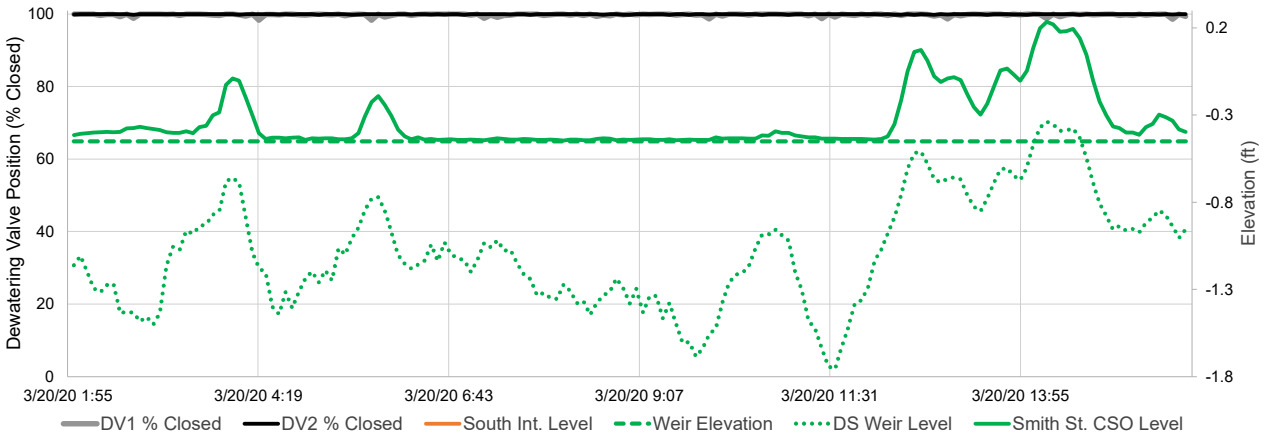
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/20/2020 2:00 |
| Time Lead Dewatering Valve Opened | 3/20/2020 15:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.24 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 284,031 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

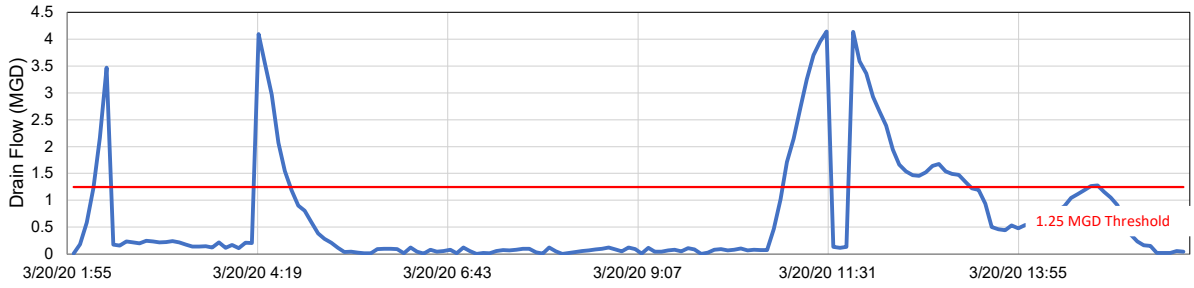
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

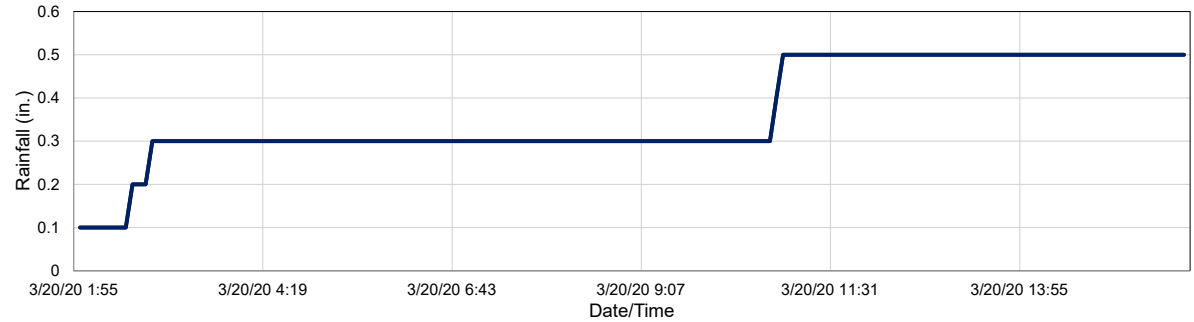
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# March 28, 2020 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/28/2020 11:40 |
| Event End Date/Time: | 3/28/2020 16:20 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.5 in. |
| Storm Event Duration: | 6 hrs. |
| Storm Type: | Less than one year |

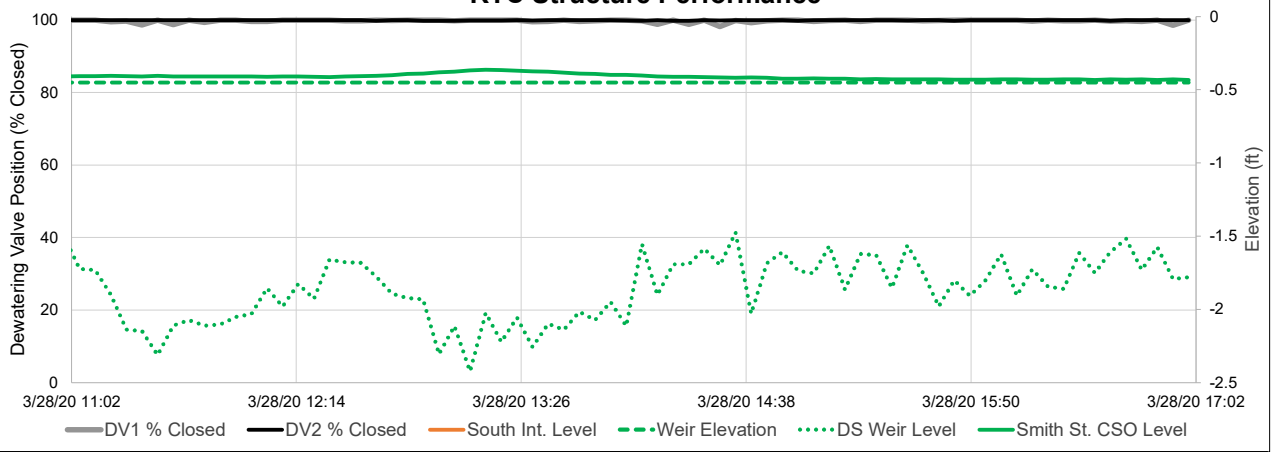
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/28/2020 11:00 |
| Time Lead Dewatering Valve Opened | 3/28/2020 16:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.36 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 195,440 Gal. |
| Did seiche occur during wet weather? | No |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

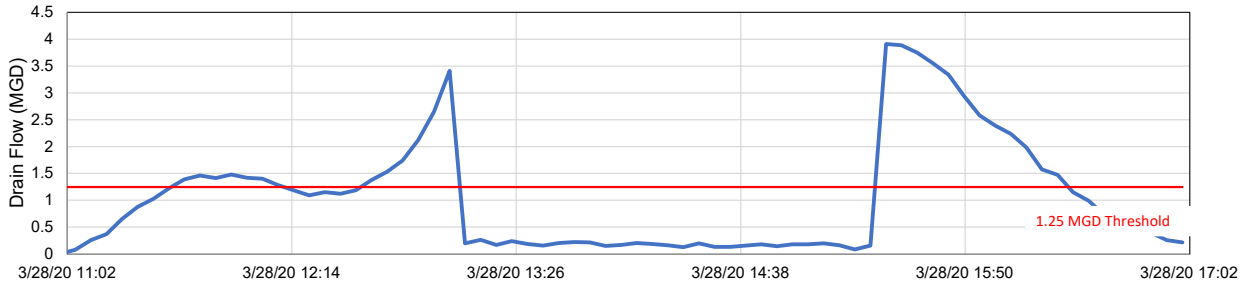
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

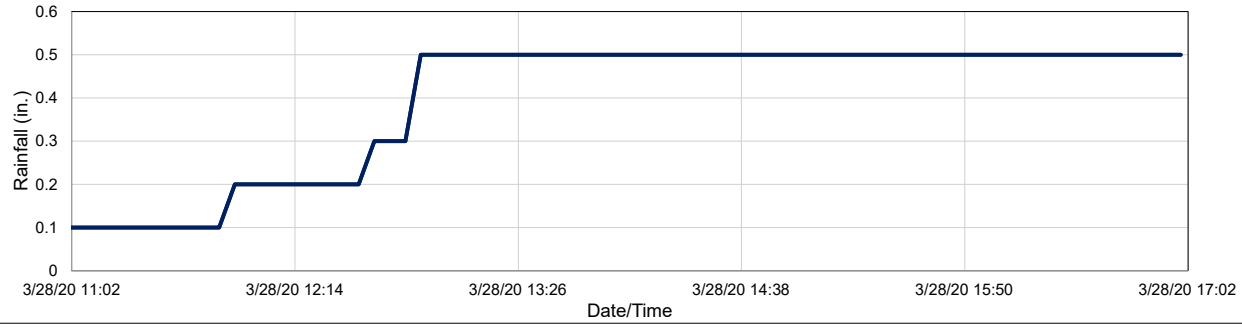
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# March 29, 2020 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 4/7/2020 |
| Event Start Date/Time: | 3/29/2020 6:00 |
| Event End Date/Time: | 3/30/2020 23:15 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.1 in. |
| Storm Event Duration: | 45 hrs. |
| Storm Type: | Less than one year |

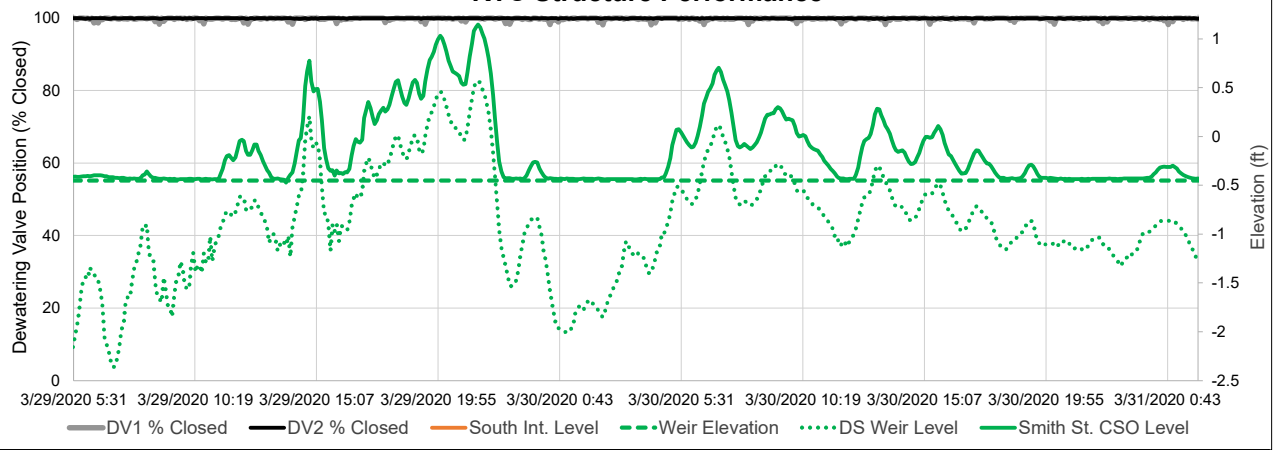
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 3/29/2020 5:30 |
| Time Lead Dewatering Valve Opened | 3/31/2020 0:45 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.15 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 352,978 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

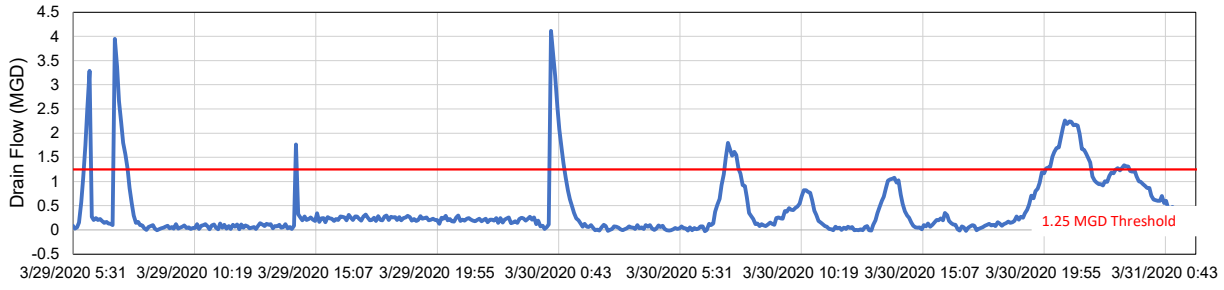
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

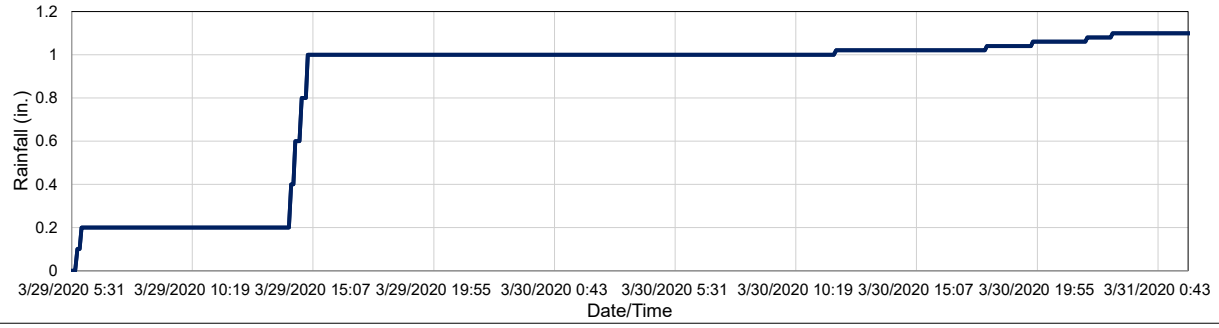
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# April 2020
# Smith St. RTC
# KPI Report

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# Smith St. RTC Monthly Performance Report — April 2020

| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
|---|---|---|---|
| 4/9/2020 | 86,891 | Yes | 1.25 |
| 4/13/2020 | 444,924 | Yes | 1.25 |
| 4/14/2020 | 71,350,389 | Yes | 1.25 |
| 4/18/2020 | 37,181,474 | Yes | 1.25 |
| 4/20/2020 | 69,510,751 | Yes | 1.25 |
| 4/26/2020 | 2,772,741 | No | 1.25 |
| 4/29/2020 | 19,173,611 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **200,520,781** | | |

# April 9, 2020 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/9/2020 17:05 |
| Event End Date/Time: | 4/9/2020 23:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.02 in. |
| Storm Event Duration: | 8 hrs. |
| Storm Type: | Less than one year |

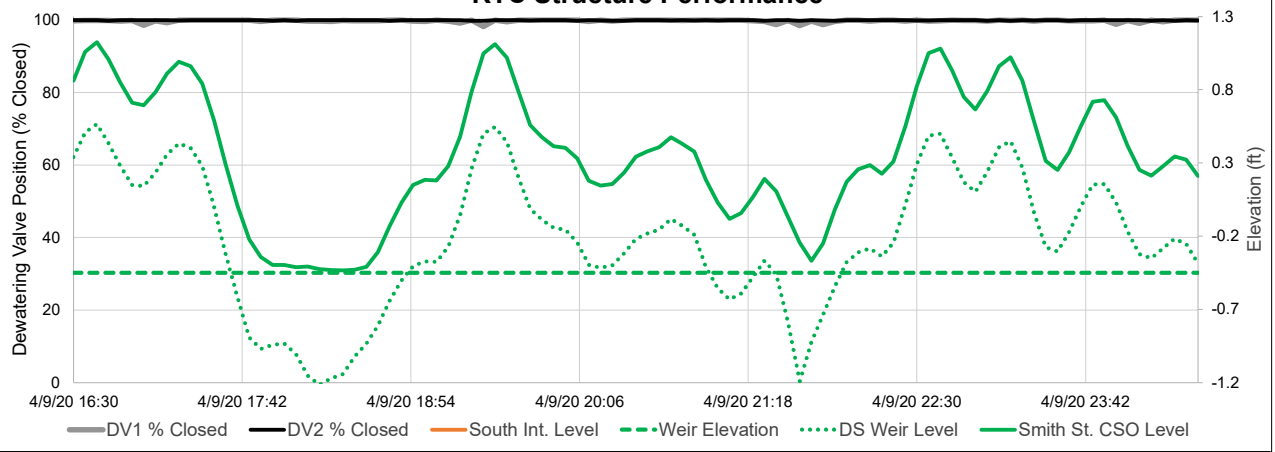
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/9/2020 16:30 |
| Time Lead Dewatering Valve Opened | 4/9/2020 23:55 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.12 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 86,891 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

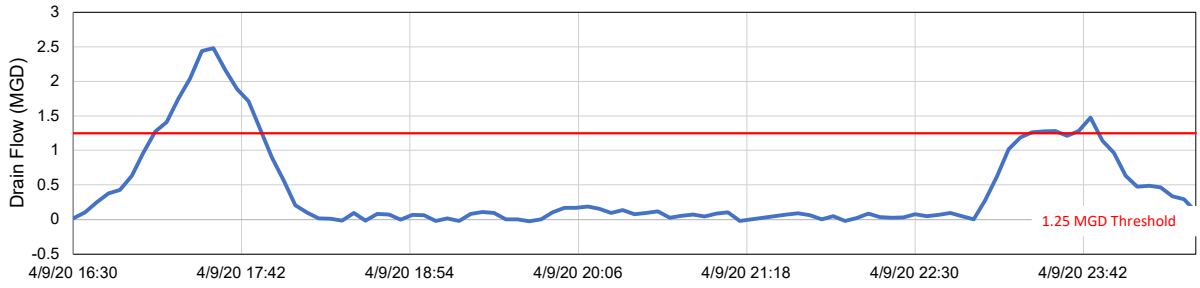
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

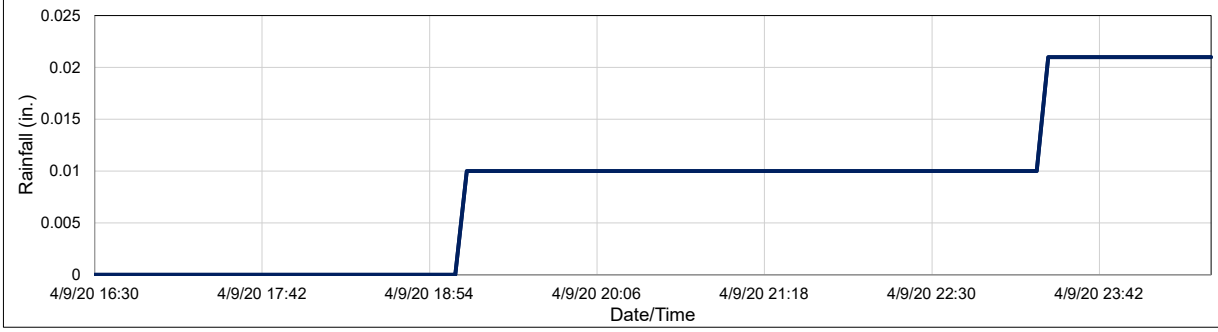
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# April 13, 2020 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/13/2020 3:55 |
| Event End Date/Time: | 4/13/2020 23:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.53 in. |
| Storm Event Duration: | 20 hrs. |
| Storm Type: | Less than one year |

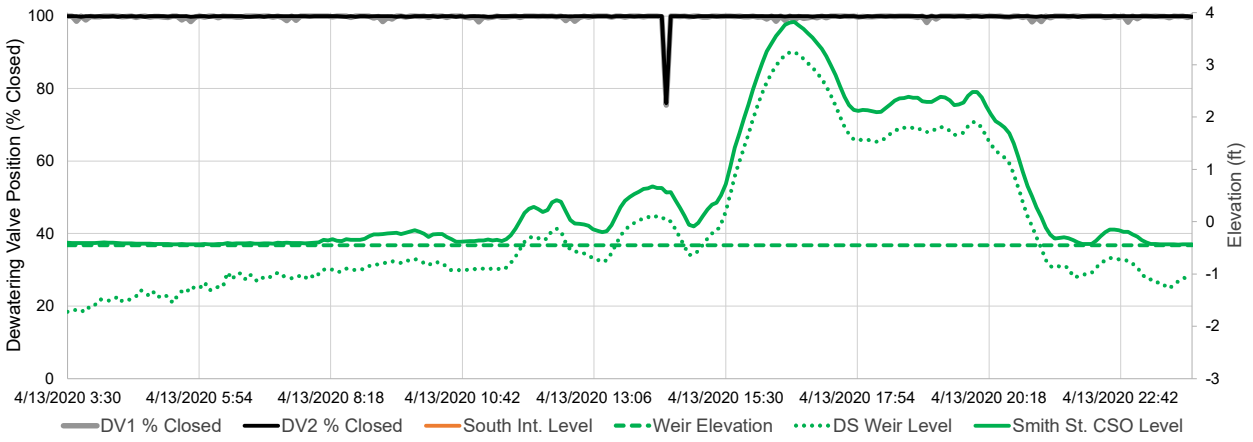
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/13/2020 3:30 |
| Time Lead Dewatering Valve Opened | 4/13/2020 22:50 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 3.82 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 444,924 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

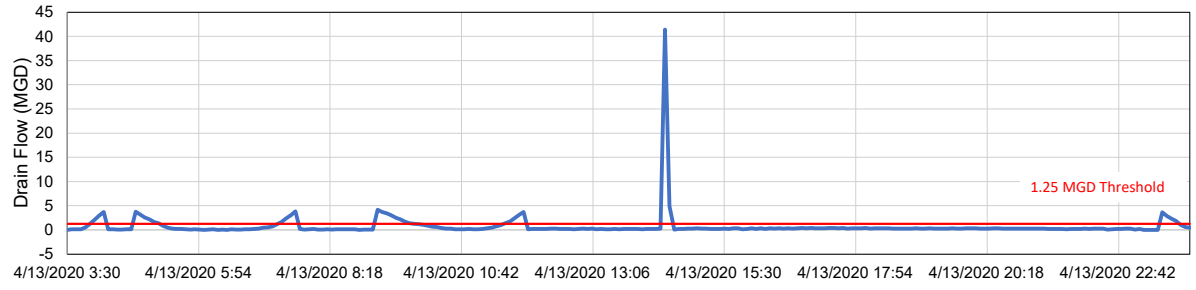
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

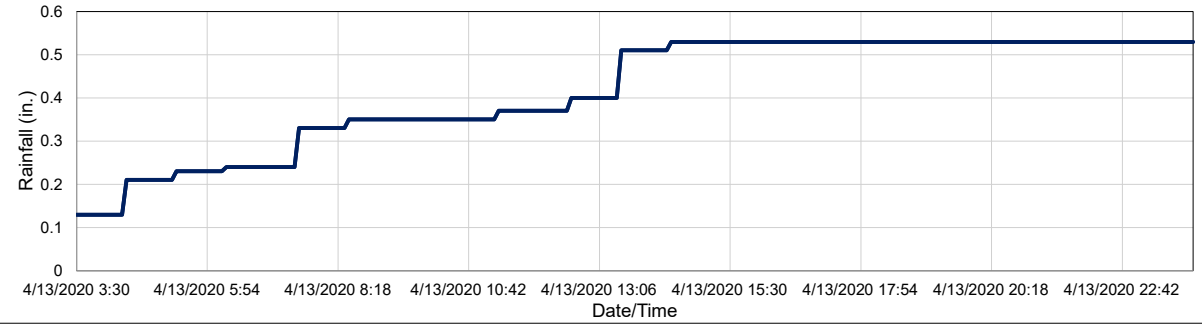
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# April 14, 2020 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/14/2020 5:45 |
| Event End Date/Time: | 4/17/2020 9:10 |

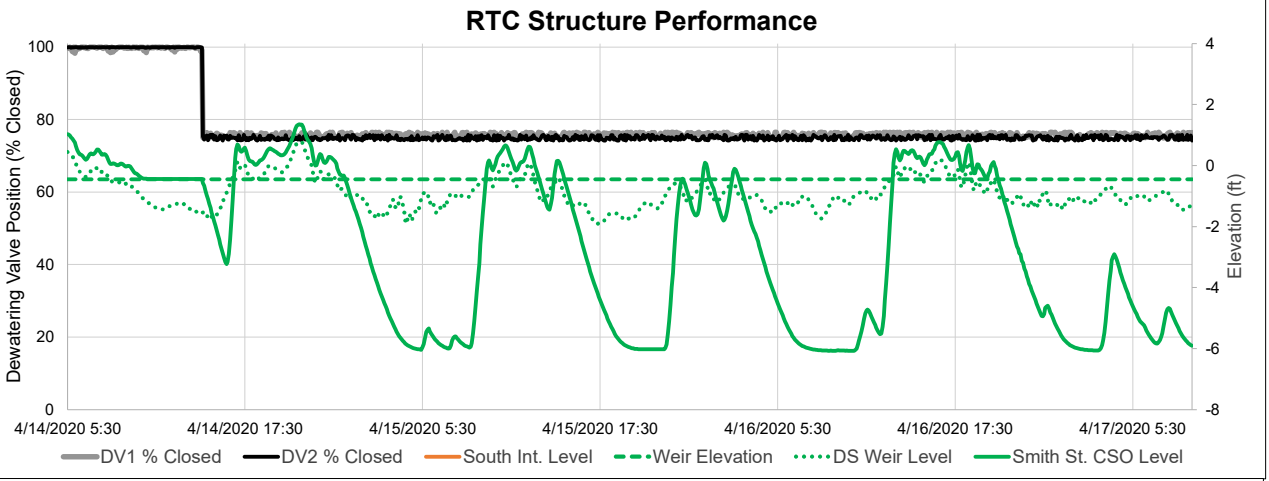
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.09 in. |
| Storm Event Duration: | 76 hrs. |
| Storm Type: | Less than one year |

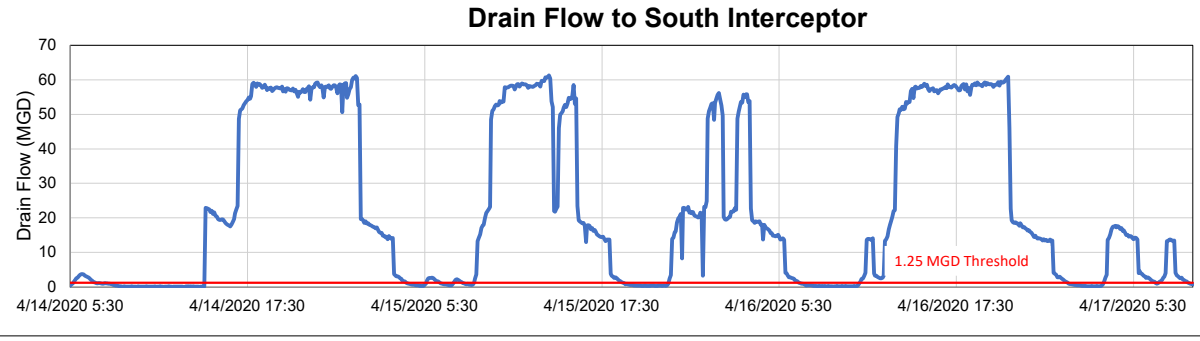
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/14/2020 5:30 |
| Time Lead Dewatering Valve Opened | 4/14/2020 14:40 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.35 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 71,350,389 Gal. |
| Did seiche occur during wet weather? | Yes |

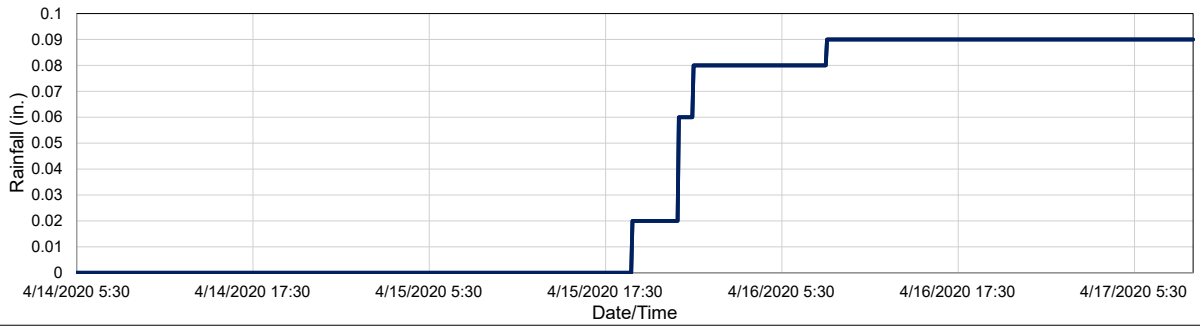
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period. BSA changed valve setting to 75%/100% closed.



# April 18, 2020 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/18/2020 11:45 |
| Event End Date/Time: | 4/19/2020 19:25 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 32 hrs. |
| Storm Type: | N/A |

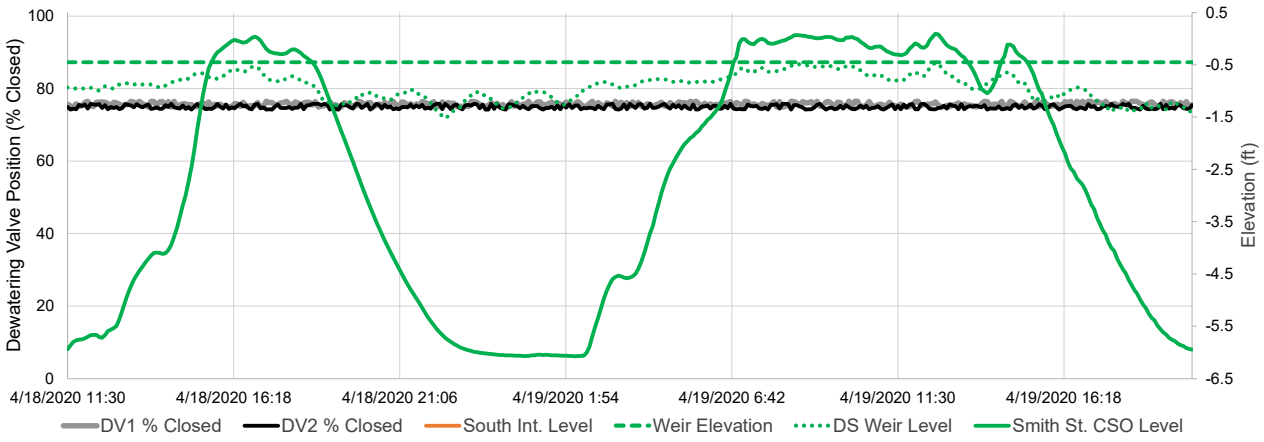
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/18/2020 11:30 |
| Time Lead Dewatering Valve Opened | 4/18/2020 11:30 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 0.09 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 37,181,474 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

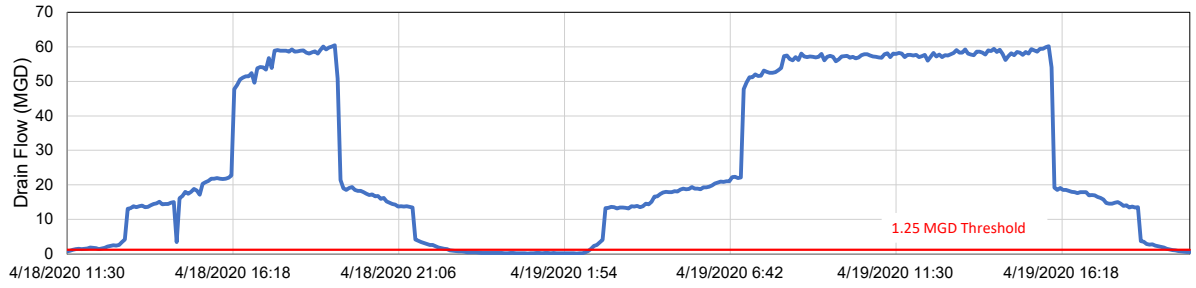
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.

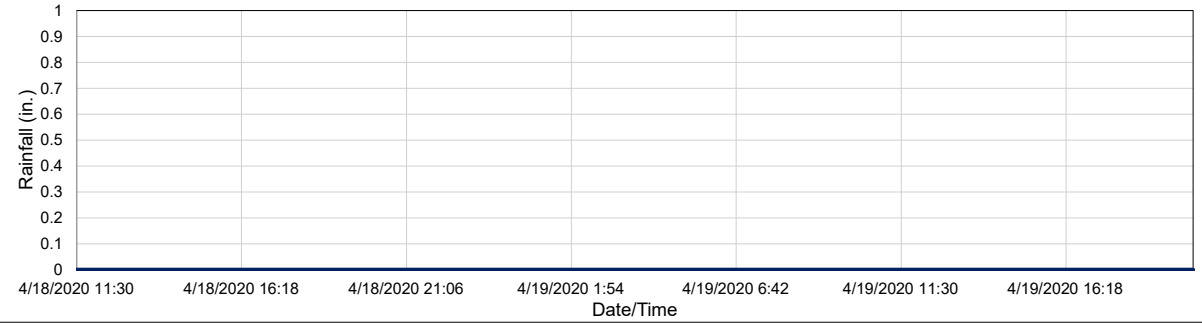
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# April 20, 2020 5

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/20/2020 0:55 |
| Event End Date/Time: | 4/22/2020 23:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.07 in. |
| Storm Event Duration: | 70 hrs. |
| Storm Type: | Less than one year |

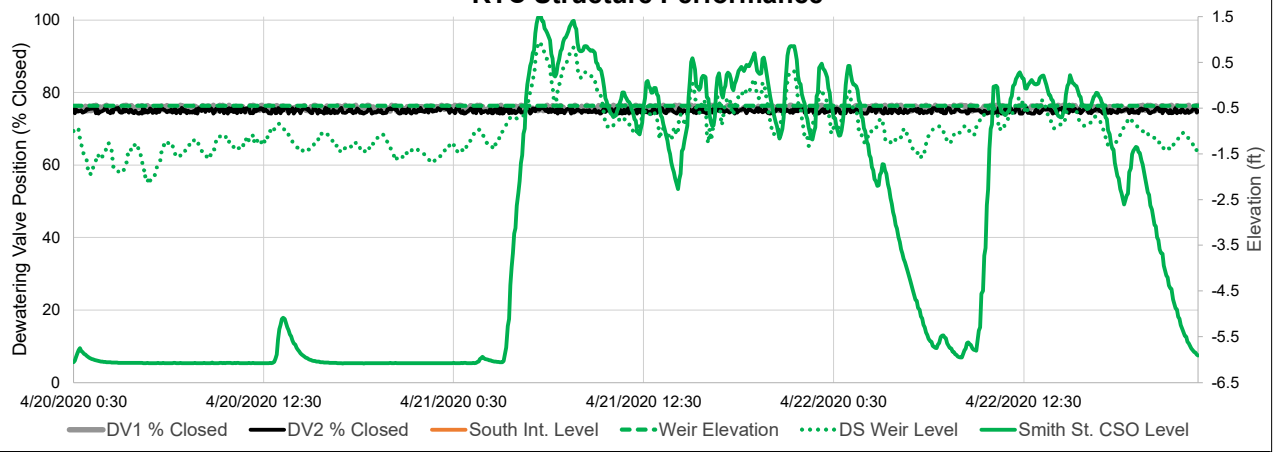
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/20/2020 0:30 |
| Time Lead Dewatering Valve Opened | 4/20/2020 0:30 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.55 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 69,510,751 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

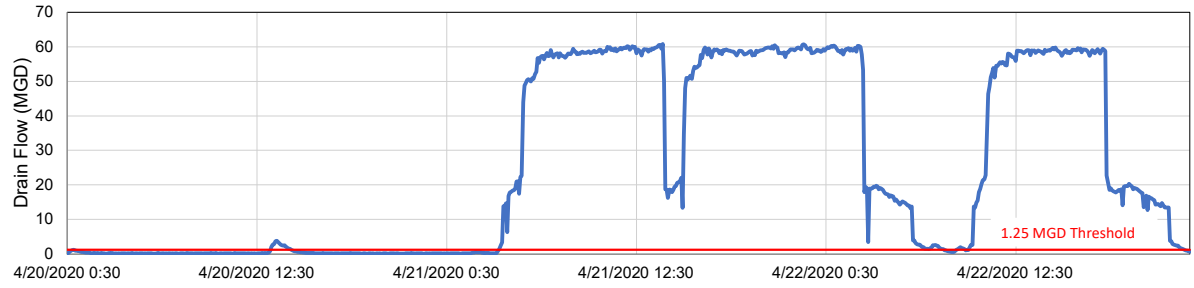
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

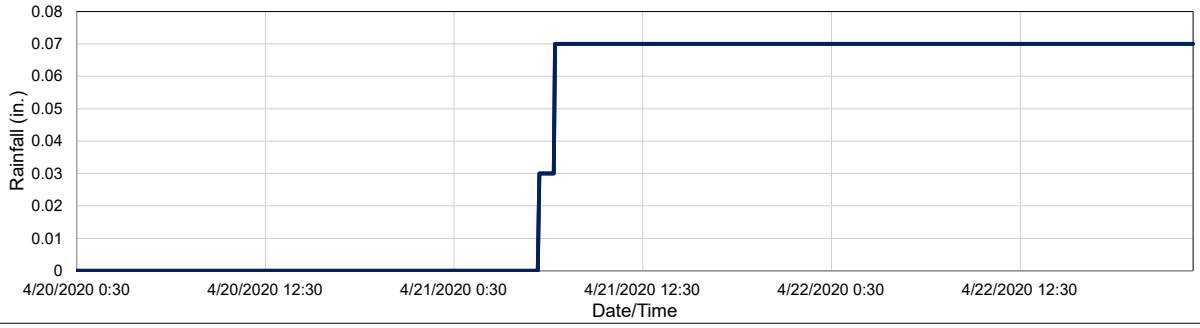
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# April 26, 2020 6

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/26/2020 14:50 |
| Event End Date/Time: | 4/28/2020 6:20 |

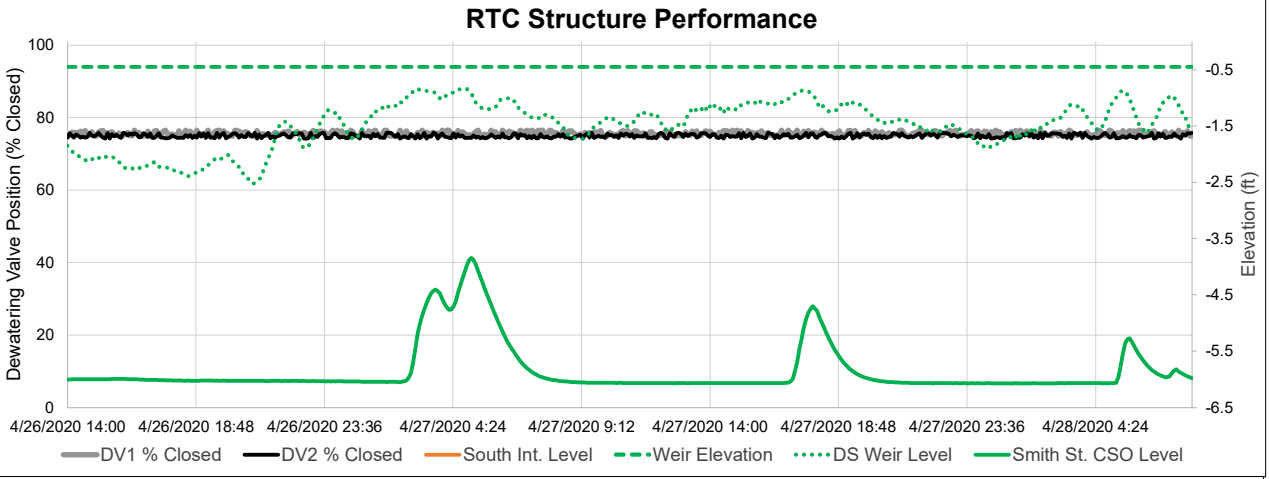
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.13 in. |
| Storm Event Duration: | 42 hrs. |
| Storm Type: | Less than one year |

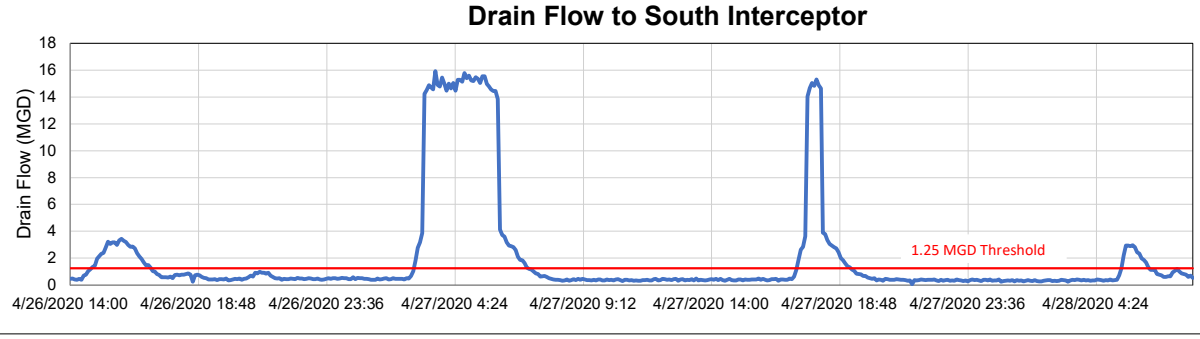
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/26/2020 14:00 |
| Time Lead Dewatering Valve Opened | 4/26/2020 14:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -3.85 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 2,772,741 Gal. |
| Did seiche occur during wet weather? | No |

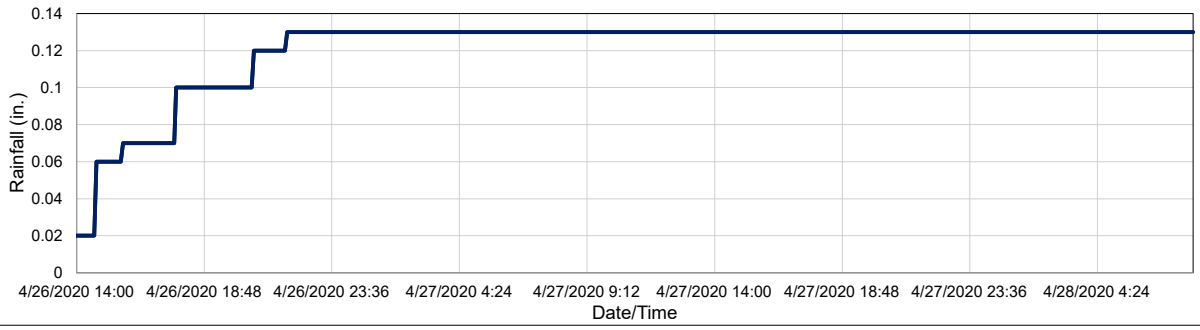
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



# April 29, 2020 7

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 5/7/2020 |
| Event Start Date/Time: | 4/29/2020 21:25 |
| Event End Date/Time: | 4/30/2020 23:35 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.87 in. |
| Storm Event Duration: | 27 hrs. |
| Storm Type: | Less than one year |

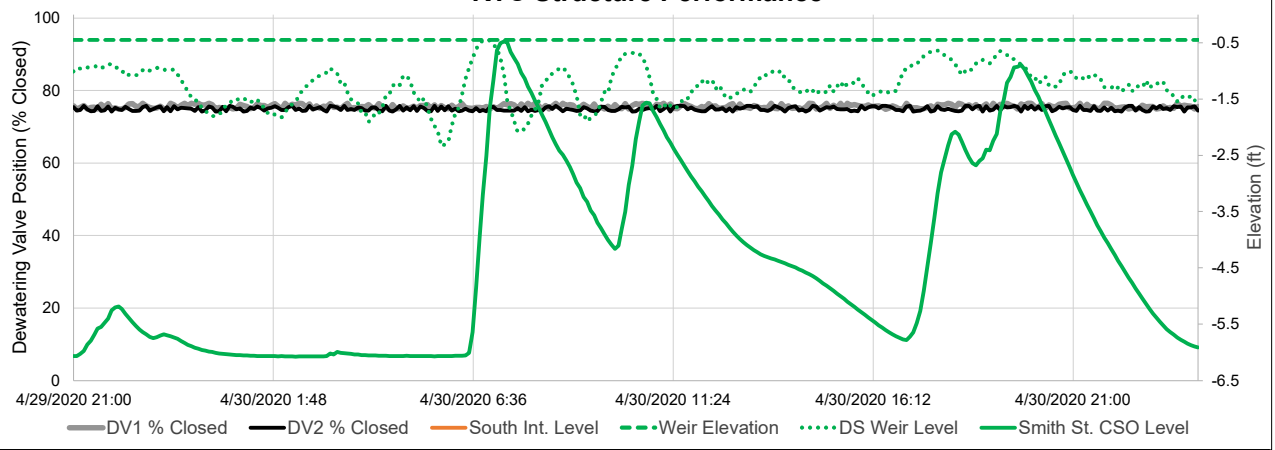
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 4/29/2020 21:00 |
| Time Lead Dewatering Valve Opened | 4/29/2020 21:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -0.48 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 19,173,611 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

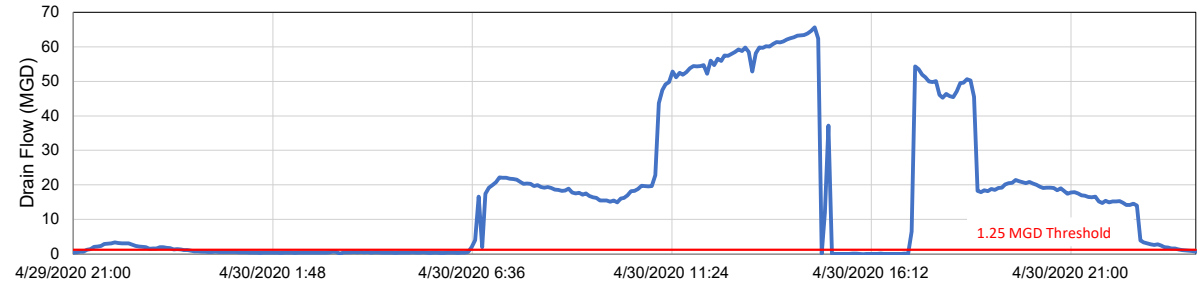
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

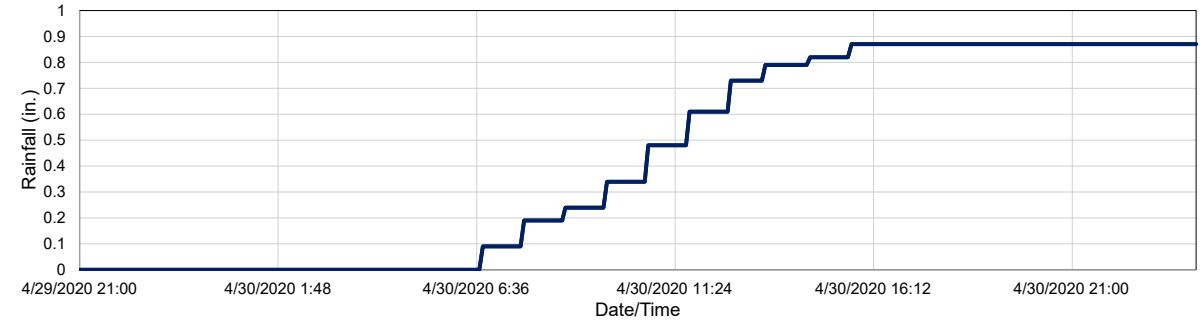
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# June 2020
# Smith St. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

emnet

GHD

ARCADIS Design & Consultancy for natural and built assets

| Smith St. RTC Monthly Performance Report | | | June 2020 |
|---|---|---|---|
| Event Date | Volume Captured (gal) | Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche) | Event drain flow threshold (MGD) |
| 6/2/2020 | 94,053,020 | Yes | 1.25 |
| 6/7/2020 | 69,787,826 | Yes | 1.25 |
| 6/21/2020 | 3,634,433 | Yes | 1.25 |
| 6/23/2020 | 53,519,100 | Yes | 1.25 |
| 6/26/2020 | 33,014,645 | Yes | 1.25 |
| **Total Volume Captured (gal)** | **254,009,024** | | |

# June 2, 2020 1

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/2/2020 1:05 |
| Event End Date/Time: | 6/6/2020 23:50 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.72 in. |
| Storm Event Duration: | 120 hrs. |
| Storm Type: | Less than one year |

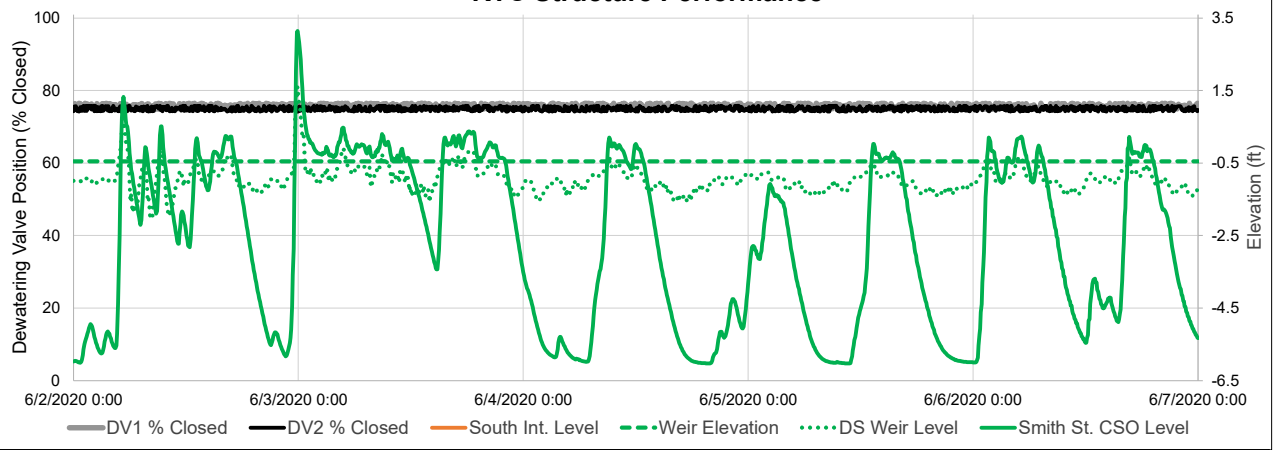
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 6/2/2020 0:00 |
| Time Lead Dewatering Valve Opened | 6/2/2020 0:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 3.15 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 94,053,020 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

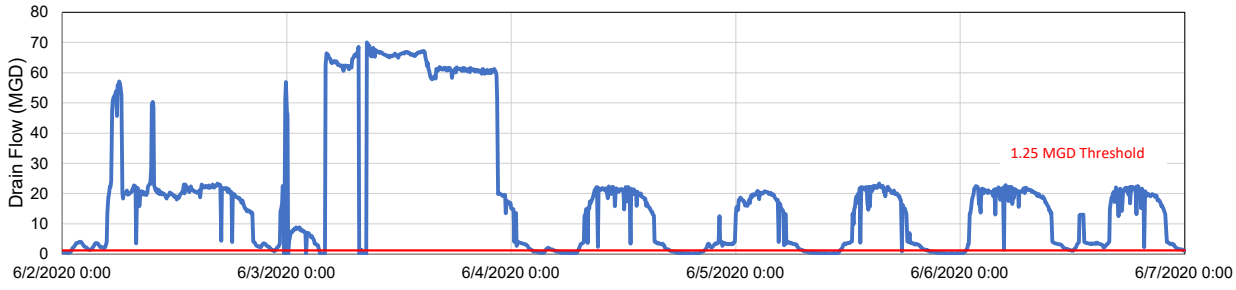
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

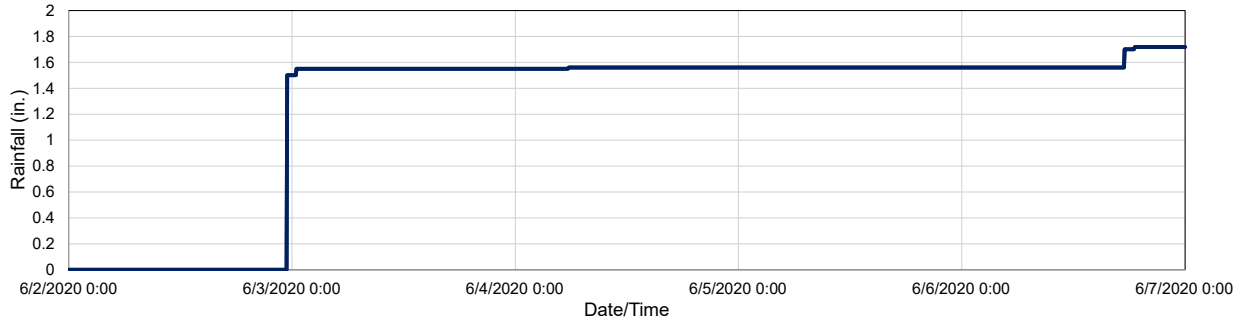
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# June 7, 2020 2

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/7/2020 4:20 |
| Event End Date/Time: | 6/13/2020 0:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.65 in. |
| Storm Event Duration: | 142 hrs. |
| Storm Type: | Less than one year |

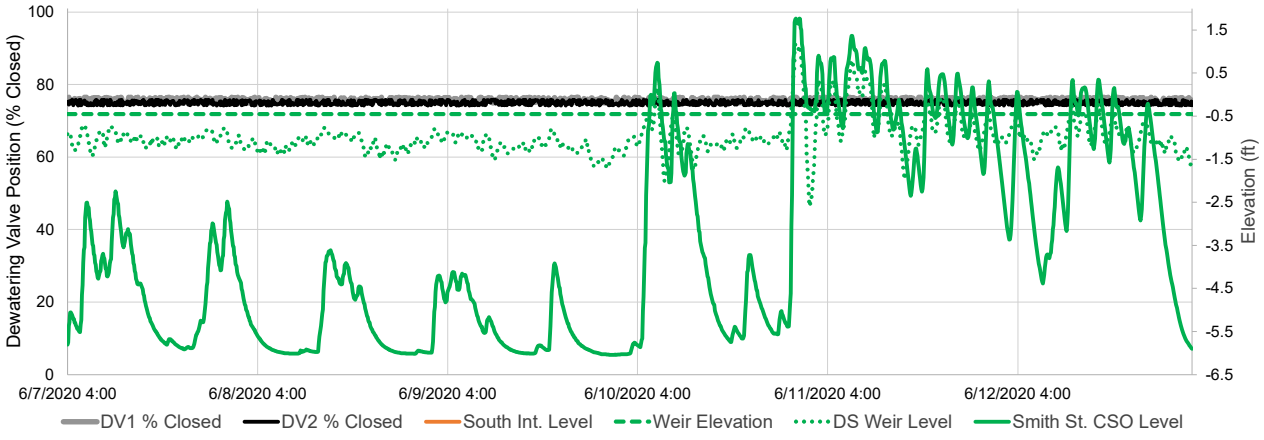
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 6/7/2020 4:00 |
| Time Lead Dewatering Valve Opened | 6/7/2020 4:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.77 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 69,787,826 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

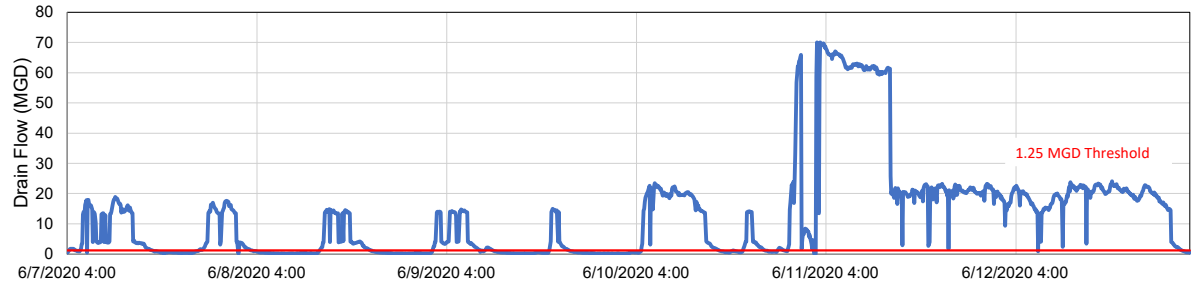
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period. Drain flow spiked to an out of range value of 32,766 MGD on 6/11/20.

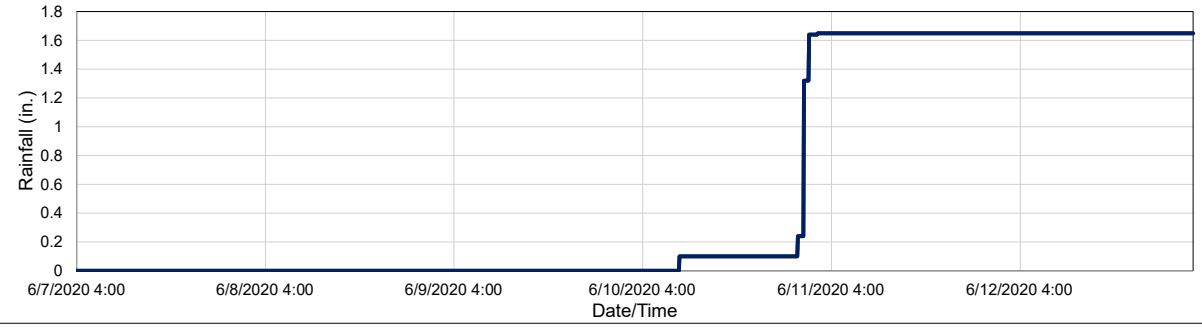
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



# June 21, 2020 3

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/21/2020 23:15 |
| Event End Date/Time: | 6/22/2020 20:45 |

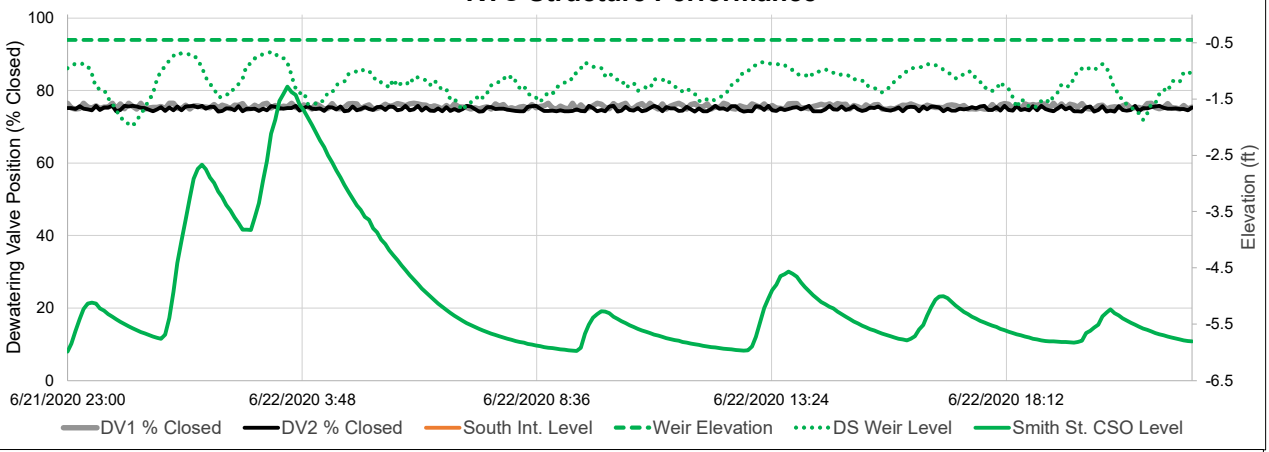
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.16 in. |
| Storm Event Duration: | 23 hrs. |
| Storm Type: | Less than one year |

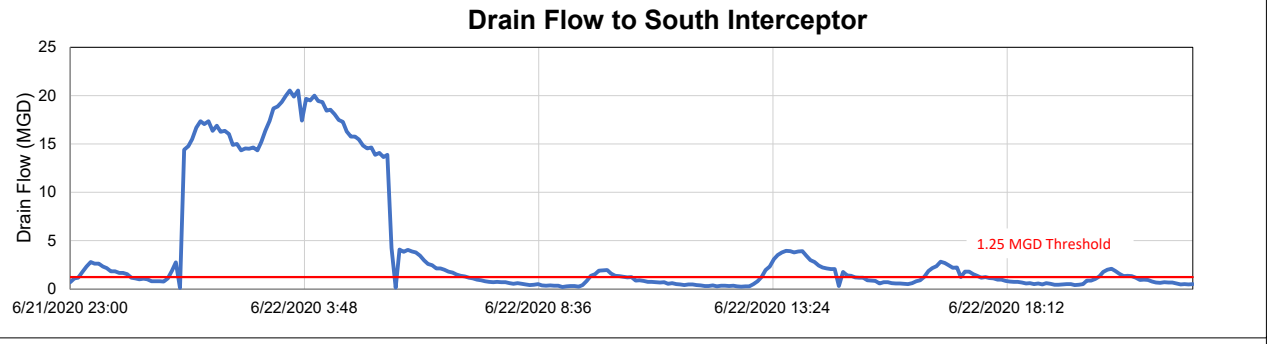
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 6/21/2020 23:00 |
| Time Lead Dewatering Valve Opened | 6/21/2020 23:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | -1.28 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 3,634,433 Gal. |
| Did seiche occur during wet weather? | Yes |

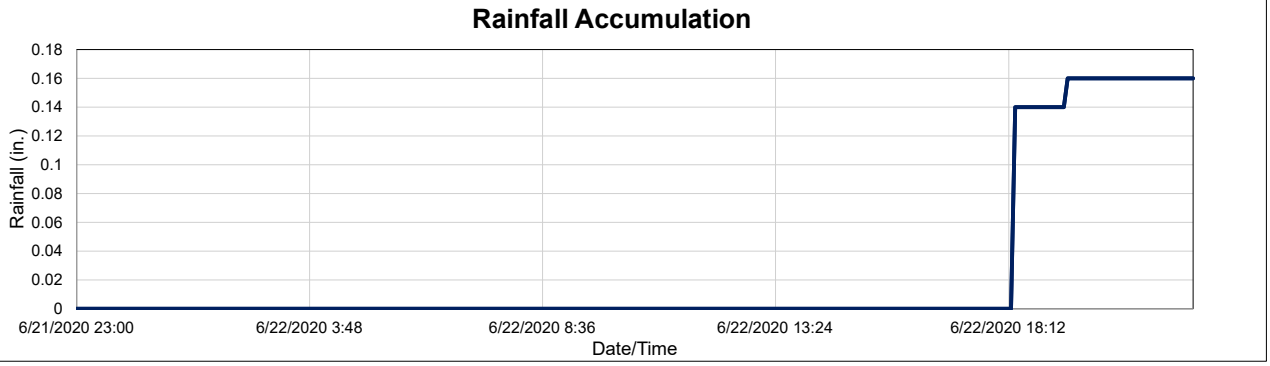
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



# June 23, 2020 4

| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/23/2020 3:20 |
| Event End Date/Time: | 6/26/2020 13:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.87 in. |
| Storm Event Duration: | 83 hrs. |
| Storm Type: | Less than one year |

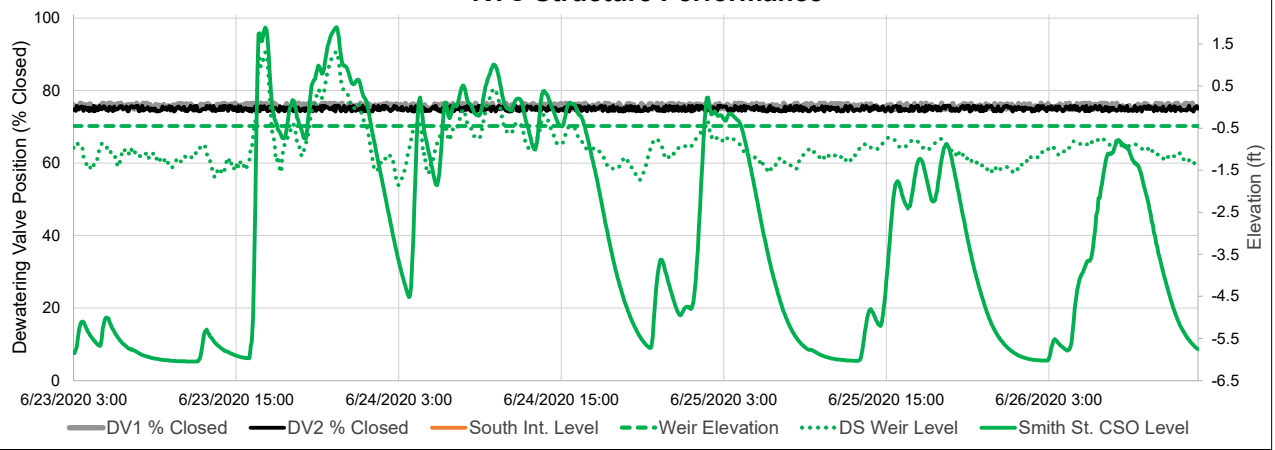
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 6/23/2020 3:00 |
| Time Lead Dewatering Valve Opened | 6/23/2020 3:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.90 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 53,519,100 Gal. |
| Did seiche occur during wet weather? | Yes |

*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

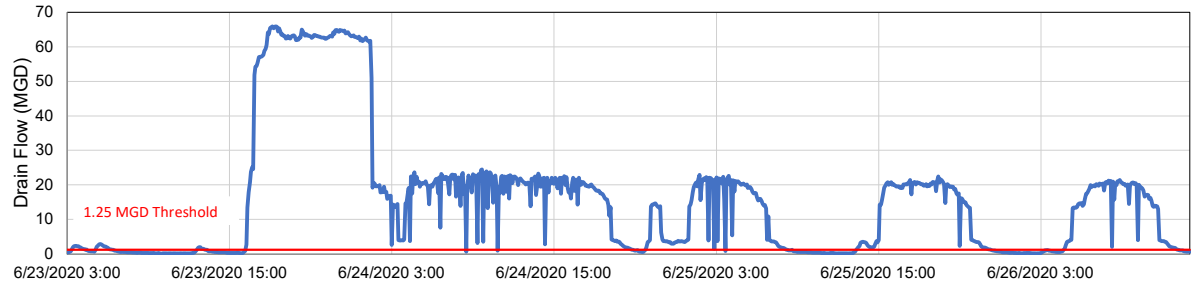
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

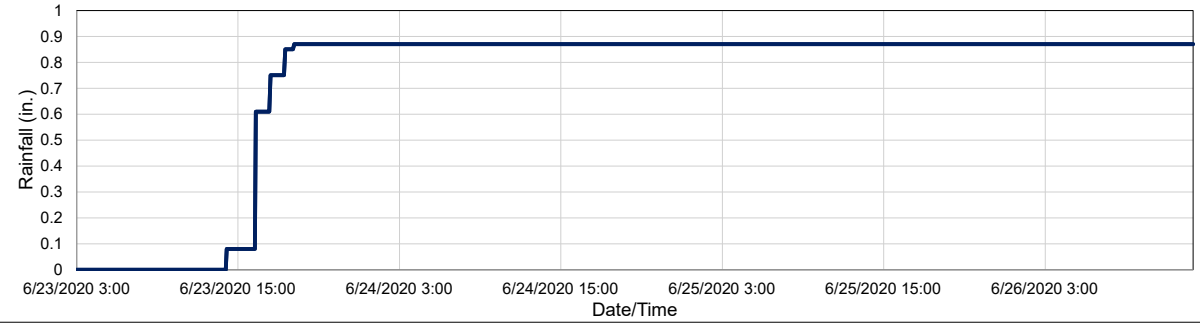
## RTC Structure Performance




## Drain Flow to South Interceptor




## Rainfall Accumulation



| | |
|---|---|
| Site: | Smith RTC |
| Analysis Date: | 7/3/2020 |
| Event Start Date/Time: | 6/26/2020 22:40 |
| Event End Date/Time: | 6/29/2020 17:50 |

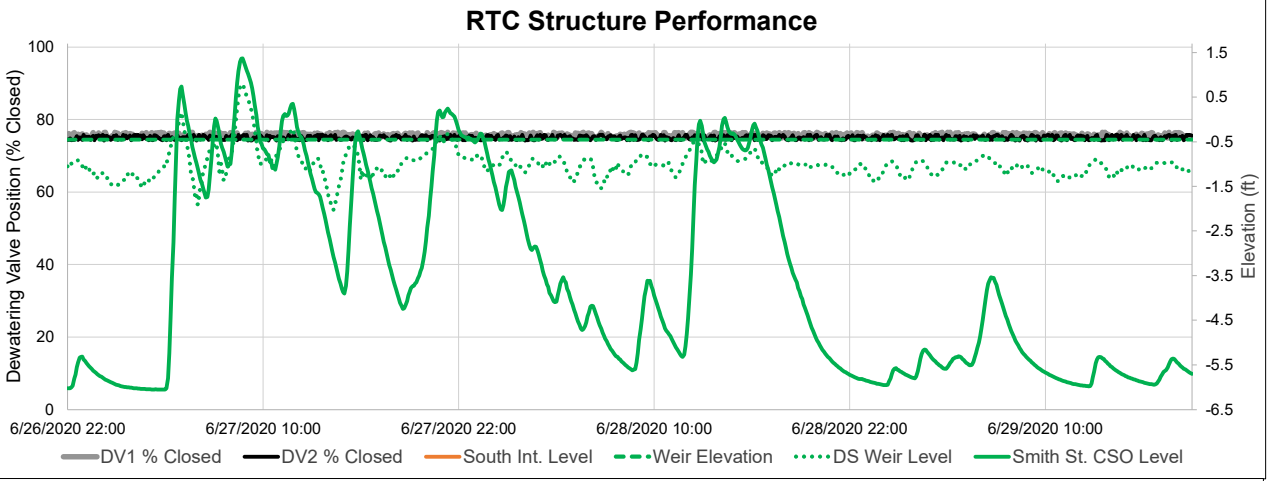
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.08 in. |
| Storm Event Duration: | 69 hrs. |
| Storm Type: | Less than one year |

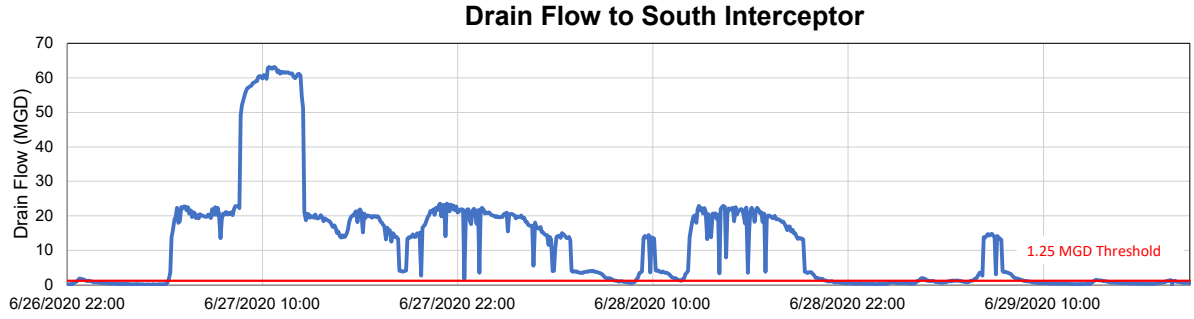
| | |
|---|---|
| Time Lead Dewatering Valve Closed | 6/26/2020 22:00 |
| Time Lead Dewatering Valve Opened | 6/26/2020 22:00 |
| Elevation of Weir | -0.45 ft. |
| Maximum Elevation Reached of Smith St. CSO: | 1.37 ft. |
| Event Drain Flow Threshold | 1.25 MGD |
| Total Volume Captured | 33,014,645 Gal. |
| Did seiche occur during wet weather? | Yes |

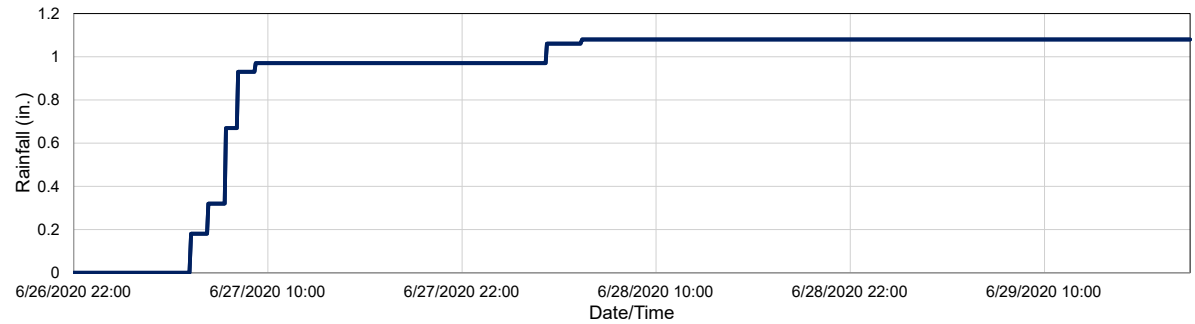
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA's South Buffalo rain gauge.
Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



# May 2020
# North Bailey RTC
# KPI Report

BUFFALO SEWER AUTHORITY

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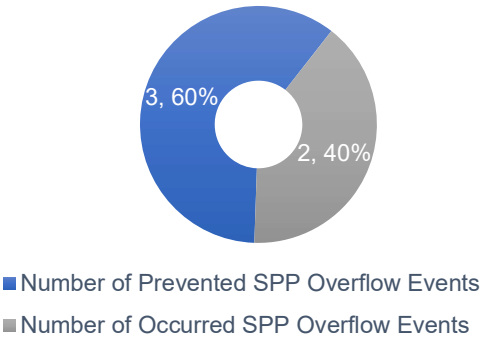
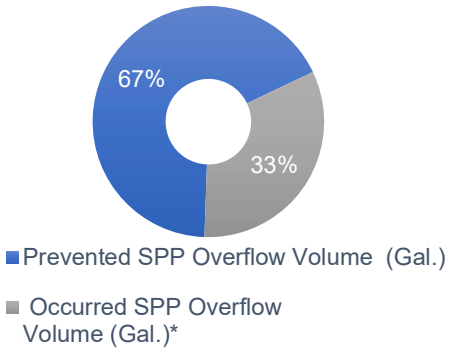
# North Bailey RTC Monthly Performance Report — May 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 3 | 2 | 2,109,267 | 1,022,057 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 5/11/2020 | 86,555 | - | 100% |
| 5/17/2020 | 315,084 | - | 100% |
| 5/23/2020 | 524,887 | 3,546 | 99% |
| 5/28/2020 | 299,891 | - | 100% |
| 5/29/2020 | 882,850 | 1,018,511 | 46% |

# May 11, 2020 1

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/11/2020 6:30 |
| Event End Date/Time: | 5/11/2020 7:35 |

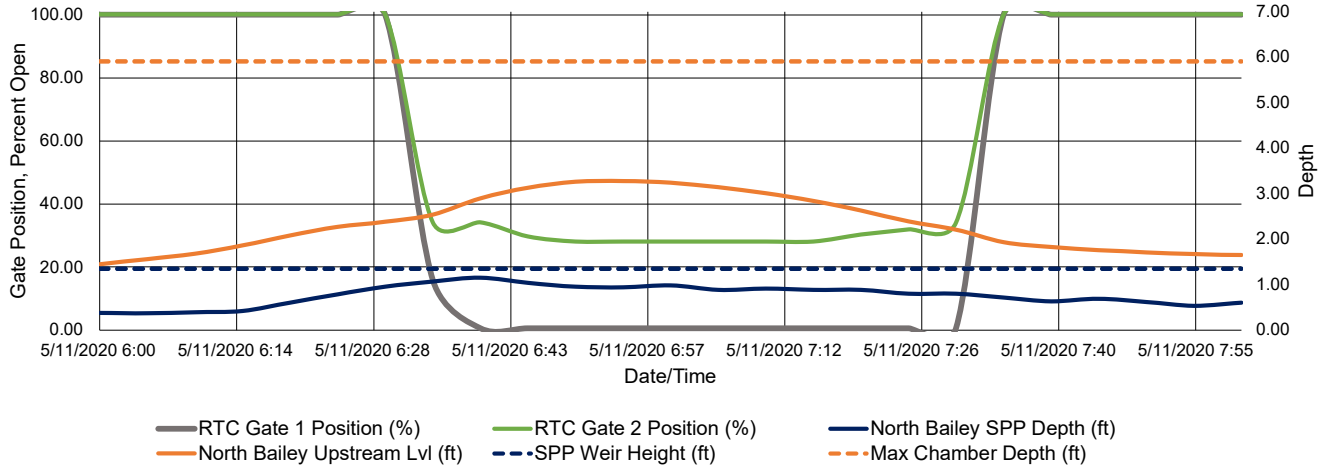
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.2 in. |
| Storm Event Duration: | 2 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.38 ft. |
| Return to Normal Depth: | 2.21 ft. |
| Time Gate 1 Activated: | 5/11/2020 6:30 |
| Time Gate 2 Activated: | 5/11/2020 6:30 |
| Time Gate 1 Returned to Normal: | 5/11/2020 7:35 |
| Time Gate 2 Returned to Normal: | 5/11/2020 7:30 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 3.28 ft. |
| Volume Stored: | 86,555 Gal. |
| Unused Storage Volume: | 311,979 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 86,555 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

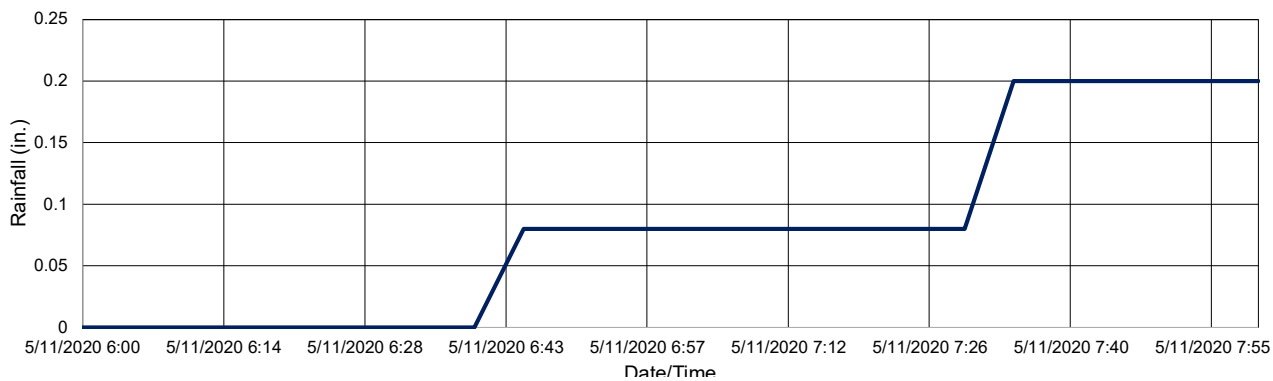
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 17, 2020 2

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/17/2020 19:55 |
| Event End Date/Time: | 5/18/2020 1:45 |

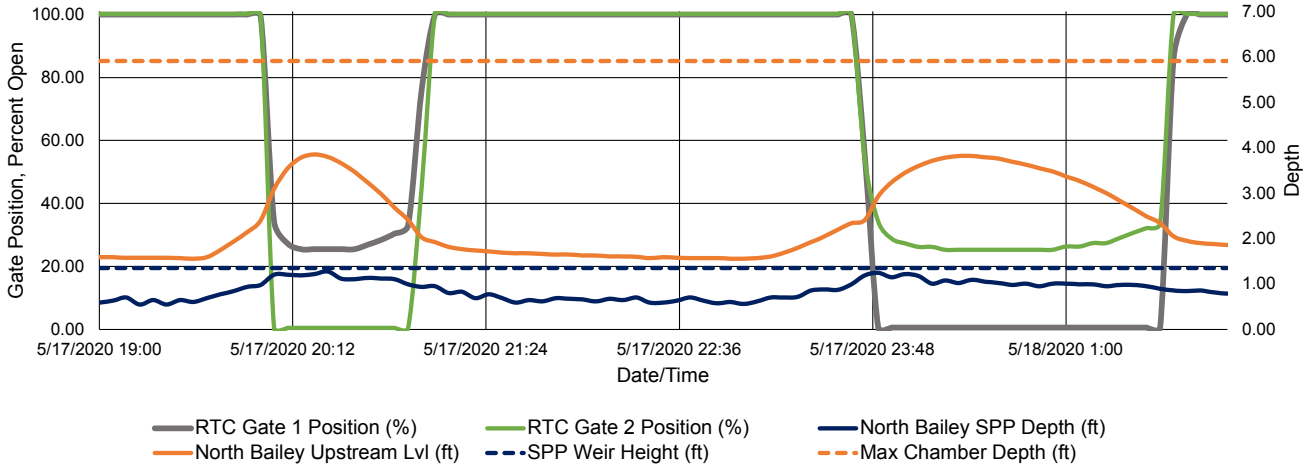
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 7 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.14 ft. |
| Return to Normal Depth: | 2.05 ft. |
| Time Gate 1 Activated: | 5/17/2020 19:55 |
| Time Gate 2 Activated: | 5/17/2020 19:55 |
| Time Gate 1 Returned to Normal: | 5/18/2020 1:45 |
| Time Gate 2 Returned to Normal: | 5/18/2020 1:35 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 3.85 ft. |
| Volume Stored: | 315,084 Gal. |
| Unused Storage Volume: | 251,832 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 315,084 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

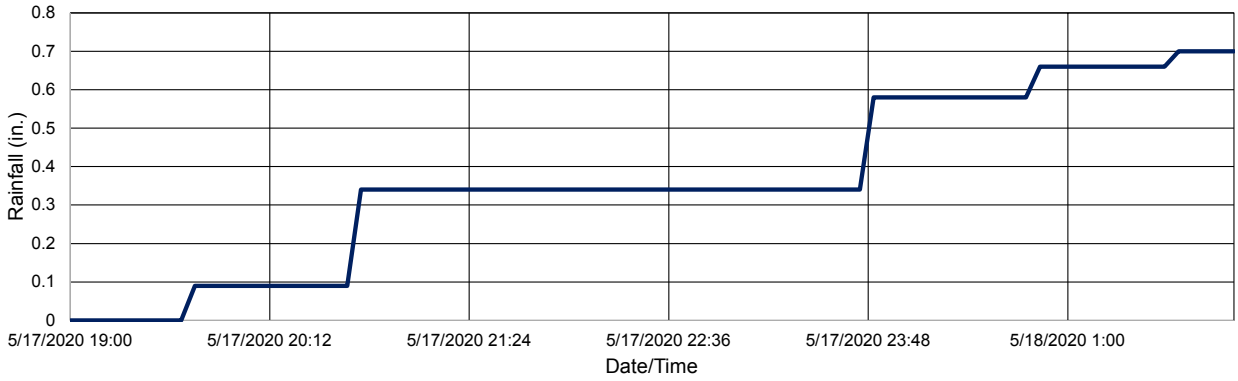
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 23, 2020 3

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/23/2020 0:40 |
| Event End Date/Time: | 5/23/2020 6:40 |

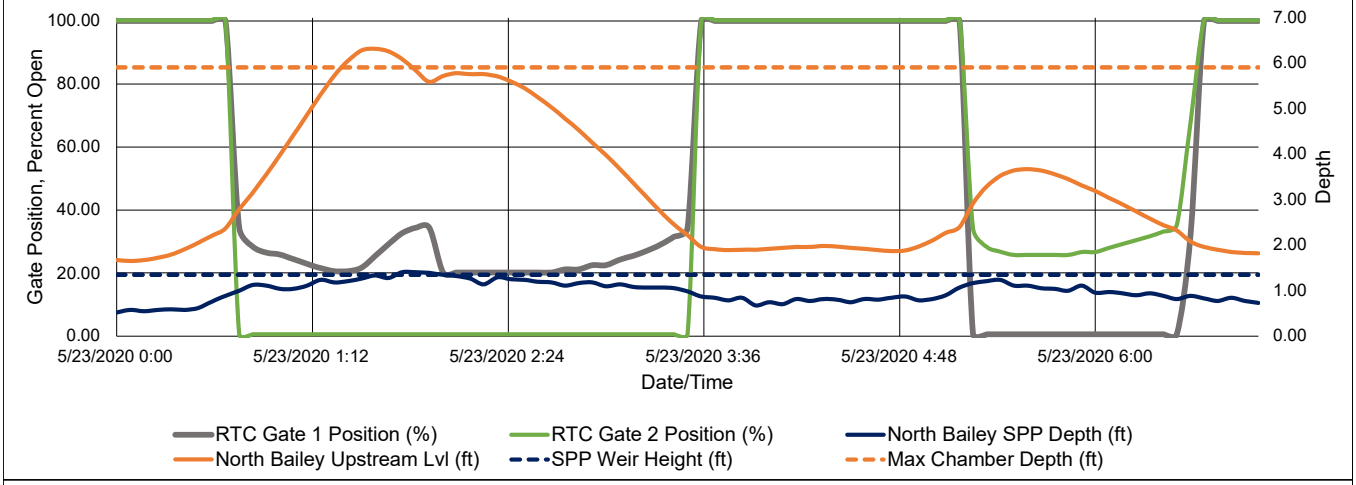
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.34 in. |
| Storm Event Duration: | 7 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.37 ft. |
| Return to Normal Depth: | 2.08 ft. |
| Time Gate 1 Activated: | 5/23/2020 0:40 |
| Time Gate 2 Activated: | 5/23/2020 0:40 |
| Time Gate 1 Returned to Normal: | 5/23/2020 6:40 |
| Time Gate 2 Returned to Normal: | 5/23/2020 6:35 |
| Percent Capture | 99% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 524,887 Gal. |
| Unused Storage Volume: | 52,885 Gal. |
| Overflow Volume: | 3,546 Gal. |
| Overflow Volume Prevented: | 524,887 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

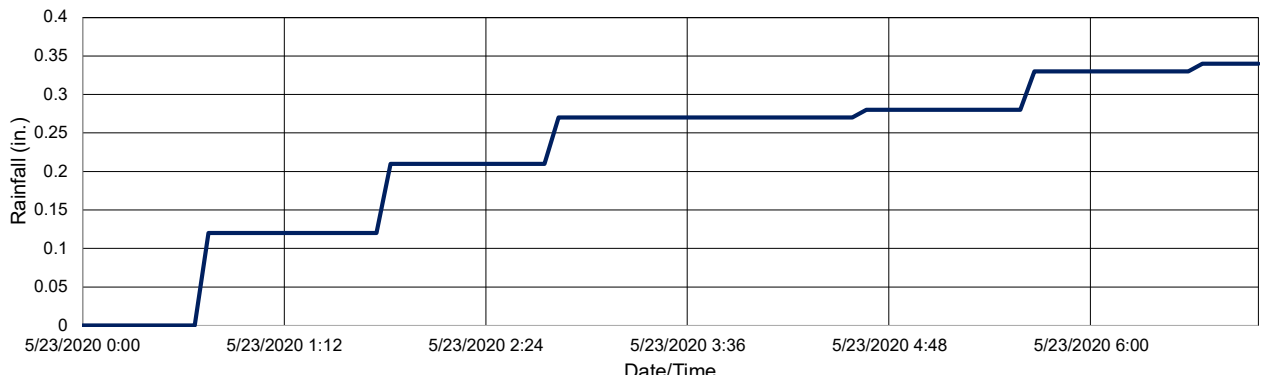
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 28, 2020 4

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/28/2020 12:40 |
| Event End Date/Time: | 5/28/2020 16:55 |

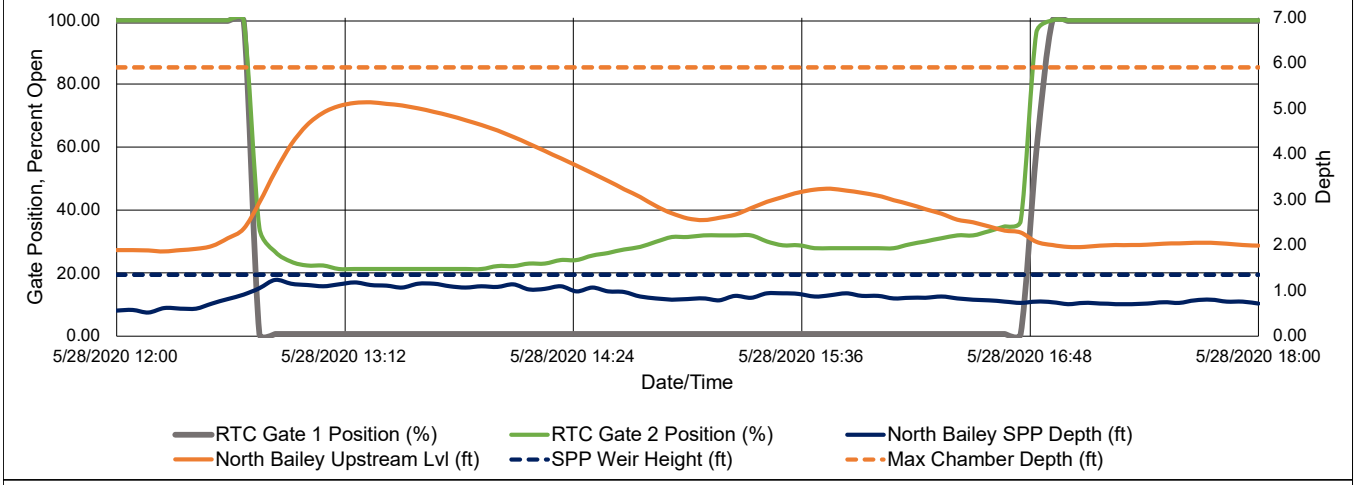
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.46 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.36 ft. |
| Return to Normal Depth: | 2.07 ft. |
| Time Gate 1 Activated: | 5/28/2020 12:40 |
| Time Gate 2 Activated: | 5/28/2020 12:40 |
| Time Gate 1 Returned to Normal: | 5/28/2020 16:55 |
| Time Gate 2 Returned to Normal: | 1/0/1900 0:00 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.14 ft. |
| Volume Stored: | 299,891 Gal. |
| Unused Storage Volume: | 100,449 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 299,891 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

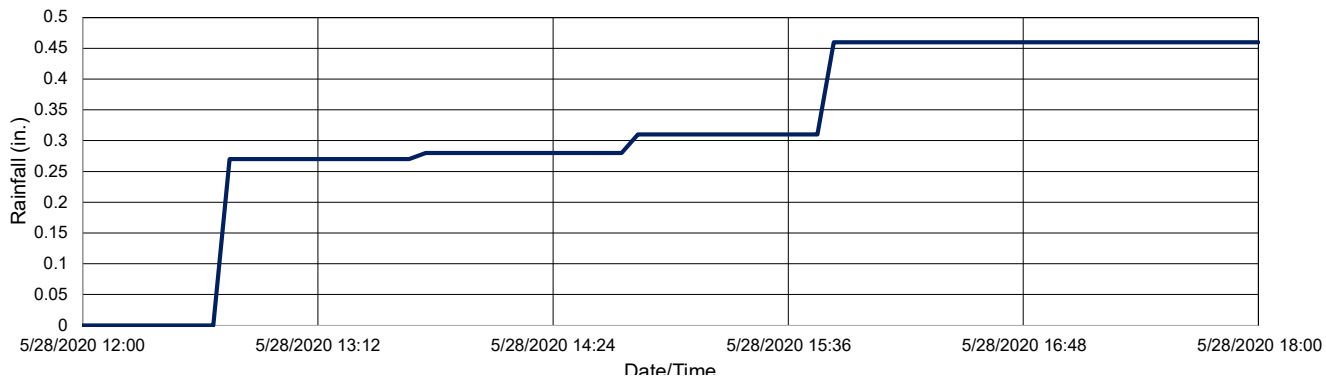
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 29, 2020 5

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 6/10/2020 |
| Event Start Date/Time: | 5/29/2020 11:50 |
| Event End Date/Time: | 5/29/2020 20:55 |

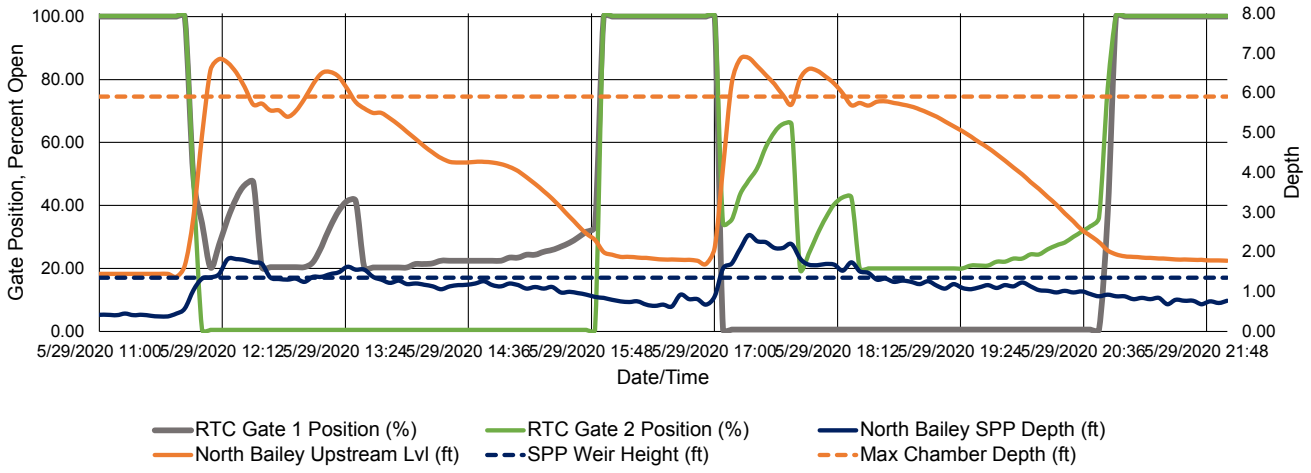
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.87 in. |
| Storm Event Duration: | 7 hr. |
| Storm Type: | Less than 1 yr. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.66 ft. |
| Return to Normal Depth: | 2.04 ft. |
| Time Gate 1 Activated: | 5/29/2020 11:50 |
| Time Gate 2 Activated: | 5/29/2020 11:50 |
| Time Gate 1 Returned to Normal: | 5/29/2020 20:55 |
| Time Gate 2 Returned to Normal: | 5/29/2020 20:50 |
| Percent Capture | 46% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 882,850 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 1,018,511 Gal. |
| Overflow Volume Prevented: | 882,850 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

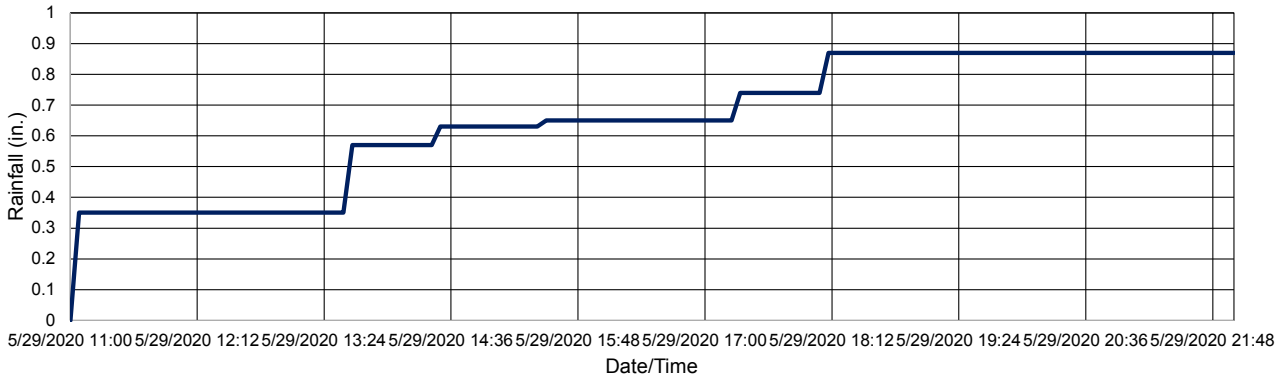
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 2020
# North Bailey RTC
# KPI Report

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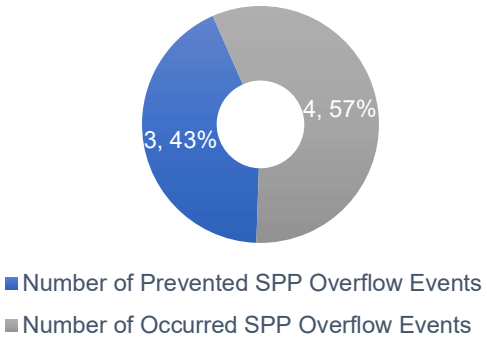
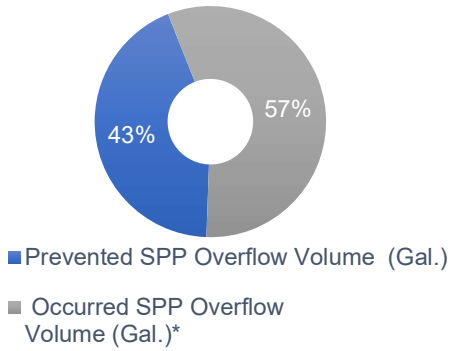
# North Bailey RTC Monthly Performance Report — June 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 3 | 4 | 2,781,615 | 3,614,118 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 6/2/2020 | 552,443 | 2,249,899 | 20% |
| 6/3/2020 | 168,834 | - | 100% |
| 6/3/2020 | 415,489 | 978 | 100% |
| 6/10/2020 | 470,819 | 1,153,971 | 29% |
| 6/23/2020 | 430,271 | 209,270 | 67% |
| 6/27/2020 | 379,234 | - | 100% |
| 6/28/2020 | 364,525 | - | 100% |

# June 2, 2020 1

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/2/2020 23:15 |
| Event End Date/Time: | 6/3/2020 3:40 |

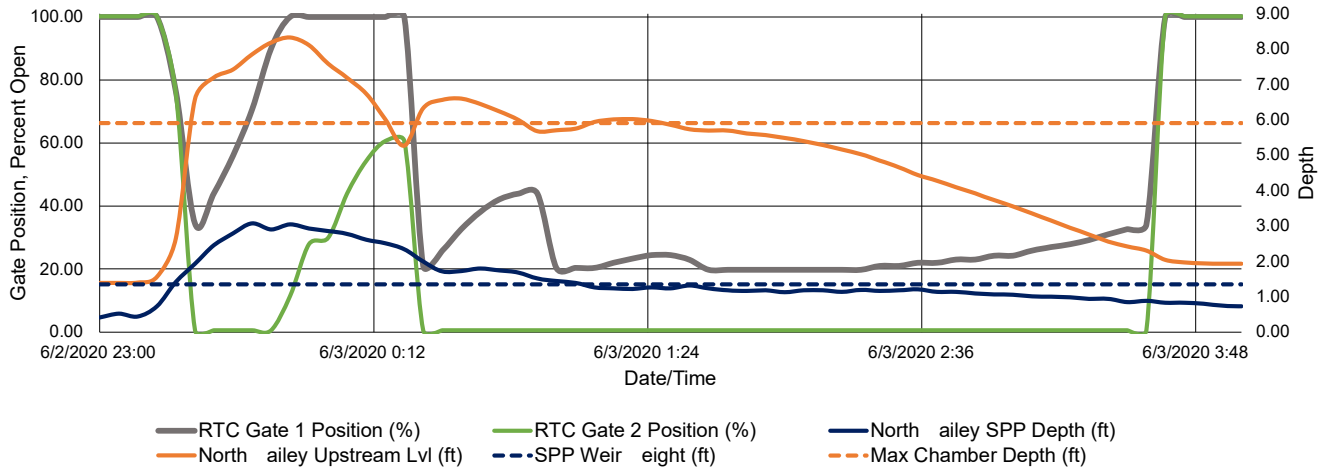
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.55 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than 2 yrs. storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.56 ft. |
| Return to Normal Depth: | 8.19 ft. |
| Time Gate 1 Activated: | 6/2/2020 23:15 |
| Time Gate 2 Activated: | 6/2/2020 23:15 |
| Time Gate 1 Returned to Normal: | 6/3/2020 3:40 |
| Time Gate 2 Returned to Normal: | 6/3/2020 3:35 |
| Percent Capture | 20% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 552,443 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 2,249,899 Gal. |
| Overflow Volume Prevented: | 552,443 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

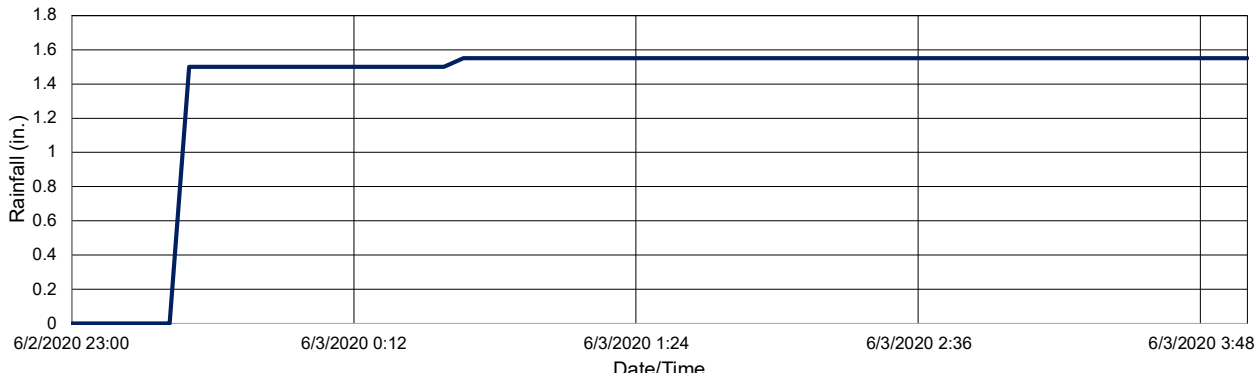
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 3, 2020 2

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/3/2020 7:20 |
| Event End Date/Time: | 6/3/2020 9:05 |

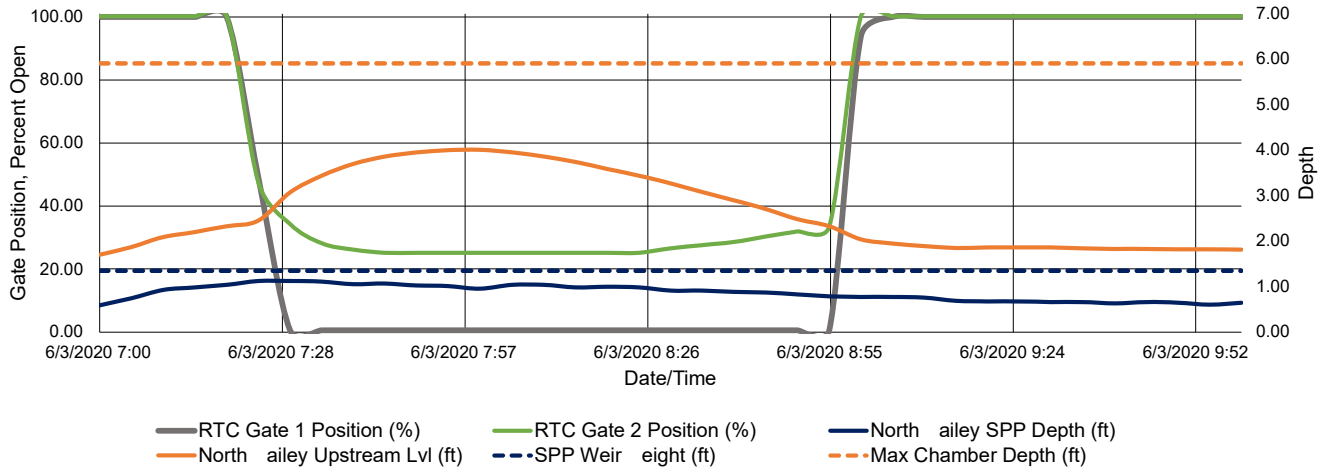
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | N/A |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.33 ft. |
| Return to Normal Depth: | 2.04 ft. |
| Time Gate 1 Activated: | 6/3/2020 7:20 |
| Time Gate 2 Activated: | 6/3/2020 7:20 |
| Time Gate 1 Returned to Normal: | 6/3/2020 9:05 |
| Time Gate 2 Returned to Normal: | 6/3/2020 8:55 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 4.01 ft. |
| Volume Stored: | 168,834 Gal. |
| Unused Storage Volume: | 234,206 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 168,834 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

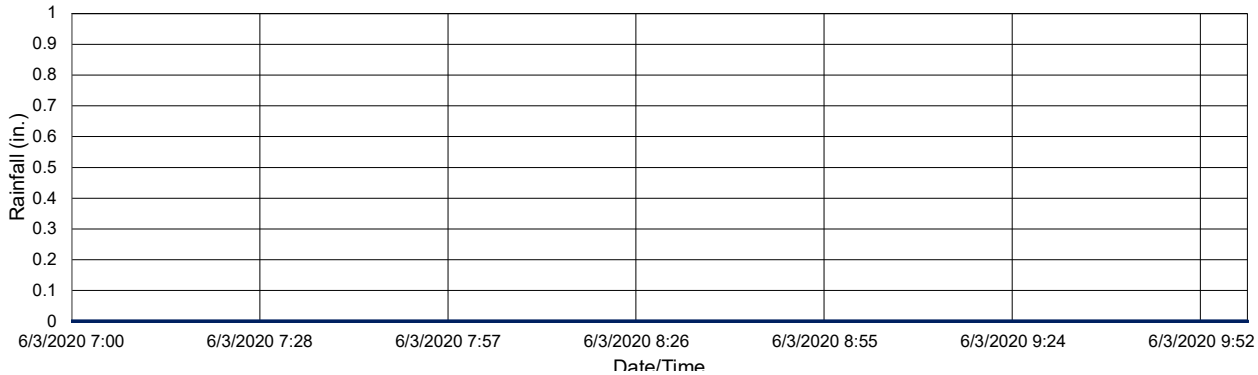
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall was recorded during this event. It was likely caused due to rainfall recorded in the previous storm event on June 2.

## RTC Gate Performance




## Rainfall Accumulation



# June 3, 2020 3

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/3/2020 15:35 |
| Event End Date/Time: | 6/3/2020 17:45 |

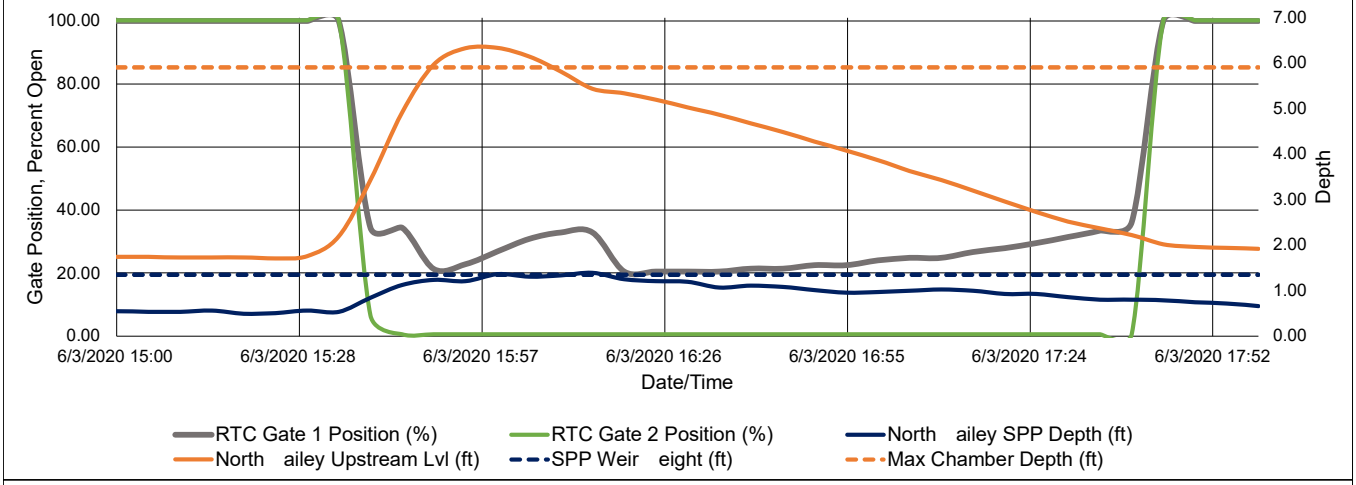
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | N/A |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.19 ft. |
| Return to Normal Depth: | 2.22 ft. |
| Time Gate 1 Activated: | 6/3/2020 15:35 |
| Time Gate 2 Activated: | 6/3/2020 15:35 |
| Time Gate 1 Returned to Normal: | 6/3/2020 17:45 |
| Time Gate 2 Returned to Normal: | 6/3/2020 17:40 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 415,489 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 978 Gal. |
| Overflow Volume Prevented: | 415,489 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

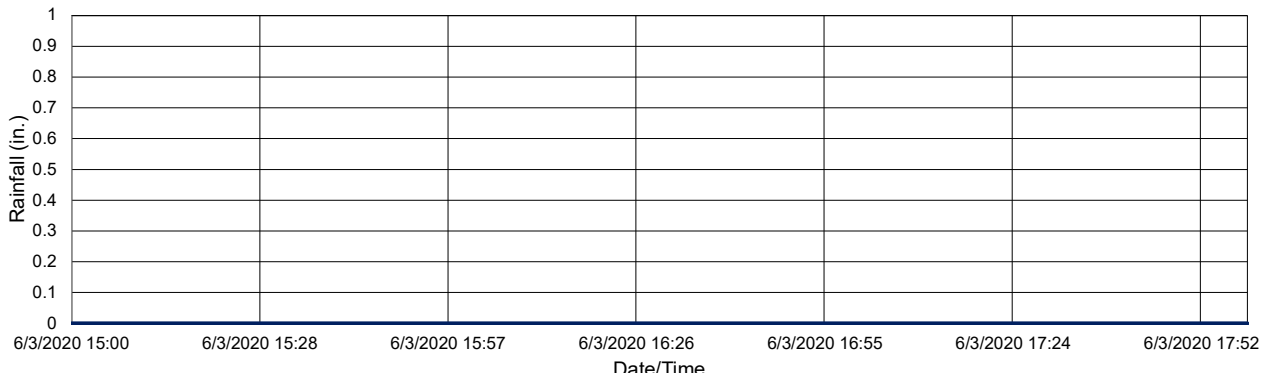
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall was recorded during this event. It was likely caused due to rainfall recorded in the previous storm event on June 2.

## RTC Gate Performance




## Rainfall Accumulation



# June 10, 2020 4

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/10/2020 23:20 |
| Event End Date/Time: | 6/11/2020 3:15 |

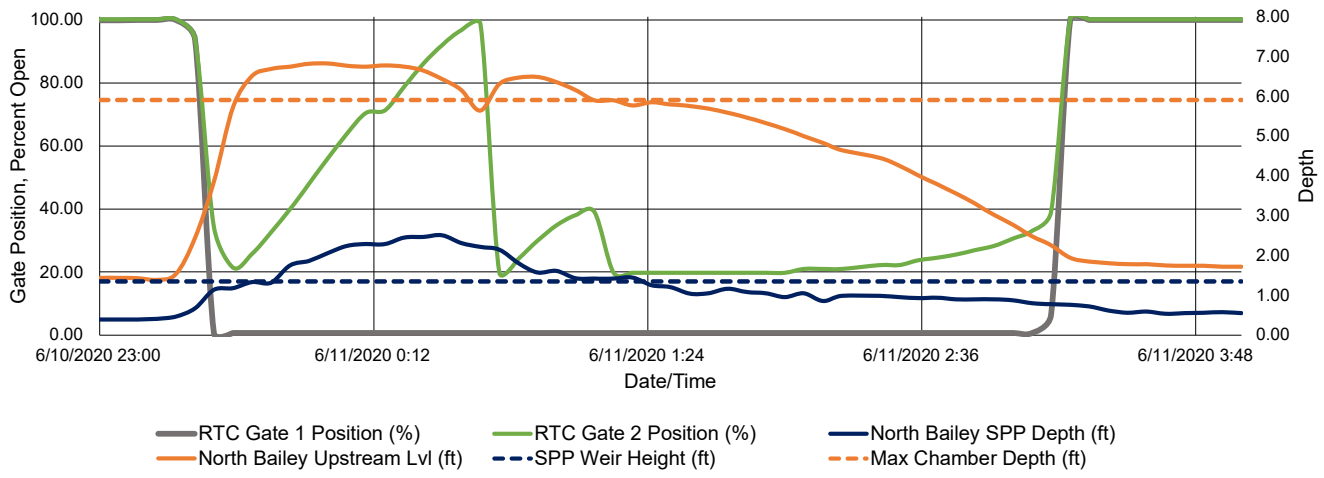
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.55 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than 2 yrs. Storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.53 ft. |
| Return to Normal Depth: | 2.26 ft. |
| Time Gate 1 Activated: | 6/10/2020 23:20 |
| Time Gate 2 Activated: | 6/10/2020 23:20 |
| Time Gate 1 Returned to Normal: | 6/11/2020 3:15 |
| Time Gate 2 Returned to Normal: | 6/11/2020 3:10 |
| Percent Capture | 29% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 470,819 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 1,153,971 Gal. |
| Overflow Volume Prevented: | 470,819 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

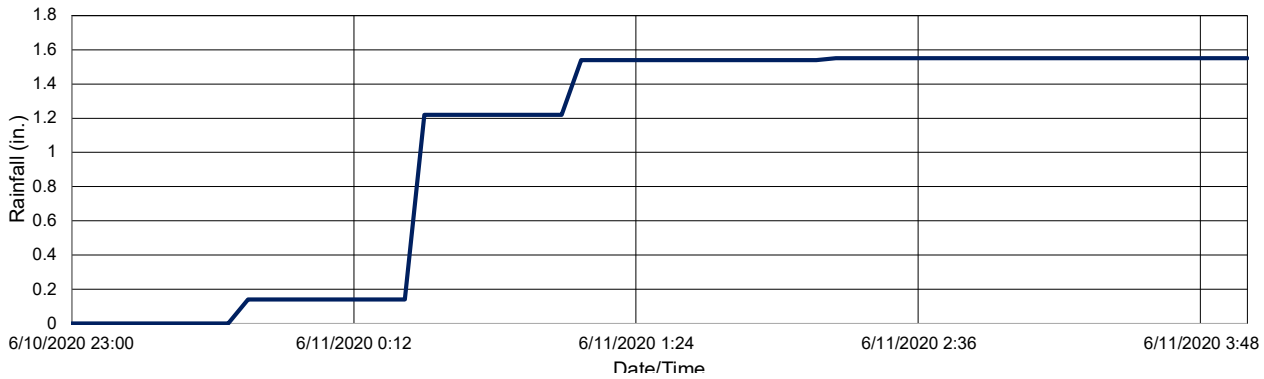
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 23, 2020 5

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/23/2020 16:05 |
| Event End Date/Time: | 6/23/2020 19:20 |

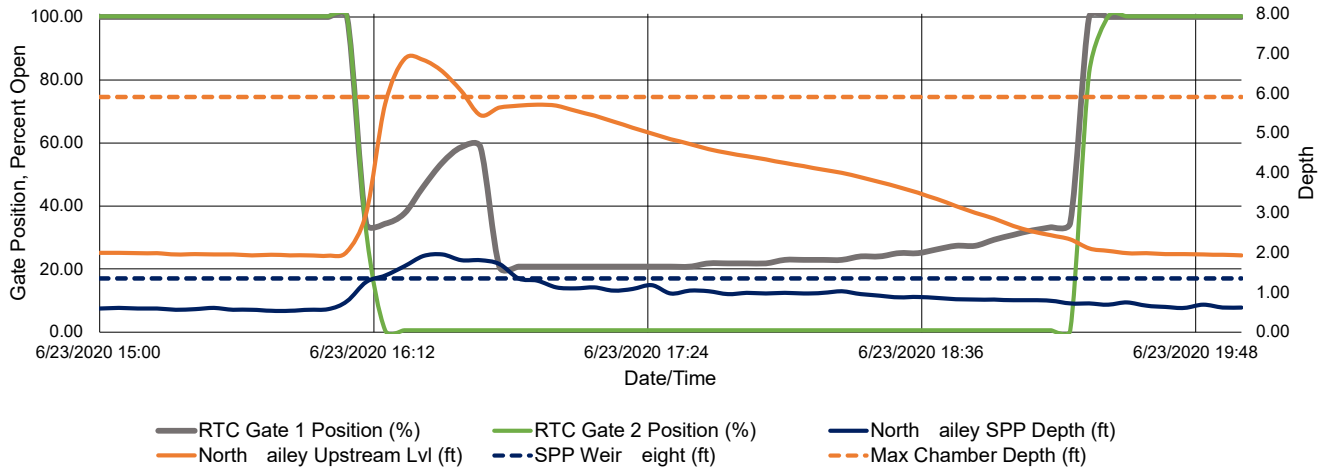
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.79 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than 1 yr. Storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.02 ft. |
| Return to Normal Depth: | 2.33 ft. |
| Time Gate 1 Activated: | 6/23/2020 16:05 |
| Time Gate 2 Activated: | 6/23/2020 16:05 |
| Time Gate 1 Returned to Normal: | 6/23/2020 19:20 |
| Time Gate 2 Returned to Normal: | 6/23/2020 19:20 |
| Percent Capture | 67% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.91 ft. |
| Volume Stored: | 430,271 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 209,270 Gal. |
| Overflow Volume Prevented: | 430,271 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

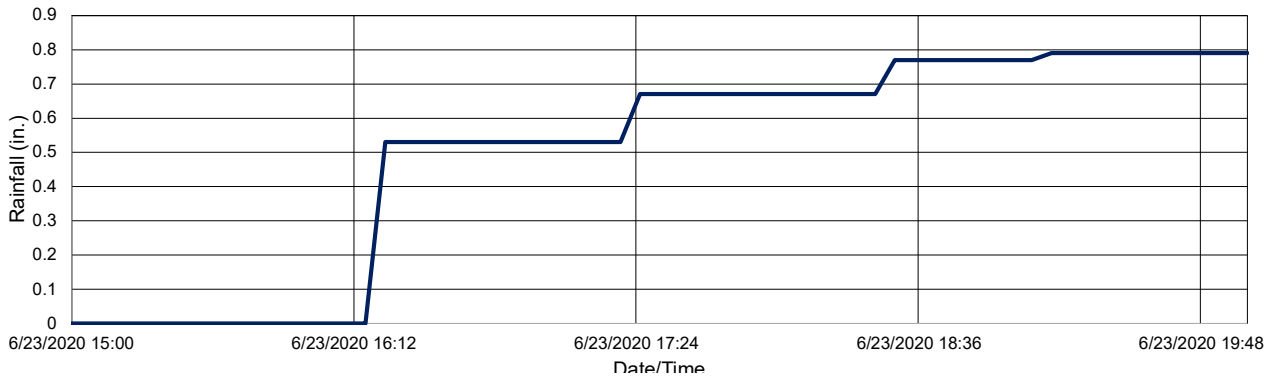
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/27/2020 6:30 |
| Event End Date/Time: | 6/27/2020 8:45 |

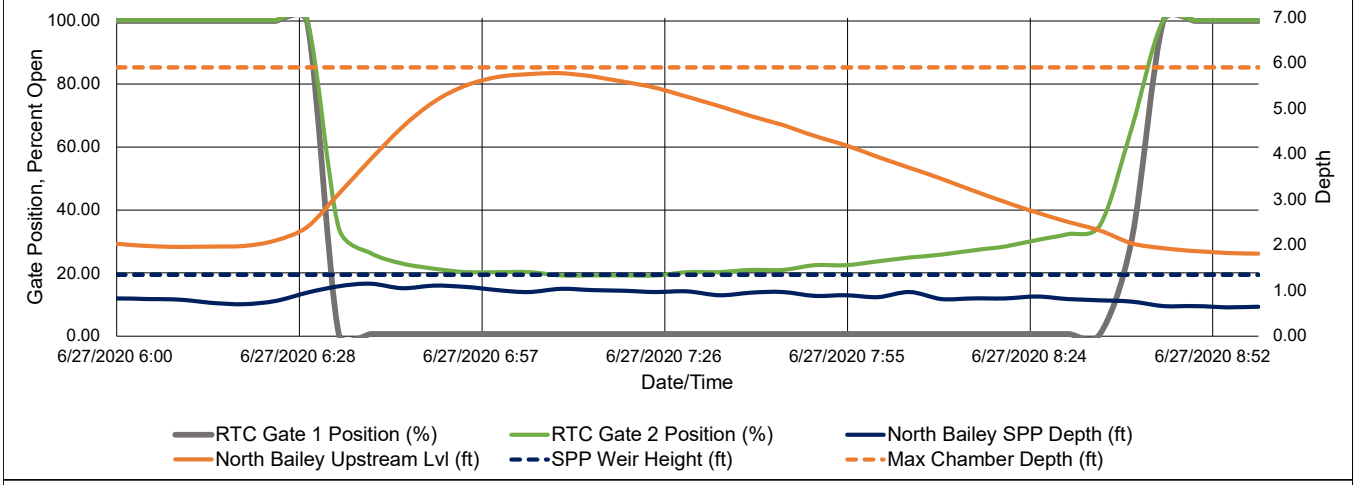
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.75 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | Less than 1 yr. Storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.40 ft. |
| Return to Normal Depth: | 2.04 ft. |
| Time Gate 1 Activated: | 6/27/2020 6:30 |
| Time Gate 2 Activated: | 6/27/2020 6:30 |
| Time Gate 1 Returned to Normal: | 6/27/2020 8:45 |
| Time Gate 2 Returned to Normal: | 6/27/2020 8:40 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.78 ft. |
| Volume Stored: | 379,234 Gal. |
| Unused Storage Volume: | 17,488 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 379,234 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

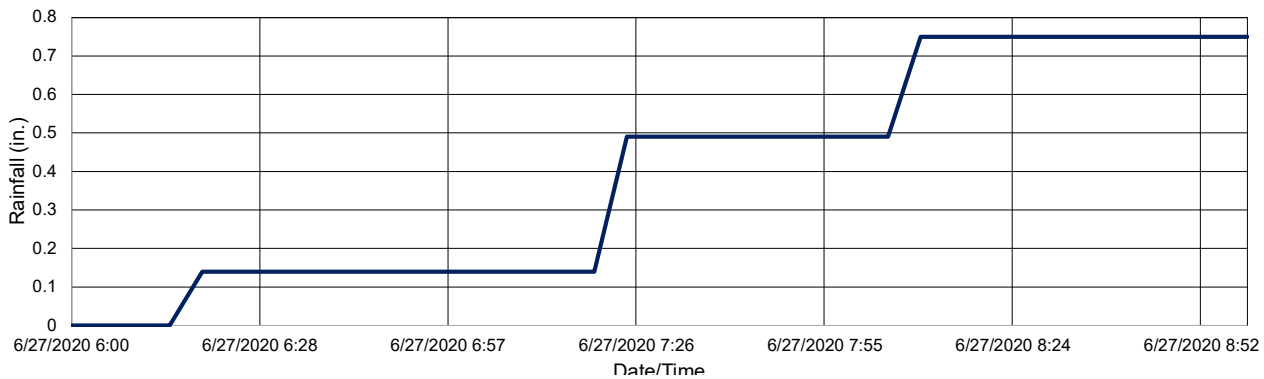
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 28, 2020 7

| | |
|---|---|
| Site: | North Bailey RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/28/2020 2:35 |
| Event End Date/Time: | 6/28/2020 4:00 |

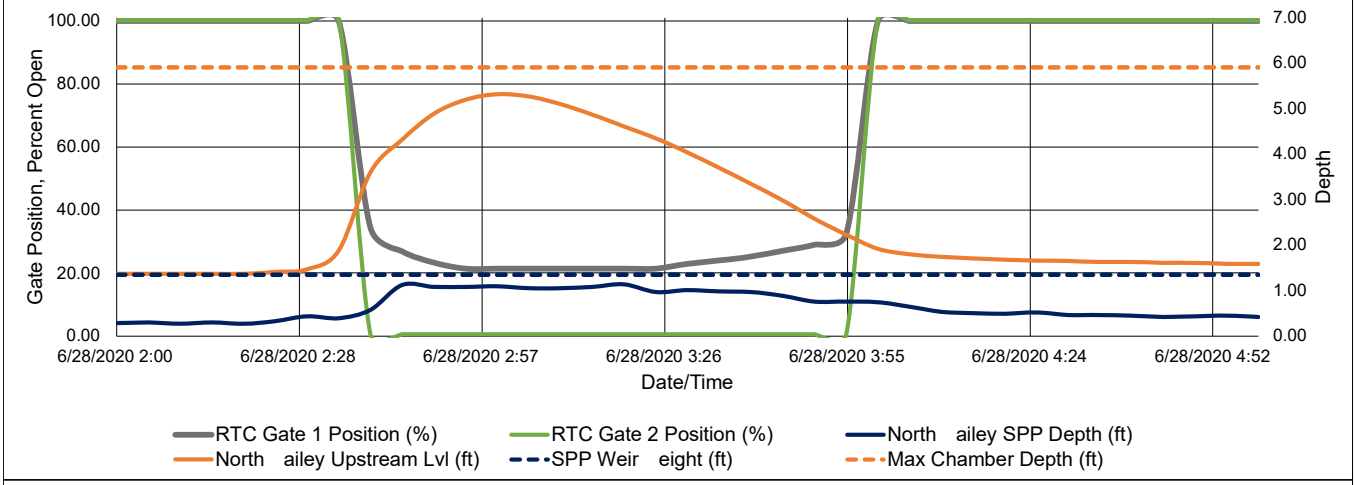
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.09 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | Less than 1 yr. Storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.88 ft. |
| Return to Normal Depth: | 2.23 ft. |
| Time Gate 1 Activated: | 6/28/2020 2:35 |
| Time Gate 2 Activated: | 6/28/2020 2:35 |
| Time Gate 1 Returned to Normal: | 6/28/2020 4:00 |
| Time Gate 2 Returned to Normal: | 6/28/2020 3:55 |
| Percent Capture | 100% |
| Depth of Weir | 5.91 ft. |
| Maximum Depth Reached: | 5.32 ft. |
| Volume Stored: | 364,525 Gal. |
| Unused Storage Volume: | 77,643 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 364,525 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

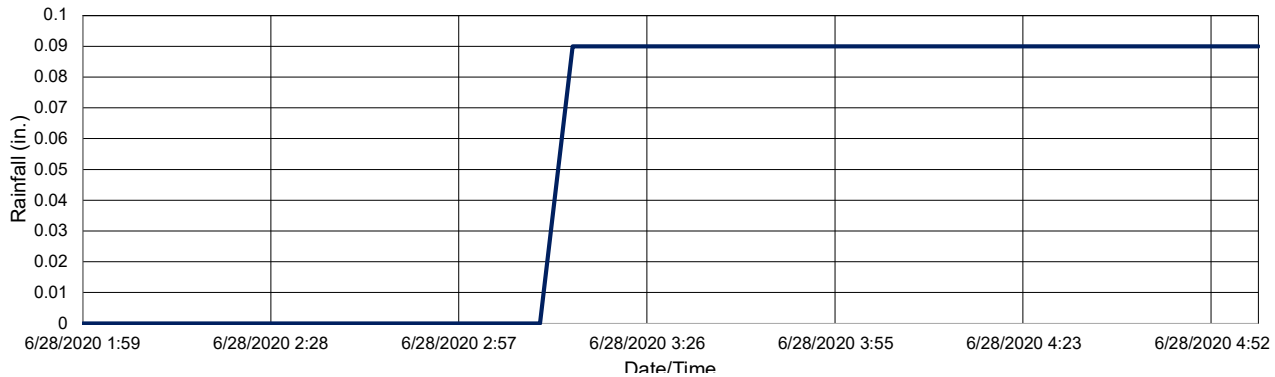
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# July 2019
# Bird Ave. RTC
# KPI Report

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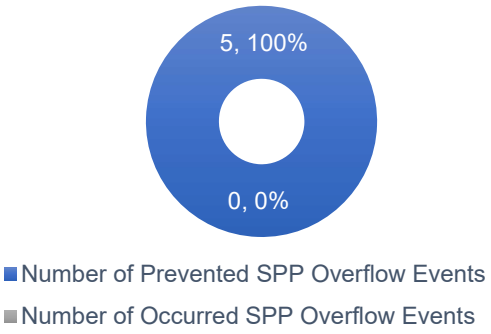
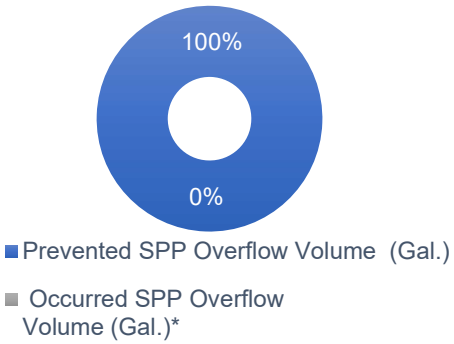
# Bird Ave. RTC Monthly Performance Report — July 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 5 | 0 | 2,895,911 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 7/2/2019 | 565,927 | - | 100% |
| 7/6/2019 | 577,499 | - | 100% |
| 7/17/2019 | 579,843 | - | 100% |
| 7/19/2019 | 558,624 | - | 100% |
| 7/30/2019 | 614,018 | - | 100% |

# July 2, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 8/5/2019 |
| Event Start Date/Time: | 7/2/2019 20:35 |
| Event End Date/Time: | 7/3/2019 0:20 |

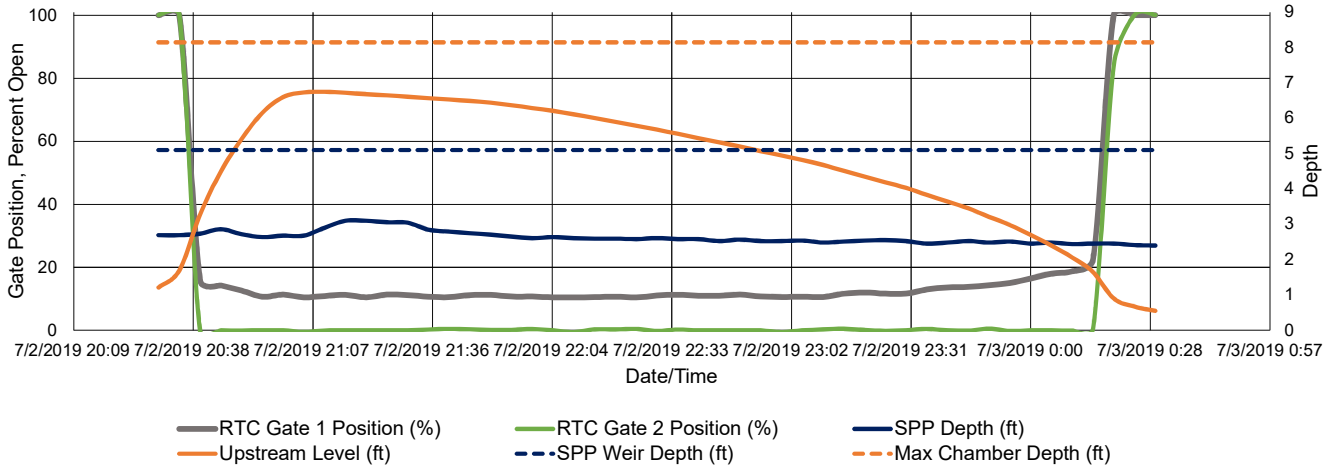
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | NA |
| Storm Type: | NA |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.69 ft. |
| Return to Normal Depth: | 1.65 ft. |
| Time Gate 1 Activated: | 7/2/2019 20:35 |
| Time Gate 2 Activated: | 7/2/2019 20:35 |
| Time Gate 1 Returned to Normal: | 7/3/2019 0:20 |
| Time Gate 2 Returned to Normal: | 7/3/2019 0:20 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.75 ft. |
| Volume Stored: | 565,927 Gal. |
| Unused Storage Volume: | 328,914 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 565,927 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

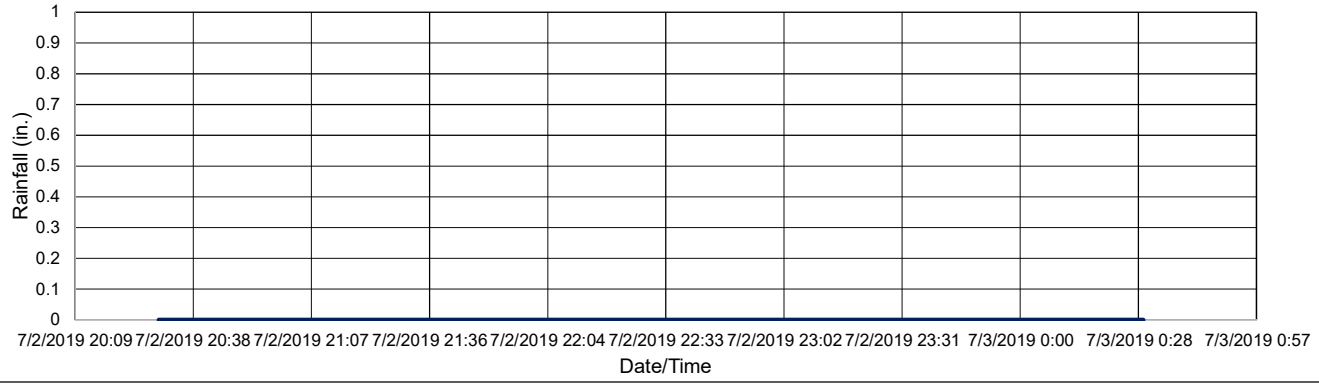
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.
No rainfall was recorded during the event. However, two 0.01-inch of rainfall events were observed during the day. The event was likely caused by a localized storm.

## RTC Gate Performance




## Rainfall Accumulation



# July 6, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 8/5/2019 |
| Event Start Date/Time: | 7/6/2019 11:30 |
| Event End Date/Time: | 7/6/2019 17:50 |

| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 0.7 in. |
| Storm Event Duration: | 2 hrs. |
| Storm Type: | Less than one year |

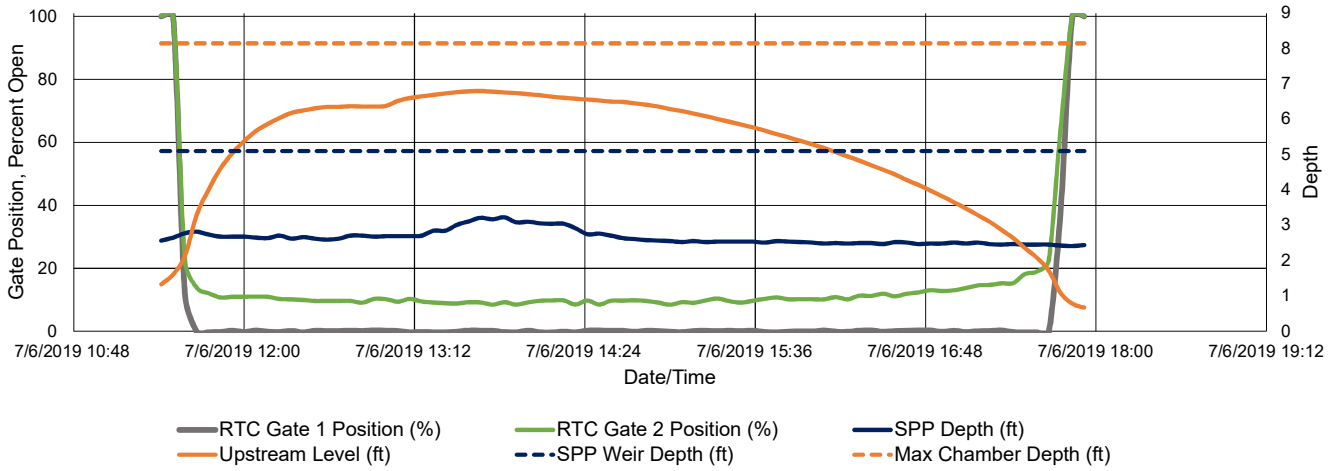
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.61 ft. |
| Return to Normal Depth: | 1.09 ft. |
| Time Gate 1 Activated: | 7/6/2019 11:30 |
| Time Gate 2 Activated: | 7/6/2019 11:30 |
| Time Gate 1 Returned to Normal: | 7/6/2019 17:50 |
| Time Gate 2 Returned to Normal: | 7/6/2019 17:50 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.80 ft. |
| Volume Stored: | 577,499 Gal. |
| Unused Storage Volume: | 318,453 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 577,499 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

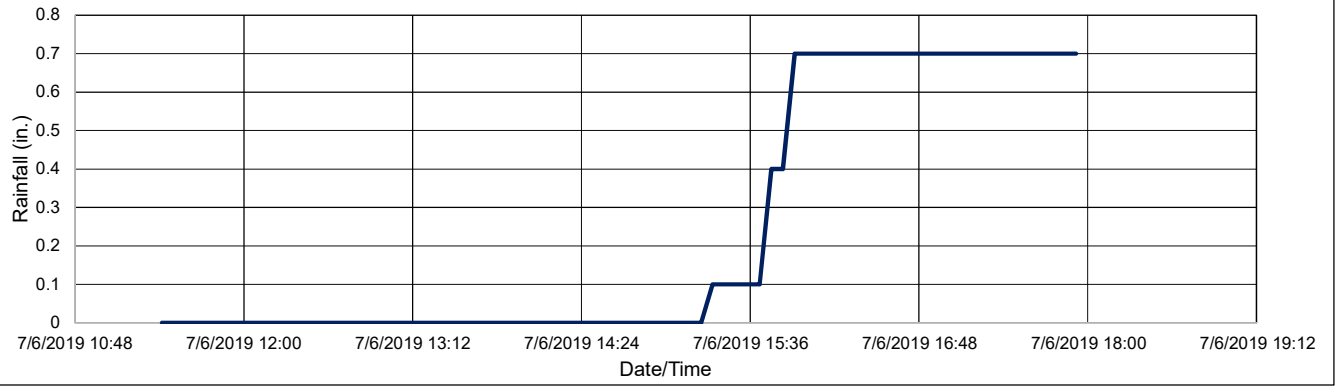
Rainfall data sourced from Buffalo Airport rain gauge website.

A storm event of 0.4 inches from 10.30 am to 11.00 am preceded the opening of gate.

## RTC Gate Performance




## Rainfall Accumulation



# July 17, 2019 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 8/5/2019 |
| Event Start Date/Time: | 7/17/2019 9:15 |
| Event End Date/Time: | 7/17/2019 15:00 |

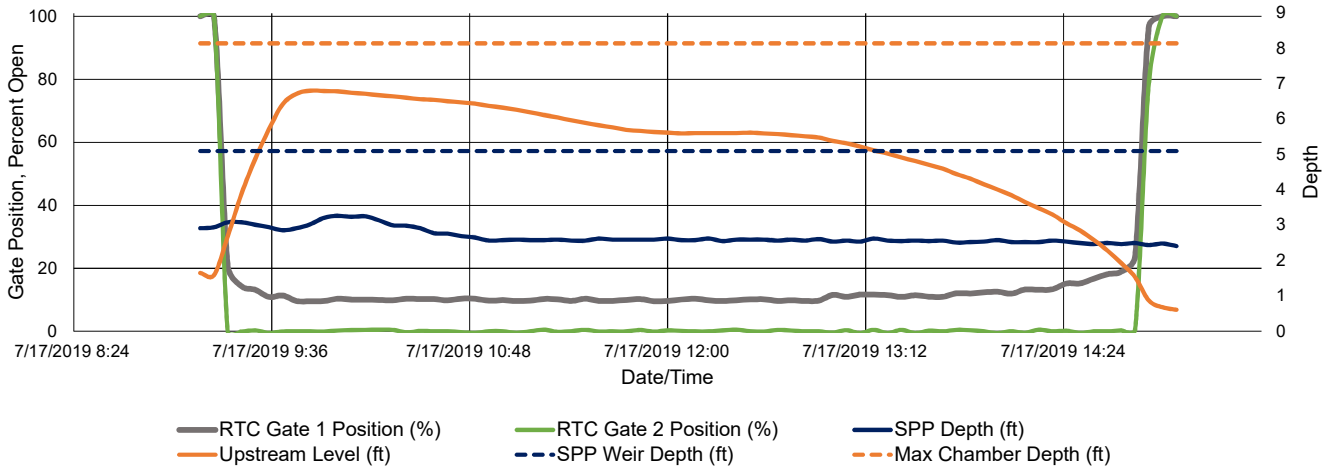
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 0.4 in. |
| Storm Event Duration: | 4 hrs. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.59 ft. |
| Return to Normal Depth: | 0.87 ft. |
| Time Gate 1 Activated: | 7/17/2019 9:15 |
| Time Gate 2 Activated: | 7/17/2019 9:15 |
| Time Gate 1 Returned to Normal: | 7/17/2019 15:00 |
| Time Gate 2 Returned to Normal: | 7/17/2019 15:00 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.81 ft. |
| Volume Stored: | 579,843 Gal. |
| Unused Storage Volume: | 316,350 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 579,843 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

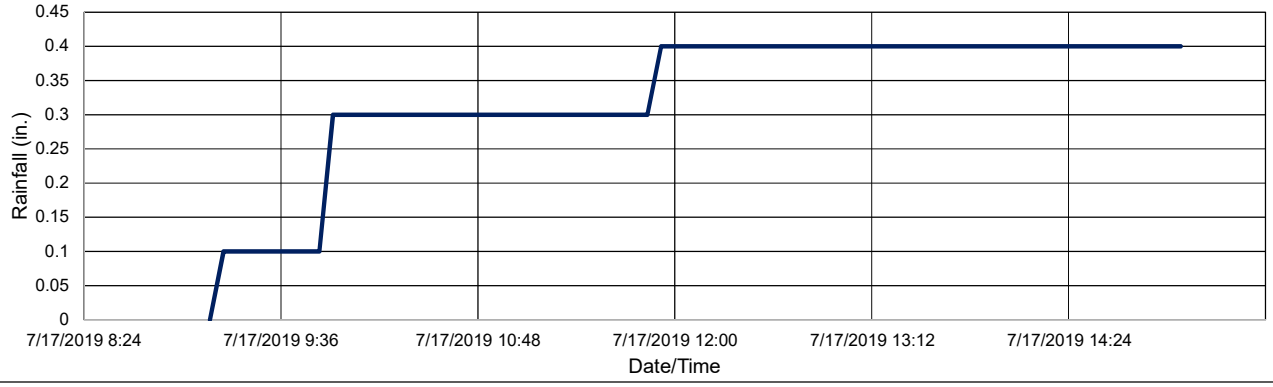
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

## RTC Gate Performance




## Rainfall Accumulation



| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 8/5/2019 |
| Event Start Date/Time: | 7/19/2019 14:55 |
| Event End Date/Time: | 7/19/2019 19:20 |

| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 0.2 in. |
| Storm Event Duration: | 1 hrs. |
| Storm Type: | Less than one year |

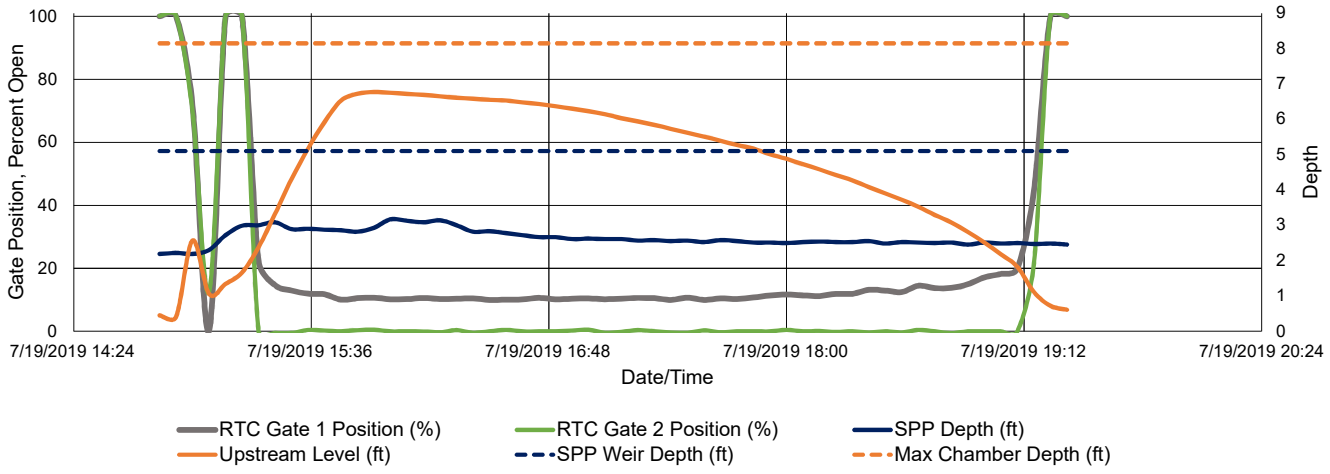
| | |
|---|---|
| Gate Activation Trigger Depth: | 0.41 ft. |
| Return to Normal Depth: | 1.11 ft. |
| Time Gate 1 Activated: | 7/19/2019 14:55 |
| Time Gate 2 Activated: | 7/19/2019 14:55 |
| Time Gate 1 Returned to Normal: | 7/19/2019 19:20 |
| Time Gate 2 Returned to Normal: | 7/19/2019 19:20 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.77 ft. |
| Volume Stored: | 558,624 Gal. |
| Unused Storage Volume: | 324,741 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 558,624 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

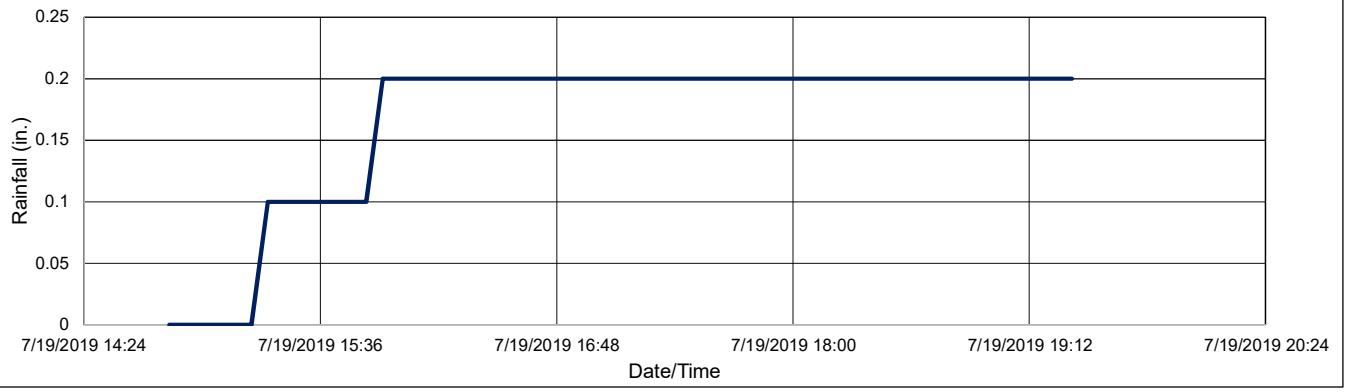
Rainfall data sourced from Buffalo Airport rain gauge website.

Gates were activated twice during the storm event, the initial activation were the gates opening and immediately closing.

## RTC Gate Performance




## Rainfall Accumulation



# July 30, 2019 5

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 8/5/2019 |
| Event Start Date/Time: | 7/29/2019 23:35 |
| Event End Date/Time: | 7/30/2019 17:40 |

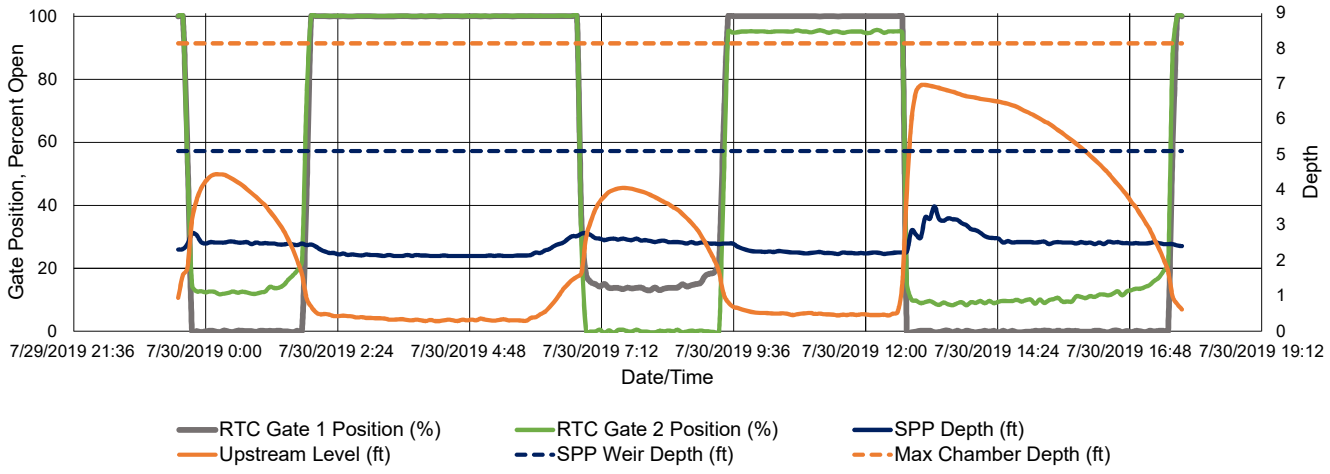
| | |
|---|---|
| Analyst Name, Organization: | Nick Pasquini, Arcadis |
| Total Rainfall Accumulation: | 0.6 in. |
| Storm Event Duration: | 1 hrs. |
| Storm Type: | Less than one year |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.59 ft. |
| Return to Normal Depth: | 0.98 ft. |
| Time Gate 1 Activated: | 7/29/2019 23:35 |
| Time Gate 2 Activated: | 7/29/2019 23:35 |
| Time Gate 1 Returned to Normal: | 7/30/2019 17:40 |
| Time Gate 2 Returned to Normal: | 7/30/2019 17:40 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.97 ft. |
| Volume Stored: | 614,018 Gal. |
| Unused Storage Volume: | 282,174 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 614,018 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

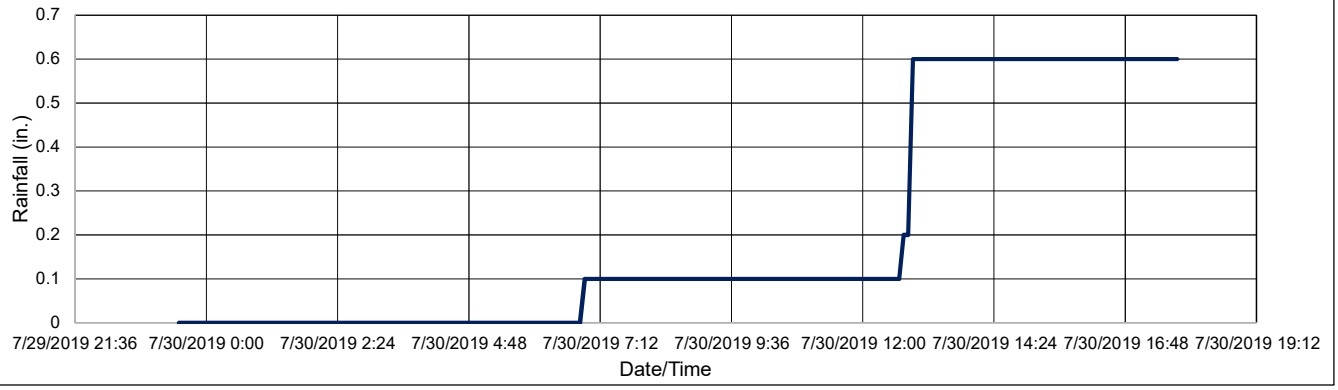
**Recommended Operational Changes/Notes:**

Rainfall data sourced from Buffalo Airport rain gauge website.

## RTC Gate Performance




## Rainfall Accumulation



# August 2019
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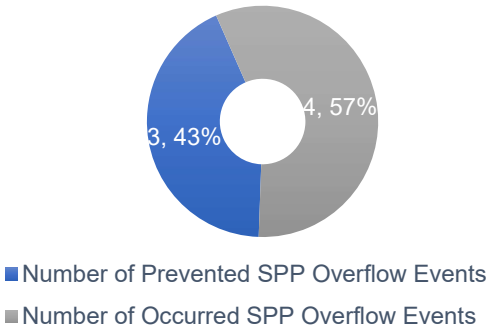
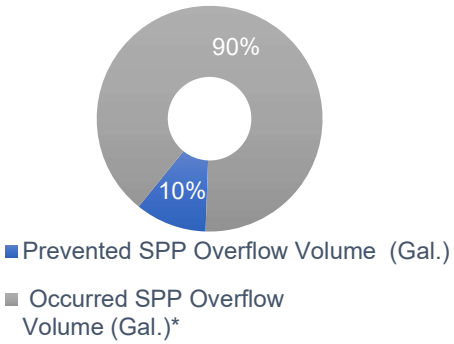
# Bird Ave. RTC Monthly Performance Report — August 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 3 | 4 | 1,434,897 | 12,527,756 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 8/8/2019 | 197,175 | 354,600 | 36% |
| 8/13/2019 | 147,797 | 87,953 | 63% |
| 8/17/2019 | 102,608 | 56,034 | 65% |
| 8/18/2019 | 10,299 | - | 100% |
| 8/19/2019 | 29,225 | - | 100% |
| 8/21/2019 | 897,824 | 12,029,169 | 7% |
| 8/28/2019 | 49,969 | - | 100% |

# August 8, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/8/2019 10:40 |
| Event End Date/Time: | 8/8/2019 11:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | NA |
| Storm Type: | NA |

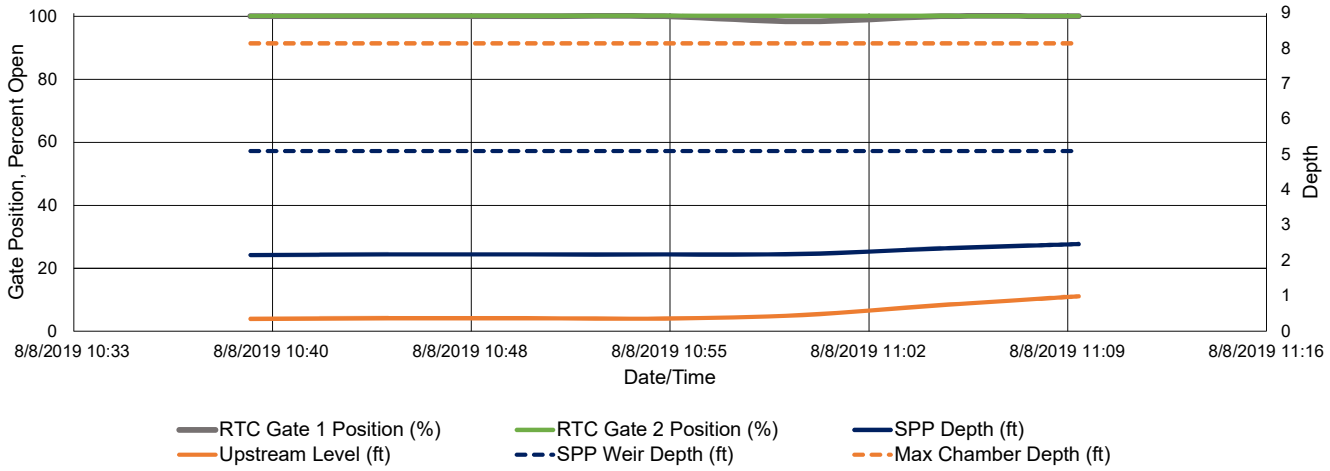
| | |
|---|---|
| Gate Activation Trigger Depth: | 0.99 ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | 8/8/2019 11:10 |
| Time Gate 2 Activated: | 8/8/2019 11:10 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | #DIV/0! |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 0.99 ft. |
| Volume Stored: | 0 Gal. |
| Unused Storage Volume: | 896,301 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 0 Gal. |
| SPP Activation Prevented: | #DIV/0! |
| If No, what is the overflow volume when storage was available? | #DIV/0! |
| Could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

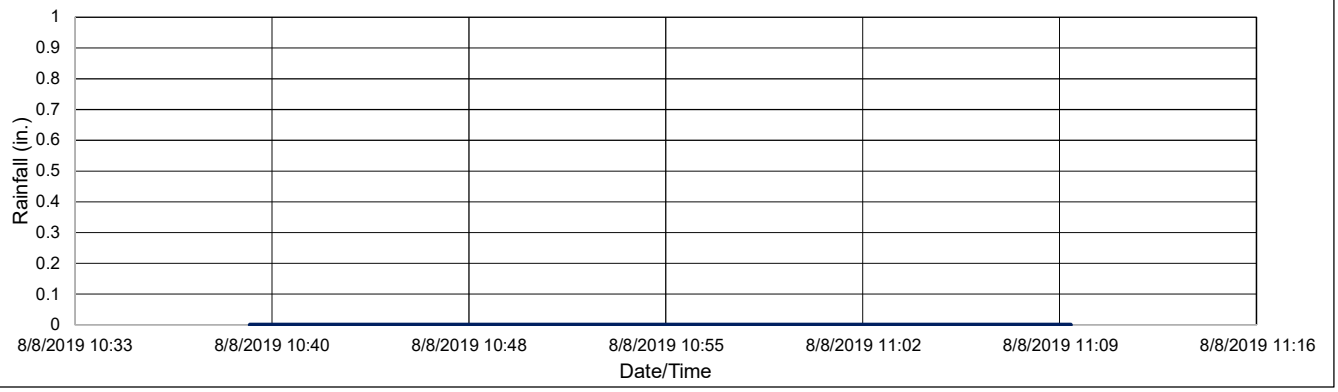
Rainfall data sourced from BSA rain gauge station at South Buffalo.

No rainfall was recorded during the event. However, 0.1-inch of rainfall was recorded earlier in the day which contributed to this event. Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 8, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/8/2019 16:30 |
| Event End Date/Time: | 8/8/2019 18:40 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.9904 |
| Storm Event Duration: | 2 hrs. |
| Storm Type: | Less than one year |

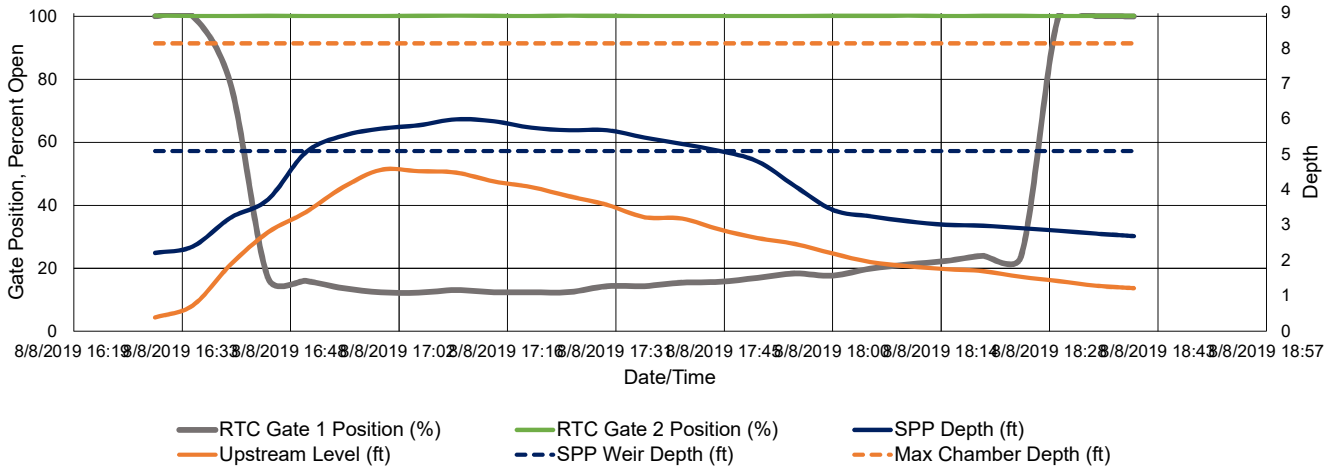
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.95 ft. |
| Return to Normal Depth: | 1.54 ft. |
| Time Gate 1 Activated: | 3/18/2139 11:15 |
| Time Gate 2 Activated: | 8/8/2019 18:40 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 36% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 4.57 ft. |
| Volume Stored: | 197,175 Gal. |
| Unused Storage Volume: | 692,367 Gal. |
| Overflow Volume: | 354,600 Gal. |
| Overflow Volume Prevented: | 197,175 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 354,600 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

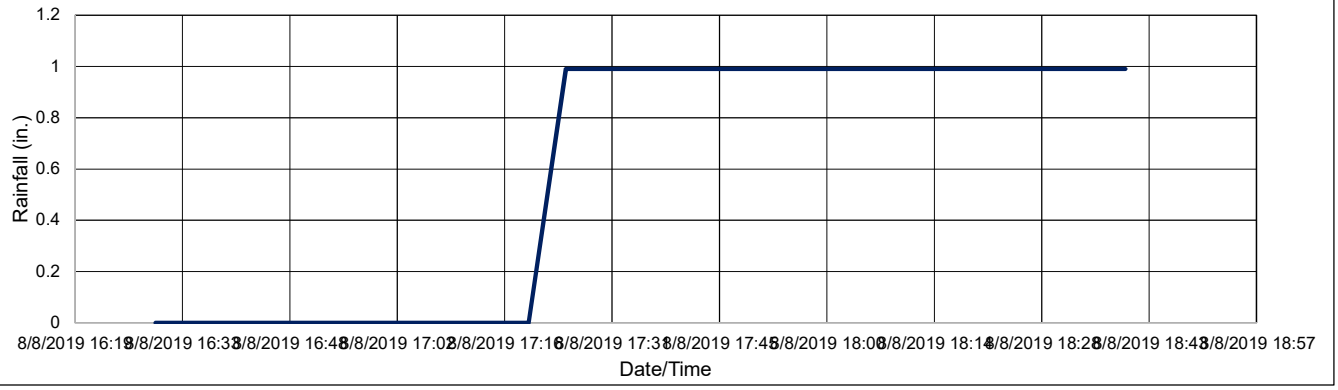
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 13, 2019 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/13/2019 5:00 |
| Event End Date/Time: | 8/13/2019 7:20 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 |
| Storm Event Duration: | NA |
| Storm Type: | NA |

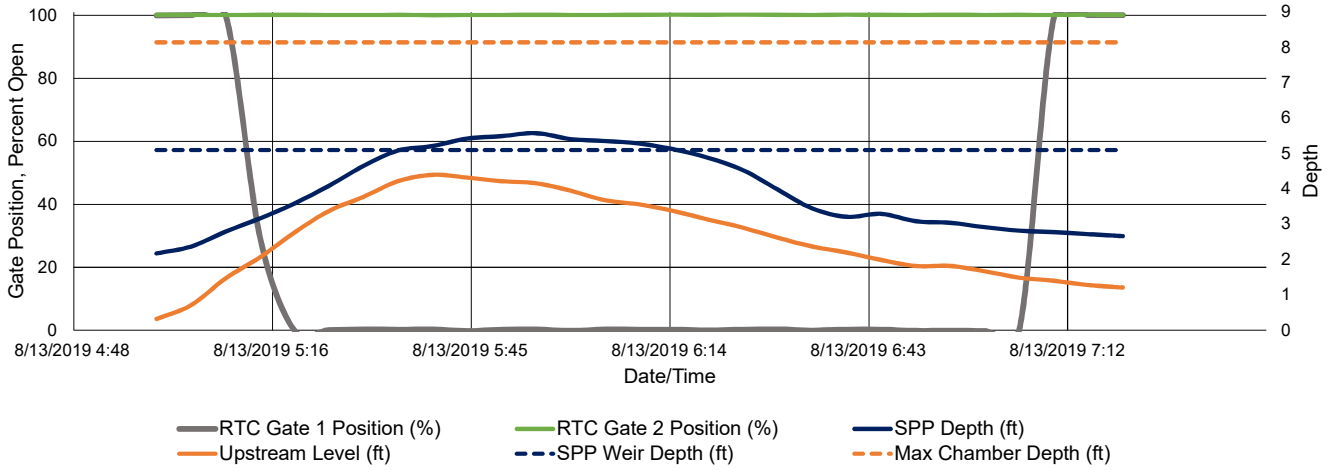
| | |
|---|---|
| Gate Activation Trigger Depth: | 2.68 ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | 3/27/2139 12:30 |
| Time Gate 2 Activated: | 8/13/2019 7:20 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 63% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 4.40 ft. |
| Volume Stored: | 147,797 Gal. |
| Unused Storage Volume: | 713,097 Gal. |
| Overflow Volume: | 87,953 Gal. |
| Overflow Volume Prevented: | 147,797 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 87,953 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

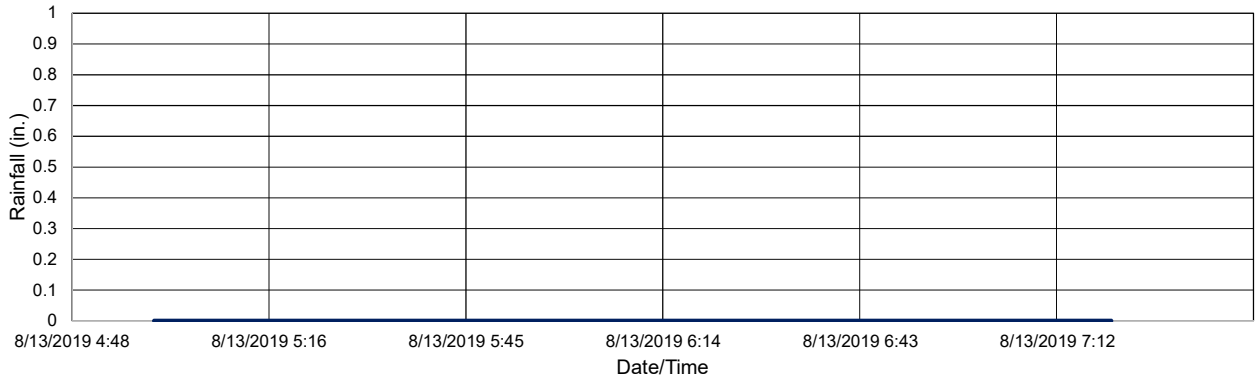
Rainfall data sourced from BSA rain gauge station at South Buffalo.

No rainfall was recorded during the event. However, 0.1-inch of rainfall was recorded earlier in the day which contributed to this event. Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 17, 2019 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/17/2019 9:50 |
| Event End Date/Time: | 8/17/2019 12:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.22 in |
| Storm Event Duration: | 3 hrs. |
| Storm Type: | Less than 2 years |

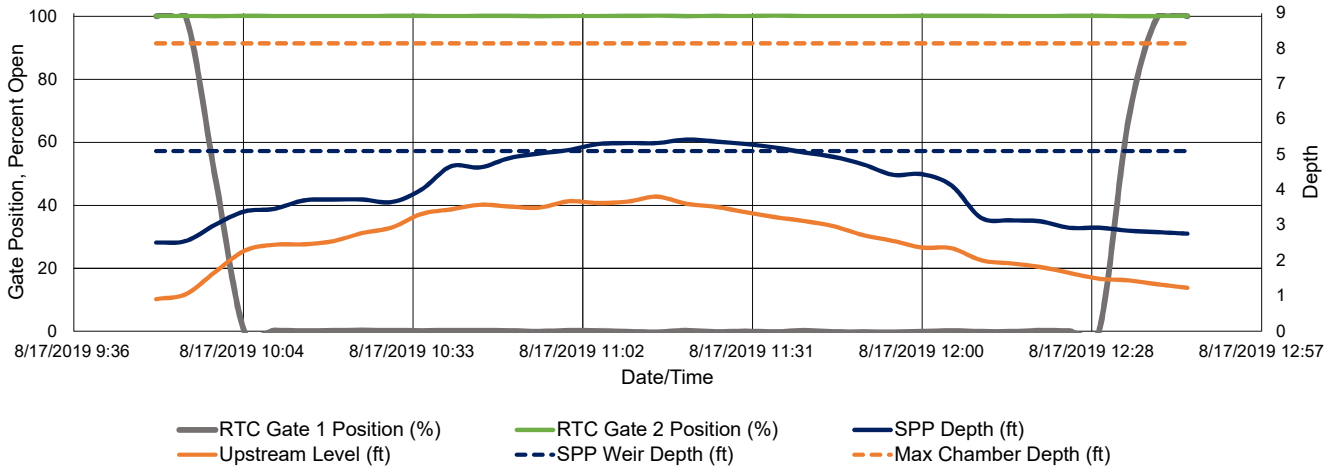
| | |
|---|---|
| Gate Activation Trigger Depth: | 2.28 ft. |
| Return to Normal Depth: | 1.44 ft. |
| Time Gate 1 Activated: | 4/4/2139 22:40 |
| Time Gate 2 Activated: | 8/17/2019 12:45 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 65% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 3.81 ft. |
| Volume Stored: | 102,608 Gal. |
| Unused Storage Volume: | 776,499 Gal. |
| Overflow Volume: | 56,034 Gal. |
| Overflow Volume Prevented: | 102,608 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 56,034 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

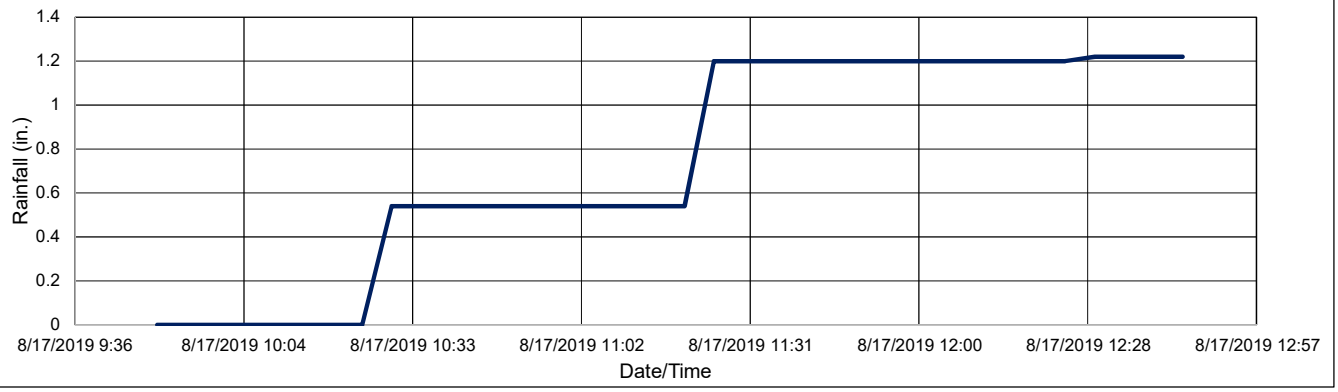
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 18, 2019 5

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/18/2019 7:00 |
| Event End Date/Time: | 8/18/2019 9:05 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.03 in |
| Storm Event Duration: | 2 hrs. |
| Storm Type: | Less than 1 year |

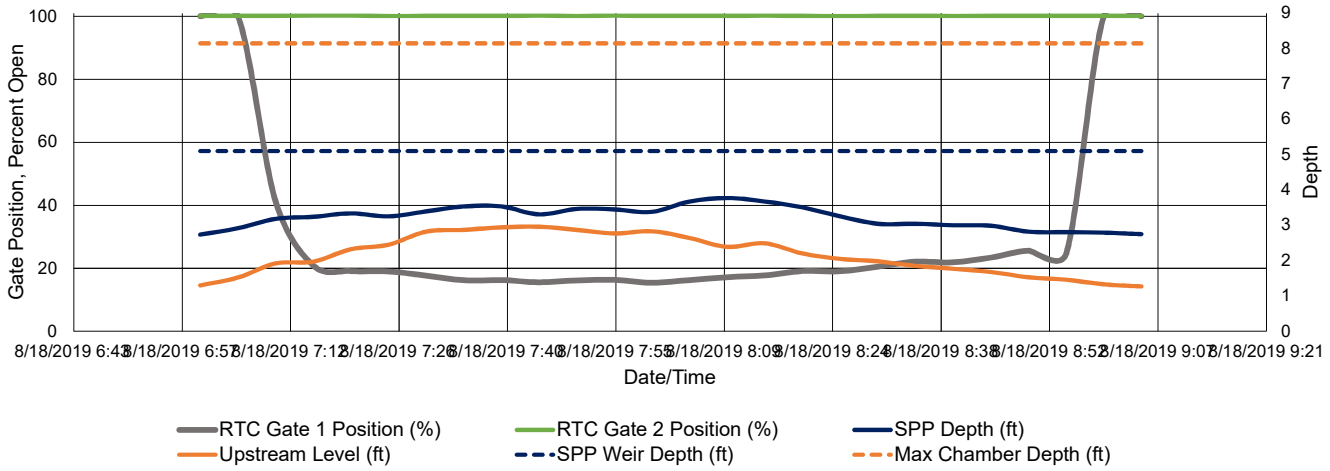
| | |
|---|---|
| Gate Activation Trigger Depth: | 2.79 ft. |
| Return to Normal Depth: | 1.46 ft. |
| Time Gate 1 Activated: | 4/6/2139 16:10 |
| Time Gate 2 Activated: | 8/18/2019 9:05 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.96 ft. |
| Volume Stored: | 10,299 Gal. |
| Unused Storage Volume: | 844,517 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 10,299 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

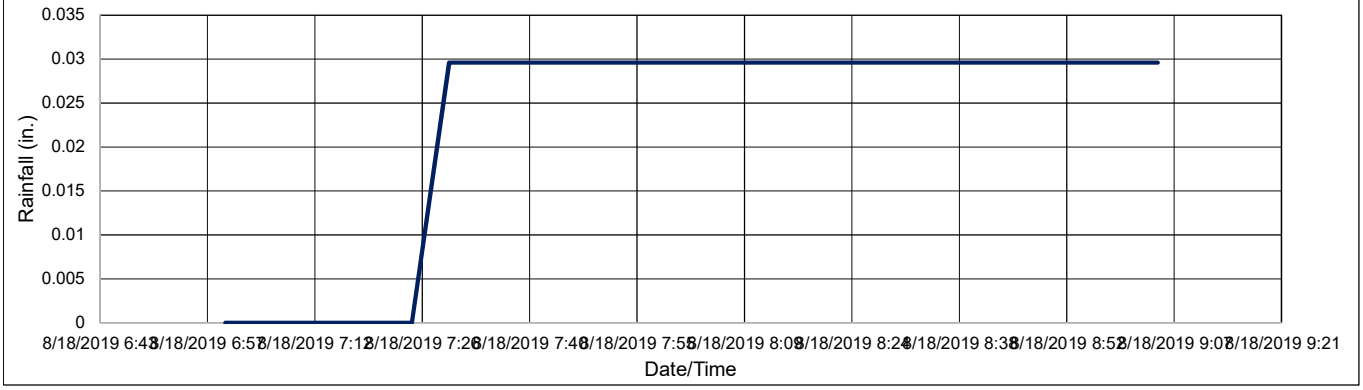
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 19, 2019 6

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/19/2019 2:50 |
| Event End Date/Time: | 8/19/2019 4:45 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.48 in |
| Storm Event Duration: | 2 hrs. |
| Storm Type: | Less than 1 year |

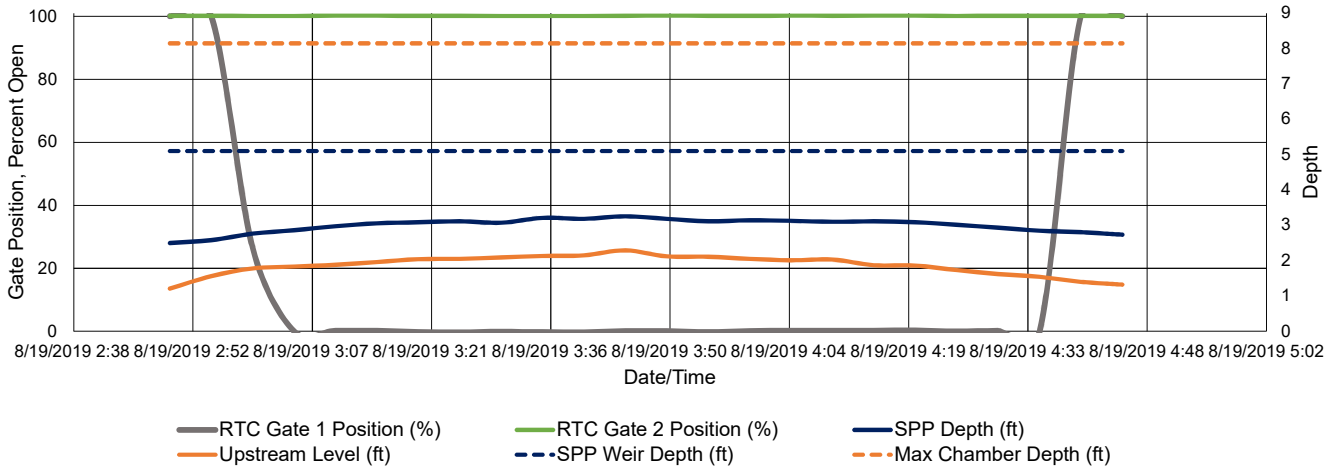
| | |
|---|---|
| Gate Activation Trigger Depth: | 2.88 ft. |
| Return to Normal Depth: | 1.54 ft. |
| Time Gate 1 Activated: | 4/8/2139 7:40 |
| Time Gate 2 Activated: | 8/19/2019 4:45 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.29 ft. |
| Volume Stored: | (29,225) Gal. |
| Unused Storage Volume: | 878,726 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | (29,225) Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | NA |

**Recommended Operational Changes/Notes:**

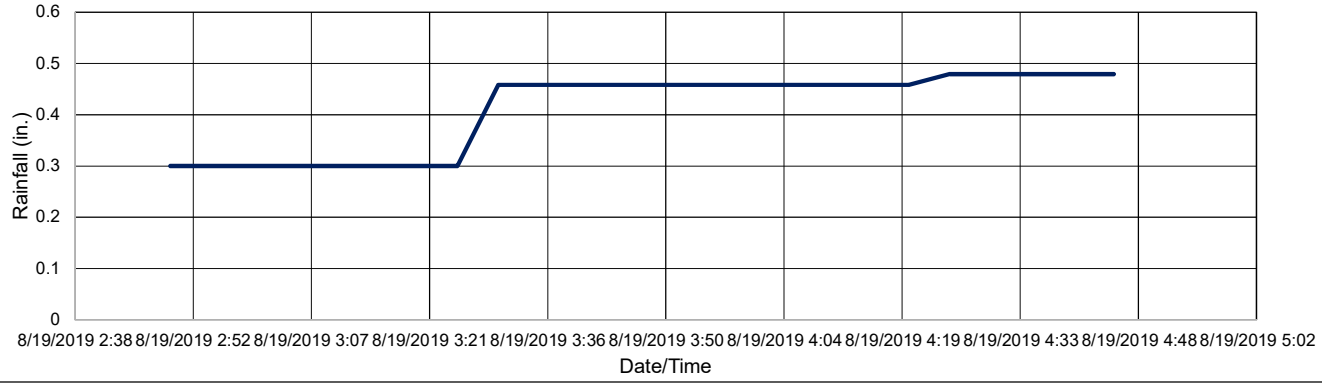
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 21, 2019 7

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/21/2019 3:30 |
| Event End Date/Time: | 8/21/2019 8:40 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.52 in |
| Storm Event Duration: | 5 hrs. |
| Storm Type: | Less than 1 year |

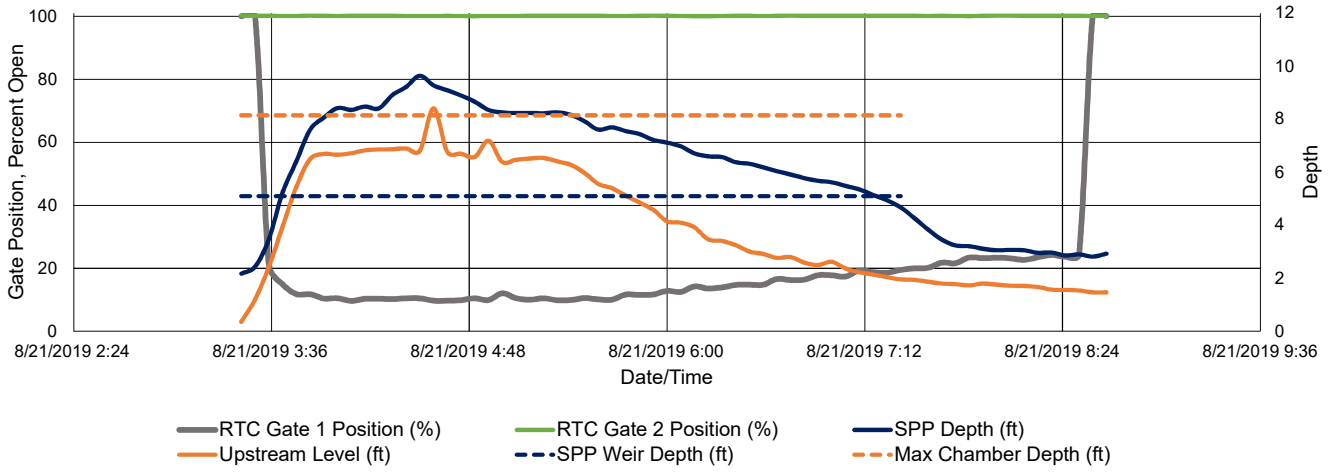
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.20 ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | 8/21/2019 3:30 |
| Time Gate 2 Activated: | 1/0/1900 0:00 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 7% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.15 ft. |
| Volume Stored: | 897,824 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 12,029,169 Gal. |
| Overflow Volume Prevented: | 897,824 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 0 |
| Could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**

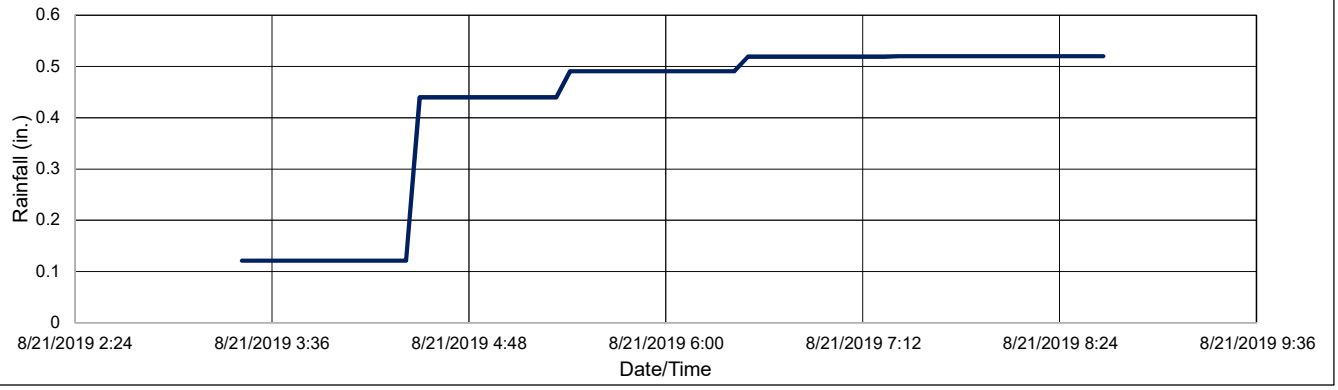
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# August 28, 2019 8

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 9/11/2019 |
| Event Start Date/Time: | 8/28/2019 0:00 |
| Event End Date/Time: | 8/28/2019 0:50 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.24 in |
| Storm Event Duration: | 1 hrs. |
| Storm Type: | Less than 1 year |

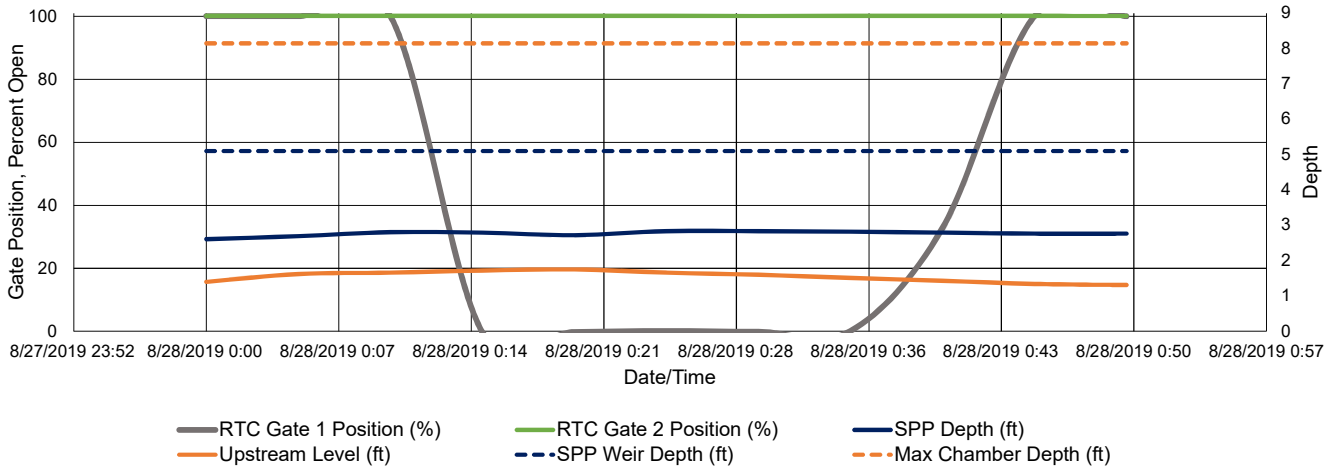
| | |
|---|---|
| Gate Activation Trigger Depth: | 2.97 ft. |
| Return to Normal Depth: | 1.43 ft. |
| Time Gate 1 Activated: | 4/26/2139 1:00 |
| Time Gate 2 Activated: | 8/28/2019 0:50 |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 1.75 ft. |
| Volume Stored: | (49,969) Gal. |
| Unused Storage Volume: | 893,846 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | (49,969) Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | NA |
| Could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**

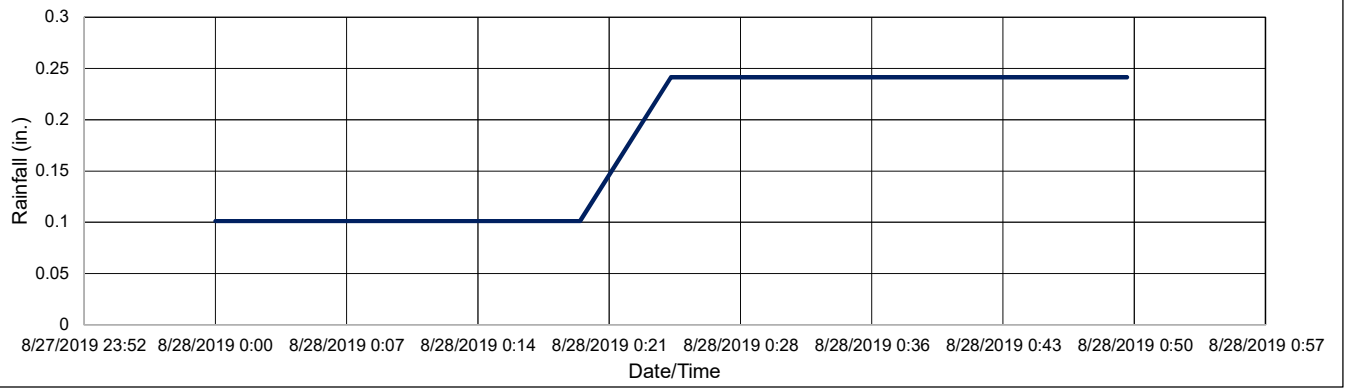
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was at 100% open for the entire month of August.

## RTC Gate Performance




## Rainfall Accumulation



# September 2019 Bird Ave. RTC KPI Report

BUFFALO SEWER AUTHORITY

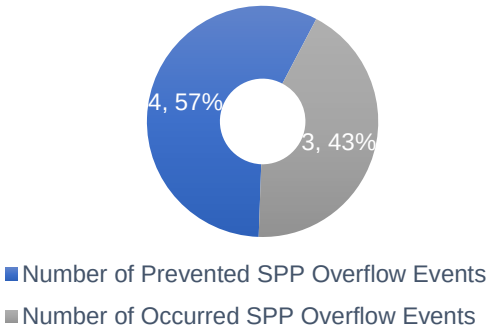
emnet

GHD

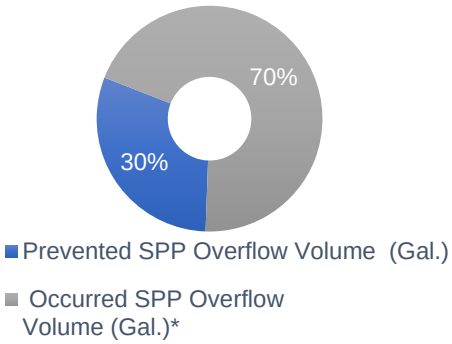
ARCADIS Design & Consultancy for natural and built assets

# Bird Ave. RTC Monthly Performance Report — September 2019

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 4 | 3 | 2,209,669 | 5,058,723 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 9/1/2019 | 895,953 | 563,946 | 61% |
| 9/2/2019 | 894,184 | 4,446,013 | 17% |
| 9/11/2019 | 120,274 | - | 100% |
| 9/12/2019 | 4,319 | - | 100% |
| 9/14/2019 | 116,699 | 48,764 | 71% |
| 9/23/2019 | 61,094 | - | 100% |
| 9/26/2019 | 109,140 | - | 100% |

# September 1, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/1/2019 18:50 |
| Event End Date/Time: | 9/1/2019 23:15 |

| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 1.65 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | Less than 2 yr storm |

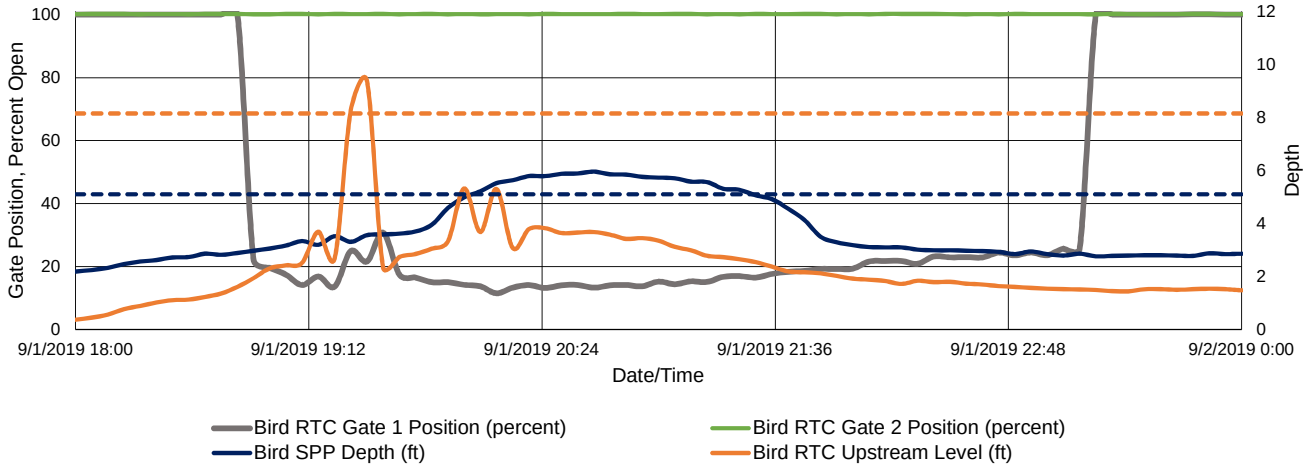
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.61 ft. |
| Return to Normal Depth: | 1.51 ft. |
| Time Gate 1 Activated: | 9/1/2019 18:50 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/1/2019 23:15 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 61% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.15 ft. |
| Volume Stored: | 895,953 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 563,946 Gal. |
| Overflow Volume Prevented: | 895,953 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 0 |
| Could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**

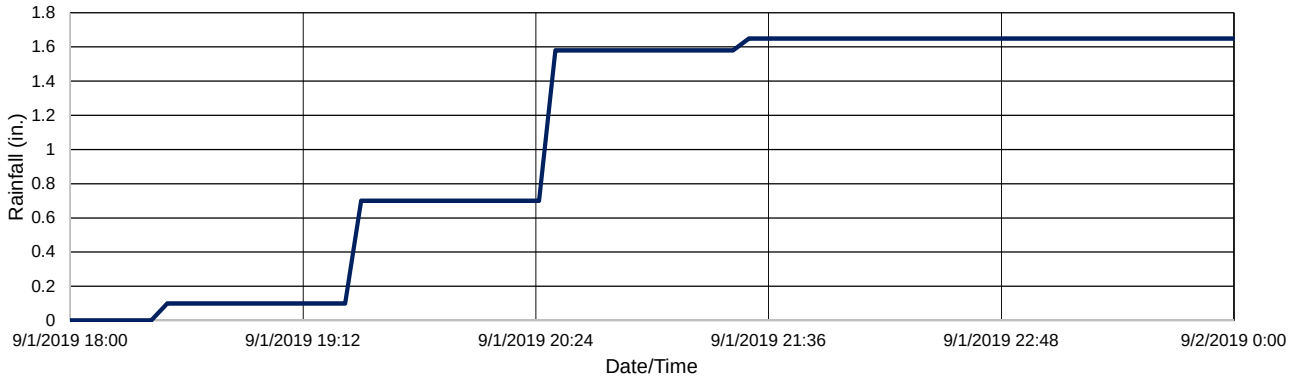
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was stuck at 100% open for most of the month of September.

## RTC Gate Performance




## Rainfall Accumulation



# September 2, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/2/2019 3:15 |
| Event End Date/Time: | 9/2/2019 10:55 |

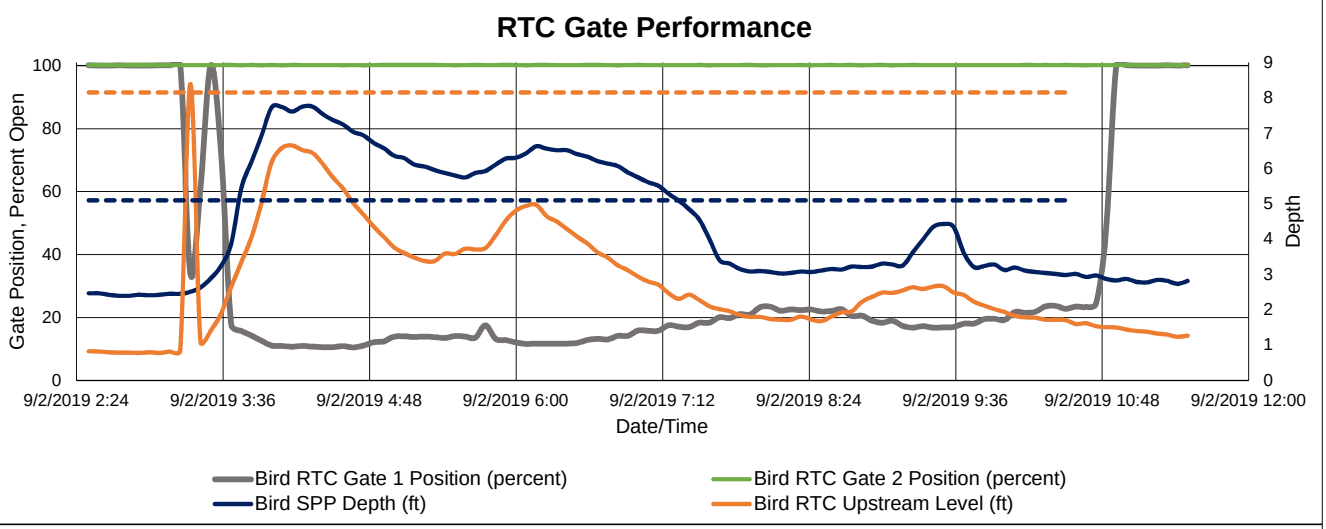
| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | NA |
| Storm Event Duration: | 9 |
| Storm Type: | Less than 1 yr storm |

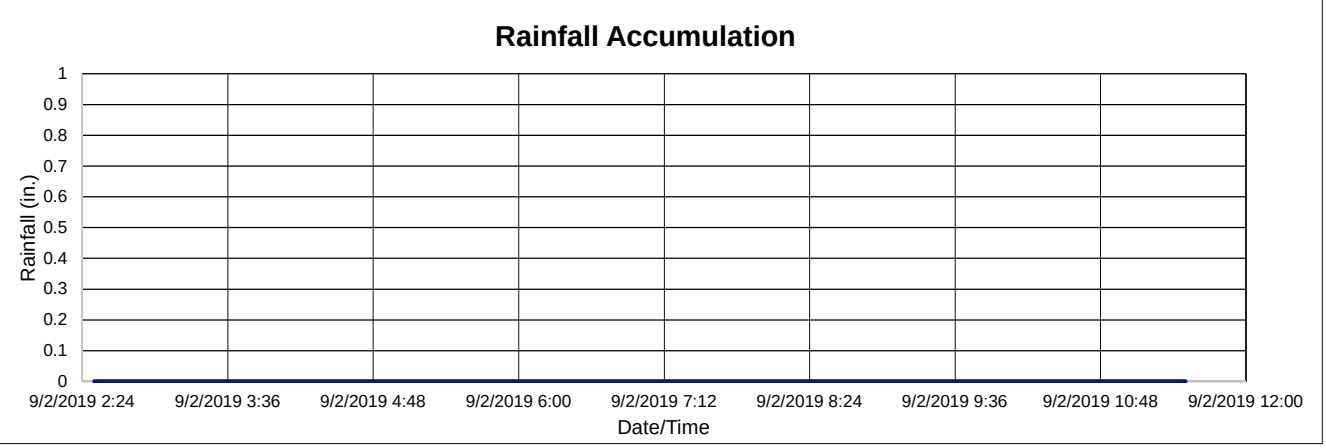
| | |
|---|---|
| Gate Activation Trigger Depth: | 0.84 ft. |
| Return to Normal Depth: | 1.51 ft. |
| Time Gate 1 Activated: | 9/2/2019 3:15 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/2/2019 10:55 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 17% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.15 ft. |
| Volume Stored: | 894,184 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 4,446,013 Gal. |
| Overflow Volume Prevented: | 894,184 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 0 |
| Could SPP activation have been prevented? | No |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this storm event. It was likely caused by a localized storm.

Gate 2 was stuck at 100% open for most of the month of September.



# September 11, 2019 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/11/2019 21:40 |
| Event End Date/Time: | 9/11/2019 23:35 |

| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 0.47 in. |
| Storm Event Duration: | 2 hr |
| Storm Type: | Less than 1 yr storm |

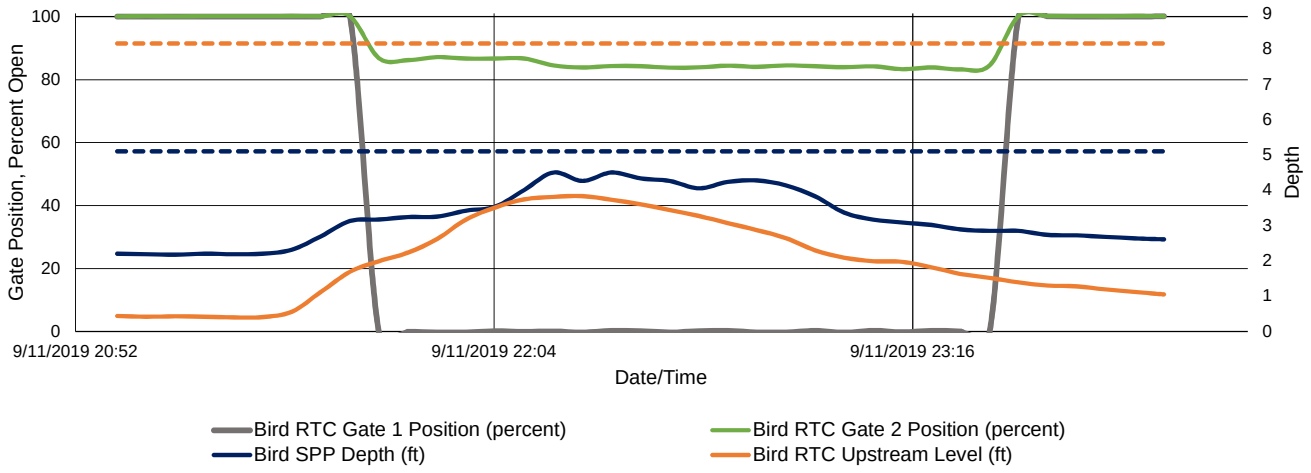
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.69 ft. |
| Return to Normal Depth: | 1.52 ft. |
| Time Gate 1 Activated: | 9/11/2019 21:40 |
| Time Gate 2 Activated: | 9/11/2019 21:40 |
| Time Gate 1 Returned to Normal: | 9/11/2019 23:35 |
| Time Gate 2 Returned to Normal: | 9/11/2019 23:30 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 3.83 ft. |
| Volume Stored: | 120,274 Gal. |
| Unused Storage Volume: | 774,567 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 120,274 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

**Recommended Operational Changes/Notes:**

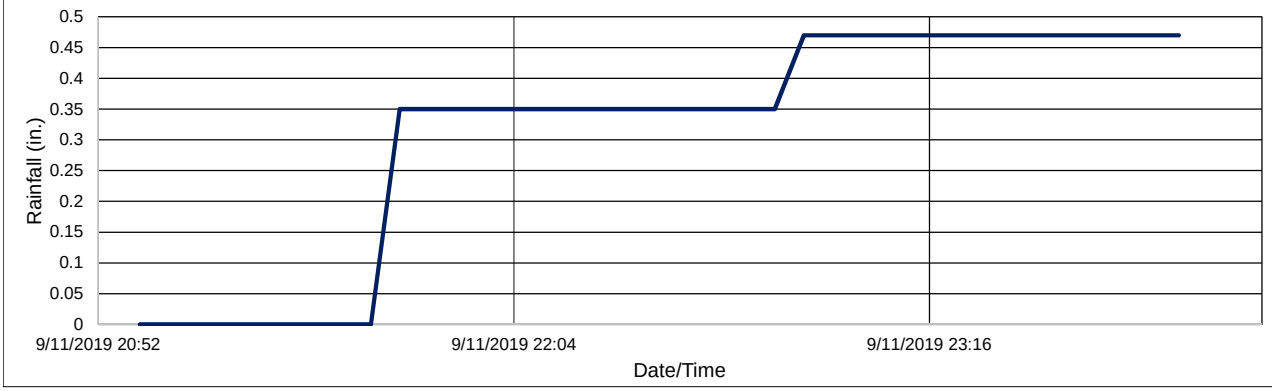
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was stuck at 100% open for most of the month of September.

## RTC Gate Performance




## Rainfall Accumulation



# September 12, 2019 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/12/2019 10:25 |
| Event End Date/Time: | 9/12/2019 11:25 |

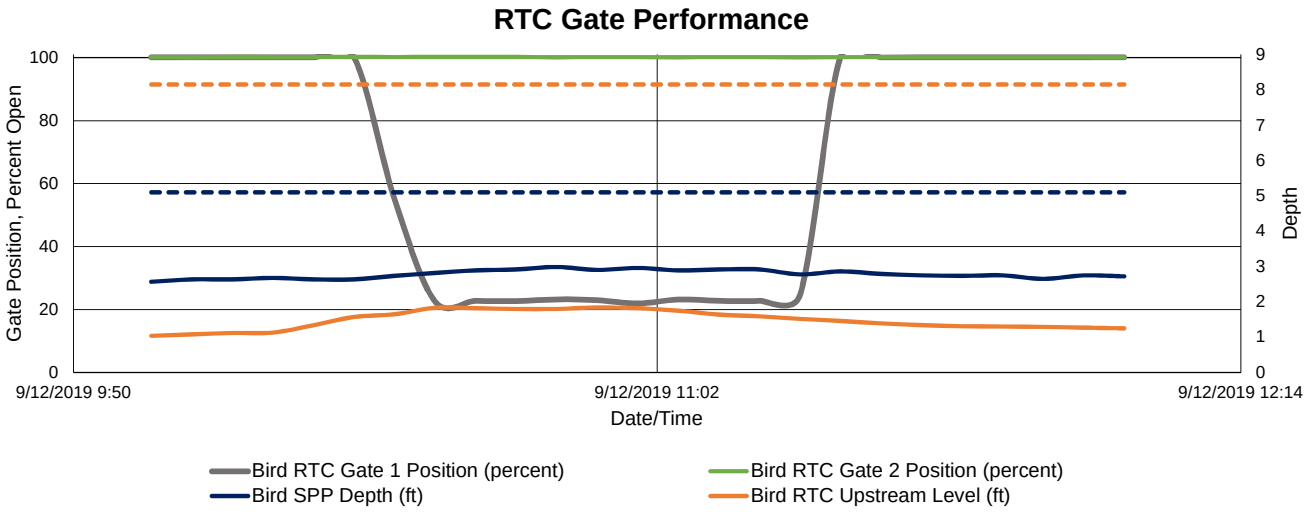
| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 0.36 in. |
| Storm Event Duration: | 2 hr |
| Storm Type: | Less than 1 yr storm |

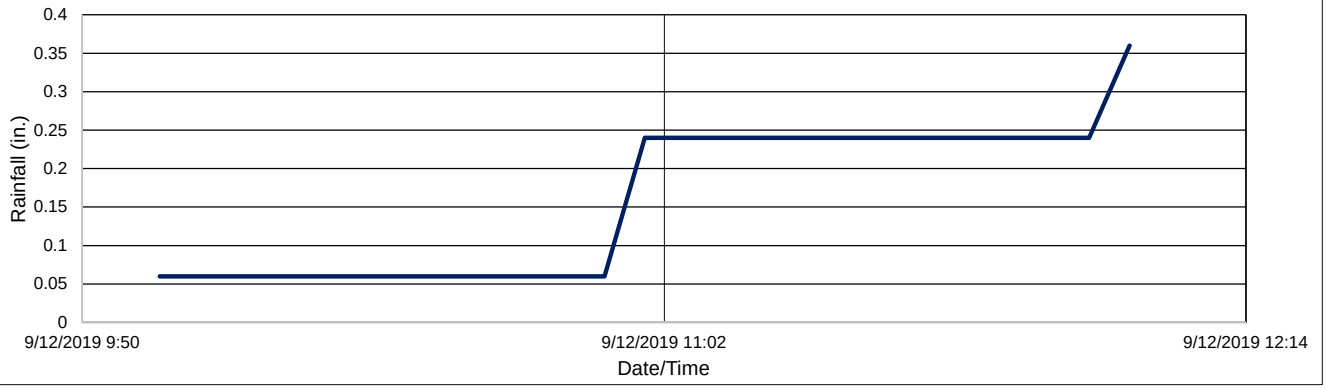
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.57 ft. |
| Return to Normal Depth: | 1.52 ft. |
| Time Gate 1 Activated: | 9/12/2019 10:25 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/12/2019 11:25 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 1.84 ft. |
| Volume Stored: | 4,319 Gal. |
| Unused Storage Volume: | 892,098 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 4,319 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 1 did not close all the way, instead was stuck at about 22% open. Gate 2 was stuck at 100% open for most of the month of September.



# September 14, 2019 5

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/14/2019 1:15 |
| Event End Date/Time: | 9/14/2019 3:20 |

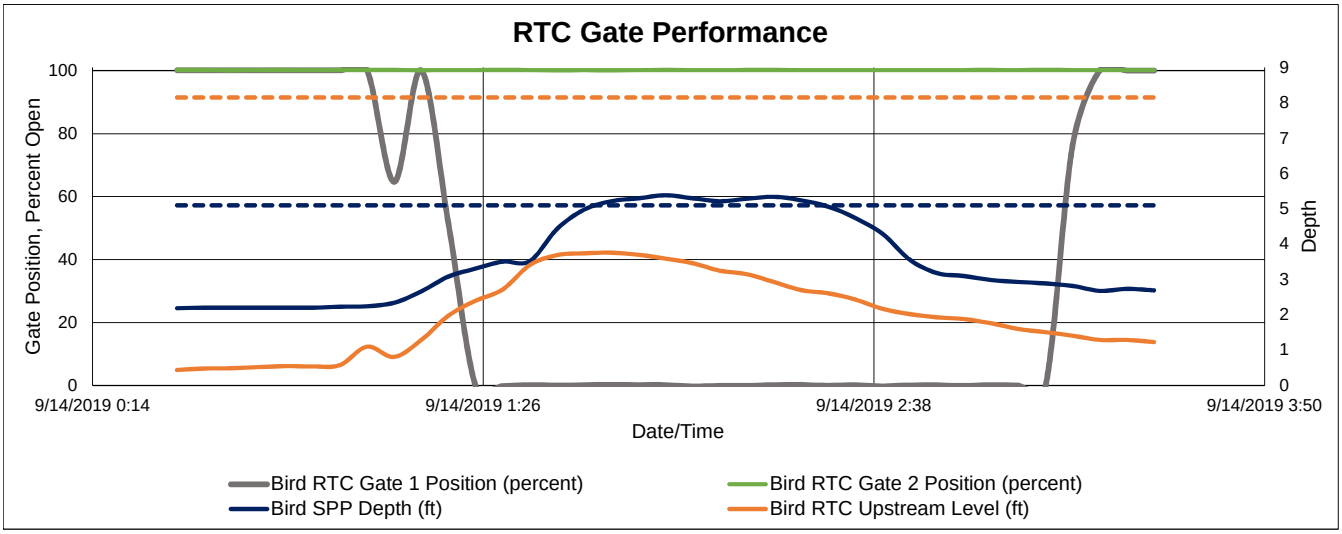
| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 0.79 in. |
| Storm Event Duration: | 3 hr |
| Storm Type: | Less than 1 yr storm |

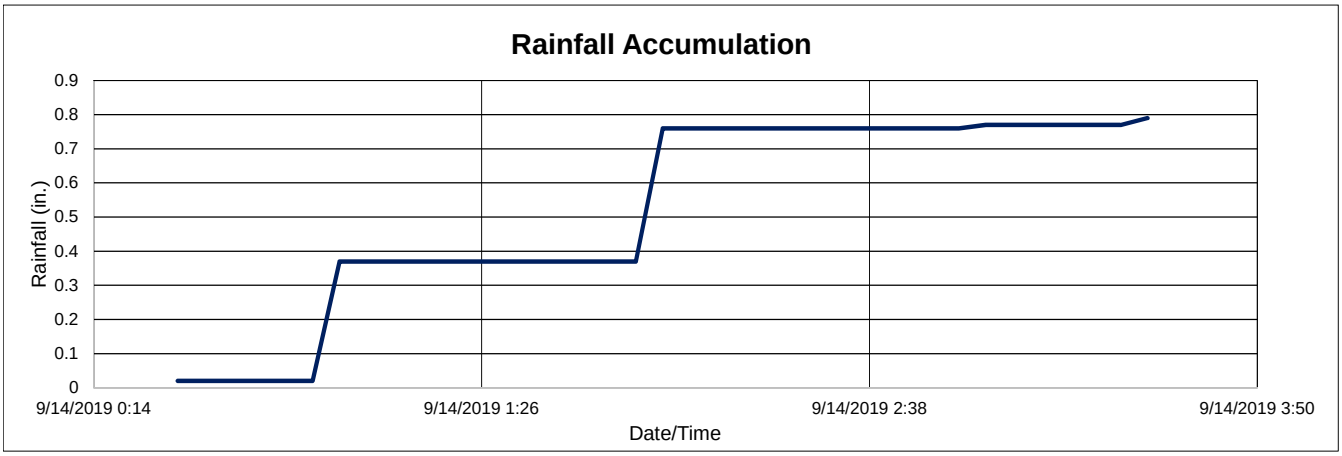
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.29 ft. |
| Return to Normal Depth: | 1.41 ft. |
| Time Gate 1 Activated: | 9/14/2019 1:15 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/14/2019 3:20 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 71% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 3.76 ft. |
| Volume Stored: | 116,699 Gal. |
| Unused Storage Volume: | 781,262 Gal. |
| Overflow Volume: | 48,764 Gal. |
| Overflow Volume Prevented: | 116,699 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 48764 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was stuck at 100% open for most of the month of September.



# September 23, 2019 6

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/23/2019 16:10 |
| Event End Date/Time: | 9/23/2019 19:50 |

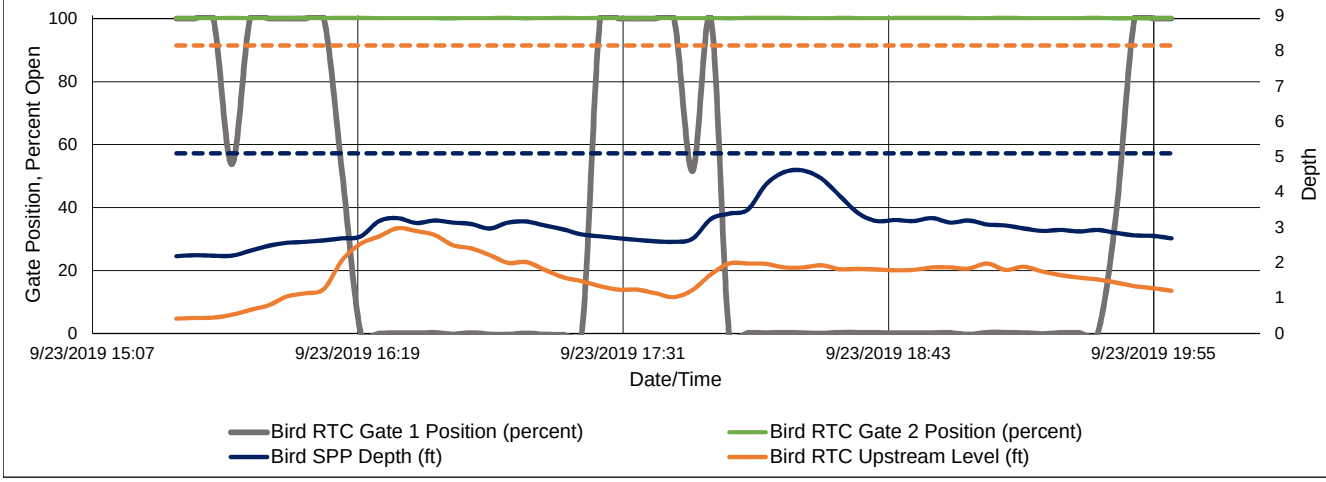
| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 0.05 in. |
| Storm Event Duration: | 4 hr |
| Storm Type: | Less than 1 yr storm |

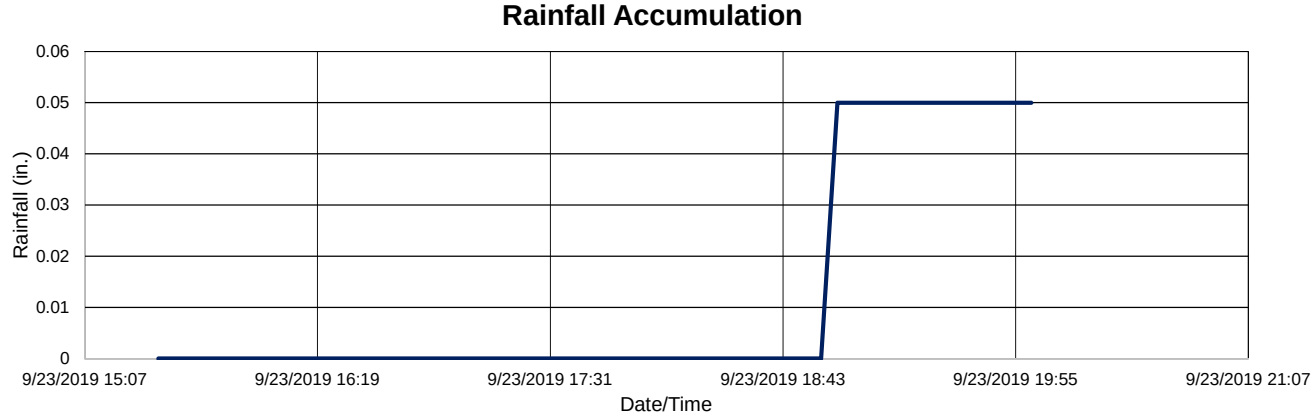
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.26 ft. |
| Return to Normal Depth: | 1.44 ft. |
| Time Gate 1 Activated: | 9/23/2019 16:10 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/23/2019 19:50 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.98 ft. |
| Volume Stored: | 61,094 Gal. |
| Unused Storage Volume: | 846,177 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 61,094 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was stuck at 100% open for most of the month of September.



# September 26, 2019 7

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/18/2019 |
| Event Start Date/Time: | 9/26/2019 7:05 |
| Event End Date/Time: | 9/26/2019 9:15 |

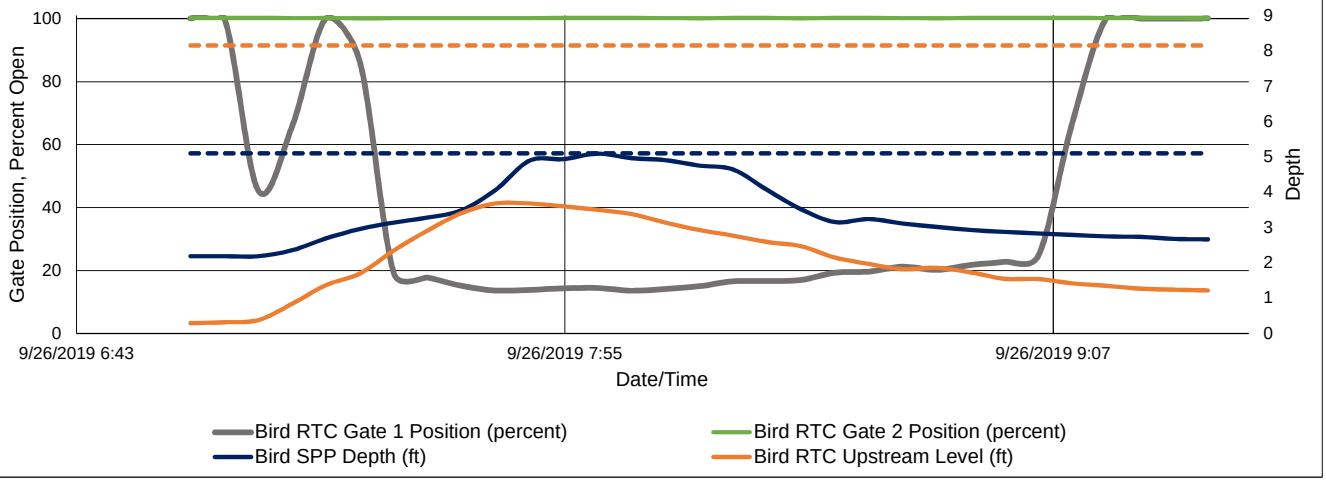
| | |
|---|---|
| Analyst Name, Organization: | Angela Hintz, Arcadis |
| Total Rainfall Accumulation: | 0.66 in. |
| Storm Event Duration: | 2 hr |
| Storm Type: | Less than 2 yr storm |

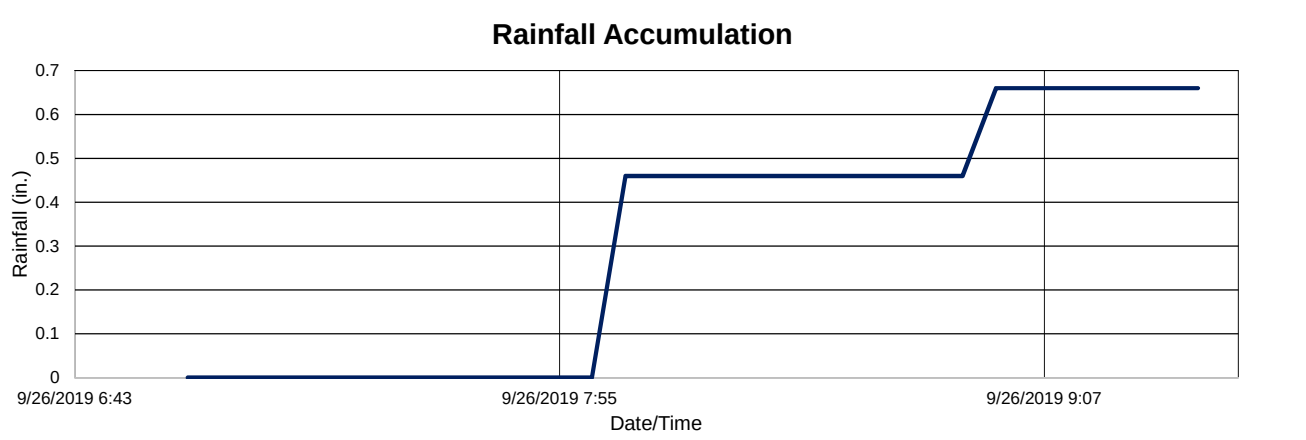
| | |
|---|---|
| Gate Activation Trigger Depth: | 1.37 ft. |
| Return to Normal Depth: | 1.42 ft. |
| Time Gate 1 Activated: | 9/26/2019 7:05 |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | 9/26/2019 9:15 |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 3.68 ft. |
| Volume Stored: | 109,140 Gal. |
| Unused Storage Volume: | 788,685 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 109,140 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 2 was stuck at 100% open for most of the month of September.



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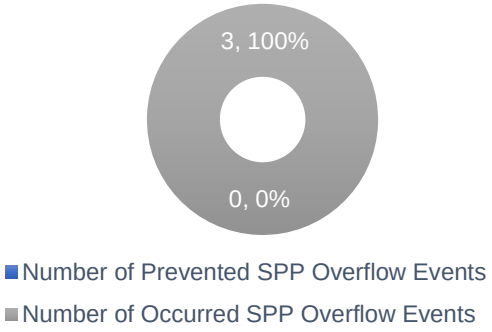
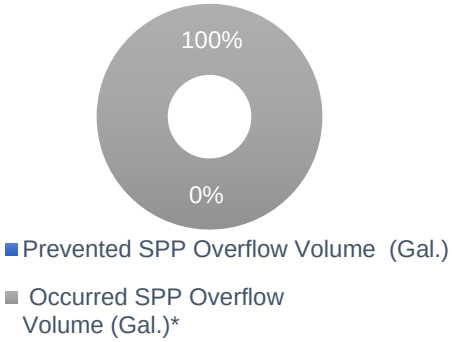
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 0 | 3 | - | 9,312,845 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 10/16/2019 | - | 6,376 | 0% |
| 10/26/2019 | - | 2,778,901 | 0% |
| 10/31/2019 | - | 6,527,568 | 0% |

# October 16, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/16/2019 10:35 |
| Event End Date/Time: | 10/16/2019 10:55 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 2.09 in. |
| Storm Event Duration: | 24 hr. |
| Storm Type: | Less than 2 yr storm |

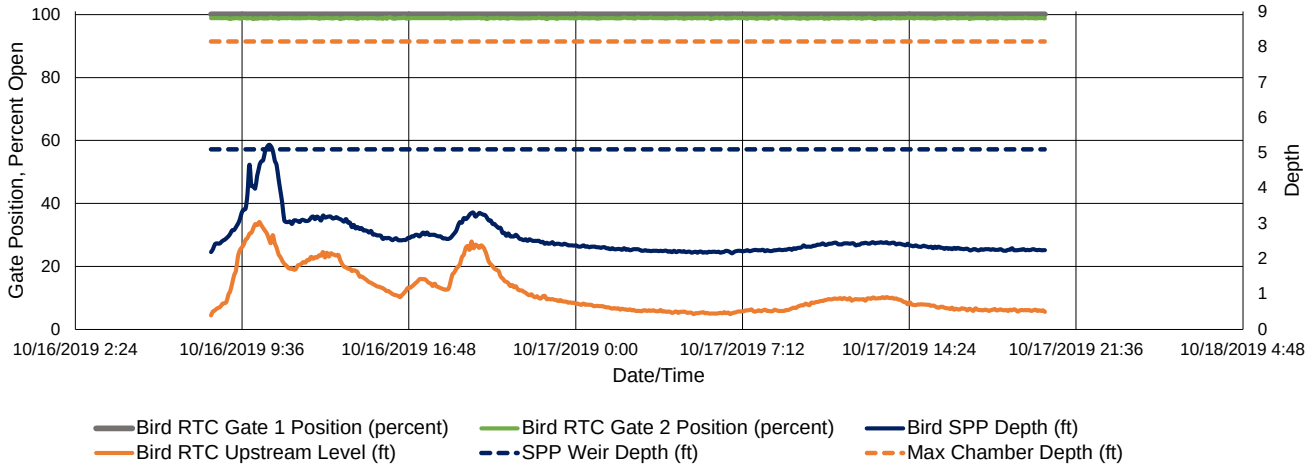
| | |
|---|---|
| Gate Activation Trigger Depth: | N/A ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | N/A |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.79 ft. |
| Volume Stored: | N/A Gal. |
| Unused Storage Volume: | 1,015,032 Gal. |
| Overflow Volume: | 6,376 Gal. |
| Overflow Volume Prevented: | N/A Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 6,376 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

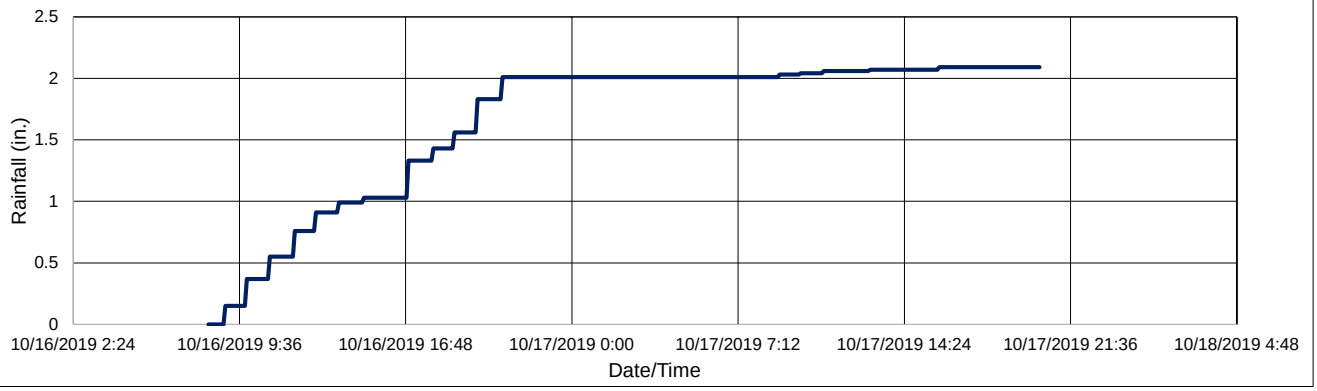
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 1 and 2 were stuck open for the whole month of October, resulting in no storage.

## RTC Gate Performance




## Rainfall Accumulation



# October 26, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/27/2019 3:20 |
| Event End Date/Time: | 10/27/2019 7:00 |

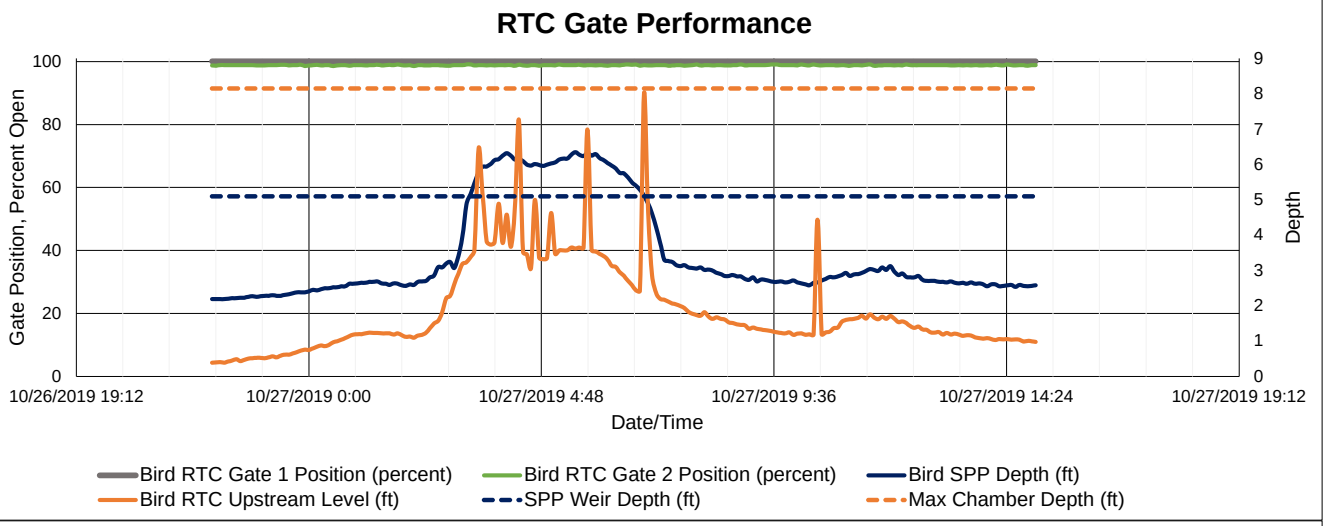
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.86 in. |
| Storm Event Duration: | 12 hr. |
| Storm Type: | Less than 1 yr storm |

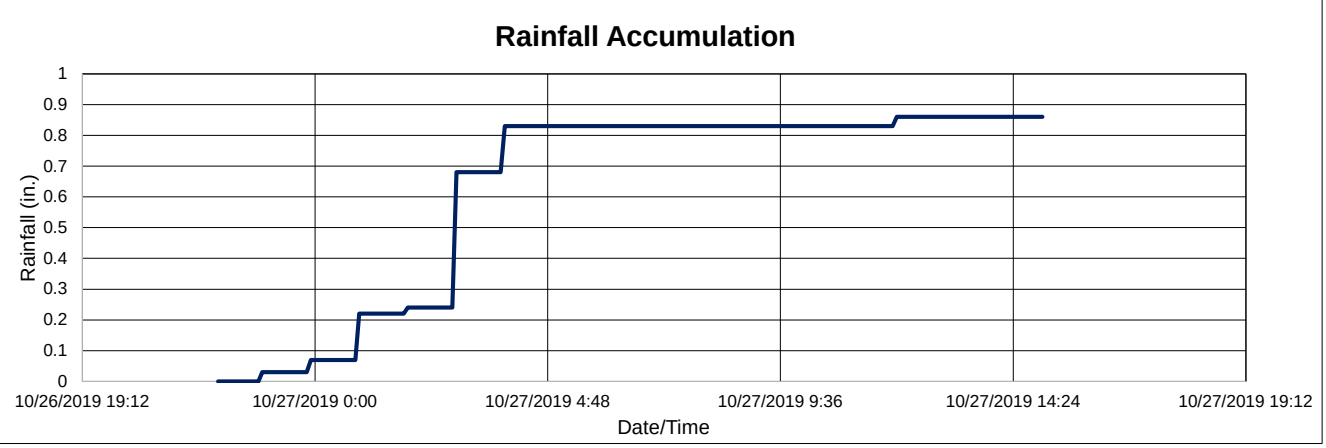
| | |
|---|---|
| Gate Activation Trigger Depth: | N/A ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 0% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.01 ft. |
| Volume Stored: | 0 Gal. |
| Unused Storage Volume: | 1,116,122 Gal. |
| Overflow Volume: | 2,778,901 Gal. |
| Overflow Volume Prevented: | 0 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 2,778,901 |
| Could SPP activation have been prevented? | Yes |

**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 1 and 2 were stuck open for the whole month of October.



# October 31, 2019 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 11/13/2019 |
| Event Start Date/Time: | 10/31/2019 13:40 |
| Event End Date/Time: | 10/31/2019 20:35 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.56 in. |
| Storm Event Duration: | 15 hr. |
| Storm Type: | Less than 1 yr storm |

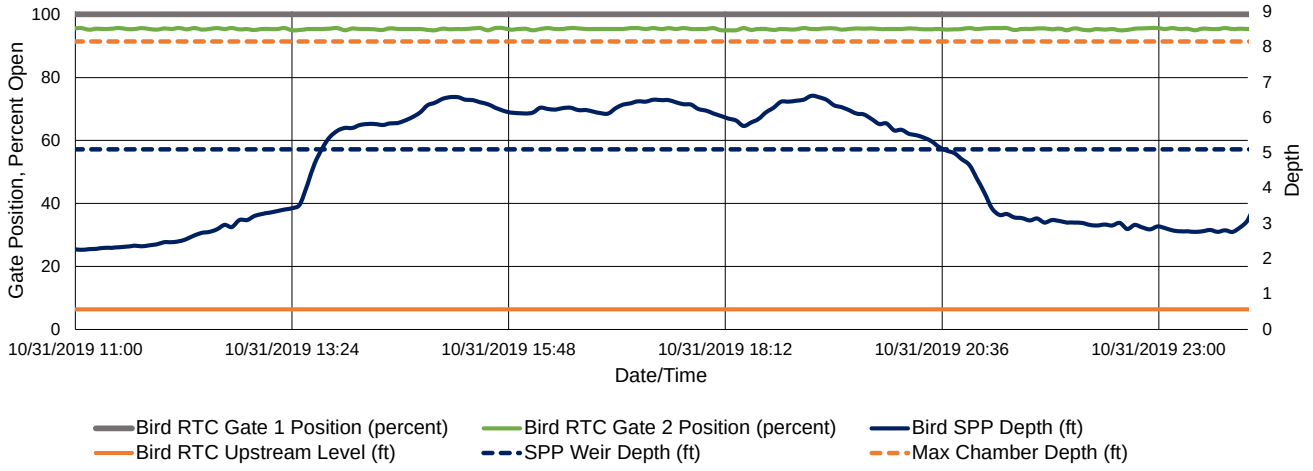
| | | |
|---|---|---|
| Gate Activation Trigger Depth: | N/A | ft. |
| Return to Normal Depth: | - | ft. |
| Time Gate 1 Activated: | | N/A |
| Time Gate 2 Activated: | | N/A |
| Time Gate 1 Returned to Normal: | | N/A |
| Time Gate 2 Returned to Normal: | | N/A |
| Percent Capture | | 0% |
| Depth of Weir | 8.15 | ft. |
| Maximum Depth Reached: | 6.57 | ft. |
| Volume Stored: | 0 | Gal. |
| Unused Storage Volume: | 1,116,122 | Gal. |
| Overflow Volume: | 6,527,568 | Gal. |
| Overflow Volume Prevented: | 0 | Gal. |
| SPP Activation Prevented: | | No |
| If No, what is the overflow volume when storage was available? | | 6,527,568 |
| Could SPP activation have been prevented? | | Yes |

**Recommended Operational Changes/Notes:**

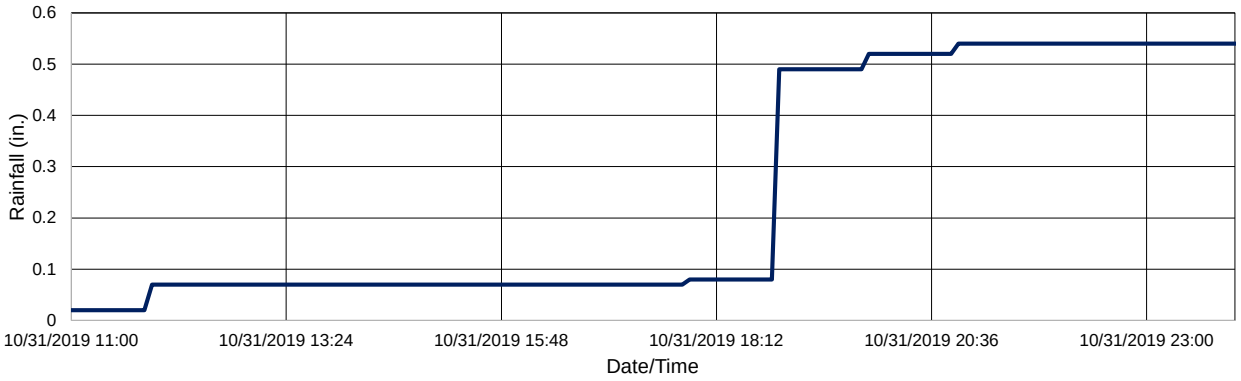
Rainfall data sourced from BSA rain gauge station at South Buffalo.

Gate 1 and 2 were stuck open for the whole month of October, resulting in a significant amount of unused storage volume. There was an upstream level flatline since October 28.

## RTC Gate Performance




## Rainfall Accumulation



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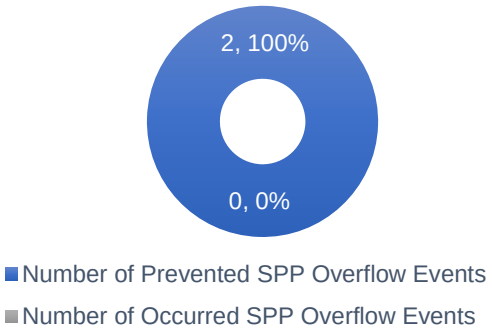
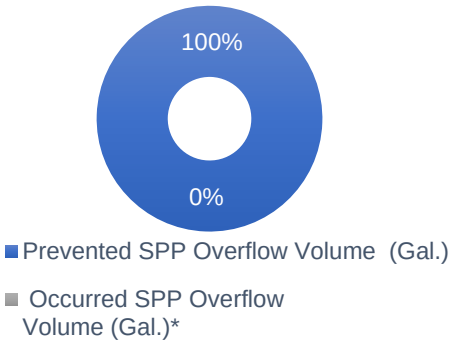
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 2 | 0 | 88,777 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 11/4/2019 | 60,228 | - | 100% |
| 11/22/2019 | 28,549 | - | 100% |

# November 4, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 12/9/2019 |
| Event Start Date/Time: | 11/4/2019 9:05 |
| Event End Date/Time: | 11/4/2019 10:30 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1.5 hr. |
| Storm Type: | N/A |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.20 ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.27 ft. |
| Volume Stored: | 60,228 Gal. |
| Unused Storage Volume: | 1,055,894 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 60,228 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

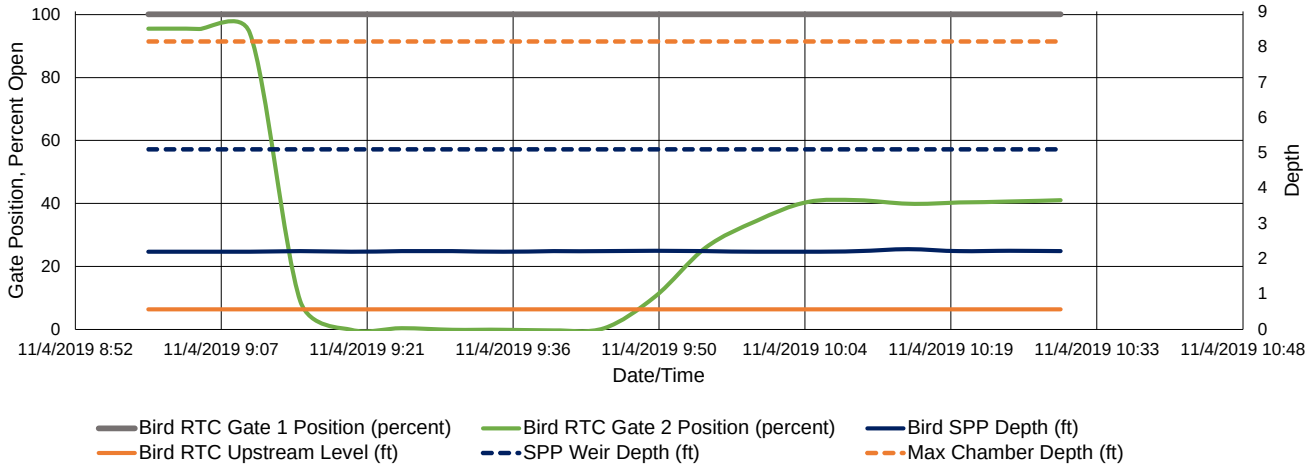
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this event.

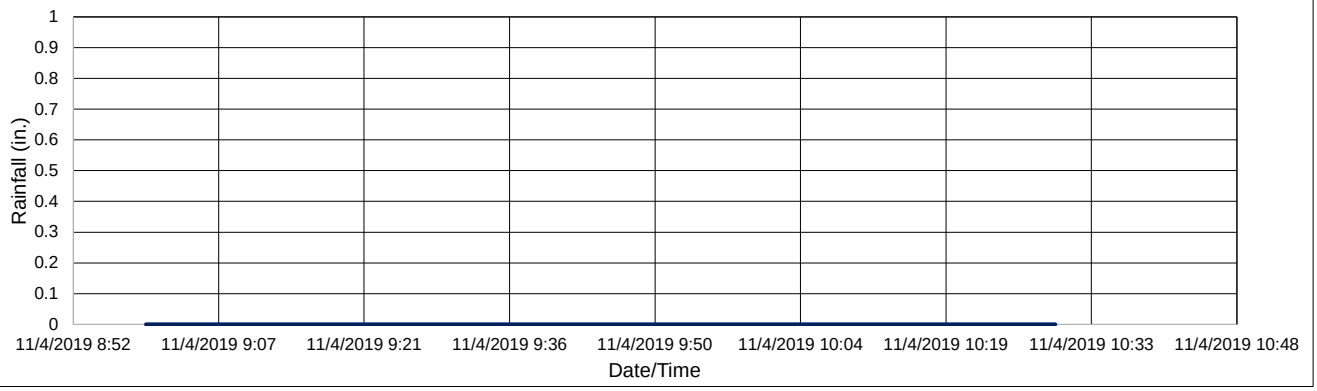
In this event, Gate 2 modulated from being 95% open to fully closed and then seems to have been stuck open at 40% for the rest of the month of November. Gate 1 was fully open for this event.

Communication was lost from November 5 to November 20. Upstream level sensor had flatlined at 0.57 ft. for the whole month of November. Since November 20th, Gate 1 was stuck open at 100% and Gate 2 was stuck open at 40% for the rest of the month of November.

## RTC Gate Performance




## Rainfall Accumulation



# November 22, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 12/9/2019 |
| Event Start Date/Time: | 11/22/2019 10:15 |
| Event End Date/Time: | 11/22/2019 11:10 |

| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | N/A |

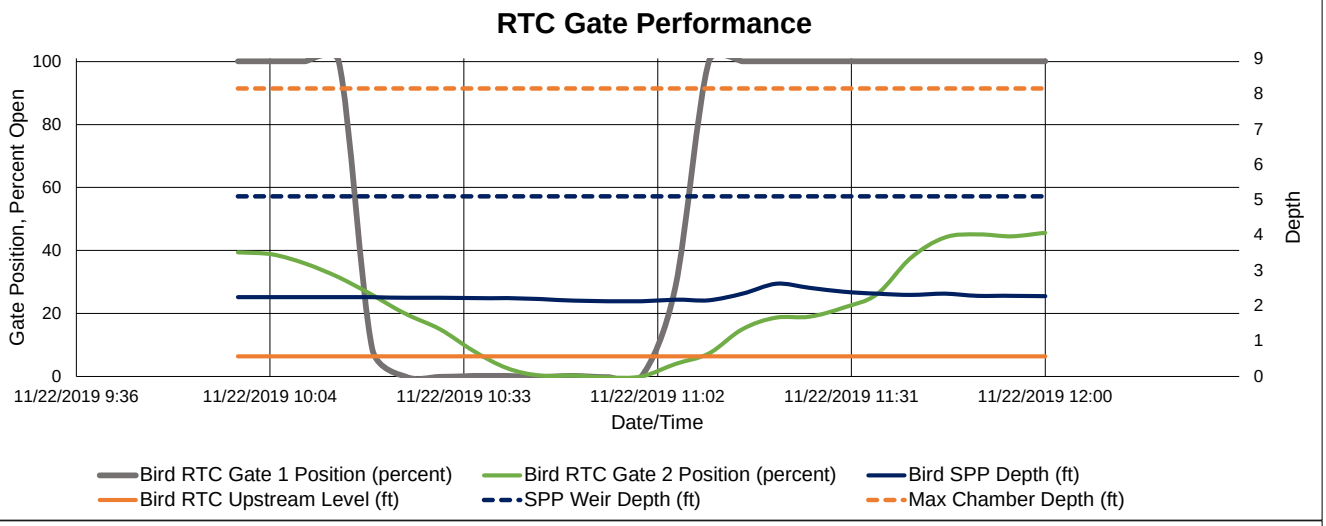
| | |
|---|---|
| Gate Activation Trigger Depth: | N/A ft. |
| Return to Normal Depth: | 2.17 ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 2.62 ft. |
| Volume Stored: | 28,549 Gal. |
| Unused Storage Volume: | 1,029,560 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 28,549 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

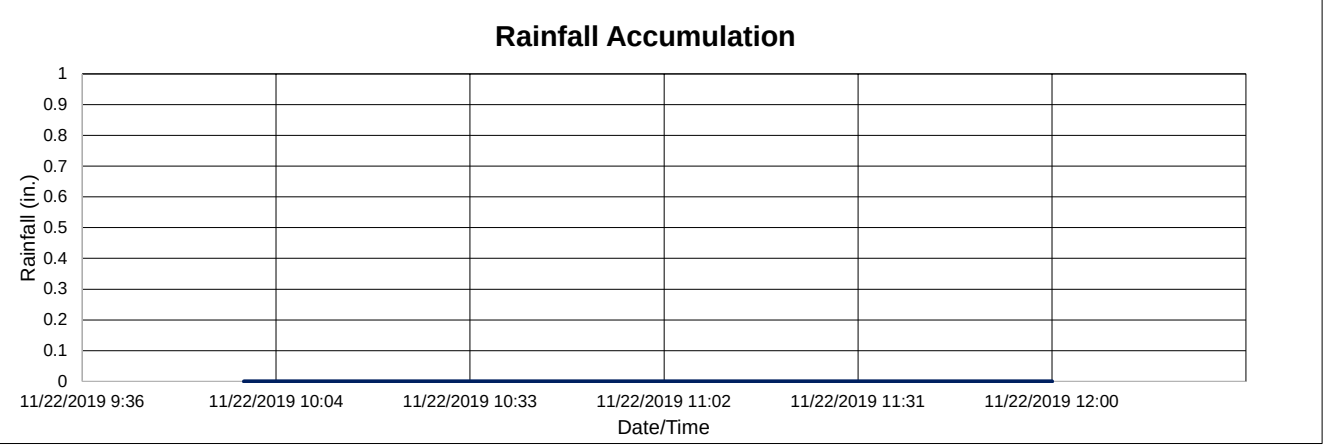
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall was recorded at South Buffalo rain gauge during this storm event.

Communication was lost from November 5 to November 20. Upstream level sensor had flatlined at 0.57 ft. for the whole month of November.

Gate 1 modulated during this event and Gate 2 only modulated between approximately 0% and 45% open.



# December 2019 Bird Ave. RTC KPI Report

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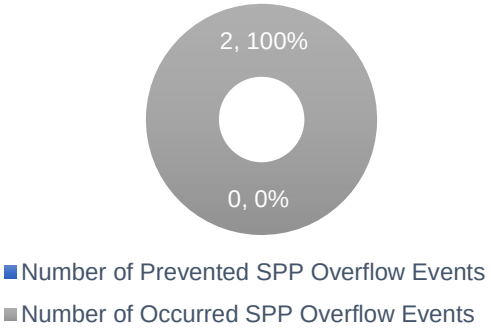
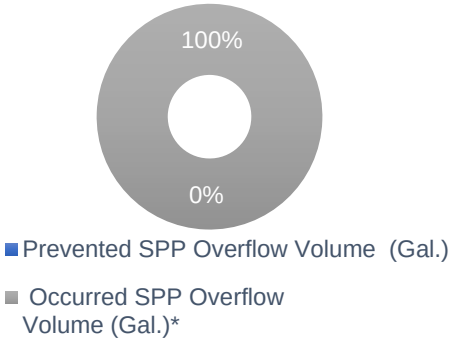
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 0 | 2 | - | 1,766,805 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 12/1/2019 | - | 1,513,154 | 0% |
| 12/14/2019 | - | 253,651 | 0% |

# December 1, 2019 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 1/7/2020 |
| Event Start Date/Time: | 12/1/2019 12:15 |
| Event End Date/Time: | 12/1/2019 14:25 |

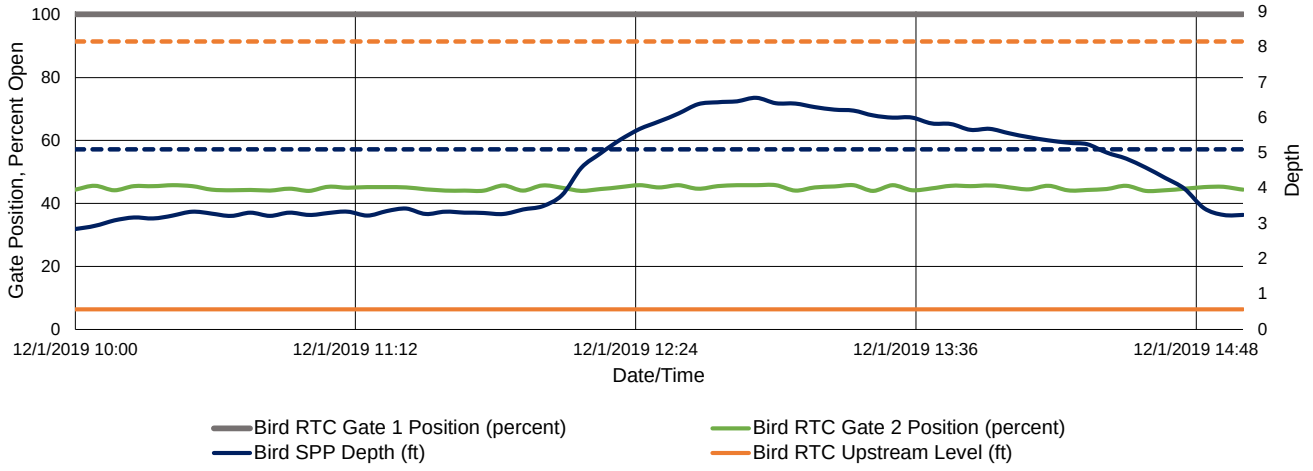
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.21 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | Less than 1 yr storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | - ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 0% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 0.57 ft. |
| Volume Stored: | 0 Gal. |
| Unused Storage Volume: | 1,116,122 Gal. |
| Overflow Volume: | 1,513,154 Gal. |
| Overflow Volume Prevented: | 0 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 1,513,154 |
| Could SPP activation have been prevented? | No |

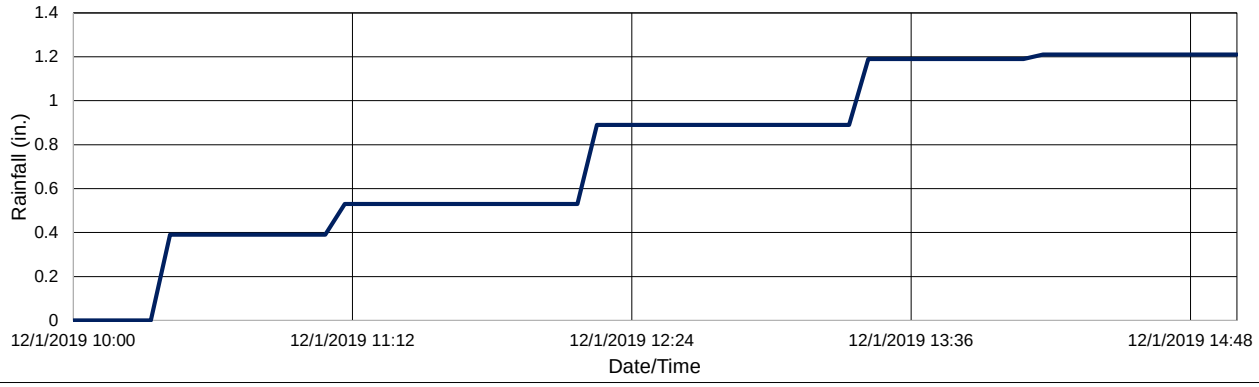
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. Upstream and downstream level sensors were flatlined, and Gate 2 was stuck open at approximately 44% for the entire month of December.

## RTC Gate Performance




## Rainfall Accumulation



# December 14, 2019 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 1/7/2020 |
| Event Start Date/Time: | 12/14/2019 11:50 |
| Event End Date/Time: | 12/14/2019 13:20 |

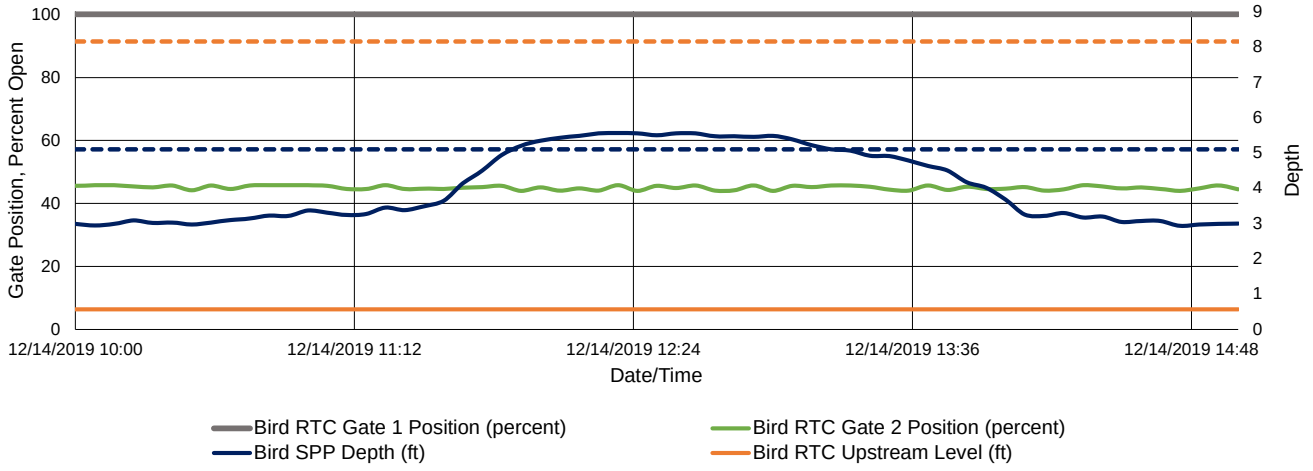
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah |
| Total Rainfall Accumulation: | 0.92 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | Less than 1 yr storm |

| | |
|---|---|
| Gate Activation Trigger Depth: | - ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 0% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 0.57 ft. |
| Volume Stored: | 0 Gal. |
| Unused Storage Volume: | 1,119,246 Gal. |
| Overflow Volume: | 253,651 Gal. |
| Overflow Volume Prevented: | 0 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 253,651 |
| Could SPP activation have been prevented? | Yes |

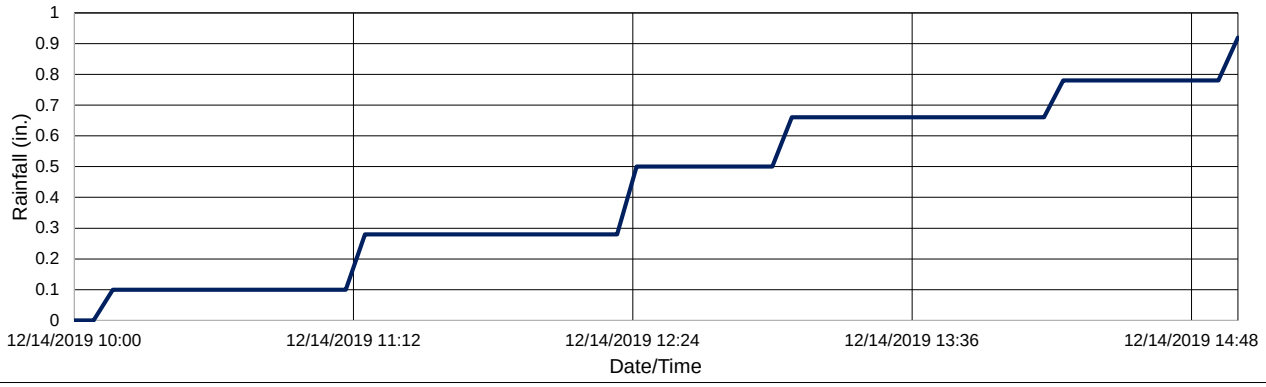
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. Upstream and downstream level sensors were flatlined, and Gate 2 was stuck open at approximately 44% for the entire month of December.

## RTC Gate Performance




## Rainfall Accumulation



# January 2020 Bird Ave. RTC KPI Report

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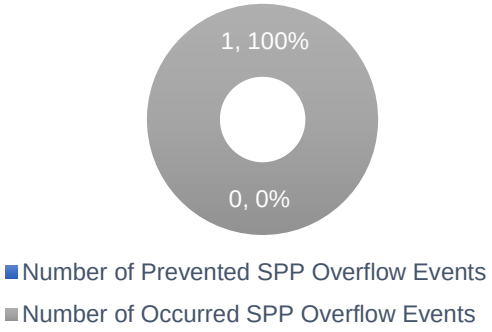
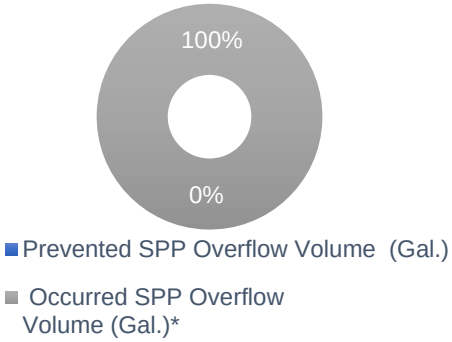
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 0 | 1 | - | 9,218 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 1/25/2020 | - | 9,218 | 0% |

# January 25, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 2/3/2020 |
| Event Start Date/Time: | 1/25/2020 12:15 |
| Event End Date/Time: | 1/25/2020 14:25 |

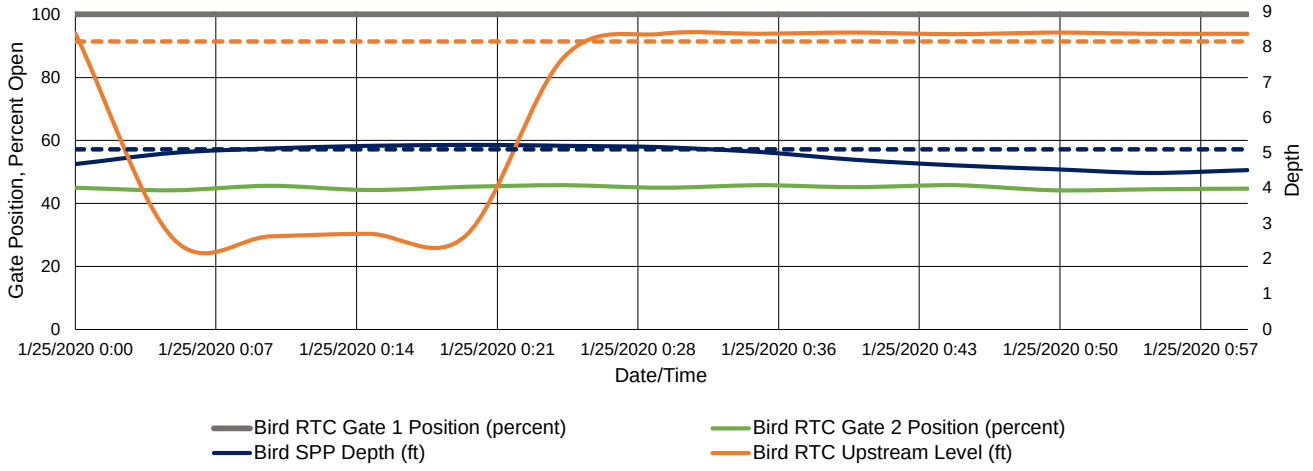
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.12 in. |
| Storm Event Duration: | 1 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | - ft. |
| Return to Normal Depth: | - ft. |
| Time Gate 1 Activated: | N/A |
| Time Gate 2 Activated: | N/A |
| Time Gate 1 Returned to Normal: | N/A |
| Time Gate 2 Returned to Normal: | N/A |
| Percent Capture | 0% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.15 ft. |
| Volume Stored: | 0 Gal. |
| Unused Storage Volume: | 1,116,122 Gal. |
| Overflow Volume: | 9,218 Gal. |
| Overflow Volume Prevented: | 0 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 9,218 |
| Could SPP activation have been prevented? | Yes |

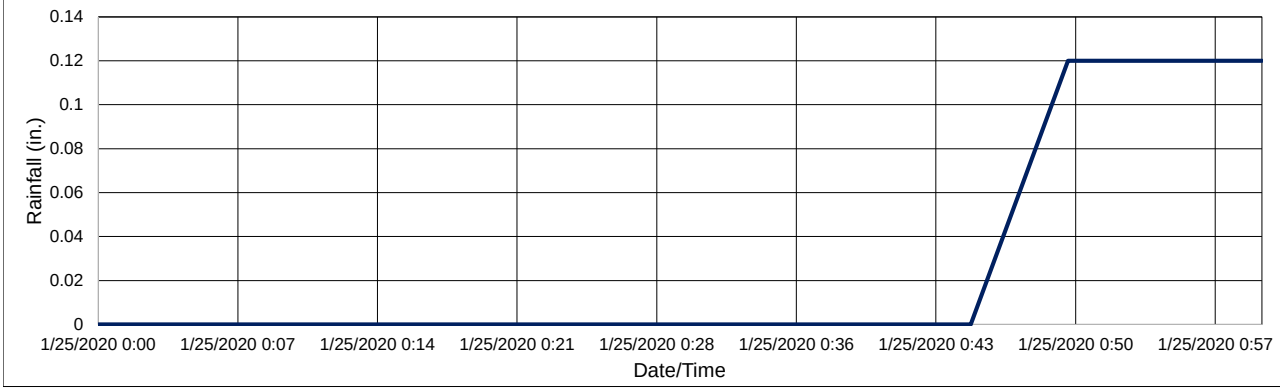
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge at Quarry. Gate 1 was manually open at 100% and Gate 2 was stuck open at approximately 45% for the entire month of January.

## RTC Gate Performance




## Rainfall Accumulation



# February 2020
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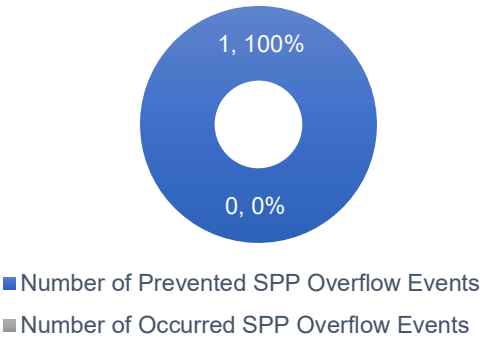
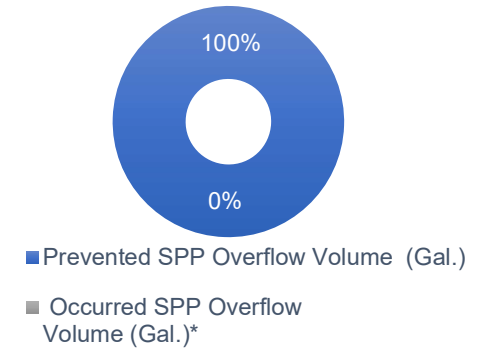
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 1 | 0 | 732,212 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 2/26/2020 | 732,212 | - | 100% |

# February 26, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 3/11/2020 |
| Event Start Date/Time: | 2/26/2020 20:15 |
| Event End Date/Time: | 2/27/2020 5:30 |

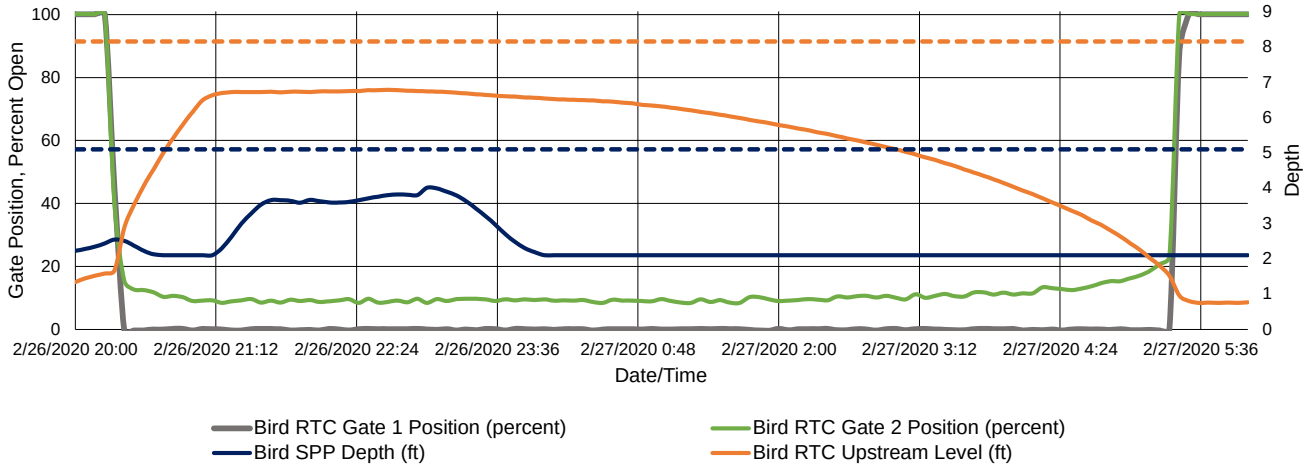
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.5 in. |
| Storm Event Duration: | 10 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.59 ft. |
| Return to Normal Depth: | 0.96 ft. |
| Time Gate 1 Activated: | 2/26/2020 20:15 |
| Time Gate 2 Activated: | 2/26/2020 20:15 |
| Time Gate 1 Returned to Normal: | 2/27/2020 5:30 |
| Time Gate 2 Returned to Normal: | 2/27/2020 5:20 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.78 ft. |
| Volume Stored: | 732,212 Gal. |
| Unused Storage Volume: | 362,151 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 732,212 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

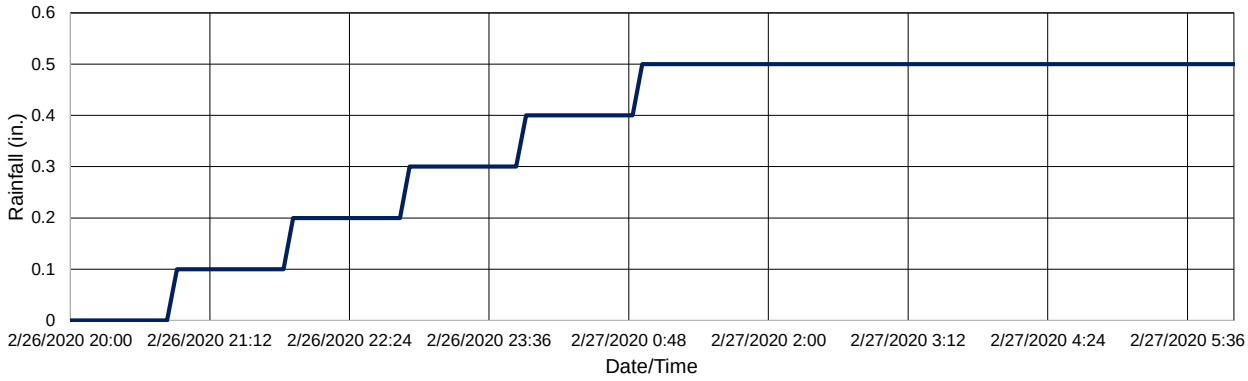
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



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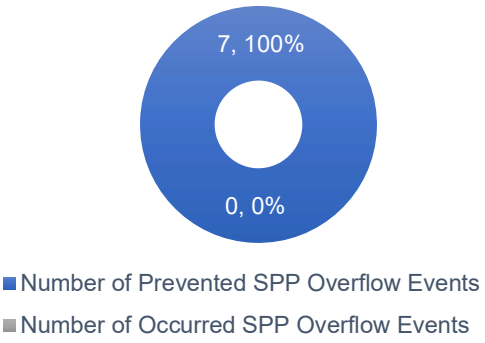
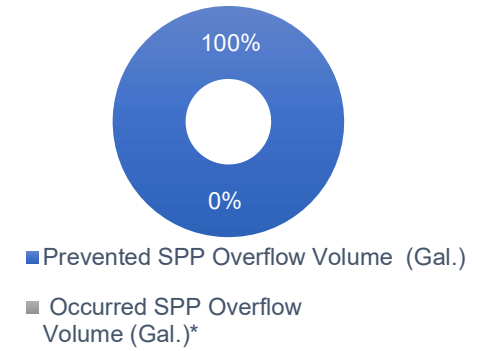
## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 7 | 0 | 5,009,361 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 3/2/2020 | 718,154 | - | 100% |
| 3/3/2020 | 713,502 | - | 100% |
| 3/10/2020 | 706,627 | - | 100% |
| 3/13/2020 | 680,224 | - | 100% |
| 3/20/2020 | 914,700 | - | 100% |
| 3/28/2020 | 700,185 | - | 100% |
| 3/29/2020 | 575,969 | - | 100% |

# March 2, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/2/2020 14:05 |
| Event End Date/Time: | 3/3/2020 3:05 |

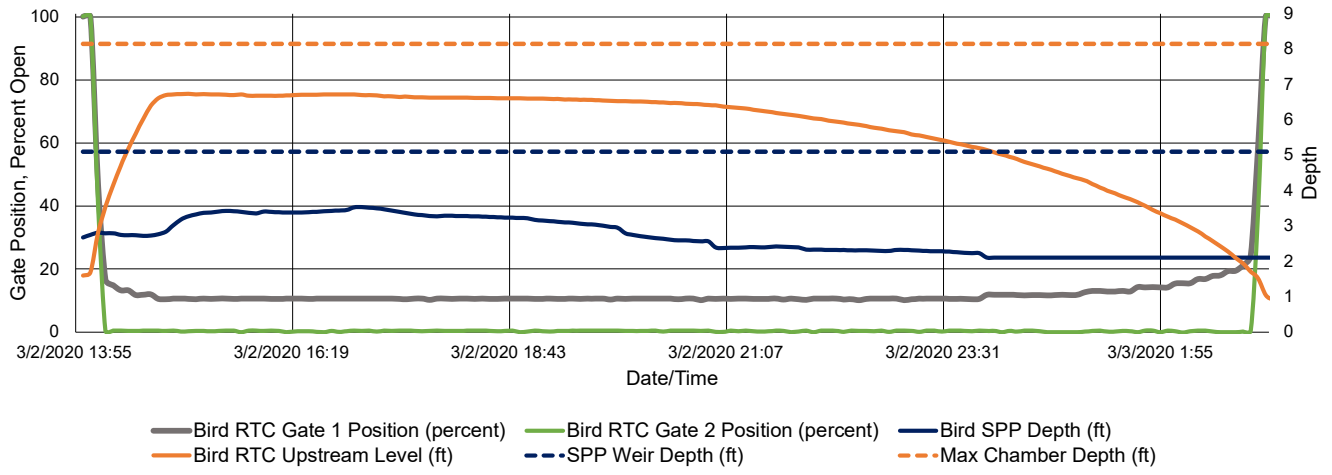
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.32 in. |
| Storm Event Duration: | 13 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.69 ft. |
| Return to Normal Depth: | 1.52 ft. |
| Time Gate 1 Activated: | 3/2/2020 14:05 |
| Time Gate 2 Activated: | 3/2/2020 14:05 |
| Time Gate 1 Returned to Normal: | 3/3/2020 3:05 |
| Time Gate 2 Returned to Normal: | 3/3/2020 3:00 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.74 ft. |
| Volume Stored: | 718,154 Gal. |
| Unused Storage Volume: | 371,665 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 718,154 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

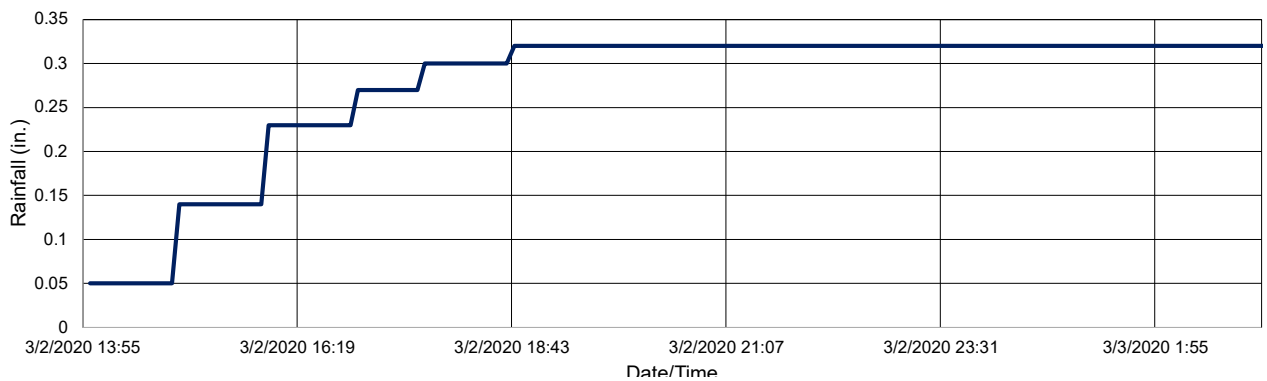
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# March 3, 2020 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/3/2020 12:05 |
| Event End Date/Time: | 3/4/2020 5:15 |

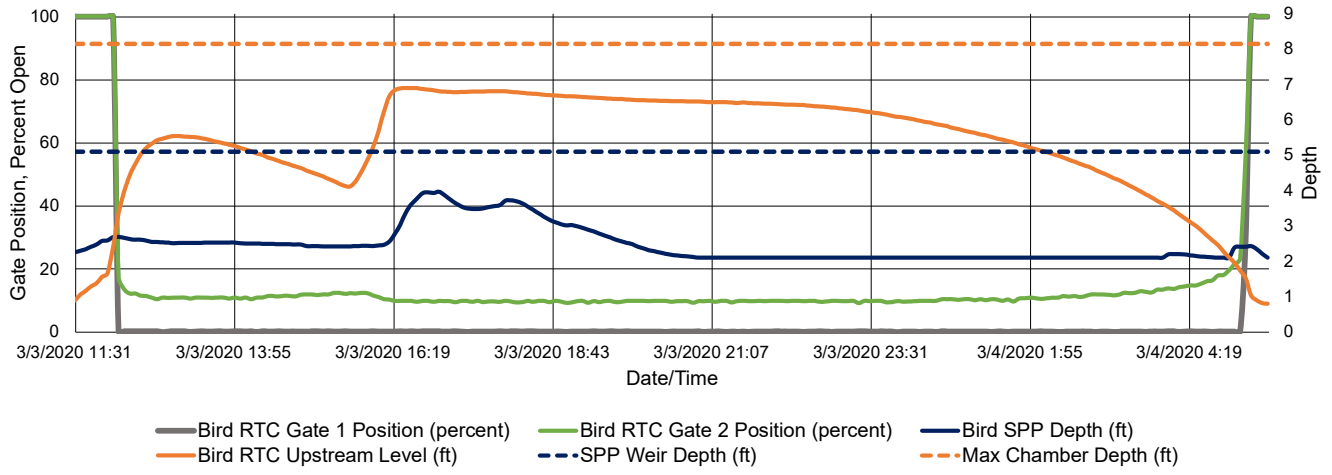
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.25 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.40 ft. |
| Return to Normal Depth: | 1.53 ft. |
| Time Gate 1 Activated: | 3/3/2020 12:05 |
| Time Gate 2 Activated: | 3/3/2020 12:05 |
| Time Gate 1 Returned to Normal: | 3/4/2020 5:15 |
| Time Gate 2 Returned to Normal: | 3/4/2020 5:10 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.90 ft. |
| Volume Stored: | 713,502 Gal. |
| Unused Storage Volume: | 333,248 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 713,502 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

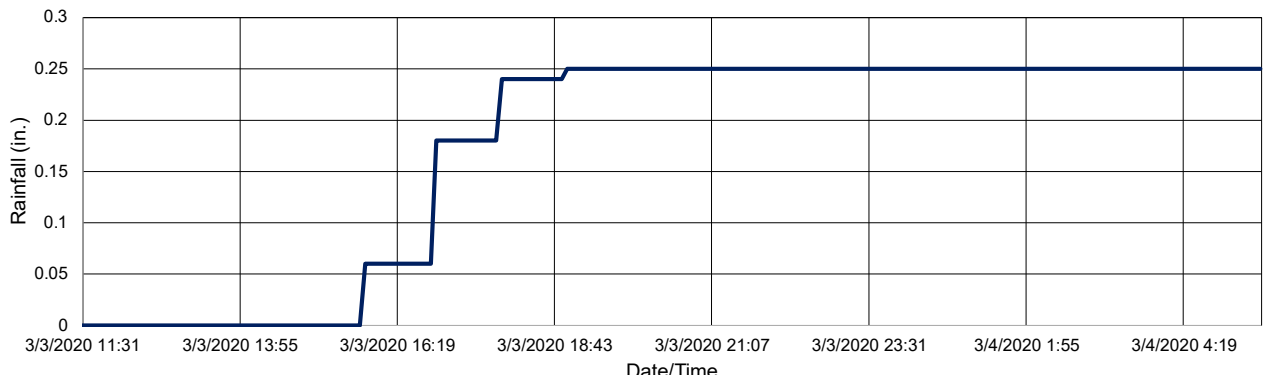
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/10/2020 9:45 |
| Event End Date/Time: | 3/10/2020 19:25 |

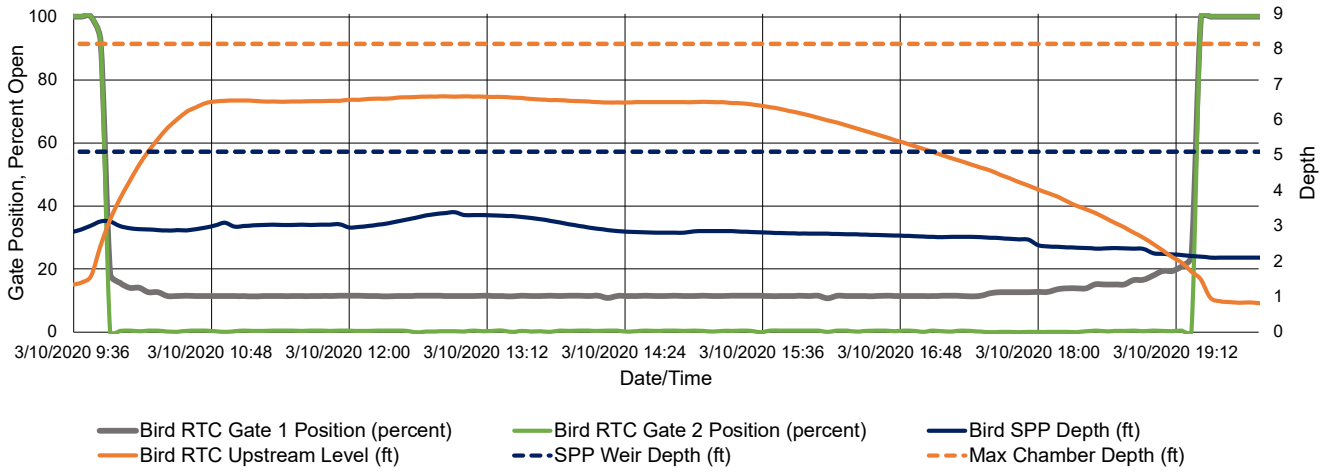
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.4 in. |
| Storm Event Duration: | 10 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.58 ft. |
| Return to Normal Depth: | 1.71 ft. |
| Time Gate 1 Activated: | 3/10/2020 9:45 |
| Time Gate 2 Activated: | 3/10/2020 9:45 |
| Time Gate 1 Returned to Normal: | 3/10/2020 19:25 |
| Time Gate 2 Returned to Normal: | 3/10/2020 19:20 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.67 ft. |
| Volume Stored: | 706,627 Gal. |
| Unused Storage Volume: | 388,170 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 706,627 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

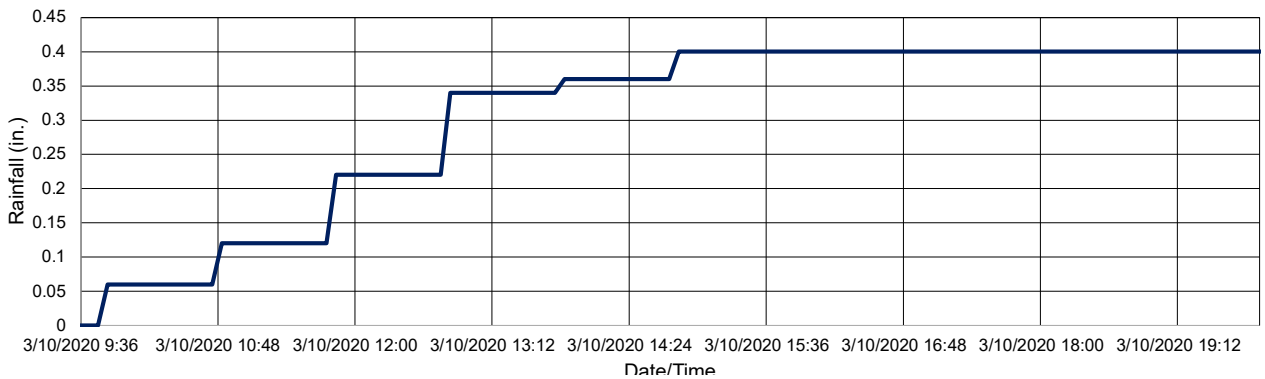
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# March 13, 2020 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/13/2020 6:40 |
| Event End Date/Time: | 3/13/2020 12:10 |

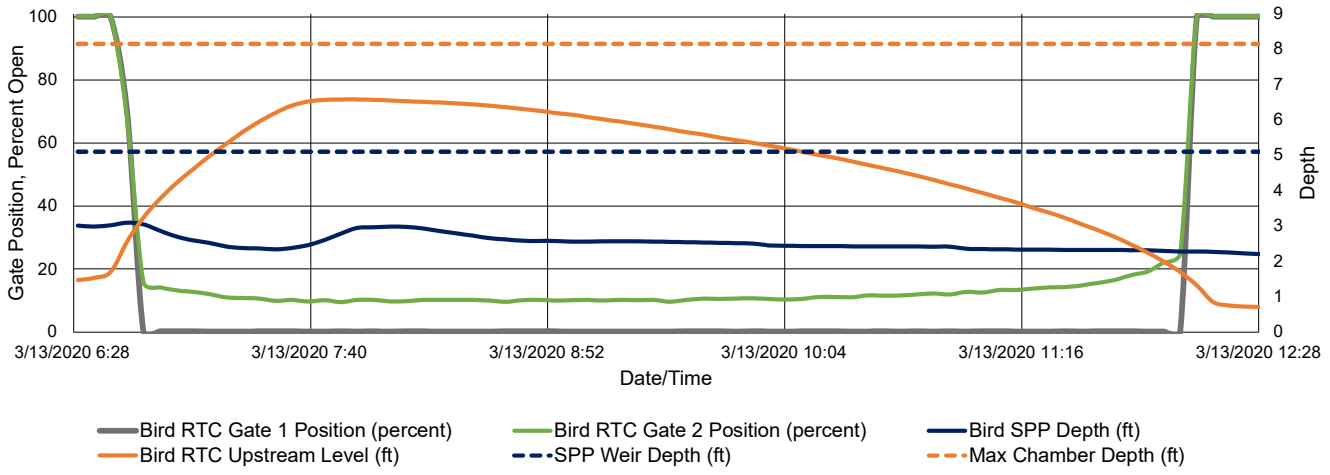
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.22 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.70 ft. |
| Return to Normal Depth: | 1.70 ft. |
| Time Gate 1 Activated: | 3/13/2020 6:40 |
| Time Gate 2 Activated: | 3/13/2020 6:40 |
| Time Gate 1 Returned to Normal: | 3/13/2020 12:10 |
| Time Gate 2 Returned to Normal: | 3/13/2020 12:05 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.58 ft. |
| Volume Stored: | 680,224 Gal. |
| Unused Storage Volume: | 409,120 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 680,224 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

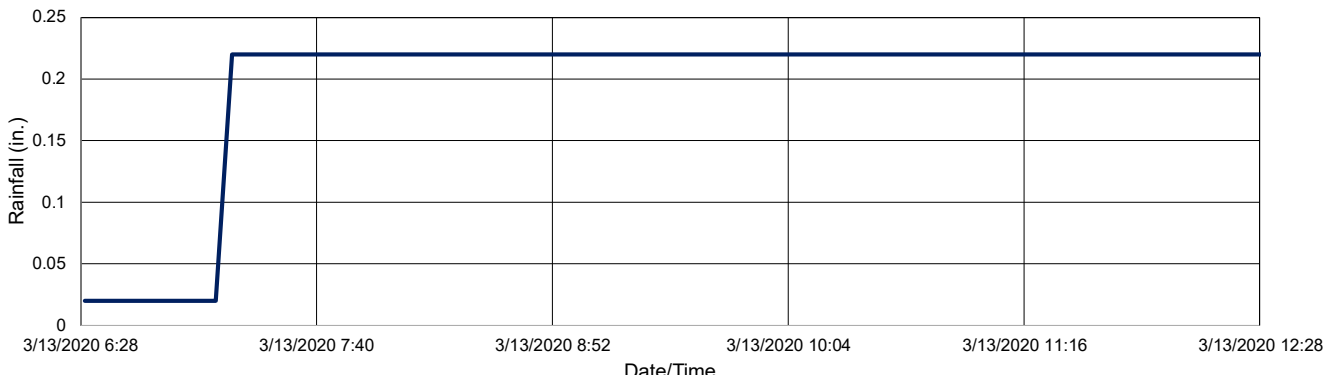
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# March 20, 2020 5

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/20/2020 2:10 |
| Event End Date/Time: | 3/20/2020 13:45 |

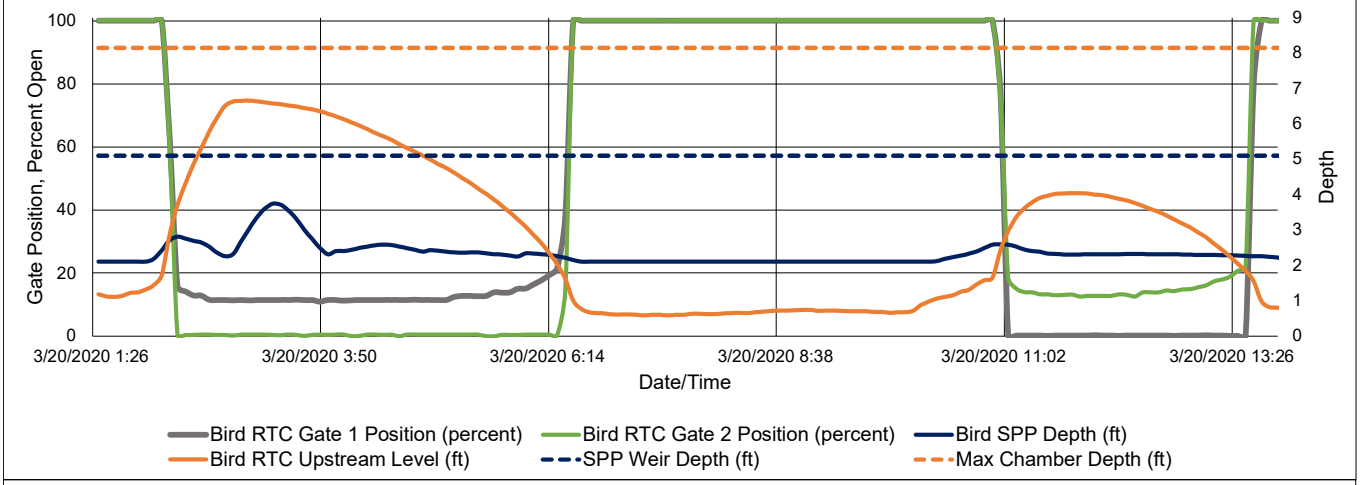
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.6 in. |
| Storm Event Duration: | 12 hr. |
| Storm Type: | < 1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.72 ft. |
| Return to Normal Depth: | 1.62 ft. |
| Time Gate 1 Activated: | 3/20/2020 2:10 |
| Time Gate 2 Activated: | 3/20/2020 2:10 |
| Time Gate 1 Returned to Normal: | 3/20/2020 13:45 |
| Time Gate 2 Returned to Normal: | 3/20/2020 13:35 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.66 ft. |
| Volume Stored: | 914,700 Gal. |
| Unused Storage Volume: | 201,422 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 914,700 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

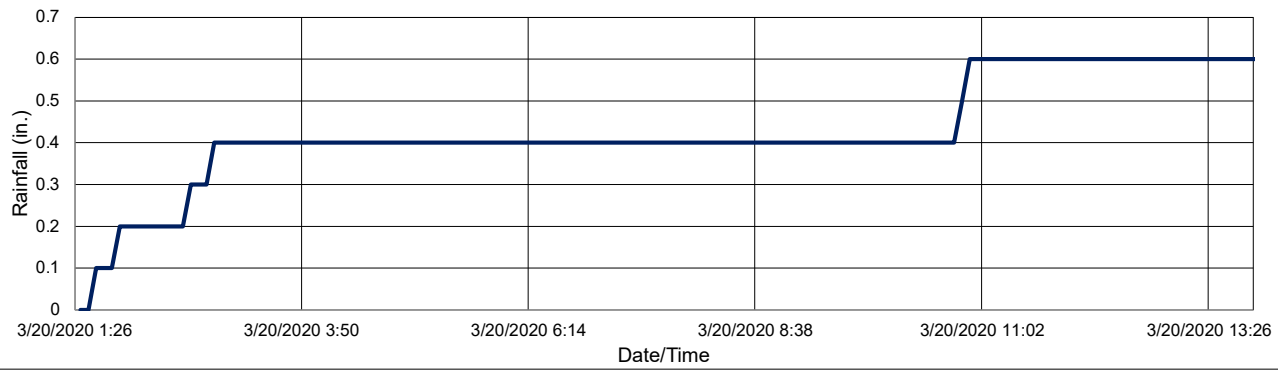
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# March 28, 2020 6

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/28/2020 10:15 |
| Event End Date/Time: | 3/28/2020 18:00 |

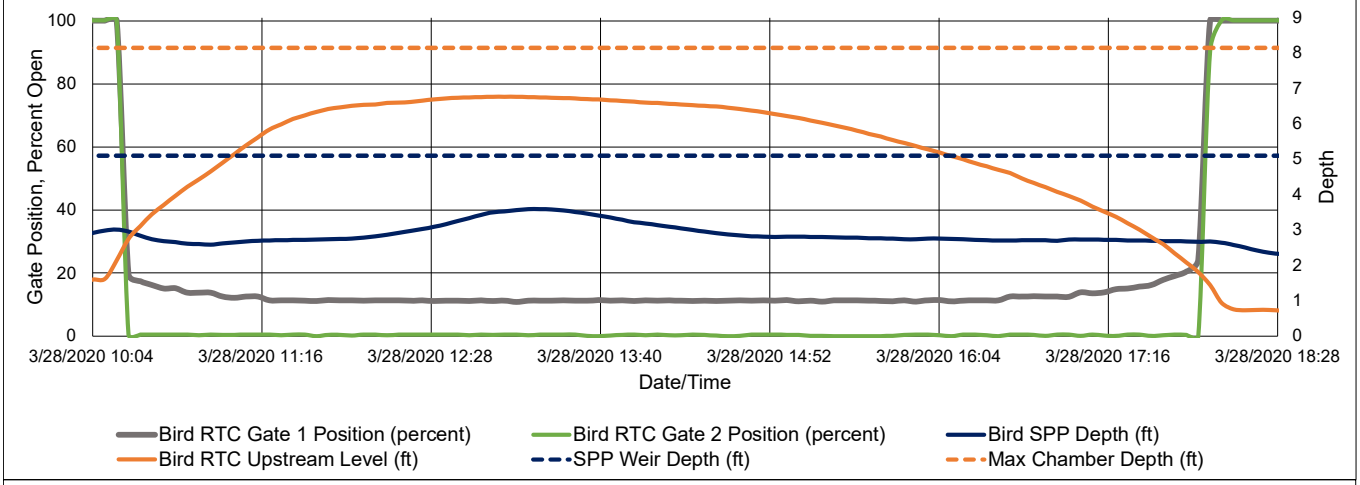
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.6 in. |
| Storm Event Duration: | 8 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.14 ft. |
| Return to Normal Depth: | 1.81 ft. |
| Time Gate 1 Activated: | 3/28/2020 10:15 |
| Time Gate 2 Activated: | 3/28/2020 10:15 |
| Time Gate 1 Returned to Normal: | 3/28/2020 18:00 |
| Time Gate 2 Returned to Normal: | 3/28/2020 18:00 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.77 ft. |
| Volume Stored: | 700,185 Gal. |
| Unused Storage Volume: | 364,535 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 700,185 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

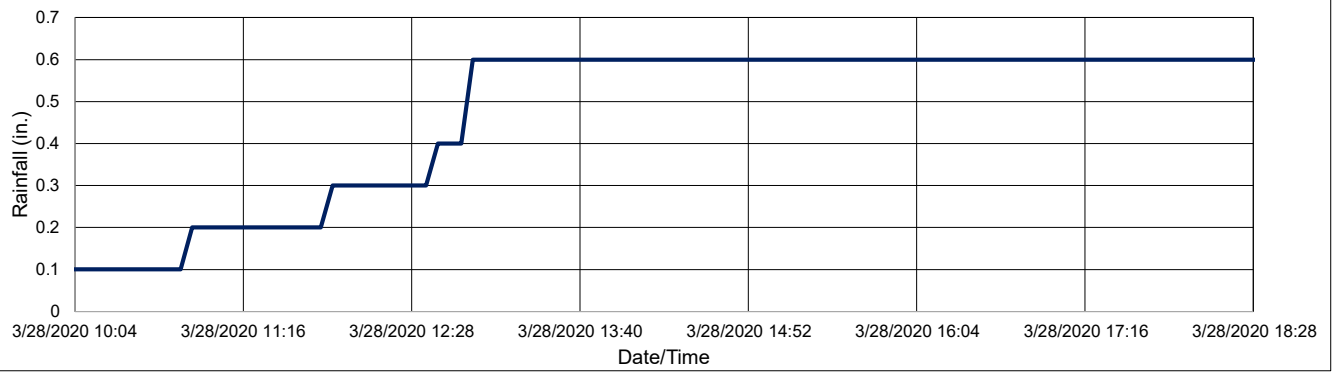
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# March 29, 2020 7

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 4/8/2020 |
| Event Start Date/Time: | 3/29/2020 5:40 |
| Event End Date/Time: | 3/29/2020 23:00 |

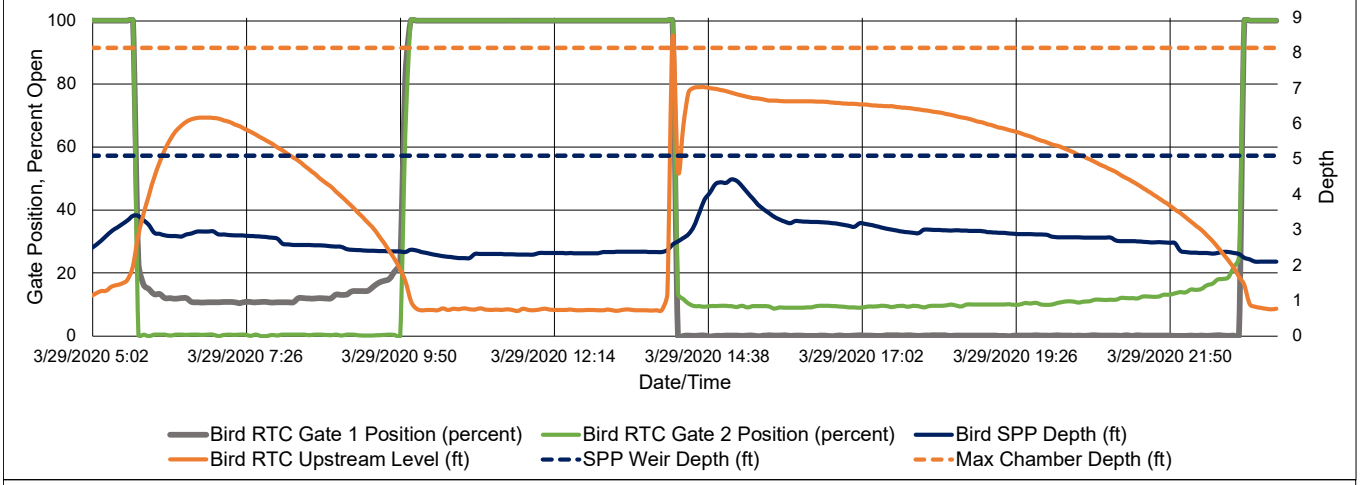
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.1 in. |
| Storm Event Duration: | 18 hr. |
| Storm Type: | < 1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.98 ft. |
| Return to Normal Depth: | 1.55 ft. |
| Time Gate 1 Activated: | 3/29/2020 5:40 |
| Time Gate 2 Activated: | 3/29/2020 5:40 |
| Time Gate 1 Returned to Normal: | 3/29/2020 23:00 |
| Time Gate 2 Returned to Normal: | 3/29/2020 22:55 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.18 ft. |
| Volume Stored: | 575,969 Gal. |
| Unused Storage Volume: | 540,153 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 575,969 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

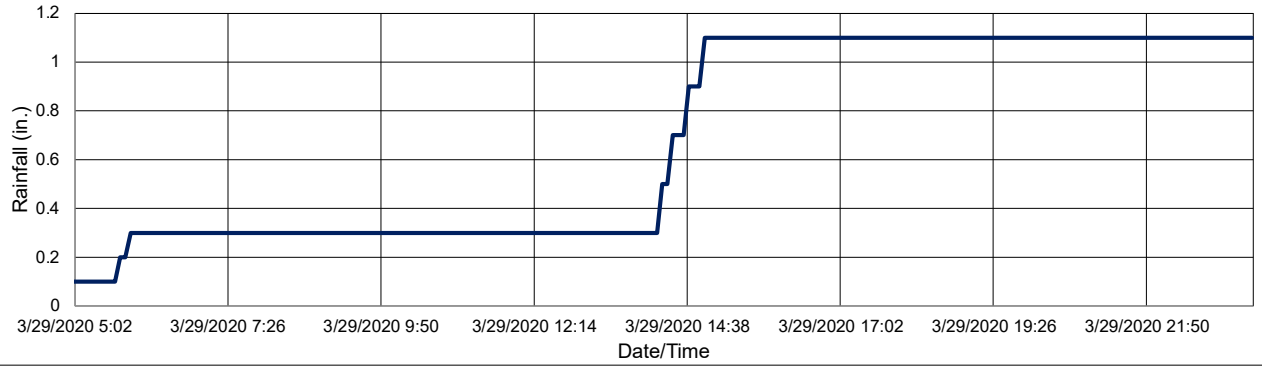
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# April 2020
# Bird Ave. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

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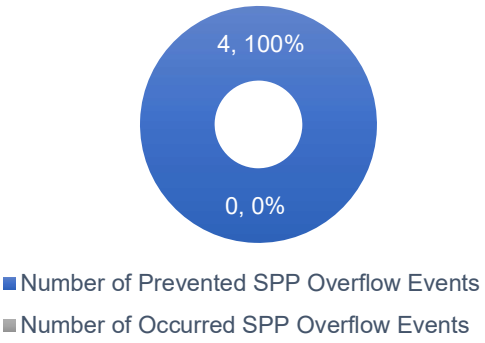
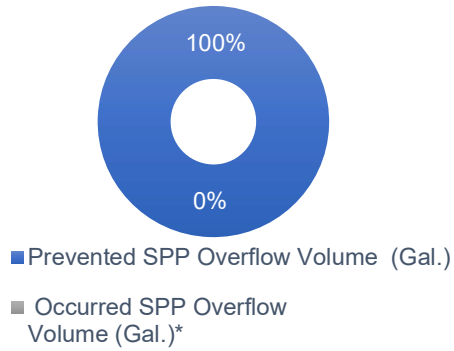
# Bird Ave. RTC Monthly Performance Report — April 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 4 | 0 | 2,373,207 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 4/7/2020 | 236,477 | - | 100% |
| 4/13/2020 | 743,675 | - | 100% |
| 4/19/2020 | 684,875 | - | 100% |
| 4/30/2020 | 708,180 | - | 100% |

# April 7, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/7/2020 23:05 |
| Event End Date/Time: | 4/8/2020 1:10 |

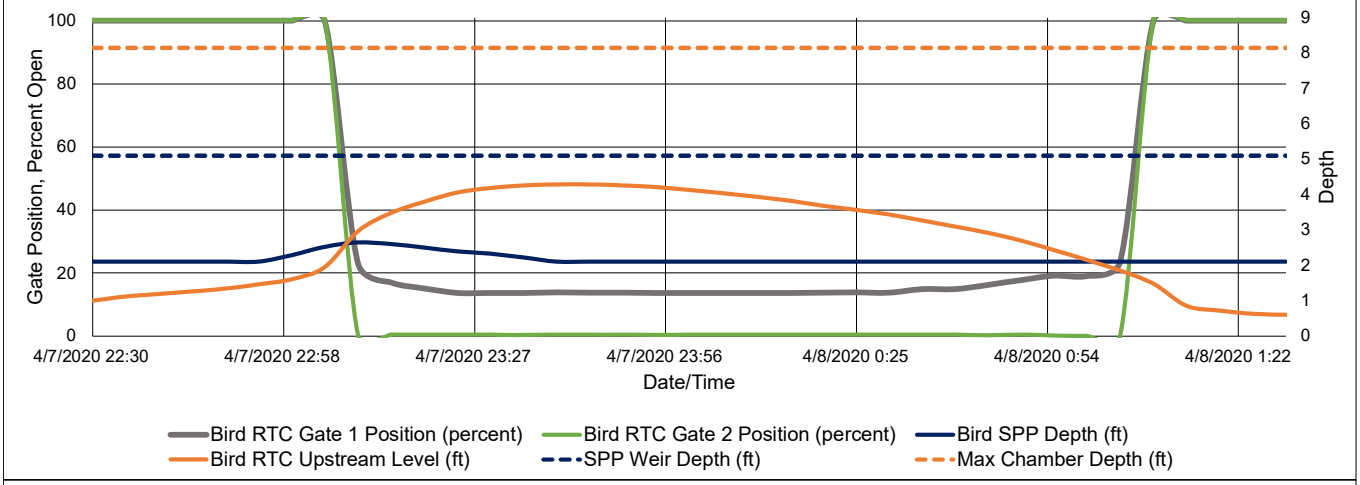
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.25 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.95 ft. |
| Return to Normal Depth: | 1.85 ft. |
| Time Gate 1 Activated: | 4/7/2020 23:05 |
| Time Gate 2 Activated: | 4/7/2020 23:05 |
| Time Gate 1 Returned to Normal: | 4/8/2020 1:10 |
| Time Gate 2 Returned to Normal: | 4/8/2020 1:05 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 4.29 ft. |
| Volume Stored: | 236,477 Gal. |
| Unused Storage Volume: | 839,768 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 236,477 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

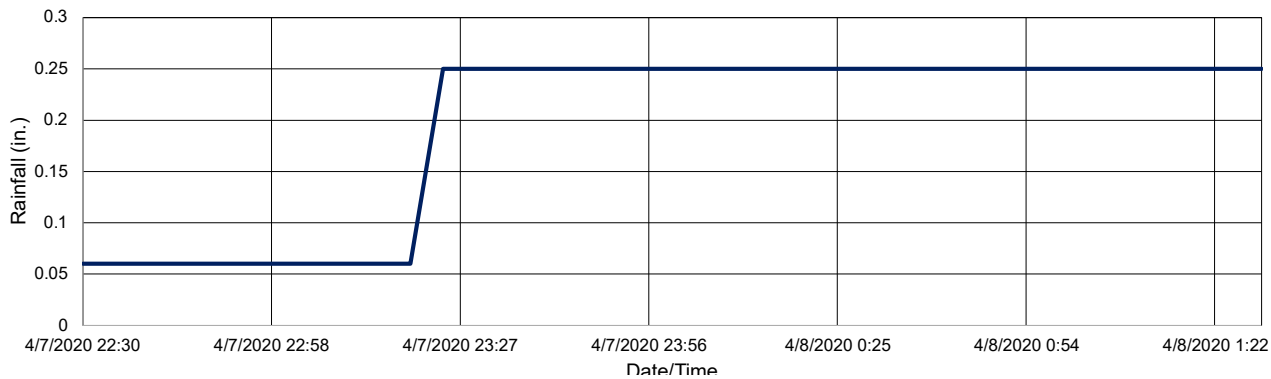
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# April 13, 2020 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/13/2020 3:15 |
| Event End Date/Time: | 4/13/2020 21:55 |

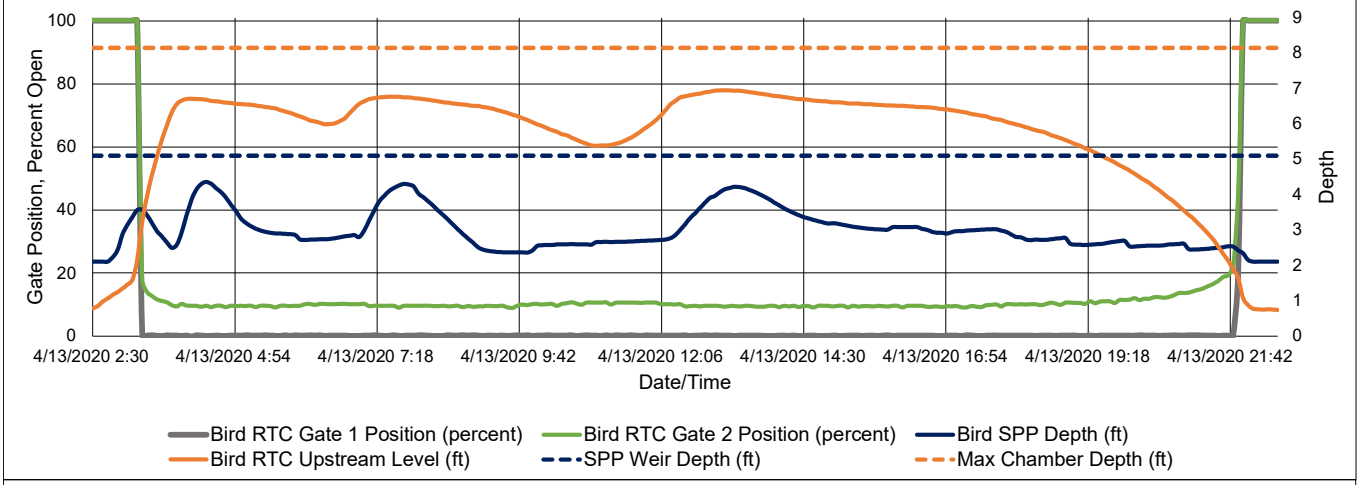
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.59 in. |
| Storm Event Duration: | 8 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.14 ft. |
| Return to Normal Depth: | 1.63 ft. |
| Time Gate 1 Activated: | 4/13/2020 3:15 |
| Time Gate 2 Activated: | 4/13/2020 3:15 |
| Time Gate 1 Returned to Normal: | 4/13/2020 21:55 |
| Time Gate 2 Returned to Normal: | 4/13/2020 21:50 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.95 ft. |
| Volume Stored: | 743,675 Gal. |
| Unused Storage Volume: | 321,046 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 743,675 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

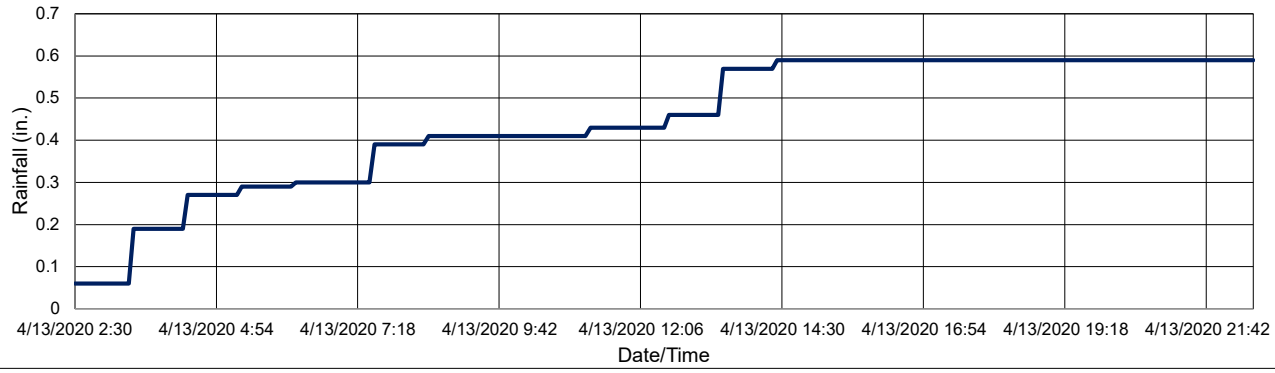
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# April 19, 2020 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/19/2020 14:05 |
| Event End Date/Time: | 4/19/2020 20:25 |

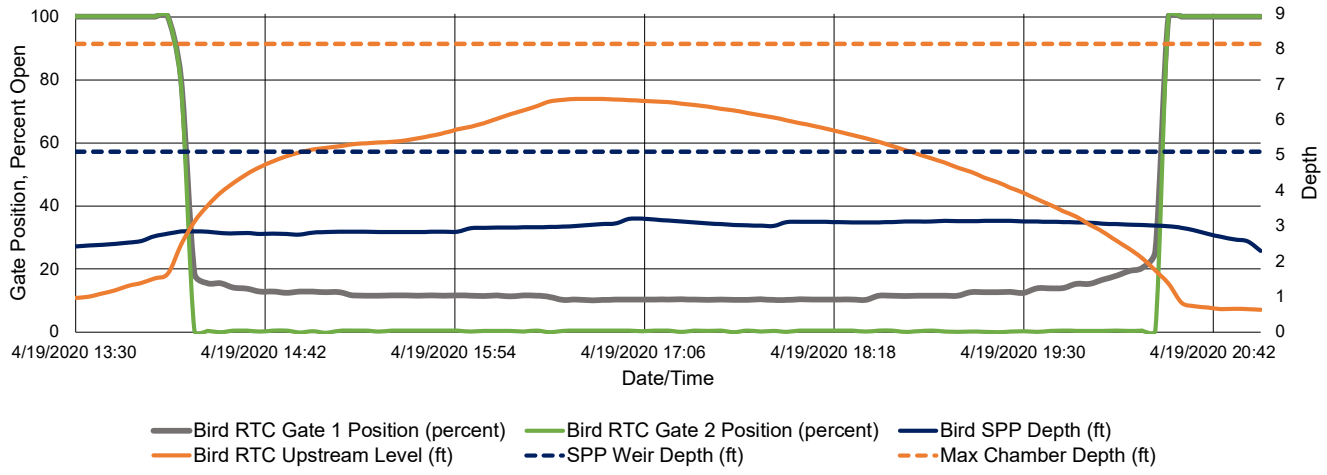
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 8 hr. |
| Storm Type: | N/A |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.65 ft. |
| Return to Normal Depth: | 1.74 ft. |
| Time Gate 1 Activated: | 4/19/2020 14:05 |
| Time Gate 2 Activated: | 4/19/2020 14:05 |
| Time Gate 1 Returned to Normal: | 4/19/2020 20:25 |
| Time Gate 2 Returned to Normal: | 4/19/2020 20:20 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.59 ft. |
| Volume Stored: | 684,875 Gal. |
| Unused Storage Volume: | 406,807 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 684,875 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

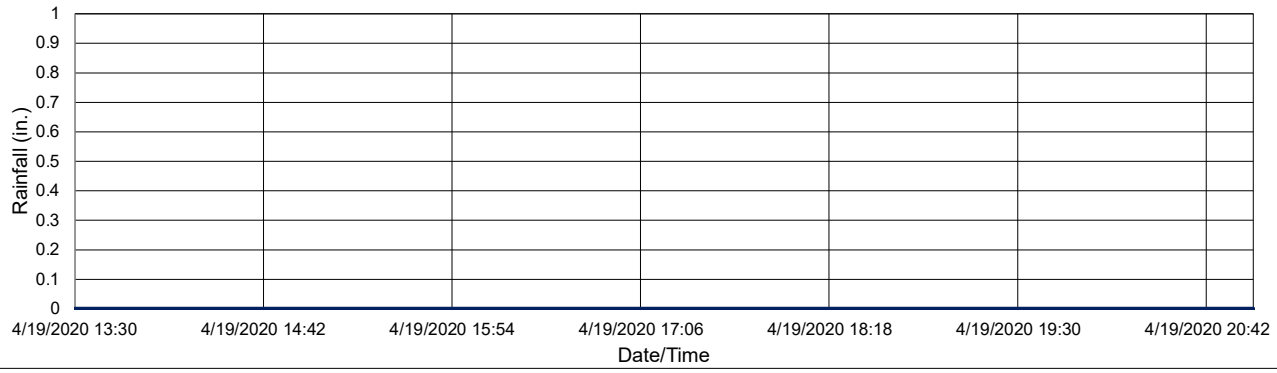
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.

## RTC Gate Performance




## Rainfall Accumulation



# April 30, 2020 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 5/8/2020 |
| Event Start Date/Time: | 4/30/2020 7:10 |
| Event End Date/Time: | 4/30/2020 21:50 |

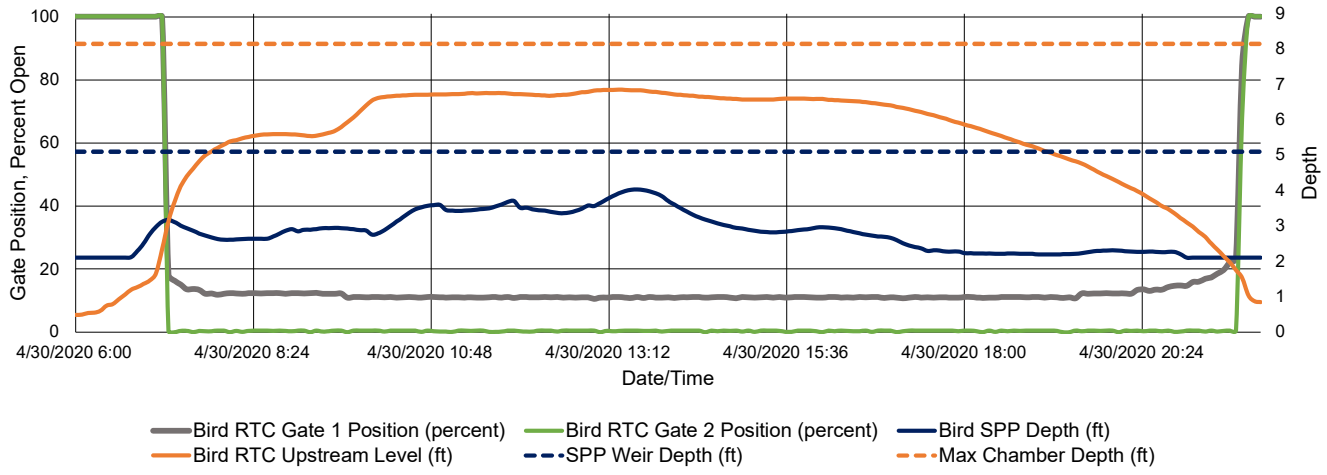
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.87 in. |
| Storm Event Duration: | 16 hr. |
| Storm Type: | < 1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.34 ft. |
| Return to Normal Depth: | 1.53 ft. |
| Time Gate 1 Activated: | 4/30/2020 7:10 |
| Time Gate 2 Activated: | 4/30/2020 7:10 |
| Time Gate 1 Returned to Normal: | 4/30/2020 21:50 |
| Time Gate 2 Returned to Normal: | 4/30/2020 21:45 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.86 ft. |
| Volume Stored: | 708,180 Gal. |
| Unused Storage Volume: | 407,942 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 708,180 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

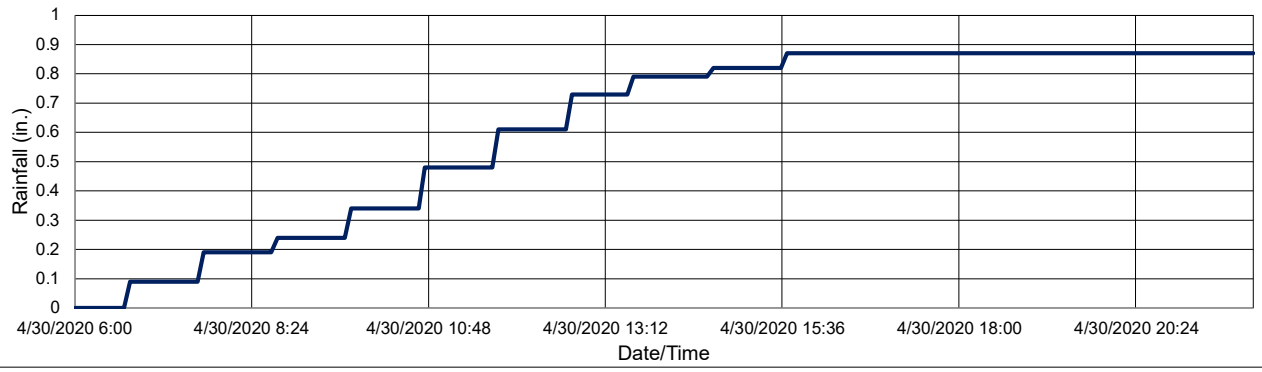
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 2020
# Bird Ave. RTC
# KPI Report

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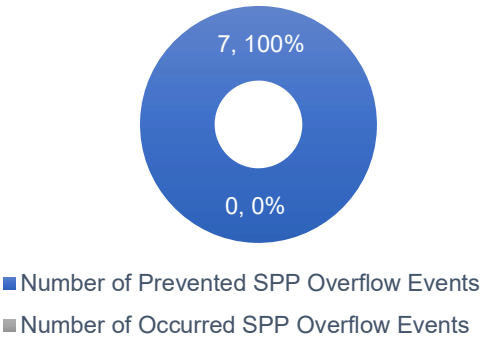
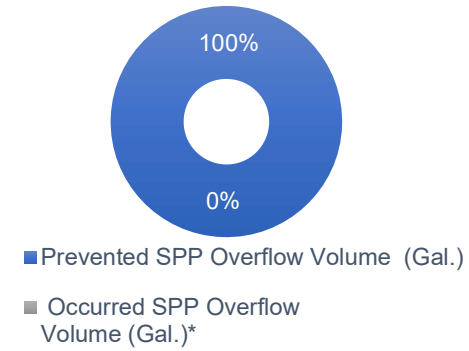
# Bird Ave. RTC Monthly Performance Report — May 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 7 | 0 | 4,918,626 | - |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 5/11/2020 | 241,853 | - | 100% |
| 5/15/2020 | 460,203 | - | 100% |
| 5/17/2020 | 1,434,157 | - | 100% |
| 5/22/2020 | 691,811 | - | 100% |
| 5/25/2020 | 681,559 | - | 100% |
| 5/28/2020 | 629,946 | - | 100% |
| 5/29/2020 | 779,097 | - | 100% |

# May 11, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/11/2020 6:35 |
| Event End Date/Time: | 5/11/2020 8:55 |

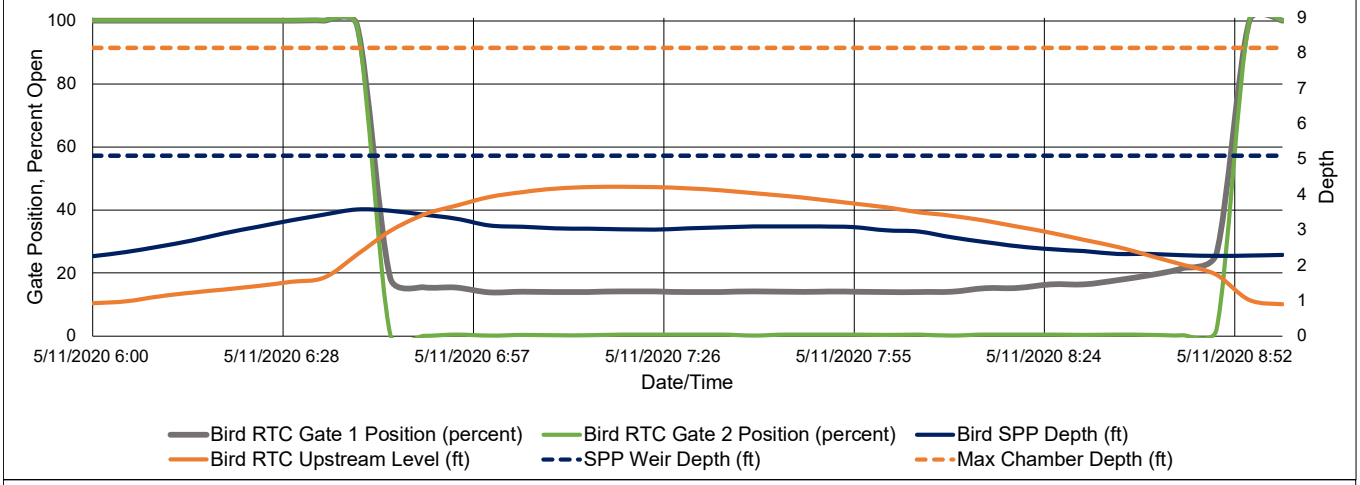
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.22 in. |
| Storm Event Duration: | 3 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.65 ft. |
| Return to Normal Depth: | 1.73 ft. |
| Time Gate 1 Activated: | 5/11/2020 6:35 |
| Time Gate 2 Activated: | 5/11/2020 6:35 |
| Time Gate 1 Returned to Normal: | 5/11/2020 8:55 |
| Time Gate 2 Returned to Normal: | 5/11/2020 8:50 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 4.22 ft. |
| Volume Stored: | 241,853 Gal. |
| Unused Storage Volume: | 849,828 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 241,853 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

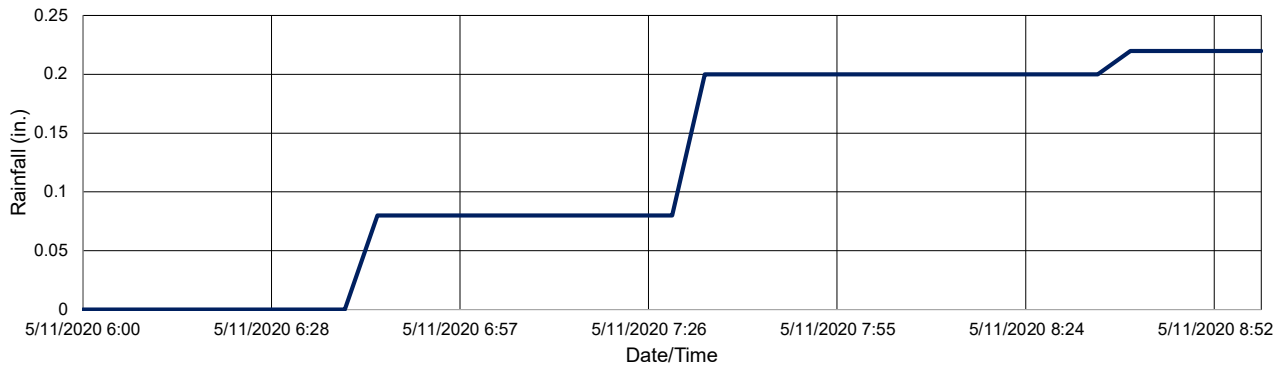
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 15, 2020 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/15/2020 18:45 |
| Event End Date/Time: | 5/15/2020 22:20 |

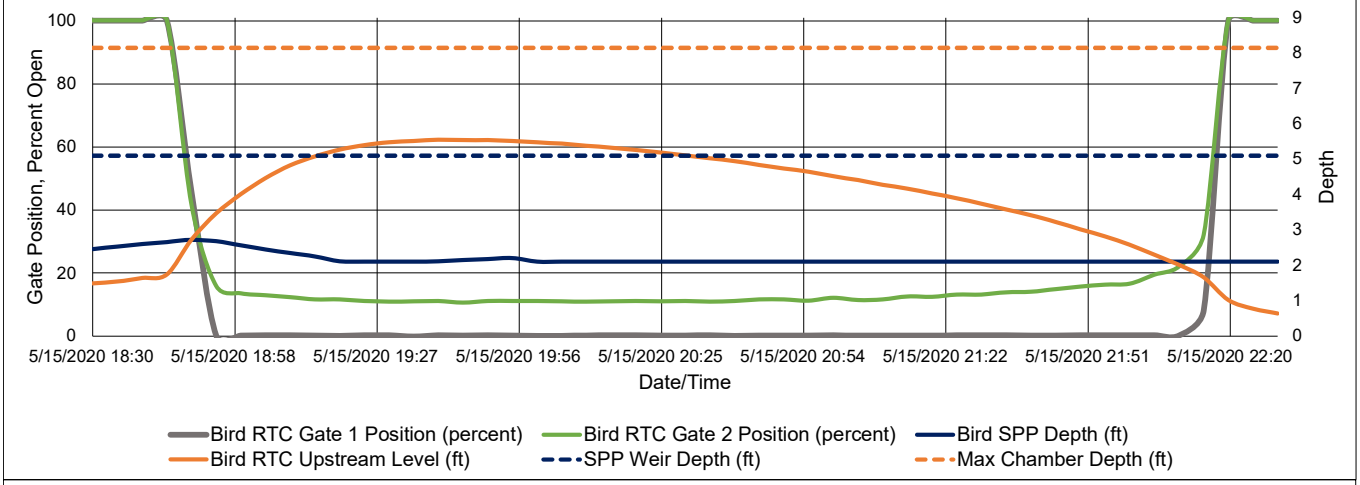
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.32 in. |
| Storm Event Duration: | 4 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.74 ft. |
| Return to Normal Depth: | 1.66 ft. |
| Time Gate 1 Activated: | 5/15/2020 18:45 |
| Time Gate 2 Activated: | 5/15/2020 18:45 |
| Time Gate 1 Returned to Normal: | 5/15/2020 22:20 |
| Time Gate 2 Returned to Normal: | 5/15/2020 22:15 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 5.55 ft. |
| Volume Stored: | 460,203 Gal. |
| Unused Storage Volume: | 627,203 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 460,203 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

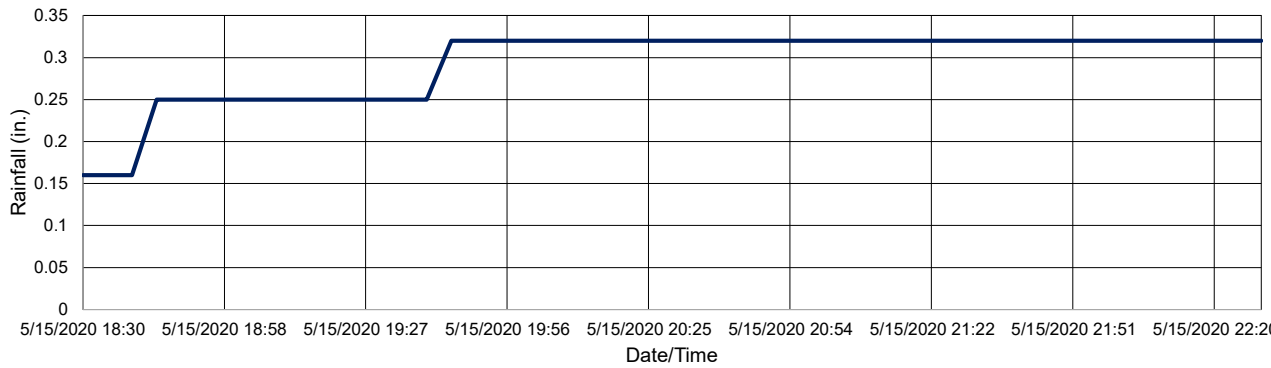
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 17, 2020 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/17/2020 19:25 |
| Event End Date/Time: | 5/18/2020 12:40 |

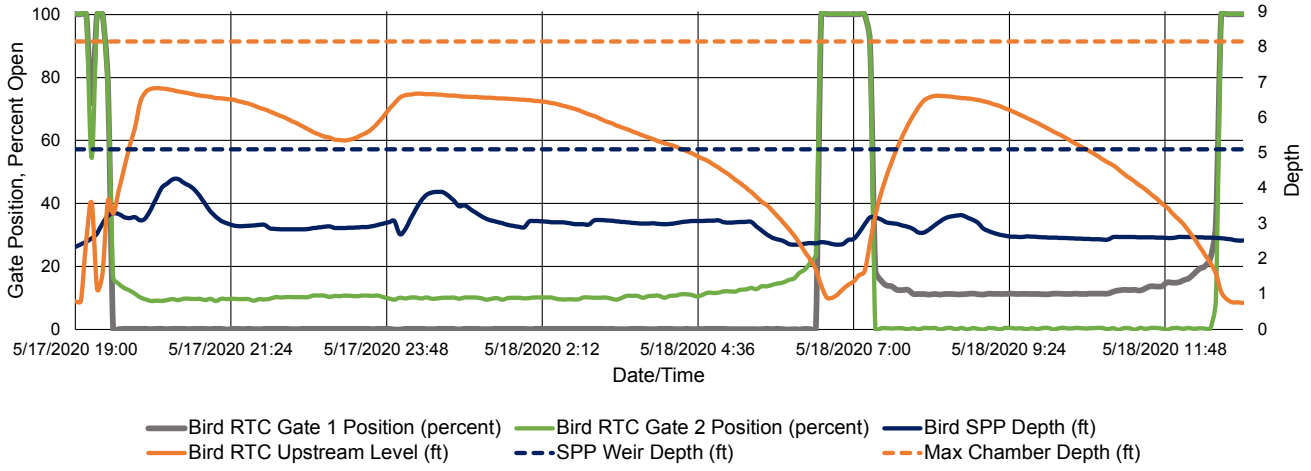
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.27 in. |
| Storm Event Duration: | 17 hr. |
| Storm Type: | < 1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.59 ft. |
| Return to Normal Depth: | 1.69 ft. |
| Time Gate 1 Activated: | 5/17/2020 19:25 |
| Time Gate 2 Activated: | 5/17/2020 19:25 |
| Time Gate 1 Returned to Normal: | 5/18/2020 12:40 |
| Time Gate 2 Returned to Normal: | 5/18/2020 12:35 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.83 ft. |
| Volume Stored: | 1,434,157 Gal. |
| Unused Storage Volume: | 350,174 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 1,434,157 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

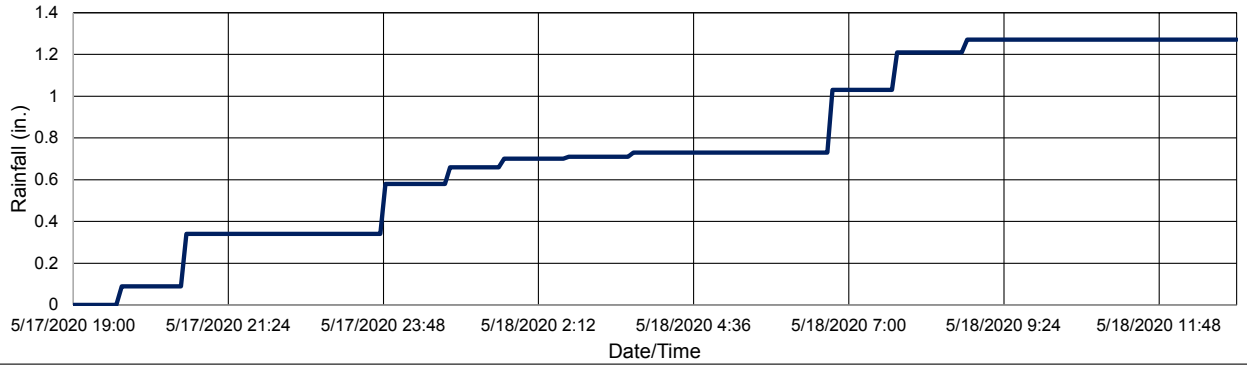
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 22, 2020 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/22/2020 23:10 |
| Event End Date/Time: | 5/23/2020 9:05 |

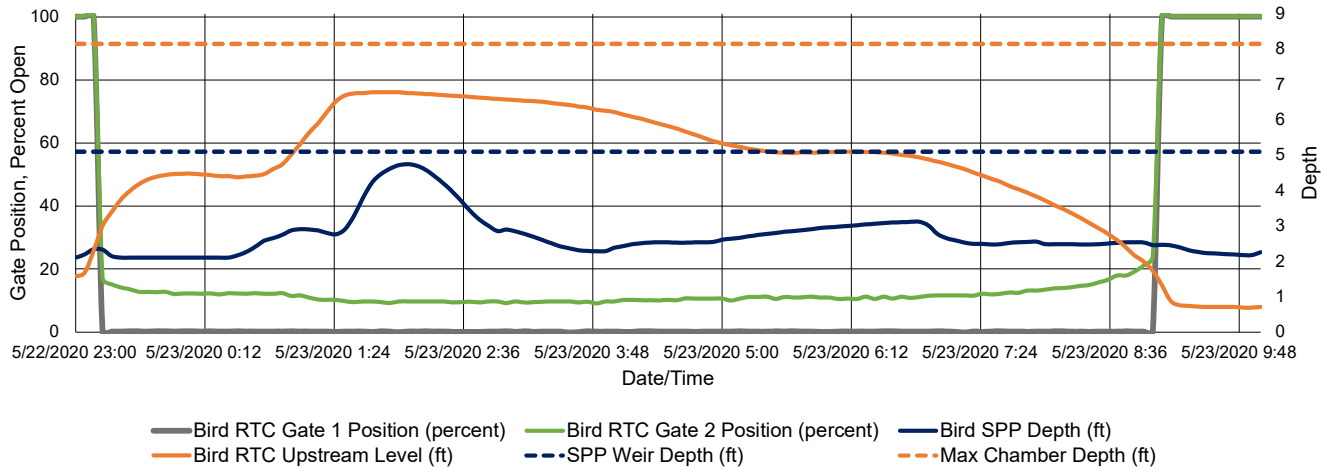
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.95 in. |
| Storm Event Duration: | 11 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.30 ft. |
| Return to Normal Depth: | 1.73 ft. |
| Time Gate 1 Activated: | 5/22/2020 23:10 |
| Time Gate 2 Activated: | 5/22/2020 23:10 |
| Time Gate 1 Returned to Normal: | 5/23/2020 9:05 |
| Time Gate 2 Returned to Normal: | 5/23/2020 9:00 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.78 ft. |
| Volume Stored: | 691,811 Gal. |
| Unused Storage Volume: | 362,151 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 691,811 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

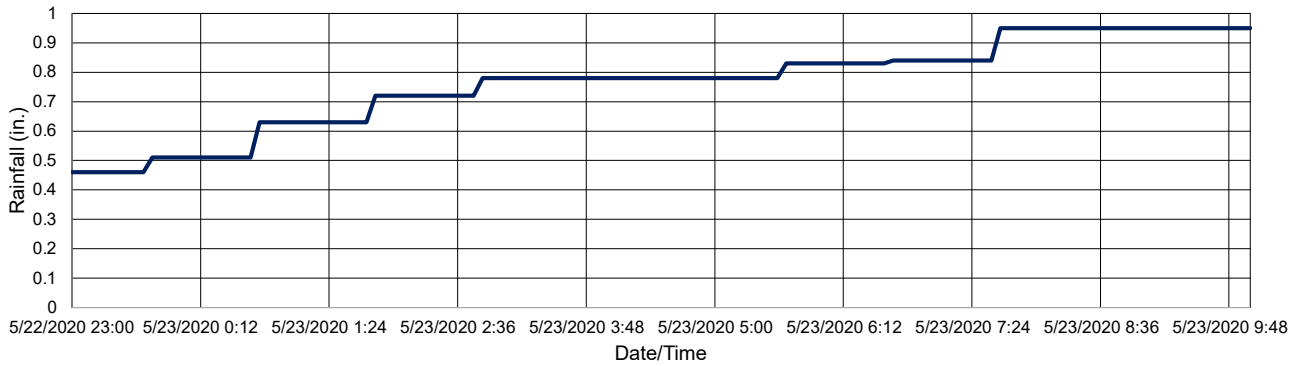
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 25, 2020 5

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/25/2020 6:40 |
| Event End Date/Time: | 5/25/2020 12:05 |

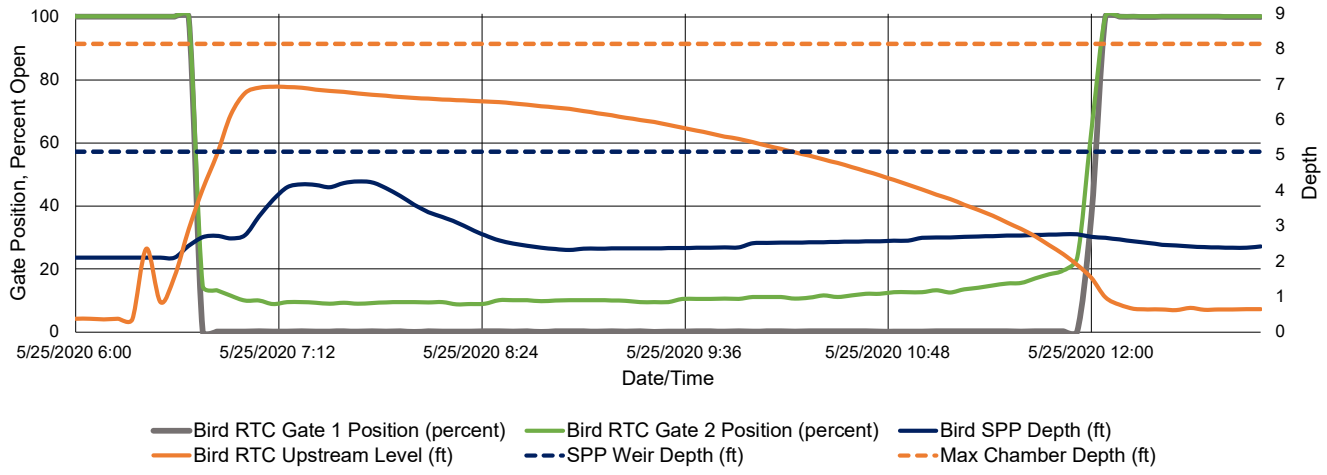
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0 in. |
| Storm Event Duration: | 7 hr. |
| Storm Type: | N/A |

| | |
|---|---|
| Gate Activation Trigger Depth: | 2.90 ft. |
| Return to Normal Depth: | 1.53 ft. |
| Time Gate 1 Activated: | 5/25/2020 6:40 |
| Time Gate 2 Activated: | 5/25/2020 6:40 |
| Time Gate 1 Returned to Normal: | 5/25/2020 12:05 |
| Time Gate 2 Returned to Normal: | 5/25/2020 12:00 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.94 ft. |
| Volume Stored: | 681,559 Gal. |
| Unused Storage Volume: | 323,494 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 681,559 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

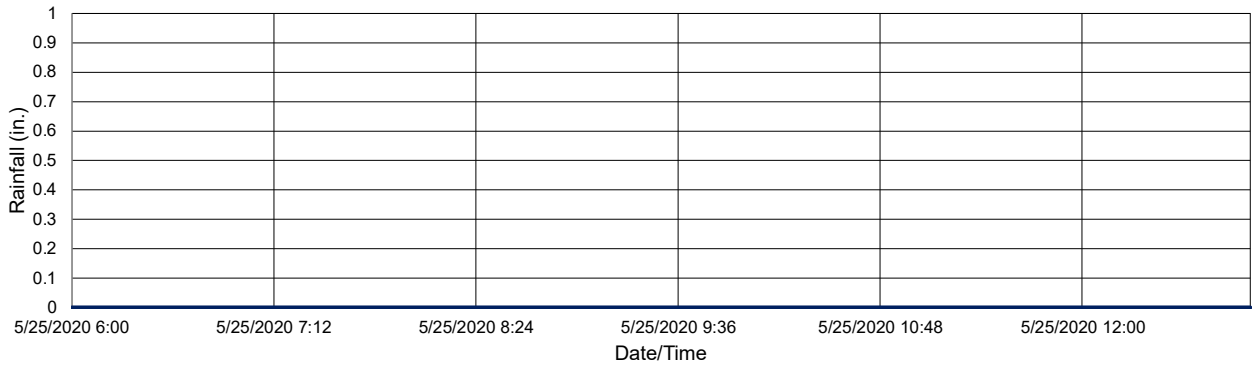
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.

## RTC Gate Performance




## Rainfall Accumulation



# May 28, 2020 6

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/28/2020 12:45 |
| Event End Date/Time: | 5/28/2020 17:00 |

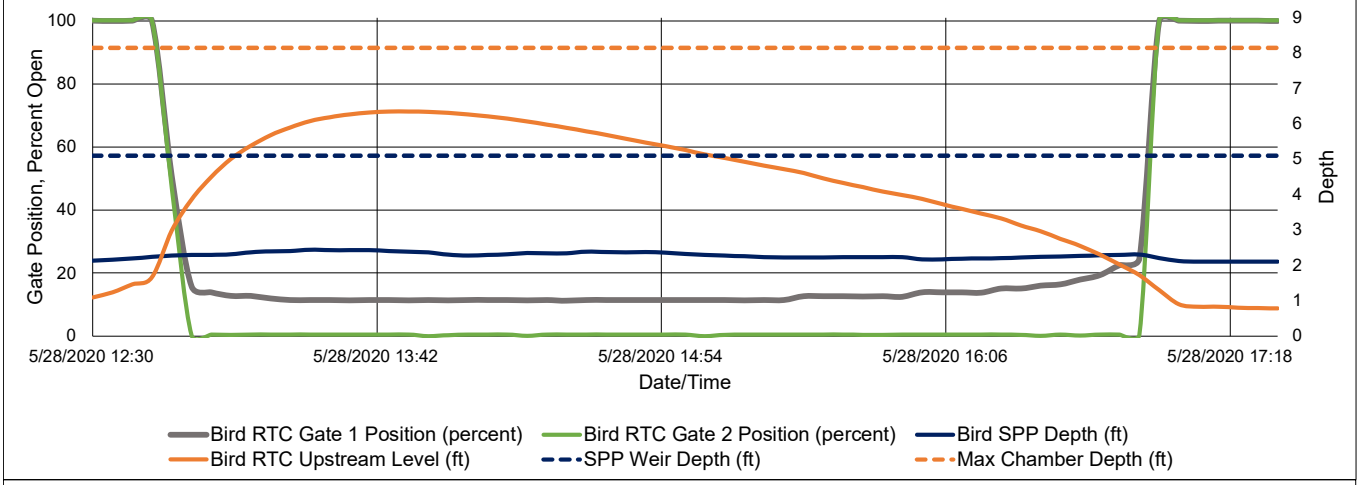
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.46 in. |
| Storm Event Duration: | 5 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.66 ft. |
| Return to Normal Depth: | 1.72 ft. |
| Time Gate 1 Activated: | 5/28/2020 12:45 |
| Time Gate 2 Activated: | 5/28/2020 12:45 |
| Time Gate 1 Returned to Normal: | 5/28/2020 17:00 |
| Time Gate 2 Returned to Normal: | 5/28/2020 16:55 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.35 ft. |
| Volume Stored: | 629,946 Gal. |
| Unused Storage Volume: | 461,275 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 629,946 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

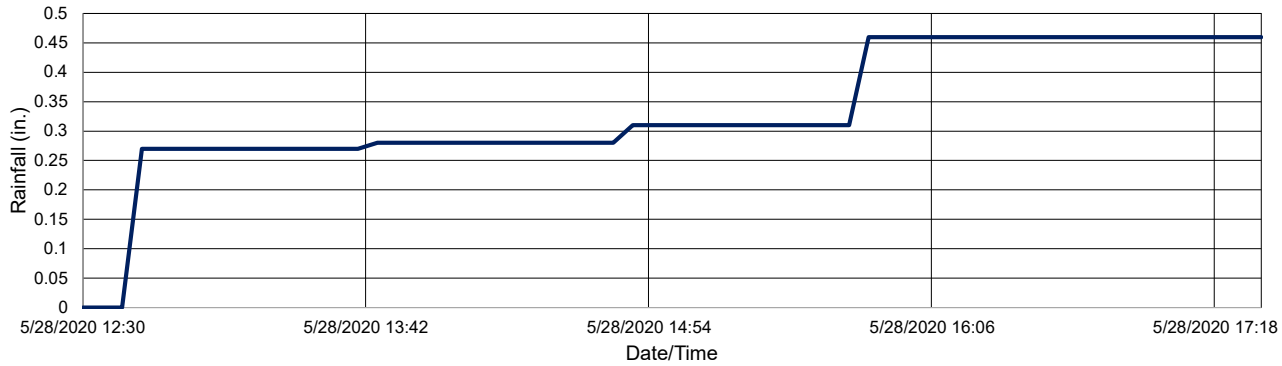
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# May 29, 2020 7

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 6/9/2020 |
| Event Start Date/Time: | 5/29/2020 11:50 |
| Event End Date/Time: | 5/30/2020 0:55 |

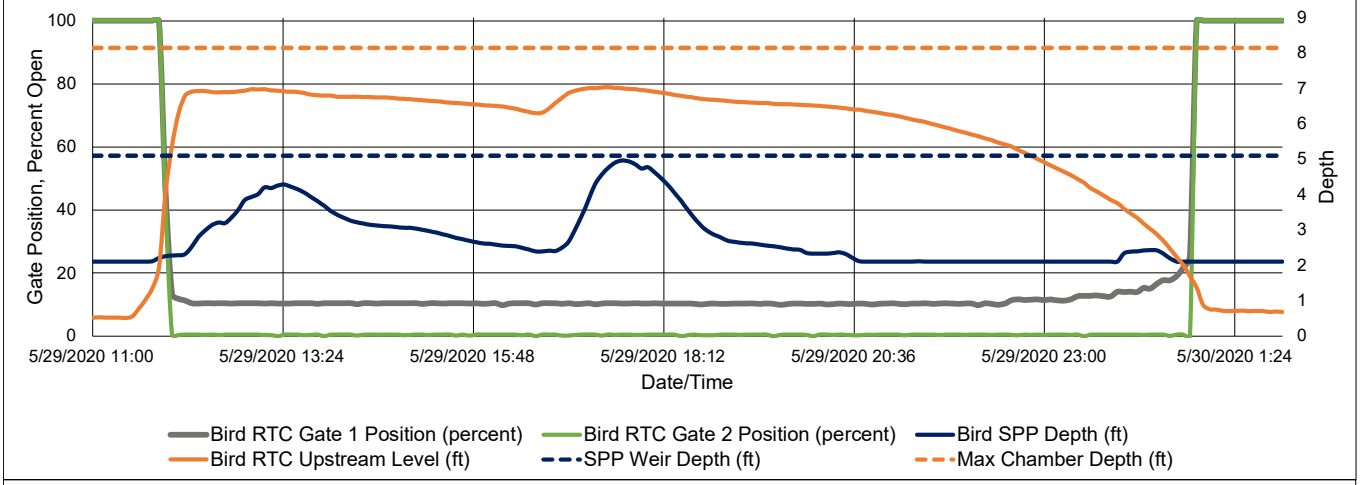
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.87 in. |
| Storm Event Duration: | 15 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.92 ft. |
| Return to Normal Depth: | 1.69 ft. |
| Time Gate 1 Activated: | 5/29/2020 11:50 |
| Time Gate 2 Activated: | 5/29/2020 11:50 |
| Time Gate 1 Returned to Normal: | 5/30/2020 0:55 |
| Time Gate 2 Returned to Normal: | 5/30/2020 0:50 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 7.04 ft. |
| Volume Stored: | 779,097 Gal. |
| Unused Storage Volume: | 298,844 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 779,097 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

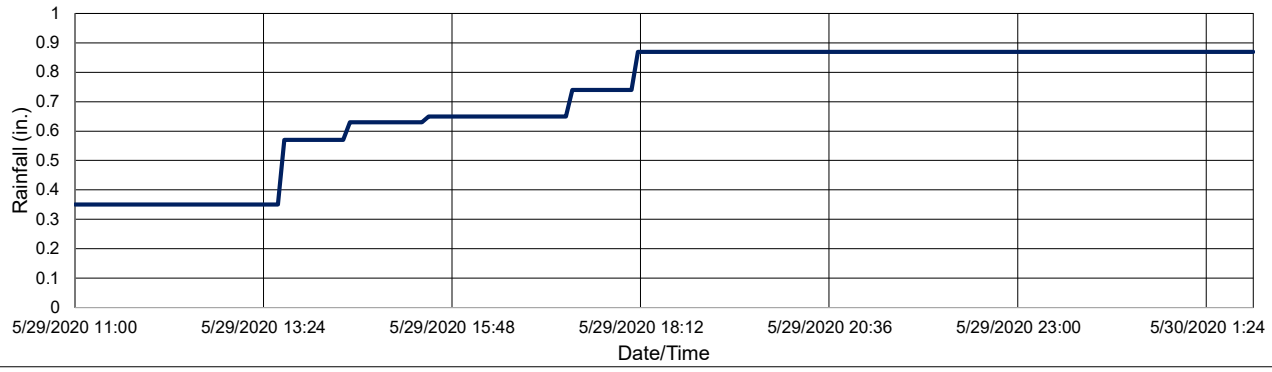
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 2020
# Bird Ave. RTC
# KPI Report

BUFFALO SEWER AUTHORITY

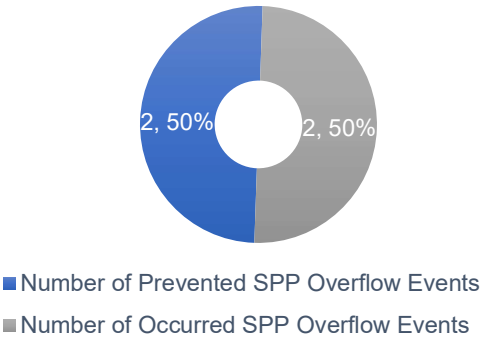
emnet

GHD

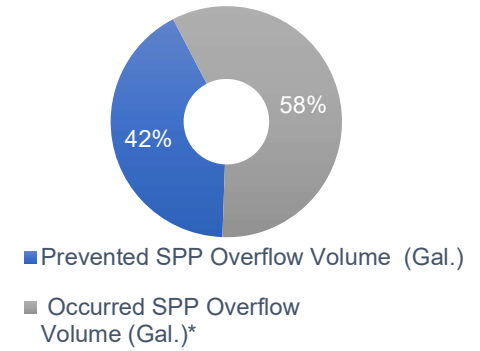
ARCADIS Design & Consultancy for natural and built assets

# Bird Ave. RTC Monthly Performance Report — June 2020

## Prevented SPP Events




## Prevented SPP Volume




| Number of Prevented SPP Overflow Events | Number of Occurred SPP Overflow Events | Prevented SPP Overflow Volume (Gal.) | Occurred SPP Overflow Volume (Gal.)* |
|---|---|---|---|
| 2 | 2 | 3,340,877 | 4,645,396 |

| Event Date | SPP Overflow Volume Prevented | SPP Overflow Volume Occurred | Percent Capture |
|---|---|---|---|
| 6/2/2020 | 1,091,682 | 4,237,257 | 20% |
| 6/10/2020 | 787,366 | 408,139 | 66% |
| 6/27/2020 | 754,613 | - | 100% |
| 6/28/2020 | 707,216 | - | 100% |

# June 2, 2020 1

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/2/2020 23:00 |
| Event End Date/Time: | 6/3/2020 23:00 |

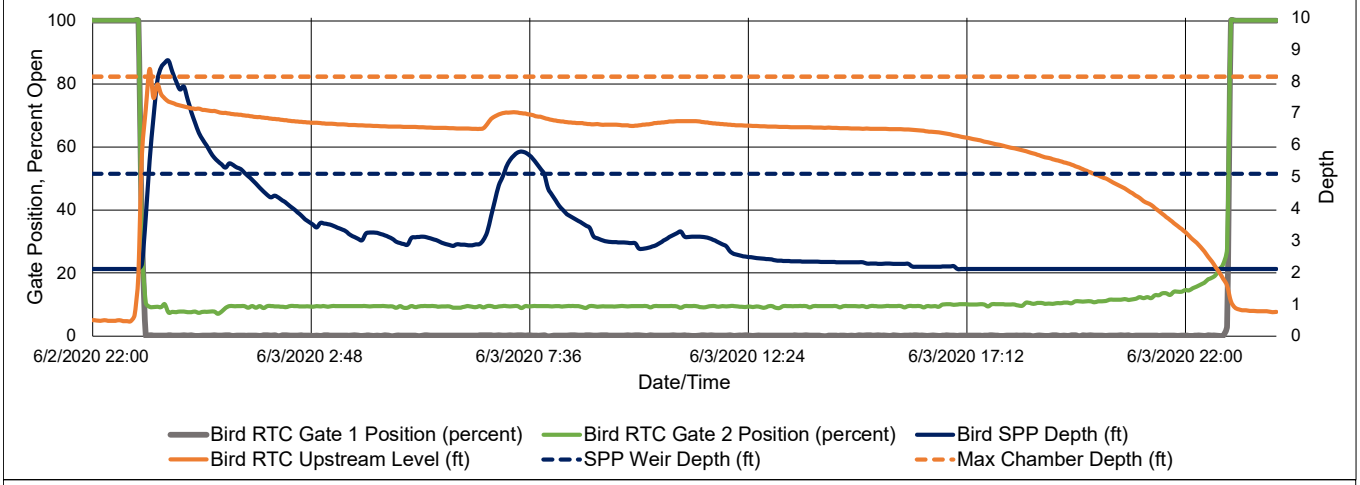
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.55 in. |
| Storm Event Duration: | 26 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.94 ft. |
| Return to Normal Depth: | 1.58 ft. |
| Time Gate 1 Activated: | 6/2/2020 23:00 |
| Time Gate 2 Activated: | 6/2/2020 23:00 |
| Time Gate 1 Returned to Normal: | 6/3/2020 23:00 |
| Time Gate 2 Returned to Normal: | 6/3/2020 22:55 |
| Percent Capture | 20% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 8.15 ft. |
| Volume Stored: | 1,076,815 Gal. |
| Unused Storage Volume: | 0 Gal. |
| Overflow Volume: | 4,237,257 Gal. |
| Overflow Volume Prevented: | 1,076,815 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | - |
| Could SPP activation have been prevented? | No |

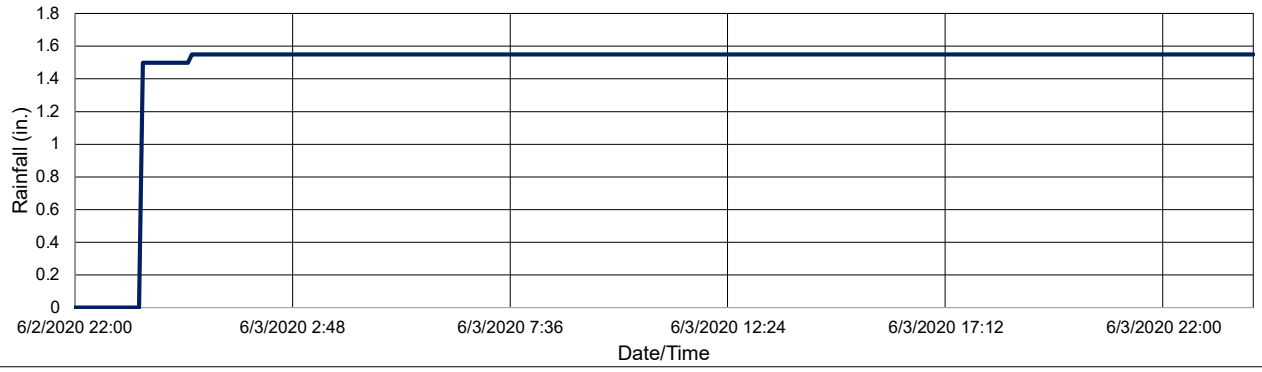
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 10, 2020 2

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/10/2020 23:30 |
| Event End Date/Time: | 6/11/2020 5:20 |

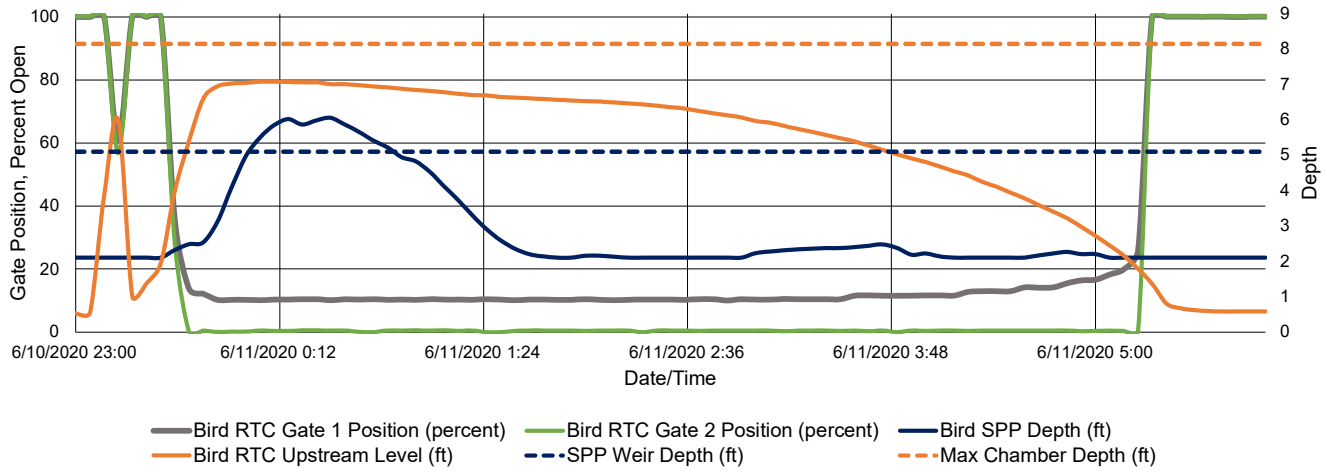
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 1.55 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | <2 yrs. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.95 ft. |
| Return to Normal Depth: | 1.79 ft. |
| Time Gate 1 Activated: | 6/10/2020 23:30 |
| Time Gate 2 Activated: | 6/10/2020 23:30 |
| Time Gate 1 Returned to Normal: | 6/11/2020 5:20 |
| Time Gate 2 Returned to Normal: | 6/11/2020 5:15 |
| Percent Capture | 66% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 7.08 ft. |
| Volume Stored: | 787,366 Gal. |
| Unused Storage Volume: | 288,879 Gal. |
| Overflow Volume: | 408,139 Gal. |
| Overflow Volume Prevented: | 787,366 Gal. |
| SPP Activation Prevented: | No |
| If No, what is the overflow volume when storage was available? | 408,139 |
| Could SPP activation have been prevented? | No |

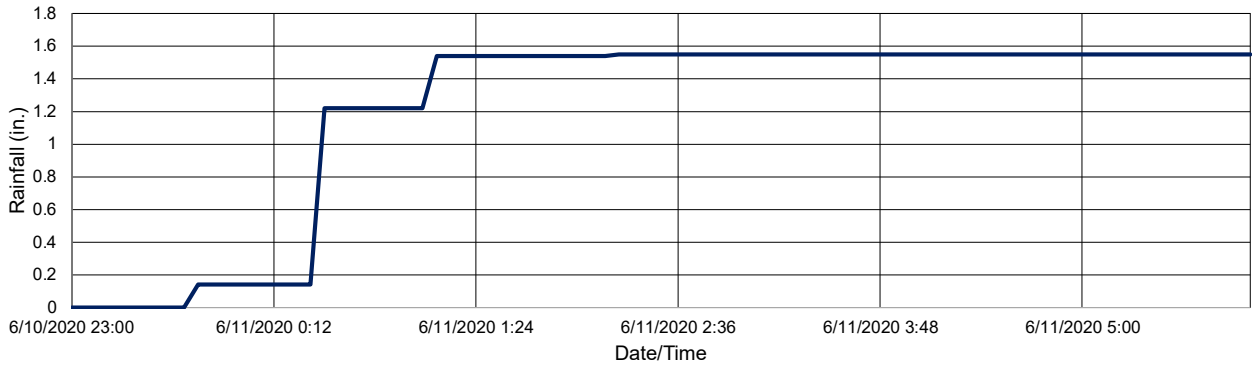
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 27, 2020 3

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/27/2020 5:25 |
| Event End Date/Time: | 6/27/2020 13:30 |

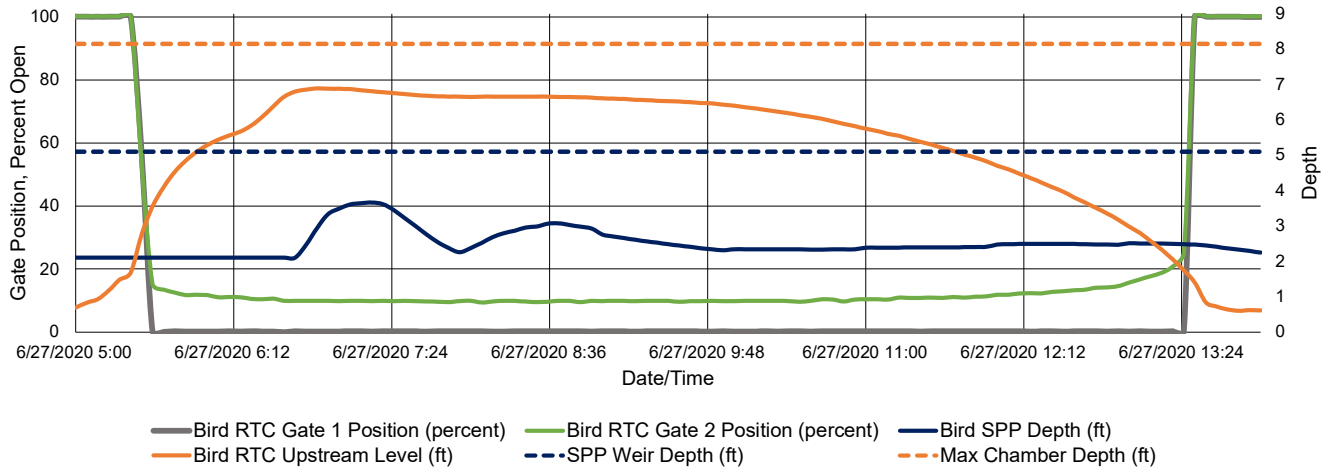
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.97 in. |
| Storm Event Duration: | 9 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.68 ft. |
| Return to Normal Depth: | 1.74 ft. |
| Time Gate 1 Activated: | 6/27/2020 5:25 |
| Time Gate 2 Activated: | 6/27/2020 5:25 |
| Time Gate 1 Returned to Normal: | 6/27/2020 13:30 |
| Time Gate 2 Returned to Normal: | 6/27/2020 13:25 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.89 ft. |
| Volume Stored: | 754,613 Gal. |
| Unused Storage Volume: | 335,677 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 754,613 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

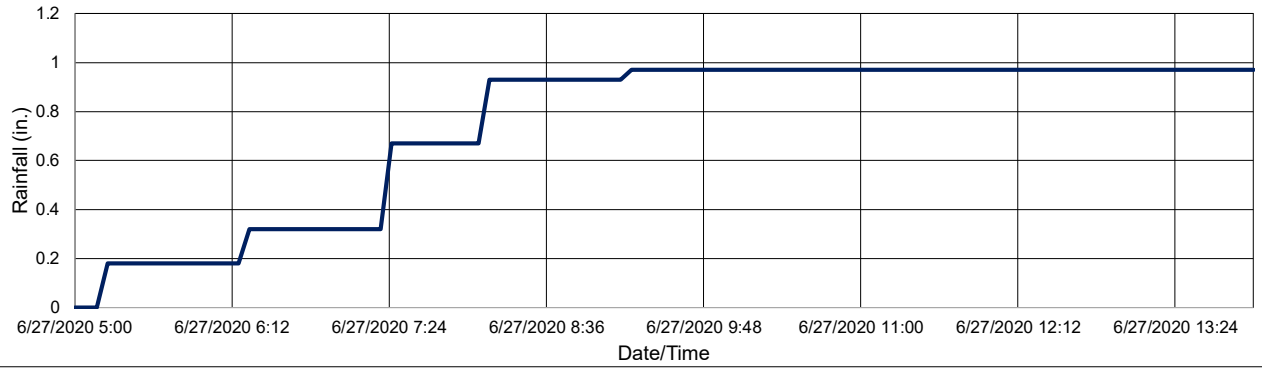
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



# June 28, 2020 4

| | |
|---|---|
| Site: | Bird RTC |
| Analysis Date: | 7/6/2020 |
| Event Start Date/Time: | 6/28/2020 2:55 |
| Event End Date/Time: | 6/28/2020 7:20 |

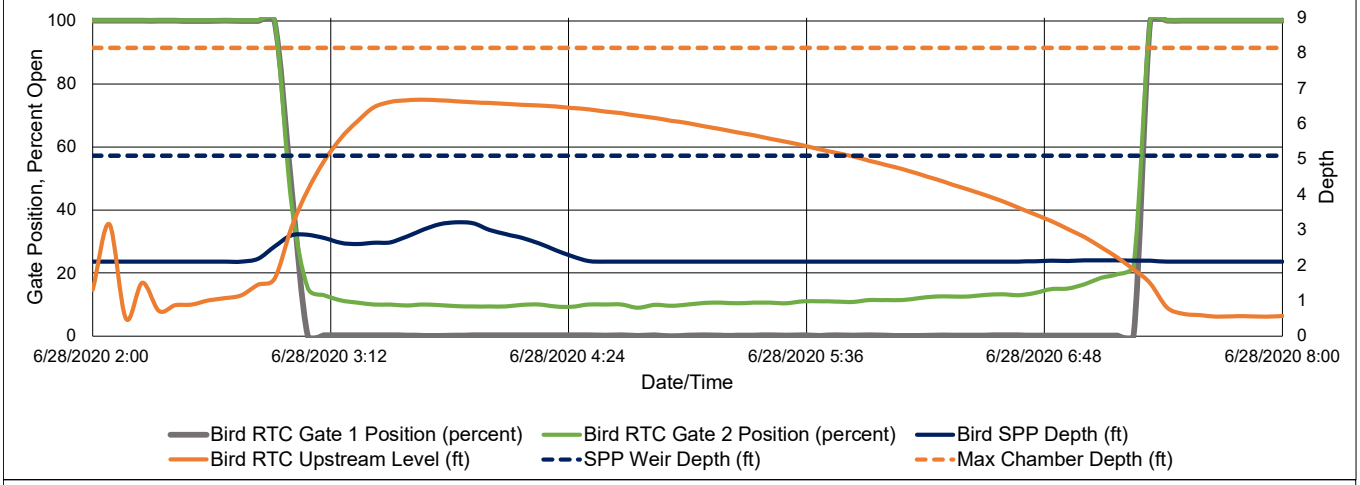
| | |
|---|---|
| Analyst Name, Organization: | Rucha Shah, Arcadis |
| Total Rainfall Accumulation: | 0.11 in. |
| Storm Event Duration: | 6 hr. |
| Storm Type: | <1 yr. |

| | |
|---|---|
| Gate Activation Trigger Depth: | 1.62 ft. |
| Return to Normal Depth: | 1.88 ft. |
| Time Gate 1 Activated: | 6/28/2020 2:55 |
| Time Gate 2 Activated: | 6/28/2020 2:55 |
| Time Gate 1 Returned to Normal: | 6/28/2020 7:20 |
| Time Gate 2 Returned to Normal: | 6/28/2020 7:15 |
| Percent Capture | 100% |
| Depth of Weir | 8.15 ft. |
| Maximum Depth Reached: | 6.68 ft. |
| Volume Stored: | 707,216 Gal. |
| Unused Storage Volume: | 385,823 Gal. |
| Overflow Volume: | 0 Gal. |
| Overflow Volume Prevented: | 707,216 Gal. |
| SPP Activation Prevented: | Yes |
| If No, what is the overflow volume when storage was available? | N/A |
| Could SPP activation have been prevented? | N/A |

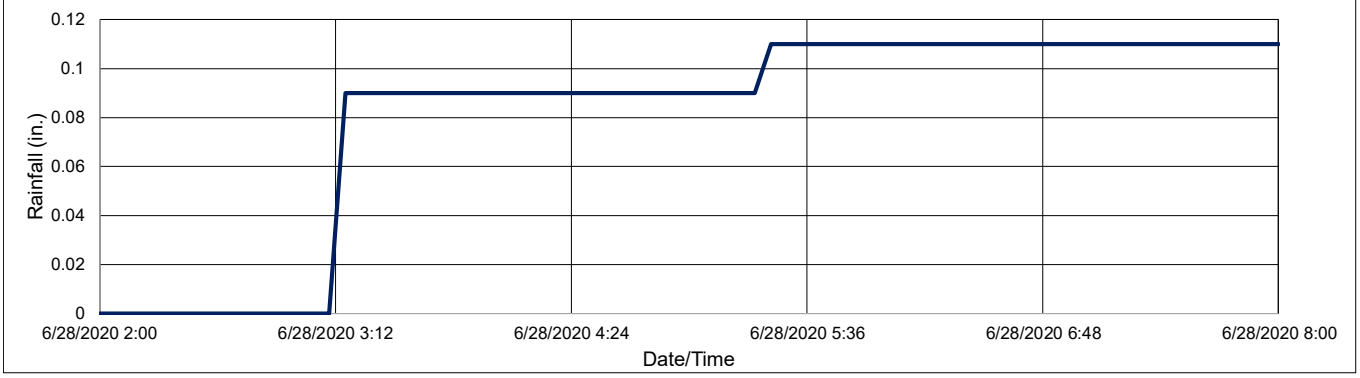
**Recommended Operational Changes/Notes:**

Rainfall data sourced from BSA rain gauge station at South Buffalo.

## RTC Gate Performance




## Rainfall Accumulation



## Taylor Brown

**From:** Catherine Knab <cknab@buffalosewer.org>
**Sent:** Tuesday, October 30, 2018 12:02 PM
**To:** j.robert.smythe@dec.ny.gov; Jeff Konsella; robert.locey@dec.ny.gov; Katherine Mann
**Cc:** Oluwole McFoy
**Subject:** RE: RTC performance measurements

Rob,

In response to your red comment below, you are correct. We double checked and this calculation is actually completed when computing the Reduced Overflow Volume. This step was just omitted from the explanation below. The initial starting volume (what is in the pipe when the gates close) is subtracted from the total volume stored. The volume when the gates close is small (about 2% of the total volume), but it is still accounted for.

**Catherine H. Knab, P.E., PMP**
Principal Sanitary Engineer
Buffalo Sewer Authority
1038 City Hall, 65 Niagara Square
Buffalo, NY 14202
(716) 851-4664 Ext. 4203

>>> "Locey, Robert (DEC)" <robert.locey@dec.ny.gov> 10/26/2018 2:20 PM >>>
Cati – I have one comment below in red.

Also, regarding the Hazelwood project, I checked my emails and didn't see anything from Mark Jarmuz at CHA, so please send me a copy of the engineering report and plans. Thanks.

---

**From:** Catherine Knab [mailto:cknab@buffalosewer.org]
**Sent:** Thursday, October 25, 2018 2:59 PM
**To:** Smythe, J. Robert (DEC) <j.robert.smythe@dec.ny.gov>; Konsella, Jeffrey A (DEC) <jeffrey.konsella@dec.ny.gov>; Locey, Robert (DEC) <robert.locey@dec.ny.gov>; Katherine Mann <Mann.Katherine@epa.gov>

**Cc:** Oluwole McFoy <omcfoy@buffalosewer.org>
**Subject:** RTC performance measurements



Hello all,

As just discussed, I'm forwarding the email below with a detailed explanation on how we measure the performance of the RTCs.

**Catherine H. Knab, P.E., PMP**
Principal Sanitary Engineer
Buffalo Sewer Authority
1038 City Hall, 65 Niagara Square
Buffalo, NY 14202
(716) 851-4664 Ext. 4203

>>> Tim Ruggaber <truggaber@emnet.net> 10/24/2018 1:22 PM >>>
Hi Cati,

Please see my response below.

The KPIs for the Bird, Lang, and Smith RTC locations are determined based on the performance of the actual system (using the monitoring data from each site) and does not use the SWMM model.

The process is as follows for the Bird and Lang sites:

- During the post construction monitoring period, a real time level monitor was deployed at the respective downstream SPP for a one year period. It was removed at the end of the one year period.
- A neural network was created to create a correlation between the conditions at the RTC structure and at the SPP based on the data from the one year PCM period. This neural network is now used to calculate the conditions at the SPP based on putting the data from the RTC structure into the neural network. With this approach, the depths upstream and downstream of the RTC structure (which are currently available) are used to determine the depth at the SPP (which is not currently available) based on the relationships established during the PCM period.

- With the neural network SPP data, we can determine if the SPP overflowed during the storm event or not. If it did overflow, we determine the overflow volume by the head over the weir.
- We calculate the volume stored in at the RTC location by looked at the maximum depth recorded at the structure (This should be the maximum depth minus the depth that the pipe could contain at the RTC structure without overflowing at the SPP. The entire maximum depth wouldn't be available for storage unless the pipe at the RTC structure was empty when the SPP first starts to overflow.) for the storm event and relating that depth to a corresponding volume stored in the upstream pipes. It is assumed that this volume would have overflowed if it was not captured at the RTC structure.
- If the neural network SPP data shows that an event did not happen and the data from RTC structure showed that volume was stored, it was determined that the SPP would have overflowed if the RTC structure was not in place. Hence, an SPP activation was prevented, and the volume of overflow prevented was equal to the volume stored.
- If the neural network SPP data shows that an event did happen, then the RTC structure did not prevent an activation, and the volume stored is equal to the amount of overflow reduction for that storm.

For Smith, we monitor the flow that goes from the storage area into the South Interceptor. By summing this flow, we determine the volume of flow that enters the South Interceptor, all of which would have otherwise overflowed.