



SPDES Permit No. NY0028410

**Long Term Control Plan
Annual Post Construction Monitoring
Status Report
Reporting Period: *July 2020 through June 2021*
Amended Administrative Order
CWA-02-2014-3033
(Amends CWA-02-2012-3024)**

September 2021

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- A. RTC Monthly Performance Report
- B. Willert Park Green Infrastructure Post-Construction Monitoring

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 2020 through June 2021 which serves as Annual PCM Report No. 5.

2. DISCUSSION OF PCM TASKS BEGUN OR COMPLETED

Post construction monitoring of the Bird, Lang and Hazelwood, North Bailey, Hertel at Deer, and Smith St. Real-Time Control (RTC) projects has continued in the last reporting period. For Bird, Hazelwood and Land, North Bailey, and Hertel at Deer 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.

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 begins storing when the depth at the SPP indicates wet weather flow.

Post-construction monitoring of the Babcock Pump Station and Smith at Eagle RTCs will commence in the next reporting period. Please note that there was high volume recorded at the Hertel at Deer RTC on November 15, 2020 due to a Lake Erie seiche event which caused backup into the system.

Flow metering for the model calibration project was used for pre-construction monitoring of the Willert Park Green Infrastructure project. Meters located in the sewershed were reinstalled for post-construction monitoring of the Green Infrastructure project. The flow data collected from the sewers and level data collected at the overflow weirs was compared to the output of the calibrated sewer model. The results of this comparison found a reduction in the number of activations at SPP 281 from three to two and a decrease in overflow volume of 0.69 MGD (44%) during the typical rain event. The full analysis report is included in Appendix B.

The Authority performs post-demolition inspections to ensure that vacant lots have had all impervious surfaces removed. In the reporting period, the Authority performed 242 post-demolition inspections.

3. RESULTS OF PCM EFFORTS

During the reporting period, a total of 105 SPP overflow events, or approximately 195.3 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 253 SPP overflow events or approximately 396.7 million gallons of overflow, has been prevented by the Bird, Lang, Hazelwood, North Bailey, and Hertel at Deer RTC projects.

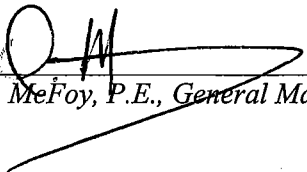
The functionality of the Smith St. RTC differs from the other RTCs. It intercepts flows and sends them to the interceptor rather than just storing flows in-line. Upstream of the Smith St RTC are 41 SPPs that overflow into the Smith St. RTC storage area. These flows are now sent to the South Interceptor rather than the Buffalo River. During the reporting period, a total of 316.9 million gallons of overflow was captured by the Smith St. RTC project. Since July 2018, a total of 2,797.2 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

30 Aug 21

Date

BIRD

Month	Prevented SPP Activations	Actual SPP Activations	Percentage Reduction	Prevented SPP Overflow Volume (MG)	Actual SPP Overflow Volume (MG)	Percentage Reduction
Jul-20	1	0	100%	0.8	0.0	100%
Aug-20	N/A	N/A		N/A	N/A	
Sep-20	4	1	80%	3.7	0.7	84%
Oct-20	10	0	100%	5.5	0.0	100%
Nov-20	4	2	67%	4.2	0.9	83%
Dec-20	6	1	86%	3.8	4.0	49%
Jan-21	0	1	0%	0.8	0.1	88%
Feb-21	2	0	100%	1.5	0.0	100%
Mar-21	2	0	100%	0.7	0.0	100%
Apr-21	6	0	100%	2.1	0.0	100%
May-21	3	0	100%	1.8	0.0	100%
Jun-21	0	N/A		1.6	0.0	100%
Subtotal	38	5	88%	26.5	5.7	82%

HAZELWOOD & LANG

Month	Prevented SPP Activations	Actual SPP Activations	Percentage Reduction	Prevented SPP Overflow Volume (MG)	Actual SPP Overflow Volume (MG)	Percentage Reduction
Jul-20	N/A	N/A		N/A	N/A	
Aug-20	1	2	33%	0.7	2.5	22%
Sep-20	0	1	0%	1.1	4.4	20%
Oct-20	4	1	80%	0.3	0.1	66%
Nov-20	2	3	40%	1.8	2.0	48%
Dec-20	2	2	50%	2.1	1.4	60%
Jan-21	0	1	0%	0.6	2.8	18%
Feb-21	1	1	50%	0.1	0.0	100%
Mar-21	2	2	50%	2.1	6.3	25%
Apr-21	1	1	50%	0.2	0.2	47%
May-21	1	1	50%	0.1	0.0	96%
Jun-21	2	1	67%	0.4	0.8	32%
Subtotal	16	16	50%	9.5	20.5	32%

HERTEL AT DEER

Month	Prevented SPP Activations	Actual SPP Activations	Percentage Reduction	Prevented SPP Overflow Volume (MG)	Actual SPP Overflow Volume (MG)	Percentage Reduction
Jul-20	3	3	50%	19.0	4.3	81%
Aug-20	4	1	80%	11.3	0.9	93%
Sep-20	3	2	60%	16.0	11.0	59%
Oct-20	6	1	86%	20.5	0.0	100%
Nov-20	2	4	33%	16.7	162.7	9%
Dec-20	5	1	83%	15.8	0.1	100%
Jan-21	1	0	100%	0.2	0.0	100%
Feb-21	1	1	50%	7.9	0.1	98%
Mar-21	3	1	75%	10.7	2.4	82%
Apr-21	4	1	80%	8.6	0.5	94%
May-21	2	1	67%	8.2	0.6	93%
Jun-21	2	3	40%	12.4	0.1	99%
Subtotal	36	19	65%	147.2	182.9	45%

11/15/20 event, high degree of uncertainty on overflow volume calculation due to Lake Erie seiche event.

NORTH BAILEY

Month	Prevented SPP Activations	Actual SPP Activations	Percentage Reduction	Prevented SPP Overflow Volume (MG)	Actual SPP Overflow Volume (MG)	Percentage Reduction
Jul-20	1	5	17%	2.3	1.0	71%
Aug-20	0	3	0%	1.3	0.6	68%
Sep-20	0	2	0%	0.9	1.2	44%
Oct-20	4	1	80%	1.5	0.0	98%
Nov-20	2	3	40%	1.4	1.0	58%
Dec-20	3	1	75%	1.4	0.8	62%
Jan-21	0	1	0%	0.4	0.2	64%
Feb-21	1	1	50%	0.8	0.0	99%
Mar-21	1	0	100%	0.1	0.0	100%
Apr-21	1	0	100%	0.2	0.0	100%
May-21	2	0	100%	0.6	0.0	100%
Jun-21	0	3	0%	1.2	0.1	96%
Subtotal	15	20	43%	12.1	4.9	71%

Total for Reporting period

105

195.3

SMITH ST.

Month	Total Volume Captured (MG)
Jul-18	5.1
Aug-18	12.5
Sep-18	13.4
Oct-18	23.8
Nov-18	42.8
Dec-18	23.0
Jan-19	52.4
Feb-19	44.2
Mar-19	11.5
Apr-19	35.7
May-19	112.2
Jun-19	451.8
Jul-19	509.8
Aug-19	106.4
Sep-19	42.6
Oct-19	26.2
Nov-19	9.4
Dec-19	51.4
Jan-20	75.0
Feb-20	46.4
Mar-20	1.7
Apr-20	200.5
May-20	324.2
Jun-20	254.0
Jul-20	116.2
Aug-20	45.1
Sep-20	14.3
Oct-20	25.3
Nov-20	19.3
Dec-20	39.5
Jan-21	7.4
Feb-21	17.4
Mar-21	12.8
Apr-21	8.6
May-21	4.6
Jun-21	6.4
Subtotal	316.9
Total since July 2018	2792.7

July 2020 Bird Ave. RTC KPI Report

BUFFALO
SEWER AUTHORITY



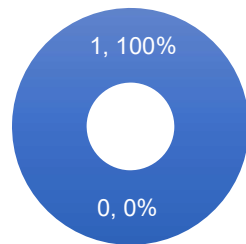
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Bird Ave. RTC Monthly Performance Report

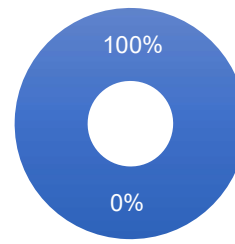
July 2020

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.)*
1	0	766,884	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
7/11/2020	766,884	-	100%

July 11, 2020

1

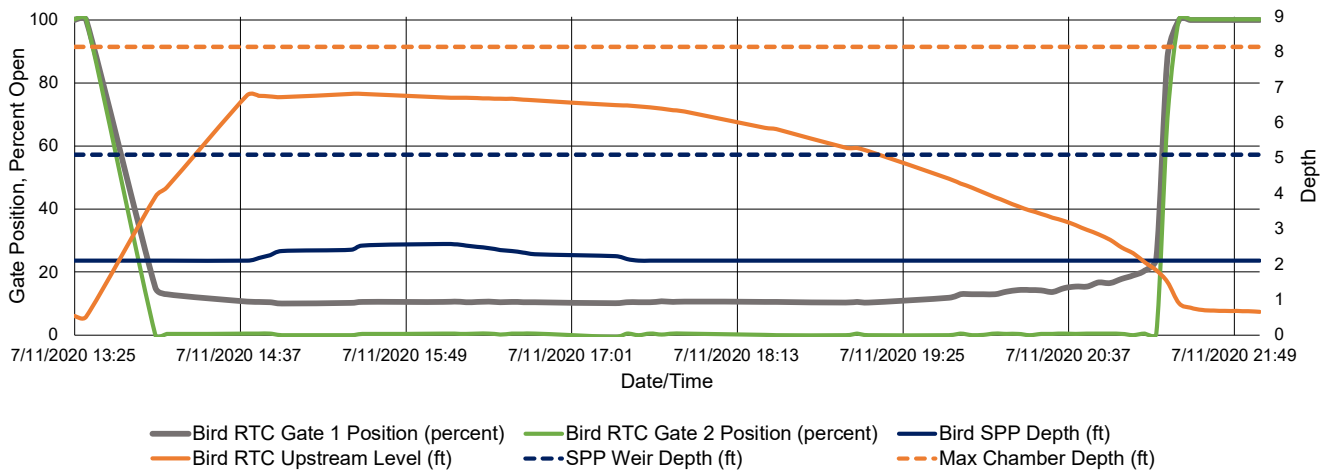
Site:	Bird RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/11/2020 13:30
Event End Date/Time:	7/11/2020 21:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.98 in.
Storm Event Duration:	9 hr.
Storm Type:	<2 yr.

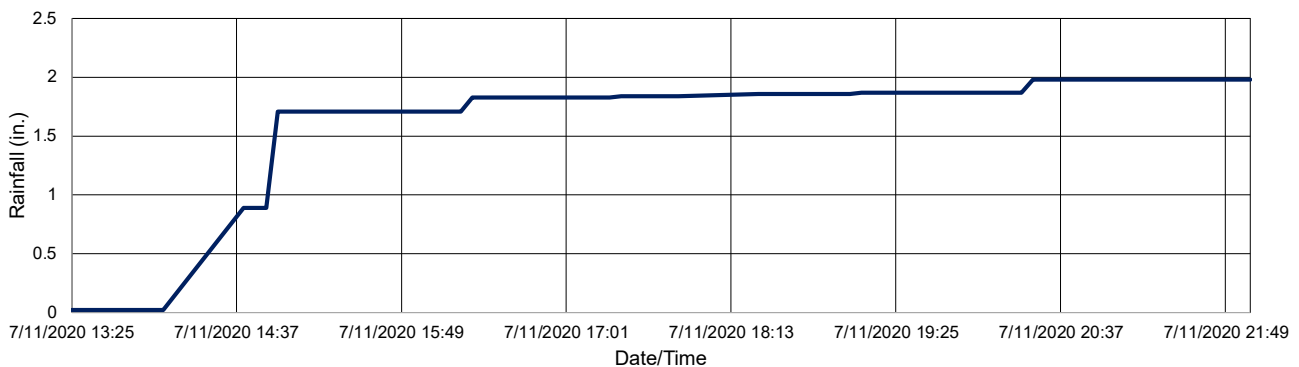
Gate Activation Trigger Depth:	0.52 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	7/11/2020 13:30
Time Gate 2 Activated:	7/11/2020 13:30
Time Gate 1 Returned to Normal:	7/11/2020 21:25
Time Gate 2 Returned to Normal:	7/11/2020 21:20
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.82 ft.
Volume Stored:	766,884 Gal.
Unused Storage Volume:	352,577 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	766,884 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. Data missing for majority of the month.

RTC Gate Performance



Rainfall Accumulation



August 2020 Bird Ave. RTC KPI Report

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Bird Ave. RTC Monthly Performance Report

August 2020



Number of Prevented SPP Overflow Events	Number of Occurred SPP Overflow Events	Prevented SPP Overflow Volume (Gal.)	Occurred SPP Overflow Volume (Gal.)
N/A	N/A	1,224,578	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
8/25/2020	110,333	-	100%
8/27/2020	1,114,245	-	100%

Site:	Bird RTC
Analysis Date:	9/3/2020
Event Start Date/Time:	8/25/2020 3:25
Event End Date/Time:	8/25/2020 5:00

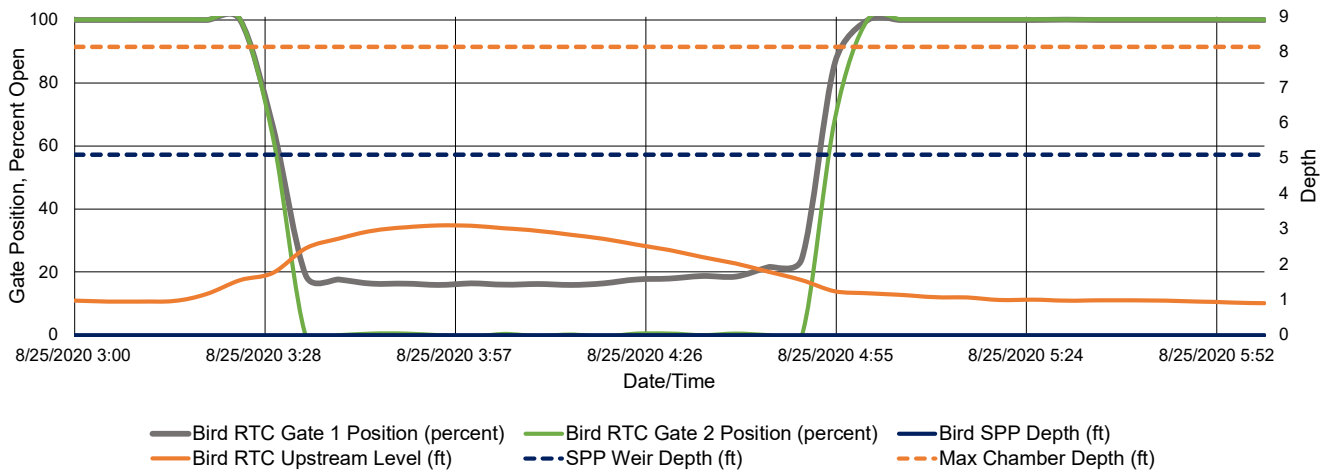
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	2 hr.
Storm Type:	<1 yr.

Gate Activation Trigger Depth:	1.55 ft.
Return to Normal Depth:	1.24 ft.
Time Gate 1 Activated:	8/25/2020 3:25
Time Gate 2 Activated:	8/25/2020 3:25
Time Gate 1 Returned to Normal:	8/25/2020 5:00
Time Gate 2 Returned to Normal:	8/25/2020 4:55
Percent Capture	N/A
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.10 ft.
Volume Stored:	110,333 Gal.
Unused Storage Volume:	985,742 Gal.
Overflow Volume:	N/A Gal.
Overflow Volume Prevented:	110,333 Gal.
SPP Activation Prevented:	N/A
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

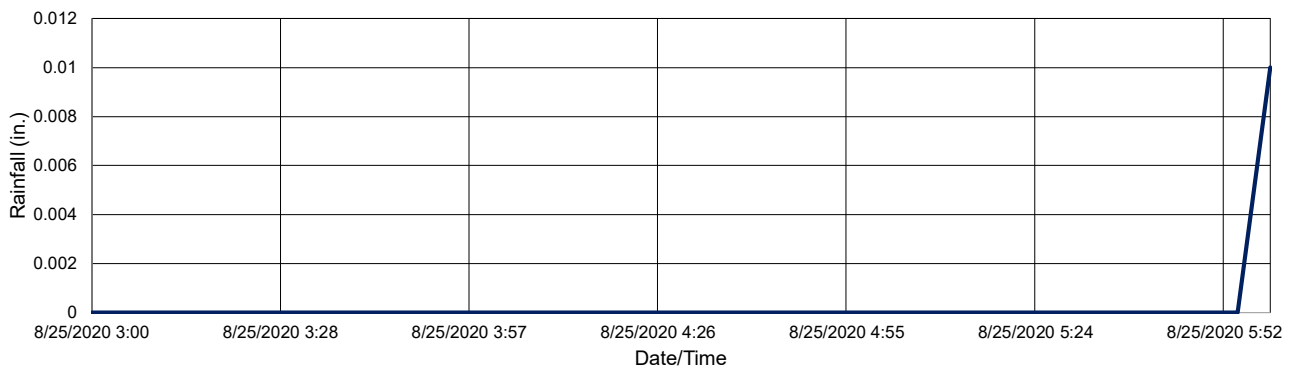
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Data missing for majority of the month. SPP depth/overflow could not be estimated because the downstream level sensor is reporting bad data.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	9/3/2020
Event Start Date/Time:	8/27/2020 0:40
Event End Date/Time:	8/27/2020 20:00

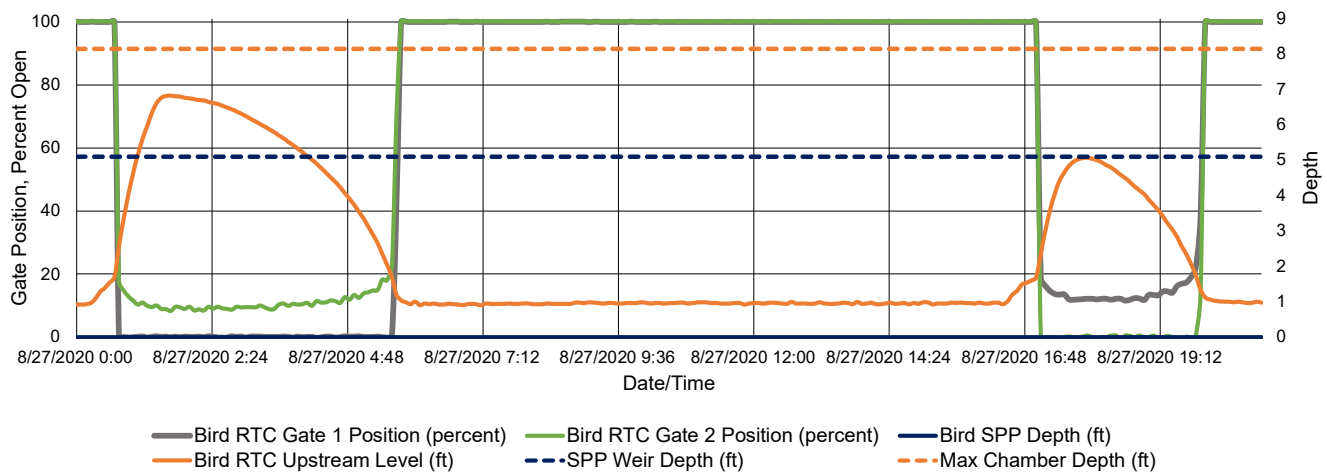
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	9 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.70 ft.
Return to Normal Depth:	1.20 ft.
Time Gate 1 Activated:	8/27/2020 0:40
Time Gate 2 Activated:	8/27/2020 0:40
Time Gate 1 Returned to Normal:	8/27/2020 20:00
Time Gate 2 Returned to Normal:	8/27/2020 19:55
Percent Capture	N/A
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.83 ft.
Volume Stored:	1,114,245 Gal.
Unused Storage Volume:	350,174 Gal.
Overflow Volume:	N/A Gal.
Overflow Volume Prevented:	1,114,245 Gal.
SPP Activation Prevented:	N/A
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

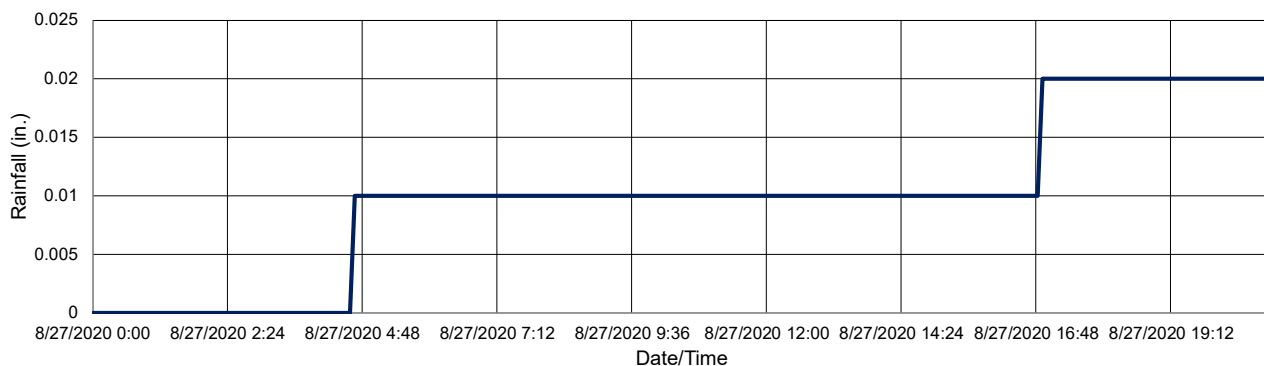
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Data missing for majority of the month. SPP depth/overflow could not be estimated because the downstream level sensor is reporting bad data.

RTC Gate Performance



Rainfall Accumulation

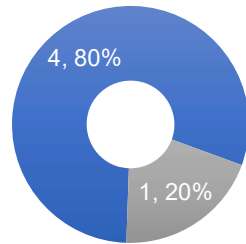


September 2020 Bird Ave. RTC KPI Report

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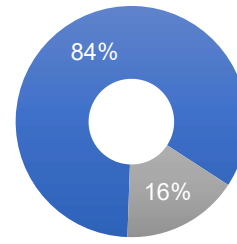


Prevented SPP Events



■ 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.)
4	1	3,690,439	720,441
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
9/2/2020	588,361	-	100%
9/3/2020	728,214	-	100%
9/7/2020	752,179	-	100%
9/13/2020	763,599	-	100%
9/29/2020	858,086	720,441	54%

Note: SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values

Site:	Bird RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/2/2020 12:40
Event End Date/Time:	9/2/2020 17:20

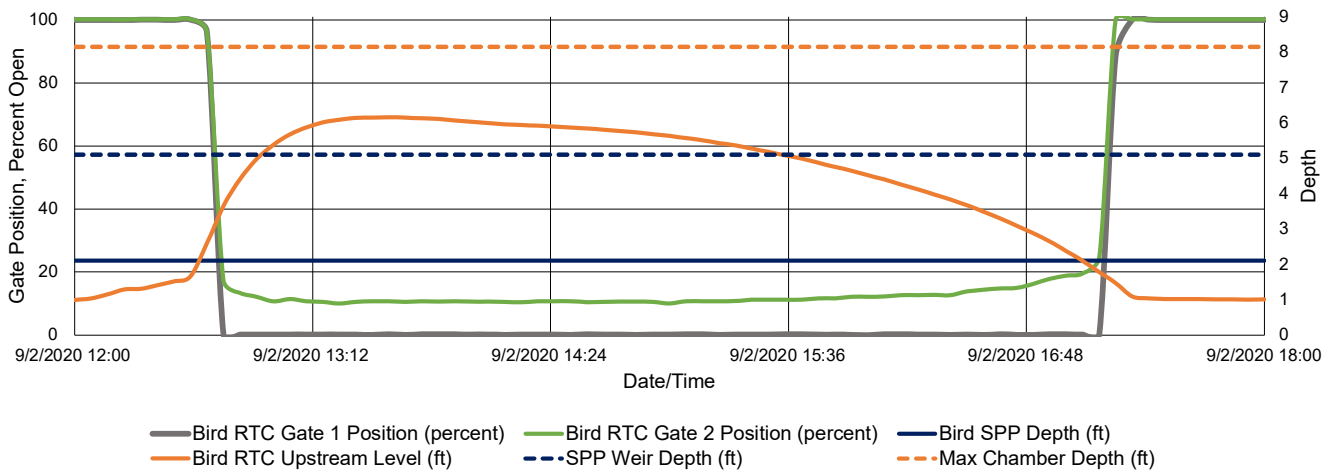
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	6 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.66 ft.
Return to Normal Depth:	1.47 ft.
Time Gate 1 Activated:	9/2/2020 12:40
Time Gate 2 Activated:	9/2/2020 12:40
Time Gate 1 Returned to Normal:	9/2/2020 17:20
Time Gate 2 Returned to Normal:	9/2/2020 17:10
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.16 ft.
Volume Stored:	588,361 Gal.
Unused Storage Volume:	502,861 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	588,361 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

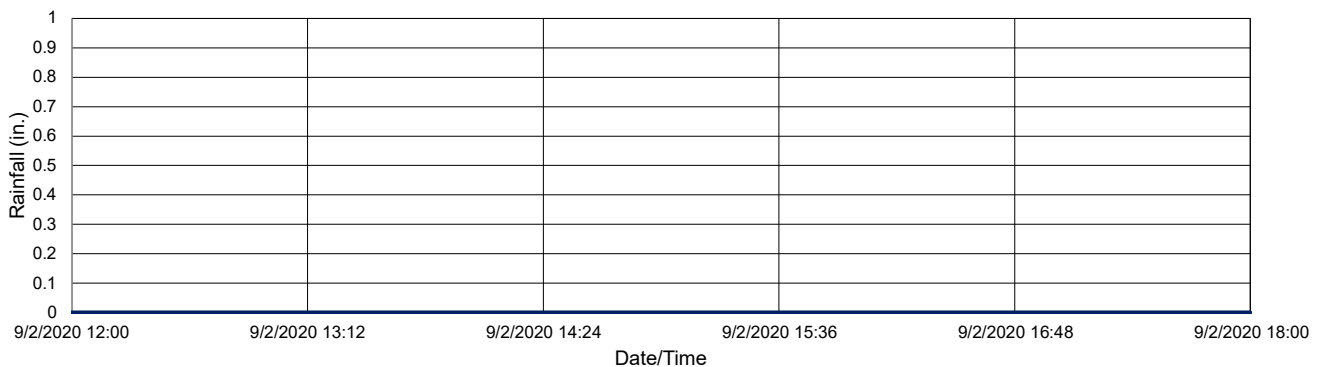
Recommended Operational Changes/Notes:

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. SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/3/2020 23:30
Event End Date/Time:	9/4/2020 3:30

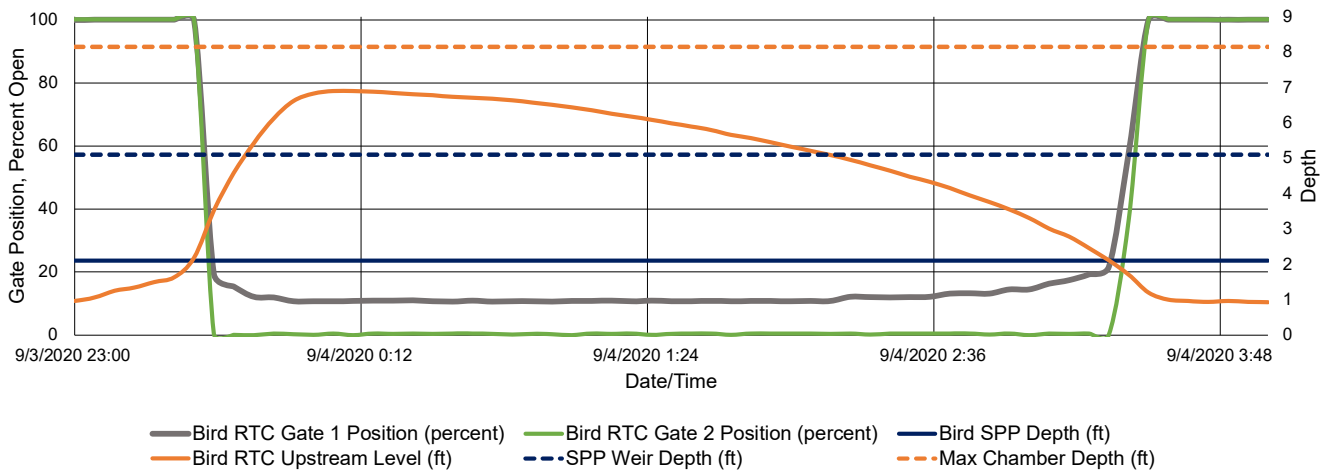
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	5 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.19 ft.
Return to Normal Depth:	1.71 ft.
Time Gate 1 Activated:	9/3/2020 23:30
Time Gate 2 Activated:	9/3/2020 23:30
Time Gate 1 Returned to Normal:	9/4/2020 3:30
Time Gate 2 Returned to Normal:	9/4/2020 3:25
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.90 ft.
Volume Stored:	728,214 Gal.
Unused Storage Volume:	333,248 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	728,214 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

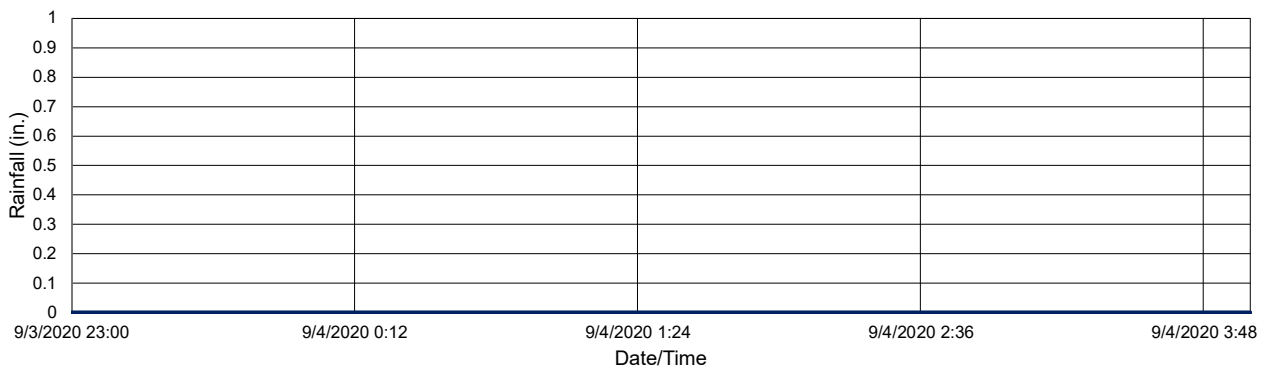
Recommended Operational Changes/Notes:

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. SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/7/2020 7:25
Event End Date/Time:	9/7/2020 12:55

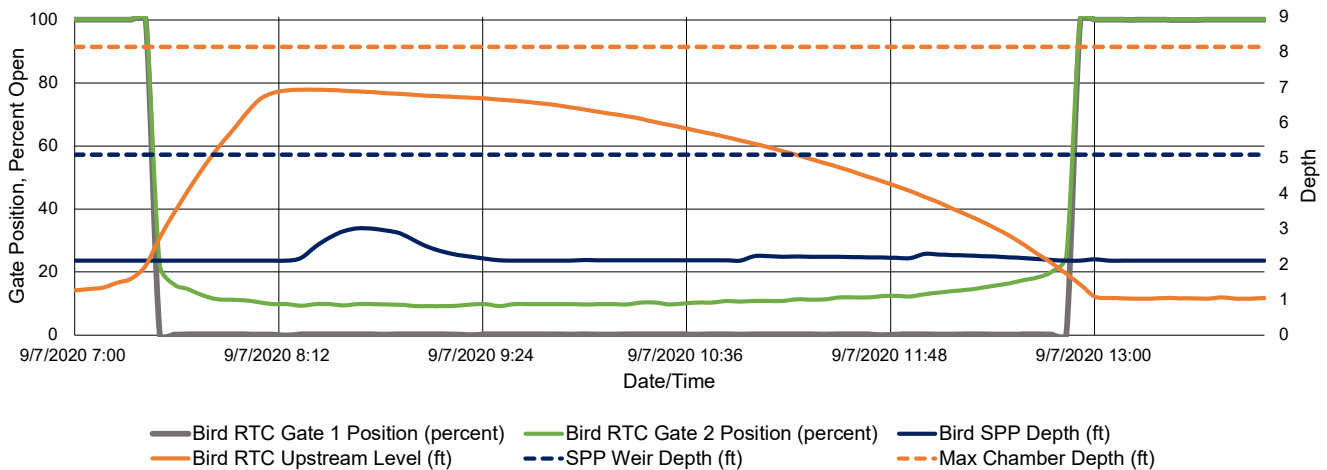
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	7 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.96 ft.
Return to Normal Depth:	1.73 ft.
Time Gate 1 Activated:	9/7/2020 7:25
Time Gate 2 Activated:	9/7/2020 7:25
Time Gate 1 Returned to Normal:	9/7/2020 12:55
Time Gate 2 Returned to Normal:	9/7/2020 12:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.94 ft.
Volume Stored:	752,179 Gal.
Unused Storage Volume:	323,494 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	752,179 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

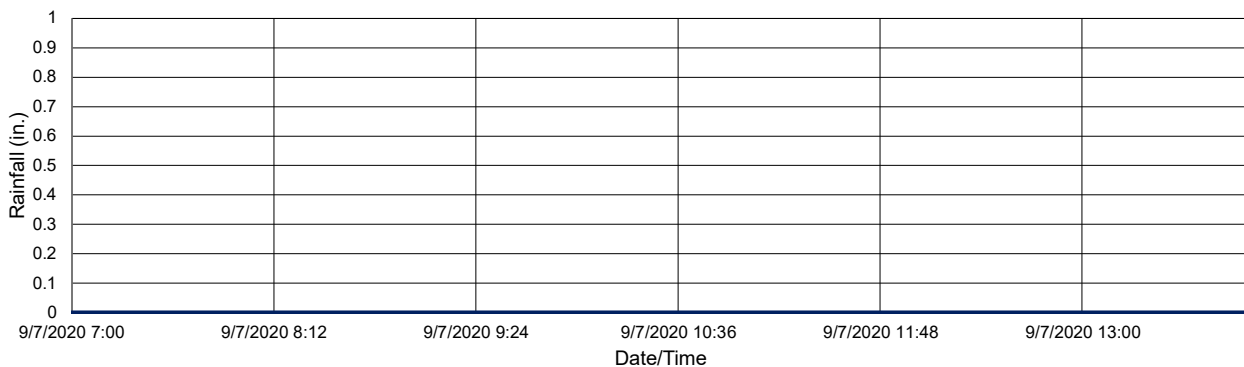
Recommended Operational Changes/Notes:

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. SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/13/2020 8:30
Event End Date/Time:	9/13/2020 16:30

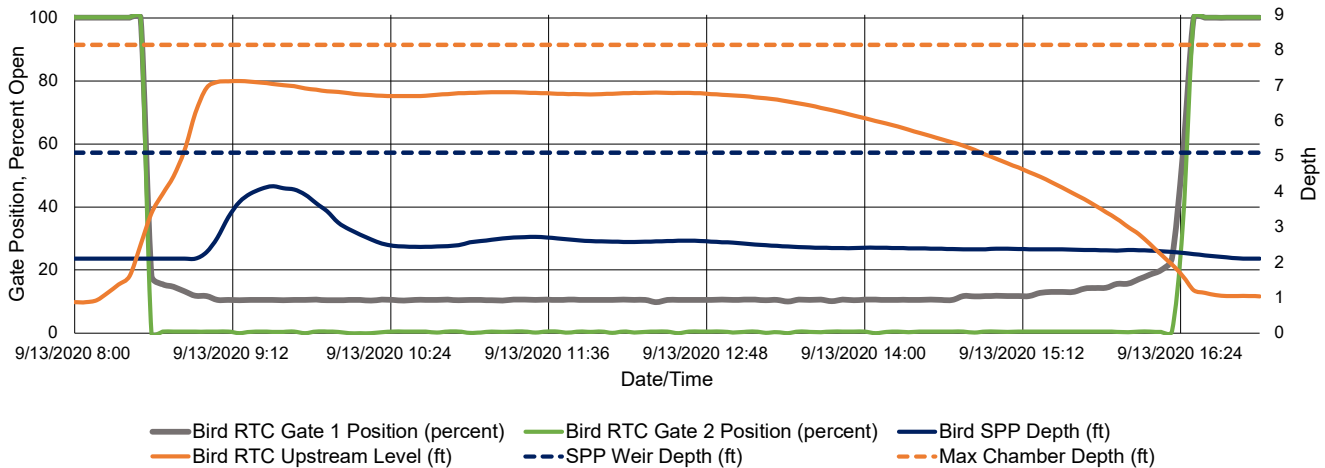
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	7 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.49 ft.
Return to Normal Depth:	1.61 ft.
Time Gate 1 Activated:	9/13/2020 8:30
Time Gate 2 Activated:	9/13/2020 8:30
Time Gate 1 Returned to Normal:	9/13/2020 16:30
Time Gate 2 Returned to Normal:	9/13/2020 16:25
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.13 ft.
Volume Stored:	763,599 Gal.
Unused Storage Volume:	276,339 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	763,599 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

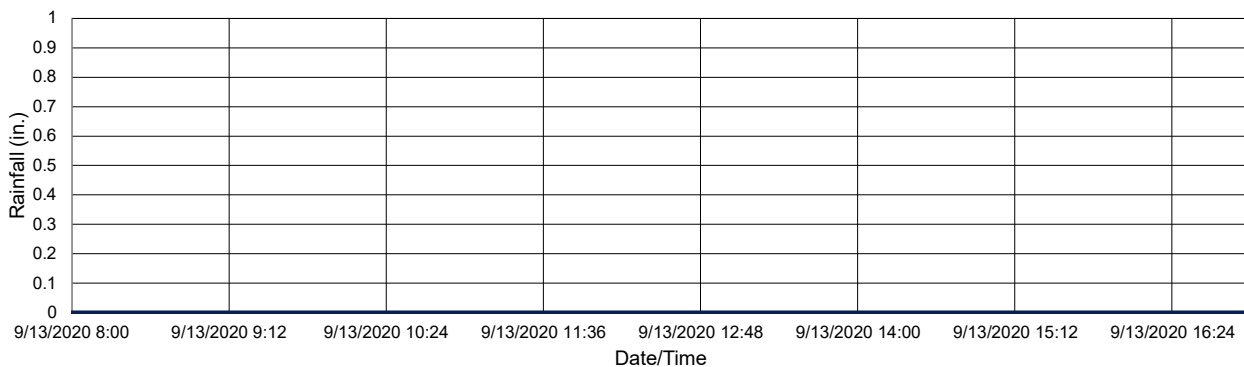
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Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values.

RTC Gate Performance



Rainfall Accumulation



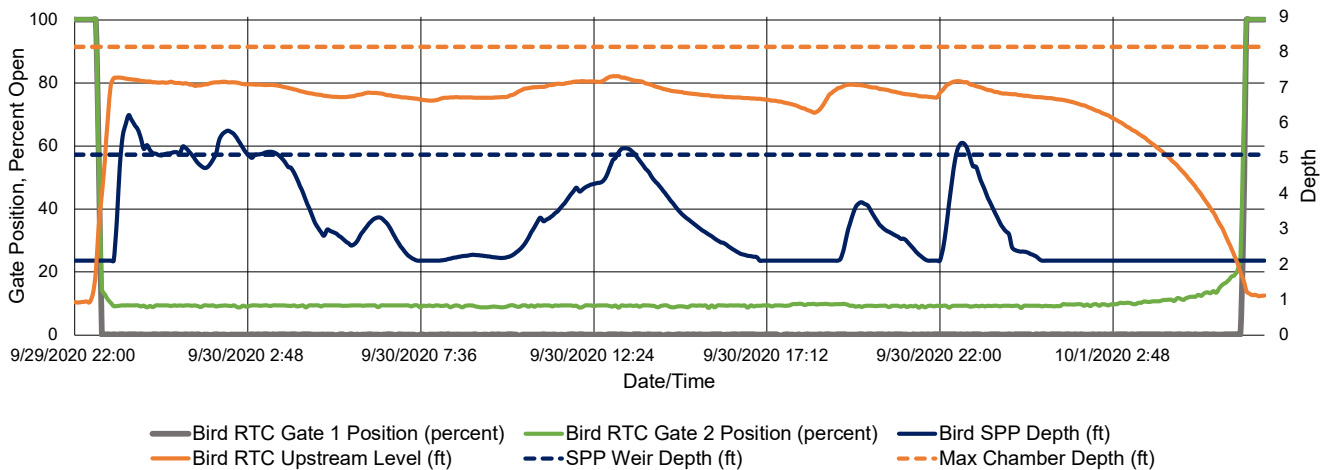
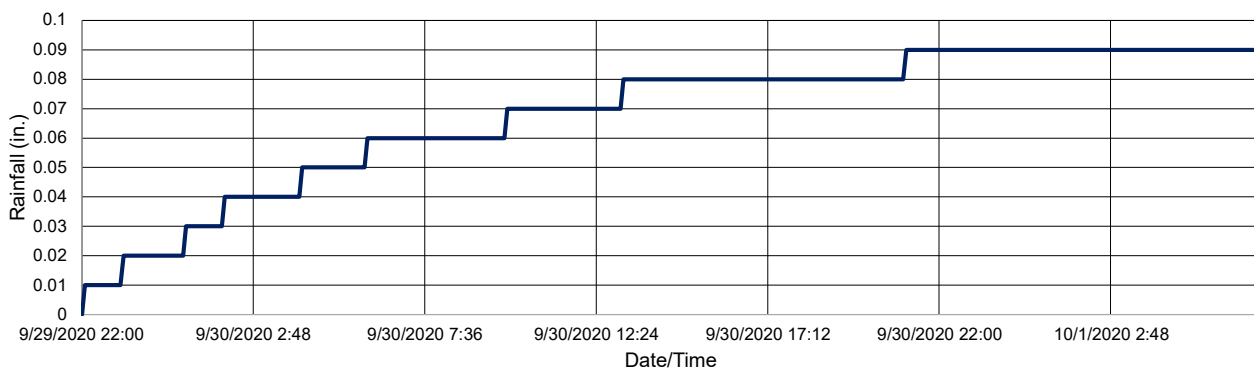
Site:	Bird RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/29/2020 22:35
Event End Date/Time:	10/1/2020 6:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.09 in.
Storm Event Duration:	7 hr.
Storm Type:	<1 yr.

Gate Activation Trigger Depth:	1.77 ft.
Return to Normal Depth:	1.56 ft.
Time Gate 1 Activated:	9/29/2020 22:35
Time Gate 2 Activated:	9/29/2020 22:35
Time Gate 1 Returned to Normal:	10/1/2020 6:30
Time Gate 2 Returned to Normal:	10/1/2020 6:25
Percent Capture	54%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.32 ft.
Volume Stored:	858,086 Gal.
Unused Storage Volume:	227,827 Gal.
Overflow Volume:	720,441 Gal.
Overflow Volume Prevented:	858,086 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	720,441
Could SPP activation have been prevented?	No

Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP activation volume may be underestimated because the Bird RTC Downstream Level sensor is reporting negative values.

RTC Gate Performance**Rainfall Accumulation**

October 2020 Bird Ave. RTC KPI Report

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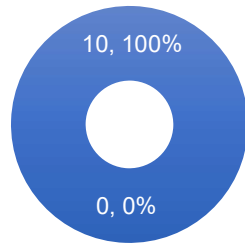
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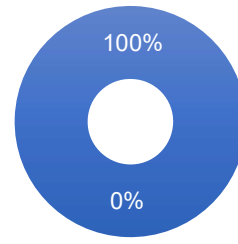
October 2020

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.)*
10	0	5,491,136	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
10/2/2020	1,606,569	-	100%
10/7/2020	776,611	-	100%
10/13/2020	309,469	-	100%
10/15/2020	261,053	-	100%
10/19/2020	763,881	-	100%
10/21/2020	686,151	-	100%
10/22/2020	201,118	-	100%
10/23/2020	772,464	-	100%
10/27/2020	113,820	-	100%

*SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/2/2020 5:35
Event End Date/Time:	10/3/2020 0:10

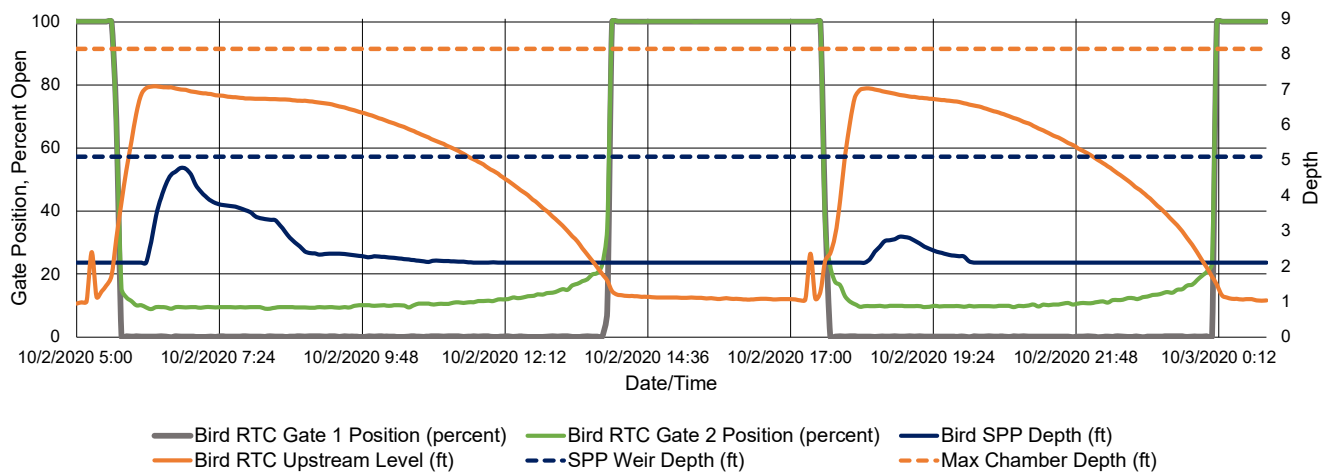
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	20 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.73 ft.
Return to Normal Depth:	1.60 ft.
Time Gate 1 Activated:	10/2/2020 5:35
Time Gate 2 Activated:	10/2/2020 5:35
Time Gate 1 Returned to Normal:	10/3/2020 0:10
Time Gate 2 Returned to Normal:	10/3/2020 0:05
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.09 ft.
Volume Stored:	1,606,569 Gal.
Unused Storage Volume:	286,379 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,606,569 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

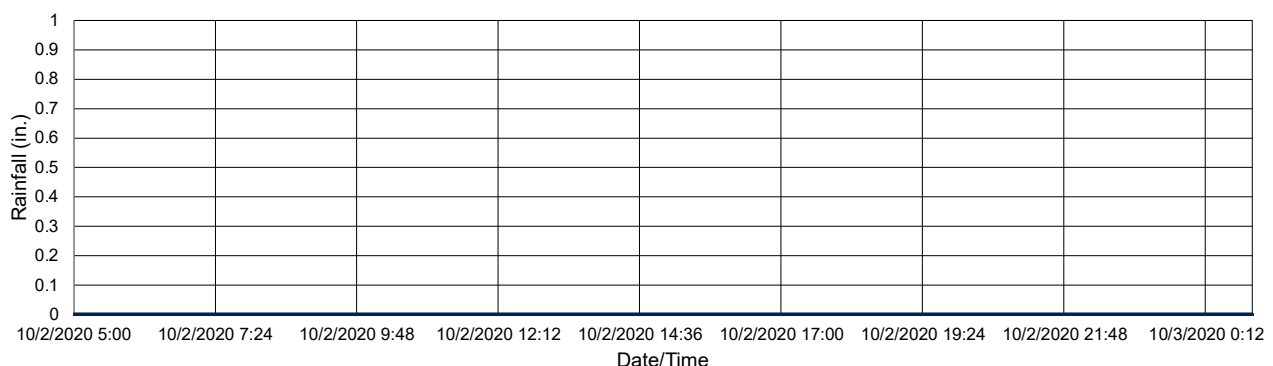
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



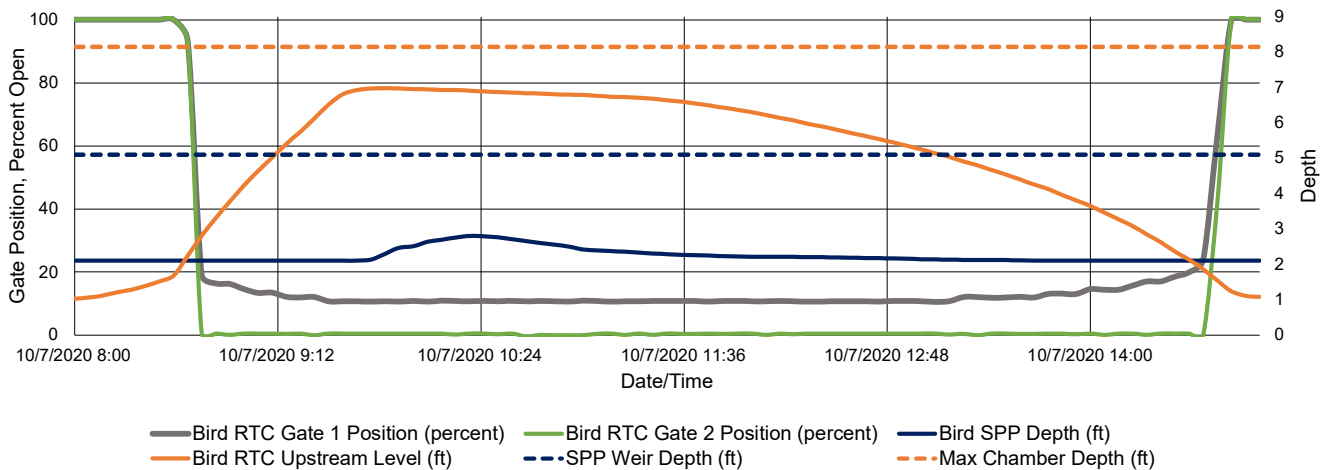
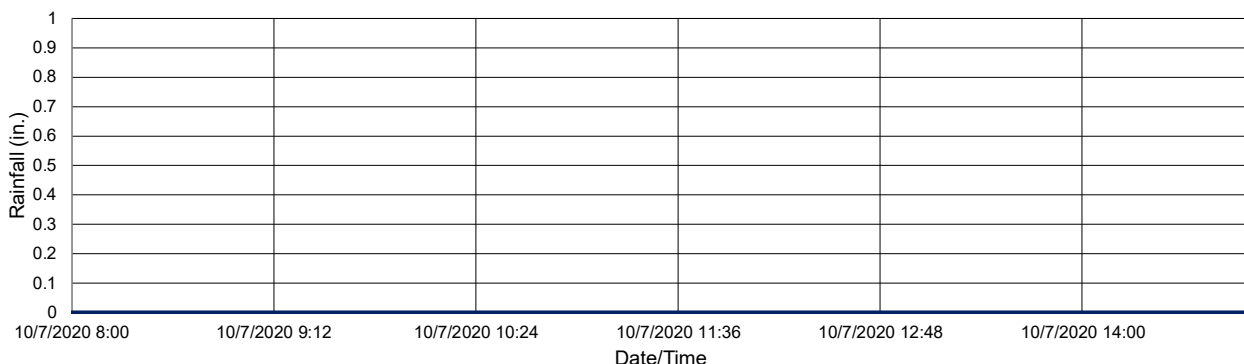
Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/7/2020 8:35
Event End Date/Time:	10/7/2020 14:50

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

Gate Activation Trigger Depth:	1.68 ft.
Return to Normal Depth:	1.54 ft.
Time Gate 1 Activated:	10/7/2020 8:35
Time Gate 2 Activated:	10/7/2020 8:35
Time Gate 1 Returned to Normal:	10/7/2020 14:50
Time Gate 2 Returned to Normal:	10/7/2020 14:45
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.98 ft.
Volume Stored:	776,611 Gal.
Unused Storage Volume:	313,679 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	776,611 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance**Rainfall Accumulation**

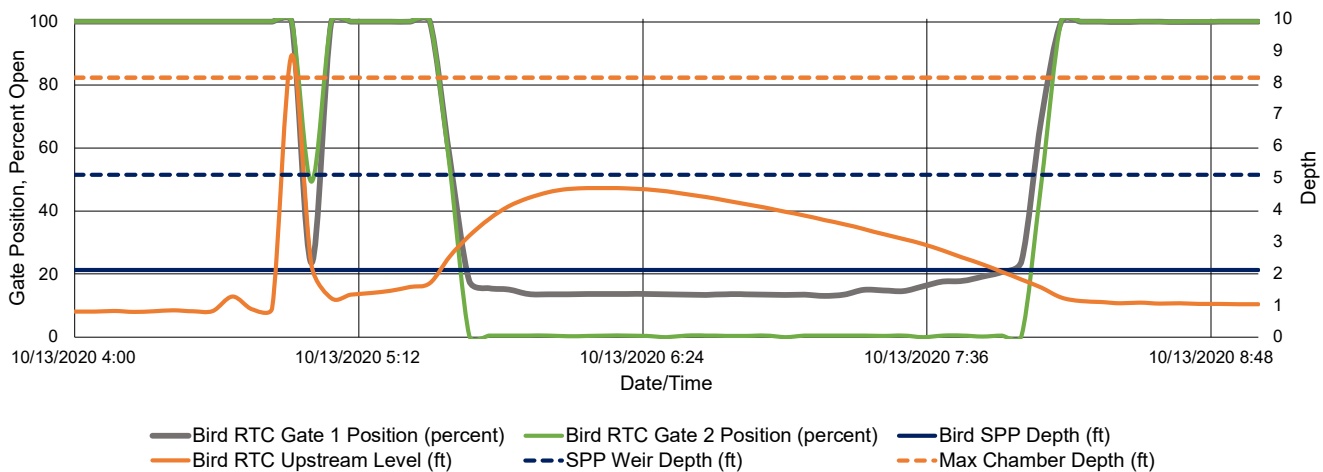
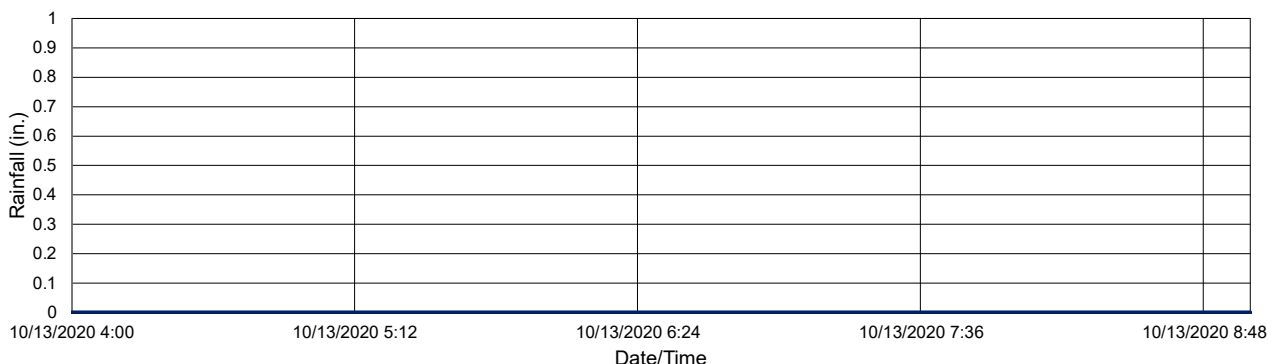
Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/13/2020 5:30
Event End Date/Time:	10/13/2020 8:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	5 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.69 ft.
Return to Normal Depth:	1.55 ft.
Time Gate 1 Activated:	10/13/2020 5:30
Time Gate 2 Activated:	10/13/2020 5:30
Time Gate 1 Returned to Normal:	10/13/2020 8:10
Time Gate 2 Returned to Normal:	10/13/2020 8:05
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.68 ft.
Volume Stored:	309,469 Gal.
Unused Storage Volume:	780,350 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	309,469 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance**Rainfall Accumulation**

Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/15/2020 21:40
Event End Date/Time:	10/16/2020 1:25

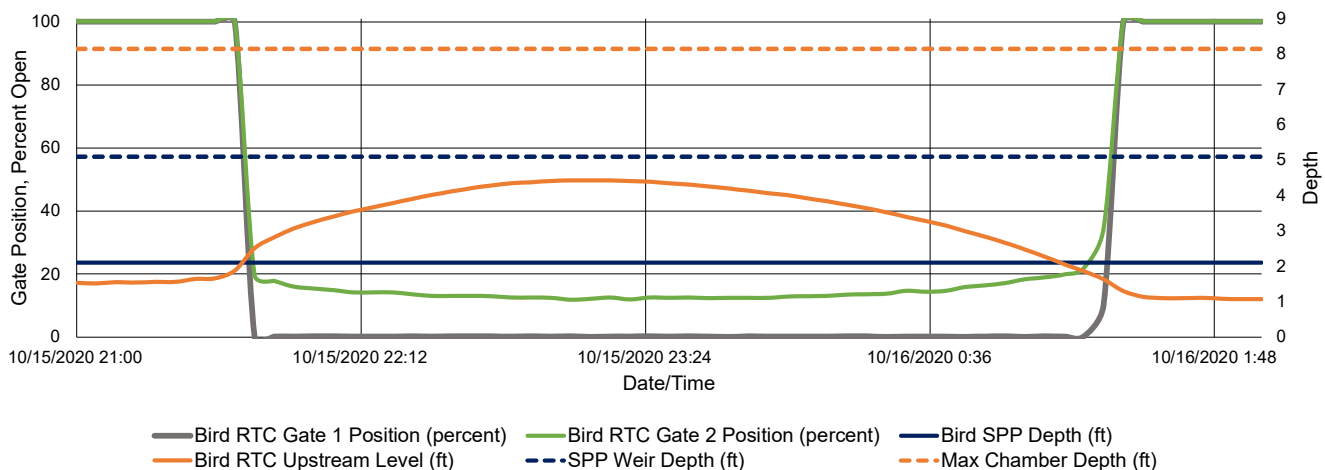
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	5 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.88 ft.
Return to Normal Depth:	1.63 ft.
Time Gate 1 Activated:	10/15/2020 21:40
Time Gate 2 Activated:	10/15/2020 21:40
Time Gate 1 Returned to Normal:	10/16/2020 1:25
Time Gate 2 Returned to Normal:	10/16/2020 1:20
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.43 ft.
Volume Stored:	261,053 Gal.
Unused Storage Volume:	819,096 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	261,053 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

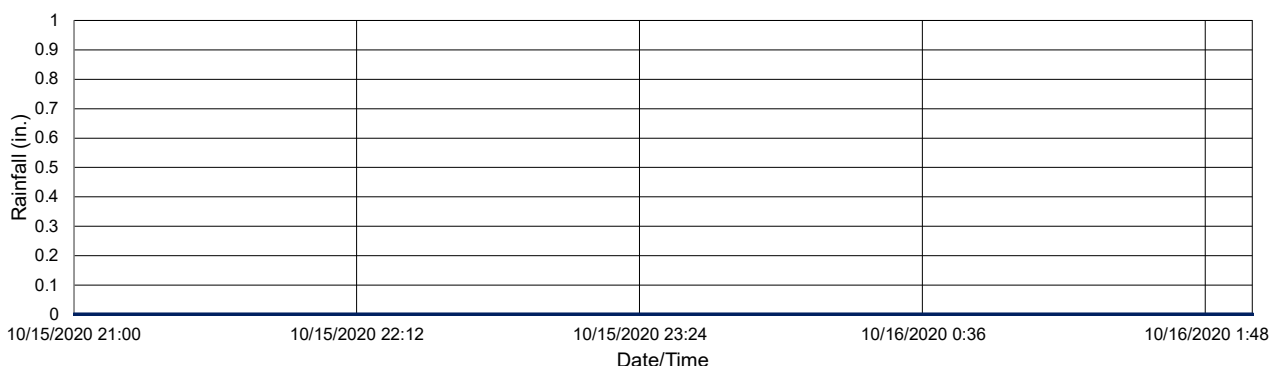
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/19/2020 20:00
Event End Date/Time:	10/20/2020 13:35

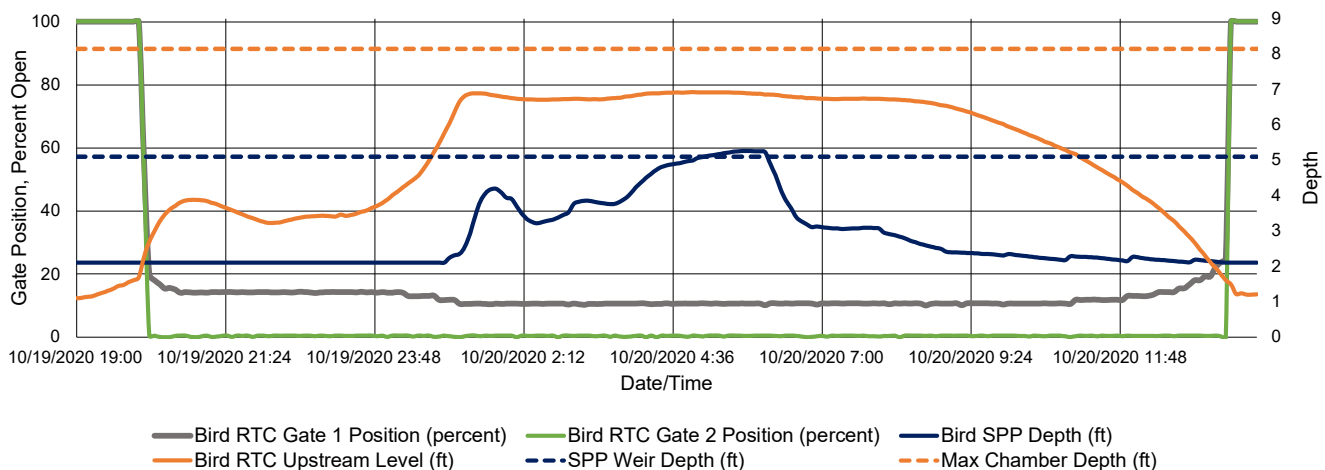
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	18 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.69 ft.
Return to Normal Depth:	1.61 ft.
Time Gate 1 Activated:	10/19/2020 20:00
Time Gate 2 Activated:	10/19/2020 20:00
Time Gate 1 Returned to Normal:	10/20/2020 13:35
Time Gate 2 Returned to Normal:	10/20/2020 13:30
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.93 ft.
Volume Stored:	763,881 Gal.
Unused Storage Volume:	325,938 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	763,881 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

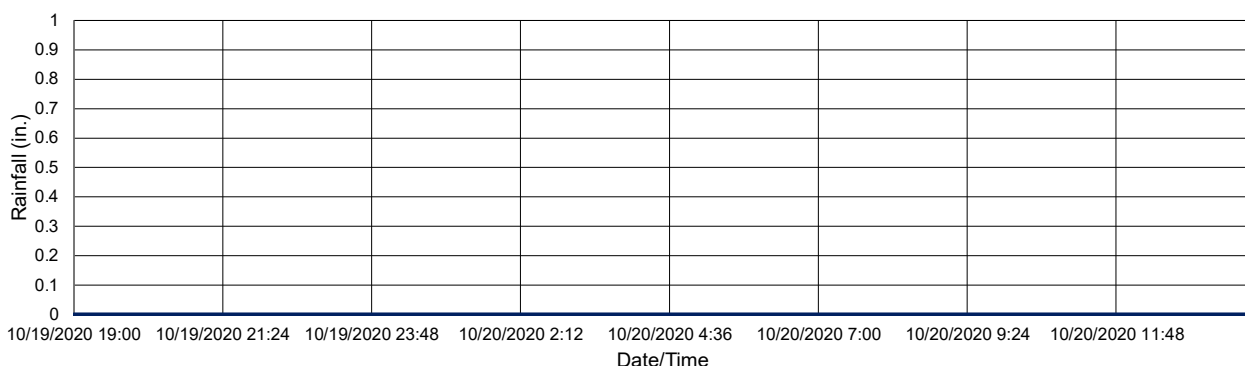
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



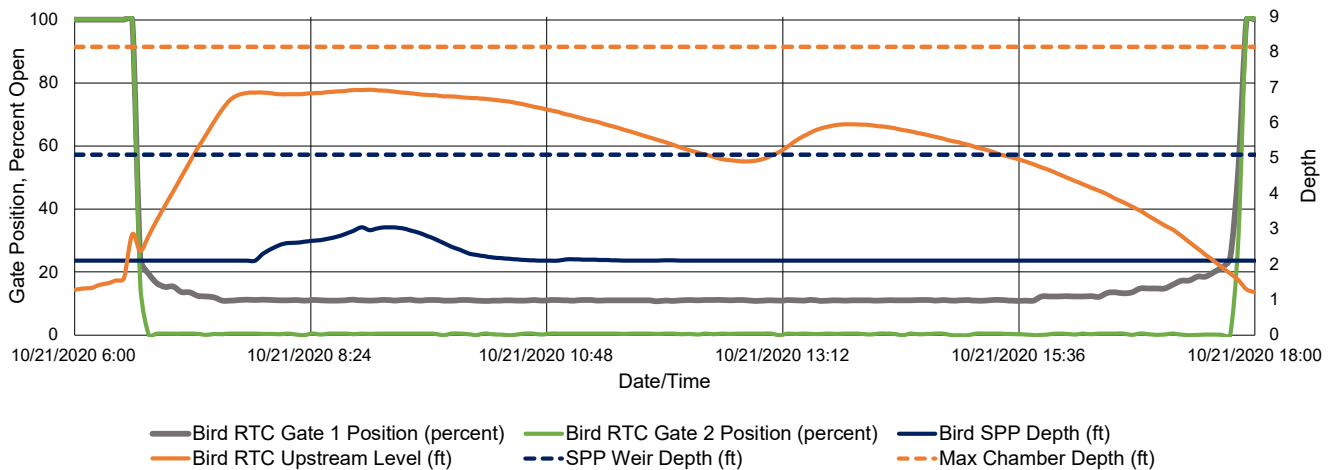
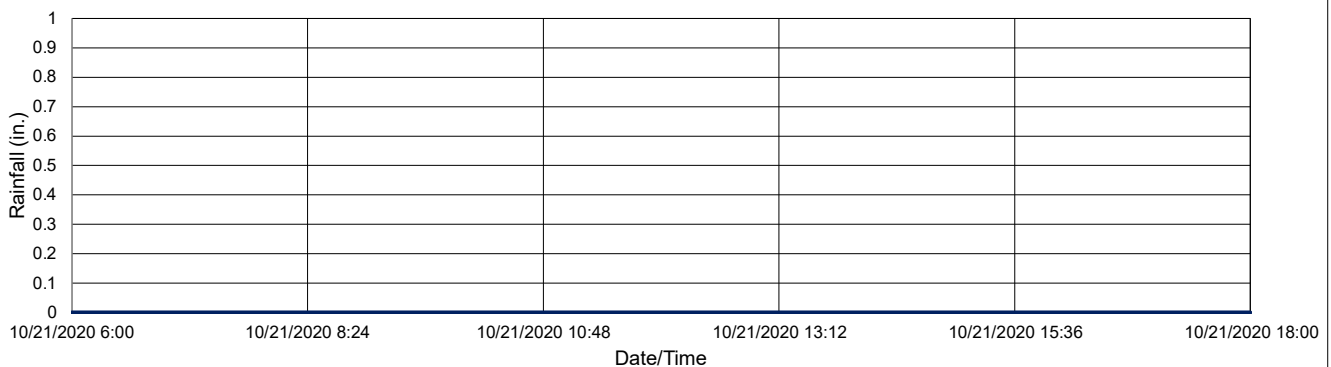
Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/21/2020 6:35
Event End Date/Time:	10/21/2020 17:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	12 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.85 ft.
Return to Normal Depth:	1.55 ft.
Time Gate 1 Activated:	10/21/2020 6:35
Time Gate 2 Activated:	10/21/2020 6:35
Time Gate 1 Returned to Normal:	10/21/2020 17:55
Time Gate 2 Returned to Normal:	10/21/2020 17:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.94 ft.
Volume Stored:	686,151 Gal.
Unused Storage Volume:	323,494 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	686,151 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance**Rainfall Accumulation**

Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/22/2020 8:10
Event End Date/Time:	10/22/2020 10:55

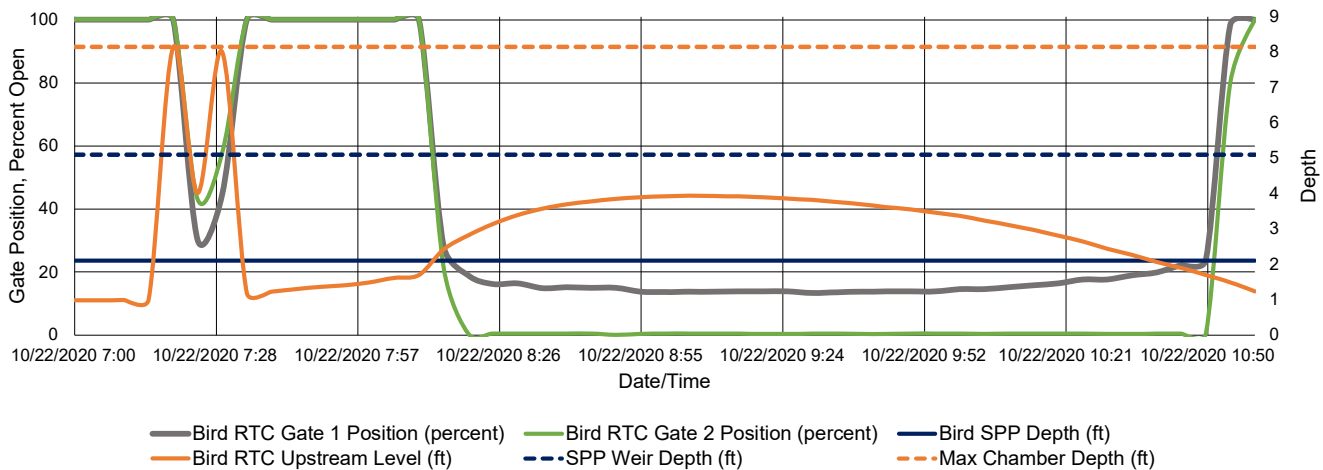
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	4 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.70 ft.
Return to Normal Depth:	1.49 ft.
Time Gate 1 Activated:	10/22/2020 8:10
Time Gate 2 Activated:	10/22/2020 8:10
Time Gate 1 Returned to Normal:	10/22/2020 10:55
Time Gate 2 Returned to Normal:	10/22/2020 10:55
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.94 ft.
Volume Stored:	201,118 Gal.
Unused Storage Volume:	888,226 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	201,118 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

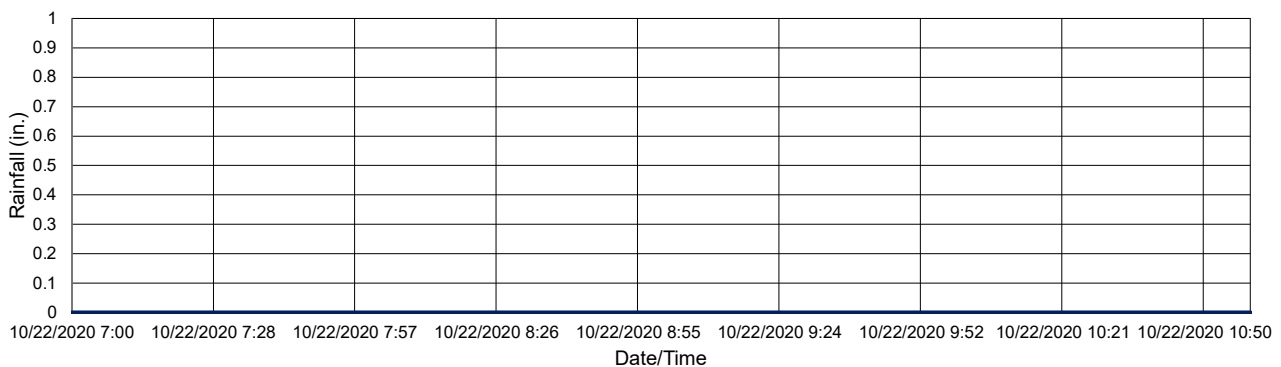
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/23/2020 21:10
Event End Date/Time:	10/24/2020 12:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	16 hr.
Storm Type:	N/A

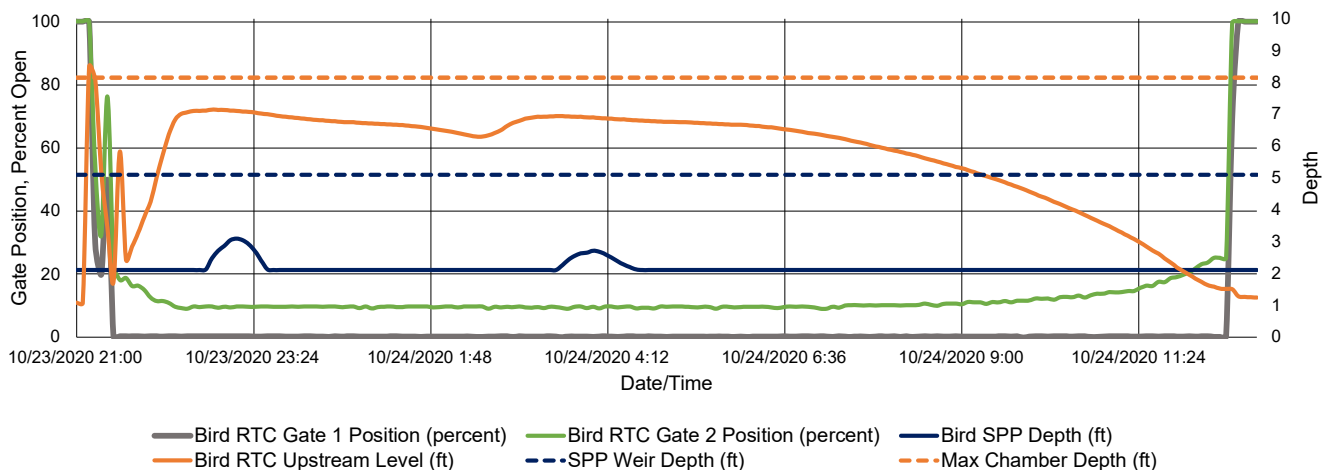
Gate Activation Trigger Depth:	2.44 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	10/23/2020 21:10
Time Gate 2 Activated:	10/23/2020 21:10
Time Gate 1 Returned to Normal:	10/24/2020 12:45
Time Gate 2 Returned to Normal:	10/24/2020 12:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.15 ft.
Volume Stored:	772,464 Gal.
Unused Storage Volume:	271,296 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	772,464 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:

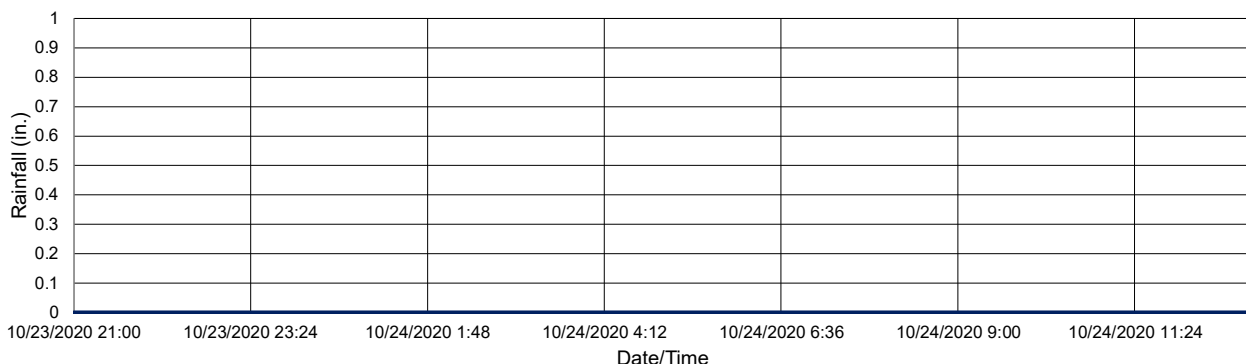
Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

Trigger depth reading of 8.49 ft that is higher than the max. chamber depth reading of 8.15 ft at the beginning of the event may be an error. Calculations have been performed based on data starting from 10/23/2020 at 21:40 pm. Trigger depth of 2.44 ft and a max chamber depth of 7.15 ft have been used to get reasonable storage results.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/27/2020 20:00
Event End Date/Time:	10/27/2020 22:20

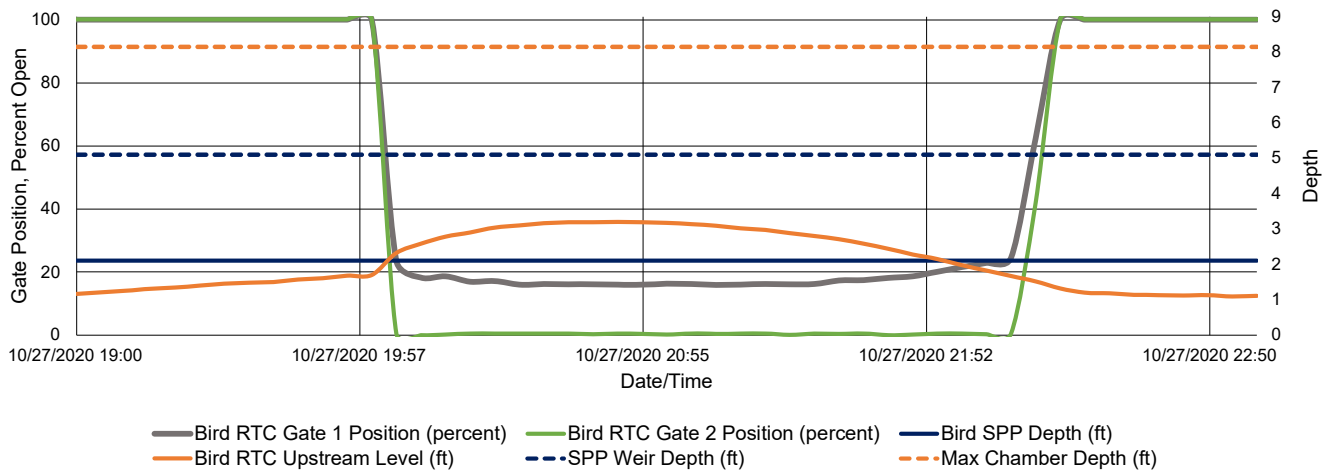
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	4 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.70 ft.
Return to Normal Depth:	1.52 ft.
Time Gate 1 Activated:	10/27/2020 20:00
Time Gate 2 Activated:	10/27/2020 20:00
Time Gate 1 Returned to Normal:	10/27/2020 22:20
Time Gate 2 Returned to Normal:	10/27/2020 22:15
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.20 ft.
Volume Stored:	113,820 Gal.
Unused Storage Volume:	975,524 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	113,820 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

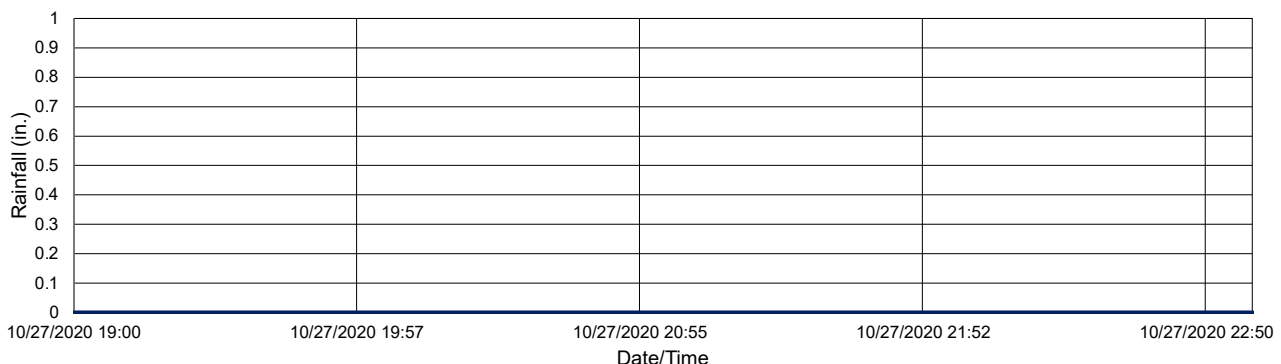
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



November 2020 Bird Ave. RTC KPI Report

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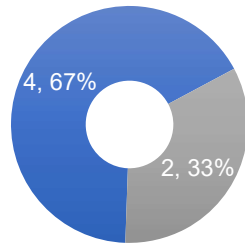


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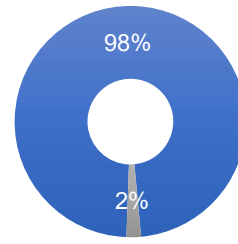
November 2020

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.)*
4	2	4,180,752	86,708
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
11/1/2020	1,090,290	75,171	94%
11/11/2020	812,261	11,537	99%
11/15/2020	448,210	-	100%
11/22/2020	724,927	-	100%
11/25/2020	323,837	-	100%
11/30/2020	781,227	-	100%

*SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/1/2020 10:35
Event End Date/Time:	11/1/2020 22:00

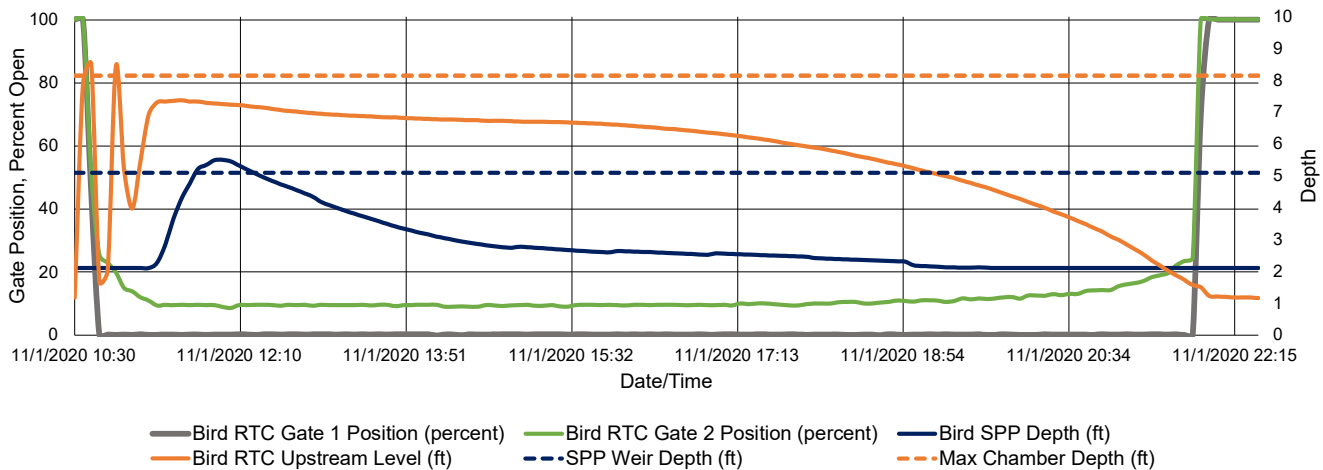
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.16 in.
Storm Event Duration:	12 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.68 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	11/1/2020 10:35
Time Gate 2 Activated:	11/1/2020 10:35
Time Gate 1 Returned to Normal:	11/1/2020 22:00
Time Gate 2 Returned to Normal:	11/1/2020 21:50
Percent Capture	94%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	8.15 ft.
Volume Stored:	1,090,290 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	75,171 Gal.
Overflow Volume Prevented:	1,090,290 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	-
Could SPP activation have been prevented?	No

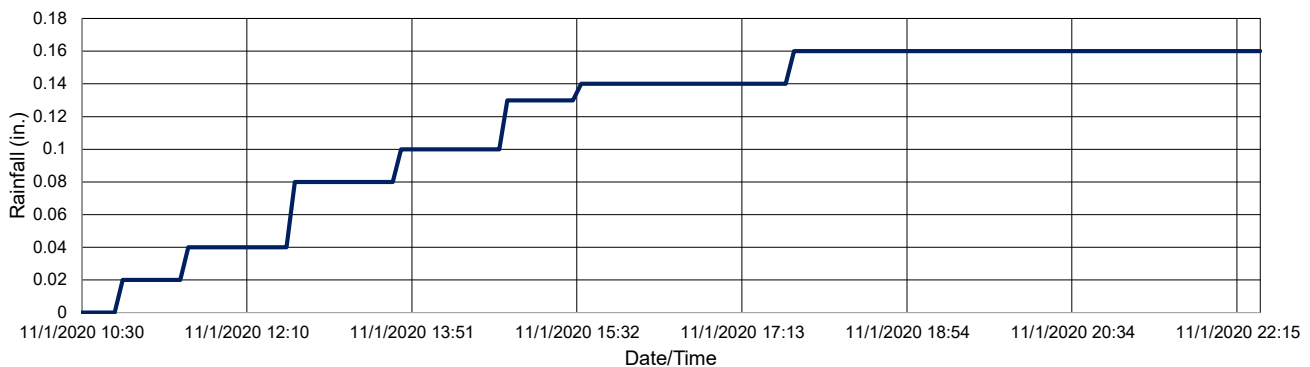
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/11/2020 4:30
Event End Date/Time:	11/11/2020 12:10

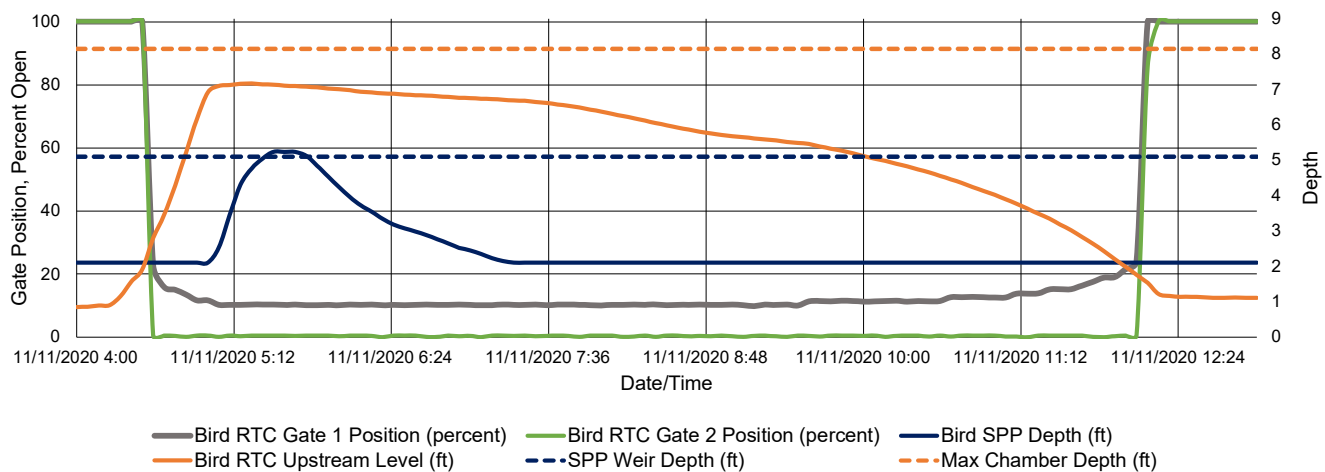
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.91 ft.
Return to Normal Depth:	1.76 ft.
Time Gate 1 Activated:	11/11/2020 4:30
Time Gate 2 Activated:	11/11/2020 4:30
Time Gate 1 Returned to Normal:	11/11/2020 12:10
Time Gate 2 Returned to Normal:	11/11/2020 12:10
Percent Capture	99%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.17 ft.
Volume Stored:	812,261 Gal.
Unused Storage Volume:	266,238 Gal.
Overflow Volume:	11,537 Gal.
Overflow Volume Prevented:	812,261 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	11,537
Could SPP activation have been prevented?	Yes

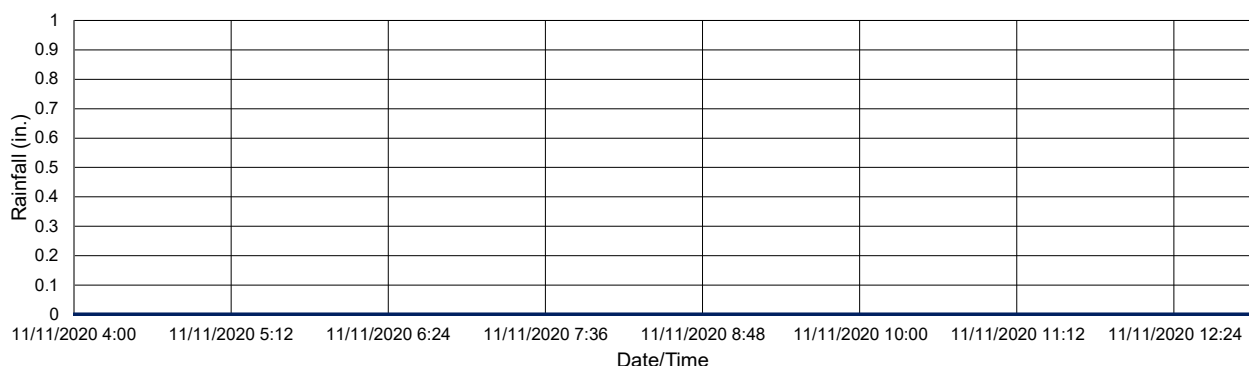
Recommended Operational Changes/Notes:

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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/15/2020 16:15
Event End Date/Time:	11/15/2020 23:15

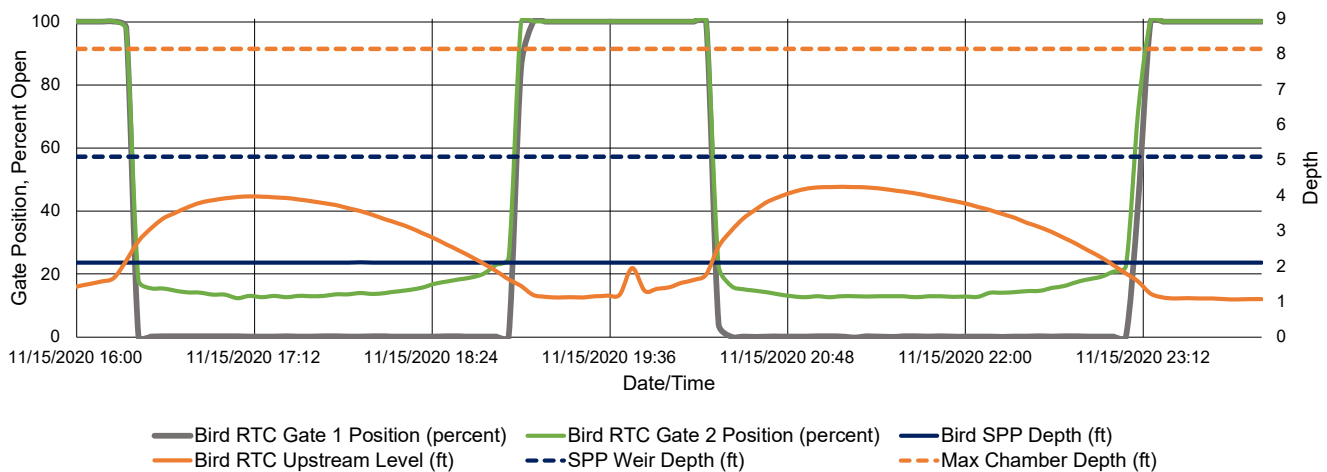
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.06 in.
Storm Event Duration:	8 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.67 ft.
Return to Normal Depth:	1.44 ft.
Time Gate 1 Activated:	11/15/2020 16:15
Time Gate 2 Activated:	11/15/2020 16:15
Time Gate 1 Returned to Normal:	11/15/2020 23:15
Time Gate 2 Returned to Normal:	11/15/2020 23:10
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.98 ft.
Volume Stored:	448,210 Gal.
Unused Storage Volume:	845,540 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	448,210 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

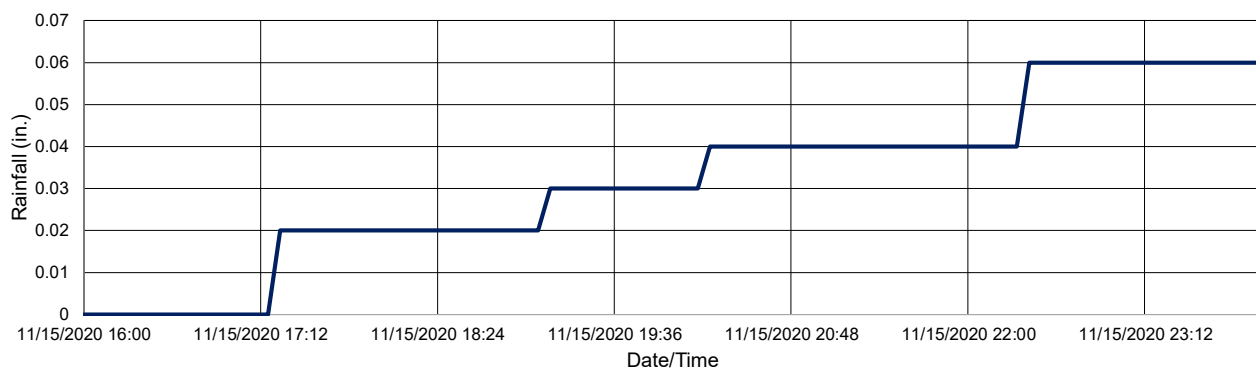
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/22/2020 18:50
Event End Date/Time:	11/23/2020 2:50

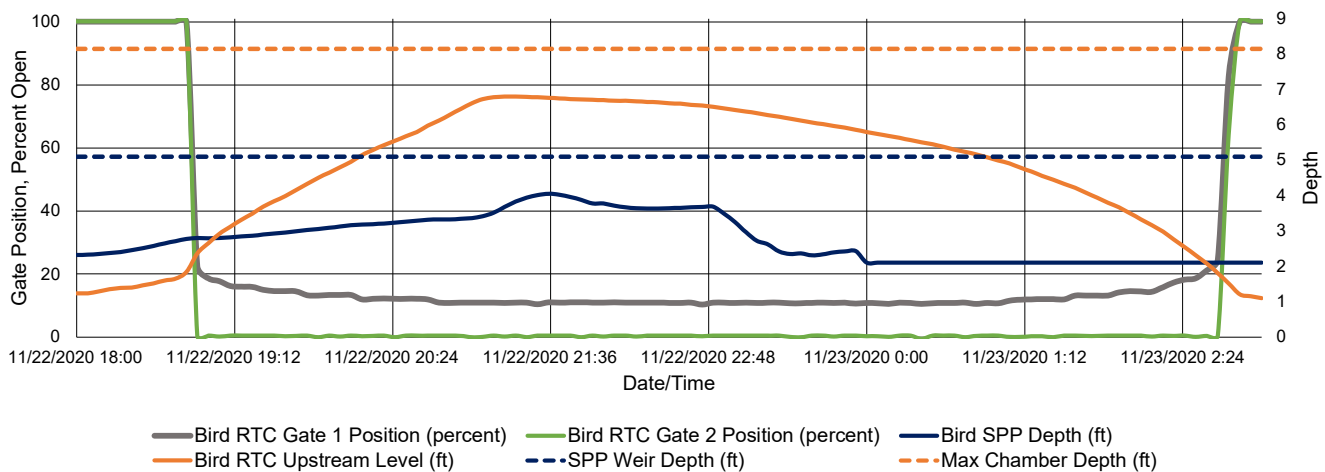
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	9 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.84 ft.
Return to Normal Depth:	1.52 ft.
Time Gate 1 Activated:	11/22/2020 18:50
Time Gate 2 Activated:	11/22/2020 18:50
Time Gate 1 Returned to Normal:	11/23/2020 2:50
Time Gate 2 Returned to Normal:	11/23/2020 2:45
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.80 ft.
Volume Stored:	724,927 Gal.
Unused Storage Volume:	357,371 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	724,927 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

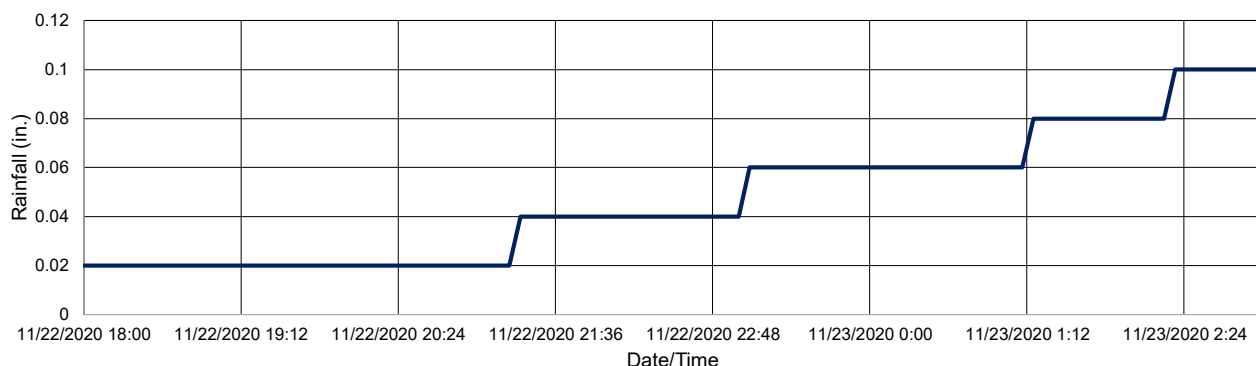
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/25/2020 20:00
Event End Date/Time:	11/26/2020 2:25

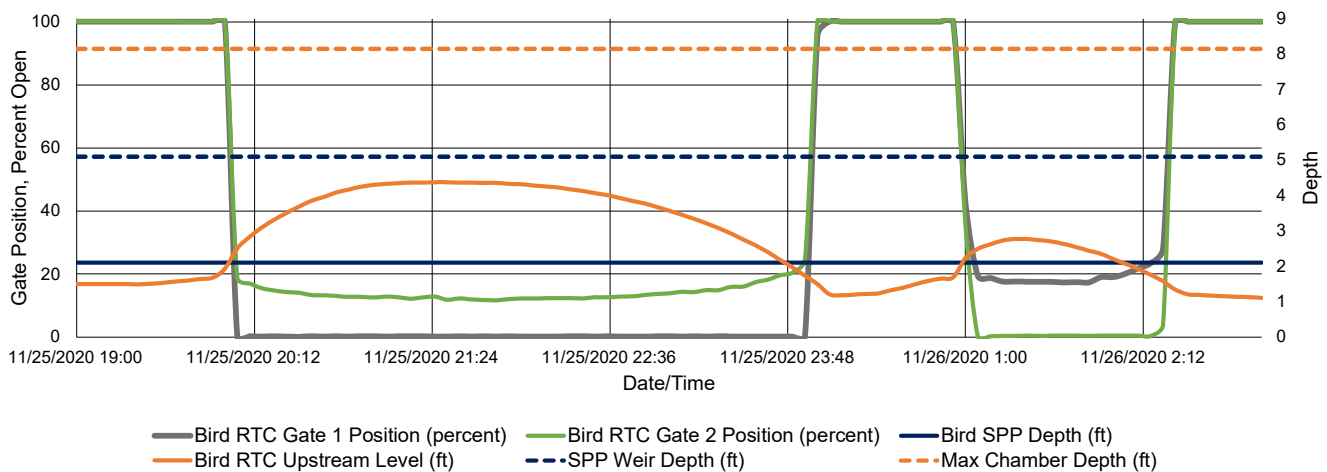
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.08 in.
Storm Event Duration:	8 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.93 ft.
Return to Normal Depth:	1.21 ft.
Time Gate 1 Activated:	11/25/2020 20:00
Time Gate 2 Activated:	11/25/2020 20:00
Time Gate 1 Returned to Normal:	11/26/2020 2:25
Time Gate 2 Returned to Normal:	11/26/2020 2:20
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.38 ft.
Volume Stored:	323,837 Gal.
Unused Storage Volume:	826,564 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	323,837 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

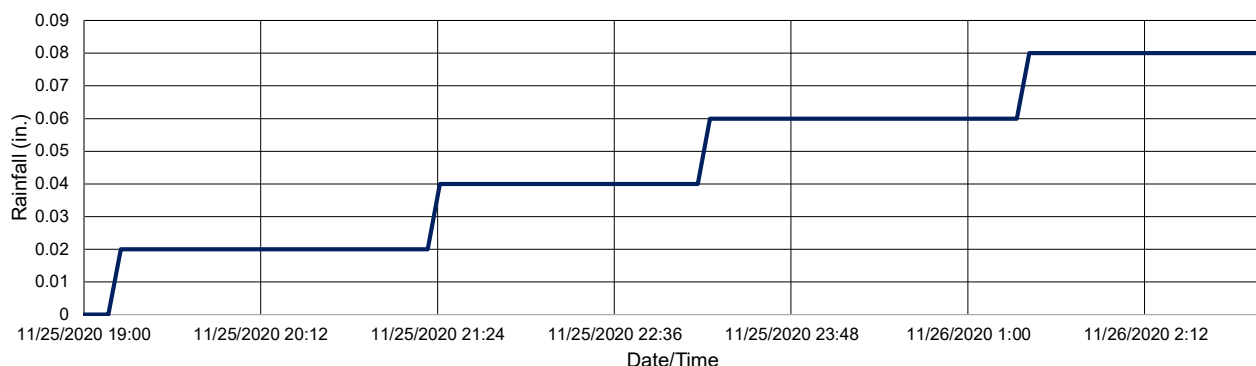
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	12/4/2020
Event Start Date/Time:	11/30/2020 8:35
Event End Date/Time:	12/1/2020 19:45

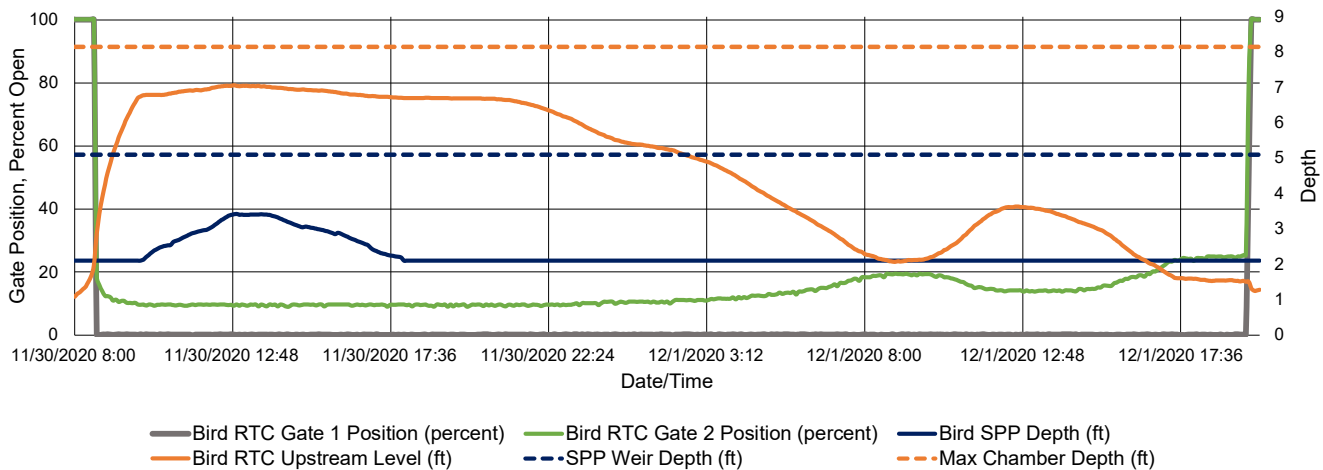
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.33 in.
Storm Event Duration:	36 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.97 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	11/30/2020 8:35
Time Gate 2 Activated:	11/30/2020 8:35
Time Gate 1 Returned to Normal:	12/1/2020 19:45
Time Gate 2 Returned to Normal:	12/1/2020 19:40
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.06 ft.
Volume Stored:	781,227 Gal.
Unused Storage Volume:	293,869 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	781,227 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

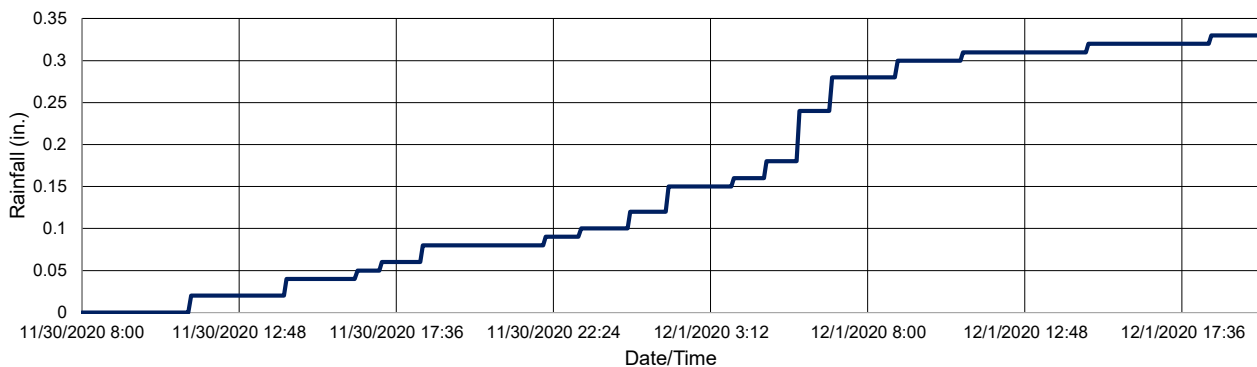
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



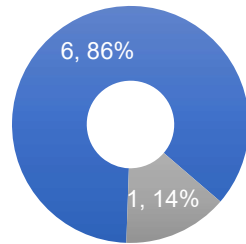
December 2020 Bird Ave. RTC KPI Report

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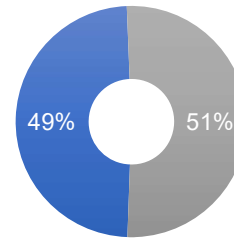


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Prevented SPP Events

■ 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.)*
6	1	3,793,310	3,979,633

*SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
12/4/2020	86,613	-	100%
12/9/2020	732,383	-	100%
12/12/2020	448,210	-	100%
12/21/2020	756,097	-	100%
12/24/2020	208,233	-	100%
12/28/2020	740,116	-	100%
12/30/2020	821,658	3,979,633	17%

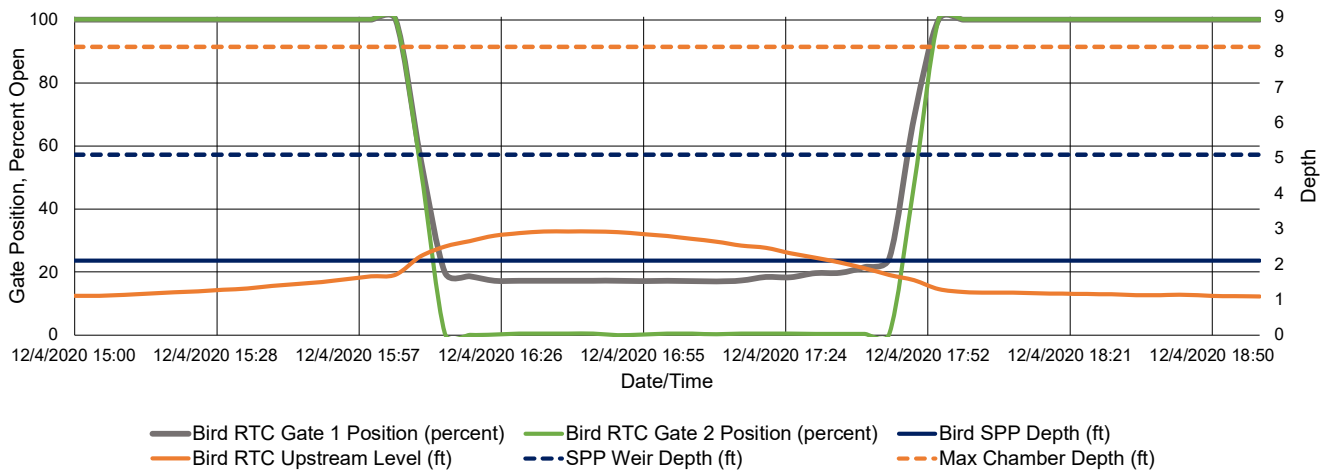
Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/4/2020 16:05
Event End Date/Time:	12/4/2020 17:55

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

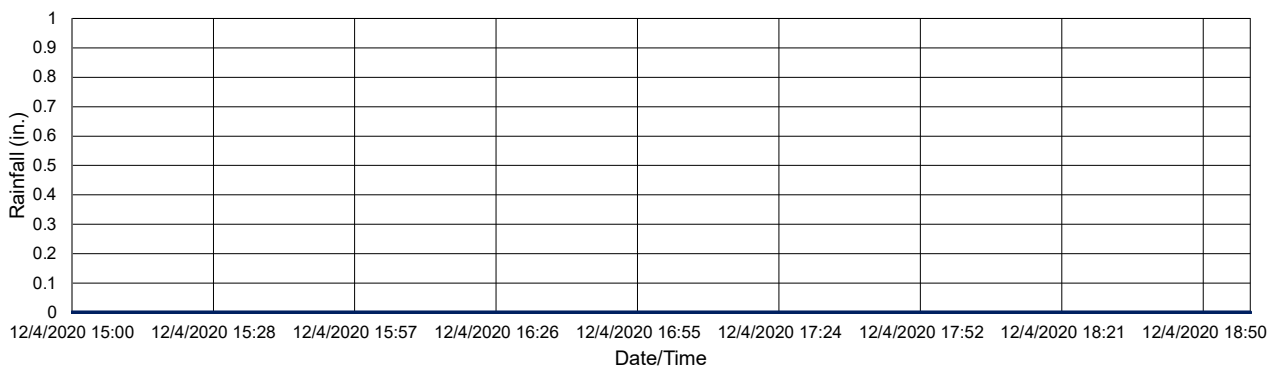
Gate Activation Trigger Depth:	1.71 ft.
Return to Normal Depth:	1.55 ft.
Time Gate 1 Activated:	12/4/2020 16:05
Time Gate 2 Activated:	12/4/2020 16:05
Time Gate 1 Returned to Normal:	12/4/2020 17:55
Time Gate 2 Returned to Normal:	12/4/2020 17:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	2.93 ft.
Volume Stored:	86,613 Gal.
Unused Storage Volume:	1,002,251 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	86,613 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. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/9/2020 7:35
Event End Date/Time:	12/10/2020 1:40

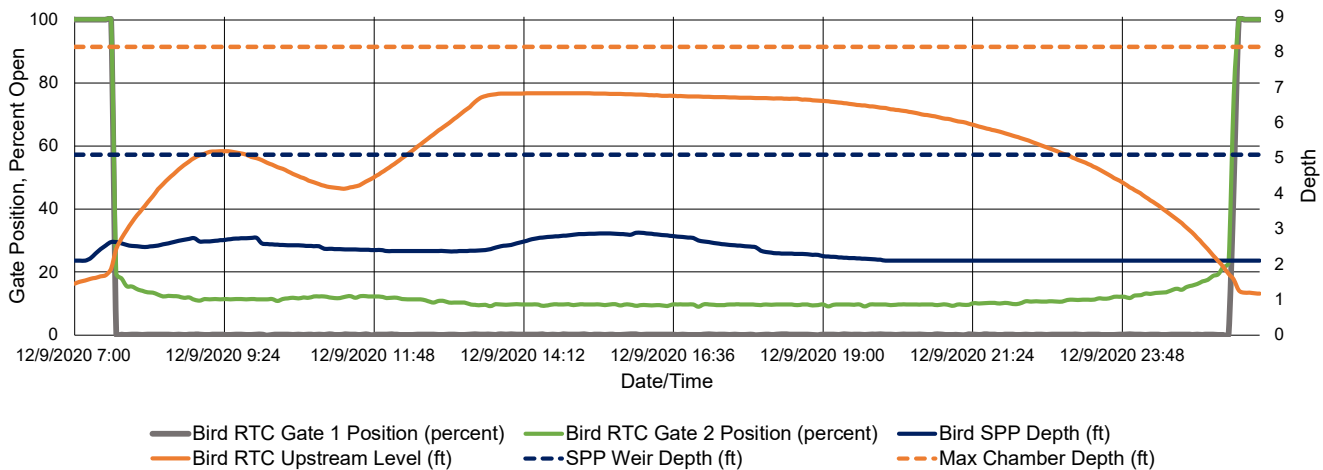
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	19 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.88 ft.
Return to Normal Depth:	1.57 ft.
Time Gate 1 Activated:	12/9/2020 7:35
Time Gate 2 Activated:	12/9/2020 7:35
Time Gate 1 Returned to Normal:	12/10/2020 1:40
Time Gate 2 Returned to Normal:	12/10/2020 1:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.84 ft.
Volume Stored:	732,383 Gal.
Unused Storage Volume:	347,767 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	732,383 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

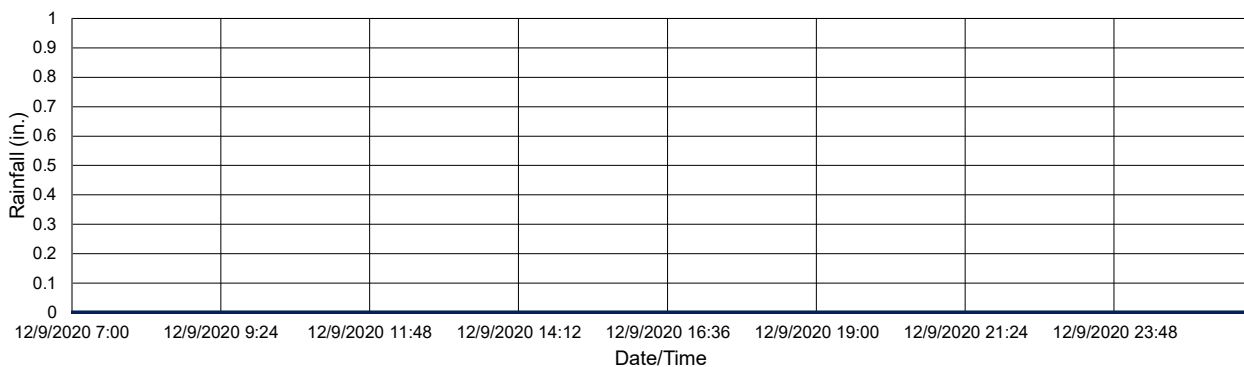
Recommended Operational Changes/Notes:

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 or probable snow melt. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/12/2020 20:10
Event End Date/Time:	12/13/2020 1:40

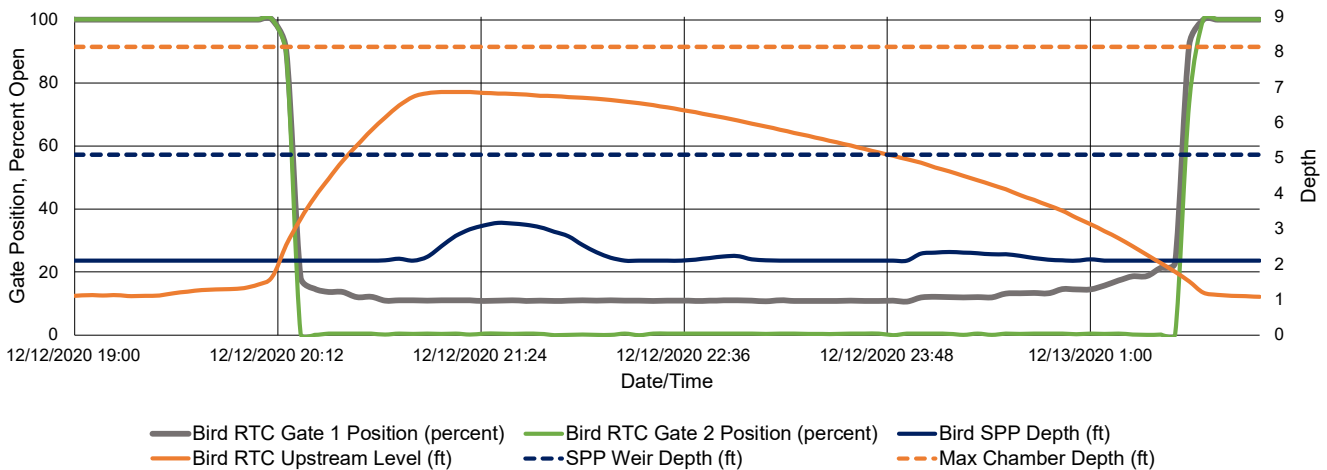
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	7 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.64 ft.
Return to Normal Depth:	1.52 ft.
Time Gate 1 Activated:	12/12/2020 20:10
Time Gate 2 Activated:	12/12/2020 20:10
Time Gate 1 Returned to Normal:	12/13/2020 1:40
Time Gate 2 Returned to Normal:	12/13/2020 1:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.87 ft.
Volume Stored:	751,613 Gal.
Unused Storage Volume:	340,525 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	751,613 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

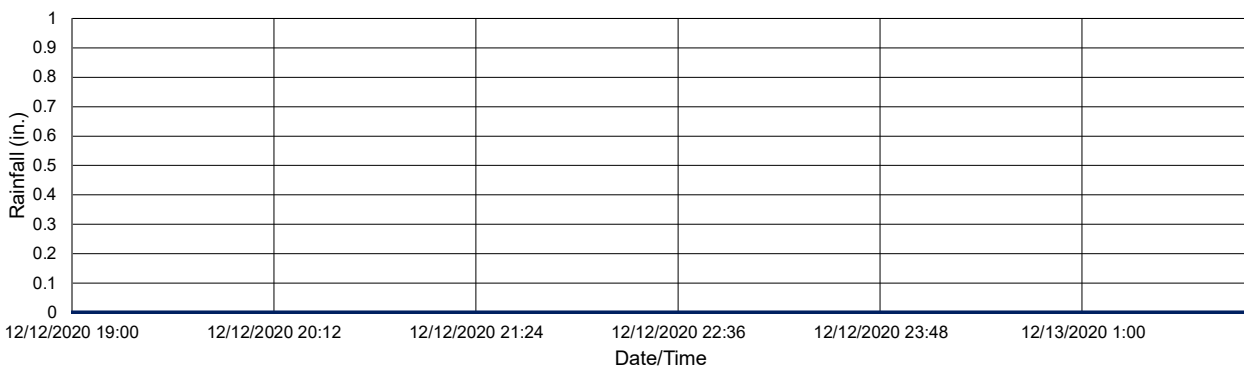
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



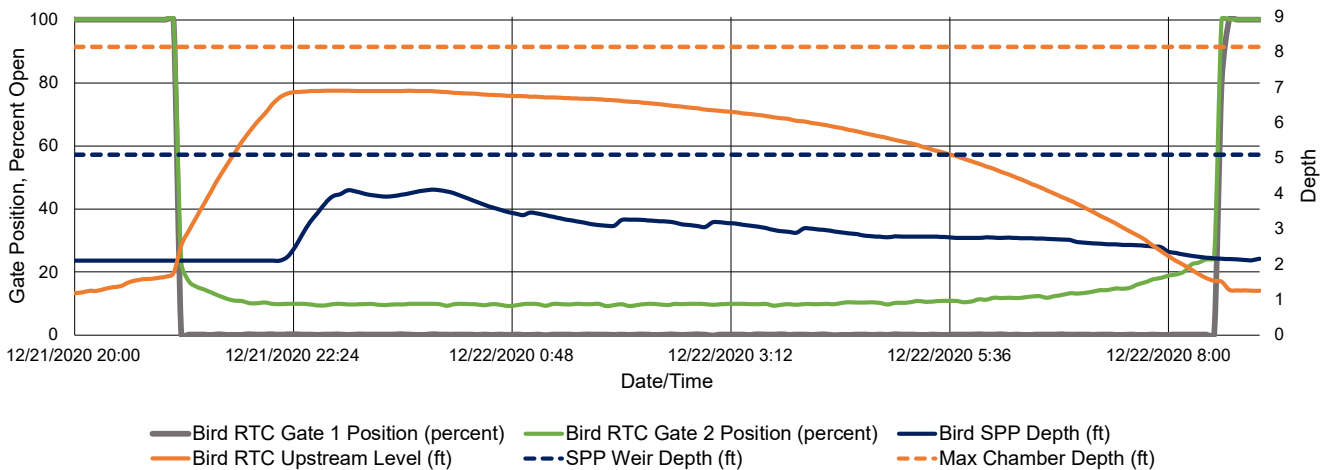
Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/21/2020 21:05
Event End Date/Time:	12/22/2020 8:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.26 in.
Storm Event Duration:	12 hr.
Storm Type:	Less than one year

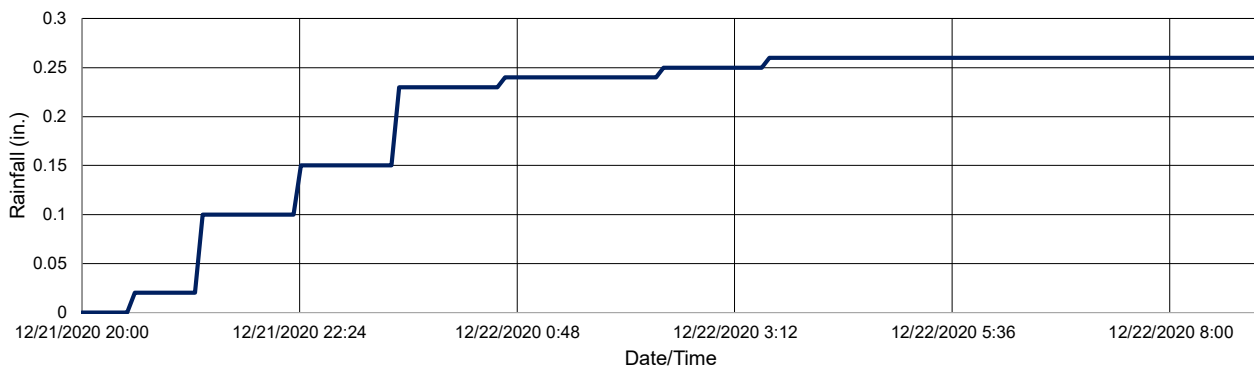
Gate Activation Trigger Depth:	1.75 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	12/21/2020 21:05
Time Gate 2 Activated:	12/21/2020 21:05
Time Gate 1 Returned to Normal:	12/22/2020 8:40
Time Gate 2 Returned to Normal:	12/22/2020 8:30
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.91 ft.
Volume Stored:	756,097 Gal.
Unused Storage Volume:	330,815 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	756,097 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



Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/24/2020 17:00
Event End Date/Time:	12/24/2020 23:50

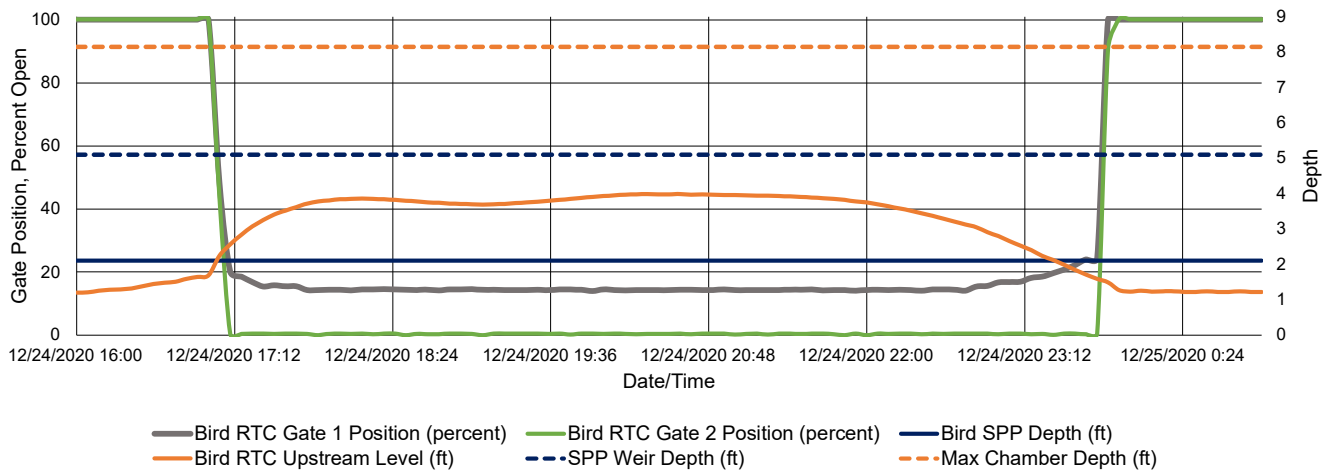
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.26 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	1.69 ft.
Return to Normal Depth:	1.59 ft.
Time Gate 1 Activated:	12/24/2020 17:00
Time Gate 2 Activated:	12/24/2020 17:00
Time Gate 1 Returned to Normal:	12/24/2020 23:50
Time Gate 2 Returned to Normal:	12/24/2020 23:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.99 ft.
Volume Stored:	208,233 Gal.
Unused Storage Volume:	881,586 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	208,233 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

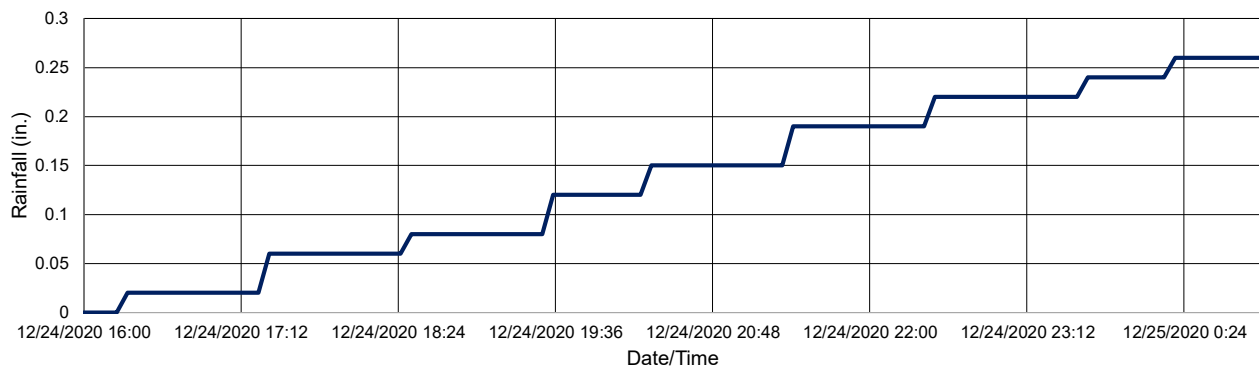
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/28/2020 5:55
Event End Date/Time:	12/29/2020 1:35

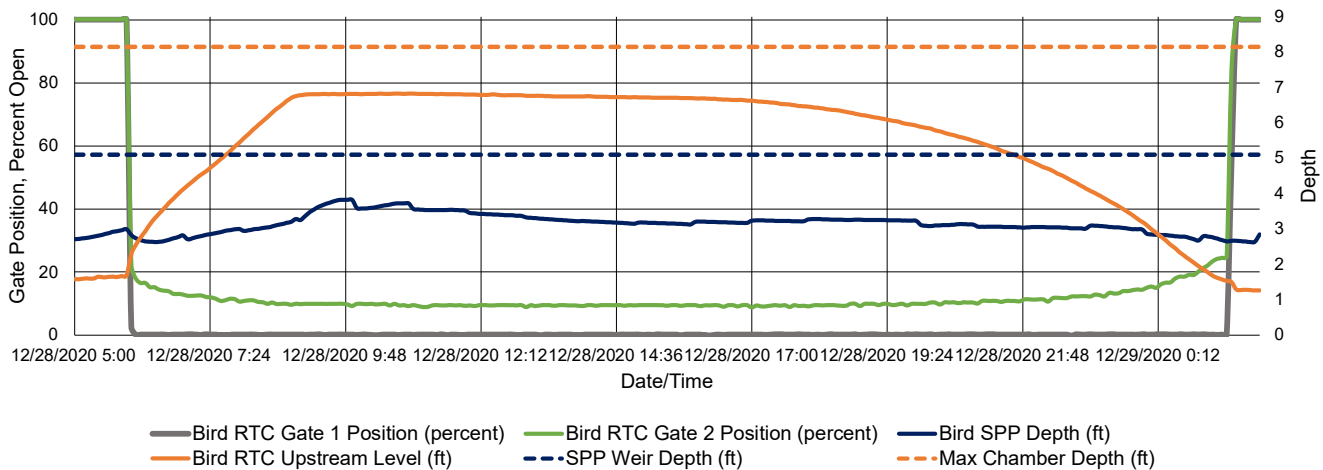
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.06 in.
Storm Event Duration:	21 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	1.68 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	12/28/2020 5:55
Time Gate 2 Activated:	12/28/2020 5:55
Time Gate 1 Returned to Normal:	12/29/2020 1:35
Time Gate 2 Returned to Normal:	12/29/2020 1:30
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.83 ft.
Volume Stored:	740,116 Gal.
Unused Storage Volume:	350,174 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	740,116 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

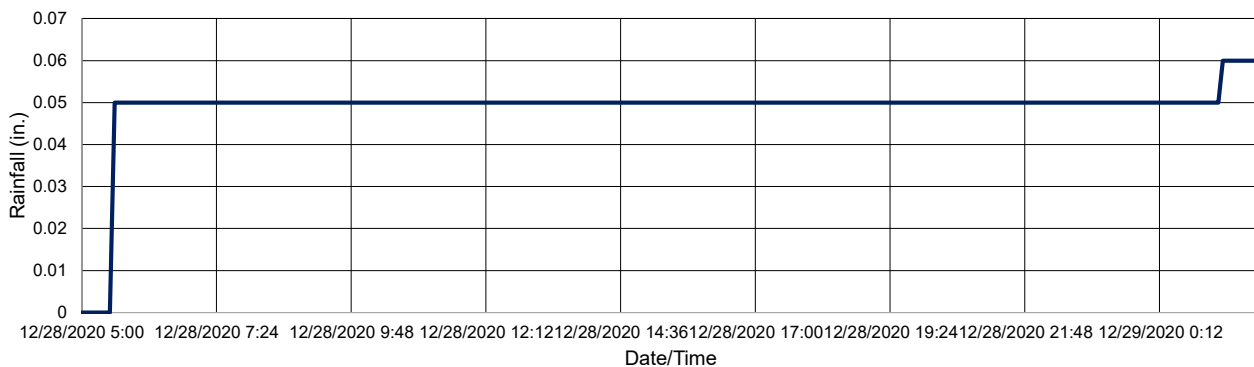
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



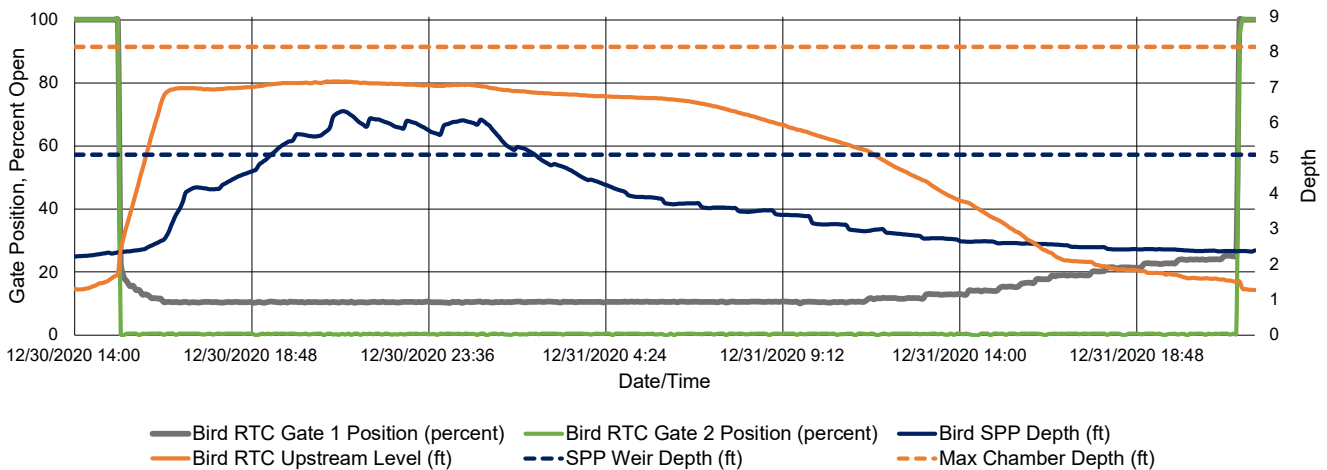
Site:	Bird RTC
Analysis Date:	1/7/2021
Event Start Date/Time:	12/30/2020 15:10
Event End Date/Time:	12/31/2020 21:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.40 in.
Storm Event Duration:	32 hr.
Storm Type:	Less than one year

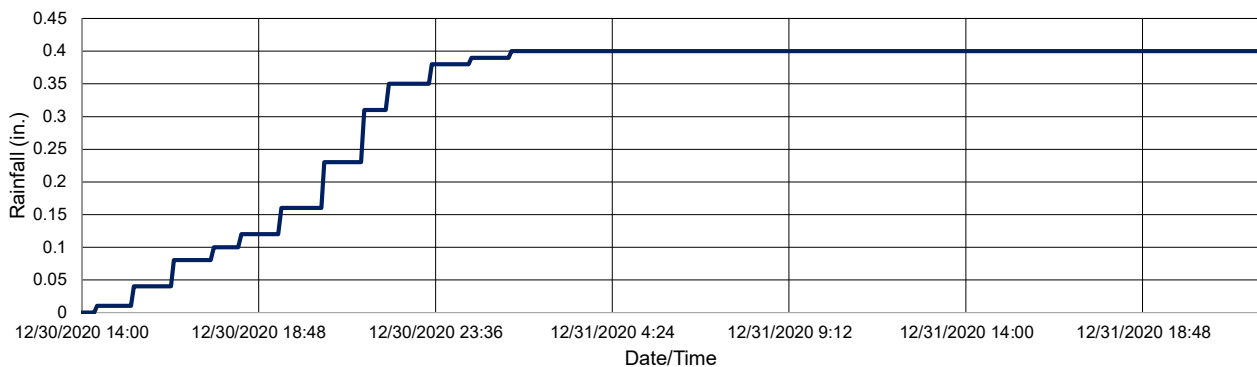
Gate Activation Trigger Depth:	1.73 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	12/30/2020 15:10
Time Gate 2 Activated:	12/30/2020 15:10
Time Gate 1 Returned to Normal:	12/31/2020 21:35
Time Gate 2 Returned to Normal:	12/31/2020 21:35
Percent Capture	17%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.17 ft.
Volume Stored:	821,658 Gal.
Unused Storage Volume:	266,238 Gal.
Overflow Volume:	3,979,633 Gal.
Overflow Volume Prevented:	821,658 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	3,979,633
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

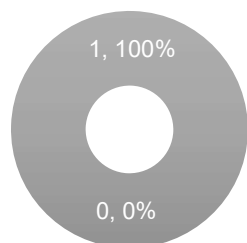


January 2021 Bird Ave. RTC KPI Report

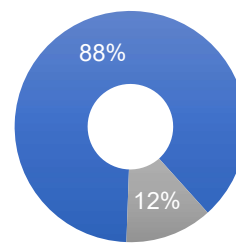
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Prevented SPP Events

■ 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.)
0	1	803,497	111,819
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
1/1/2021	803,497	111,819	88%

January 1, 2021

1

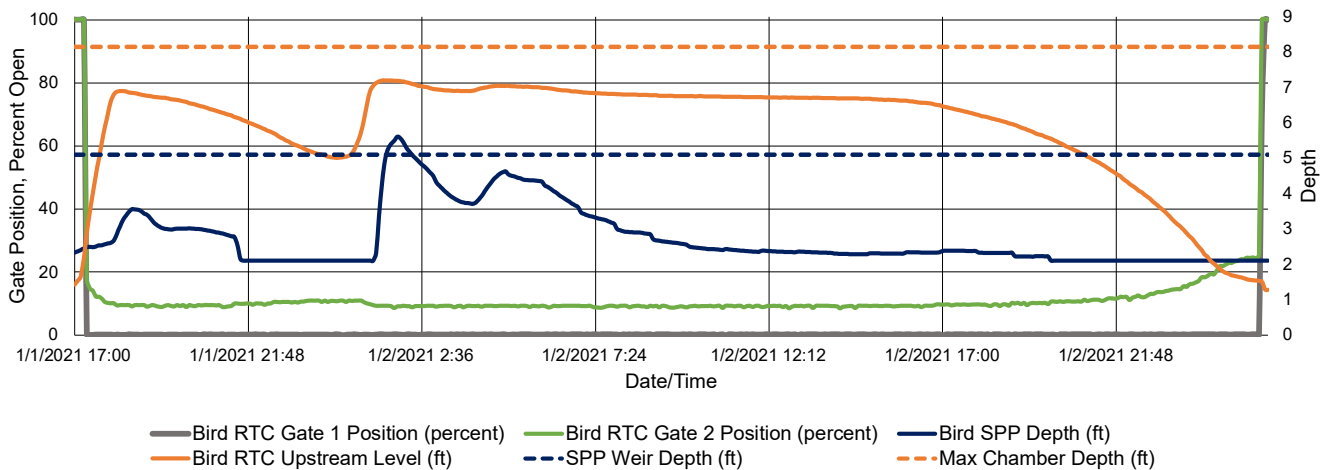
Site:	Bird RTC
Analysis Date:	2/3/2021
Event Start Date/Time:	1/1/2021 17:15
Event End Date/Time:	1/3/2021 1:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.06 in.
Storm Event Duration:	33 hr.
Storm Type:	Less than one year

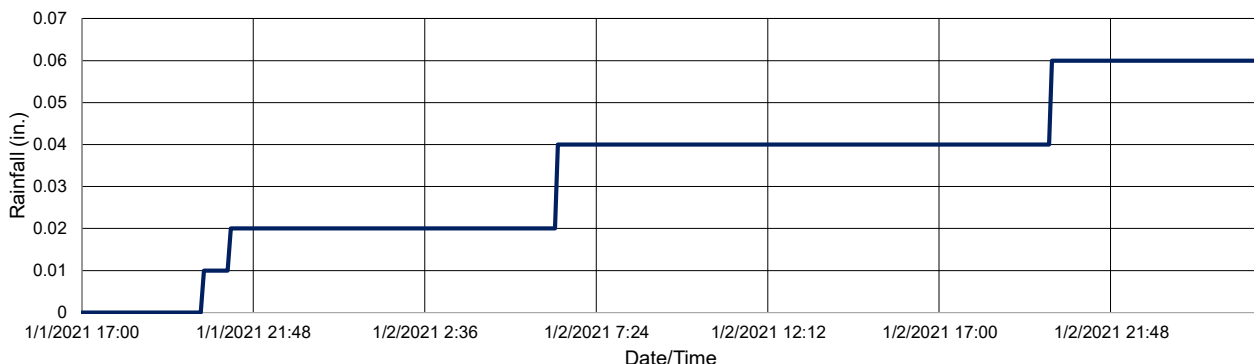
Gate Activation Trigger Depth:	2.18 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	1/1/2021 17:15
Time Gate 2 Activated:	1/1/2021 17:15
Time Gate 1 Returned to Normal:	1/3/2021 1:55
Time Gate 2 Returned to Normal:	1/3/2021 1:45
Percent Capture	88%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.20 ft.
Volume Stored:	803,497 Gal.
Unused Storage Volume:	258,624 Gal.
Overflow Volume:	111,819 Gal.
Overflow Volume Prevented:	803,497 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	111,819
Could SPP activation have been prevented?	Yes

Recommended Operational Changes/Notes:
Rainfall data sourced from BSA rain gauge station at South Buffalo.

RTC Gate Performance



Rainfall Accumulation

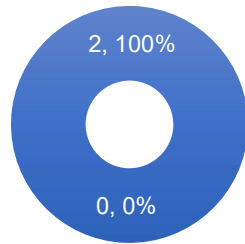


February 2021 Bird Ave. RTC KPI Report

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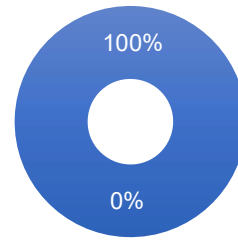


Prevented SPP Events



■ 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.)
2	0	1,511,306	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
2/24/2021	743,987	-	100%
2/27/2021	767,319	-	100%

Site:	Bird RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/24/2021 12:45
Event End Date/Time:	2/26/2021 5:15

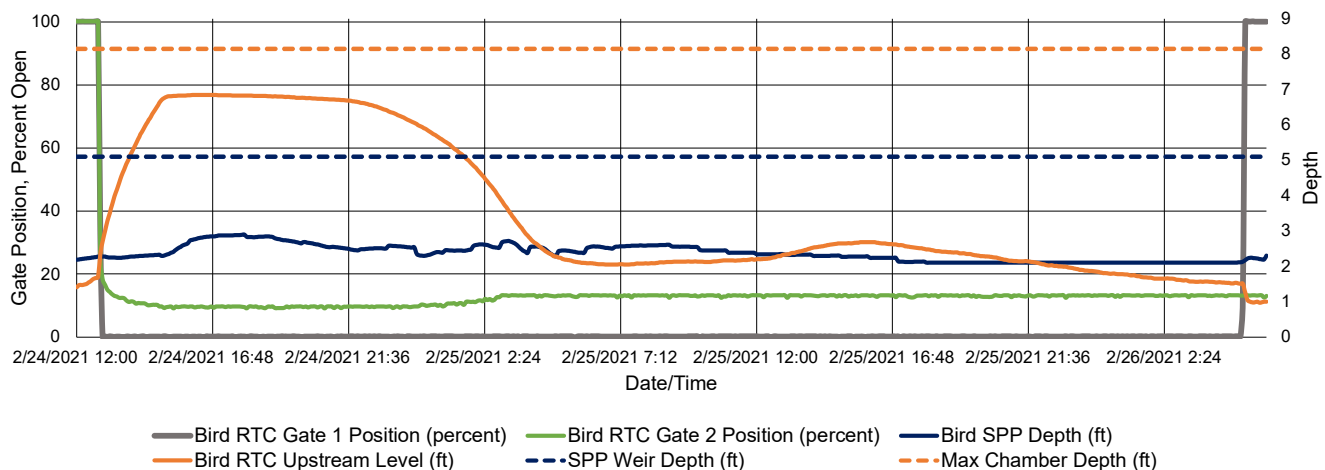
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	42 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	1.70 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	2/24/2021 12:45
Time Gate 2 Activated:	2/24/2021 12:45
Time Gate 1 Returned to Normal:	2/26/2021 5:15
Time Gate 2 Returned to Normal:	N/A
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.85 ft.
Volume Stored:	743,987 Gal.
Unused Storage Volume:	345,357 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	743,987 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

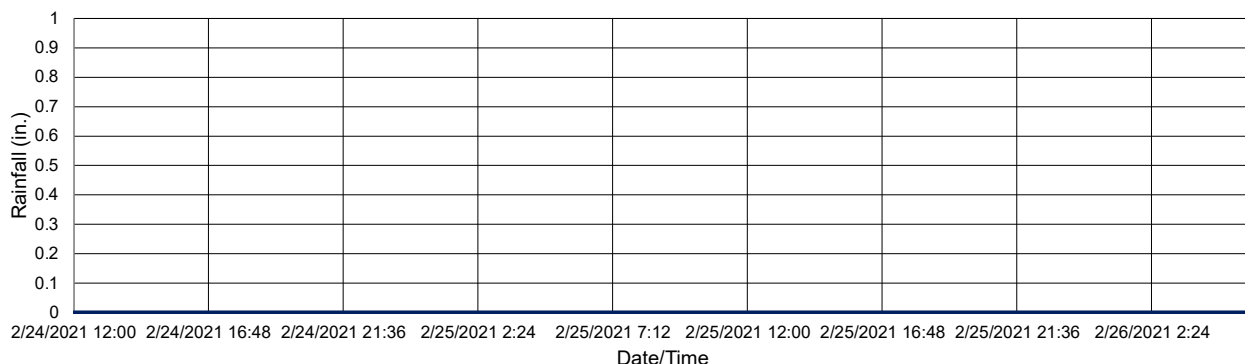
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Gate 2 was stuck open at 13% at the end of this event. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm or probable snow melt.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/27/2021 8:45
Event End Date/Time:	3/3/2021 1:40

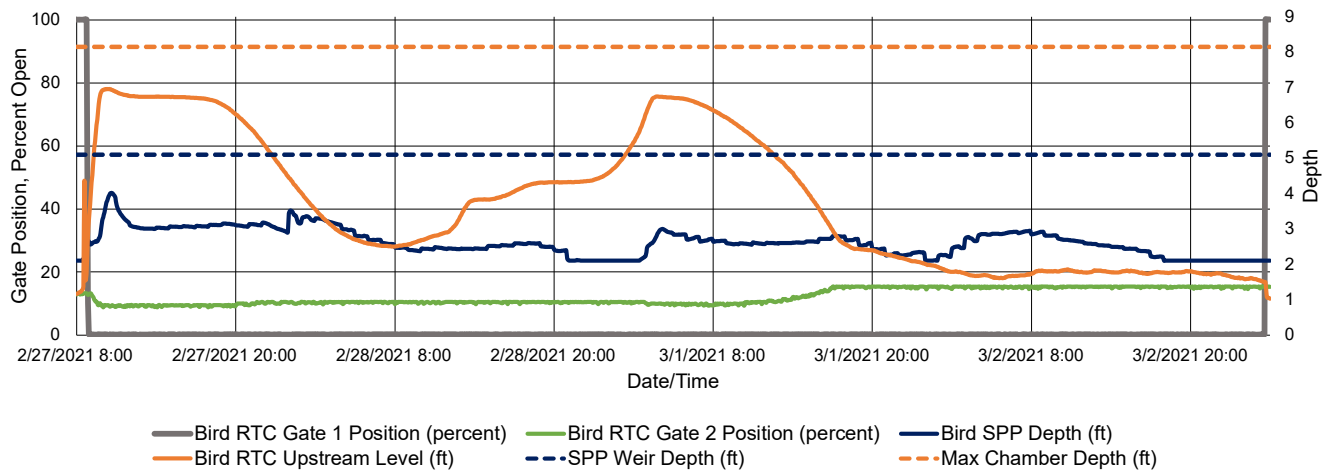
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.06 in.
Storm Event Duration:	90 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	1.77 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	2/27/2021 8:45
Time Gate 2 Activated:	N/A
Time Gate 1 Returned to Normal:	3/3/2021 1:40
Time Gate 2 Returned to Normal:	N/A
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.96 ft.
Volume Stored:	767,319 Gal.
Unused Storage Volume:	318,594 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	767,319 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

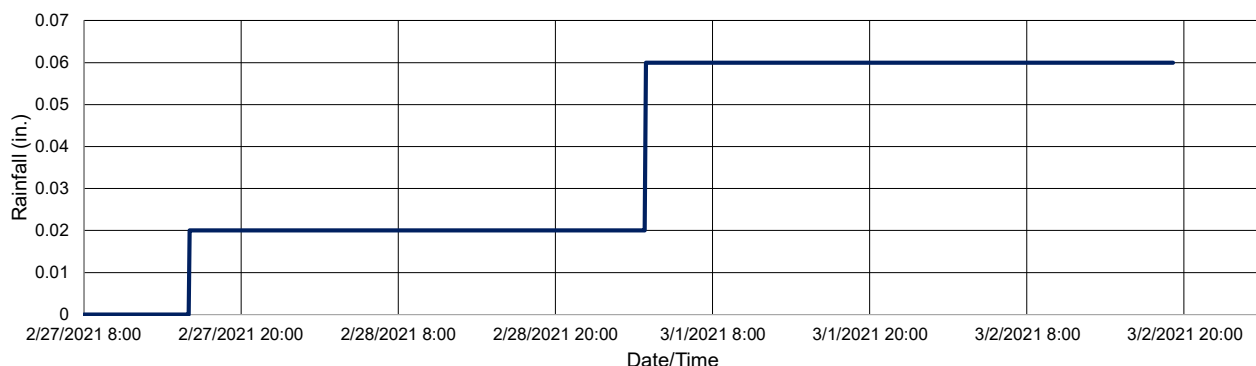
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Gate 2 was stuck open at 13% for the entire event.

RTC Gate Performance



Rainfall Accumulation

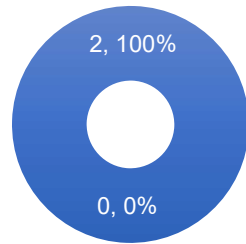


March 2021 Bird Ave. RTC KPI Report

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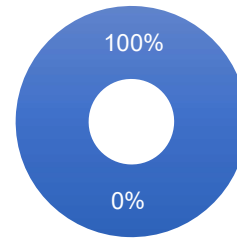


Prevented SPP Events



■ 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.)
2	0	688,925	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
3/11/2021	624,638	-	100%
3/31/2021	64,287	-	100%

March 11, 2021

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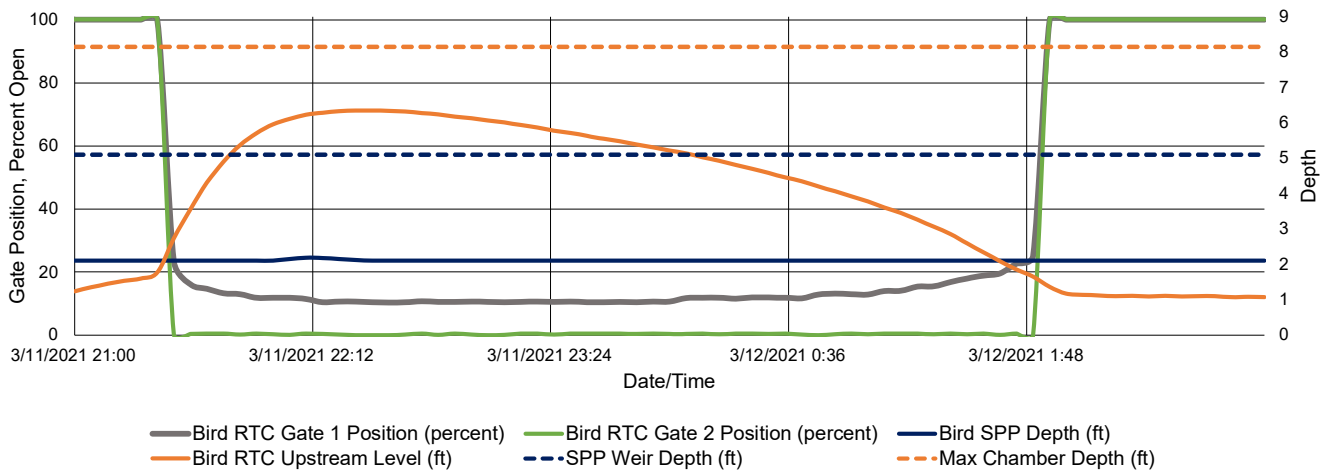
Site:	Bird RTC
Analysis Date:	4/12/2021
Event Start Date/Time:	3/11/2021 21:25
Event End Date/Time:	3/12/2021 1:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.09 in.
Storm Event Duration:	6 hr.
Storm Type:	< 1 yr.

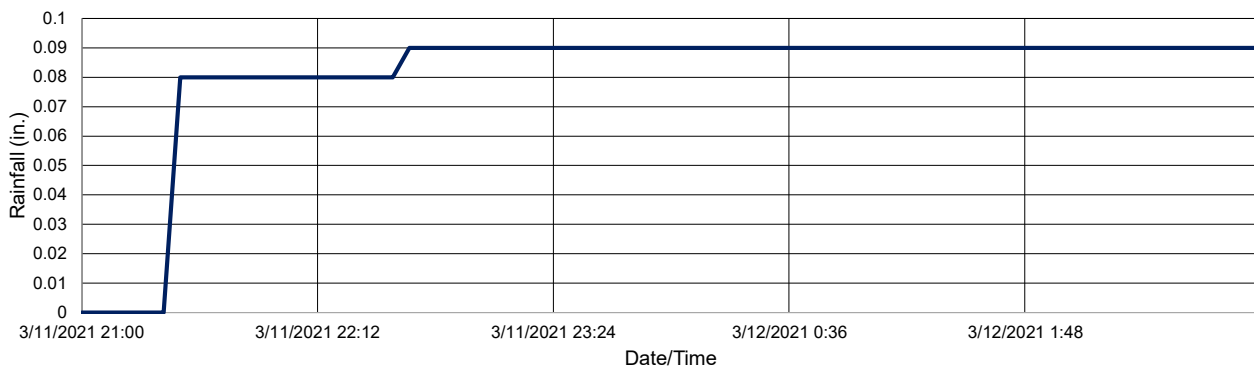
Gate Activation Trigger Depth:	1.77 ft.
Return to Normal Depth:	1.65 ft.
Time Gate 1 Activated:	3/11/2021 21:25
Time Gate 2 Activated:	3/11/2021 21:25
Time Gate 1 Returned to Normal:	3/12/2021 1:55
Time Gate 2 Returned to Normal:	3/12/2021 1:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.35 ft.
Volume Stored:	624,638 Gal.
Unused Storage Volume:	461,275 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	624,638 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:	4/12/2021
Event Start Date/Time:	3/31/2021 13:50
Event End Date/Time:	3/31/2021 15:40

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

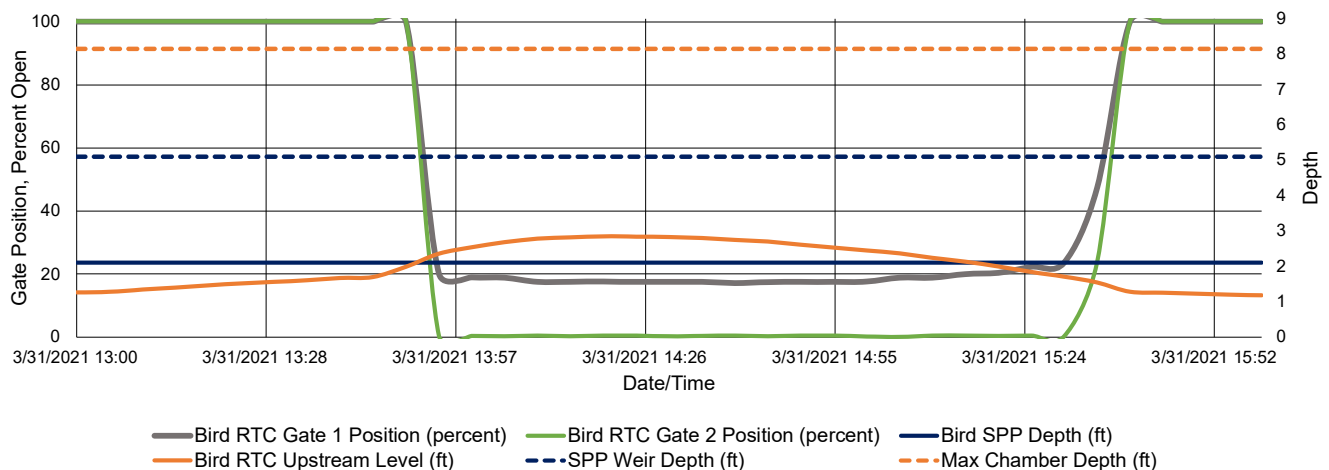
Gate Activation Trigger Depth:	1.99 ft.
Return to Normal Depth:	1.54 ft.
Time Gate 1 Activated:	3/31/2021 13:50
Time Gate 2 Activated:	3/31/2021 13:50
Time Gate 1 Returned to Normal:	3/31/2021 15:40
Time Gate 2 Returned to Normal:	3/31/2021 15:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	2.85 ft.
Volume Stored:	64,287 Gal.
Unused Storage Volume:	1,009,645 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	64,287 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:

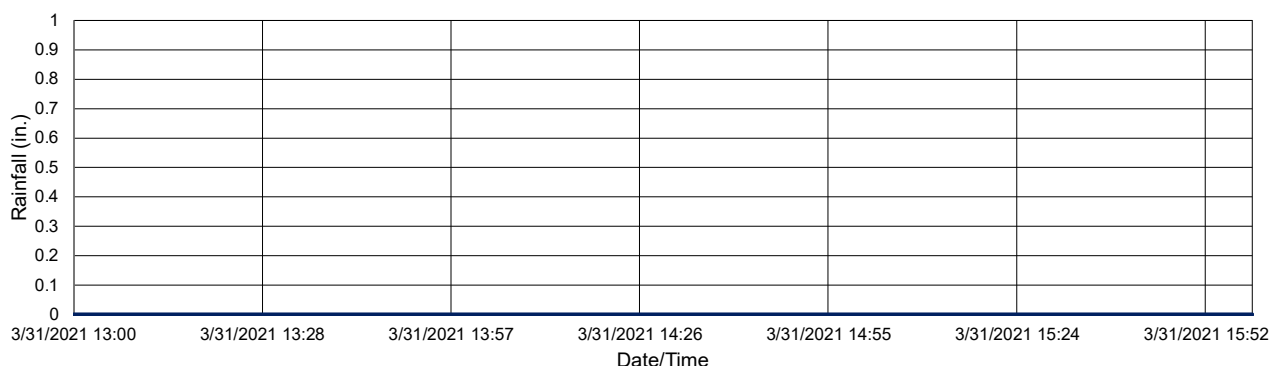
Rainfall data sourced from BSA rain gauge station at South Bu alo. No rainfall recorded at South Bu alo rain gauge during this storm event. This event was likely caused by a localized storm.

Communication was lost from 3/21/2021 to 3/30/2021.

RTC Gate Performance



Rainfall Accumulation



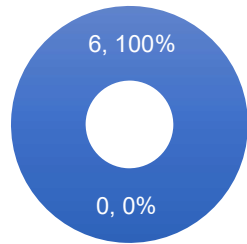
April 2021 Bird Ave. RTC KPI Report

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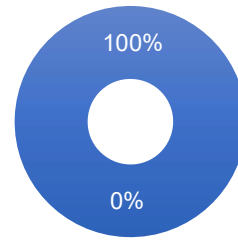
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Prevented SPP Events



■ 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.)
6	0	2,143,494	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
4/11/2021	816,000	-	100%
4/16/2021	183,173	-	100%
4/20/2021	125,676	-	100%
4/21/2021	130,328	-	100%
4/28/2021	138,081	-	100%
4/29/2021	750,236	-	100%

April 11, 2021

1

Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/11/2021 7:05
Event End Date/Time:	4/12/2021 2:25

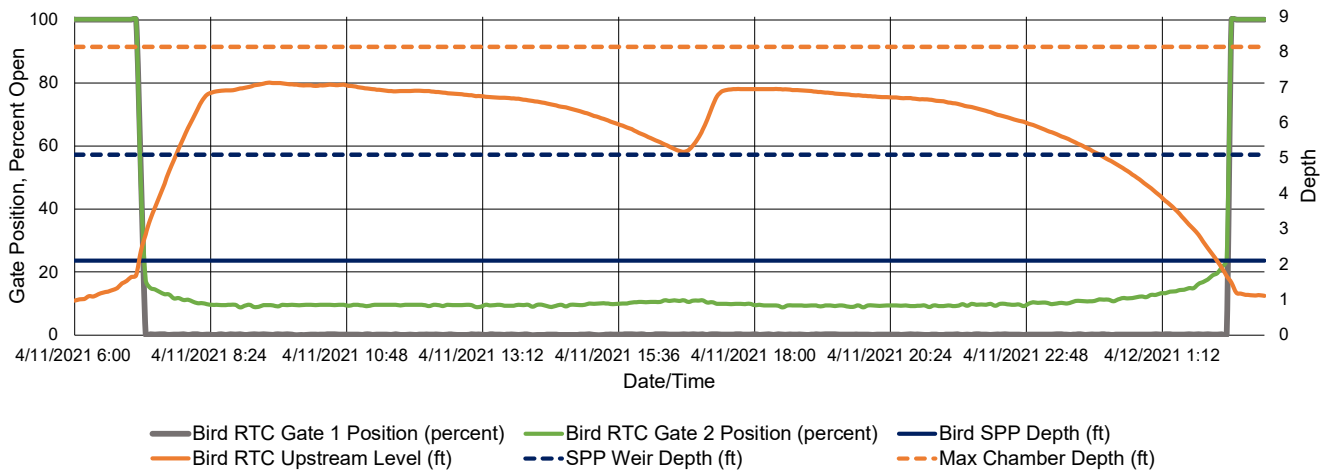
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.83 in.
Storm Event Duration:	21 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.69 ft.
Return to Normal Depth:	1.67 ft.
Time Gate 1 Activated:	4/11/2021 7:05
Time Gate 2 Activated:	4/11/2021 7:05
Time Gate 1 Returned to Normal:	4/12/2021 2:25
Time Gate 2 Returned to Normal:	4/12/2021 2:20
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.14 ft.
Volume Stored:	816,000 Gal.
Unused Storage Volume:	273,819 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	816,000 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

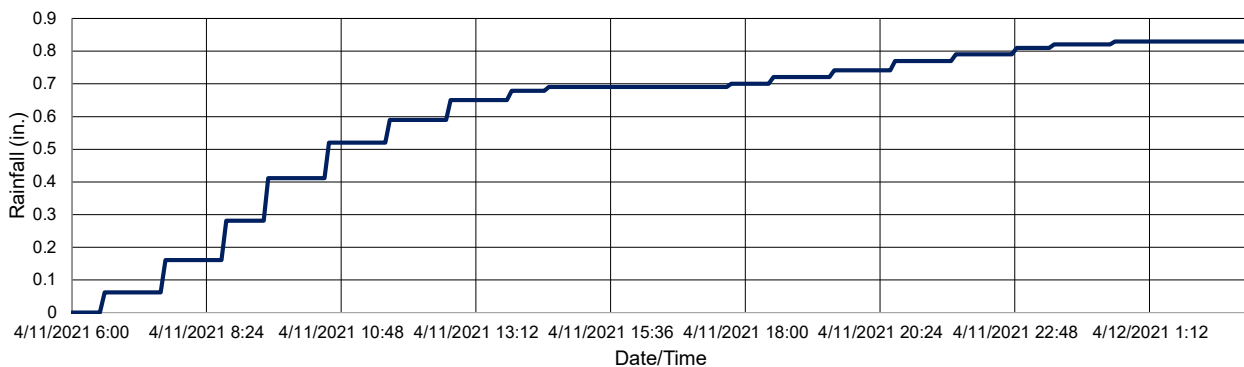
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



April 16, 2021

2

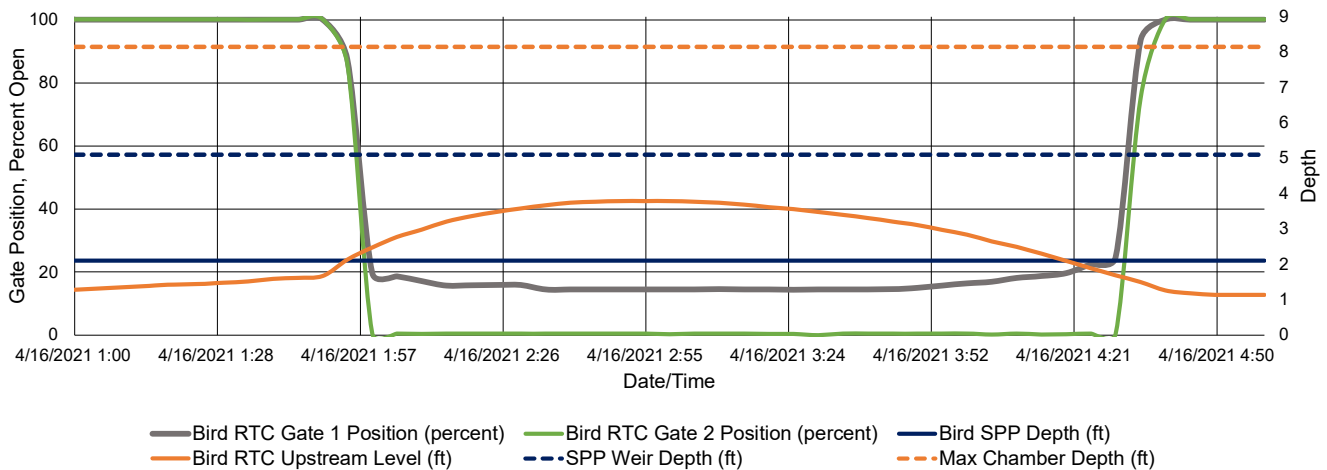
Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/16/2021 1:50
Event End Date/Time:	4/16/2021 4:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.08 in.
Storm Event Duration:	4 hr.
Storm Type:	< 1 yr.

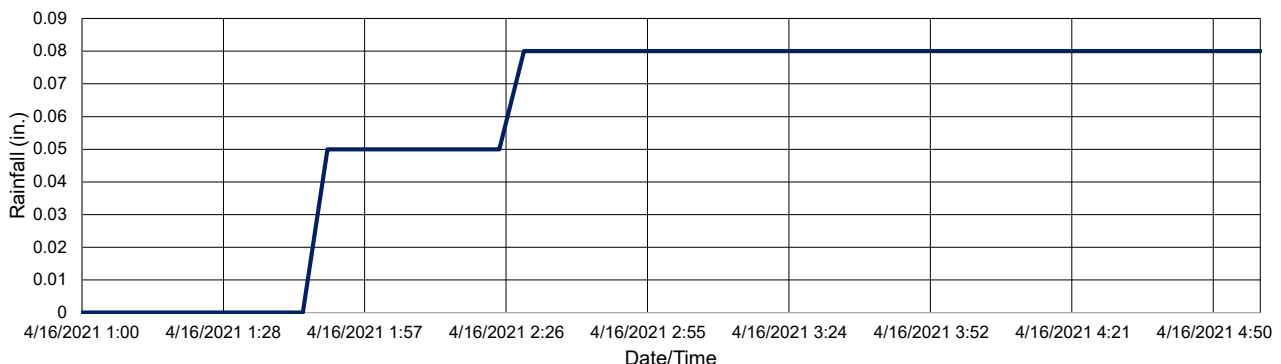
Gate Activation Trigger Depth:	1.67 ft.
Return to Normal Depth:	1.50 ft.
Time Gate 1 Activated:	4/16/2021 1:50
Time Gate 2 Activated:	4/16/2021 1:50
Time Gate 1 Returned to Normal:	4/16/2021 4:40
Time Gate 2 Returned to Normal:	4/16/2021 4:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.79 ft.
Volume Stored:	183,173 Gal.
Unused Storage Volume:	907,585 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	183,173 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



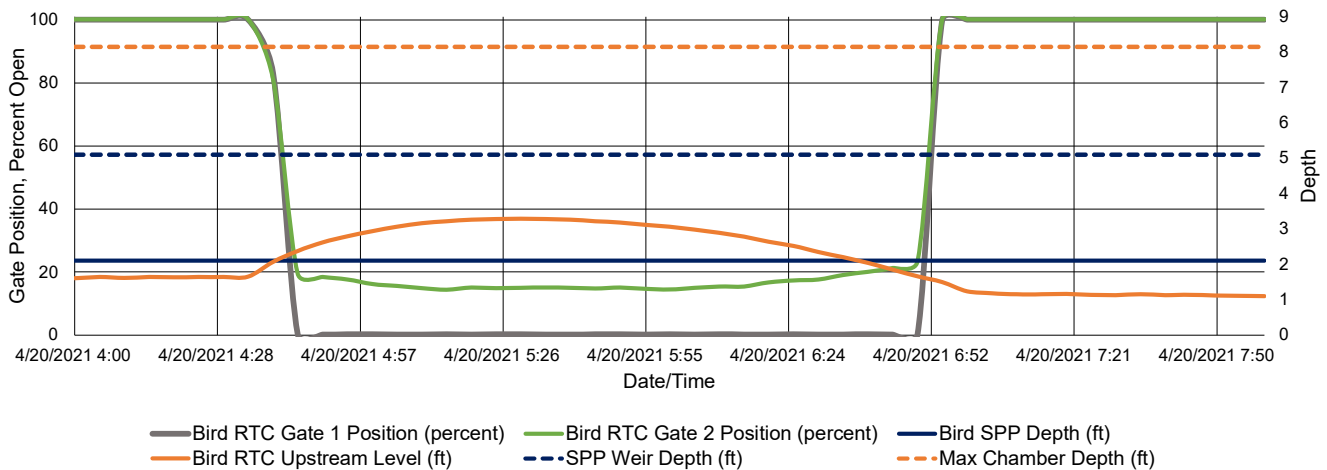
Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/20/2021 4:35
Event End Date/Time:	4/20/2021 6:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.05 in.
Storm Event Duration:	4 hr.
Storm Type:	< 1 yr.

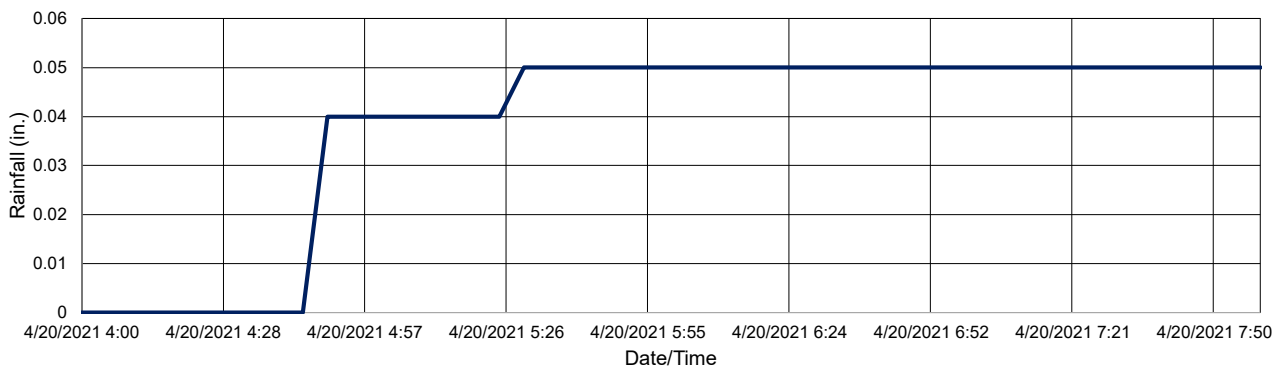
Gate Activation Trigger Depth:	1.65 ft.
Return to Normal Depth:	1.66 ft.
Time Gate 1 Activated:	4/20/2021 4:35
Time Gate 2 Activated:	4/20/2021 4:35
Time Gate 1 Returned to Normal:	4/20/2021 6:55
Time Gate 2 Returned to Normal:	4/20/2021 6:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.29 ft.
Volume Stored:	125,676 Gal.
Unused Storage Volume:	966,006 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	125,676 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



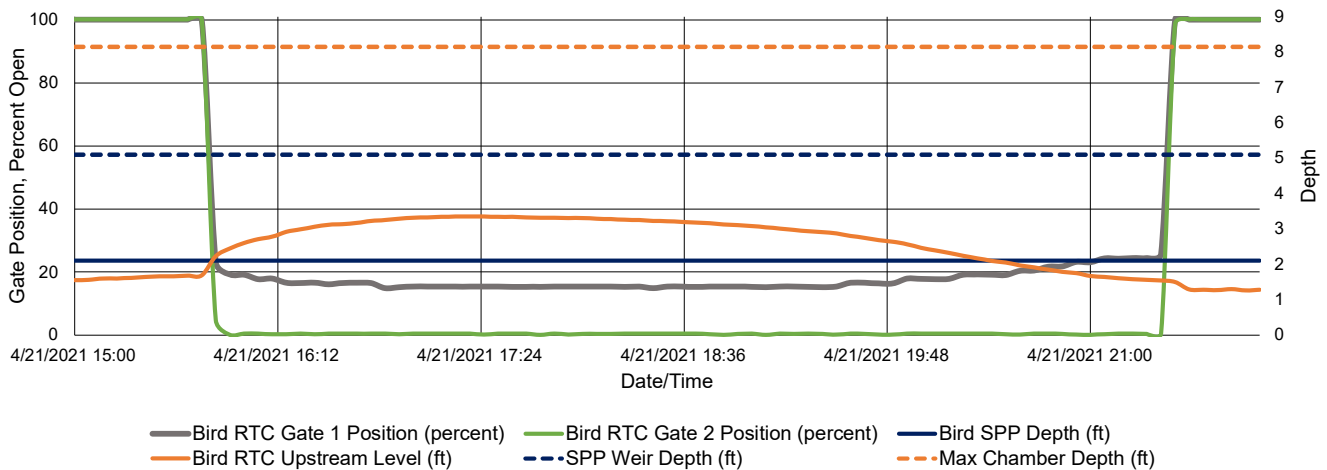
Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/21/2021 15:45
Event End Date/Time:	4/21/2021 21:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	7 hr.
Storm Type:	< 1 yr.

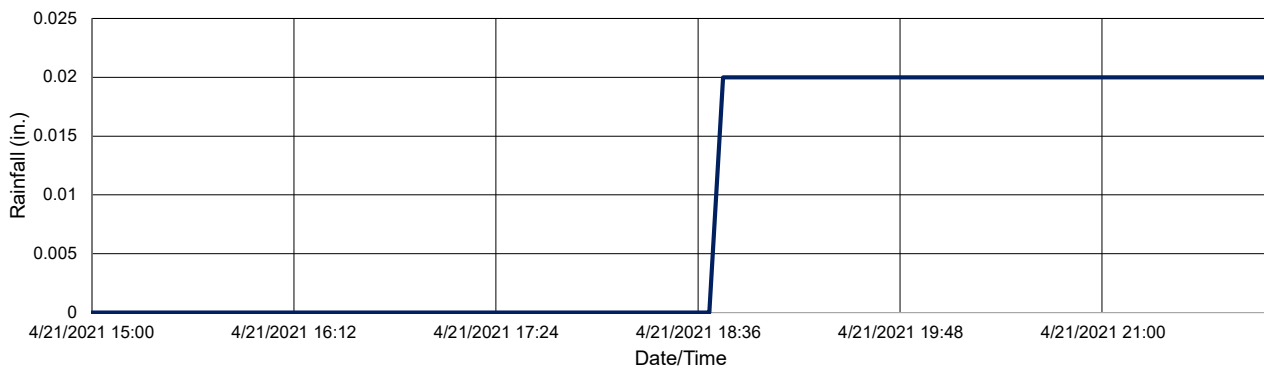
Gate Activation Trigger Depth:	1.69 ft.
Return to Normal Depth:	1.54 ft.
Time Gate 1 Activated:	4/21/2021 15:45
Time Gate 2 Activated:	4/21/2021 15:45
Time Gate 1 Returned to Normal:	4/21/2021 21:30
Time Gate 2 Returned to Normal:	N/A
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.35 ft.
Volume Stored:	130,328 Gal.
Unused Storage Volume:	959,491 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	130,328 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



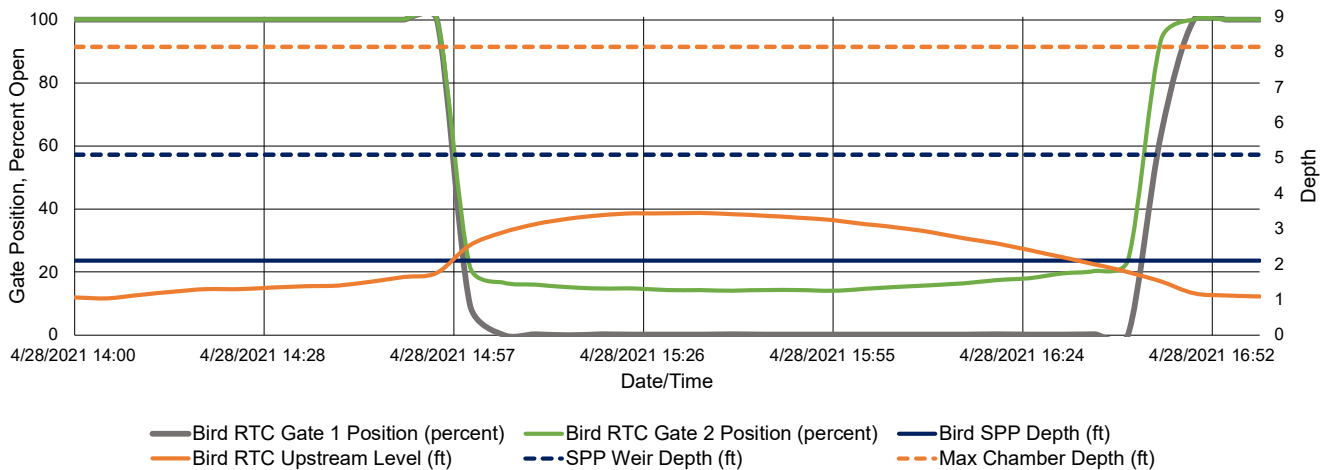
Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/28/2021 14:55
Event End Date/Time:	4/28/2021 16:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.04 in.
Storm Event Duration:	3 hr.
Storm Type:	< 1 yr.

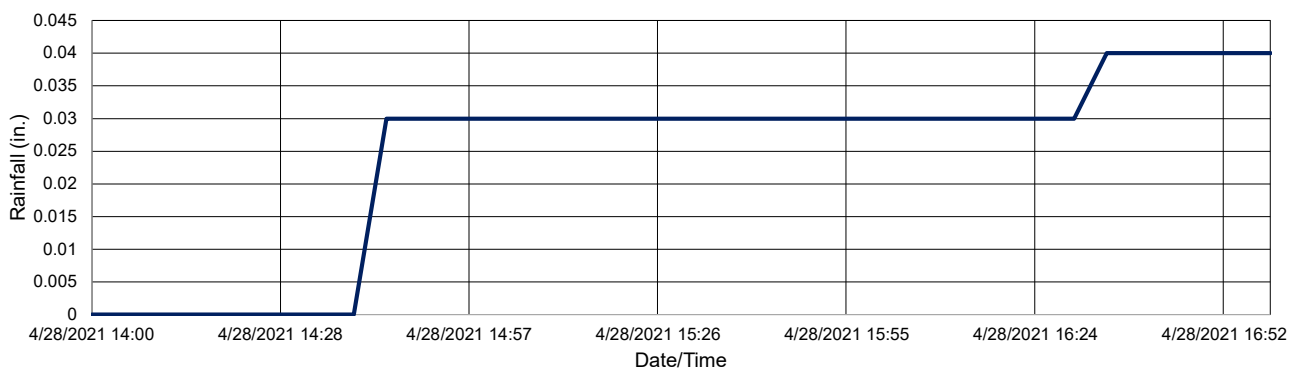
Gate Activation Trigger Depth:	1.76 ft.
Return to Normal Depth:	1.52 ft.
Time Gate 1 Activated:	4/28/2021 14:55
Time Gate 2 Activated:	4/28/2021 14:55
Time Gate 1 Returned to Normal:	4/28/2021 16:50
Time Gate 2 Returned to Normal:	4/28/2021 16:45
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.45 ft.
Volume Stored:	138,081 Gal.
Unused Storage Volume:	948,333 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	138,081 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



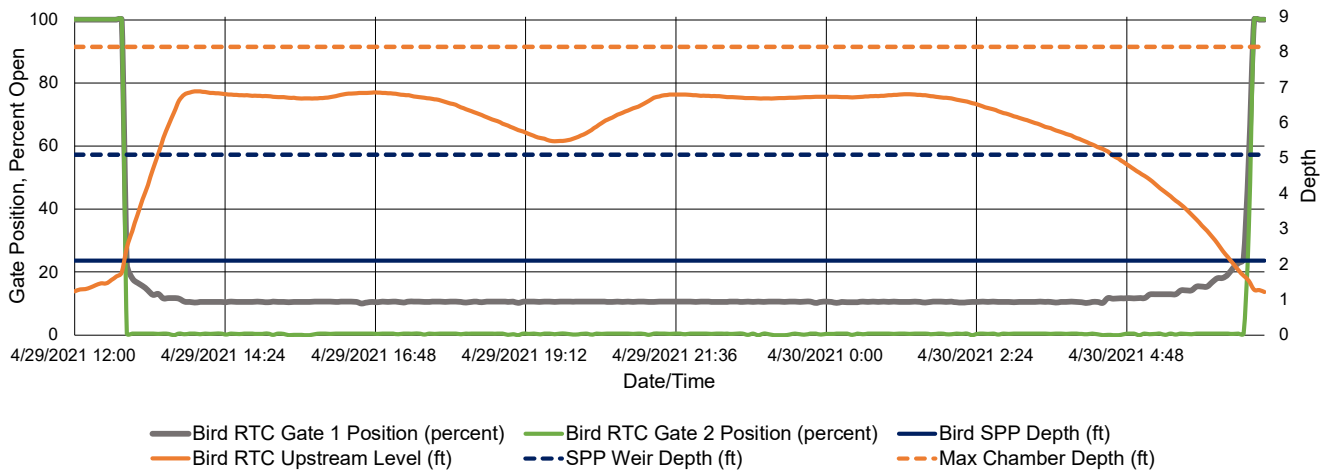
Site:	Bird RTC
Analysis Date:	5/5/2021
Event Start Date/Time:	4/29/2021 12:45
Event End Date/Time:	4/30/2021 6:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.6 in.
Storm Event Duration:	18 hr.
Storm Type:	< 1 yr.

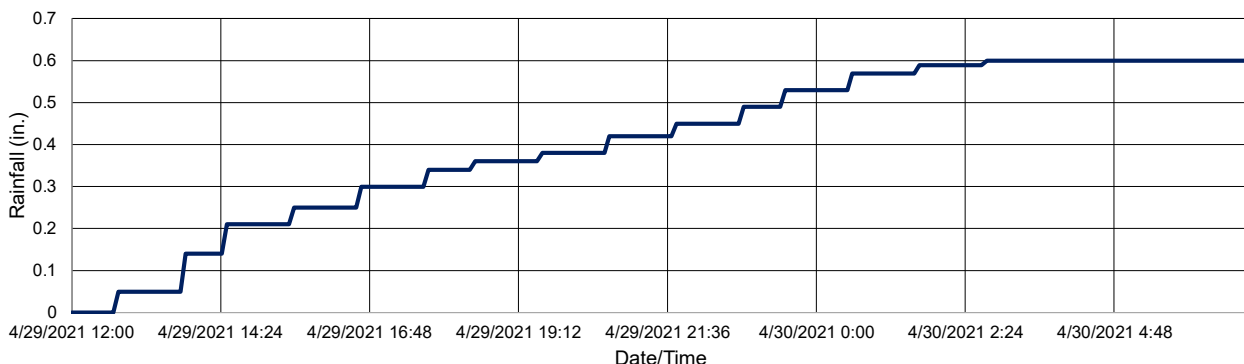
Gate Activation Trigger Depth:	1.77 ft.
Return to Normal Depth:	1.53 ft.
Time Gate 1 Activated:	4/29/2021 12:45
Time Gate 2 Activated:	4/29/2021 12:45
Time Gate 1 Returned to Normal:	4/30/2021 6:50
Time Gate 2 Returned to Normal:	4/30/2021 6:45
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.89 ft.
Volume Stored:	750,236 Gal.
Unused Storage Volume:	335,677 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	750,236 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



May 2021 Bird Ave. RTC KPI Report

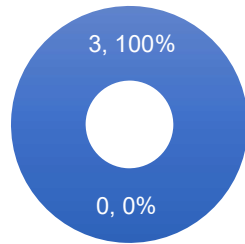
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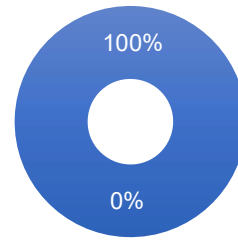
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Prevented SPP Events



■ 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.)
3	0	1,798,092	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
5/7/2021	793,293	-	100%
5/9/2021	239,515	-	100%
5/28/2021	765,284	-	100%

May 7, 2021

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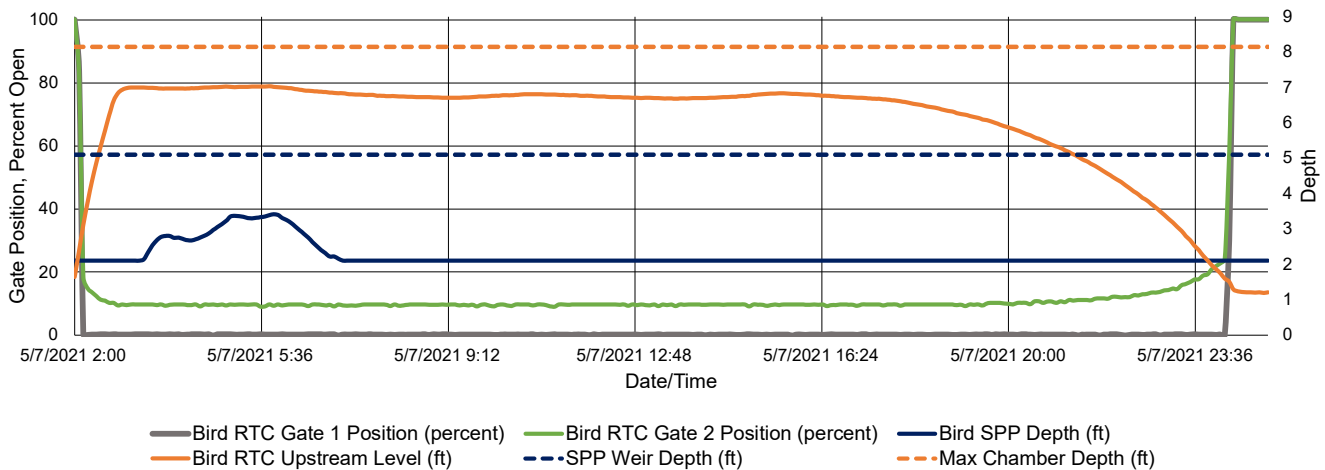
Site:	Bird RTC
Analysis Date:	6/7/2021
Event Start Date/Time:	5/7/2021 2:00
Event End Date/Time:	5/8/2021 0:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.76 in.
Storm Event Duration:	23 hr.
Storm Type:	< 1 yr.

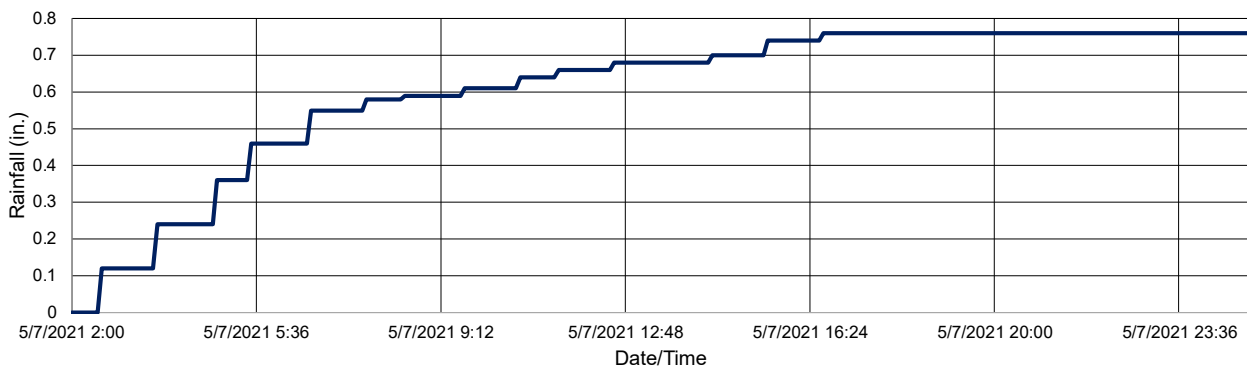
Gate Activation Trigger Depth:	1.64 ft.
Return to Normal Depth:	1.51 ft.
Time Gate 1 Activated:	5/7/2021 2:00
Time Gate 2 Activated:	5/7/2021 2:00
Time Gate 1 Returned to Normal:	5/8/2021 0:20
Time Gate 2 Returned to Normal:	5/8/2021 0:15
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.04 ft.
Volume Stored:	793,293 Gal.
Unused Storage Volume:	298,844 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	793,293 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



May 9, 2021

2

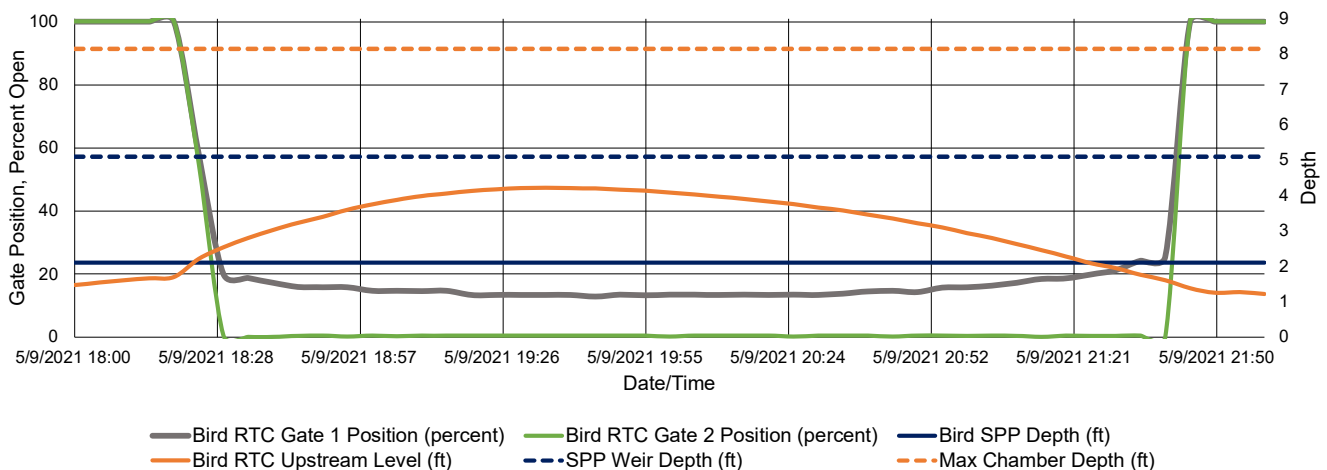
Site:	Bird RTC
Analysis Date:	6/7/2021
Event Start Date/Time:	5/9/2021 18:20
Event End Date/Time:	5/9/2021 21:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	4 hr.
Storm Type:	< 1 yr.

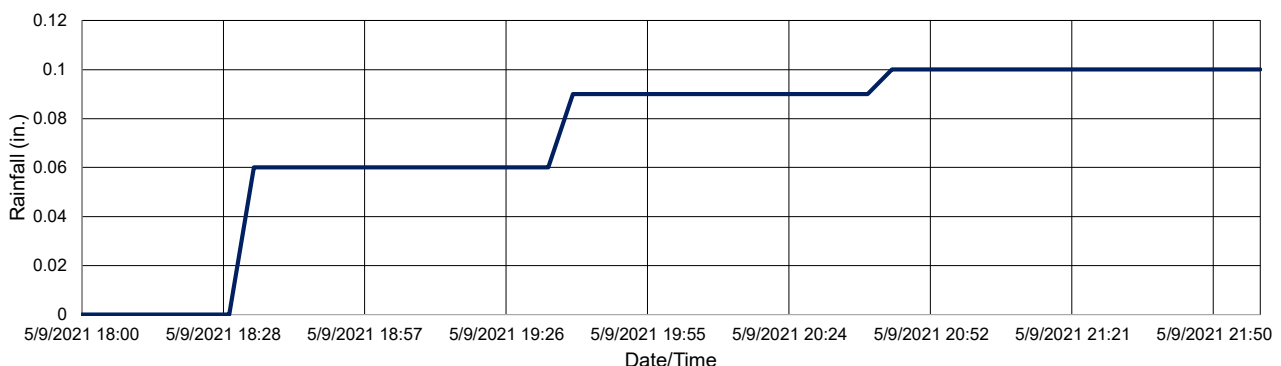
Gate Activation Trigger Depth:	1.70 ft.
Return to Normal Depth:	1.61 ft.
Time Gate 1 Activated:	5/9/2021 18:20
Time Gate 2 Activated:	5/9/2021 18:20
Time Gate 1 Returned to Normal:	5/9/2021 21:45
Time Gate 2 Returned to Normal:	5/9/2021 21:40
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.22 ft.
Volume Stored:	239,515 Gal.
Unused Storage Volume:	849,828 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	239,515 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. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



May 28, 2021

3

Site:	Bird RTC
Analysis Date:	6/7/2021
Event Start Date/Time:	5/28/2021 14:05
Event End Date/Time:	5/29/2021 0:25

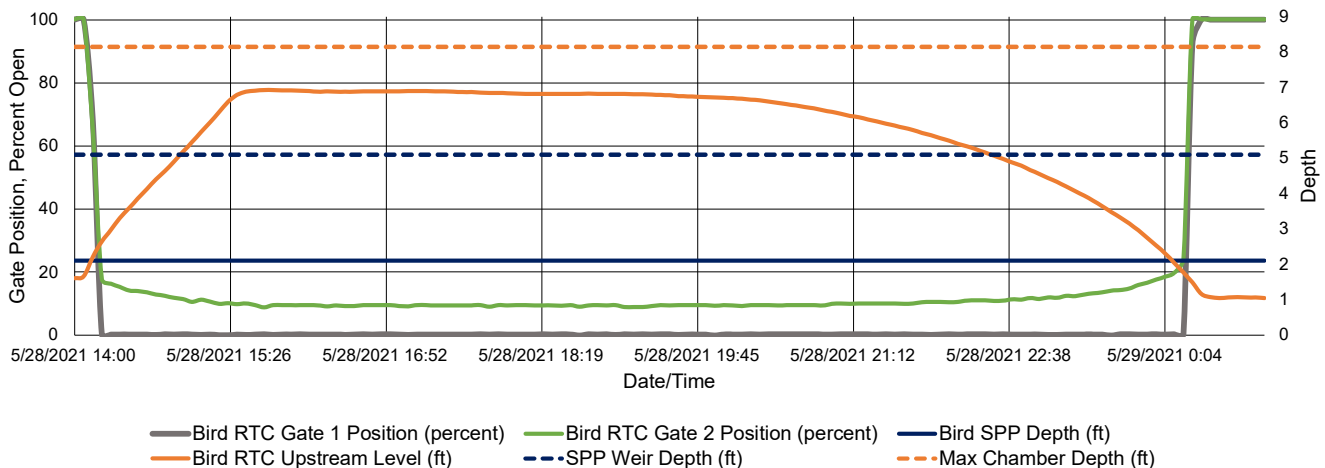
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.42 in.
Storm Event Duration:	11 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.66 ft.
Return to Normal Depth:	1.49 ft.
Time Gate 1 Activated:	5/28/2021 14:05
Time Gate 2 Activated:	5/28/2021 14:05
Time Gate 1 Returned to Normal:	5/29/2021 0:25
Time Gate 2 Returned to Normal:	5/29/2021 0:15
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.93 ft.
Volume Stored:	765,284 Gal.
Unused Storage Volume:	325,938 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	765,284 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

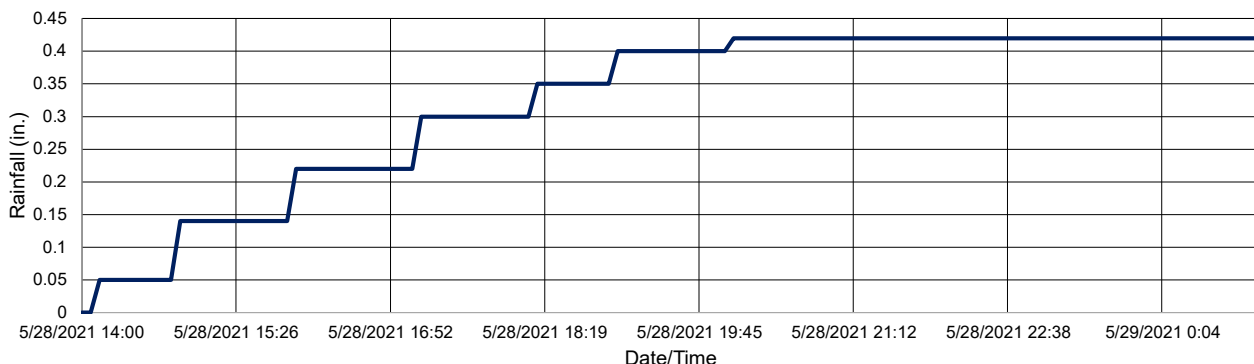
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. SPP volume may be underestimated due to negative values being reported at the downstream level sensor.

RTC Gate Performance



Rainfall Accumulation



June 2021 Bird Ave. RTC KPI Report

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Bird Ave. RTC Monthly Performance Report

June 2021

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.)*

Number of Prevented SPP Overflow Events	Number of Occurred SPP Overflow Events	Prevented SPP Overflow Volume (Gal.)	Occurred SPP Overflow Volume (Gal.)*
0	N/A	1,631,292	N/A
*Overflow Volume could not be estimated for the month of June			
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
6/3/2021	799,170	N/A	N/A
6/8/2021	832,122	N/A	N/A

June 3, 2021

1

Site:	Bird RTC
Analysis Date:	7/12/2021
Event Start Date/Time:	6/3/2021 4:35
Event End Date/Time:	6/3/2021 12:40

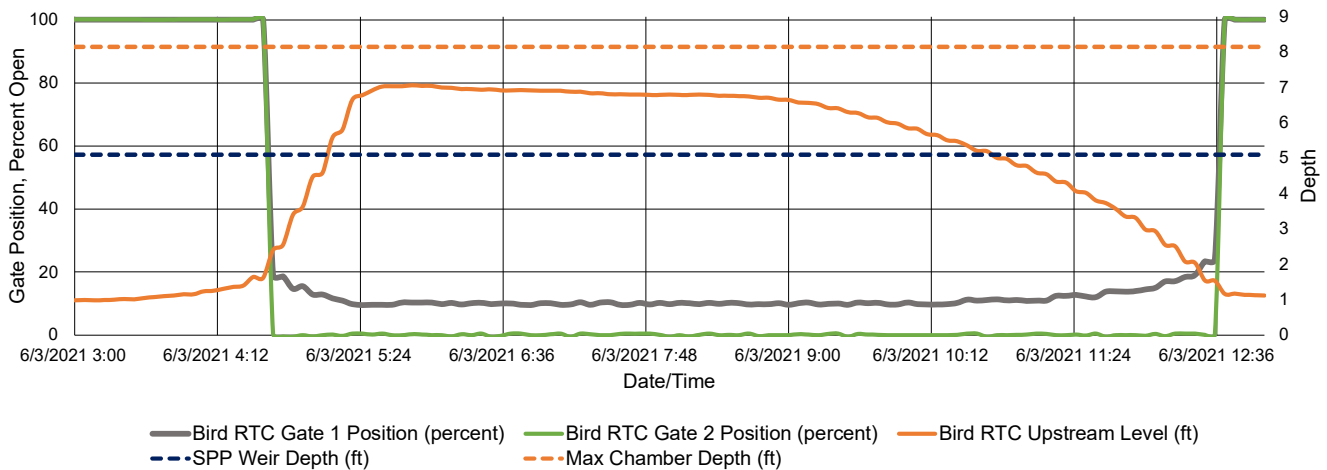
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.55 in.
Storm Event Duration:	10 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	1.62 ft.
Return to Normal Depth:	1.53 ft.
Time Gate 1 Activated:	6/3/2021 4:35
Time Gate 2 Activated:	6/3/2021 4:35
Time Gate 1 Returned to Normal:	6/3/2021 12:40
Time Gate 2 Returned to Normal:	6/3/2021 12:35
Percent Capture	N/A
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.06 ft.
Volume Stored:	799,170 Gal.
Unused Storage Volume:	293,869 Gal.
Overflow Volume:	N/A Gal.
Overflow Volume Prevented:	799,170 Gal.
SPP Activation Prevented:	N/A
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

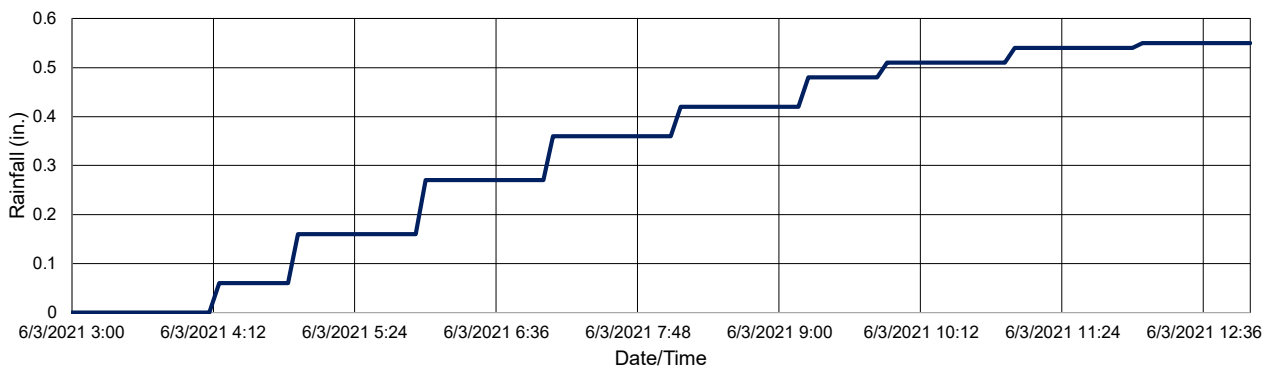
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Overflow volume could not be estimated for the month of June due to sensor issues.

RTC Gate Performance



Rainfall Accumulation



Site:	Bird RTC
Analysis Date:	7/12/2021
Event Start Date/Time:	6/8/2021 2:15
Event End Date/Time:	6/8/2021 9:45

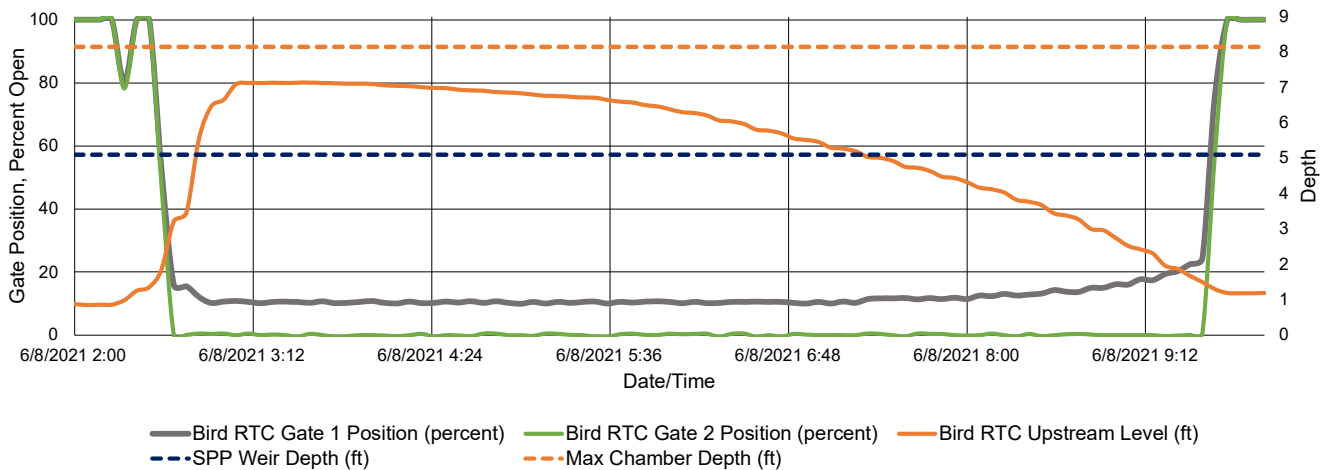
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.39 in.
Storm Event Duration:	8 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	0.86 ft.
Return to Normal Depth:	1.30 ft.
Time Gate 1 Activated:	6/8/2021 2:15
Time Gate 2 Activated:	6/8/2021 2:15
Time Gate 1 Returned to Normal:	6/8/2021 9:45
Time Gate 2 Returned to Normal:	6/8/2021 9:40
Percent Capture	N/A
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.14 ft.
Volume Stored:	832,122 Gal.
Unused Storage Volume:	284,000 Gal.
Overflow Volume:	N/A Gal.
Overflow Volume Prevented:	832,122 Gal.
SPP Activation Prevented:	N/A
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

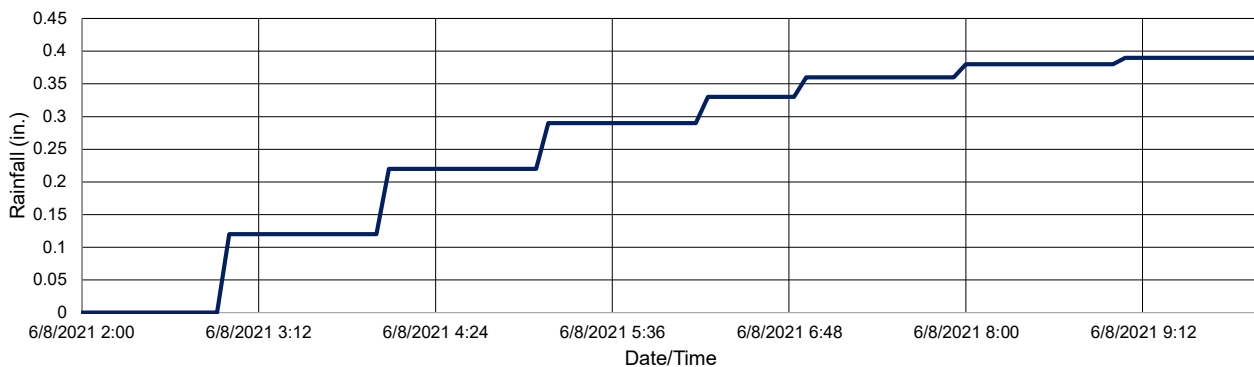
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA rain gauge station at South Buffalo. Overflow volume could not be estimated for the month of June due to sensor issues.

RTC Gate Performance



Rainfall Accumulation



July 2020 Hertel at Deer RTC KPI Report

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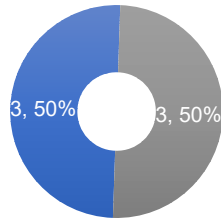
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Hertel at Deer RTC Monthly Performance Report

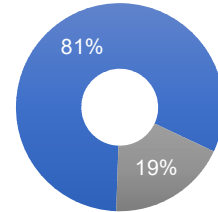
July 2020

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.)
3	3	18,991,610	4,326,273
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
7/11/2020	4,020,635	1,910,640	68%
7/13/2020	2,697,906	-	100%
7/16/2020	3,931,766	2,021	100%
7/19/2020	276,930	-	100%
7/22/2020	4,130,342	2,413,612	63%
7/29/2020	3,934,031	-	100%

July 11, 2020

1

Site:	Hertel at Deer RTC
Time All Gates Active:	7/11/2020 12:55
Time All Gates Returned to Normal:	7/12/2020 18:05
Gate Activation Trigger Depth:	1.00 (South Side) ft.
Return to Normal Depth:	1.01 (North Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	4,020,635 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/11/2020 12:55
Event End Date/Time:	7/12/2020 18:05

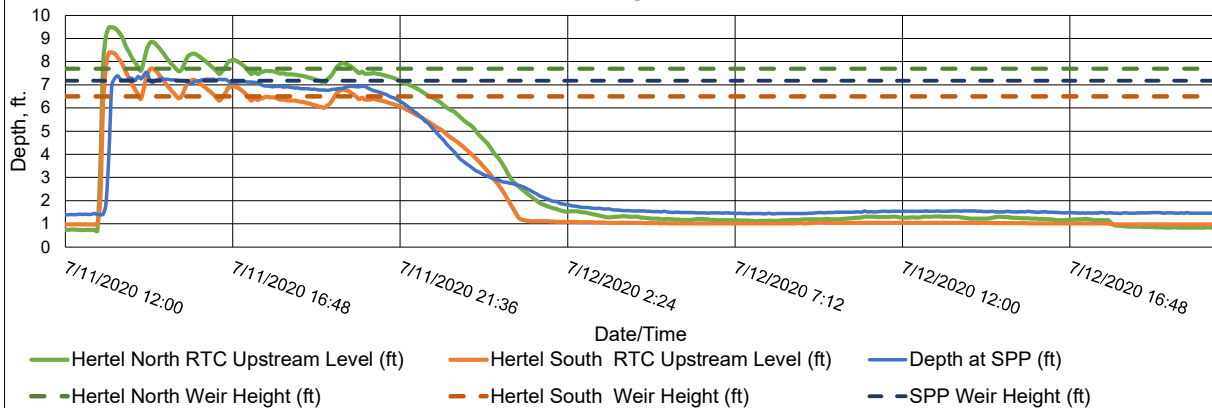
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	3.8 in.
Storm Event Duration:	7 hr.
Storm Type:	Approx. 100 year

Percent Capture	68%
Overflow Volume:	1,910,640 Gal.
Overflow Volume Prevented:	4,020,635 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

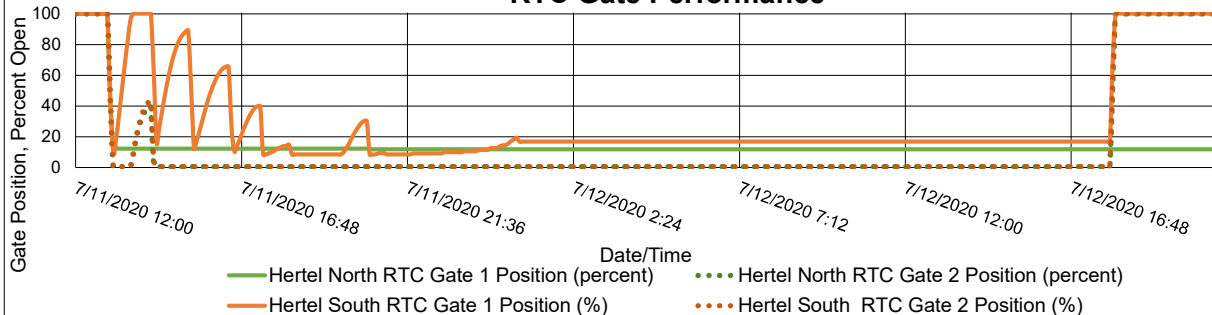
Recommended Operational Changes/Notes:

North Gate 1 stuck at 12% open from the start of this event till 7/20 at 11 am.

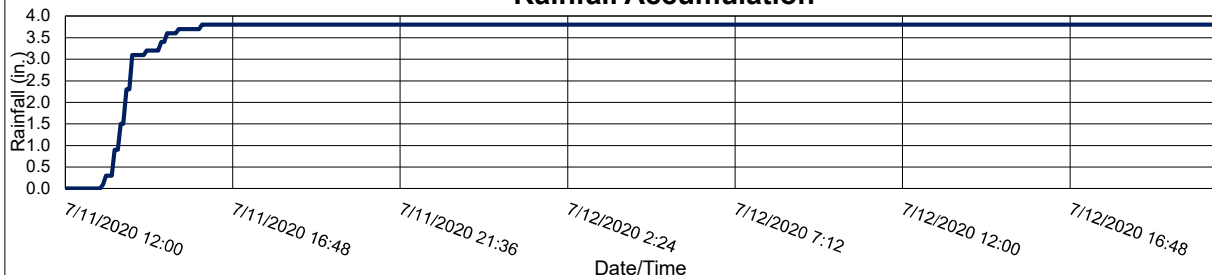
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



July 13, 2020

2

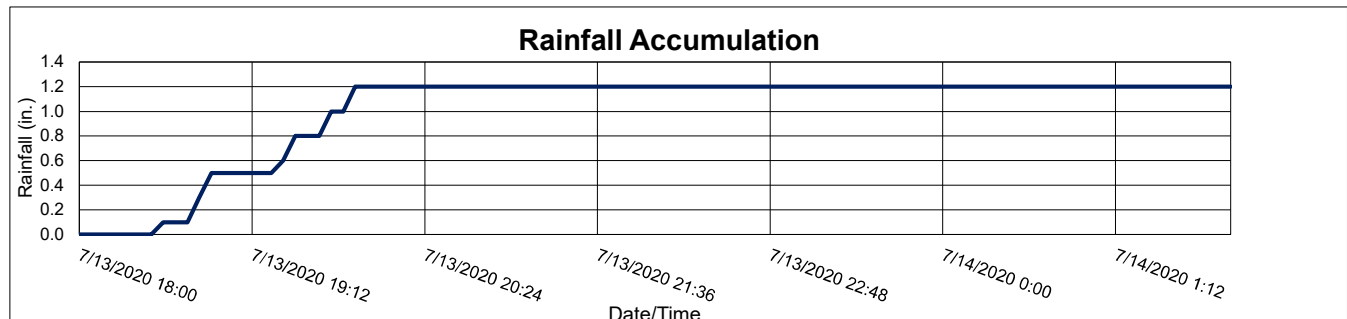
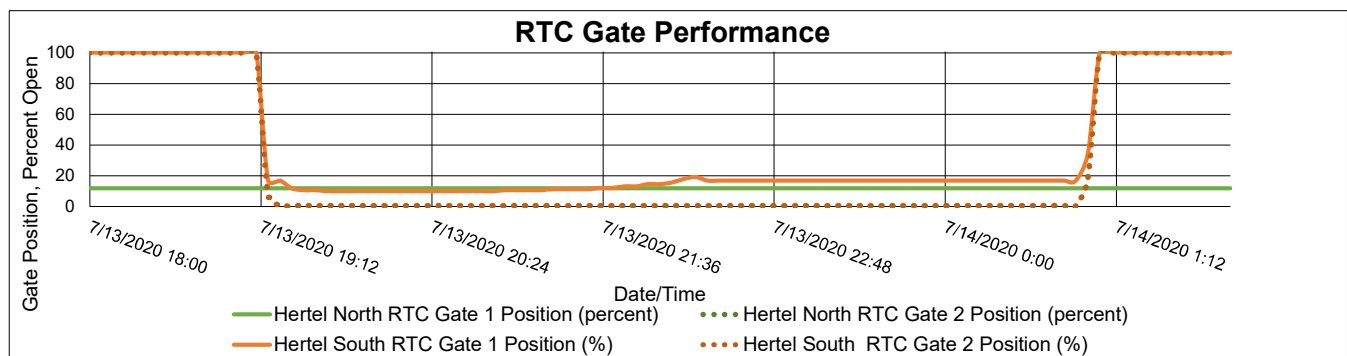
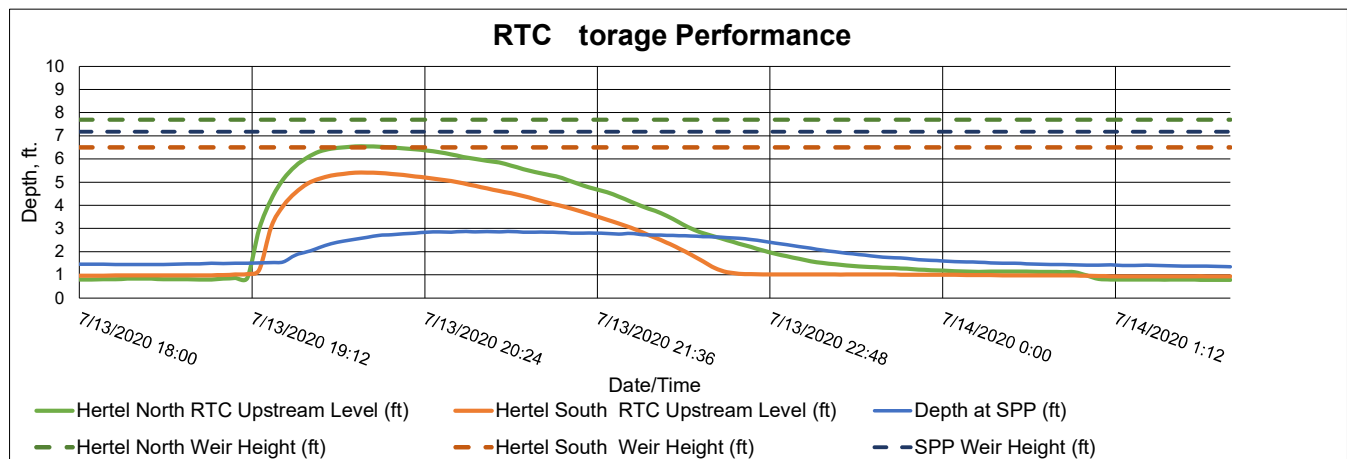
Site:	Hertel at Deer RTC
Time All Gates Active:	7/13/2020 19:10
Time All Gates Returned to Normal:	7/14/2020 1:05
Gate Activation Trigger Depth:	1.03 (South Side) ft.
Return to Normal Depth:	0.96 (South Side) ft.
Minimum Distance to Top of Weir:	1.09 ft.
Volume Stored:	2,697,906 Gal.
Unused Storage Volume:	1,246,349 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/13/2020 19:10
Event End Date/Time:	7/14/2020 1:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.2 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	2,697,906 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:
North Gate 1 was stuck at 12% open during this event.



July 16, 2020

3

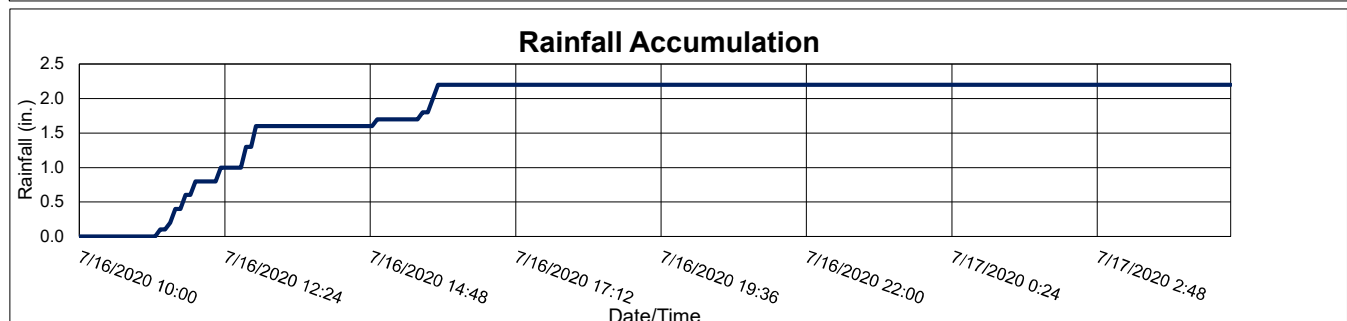
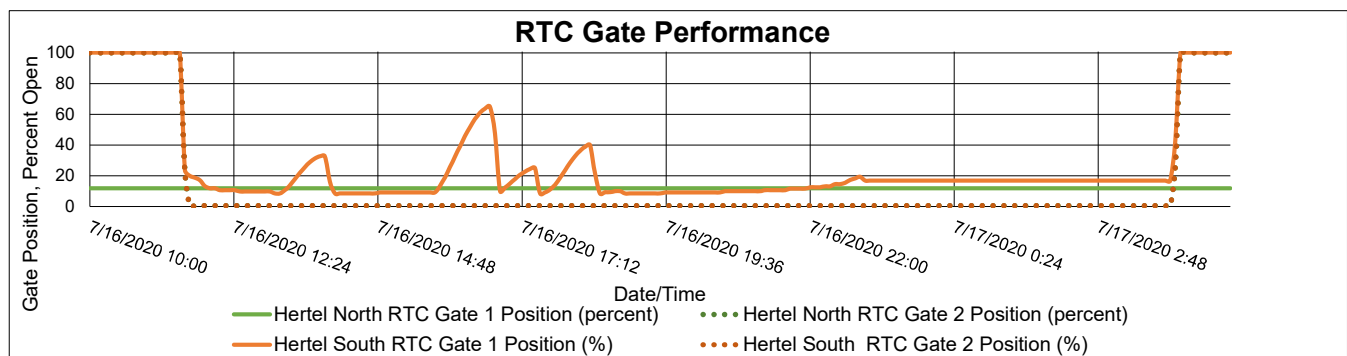
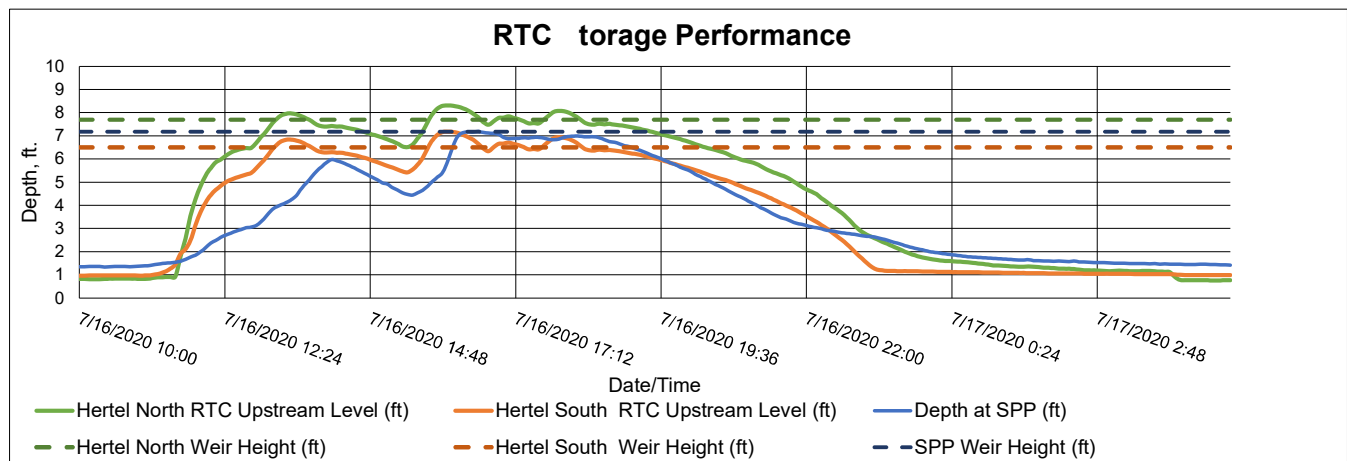
Site:	Hertel at Deer RTC
Time All Gates Active:	7/16/2020 11:30
Time All Gates Returned to Normal:	7/17/2020 4:10
Gate Activation Trigger Depth:	1.26 (South Side) ft.
Return to Normal Depth:	1.01 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,931,766 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/16/2020 11:30
Event End Date/Time:	7/17/2020 4:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	2.2 in.
Storm Event Duration:	20 hr.
Storm Type:	Less than 2 year

Percent Capture	100%
Overflow Volume:	2,021 Gal.
Overflow Volume Prevented:	3,931,766 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:
North Gate 1 was stuck at 12% open during this event.



July 19, 2020

4

Site:	Hertel at Deer RTC
Time All Gates Active:	7/19/2020 14:25
Time All Gates Returned to Normal:	7/19/2020 19:30
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	0.99 (South Side) ft.
Minimum Distance to Top of Weir:	4.72 ft.
Volume Stored:	276,930 Gal.
Unused Storage Volume:	3,652,816 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/19/2020 14:25
Event End Date/Time:	7/19/2020 19:30

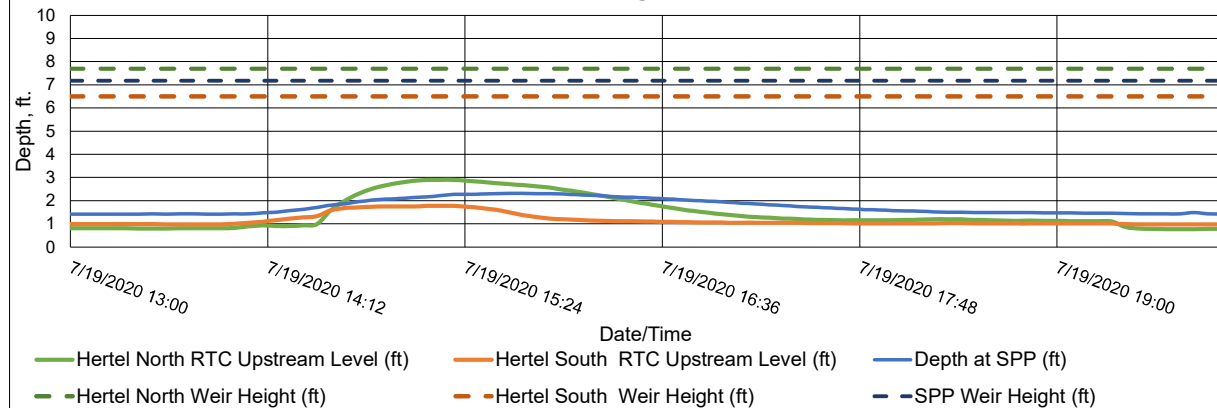
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	276,930 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

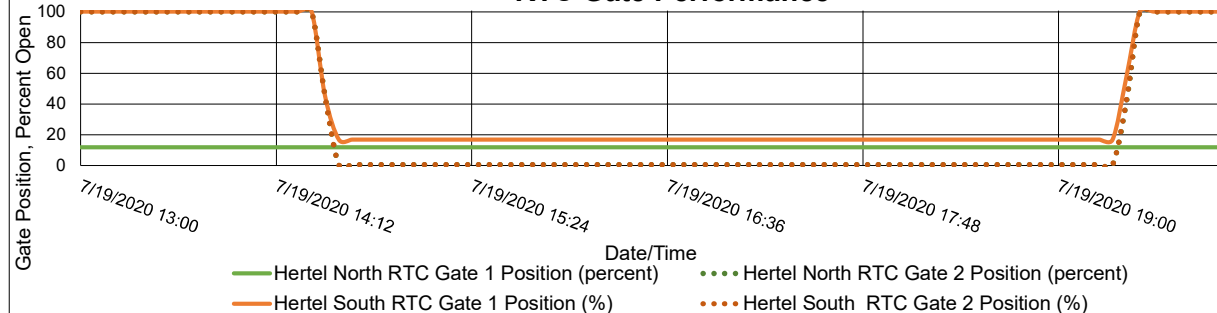
Recommended Operational Changes/Notes:

North Gate 1 was stuck at 11.73% open during this event.

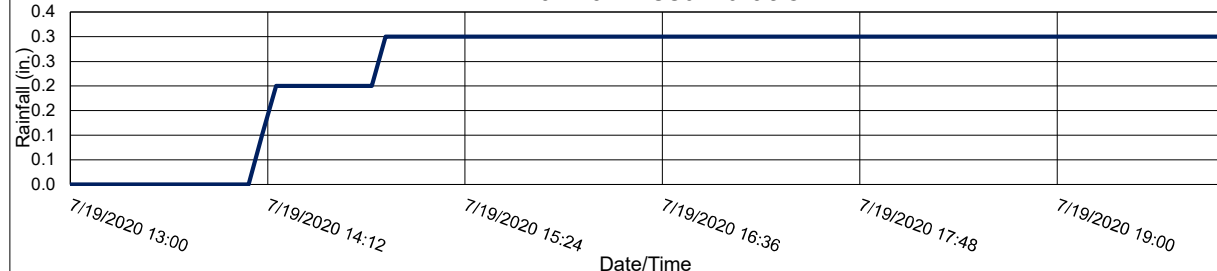
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



July 22, 2020

5

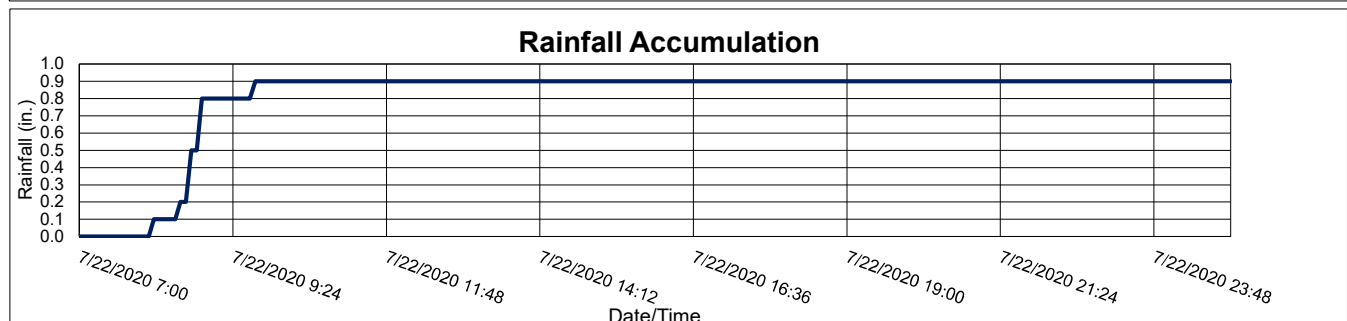
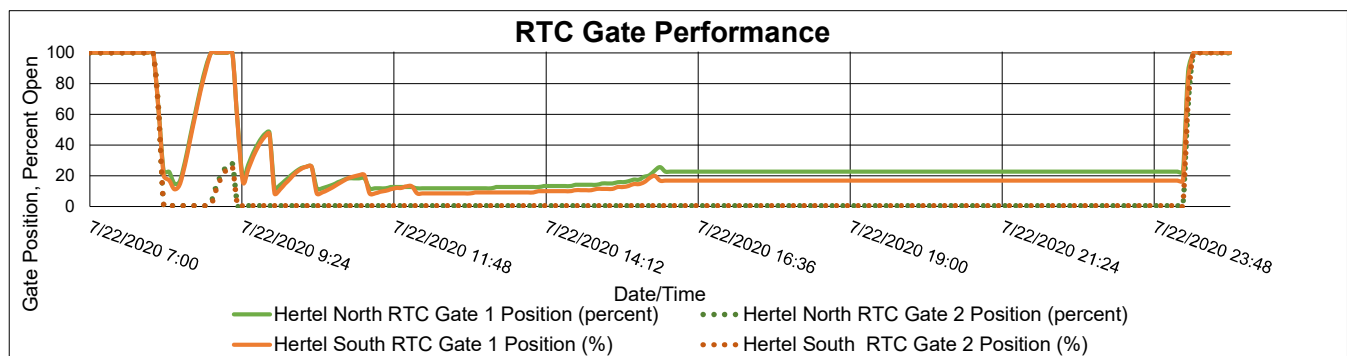
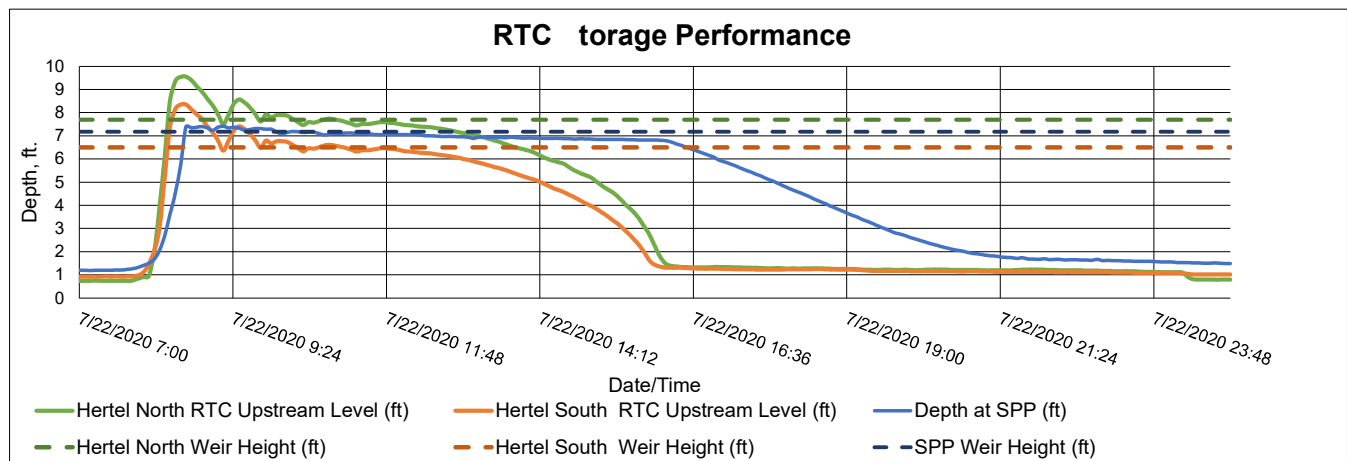
Site:	Hertel at Deer RTC
Time All Gates Active:	7/22/2020 8:00
Time All Gates Returned to Normal:	7/23/2020 0:25
Gate Activation Trigger Depth:	1.11 (South Side) ft.
Return to Normal Depth:	7.93 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	4,130,342 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/22/2020 8:00
Event End Date/Time:	7/22/2020 8:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	18 hr.
Storm Type:	Less than one year

Percent Capture	63%
Overflow Volume:	2,413,612 Gal.
Overflow Volume Prevented:	4,130,342 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:



July 29, 2020

6

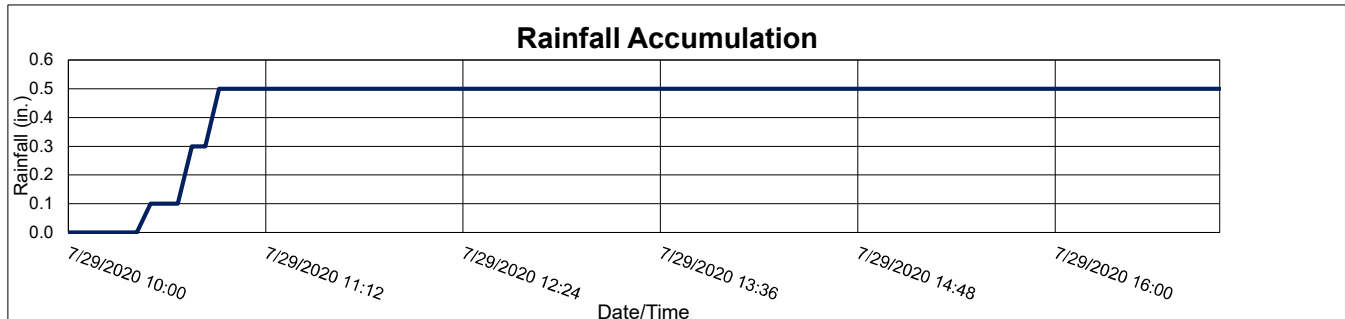
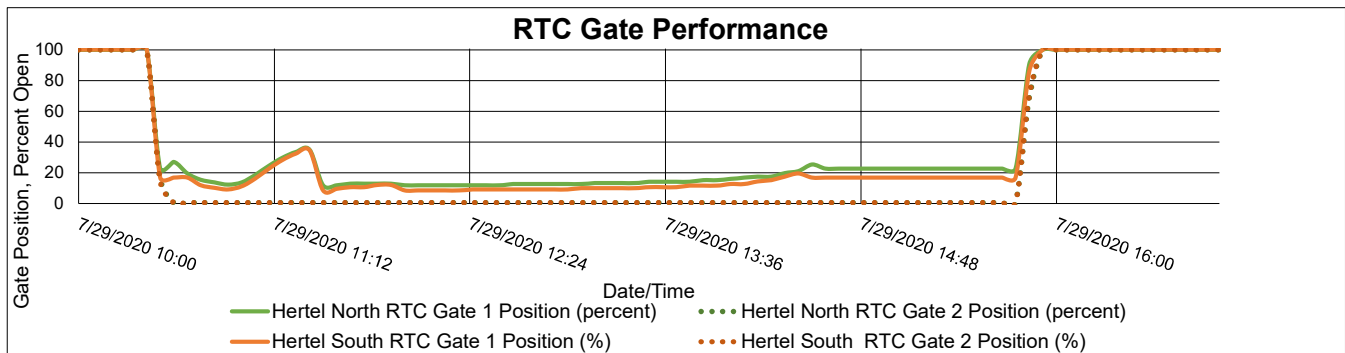
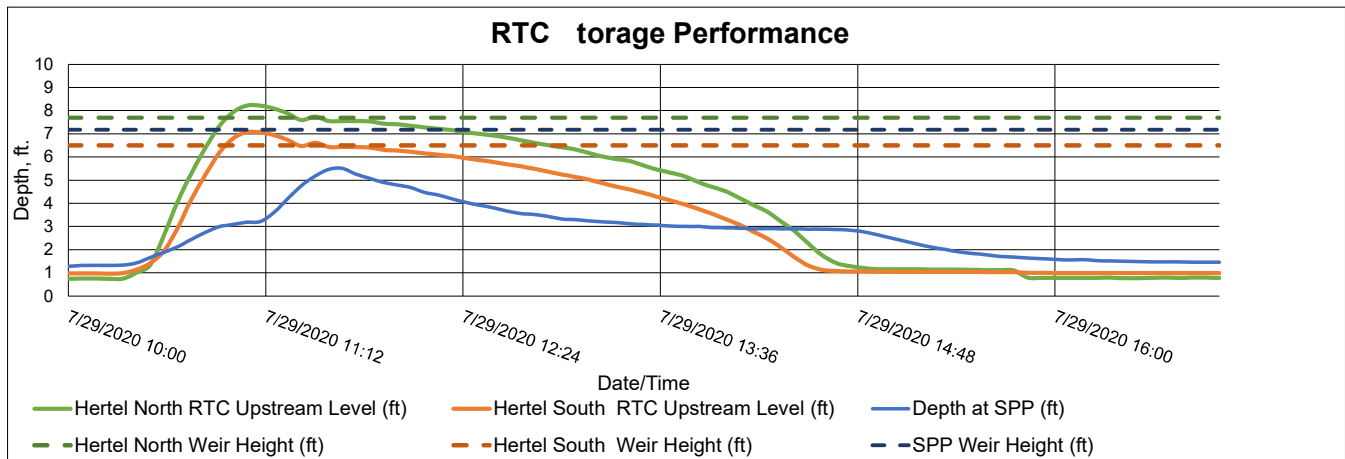
Site:	Hertel at Deer RTC
Time All Gates Active:	7/29/2020 10:25
Time All Gates Returned to Normal:	7/29/2020 15:55
Gate Activation Trigger Depth:	1.14 (South Side) ft.
Return to Normal Depth:	1.00 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,934,031 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	8/11/2020
Event Start Date/Time:	7/29/2020 10:25
Event End Date/Time:	7/29/2020 15:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,934,031 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:



August 2020 Hertel at Deer RTC KPI Report

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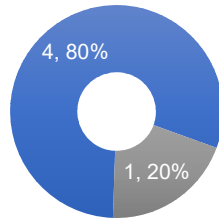
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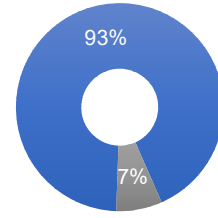
August 2020

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.)
4	1	11,299,417	872,935
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
8/2/2020	171,217	-	100%
8/4/2020	2,026,507	-	100%
8/15/2020	4,789,945	872,935	85%
8/17/2020	289,055	-	100%
8/27/2020	4,022,693	-	100%

August 2, 2020

1

Site:	Hertel at Deer RTC
Time All Gates Active:	8/2/2020 12:00
Time All Gates Returned to Normal:	8/2/2020 22:10
Gate Activation Trigger Depth:	1.27 (South Side) ft.
Return to Normal Depth:	1.04 (South Side) ft.
Minimum Distance to Top of Weir:	4.95 ft.
Volume Stored:	171,217 Gal.
Unused Storage Volume:	3,879,653 Gal.

Analysis Date:	9/4/2020
Event Start Date/Time:	8/2/2020 12:00
Event End Date/Time:	8/2/2020 22:10

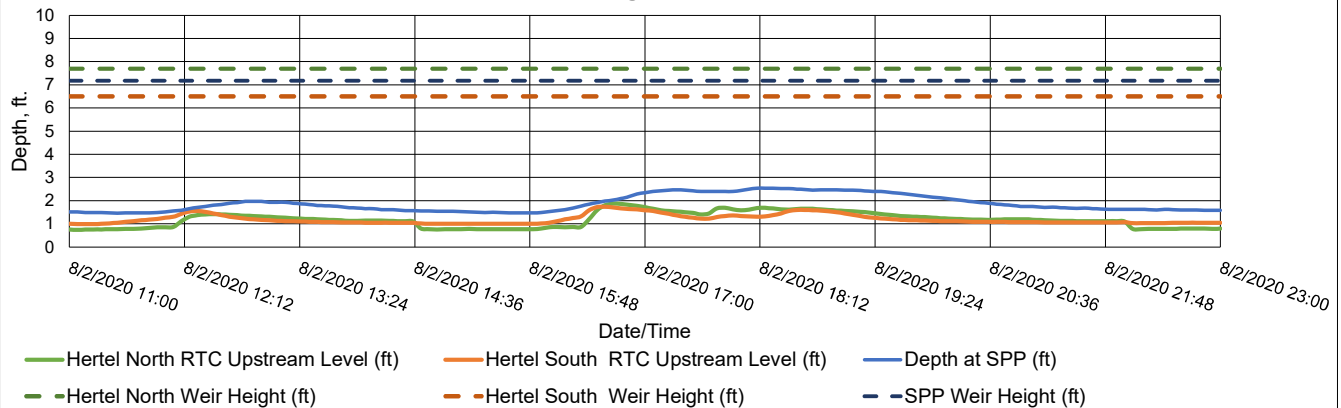
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	12 hr.
Storm Type:	NA

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	171,217 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

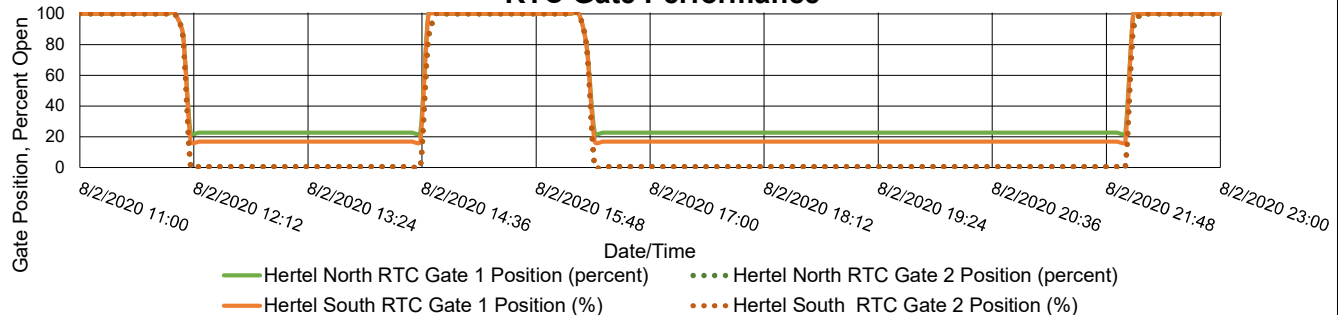
Recommended Operational Changes/Notes:

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

RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



August 4, 2020

2

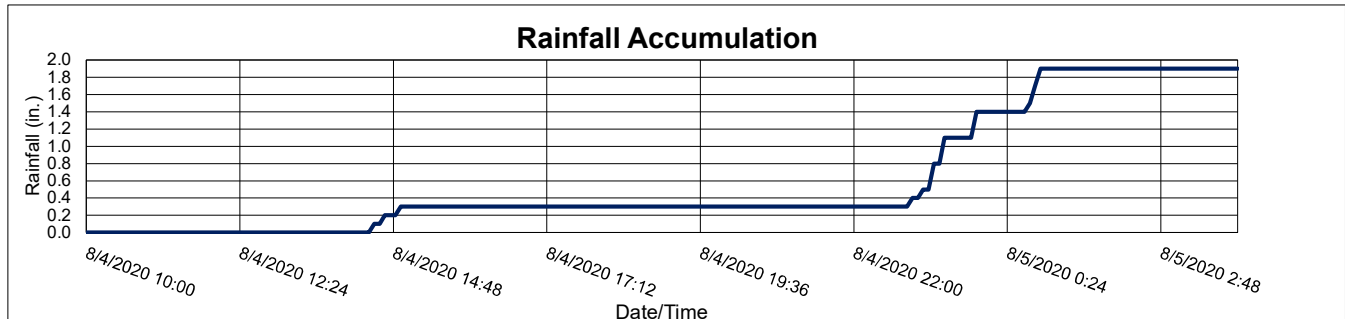
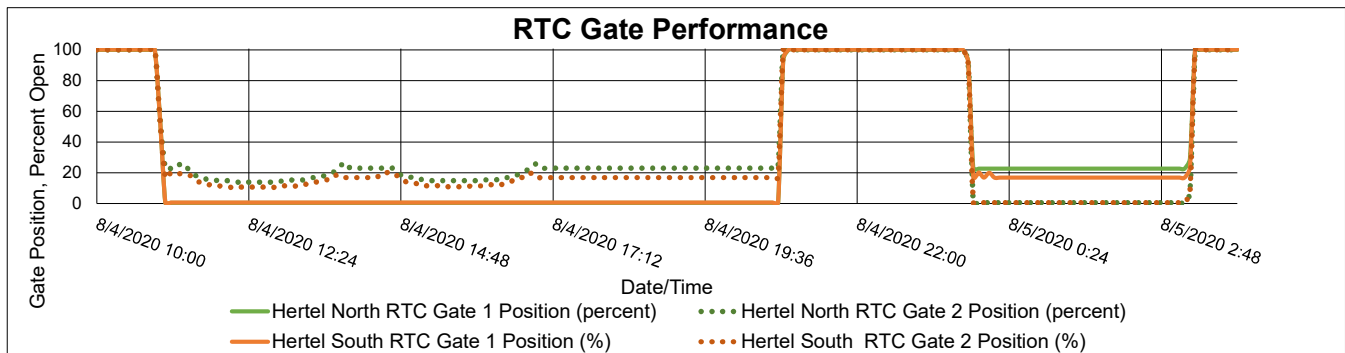
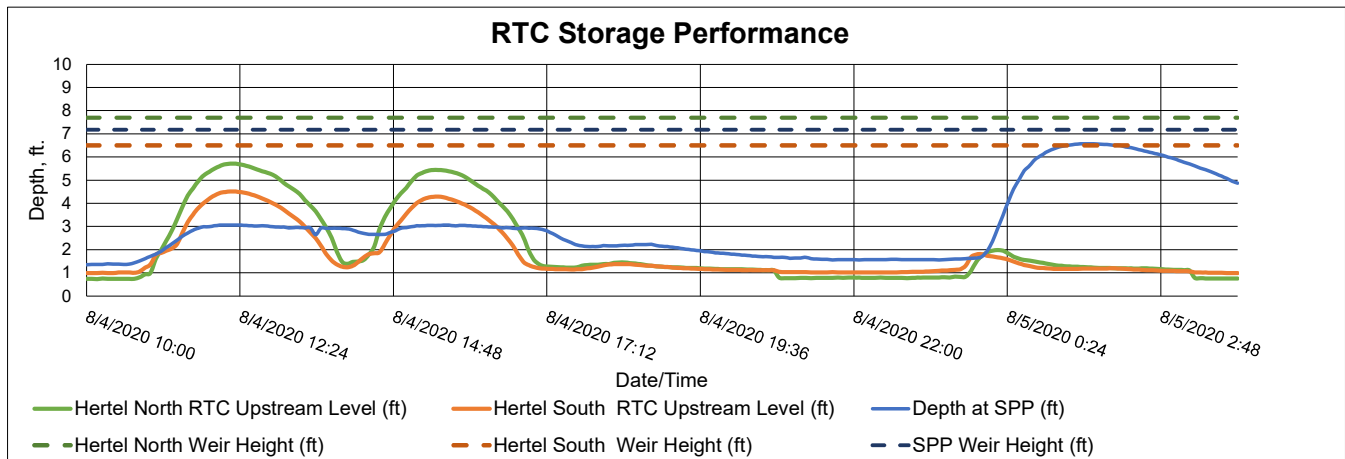
Site:	Hertel at Deer RTC
Time All Gates Active:	8/4/2020 10:55
Time All Gates Returned to Normal:	8/5/2020 3:20
Gate Activation Trigger Depth:	1.22 (South Side) ft.
Return to Normal Depth:	1.06 (South Side) ft.
Minimum Distance to Top of Weir:	1.99 ft.
Volume Stored:	2,026,507 Gal.
Unused Storage Volume:	2,051,506 Gal.

Analysis Date:	9/4/2020
Event Start Date/Time:	8/4/2020 10:55
Event End Date/Time:	8/5/2020 3:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.9 in.
Storm Event Duration:	18 hr.
Storm Type:	Less than 5 years

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	2,026,507 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:



August 15, 2020

3

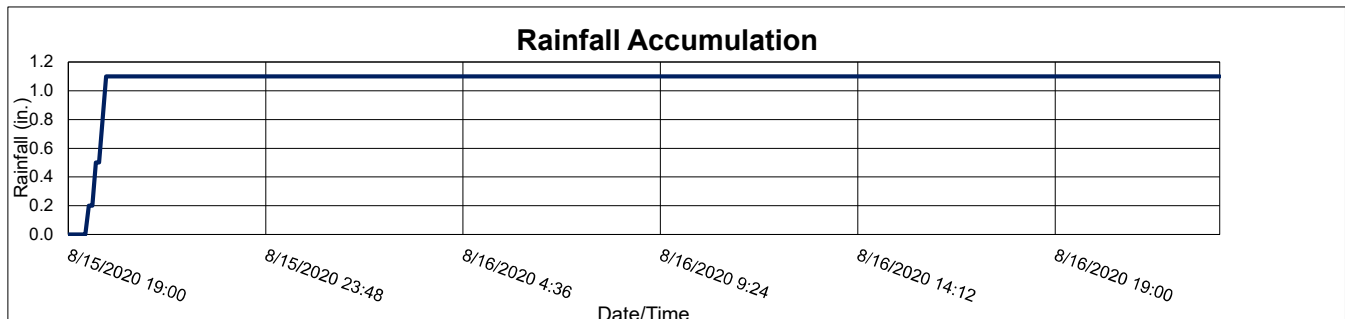
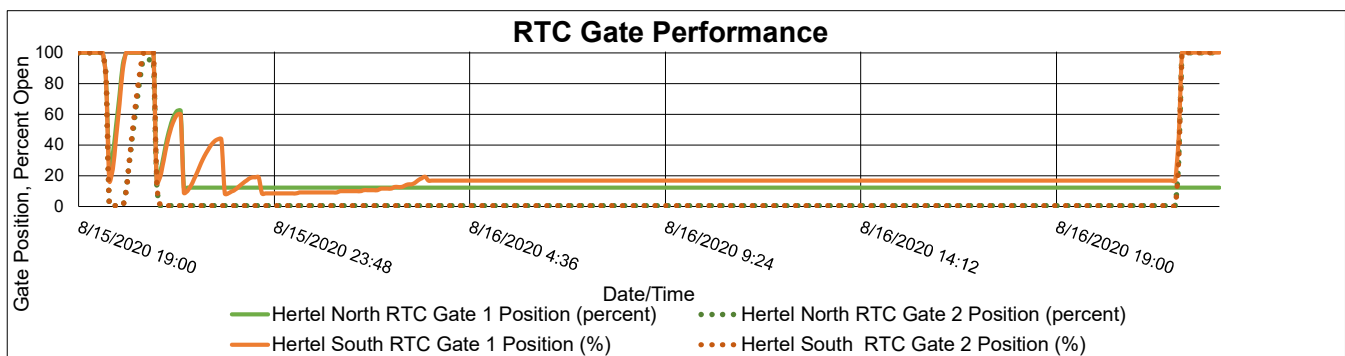
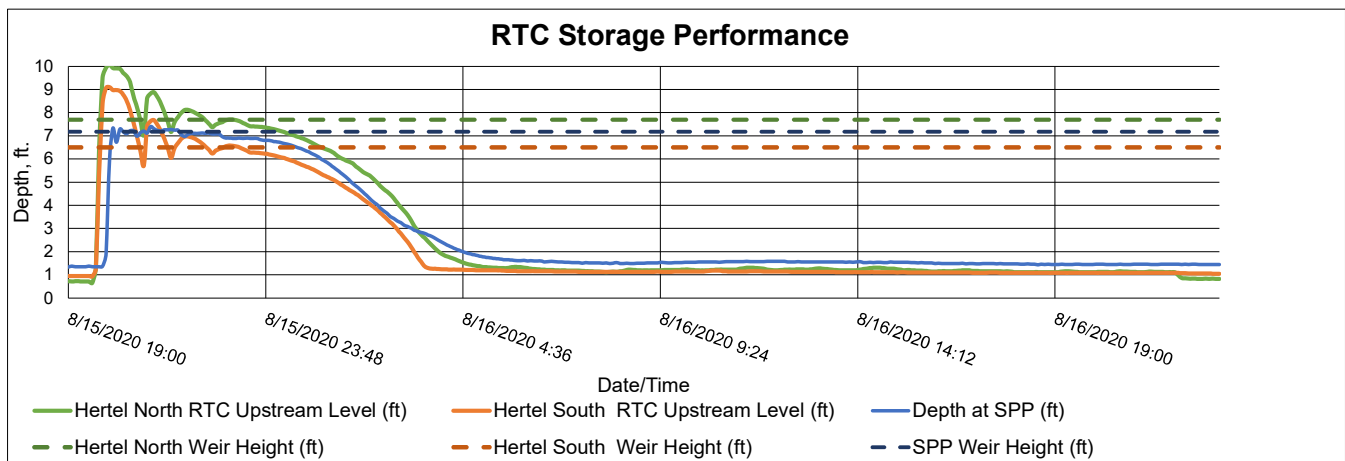
Site:	Hertel at Deer RTC
Time All Gates Active:	8/15/2020 19:35
Time All Gates Returned to Normal:	8/16/2020 22:05
Gate Activation Trigger Depth:	0.94 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	4,789,945 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	9/4/2020
Event Start Date/Time:	8/15/2020 19:35
Event End Date/Time:	8/16/2020 22:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	28 hr.
Storm Type:	Less than 1 year

Percent Capture	85%
Overflow Volume:	872,935 Gal.
Overflow Volume Prevented:	4,789,945 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:
North Gate 1 stuck at 12% open from 8/15 at 9.35 pm.



August 17, 2020

4

Site:	Hertel at Deer RTC
Time All Gates Active:	8/17/2020 17:25
Time All Gates Returned to Normal:	8/18/2020 0:05
Gate Activation Trigger Depth:	1.18 (South Side) ft.
Return to Normal Depth:	1.05 (South Side) ft.
Minimum Distance to Top of Weir:	4.68 ft.
Volume Stored:	289,055 Gal.
Unused Storage Volume:	3,647,966 Gal.

Analysis Date:	9/4/2020
Event Start Date/Time:	8/17/2020 17:20
Event End Date/Time:	8/18/2020 0:05

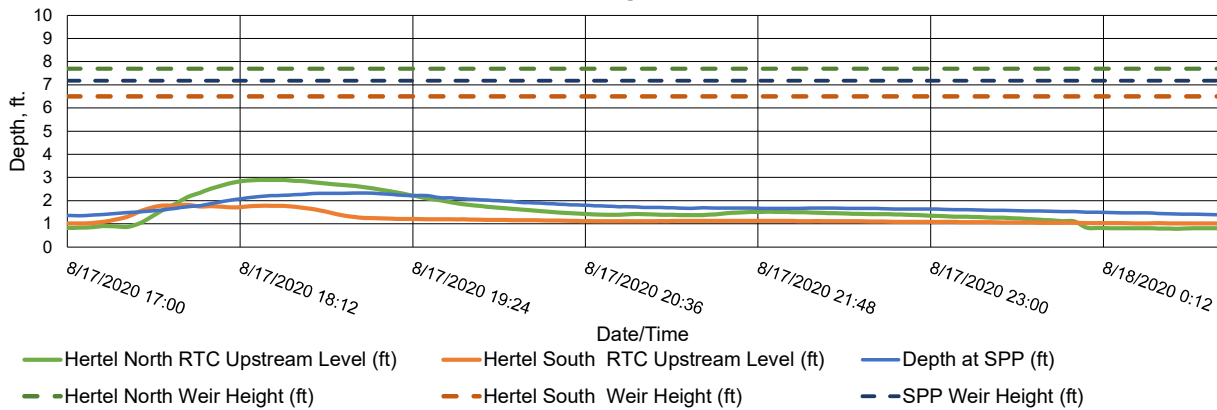
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.05 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	289,055 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

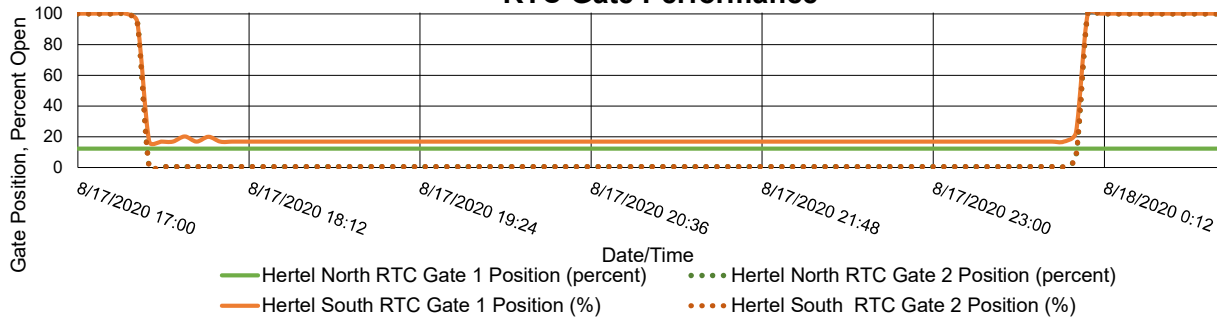
Recommended Operational Changes/Notes:

North Gate 1 was stuck at 12% open throughout this event until it was manually opened on 8/19.

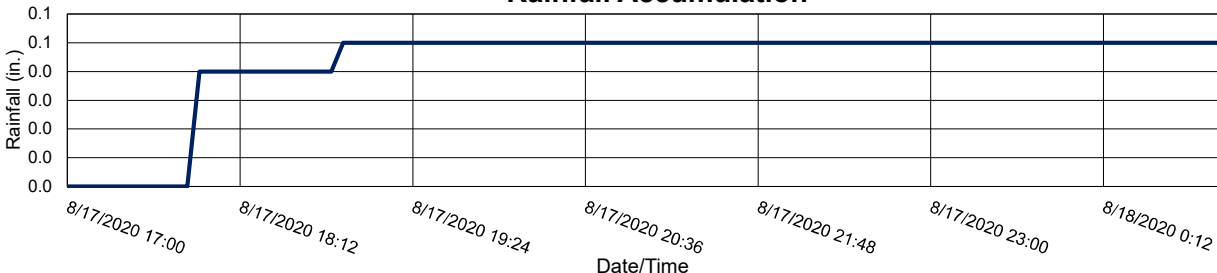
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



August 27, 2020

5

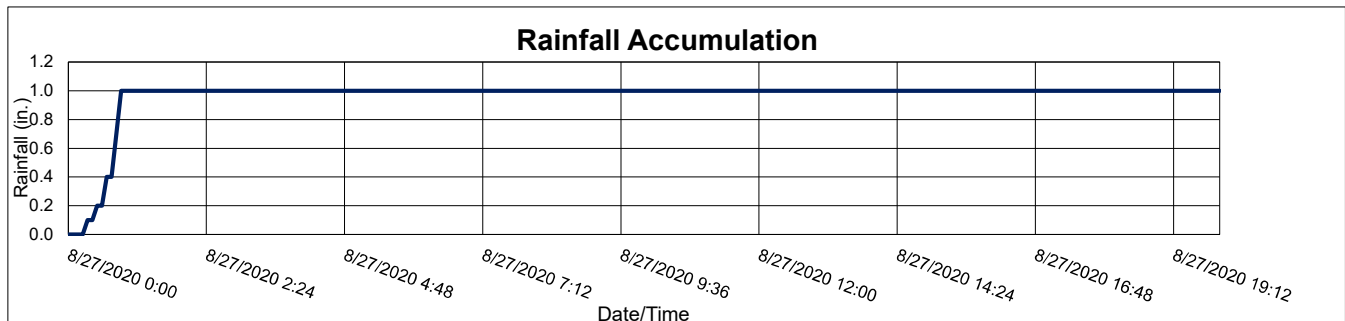
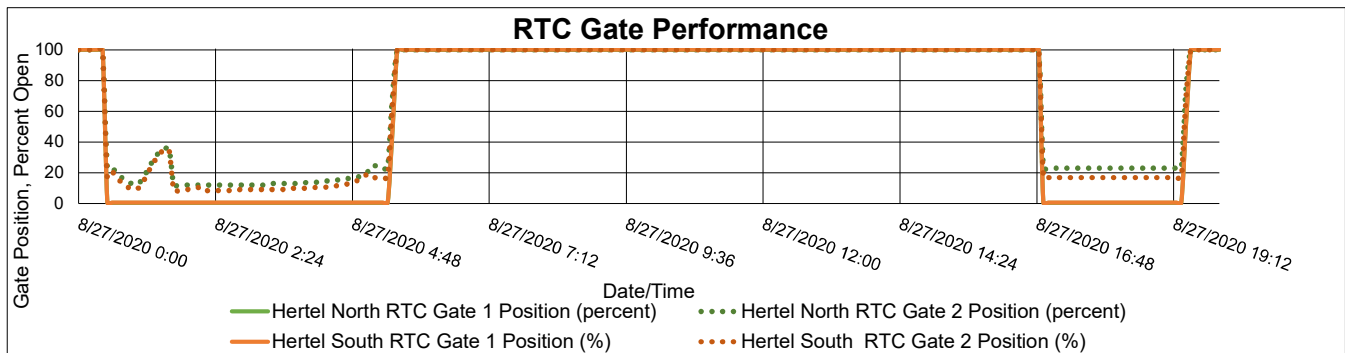
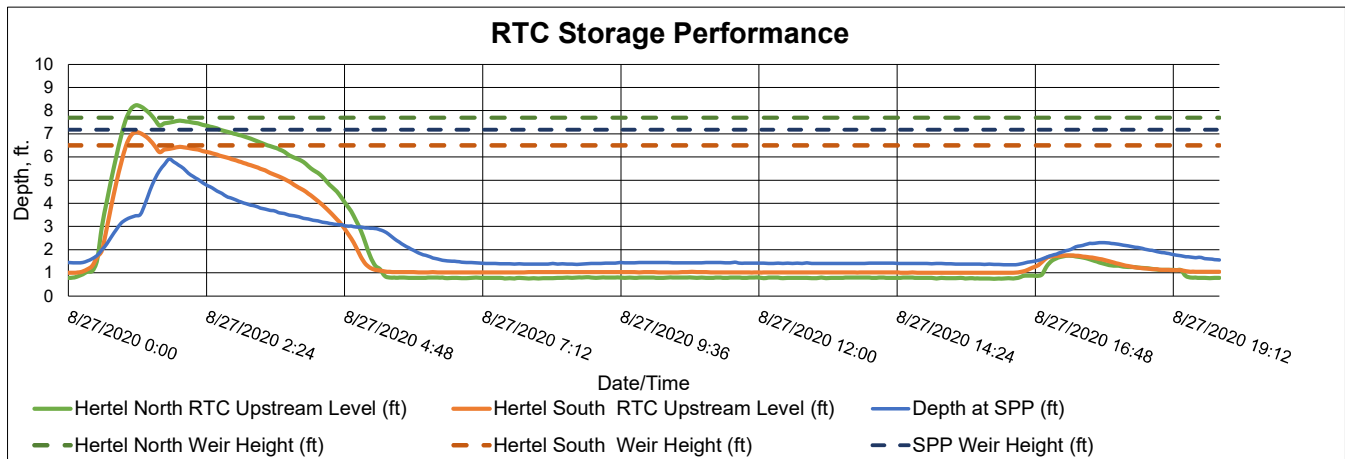
Site:	Hertel at Deer RTC
Time All Gates Active:	8/27/2020 0:25
Time All Gates Returned to Normal:	8/27/2020 19:30
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	4,022,693 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	9/4/2020
Event Start Date/Time:	8/27/2020 0:25
Event End Date/Time:	8/27/2020 19:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.0 in.
Storm Event Duration:	20 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	4,022,693 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:



September 2020 Hertel at Deer RTC KPI Report

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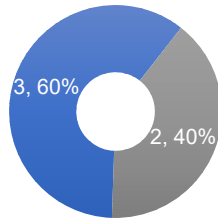
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Hertel at Deer RTC Monthly Performance Report

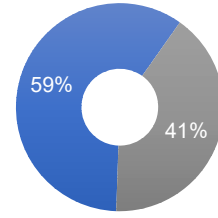
September 2020

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.)
3	2	16,023,062	11,019,706
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
9/2/2020	1,682,303	-	100%
9/3/2020	2,514,641	-	100%
9/7/2020	3,934,563	-	100%
9/13/2020	3,943,501	1,058,687	79%
9/29/2020	3,948,054	9,961,019	28%

september 2, 2020

1

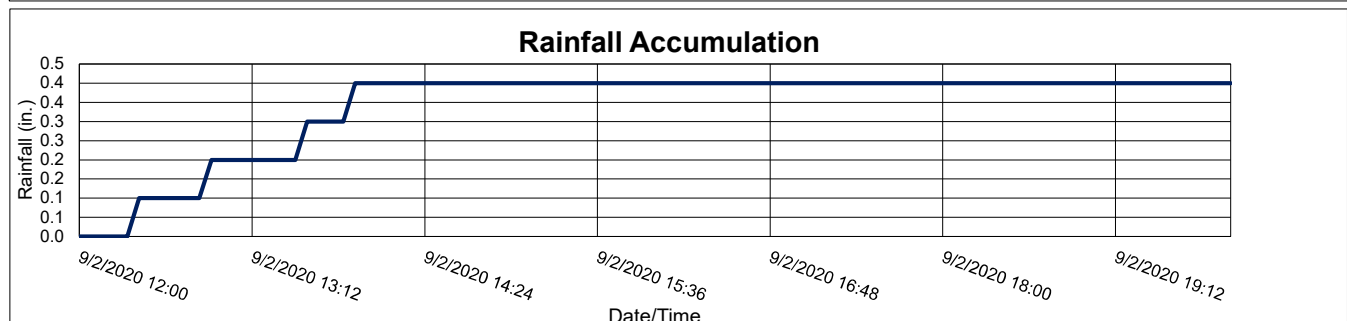
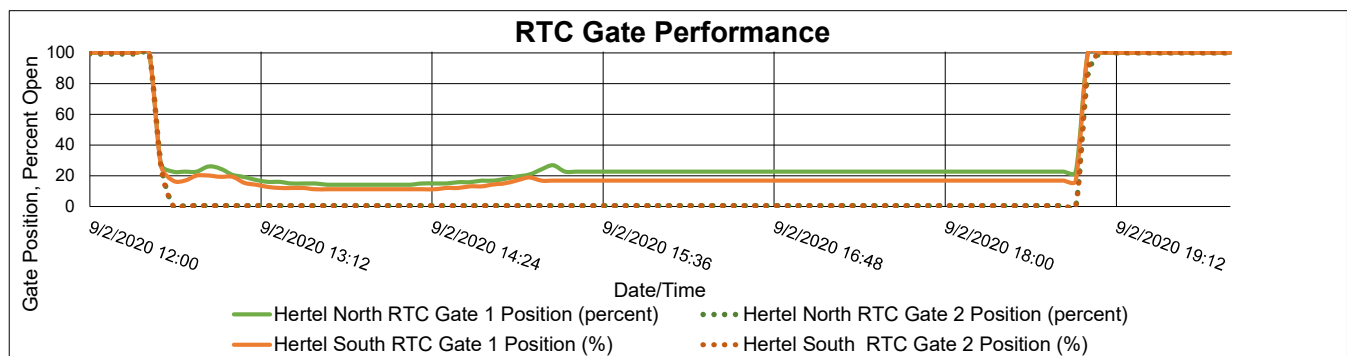
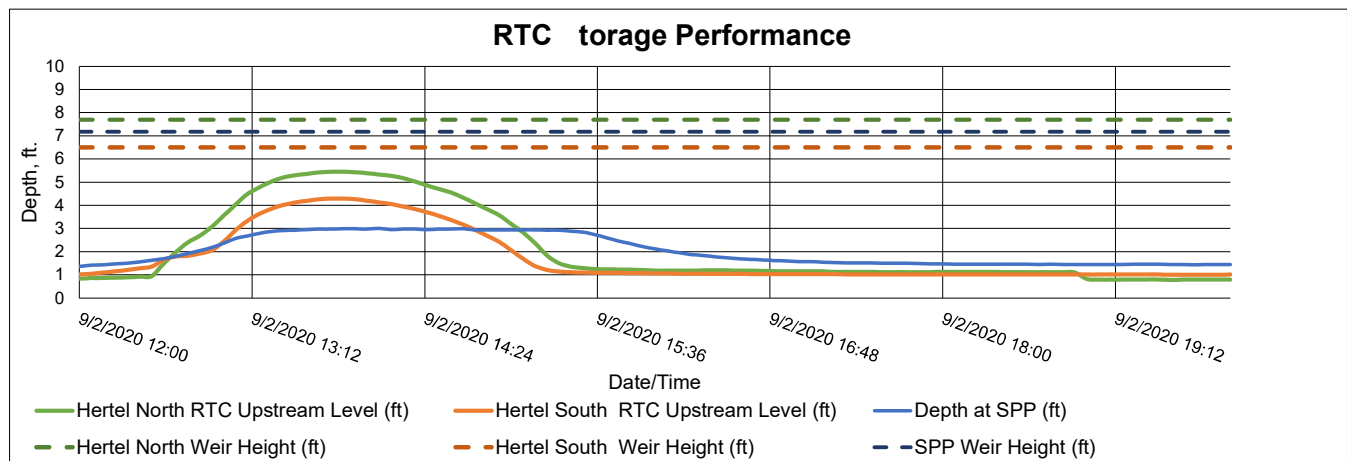
Site:	Hertel at Deer RTC
Time All Gates Active:	9/2/2020 12:25
Time All Gates Returned to Normal:	9/2/2020 19:05
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.02 (South Side) ft.
Minimum Distance to Top of Weir:	2.21 ft.
Volume Stored:	1,682,303 Gal.
Unused Storage Volume:	2,247,838 Gal.

Analysis Date:	10/8/2020
Event Start Date/Time:	9/2/2020 12:25
Event End Date/Time:	9/2/2020 19:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,682,303 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:



september 3, 2020

2

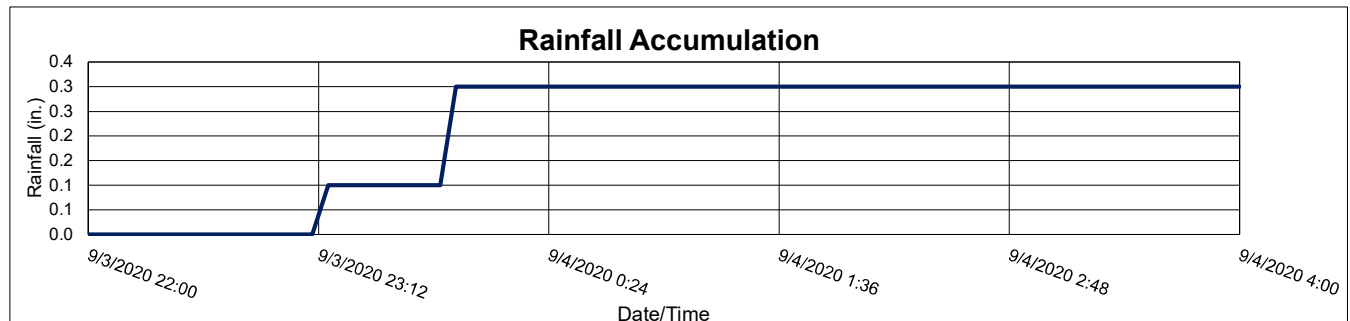
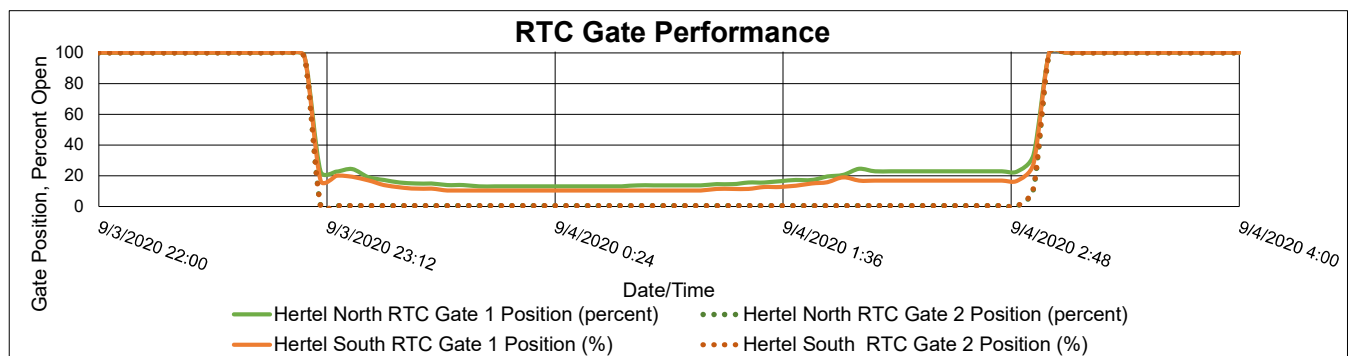
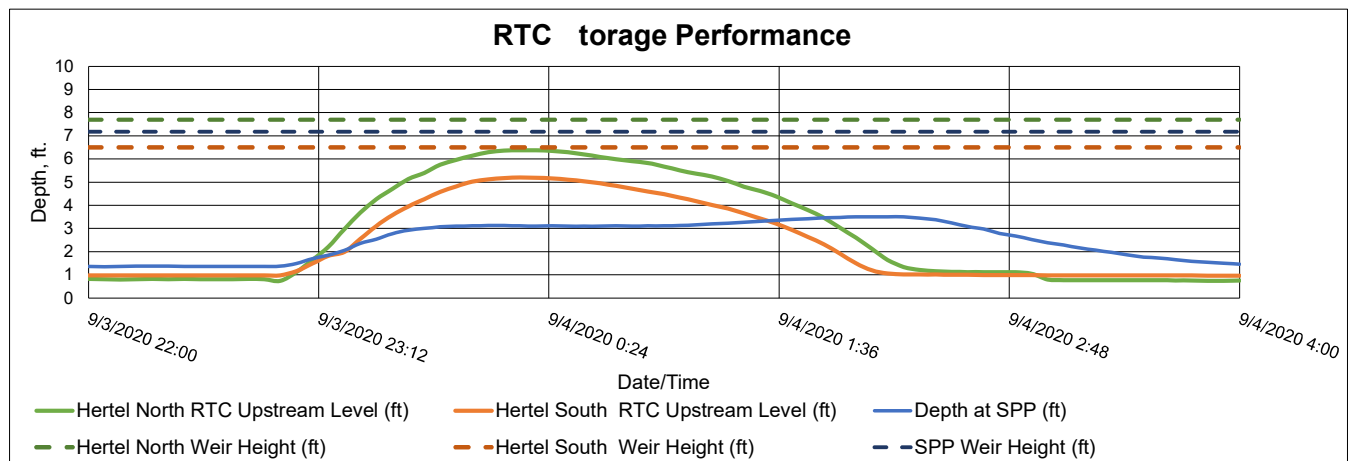
Site:	Hertel at Deer RTC
Time All Gates Active:	9/3/2020 23:05
Time All Gates Returned to Normal:	9/4/2020 3:00
Gate Activation Trigger Depth:	0.98 (South Side) ft.
Return to Normal Depth:	0.99 (South Side) ft.
Minimum Distance to Top of Weir:	1.30 ft.
Volume Stored:	2,514,641 Gal.
Unused Storage Volume:	1,435,129 Gal.

Analysis Date:	10/8/2020
Event Start Date/Time:	9/3/2020 23:05
Event End Date/Time:	9/4/2020 3:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	2,514,641 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:



September 7, 2020

3

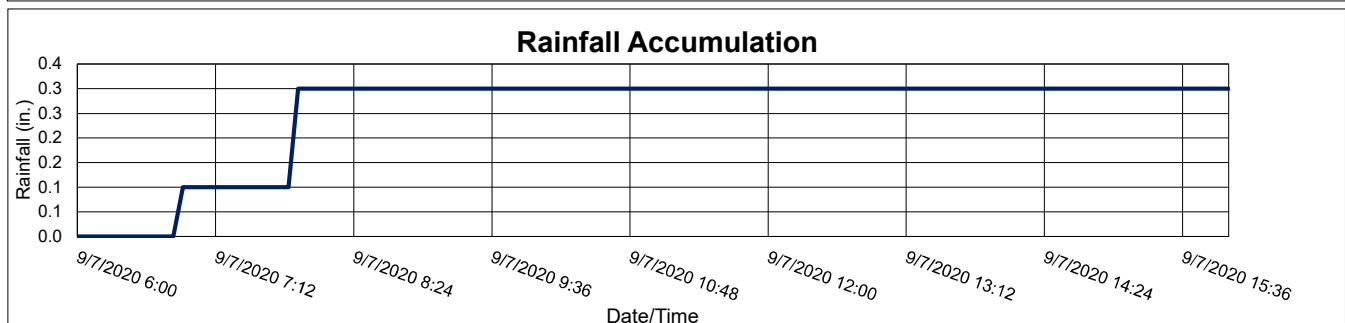
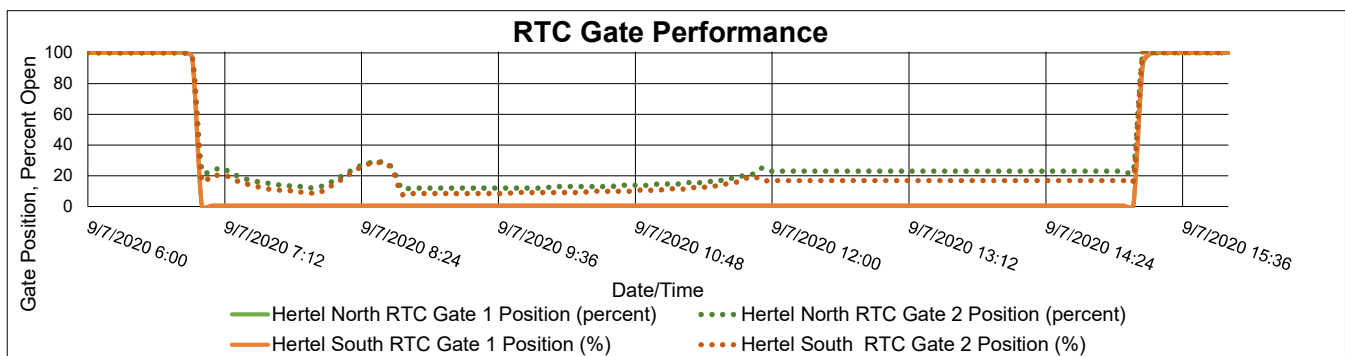
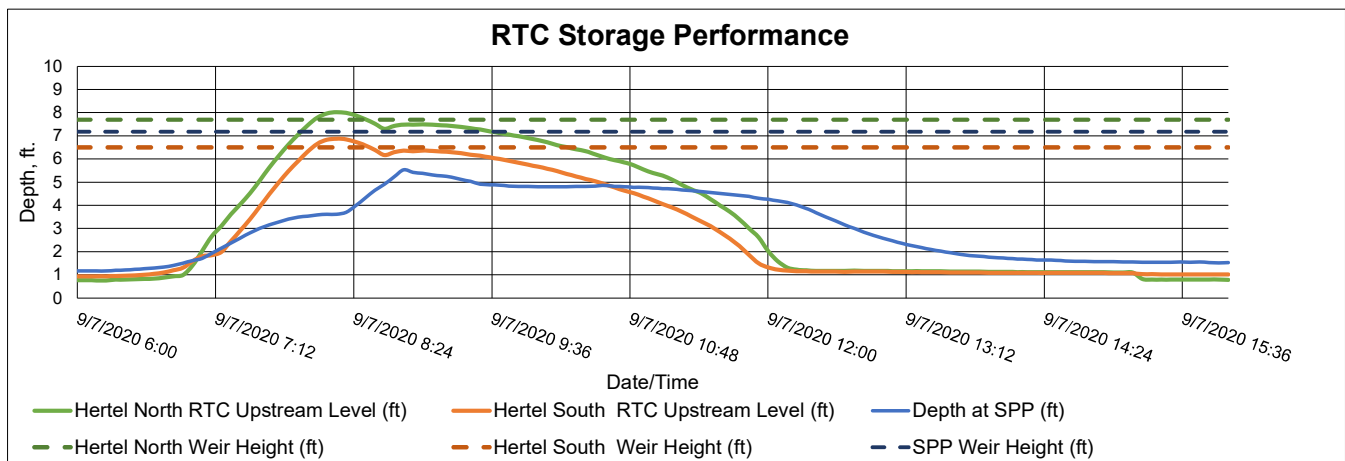
Site:	Hertel at Deer RTC
Time All Gates Active:	9/7/2020 6:55
Time All Gates Returned to Normal:	9/7/2020 15:20
Gate Activation Trigger Depth:	1.19 (South Side) ft.
Return to Normal Depth:	1.03 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,934,563 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	10/8/2020
Event Start Date/Time:	9/7/2020 6:55
Event End Date/Time:	9/7/2020 15:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	10 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,934,563 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:



September 13, 2020

4

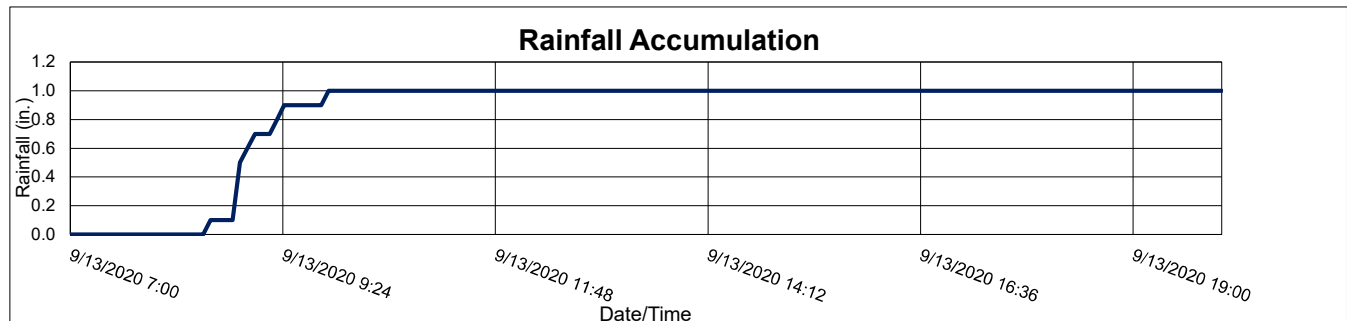
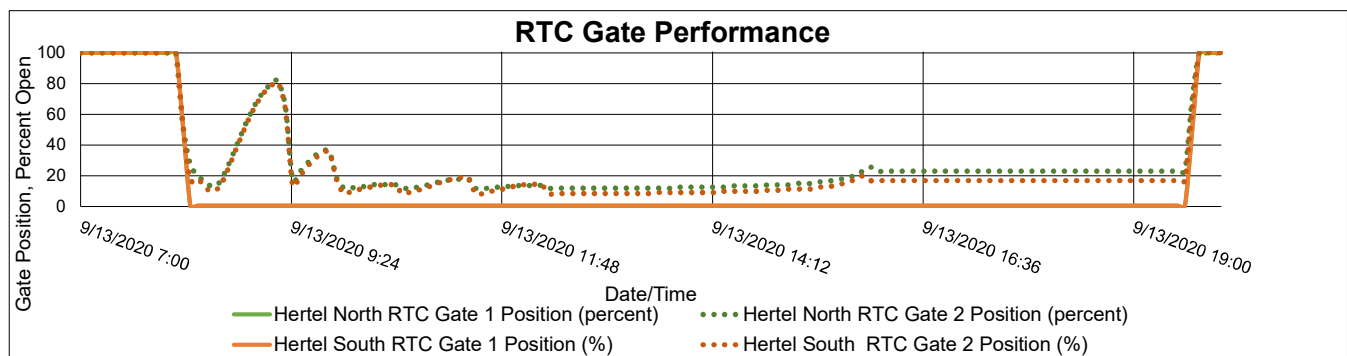
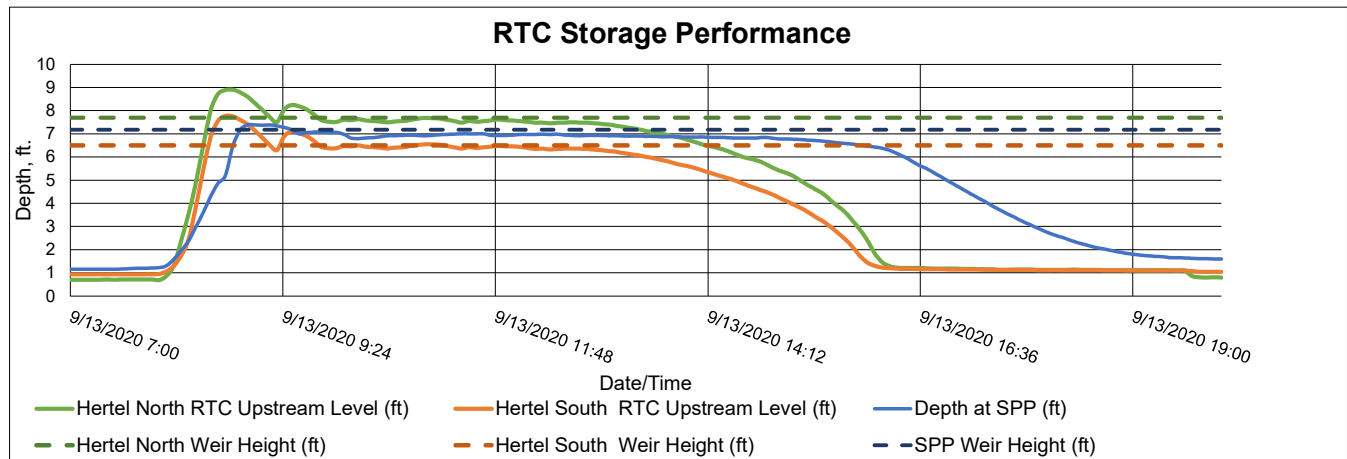
Site:	Hertel at Deer RTC
Time All Gates Active:	9/13/2020 8:05
Time All Gates Returned to Normal:	9/13/2020 19:45
Gate Activation Trigger Depth:	1.06 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,943,501 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	10/8/2020
Event Start Date/Time:	9/13/2020 8:05
Event End Date/Time:	9/13/2020 19:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.0 in.
Storm Event Duration:	13 hr.
Storm Type:	Less than 1 year

Percent Capture	79%
Overflow Volume:	1,058,687 Gal.
Overflow Volume Prevented:	3,943,501 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:



September 29, 2020

5

Site:	Hertel at Deer RTC
Time All Gates Active:	9/29/2020 22:20
Time All Gates Returned to Normal:	10/2/2020 2:50
Gate Activation Trigger Depth:	1.01 (South Side) ft.
Return to Normal Depth:	0.81 (North Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,948,054 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	10/8/2020
Event Start Date/Time:	9/29/2020 22:20
Event End Date/Time:	10/2/2020 2:50

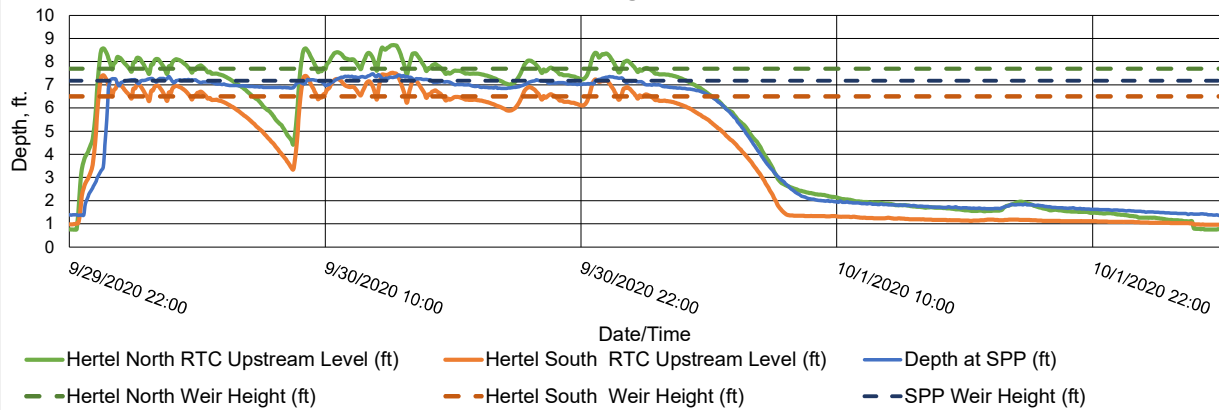
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	3.2 in.
Storm Event Duration:	54 hr.
Storm Type:	Less than 5 years

Percent Capture	28%
Overflow Volume:	9,961,019 Gal.
Overflow Volume Prevented:	3,948,054 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

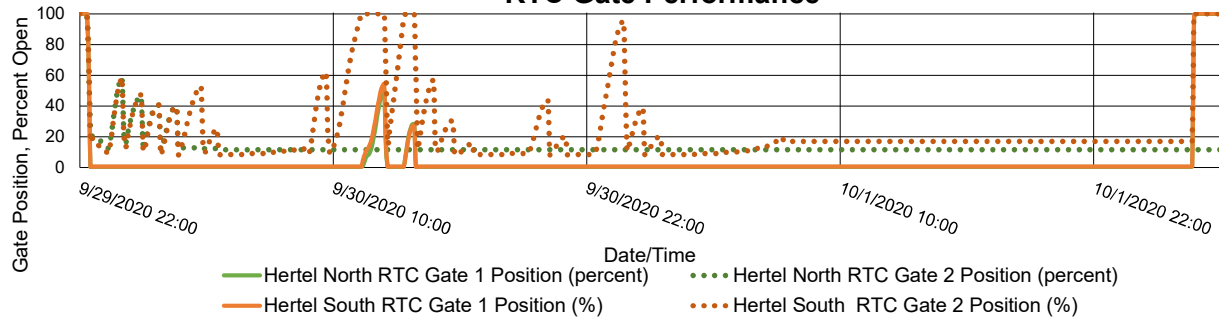
Recommended Operational Changes/Notes:

North Gate 2 was stuck at 11.58% open during this event, but the site was in Auto-Local mode for the entire month of September.

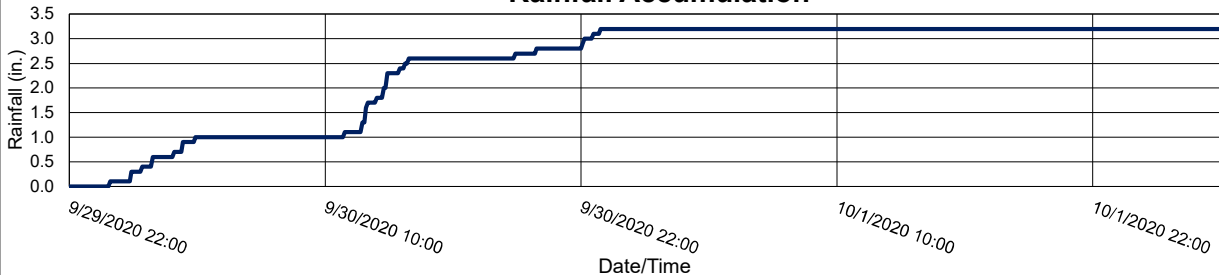
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



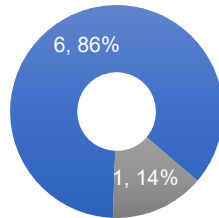
October 2020 Hertel at Deer RTC KPI Report

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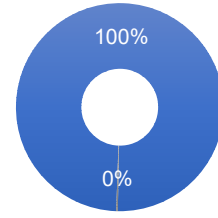


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Prevented SPP Events

■ 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.)
6	1	20,468,804	49,179
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
10/2/2020	3,928,076	-	100%
10/7/2020	4,139,308	-	100%
10/13/2020	1,620,884	-	100%
10/15/2020	1,492,860	-	100%
10/19/2020	4,085,186	49,179	99%
10/21/2020	3,931,531	-	100%
10/23/2020	1,270,959	-	100%

October 2, 2020

1

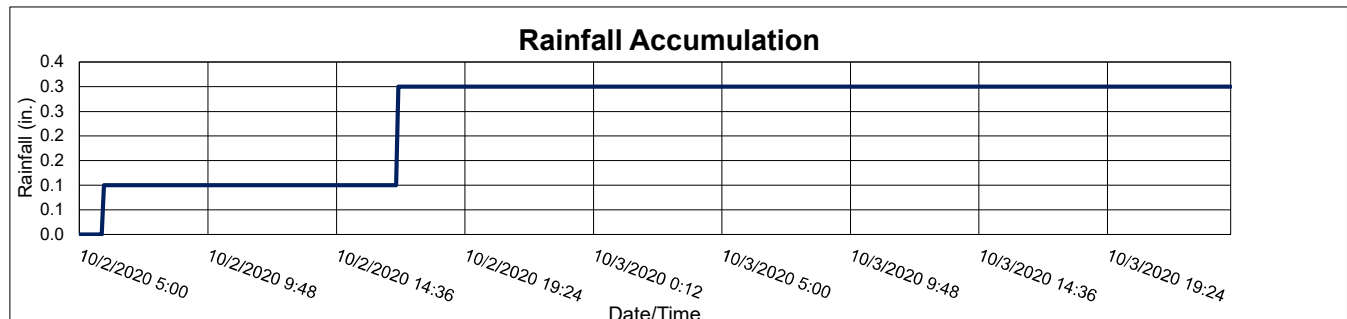
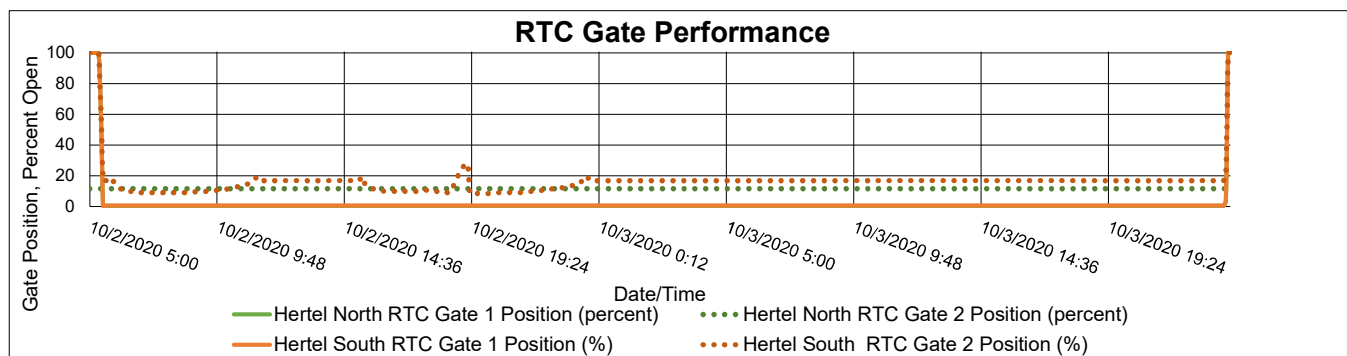
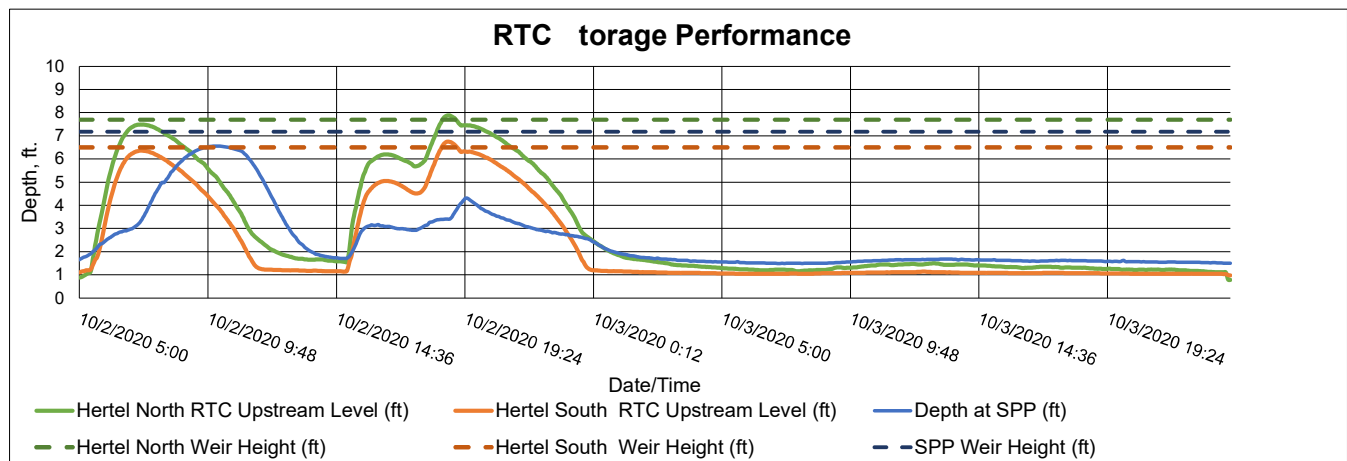
Site:	Hertel at Deer RTC
Time All Gates Active:	10/2/2020 5:20
Time All Gates Returned to Normal:	10/3/2020 23:55
Gate Activation Trigger Depth:	1.20 (South Side) ft.
Return to Normal Depth:	1.03 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,928,076 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/2/2020 5:20
Event End Date/Time:	10/3/2020 23:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	42 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,928,076 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:
North Gate 2 was stuck at 11.58% open during this event.



October 7, 2020

2

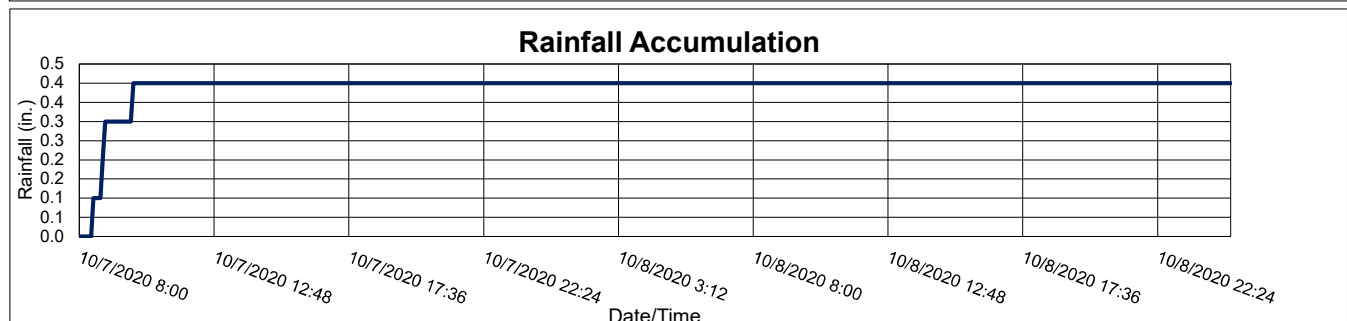
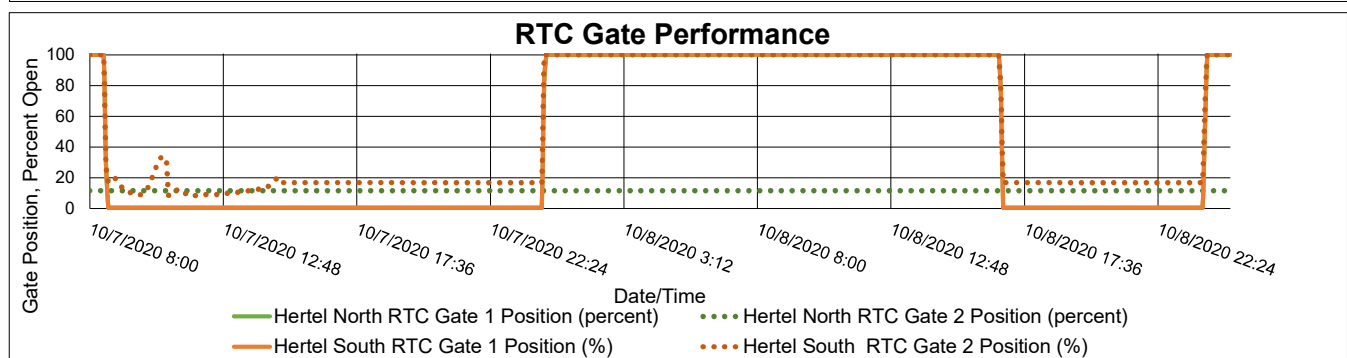
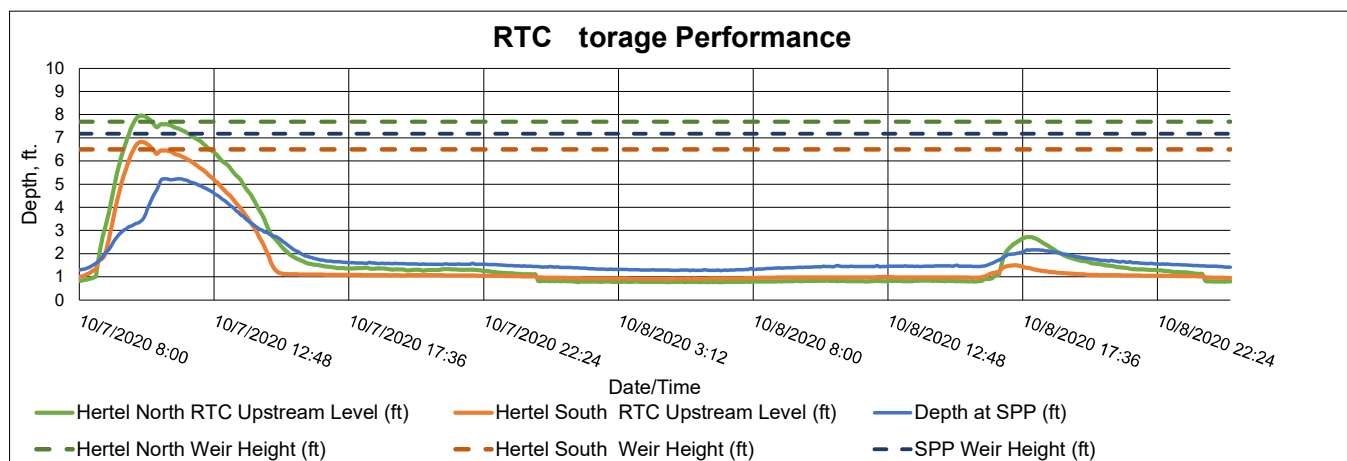
Site:	Hertel at Deer RTC
Time All Gates Active:	10/7/2020 8:30
Time All Gates Returned to Normal:	10/9/2020 0:10
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	0.99 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	4,139,308 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/7/2020 8:30
Event End Date/Time:	10/9/2020 0:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	40 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	4,139,308 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:	
North Gate 2 was stuck at 11.58% open during the event.	



October 13, 2020

3

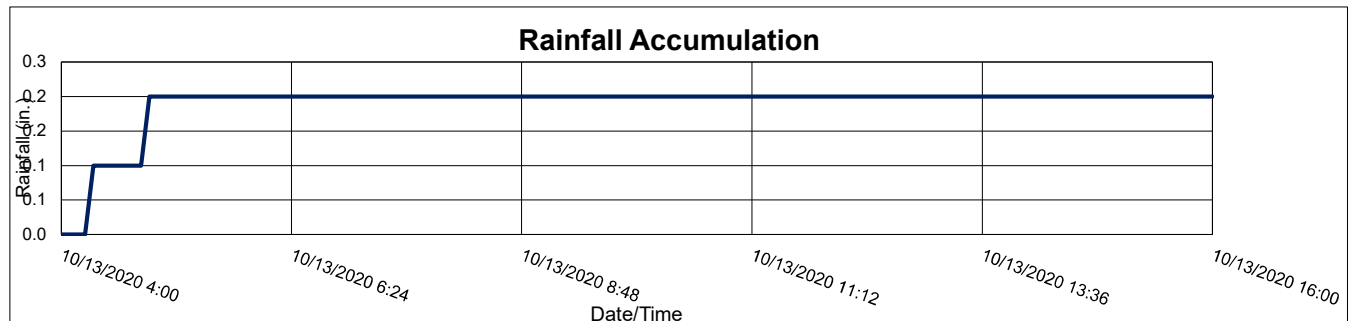
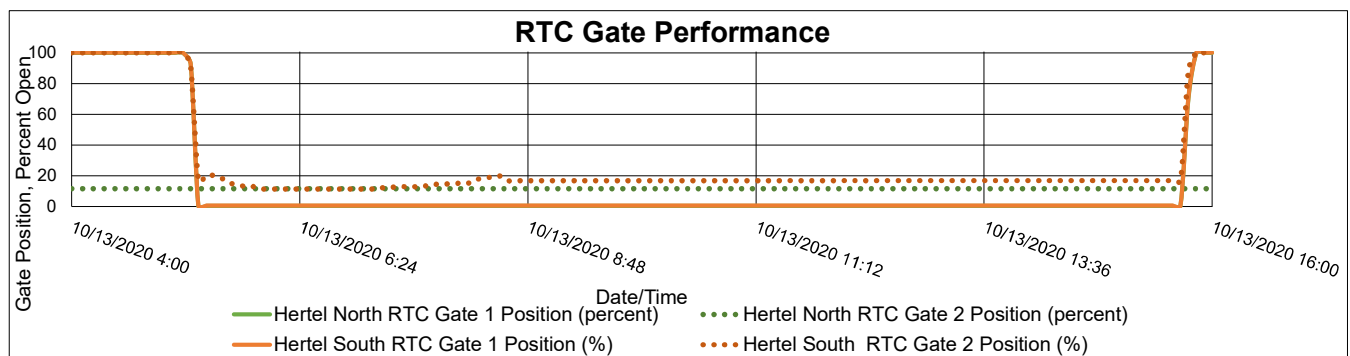
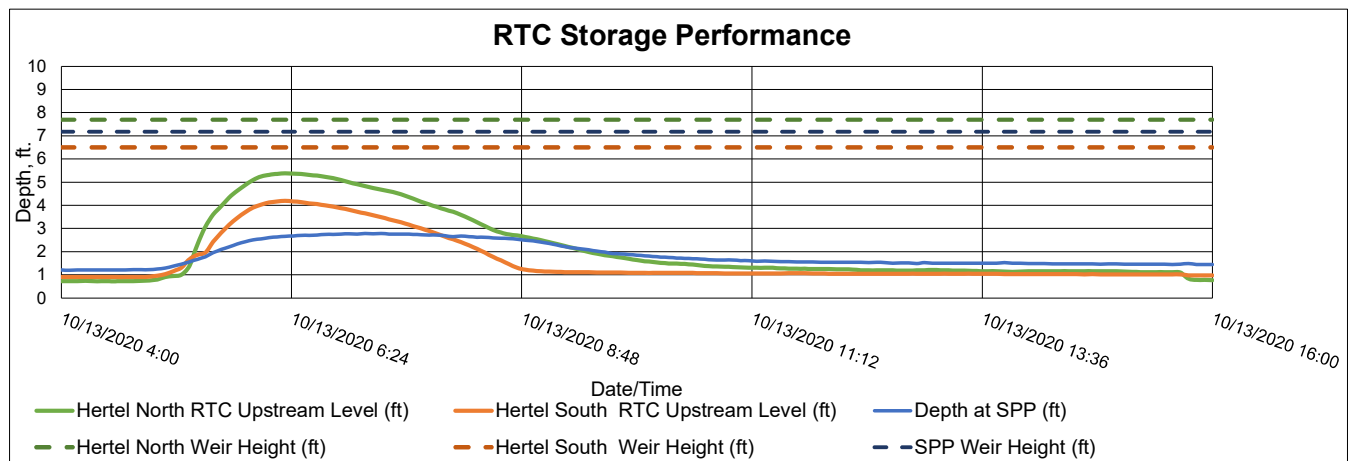
Site:	Hertel at Deer RTC
Time All Gates Active:	10/13/2020 5:10
Time All Gates Returned to Normal:	10/13/2020 15:50
Gate Activation Trigger Depth:	1.16 (South Side) ft.
Return to Normal Depth:	0.98 (South Side) ft.
Minimum Distance to Top of Weir:	2.31 ft.
Volume Stored:	1,620,884 Gal.
Unused Storage Volume:	2,314,806 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/13/2020 5:10
Event End Date/Time:	10/13/2020 15:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	12 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,620,884 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:	
North Gate 2 was stuck at 11.58% open during this event.	



October 15, 2020

4

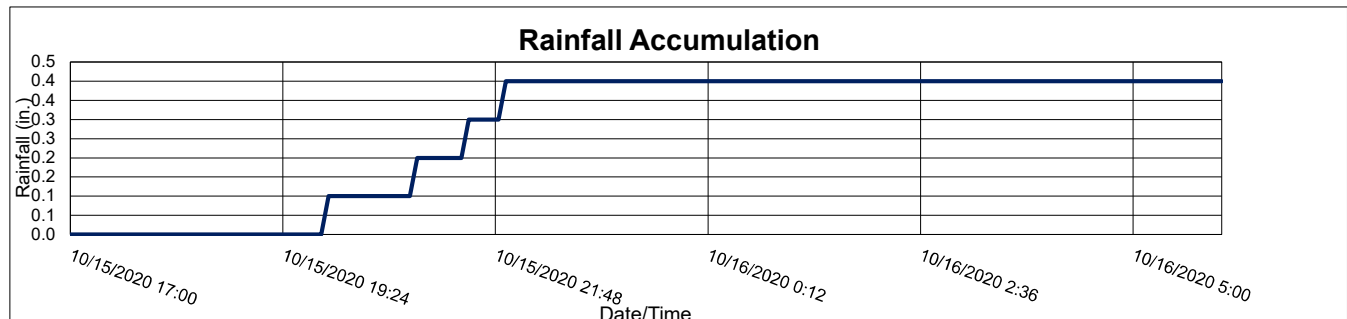
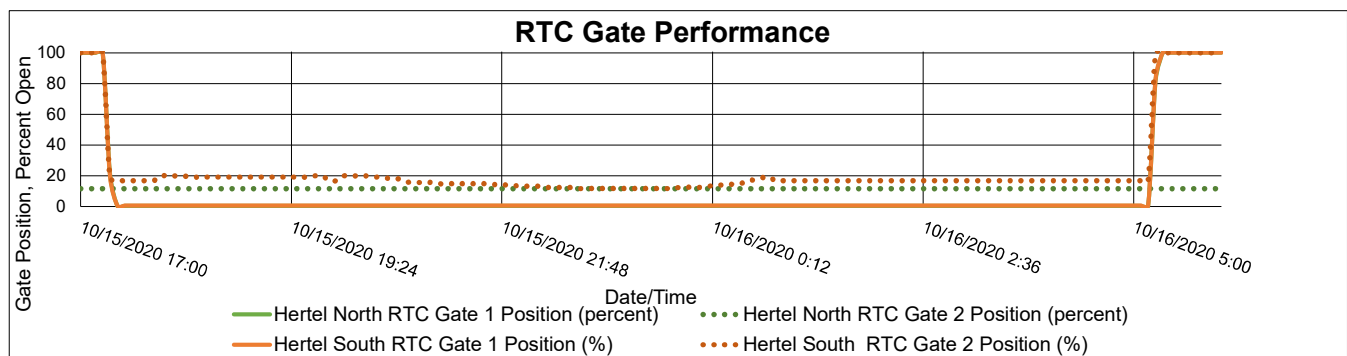
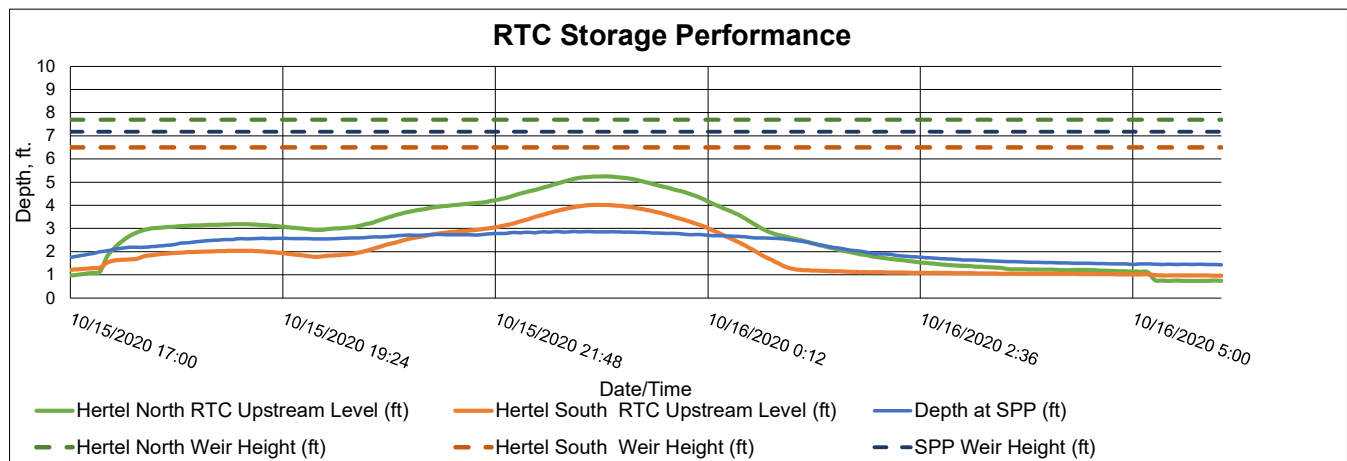
Site:	Hertel at Deer RTC
Time All Gates Active:	10/15/2020 17:15
Time All Gates Returned to Normal:	10/16/2020 5:20
Gate Activation Trigger Depth:	1.29 (South Side) ft.
Return to Normal Depth:	0.99 (South Side) ft.
Minimum Distance to Top of Weir:	2.45 ft.
Volume Stored:	1,492,860 Gal.
Unused Storage Volume:	2,429,384 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/15/2020 17:15
Event End Date/Time:	10/16/2020 5:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	12 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,492,860 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:
North Gate 2 was stuck at 11.58% open during this event.



October 19, 2020

5

Site:	Hertel at Deer RTC
Time All Gates Active:	10/19/2020 9:05
Time All Gates Returned to Normal:	10/21/2020 0:05
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	4.78 ft.
Volume Stored:	4,085,186 Gal.
Unused Storage Volume:	3,772,772 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/19/2020 9:05
Event End Date/Time:	10/21/2020 0:00

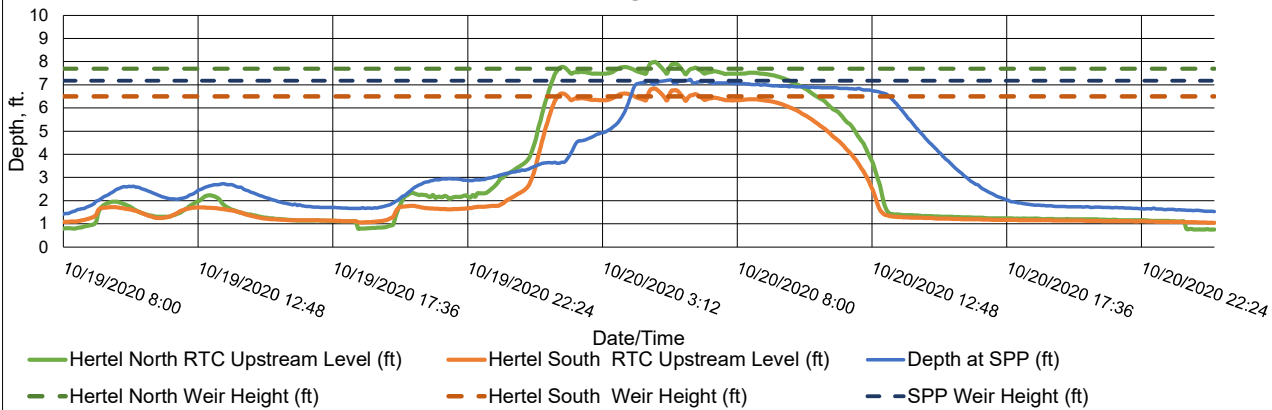
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	40 hr.
Storm Type:	Less than one year

Percent Capture	99%
Overflow Volume:	49,179 Gal.
Overflow Volume Prevented:	4,085,186 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

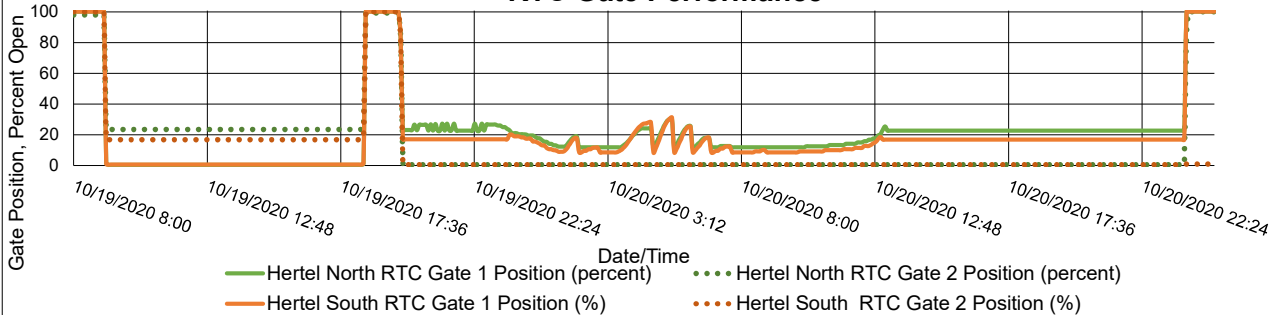
Recommended Operational Changes/Notes:

South Gate 2 was stuck at 0.88% open towards the end of the event.

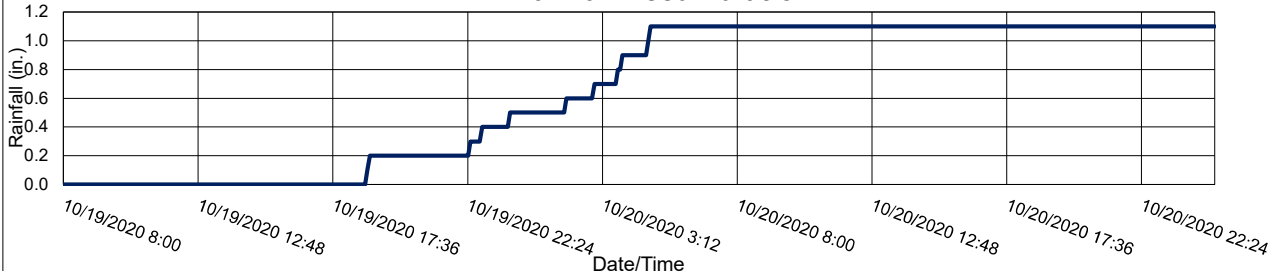
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



October 21, 2020

6

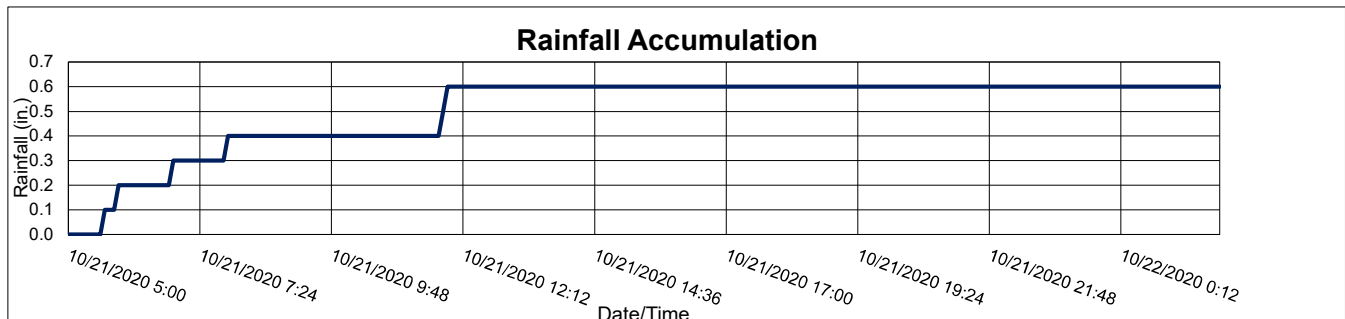
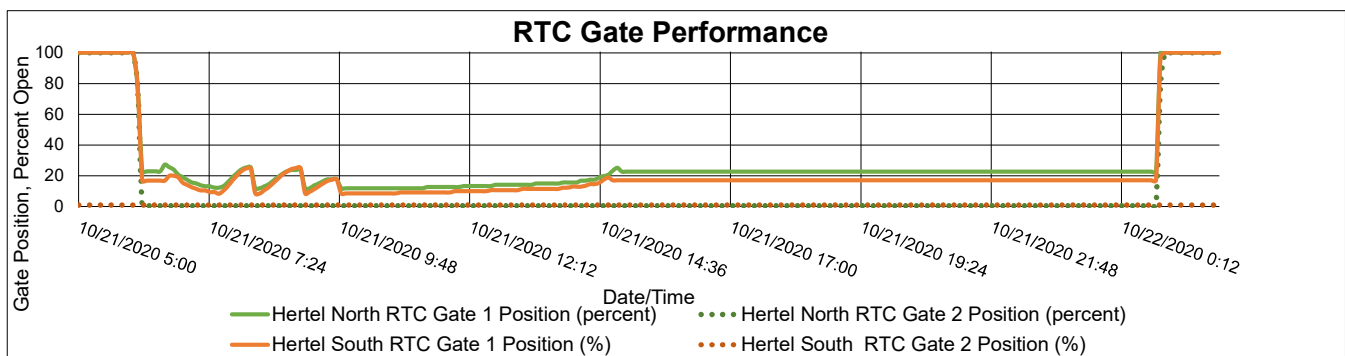
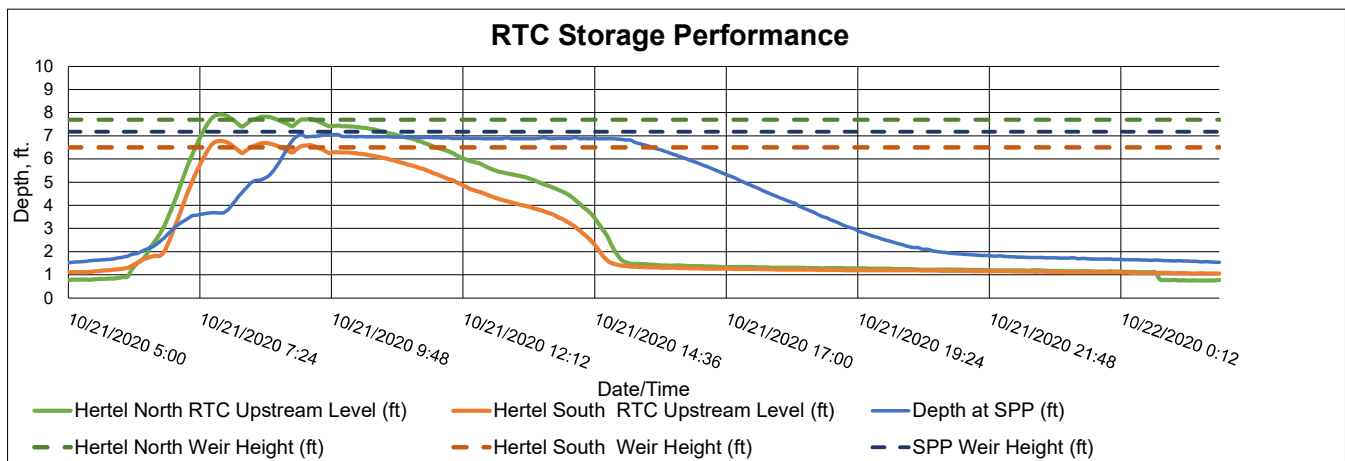
Site:	Hertel at Deer RTC
Time All Gates Active:	10/21/2020 6:00
Time All Gates Returned to Normal:	10/22/2020 1:00
Gate Activation Trigger Depth:	1.27 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,931,531 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/21/2020 6:00
Event End Date/Time:	10/22/2020 0:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.6 in.
Storm Event Duration:	21 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,931,531 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:
South Gate 2 was stuck at 0.88% open during this event.



October 23, 2020

7

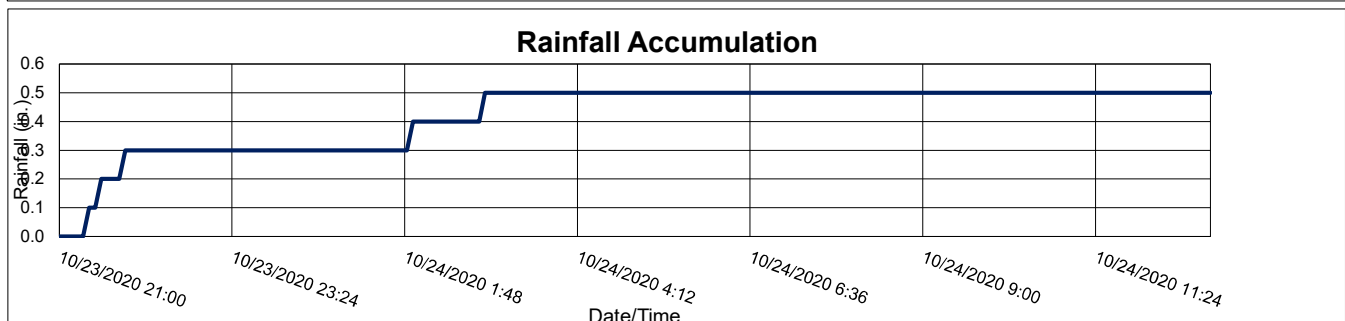
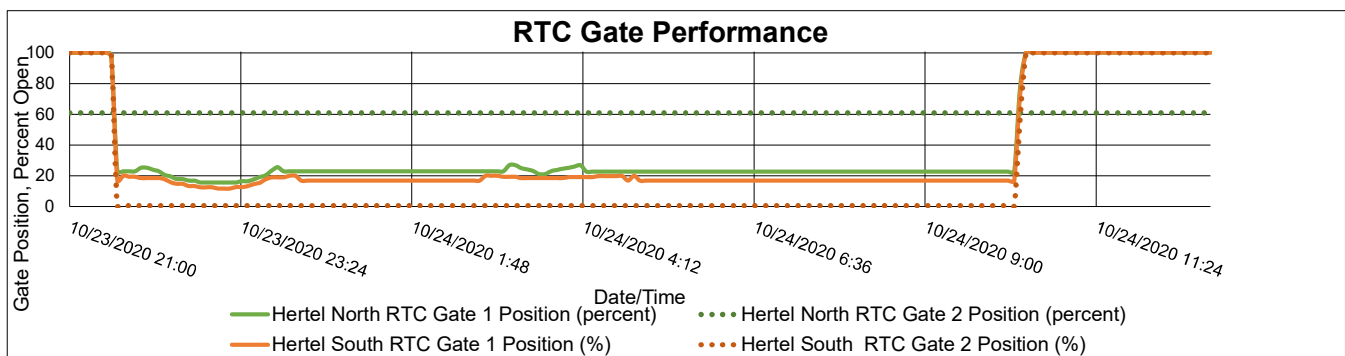
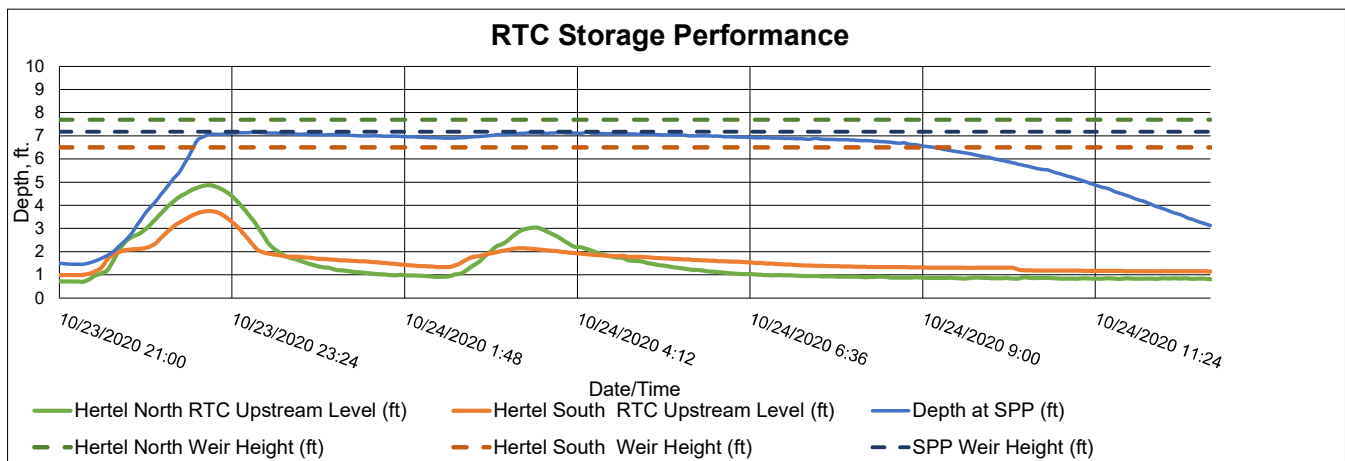
Site:	Hertel at Deer RTC
Time All Gates Active:	10/23/2020 21:30
Time All Gates Returned to Normal:	10/24/2020 10:25
Gate Activation Trigger Depth:	1.15 (South Side) ft.
Return to Normal Depth:	1.23 (South Side) ft.
Minimum Distance to Top of Weir:	2.75 ft.
Volume Stored:	1,270,959 Gal.
Unused Storage Volume:	2,663,943 Gal.

Analysis Date:	11/7/2020
Event Start Date/Time:	10/23/2020 21:30
Event End Date/Time:	10/24/2020 10:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	16 hr.
Storm Type:	Less than 1 year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,270,959 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:
North Gate 2 was stuck at 60.95% open during this event.



November 2020 Hertel at Deer RTC KPI Report

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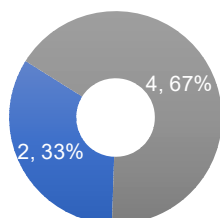
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Hertel at Deer RTC Monthly Performance Report

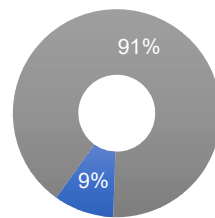
November 2020

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.)
2	4	16,708,344	162,736,908
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
11/1/2020	3,934,430	865,340	82%
11/11/2020	3,944,330	145,280	96%
11/15/2020*	687,309	160,979,407	0%
11/22/2020	3,925,365	-	100%
11/26/2020	284,031	-	100%
11/30/2020	3,932,879	746,881	84%

Note: *Signifies high degree of uncertainty on overflow volume calculation due to Lake Erie seiche event. See event sheet for more details.

November 1, 2020

1

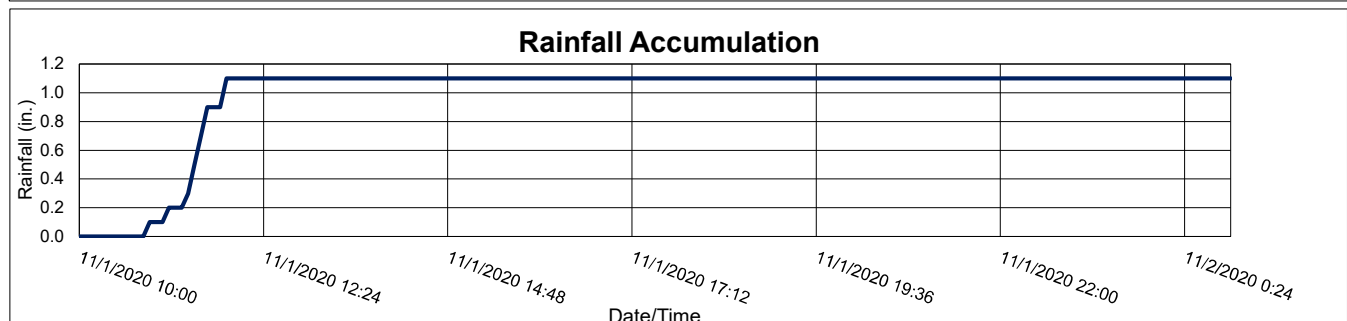
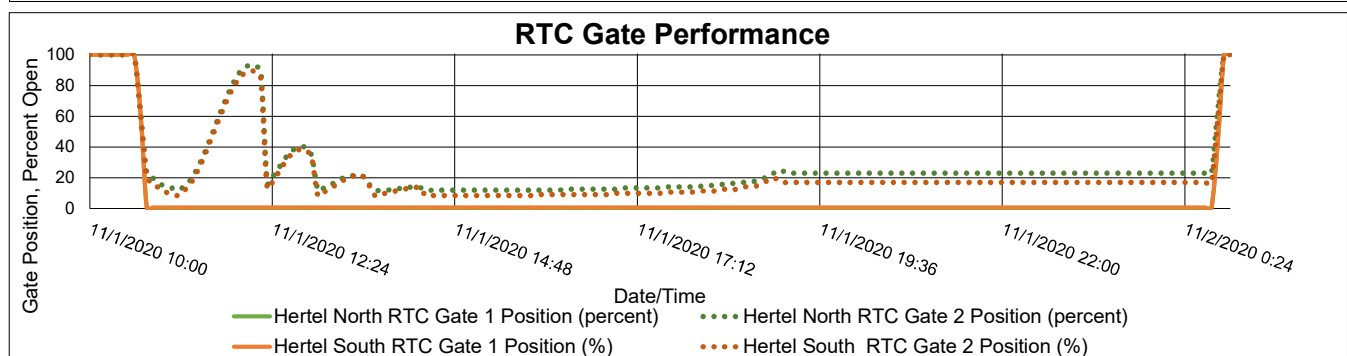
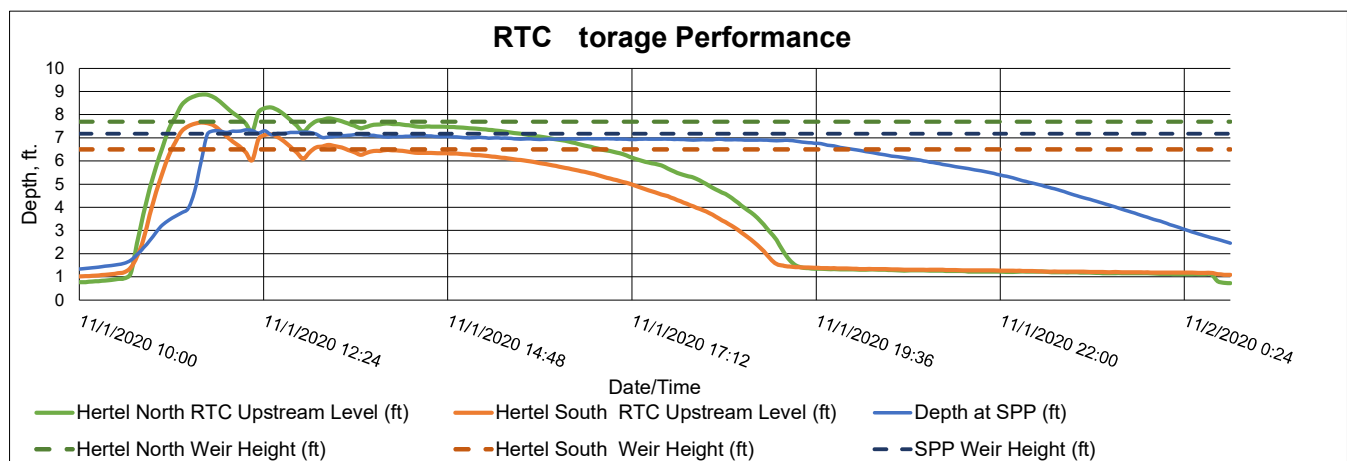
Site:	Hertel at Deer RTC
Time All Gates Active:	11/1/2020 10:35
Time All Gates Returned to Normal:	11/2/2020 0:55
Gate Activation Trigger Depth:	1.20 (South Side) ft.
Return to Normal Depth:	1.12 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,934,430 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/1/2020 10:35
Event End Date/Time:	11/2/2020 0:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	15 hr.
Storm Type:	Less than one year

Percent Capture	82%
Overflow Volume:	865,340 Gal.
Overflow Volume Prevented:	3,934,430 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:



November 11, 2020

2

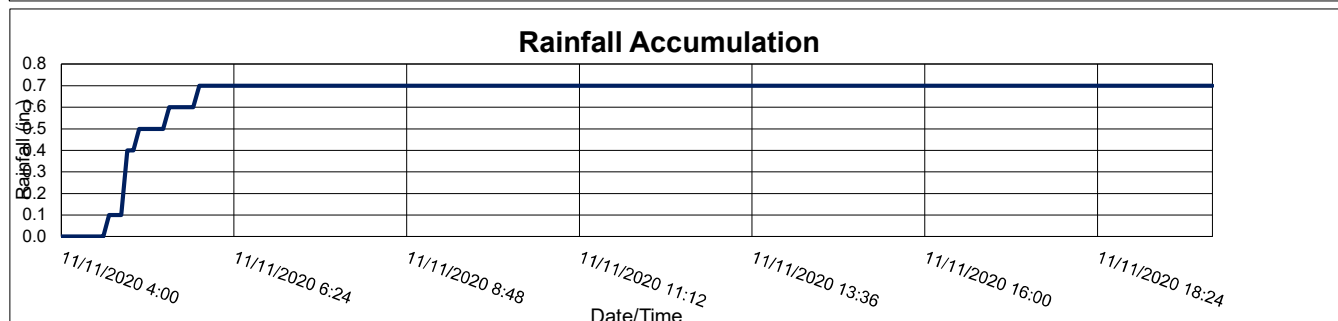
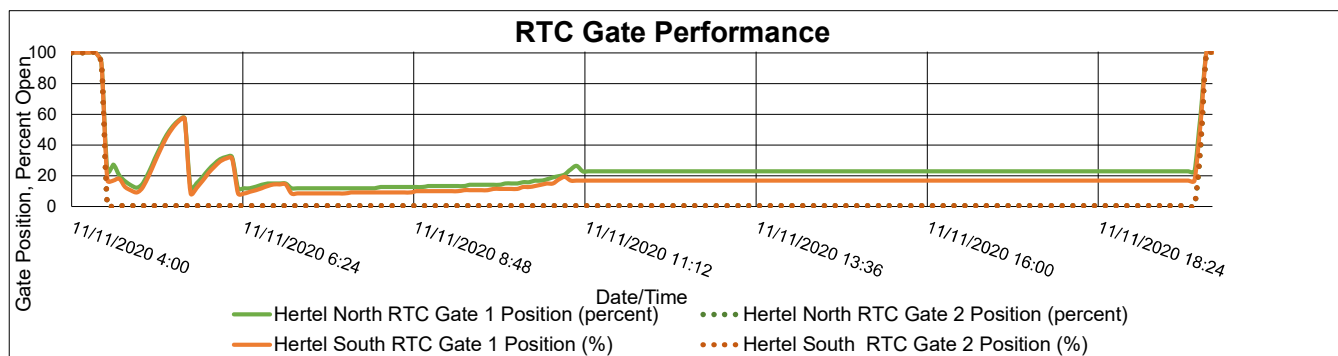
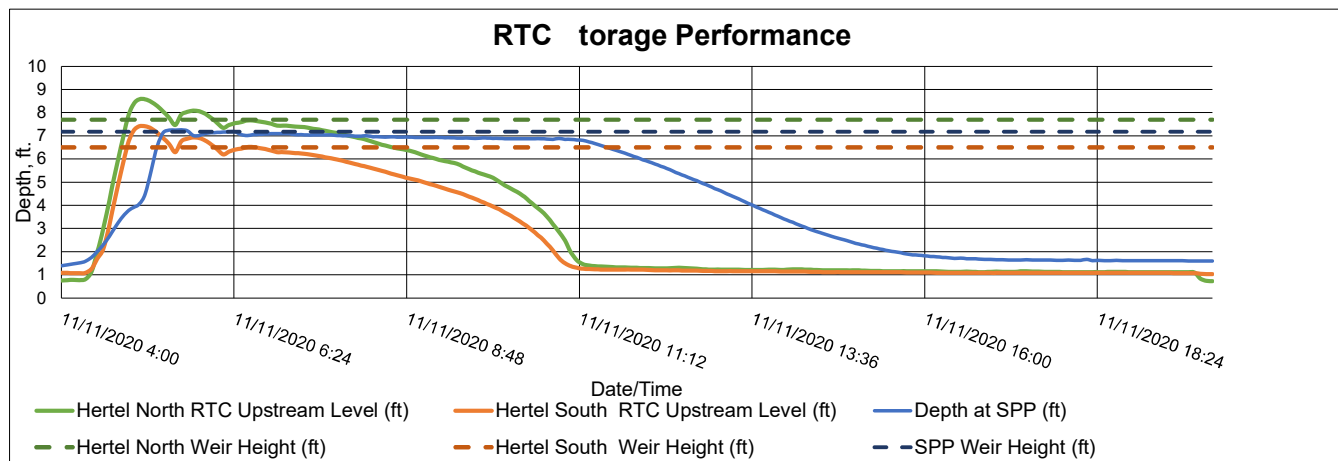
Site:	Hertel at Deer RTC
Time All Gates Active:	11/11/2020 4:20
Time All Gates Returned to Normal:	11/11/2020 19:55
Gate Activation Trigger Depth:	1.08 (South Side) ft.
Return to Normal Depth:	1.05 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,944,330 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/11/2020 4:20
Event End Date/Time:	11/11/2020 19:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.7 in.
Storm Event Duration:	16 hr.
Storm Type:	Less than one year

Percent Capture	96%
Overflow Volume:	145,280 Gal.
Overflow Volume Prevented:	3,944,330 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:



November 15, 2020

3

Site:	Hertel at Deer RTC
Time All Gates Active:	11/15/2020 15:35
Time All Gates Returned to Normal:	11/16/2020 1:55
Gate Activation Trigger Depth:	1.23 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	3.74 ft.
Volume Stored:	687,309 Gal.
Unused Storage Volume:	3,242,465 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/15/2020 15:35
Event End Date/Time:	11/16/2020 1:55

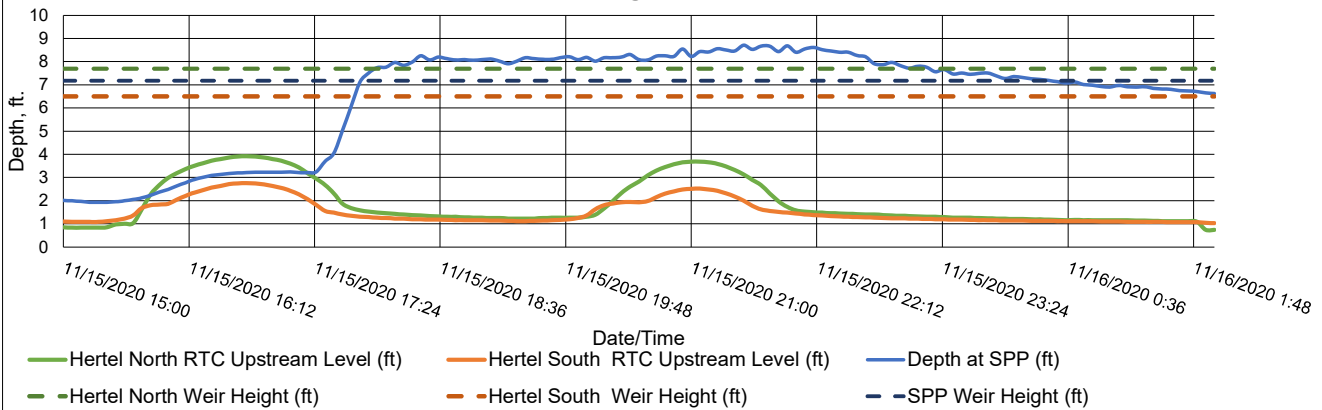
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.6 in.
Storm Event Duration:	11 hr.
Storm Type:	Less than one year

Percent Capture	0%
Overflow Volume:	160,979,407 Gal.
Overflow Volume Prevented:	687,309 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	160,979,407 Gal.
If No, could SPP activation have been prevented?	No

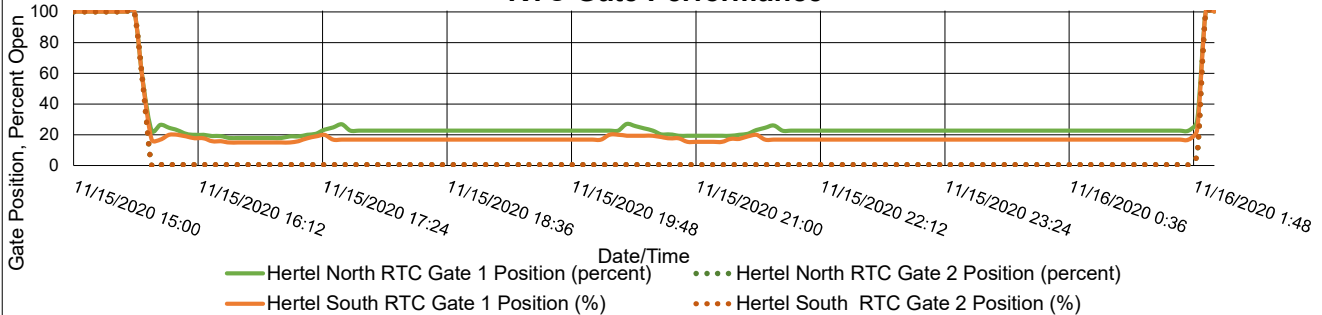
Recommended Operational Changes/Notes:

There is a high amount of uncertainty for the November 15, 2020 event overflow volume calculation due to a Lake Erie seiche event that caused a 7 ft increase in lake levels. The calculated volume of 161 MG is an order of magnitude higher than the volume seen during similar events. Events with similar upstream and downstream levels at the Hertel at Deer RTC site had overflow volumes less than 5 MG.

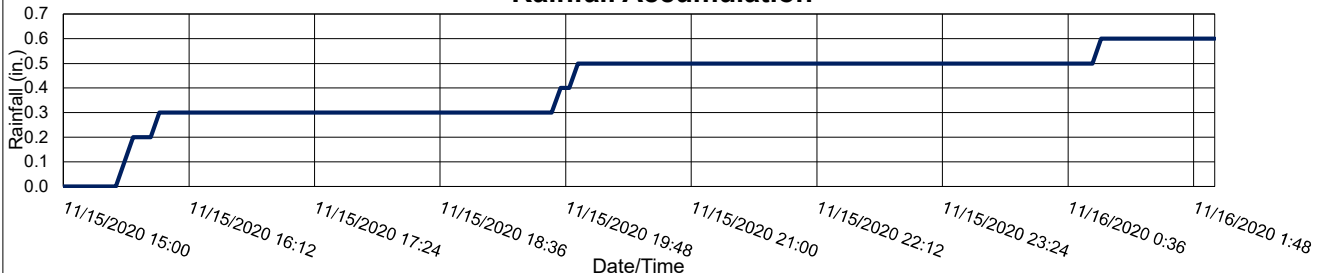
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



November 22, 2020

4

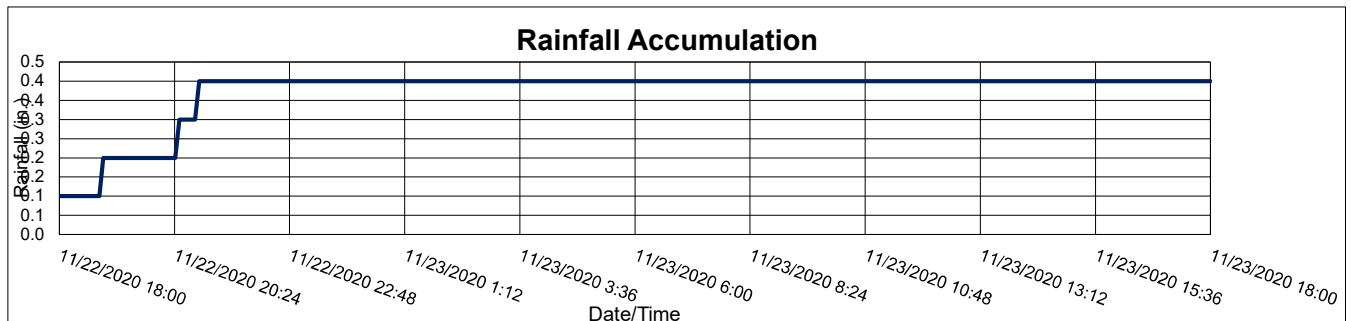
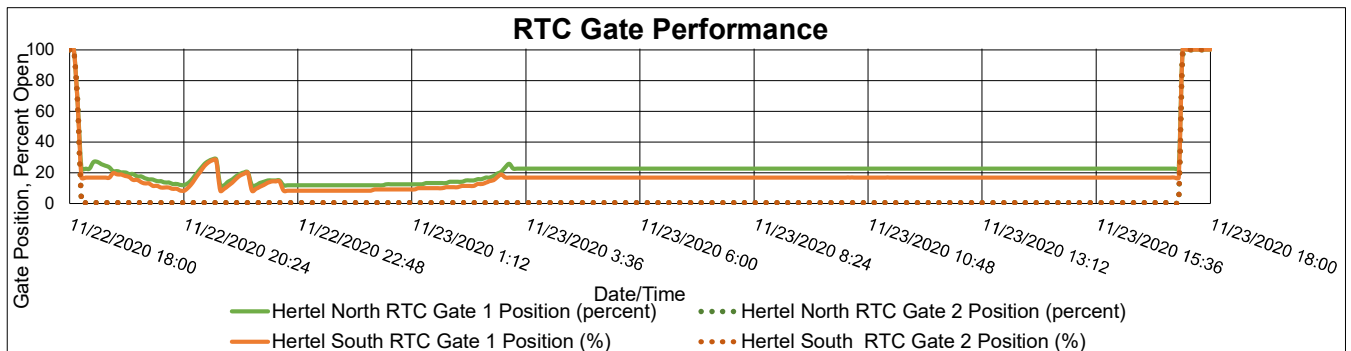
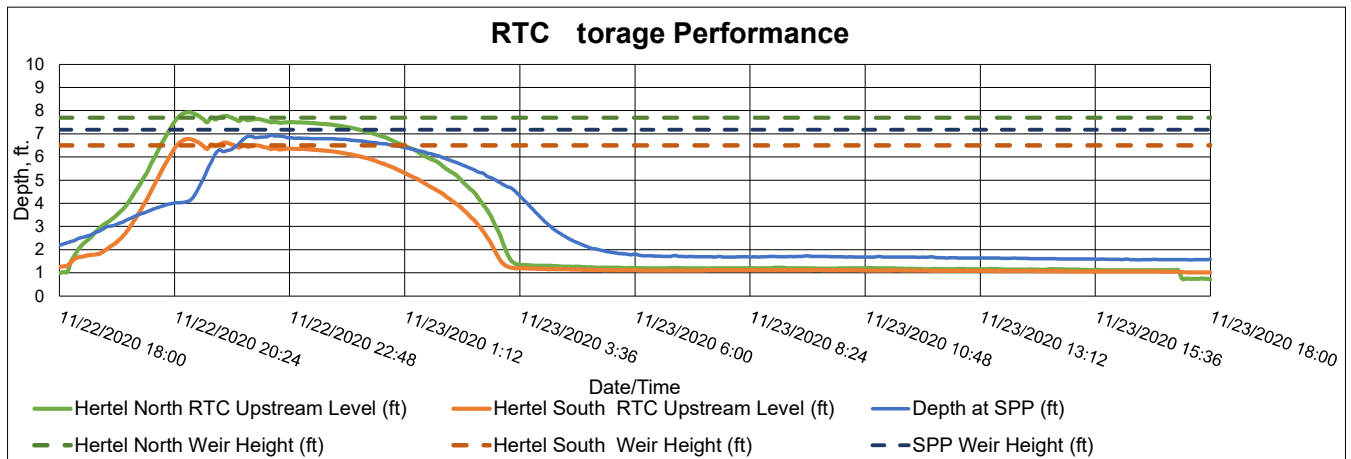
Site:	Hertel at Deer RTC
Time All Gates Active:	11/22/2020 18:05
Time All Gates Returned to Normal:	11/23/2020 17:25
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.05 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,925,365 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/22/2020 18:05
Event End Date/Time:	11/23/2020 17:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	24 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,925,365 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:



November 25, 2020

5

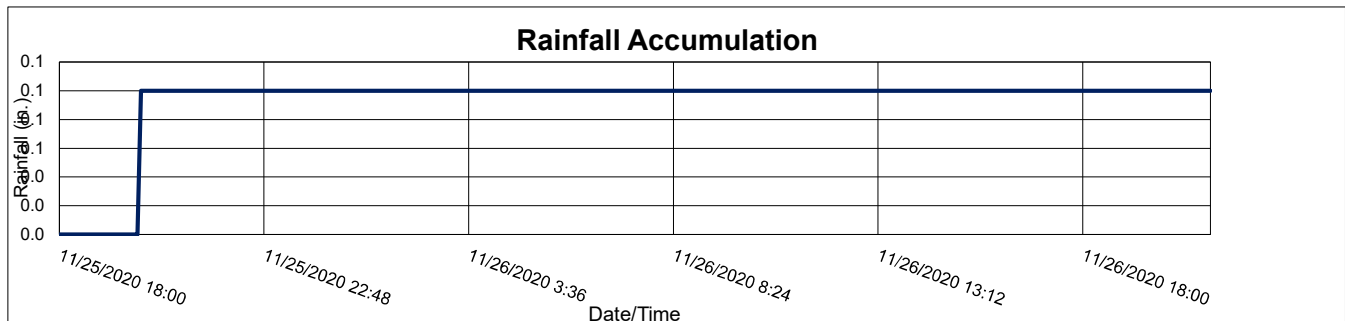
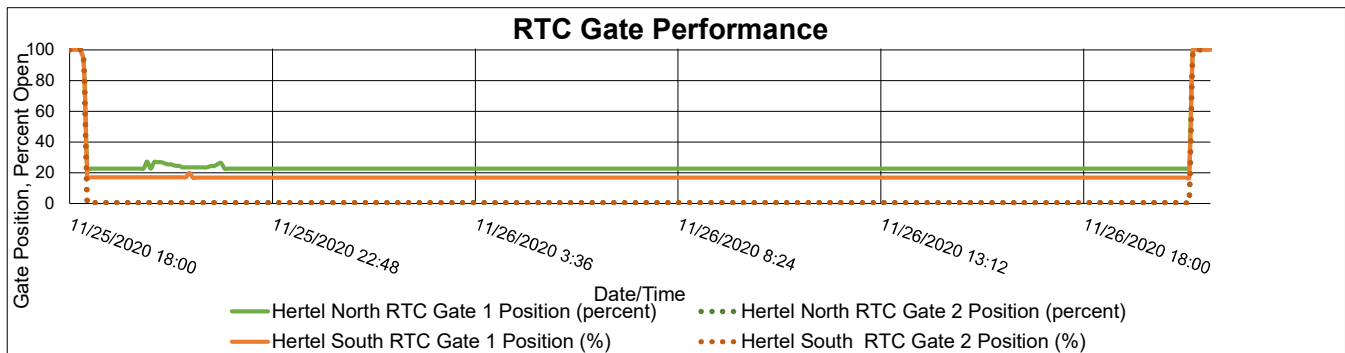
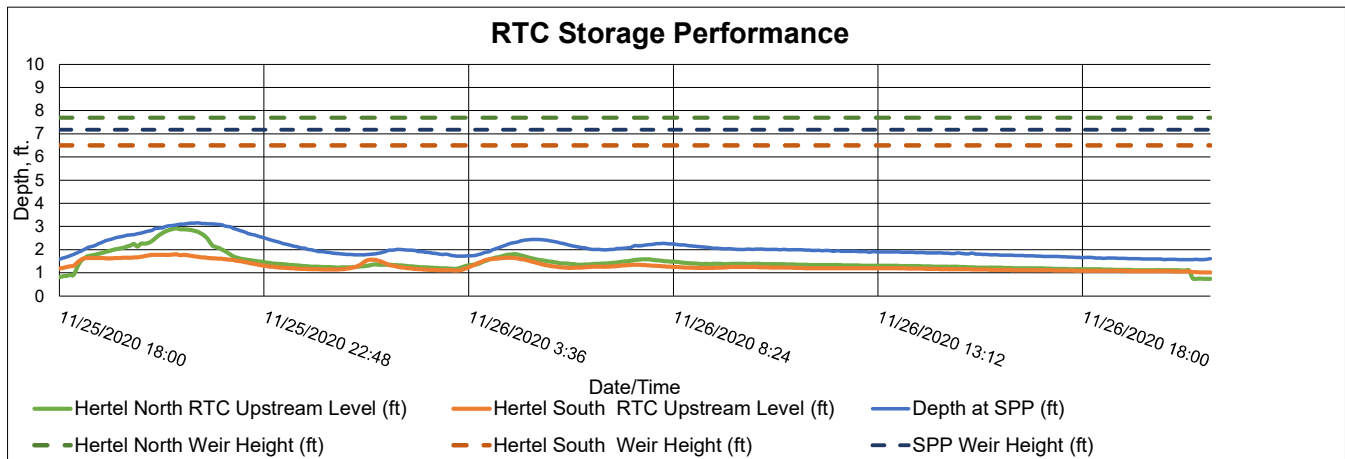
Site:	Hertel at Deer RTC
Time All Gates Active:	11/25/2020 18:15
Time All Gates Returned to Normal:	11/26/2020 20:35
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.06 (South Side) ft.
Minimum Distance to Top of Weir:	4.70 ft.
Volume Stored:	284,031 Gal.
Unused Storage Volume:	3,646,496 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/25/2020 18:15
Event End Date/Time:	11/26/2020 20:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	27 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	284,031 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:



November 30, 2020

6

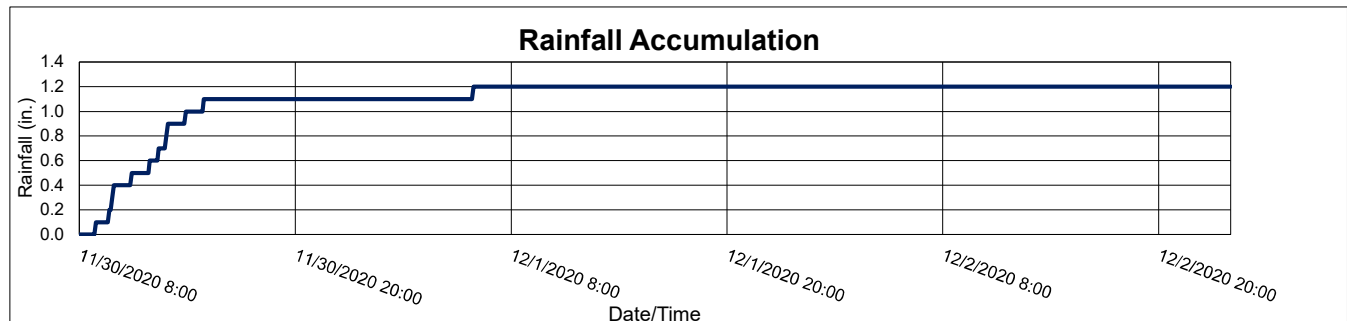
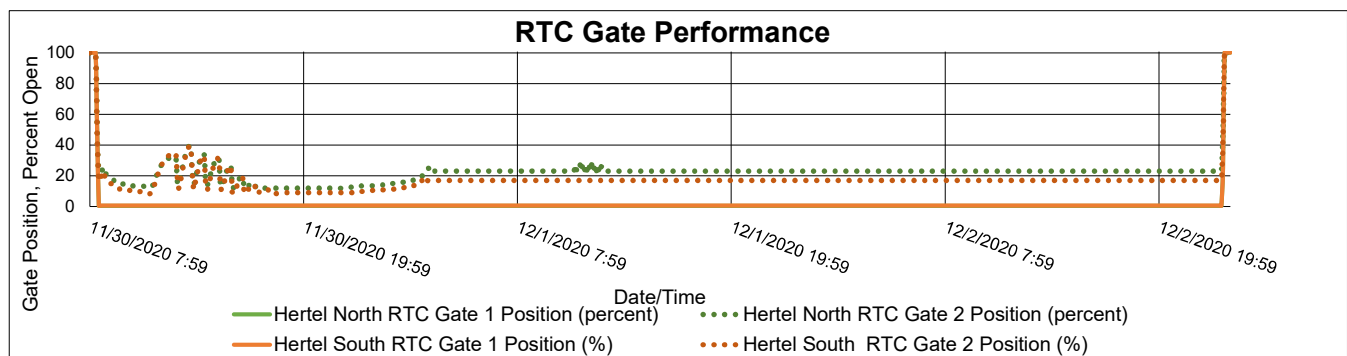
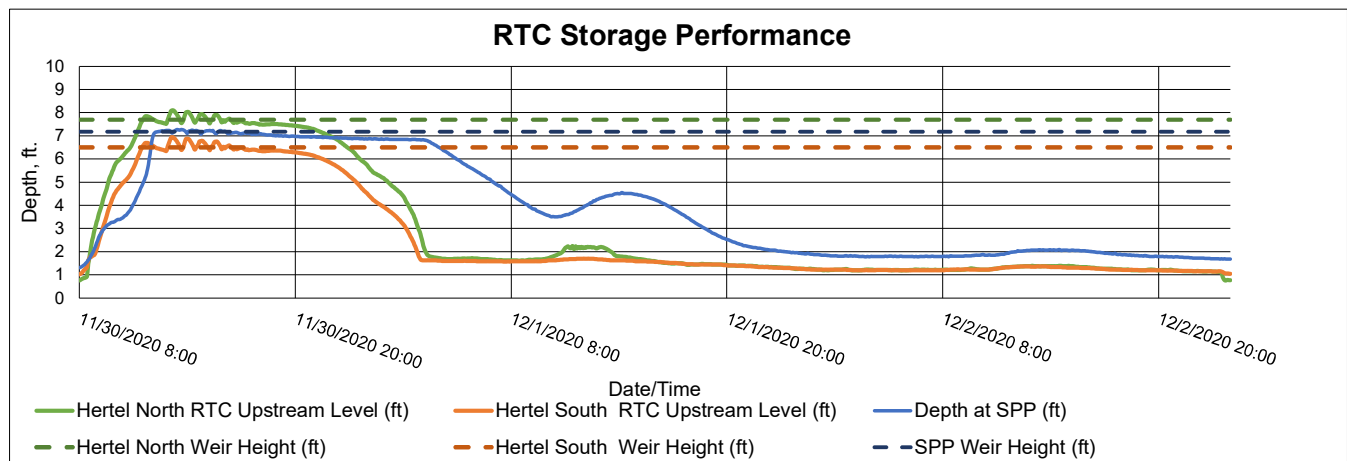
Site:	Hertel at Deer RTC
Time All Gates Active:	11/30/2020 8:20
Time All Gates Returned to Normal:	12/2/2020 23:40
Gate Activation Trigger Depth:	1.26 (South Side) ft.
Return to Normal Depth:	1.11 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,932,879 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	12/11/2020
Event Start Date/Time:	11/30/2020 8:20
Event End Date/Time:	12/2/2020 23:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.2 in.
Storm Event Duration:	64 hr.
Storm Type:	Less than one year

Percent Capture	84%
Overflow Volume:	746,881 Gal.
Overflow Volume Prevented:	3,932,879 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:



December 2020 Hertel at Deer RTC KPI Report

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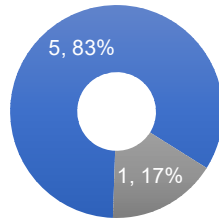
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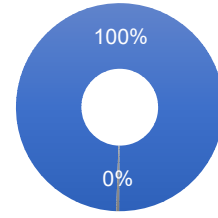
December 2020

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.)
5	1	15,800,363	69,487
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
12/4/2020	73,356	-	100%
12/9/2020	3,540,472	-	100%
12/12/2020	3,928,463	-	100%
12/21/2020	3,927,387	-	100%
12/24/2020	404,109	-	100%
12/28/2020	3,926,576	69,487	98%

December 4, 2020

1

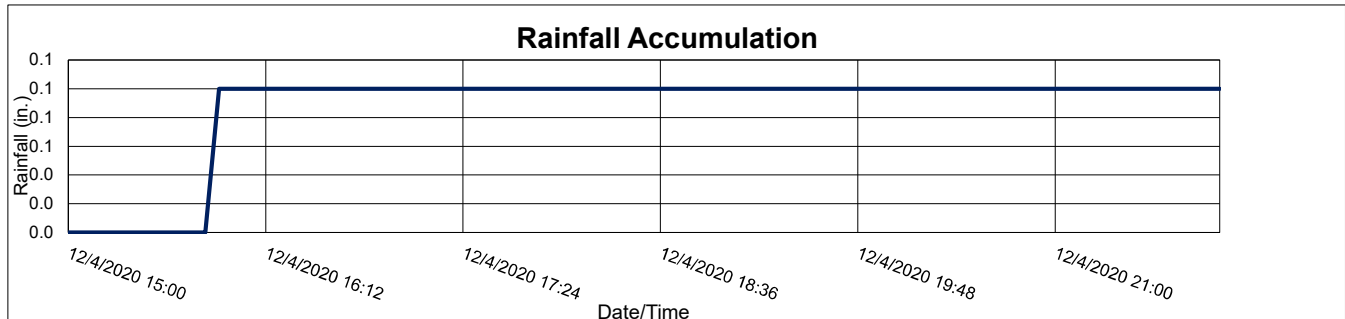
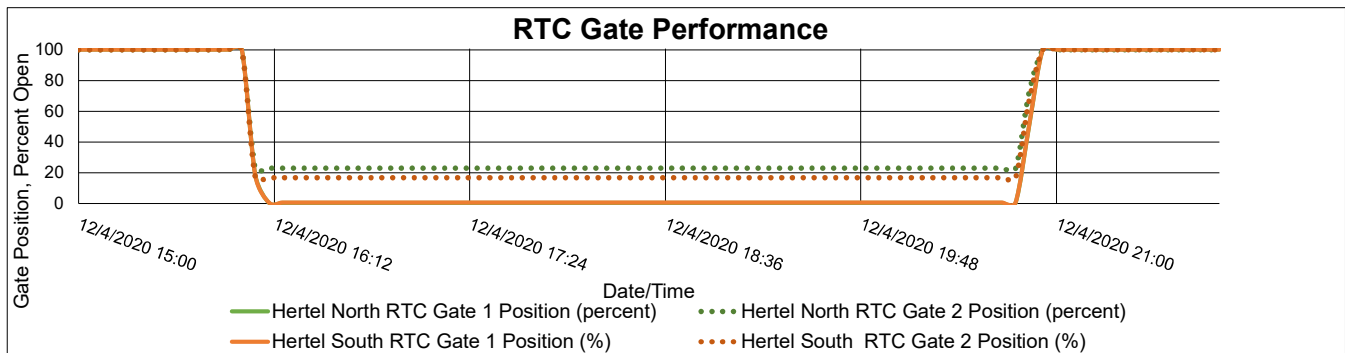
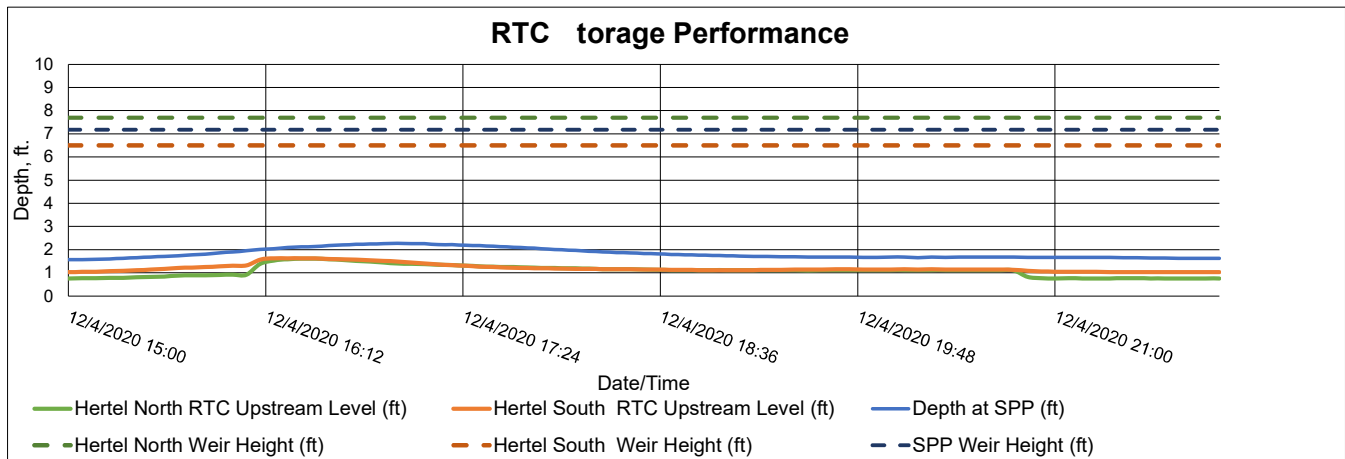
Site:	Hertel at Deer RTC
Time All Gates Active:	12/4/2020 16:00
Time All Gates Returned to Normal:	12/4/2020 20:55
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.09 (South Side) ft.
Minimum Distance to Top of Weir:	4.87 ft.
Volume Stored:	73,356 Gal.
Unused Storage Volume:	3,855,502 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/4/2020 16:00
Event End Date/Time:	12/4/2020 20:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	73,356 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:



December 9, 2020

2

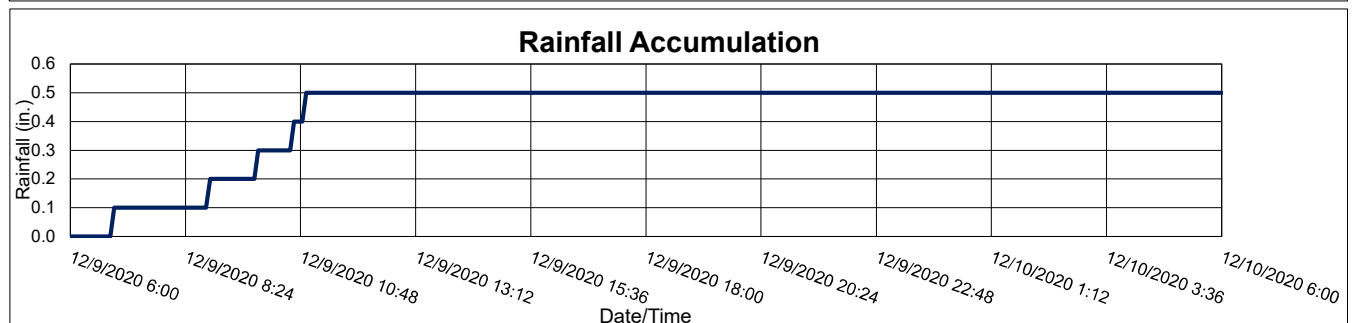
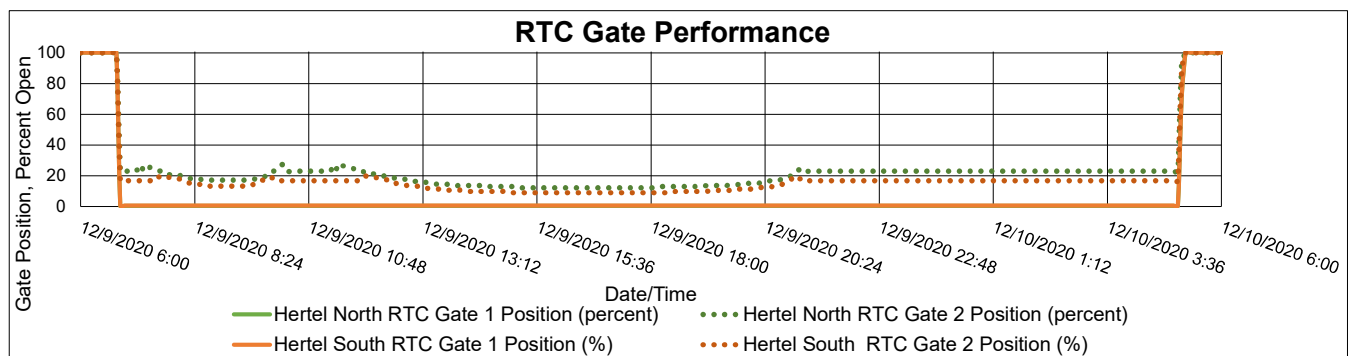
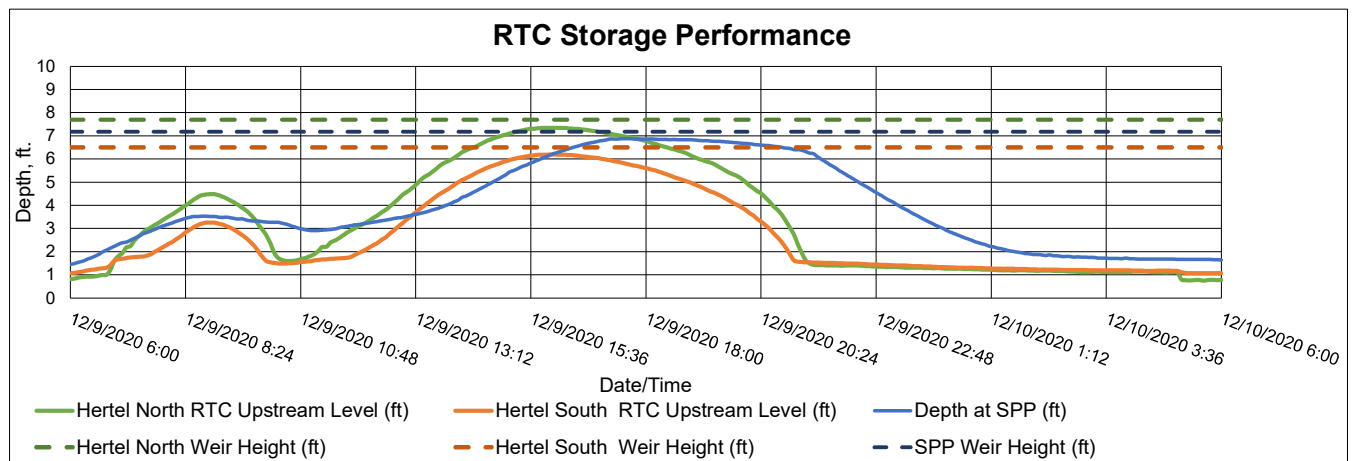
Site:	Hertel at Deer RTC
Time All Gates Active:	12/9/2020 6:45
Time All Gates Returned to Normal:	12/10/2020 5:15
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.11 (South Side) ft.
Minimum Distance to Top of Weir:	0.30 ft.
Volume Stored:	3,540,472 Gal.
Unused Storage Volume:	385,008 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/9/2020 6:45
Event End Date/Time:	12/10/2020 5:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	24 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,540,472 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:



December 12, 2020

3

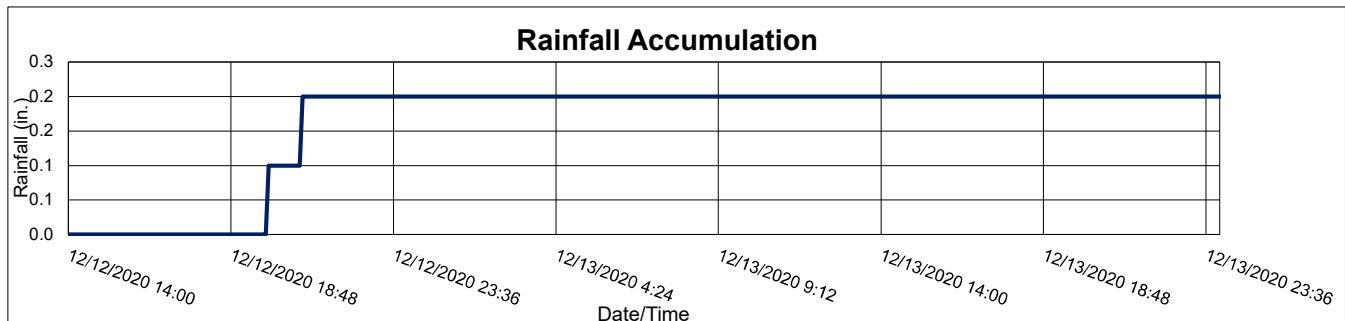
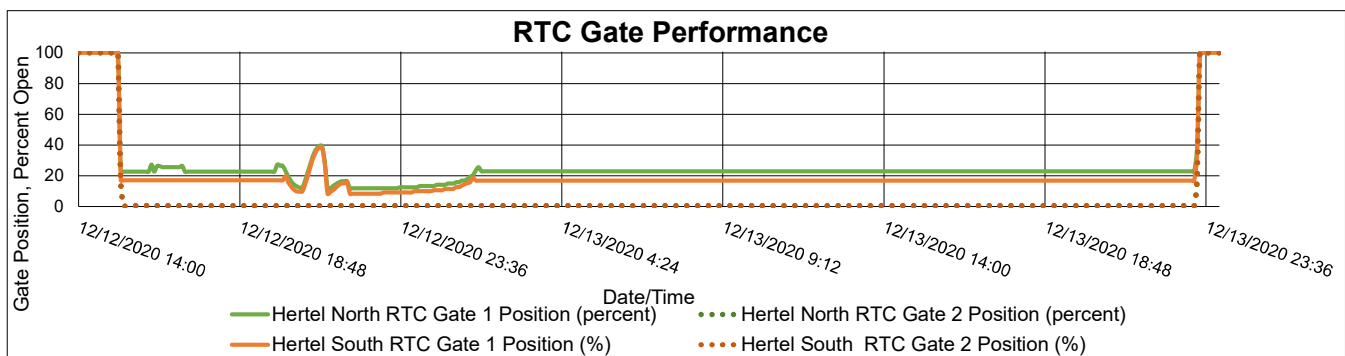
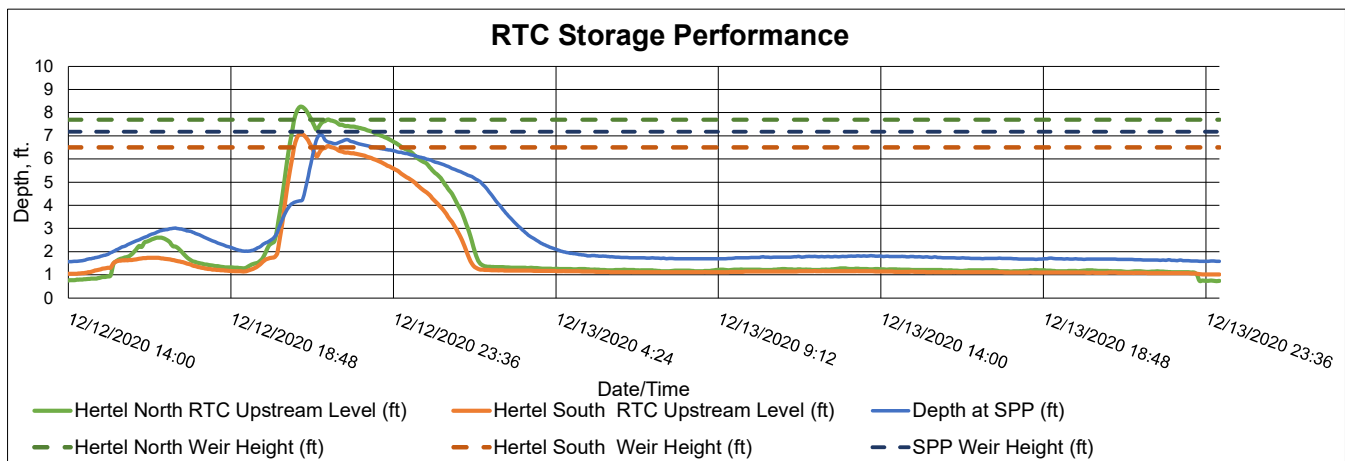
Site:	Hertel at Deer RTC
Time All Gates Active:	12/12/2020 15:10
Time All Gates Returned to Normal:	12/13/2020 23:25
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.05 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,928,463 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/12/2020 15:10
Event End Date/Time:	12/13/2020 23:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	34 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,928,463 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:



December 21, 2020

4

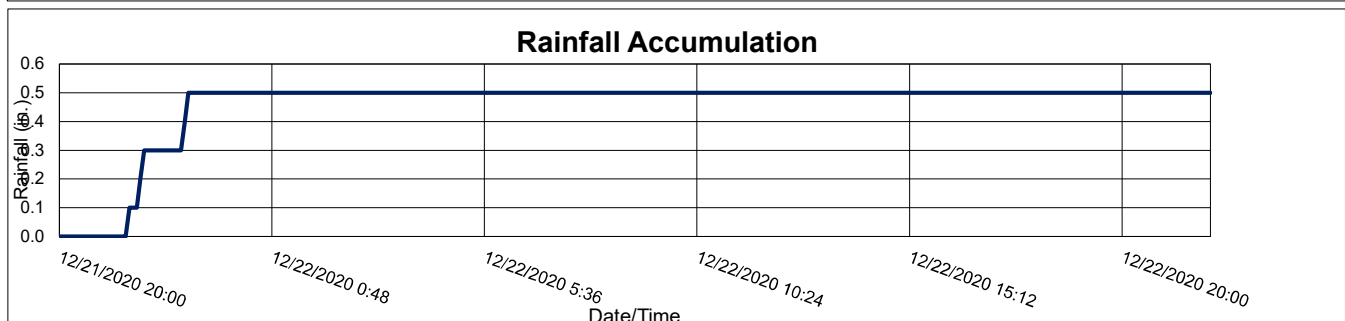
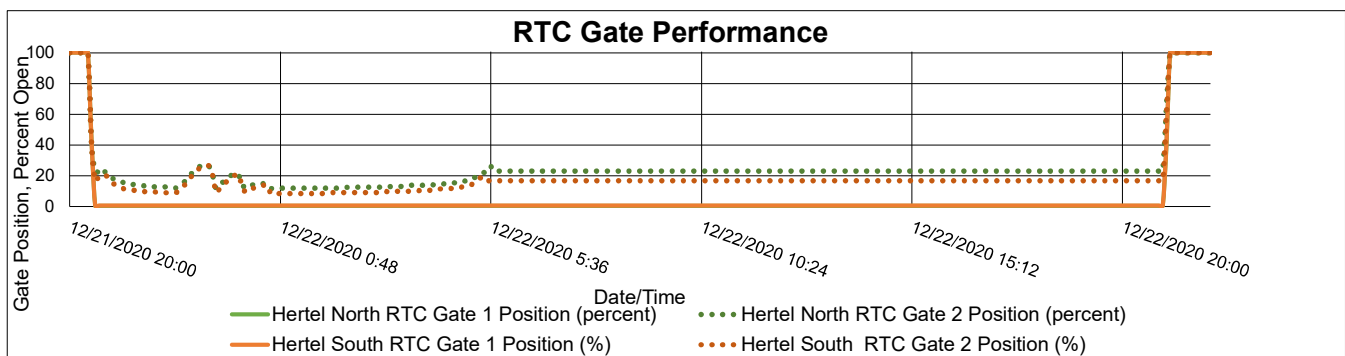
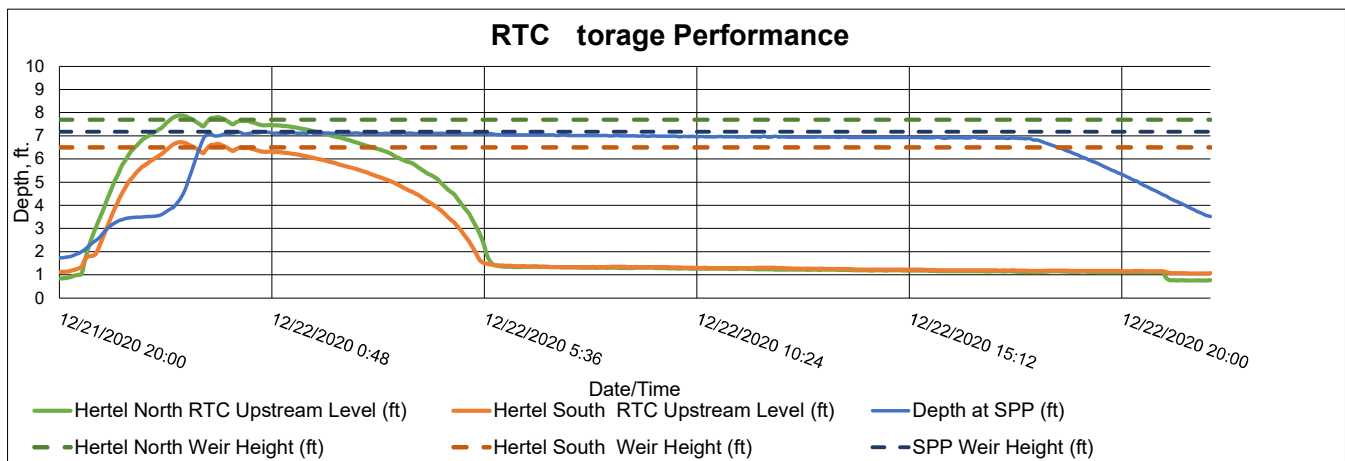
Site:	Hertel at Deer RTC
Time All Gates Active:	12/21/2020 20:25
Time All Gates Returned to Normal:	12/22/2020 21:05
Gate Activation Trigger Depth:	1.27 (South Side) ft.
Return to Normal Depth:	1.11 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,927,387 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/21/2020 20:25
Event End Date/Time:	12/22/2020 21:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	26 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,927,387 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:



December 24, 2020

5

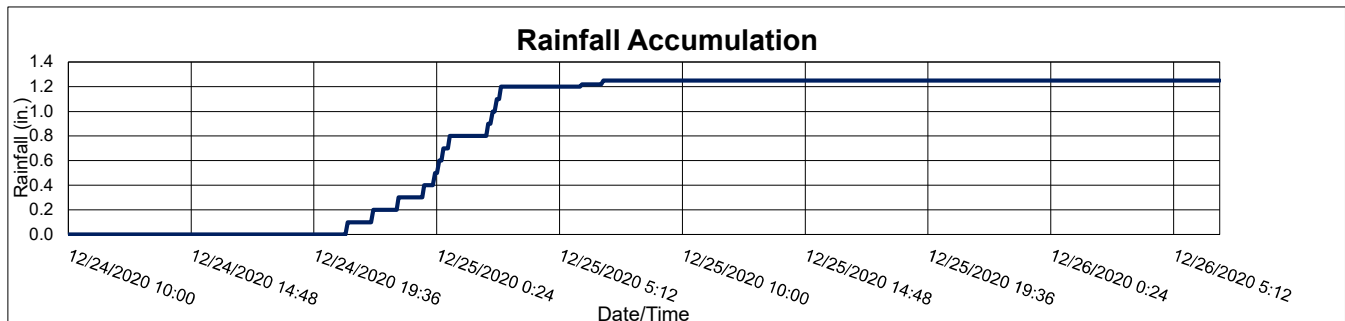
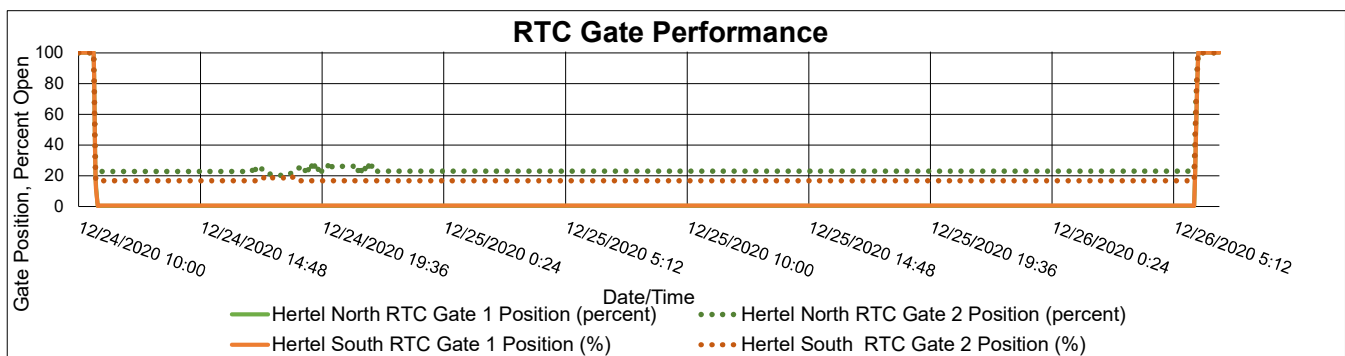
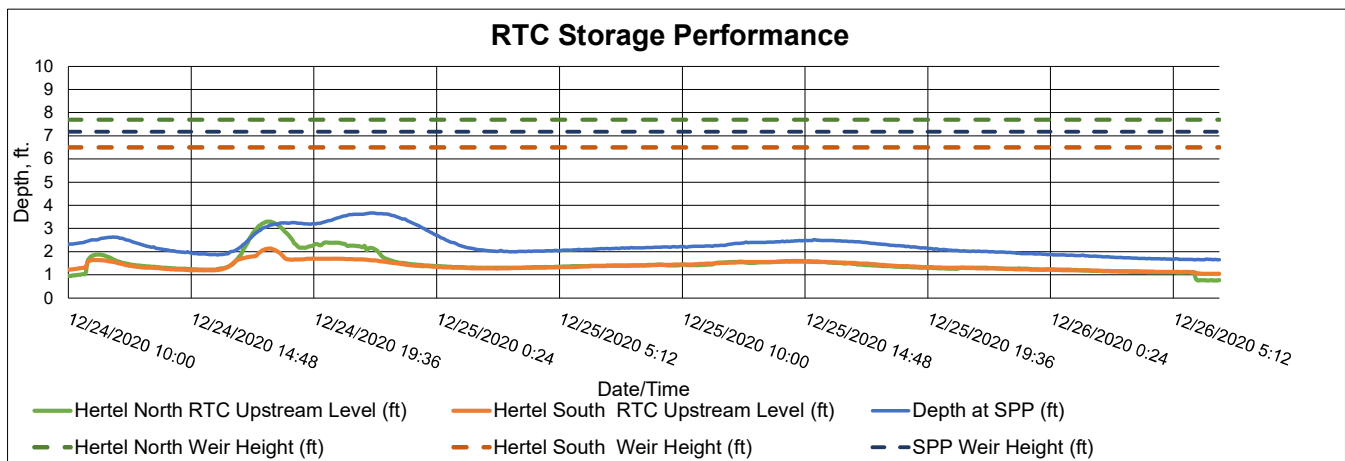
Site:	Hertel at Deer RTC
Time All Gates Active:	12/24/2020 10:35
Time All Gates Returned to Normal:	12/26/2020 6:10
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	4.37 ft.
Volume Stored:	404,109 Gal.
Unused Storage Volume:	3,519,973 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/24/2020 10:35
Event End Date/Time:	12/26/2020 6:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.25 in.
Storm Event Duration:	45 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	404,109 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:



December 28, 2020

6

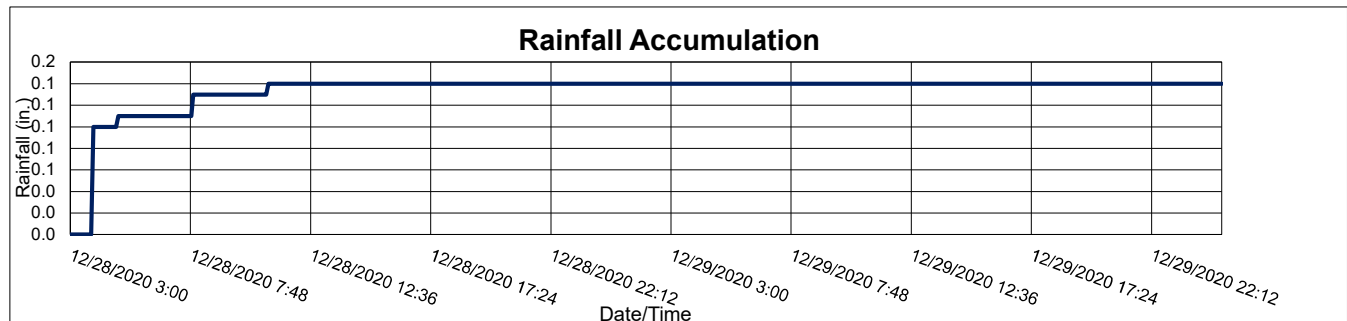
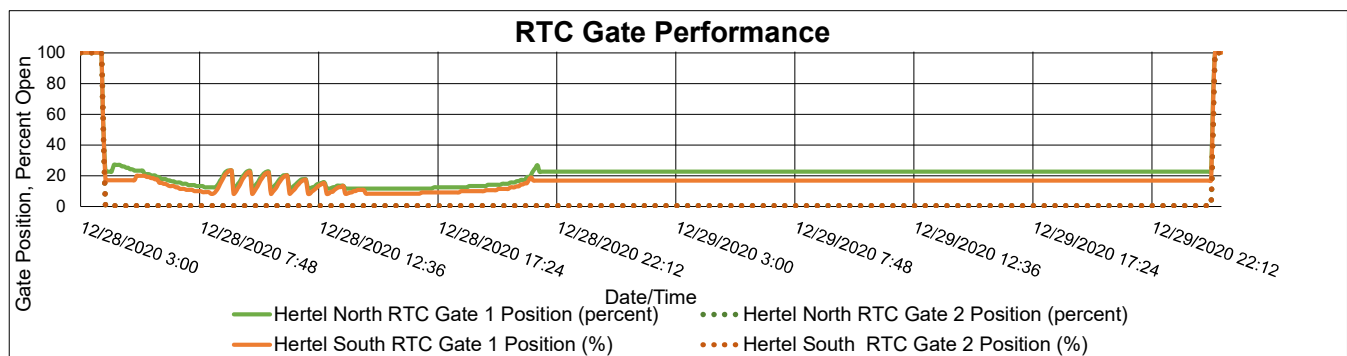
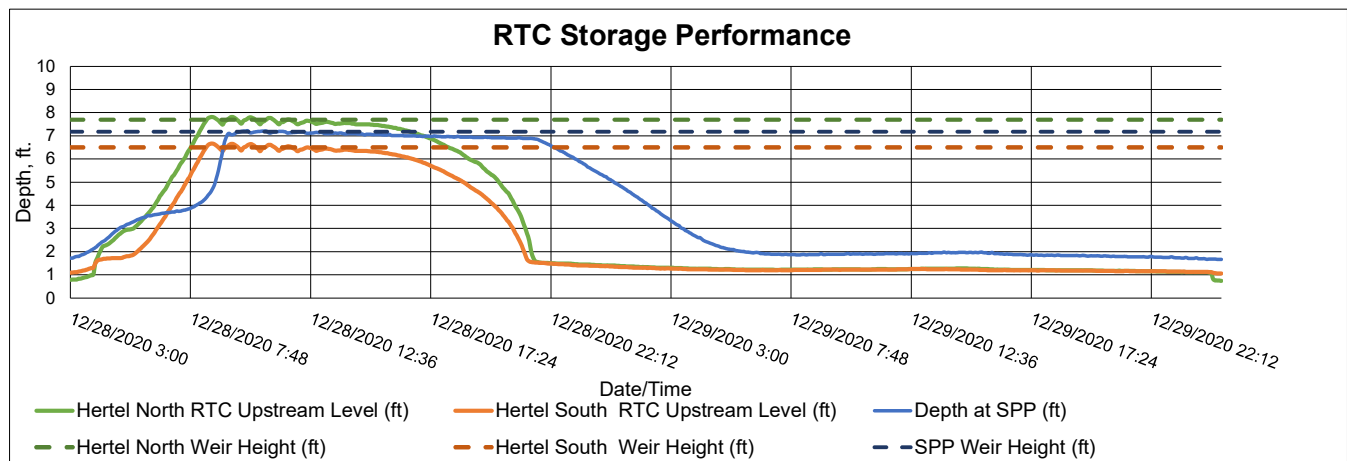
Site:	Hertel at Deer RTC
Time All Gates Active:	12/28/2020 3:50
Time All Gates Returned to Normal:	12/30/2020 0:45
Gate Activation Trigger Depth:	1.29 (South Side) ft.
Return to Normal Depth:	1.09 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,926,576 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	1/5/2021
Event Start Date/Time:	12/28/2020 3:50
Event End Date/Time:	12/30/2020 0:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.14 in.
Storm Event Duration:	46 hr.
Storm Type:	Less than one year

Percent Capture	98%
Overflow Volume:	69,487 Gal.
Overflow Volume Prevented:	3,926,576 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:



January 2021 Hertel at Deer RTC KPI Report

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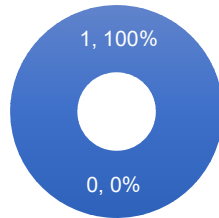
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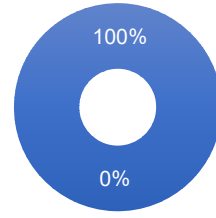
January 2021

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.)
1	0	181,768	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
1/15/2021	181,768	-	100%

January 15, 2020

1

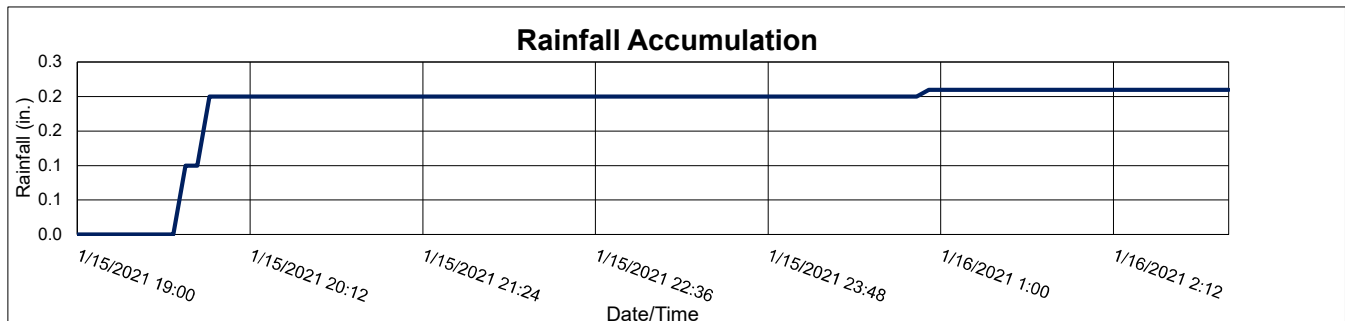
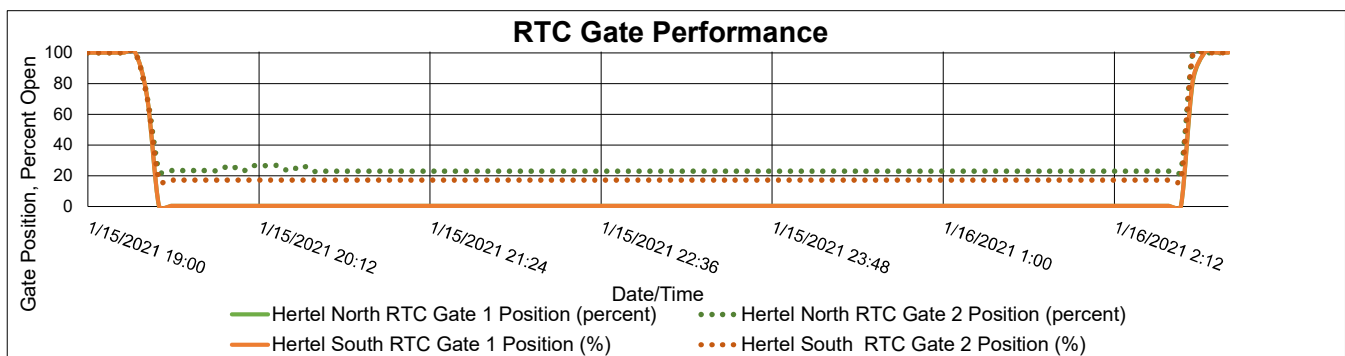
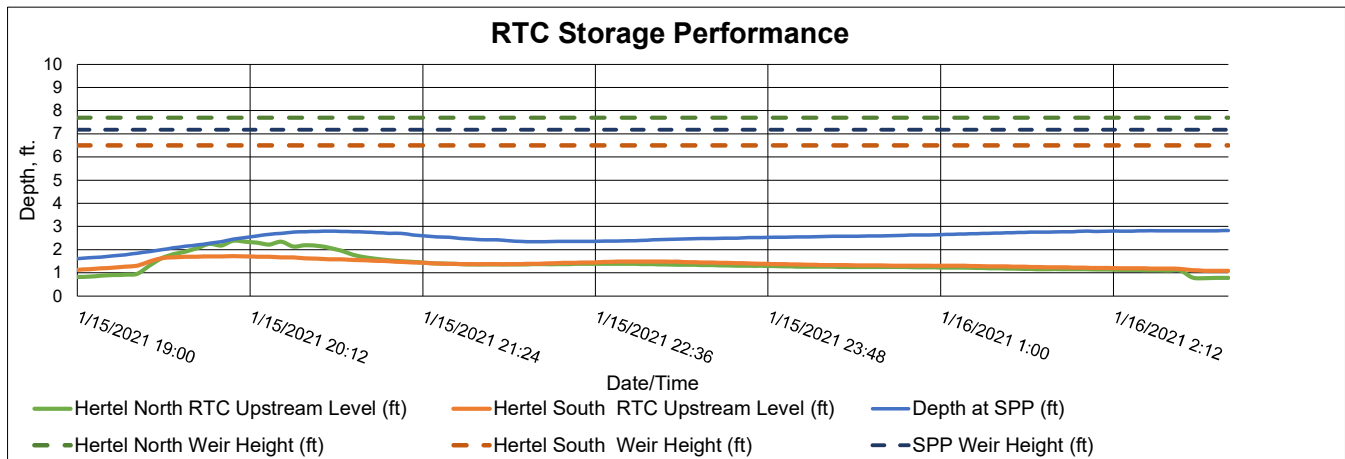
Site:	Hertel at Deer RTC
Time All Gates Active:	1/15/2021 19:20
Time All Gates Returned to Normal:	1/16/2021 2:50
Gate Activation Trigger Depth:	1.27 (South Side) ft.
Return to Normal Depth:	1.12 (South Side) ft.
Minimum Distance to Top of Weir:	4.78 ft.
Volume Stored:	181,768 Gal.
Unused Storage Volume:	3,748,997 Gal.

Analysis Date:	2/11/2021
Event Start Date/Time:	1/15/2021 19:20
Event End Date/Time:	1/16/2021 2:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.21 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	181,768 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:



February 2021 Hertel at Deer RTC KPI Report

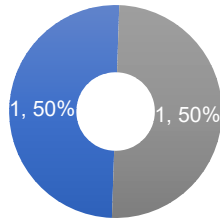
BUFFALO
SEWER AUTHORITY



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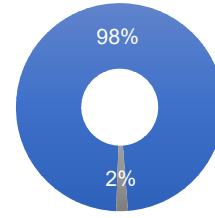
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Prevented SPP Events



■ 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.)
1	1	7,863,006	145,036
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
2/24/2021	3,928,933	145,036	96%
2/27/2021	3,934,073	-	100%

February 24, 2021

1

Site:	Hertel at Deer RTC
Time All Gates Active:	2/24/2021 11:40
Time All Gates Returned to Normal:	2/26/2021 5:45
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.10 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,928,933 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	3/12/2021
Event Start Date/Time:	2/24/2021 11:40
Event End Date/Time:	2/26/2021 5:45

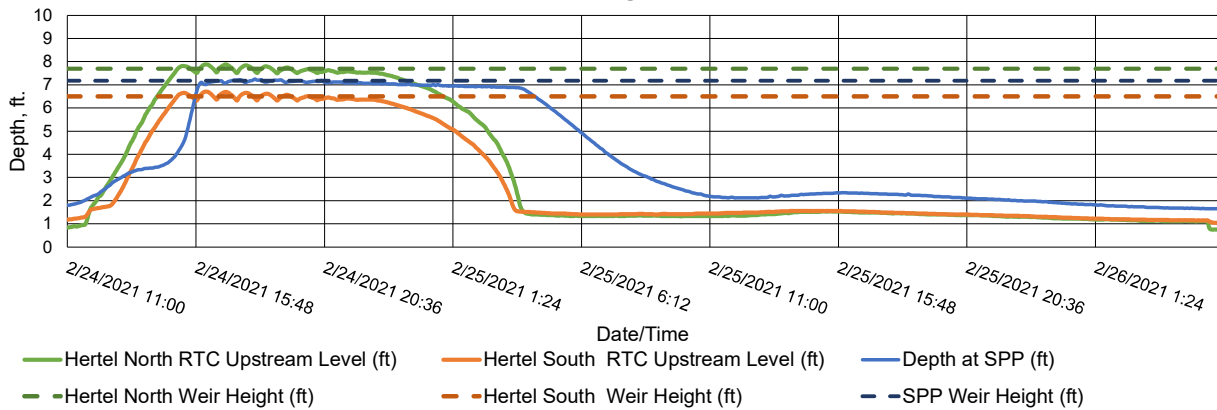
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	43 hr.
Storm Type:	NA

Percent Capture	96%
Overflow Volume:	145,036 Gal.
Overflow Volume Prevented:	3,928,933 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

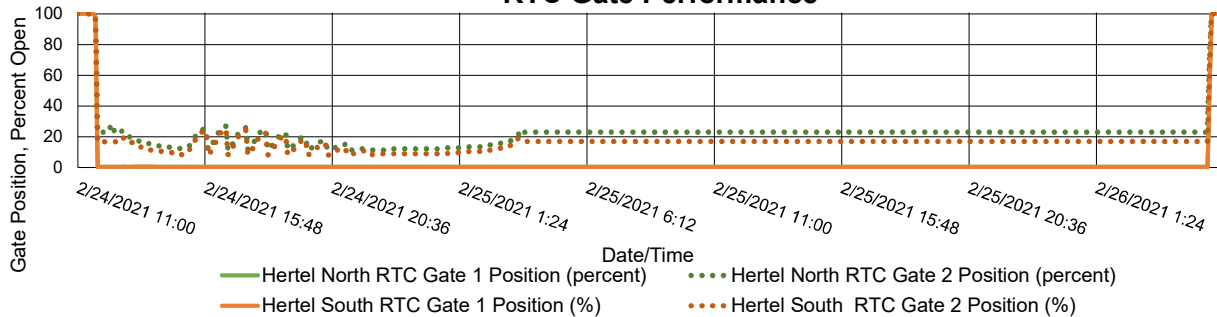
Recommended Operational Changes/Notes:

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

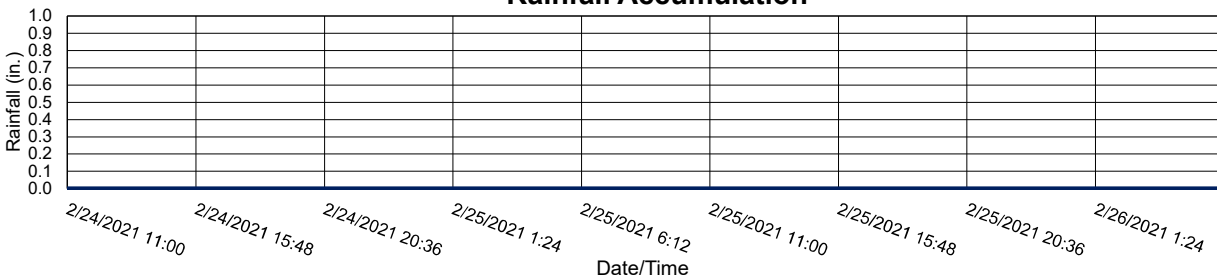
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



February 27, 2021

2

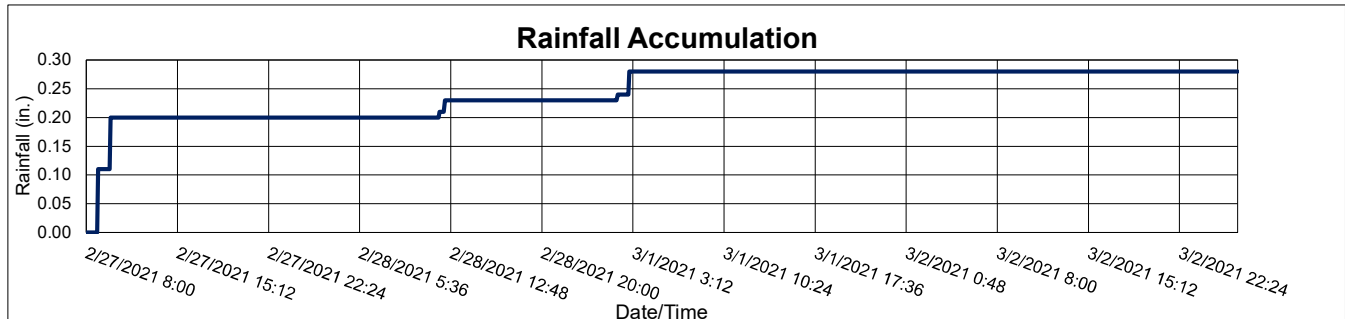
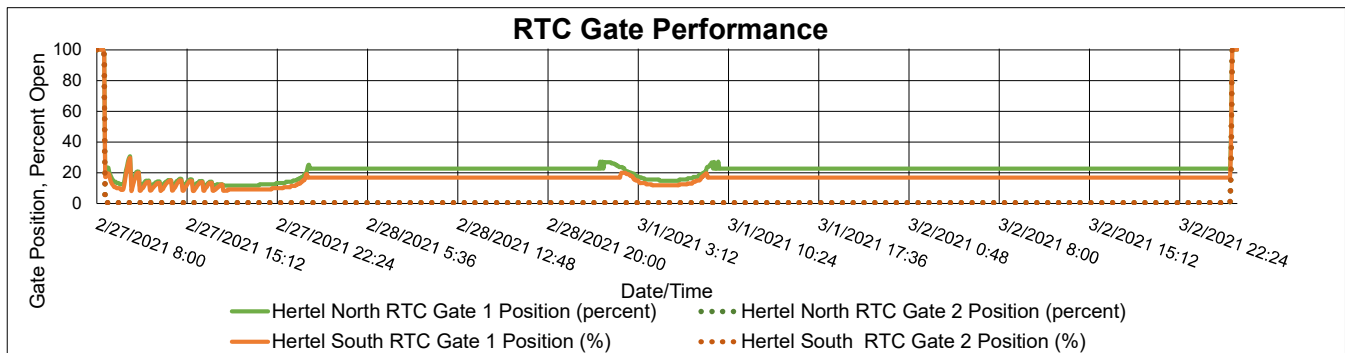
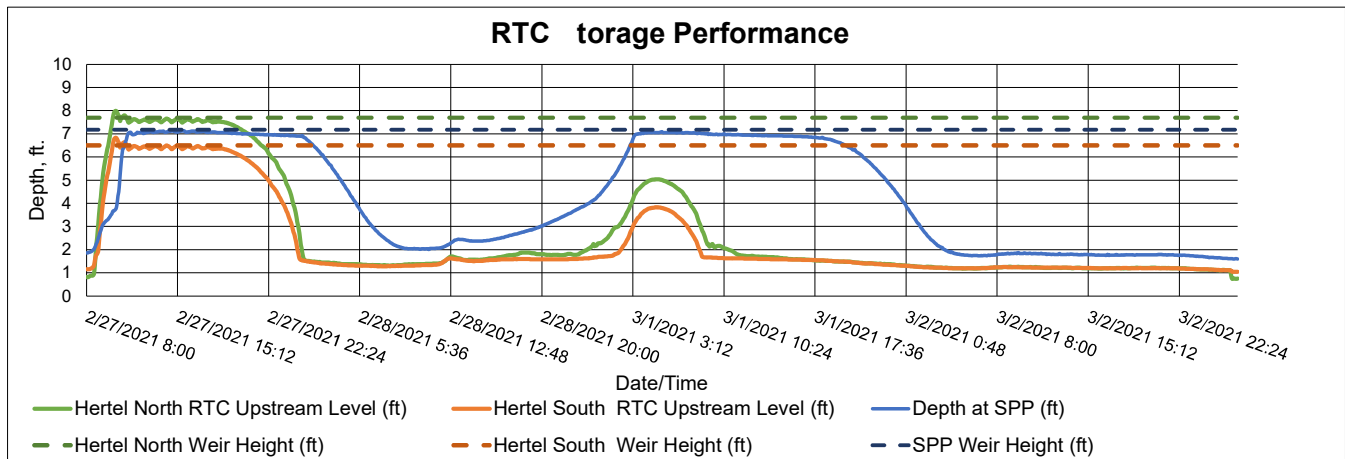
Site:	Hertel at Deer RTC
Time All Gates Active:	2/27/2021 8:35
Time All Gates Returned to Normal:	3/3/2021 2:35
Gate Activation Trigger Depth:	1.24 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,934,073 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	3/12/2021
Event Start Date/Time:	2/27/2021 8:35
Event End Date/Time:	3/3/2021 2:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.28 in.
Storm Event Duration:	91 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,934,073 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:



March 2021 Hertel at Deer RTC KPI Report

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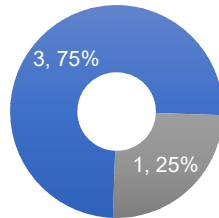
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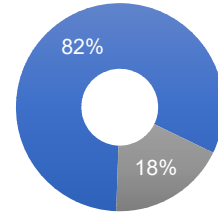
March 2021

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.)
3	1	10,735,335	2,410,520
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
3/11/2021	2,875,252	-	100%
3/26/2021	3,932,772	2,410,520	62%
3/28/2021	3,925,043	-	100%
3/31/2021	2,268	-	100%

March 11, 2021

1

Site:	Hertel at Deer RTC
Time All Gates Active:	3/11/2021 20:55
Time All Gates Returned to Normal:	3/12/2021 6:05
Gate Activation Trigger Depth:	1.13 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	0.92 ft.
Volume Stored:	2,875,252 Gal.
Unused Storage Volume:	1,062,286 Gal.

Analysis Date:	4/12/2021
Event Start Date/Time:	3/11/2021 20:55
Event End Date/Time:	3/12/2021 6:05

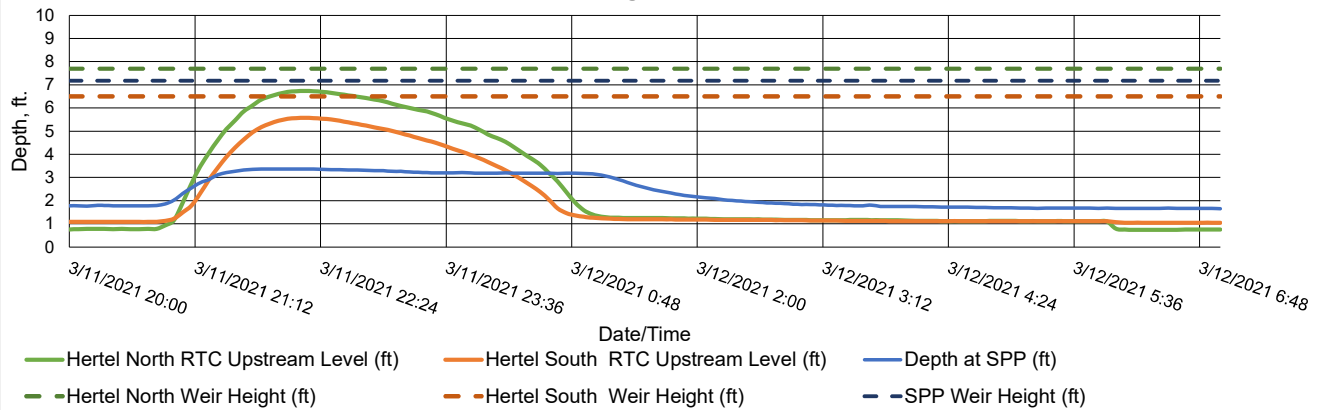
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	11 hr.
Storm Type:	NA

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	2,875,252 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

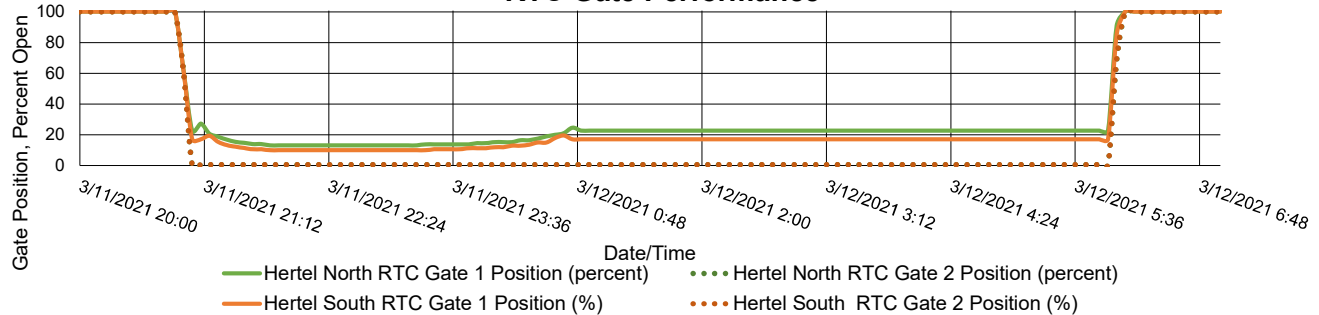
Recommended Operational Changes/Notes:

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

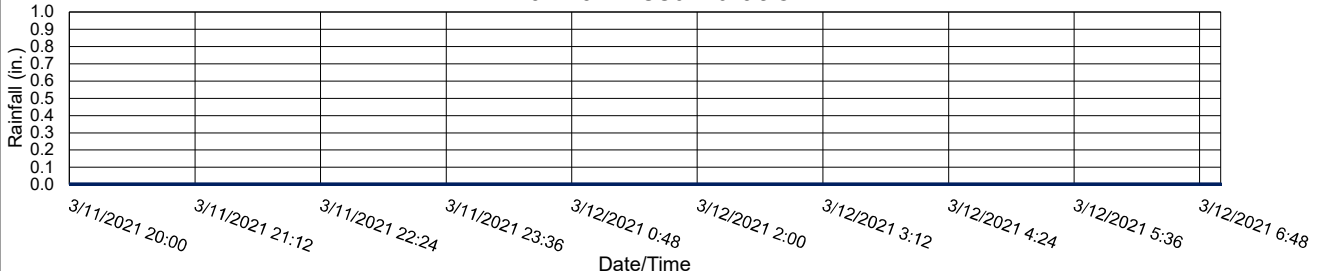
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



arch 26, 2021

2

Site:	Hertel at Deer RTC
Time All Gates Active:	3/26/2021 3:05
Time All Gates Returned to Normal:	3/27/2021 2:25
Gate Activation Trigger Depth:	1.20 (South Side) ft.
Return to Normal Depth:	1.09 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,932,772 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	4/12/2021
Event Start Date/Time:	3/26/2021 3:05
Event End Date/Time:	3/27/2021 2:25

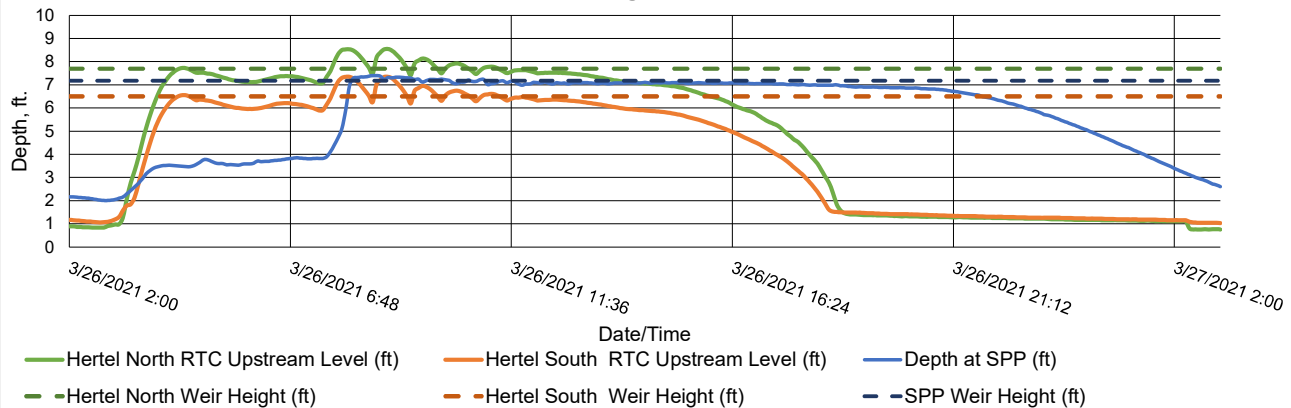
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	25 hr.
Storm Type:	NA

Percent Capture	62%
Overflow Volume:	2,410,520 Gal.
Overflow Volume Prevented:	3,932,772 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

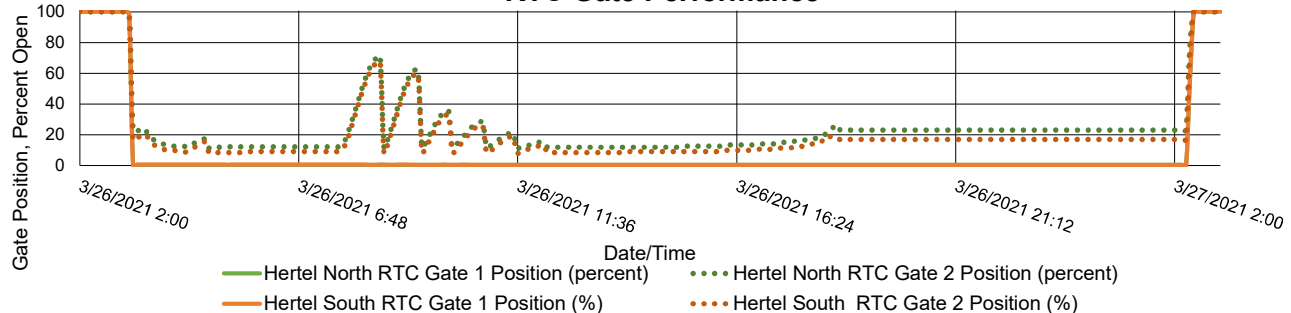
Recommended Operational Changes/Notes:

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

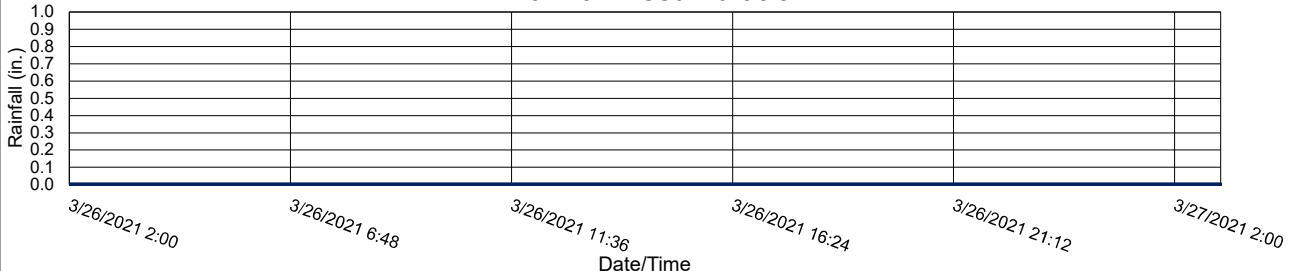
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



March 28, 2021

3

Site:	Hertel at Deer RTC
Time All Gates Active:	3/28/2021 10:05
Time All Gates Returned to Normal:	3/29/2021 4:50
Gate Activation Trigger Depth:	1.32 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,925,043 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	4/12/2021
Event Start Date/Time:	3/28/2021 10:05
Event End Date/Time:	3/29/2021 4:50

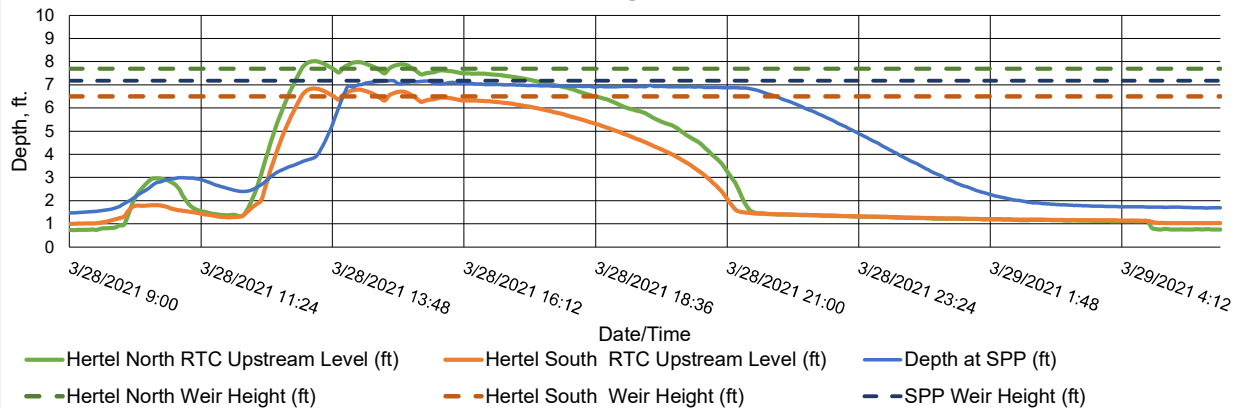
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	21 hr.
Storm Type:	NA

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,925,043 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

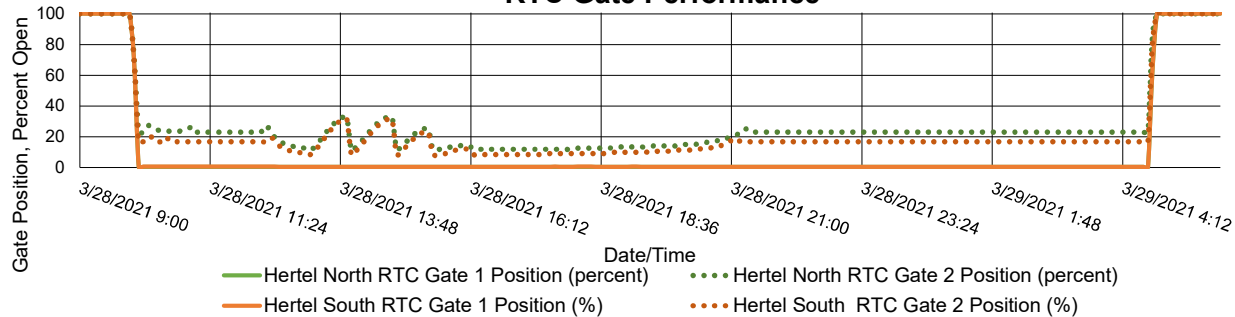
Recommended Operational Changes/Notes:

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

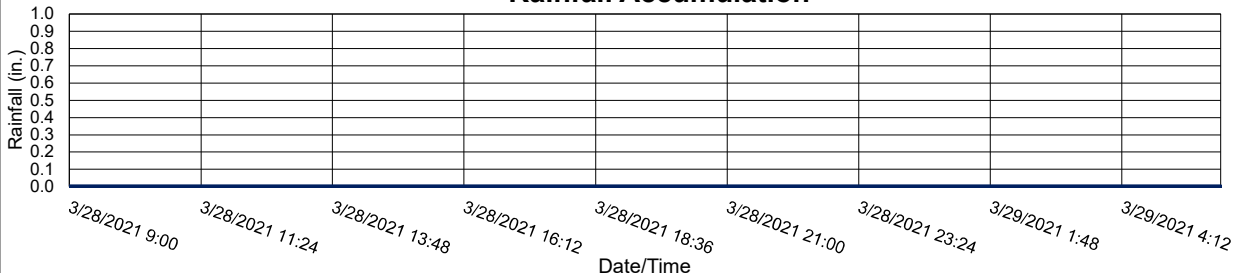
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



March 31, 2021

4

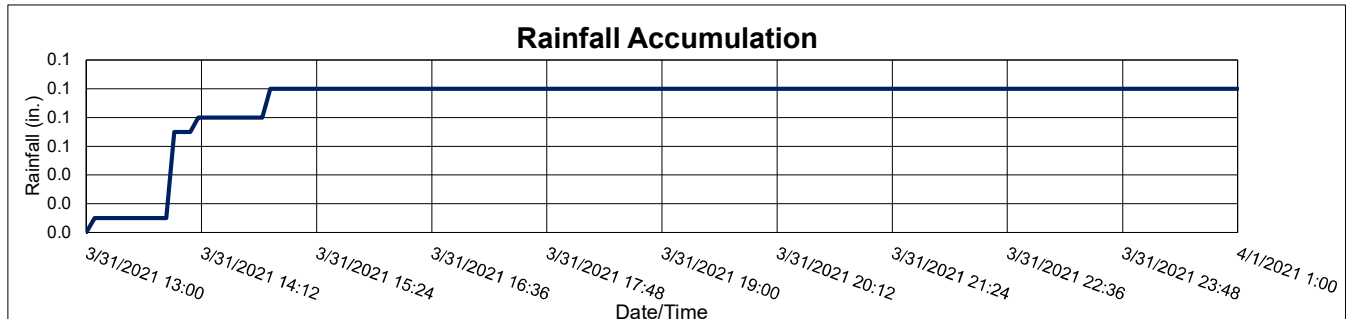
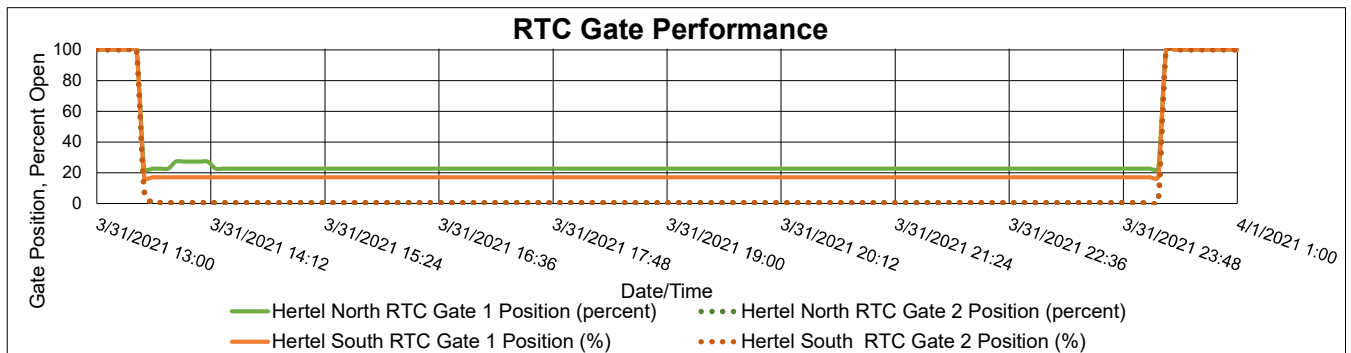
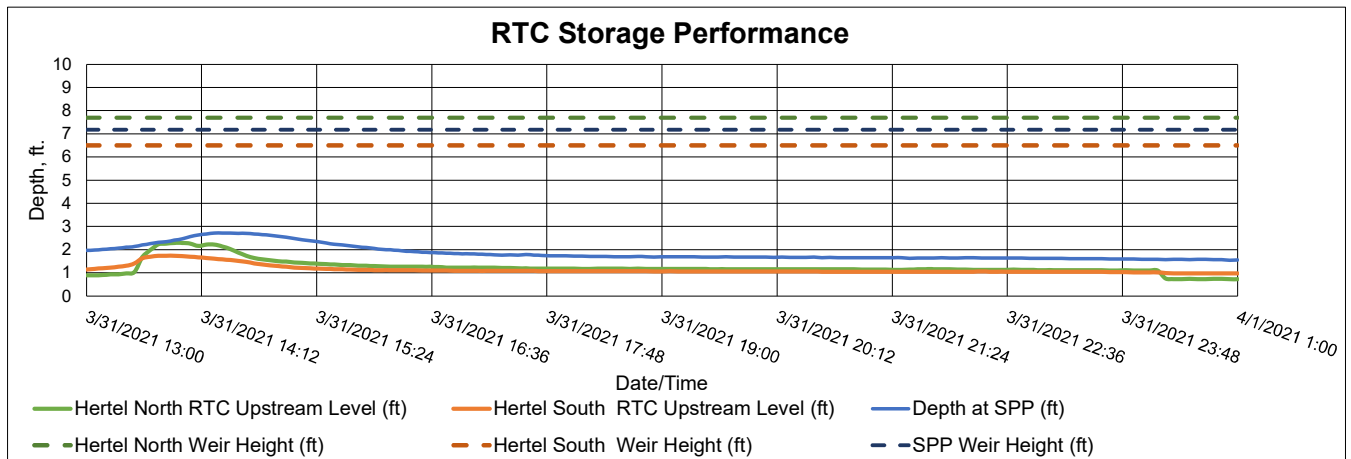
Site:	Hertel at Deer RTC
Time All Gates Active:	3/31/2021 14:05
Time All Gates Returned to Normal:	4/1/2021 0:15
Gate Activation Trigger Depth:	1.72 (South Side) ft.
Return to Normal Depth:	1.02 (South Side) ft.
Minimum Distance to Top of Weir:	4.76 ft.
Volume Stored:	2,268 Gal.
Unused Storage Volume:	3,761,825 Gal.

Analysis Date:	4/12/2021
Event Start Date/Time:	3/31/2021 14:05
Event End Date/Time:	4/1/2021 0:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	12 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	2,268 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:



April 2021 Hertel at Deer RTC KPI Report

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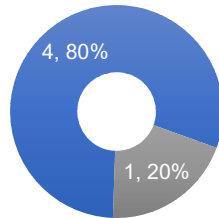
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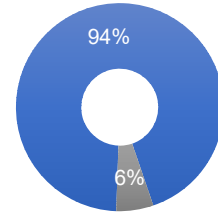
April 2021

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.)
4	1	8,596,210	528,378
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
4/11/2021	3,930,141	528,378	88%
4/16/2021	289,549	-	100%
4/20/2021	177,367	-	100%
4/21/2021	271,065	-	100%
4/29/2021	3,928,088	-	100%

April 11, 2021

1

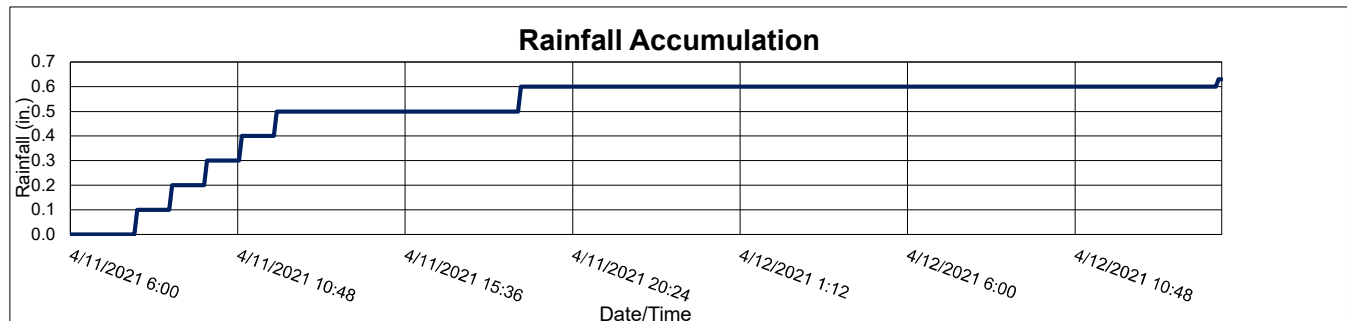
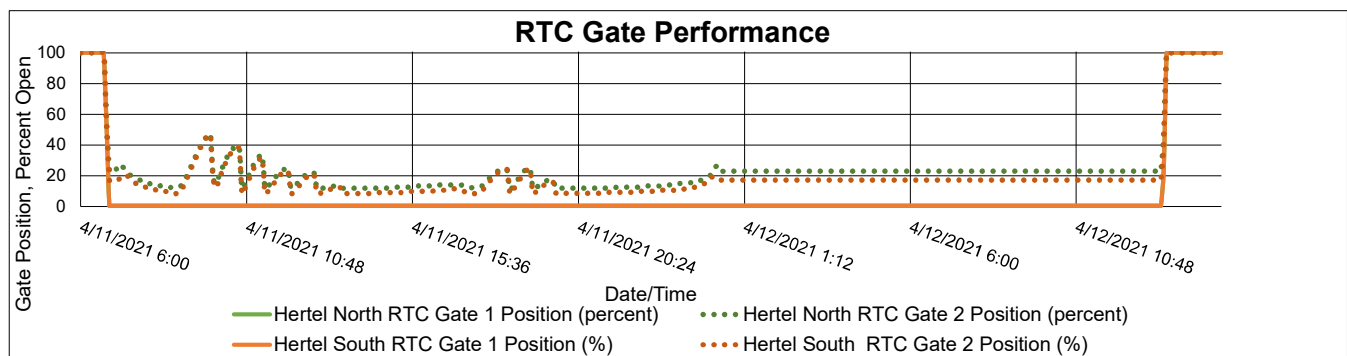
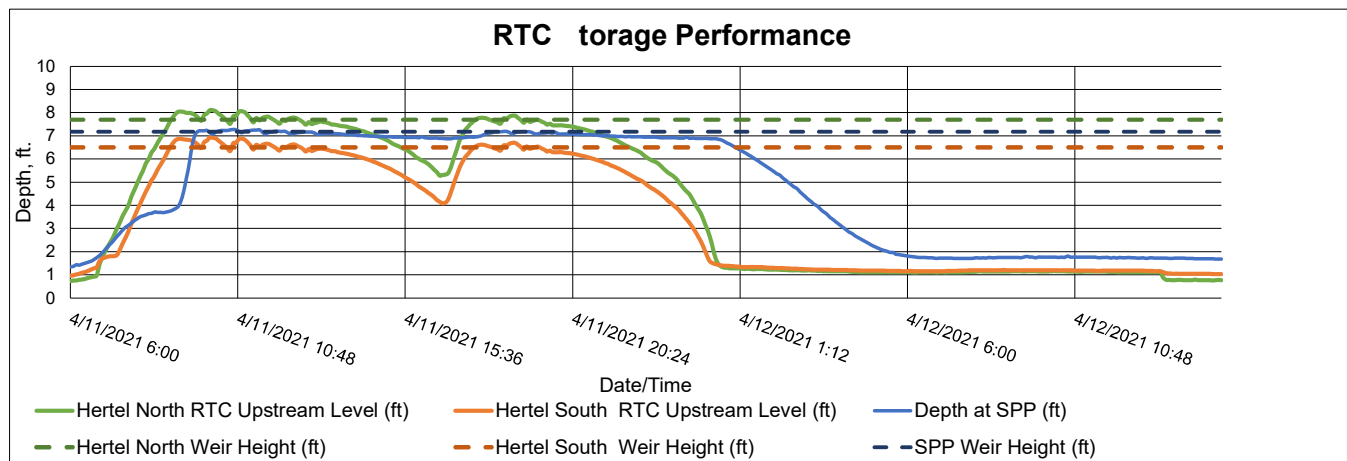
Site:	Hertel at Deer RTC
Time All Gates Active:	4/11/2021 6:40
Time All Gates Returned to Normal:	4/12/2021 13:25
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.11 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,930,141 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	5/7/2021
Event Start Date/Time:	4/11/2021 6:40
Event End Date/Time:	4/12/2021 13:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.63 in.
Storm Event Duration:	33 hr.
Storm Type:	Less than one year

Percent Capture	88%
Overflow Volume:	528,378 Gal.
Overflow Volume Prevented:	3,930,141 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:



April 16, 2021

2

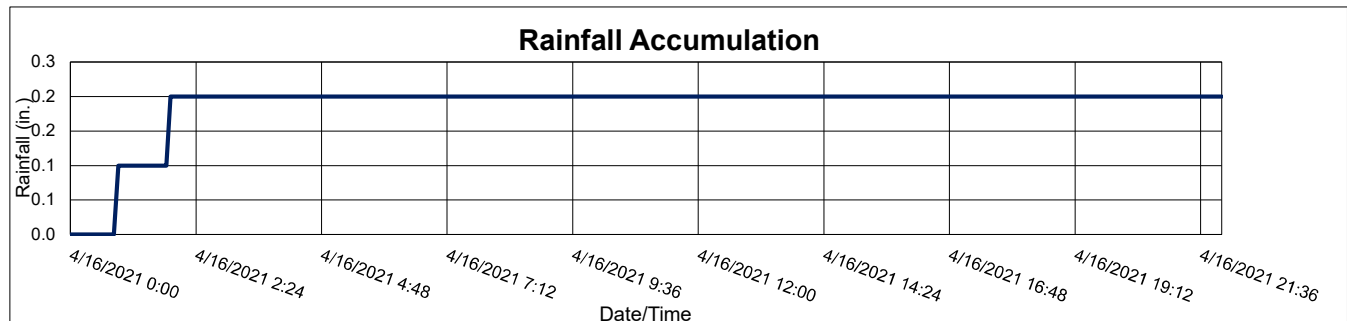
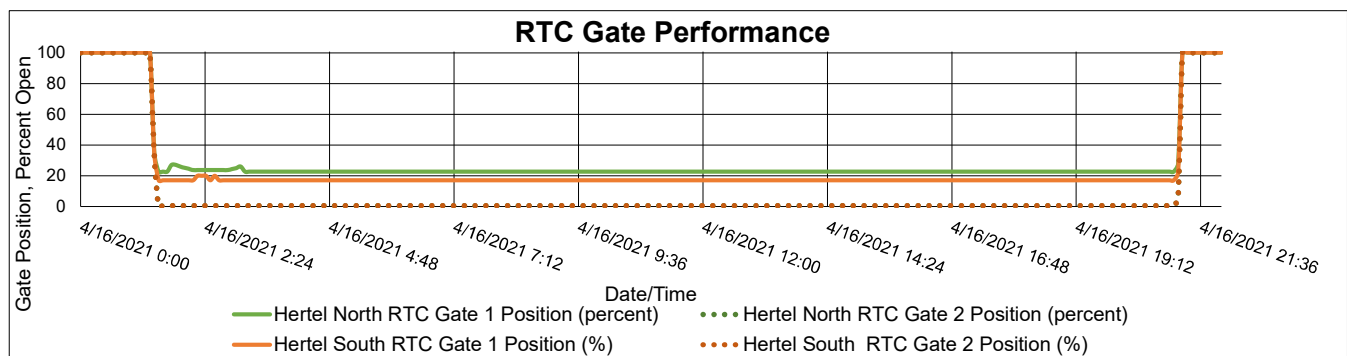
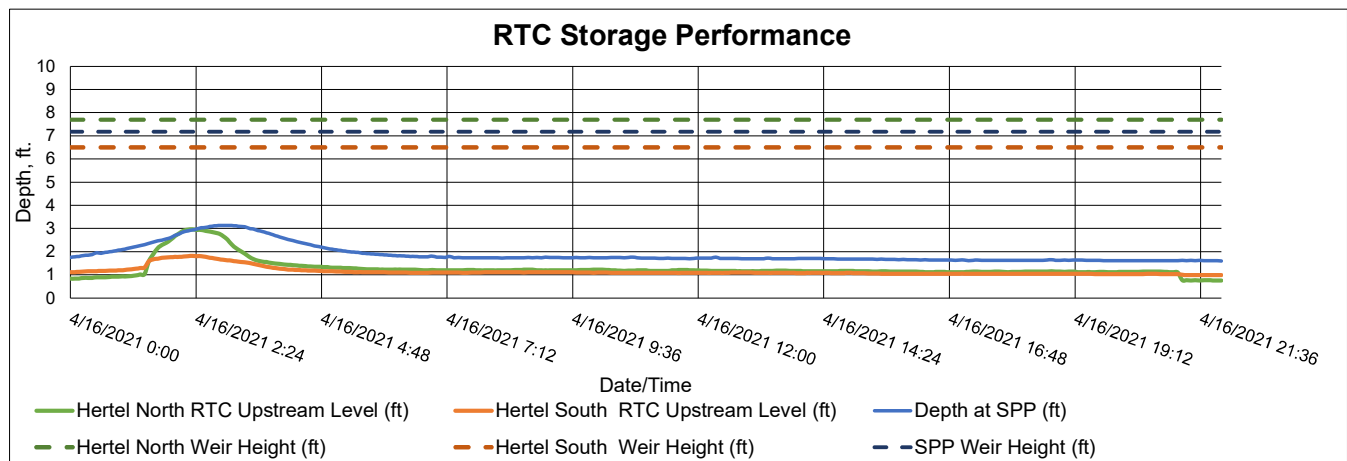
Site:	Hertel at Deer RTC
Time All Gates Active:	4/16/2021 1:20
Time All Gates Returned to Normal:	4/16/2021 21:15
Gate Activation Trigger Depth:	1.29 (South Side) ft.
Return to Normal Depth:	1.03 (South Side) ft.
Minimum Distance to Top of Weir:	4.68 ft.
Volume Stored:	289,549 Gal.
Unused Storage Volume:	3,636,120 Gal.

Analysis Date:	5/7/2021
Event Start Date/Time:	4/16/2021 1:20
Event End Date/Time:	4/16/2021 21:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	22 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	289,549 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:



April 20, 2021

3

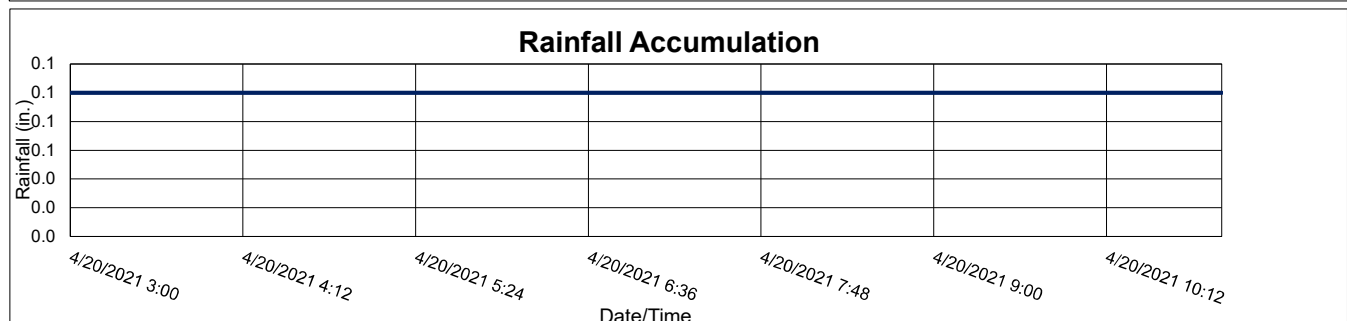
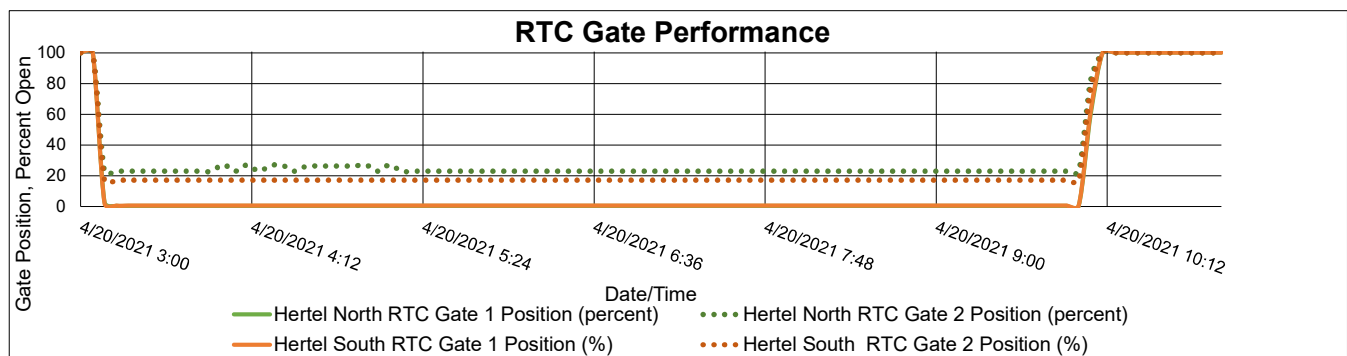
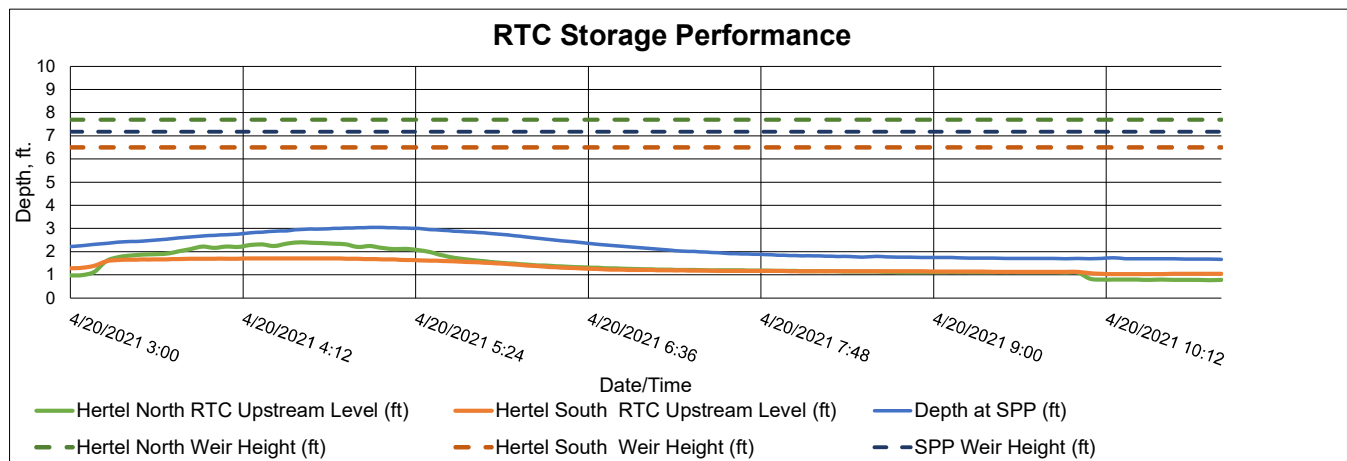
Site:	Hertel at Deer RTC
Time All Gates Active:	4/20/2021 3:05
Time All Gates Returned to Normal:	4/20/2021 10:10
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.07 (South Side) ft.
Minimum Distance to Top of Weir:	4.79 ft.
Volume Stored:	177,367 Gal.
Unused Storage Volume:	3,748,562 Gal.

Analysis Date:	5/7/2021
Event Start Date/Time:	4/20/2021 3:05
Event End Date/Time:	4/20/2021 10:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	177,367 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:



April 21, 2021

4

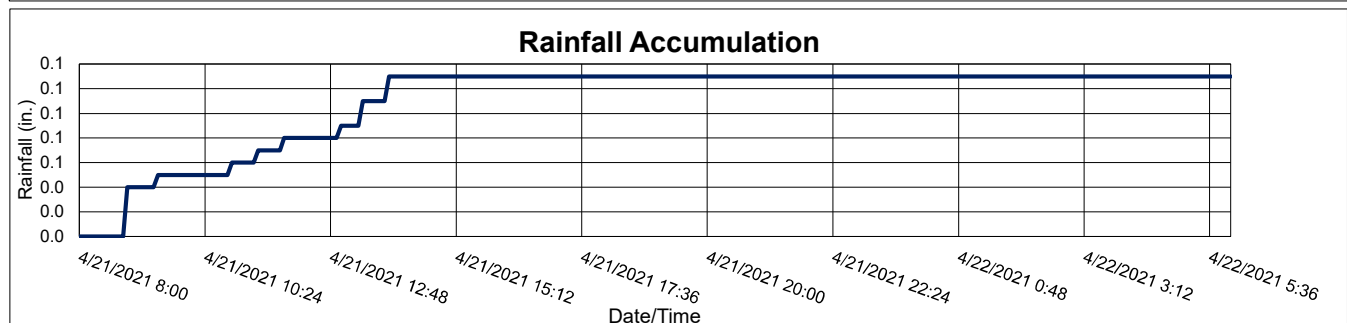
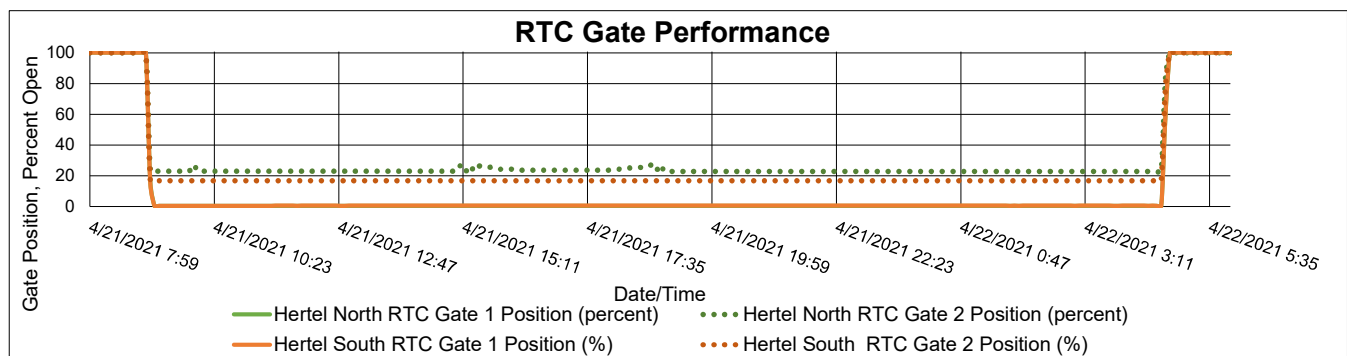
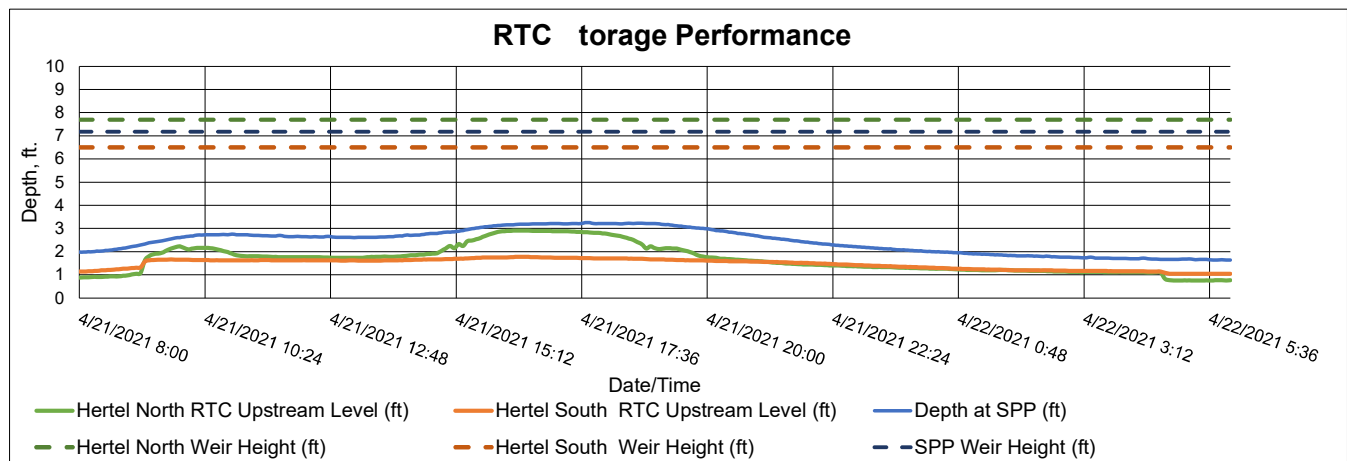
Site:	Hertel at Deer RTC
Time All Gates Active:	4/21/2021 9:05
Time All Gates Returned to Normal:	4/22/2021 4:50
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.08 (South Side) ft.
Minimum Distance to Top of Weir:	4.73 ft.
Volume Stored:	271,065 Gal.
Unused Storage Volume:	3,652,046 Gal.

Analysis Date:	5/7/2021
Event Start Date/Time:	4/21/2021 9:05
Event End Date/Time:	4/22/2021 4:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.13 in.
Storm Event Duration:	22 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	271,065 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:



April 29, 2021

5

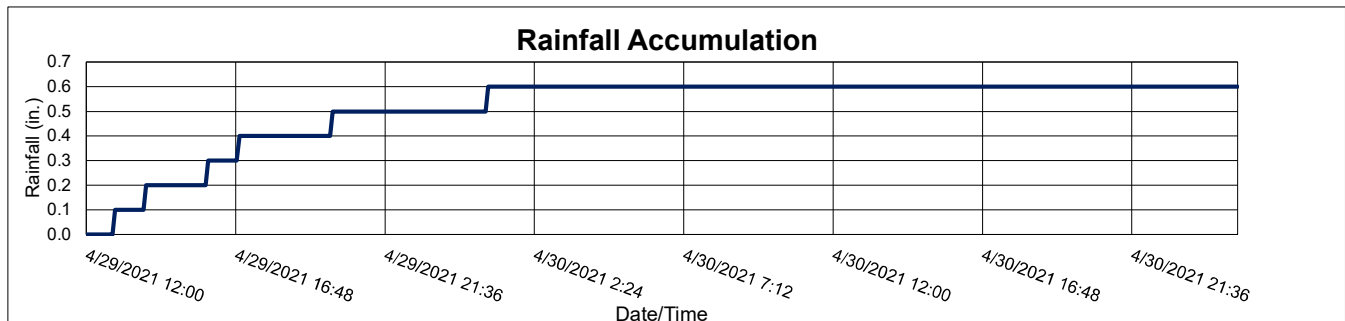
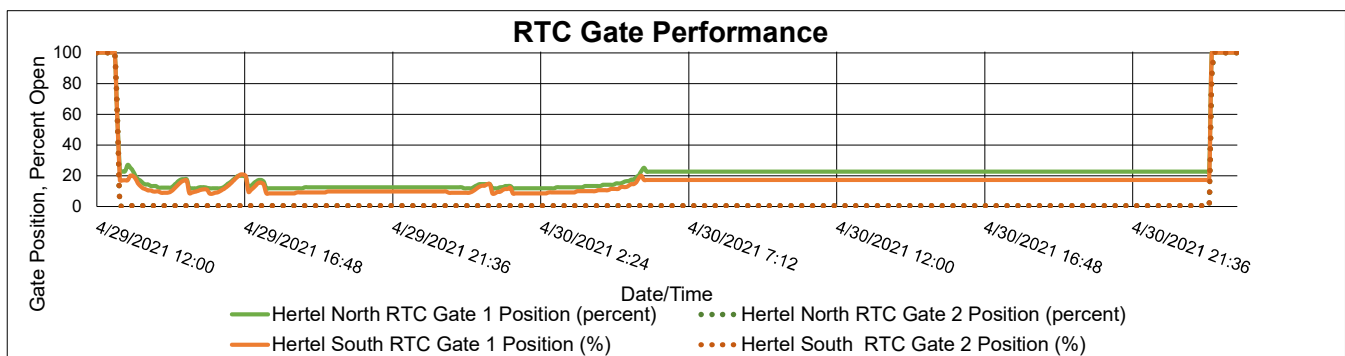
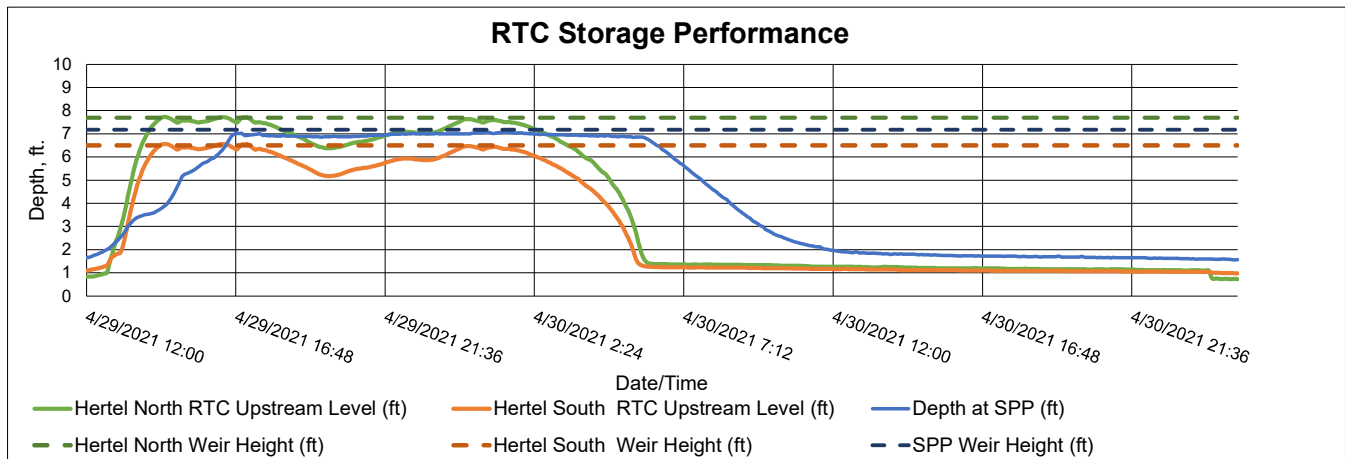
Site:	Hertel at Deer RTC
Time All Gates Active:	4/29/2021 12:35
Time All Gates Returned to Normal:	5/1/2021 0:15
Gate Activation Trigger Depth:	1.28 (South Side) ft.
Return to Normal Depth:	1.03 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,928,088 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	5/7/2021
Event Start Date/Time:	4/29/2021 12:35
Event End Date/Time:	5/1/2021 0:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.6 in.
Storm Event Duration:	36 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,928,088 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 2021 Hertel at Deer RTC KPI Report

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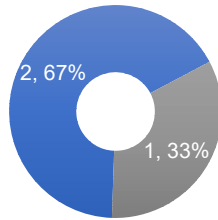
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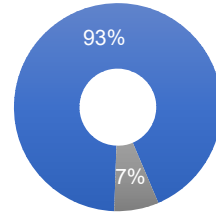
May 2021

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.)
2	1	8,192,435	613,130
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
5/7/2021	3,932,178	613,130	87%
5/9/2021	335,701	-	100%
5/28/2021	3,924,556	-	100%

May 7, 2021

1

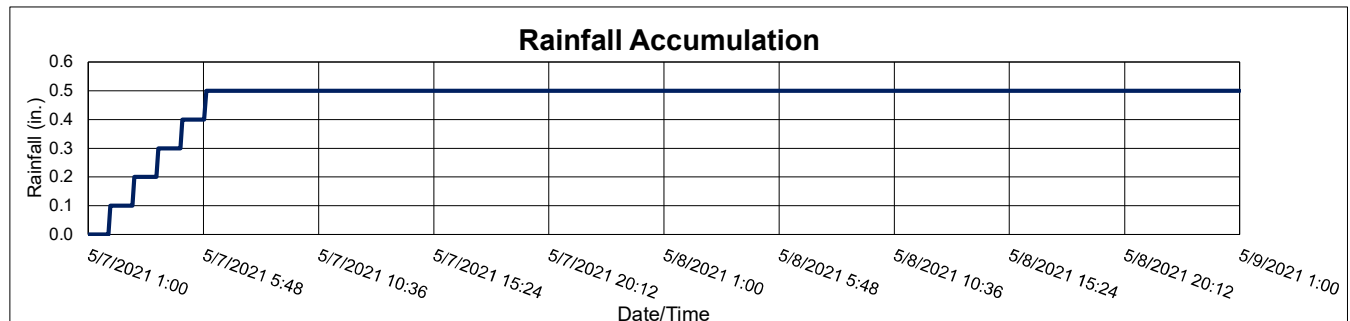
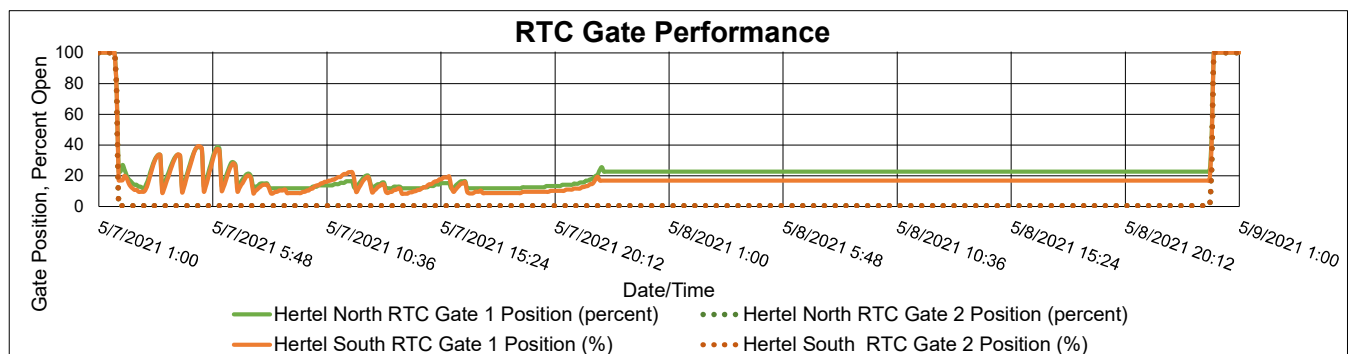
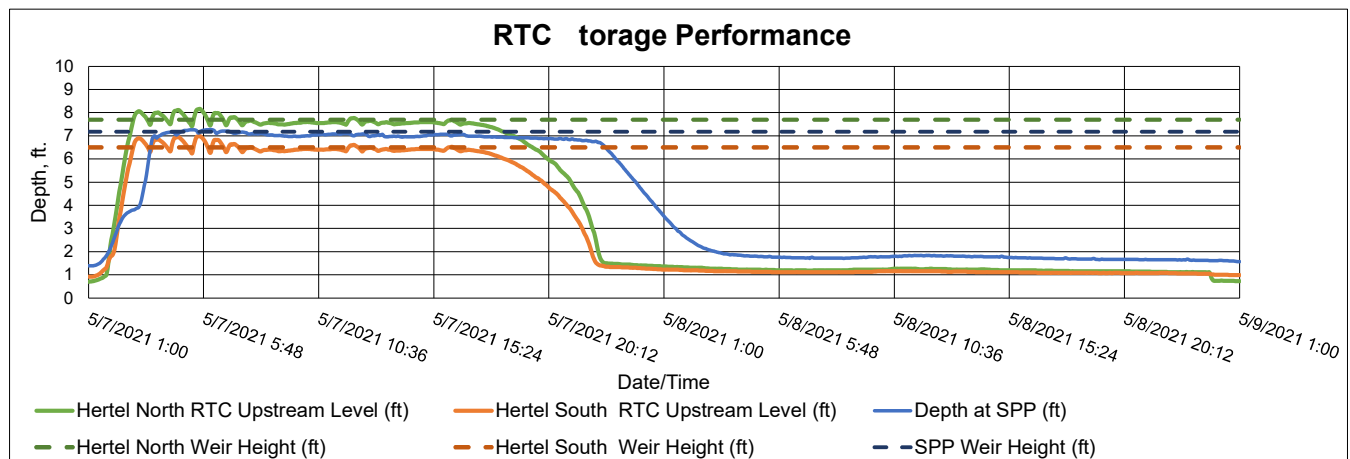
Site:	Hertel at Deer RTC
Time All Gates Active:	5/7/2021 1:40
Time All Gates Returned to Normal:	5/8/2021 23:55
Gate Activation Trigger Depth:	1.24 (South Side) ft.
Return to Normal Depth:	1.02 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,932,178 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	6/9/2021
Event Start Date/Time:	5/7/2021 1:40
Event End Date/Time:	5/8/2021 23:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	48 hr.
Storm Type:	Less than one year

Percent Capture	87%
Overflow Volume:	613,130 Gal.
Overflow Volume Prevented:	3,932,178 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:



May 9, 2021

2

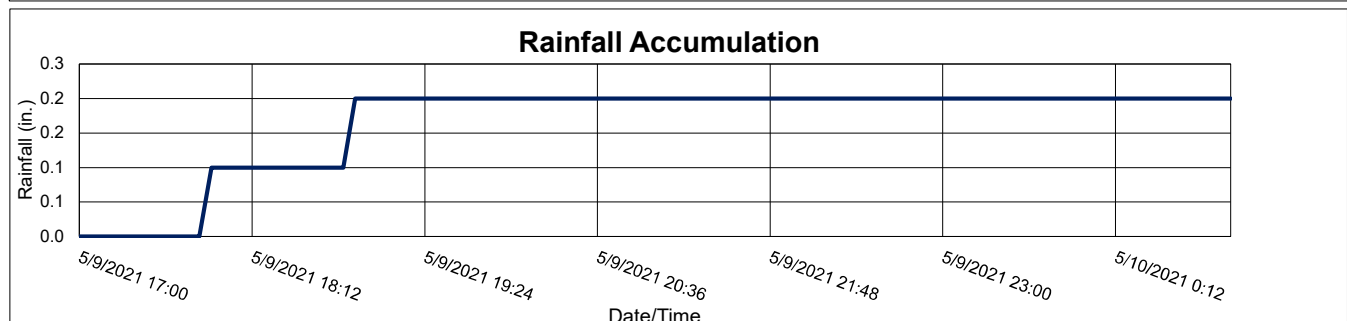
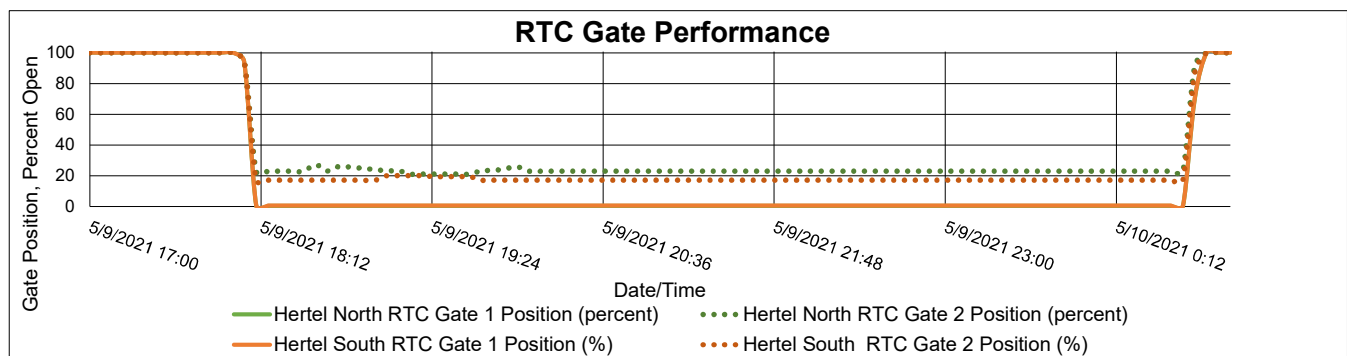
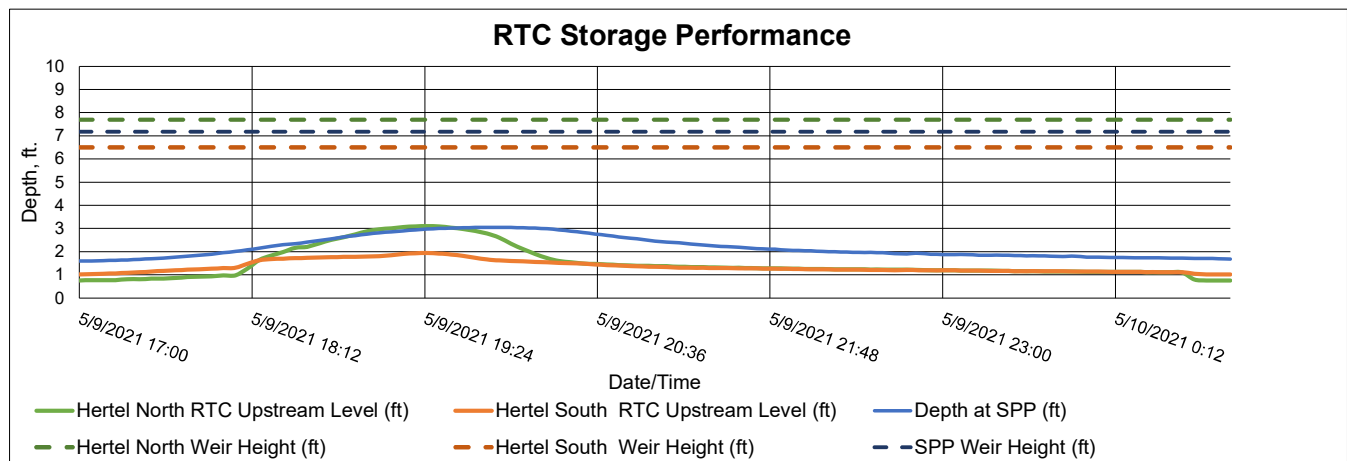
Site:	Hertel at Deer RTC
Time All Gates Active:	5/9/2021 18:00
Time All Gates Returned to Normal:	5/10/2021 0:50
Gate Activation Trigger Depth:	1.29 (South Side) ft.
Return to Normal Depth:	1.05 (South Side) ft.
Minimum Distance to Top of Weir:	4.56 ft.
Volume Stored:	335,701 Gal.
Unused Storage Volume:	3,591,751 Gal.

Analysis Date:	6/9/2021
Event Start Date/Time:	5/9/2021 18:00
Event End Date/Time:	5/10/2021 0:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	335,701 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, 2021

3

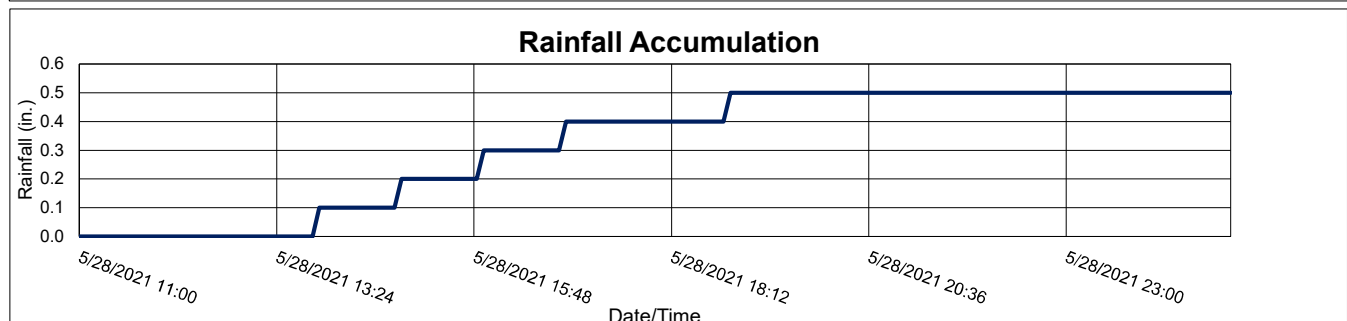
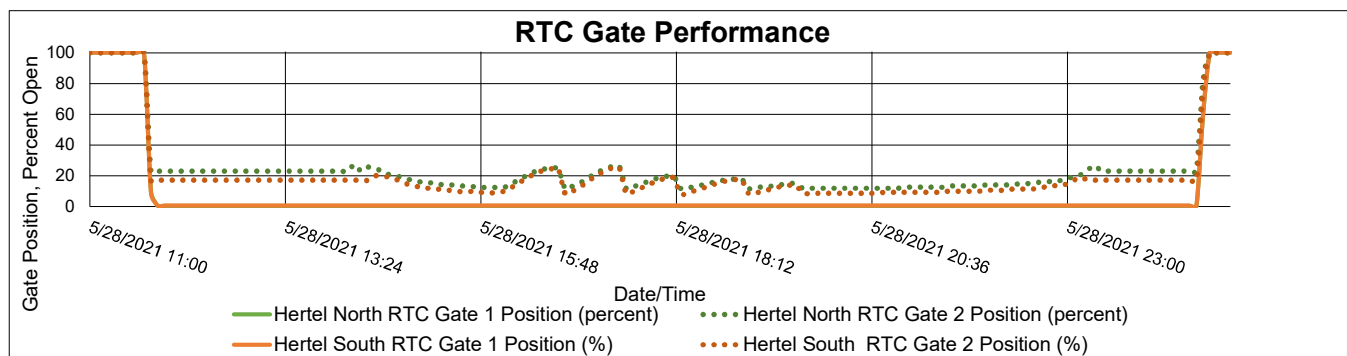
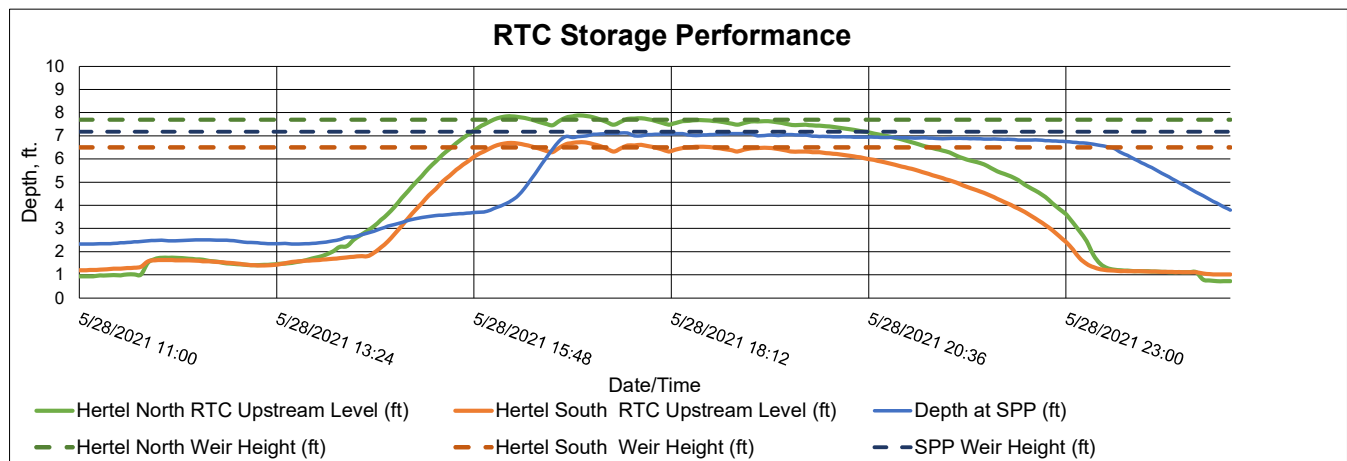
Site:	Hertel at Deer RTC
Time All Gates Active:	5/28/2021 11:40
Time All Gates Returned to Normal:	5/29/2021 0:45
Gate Activation Trigger Depth:	1.30 (South Side) ft.
Return to Normal Depth:	1.06 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,924,556 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	6/9/2021
Event Start Date/Time:	5/28/2021 11:40
Event End Date/Time:	5/29/2021 0:45

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

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	3,924,556 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 2021 Hertel at Deer RTC KPI Report

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SEWER AUTHORITY



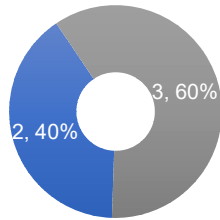
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Hertel at Deer RTC Monthly Performance Report

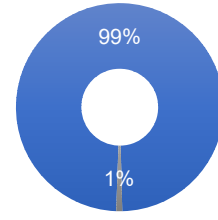
June 2021

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.)
2	3	12,384,066	116,317
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
6/3/2021	3,921,451	2,021	100%
6/8/2021	3,937,153	4,042	100%
6/14/2021	268,420	-	100%
6/21/2021	3,954,253	110,254	97%
6/26/2021	302,789	-	100%

June 3, 2021

1

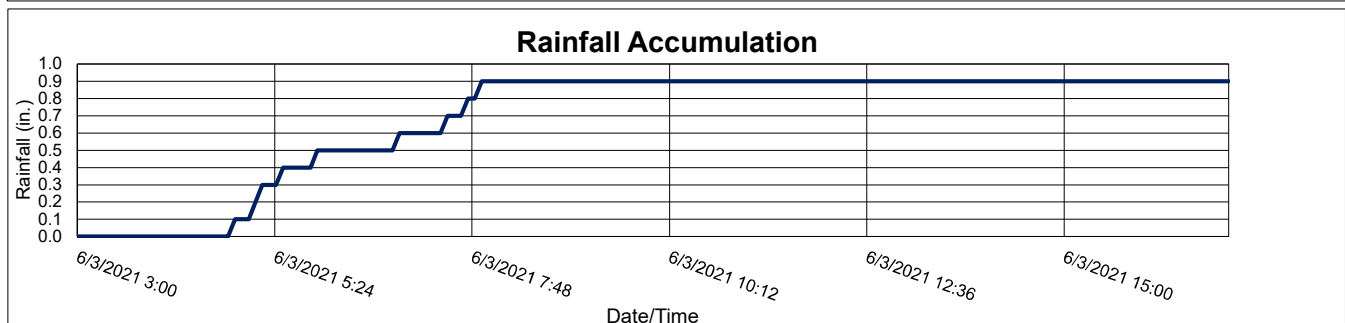
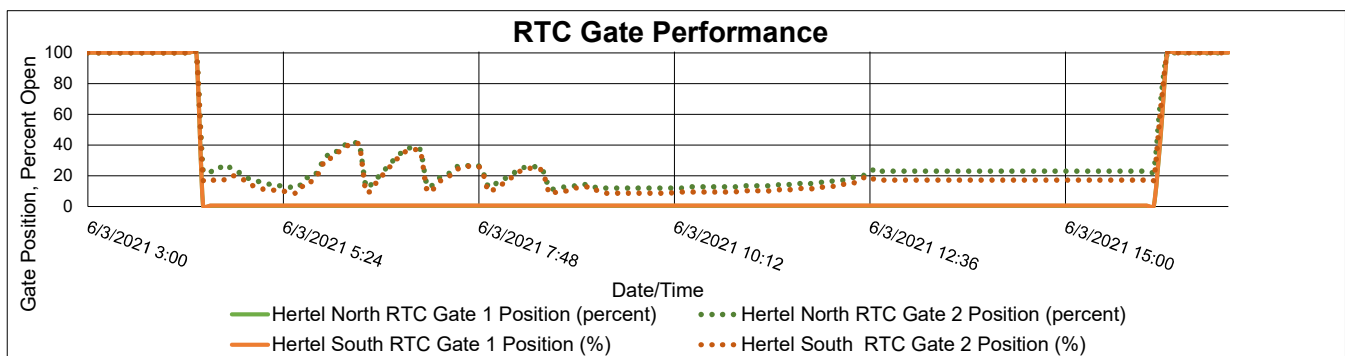
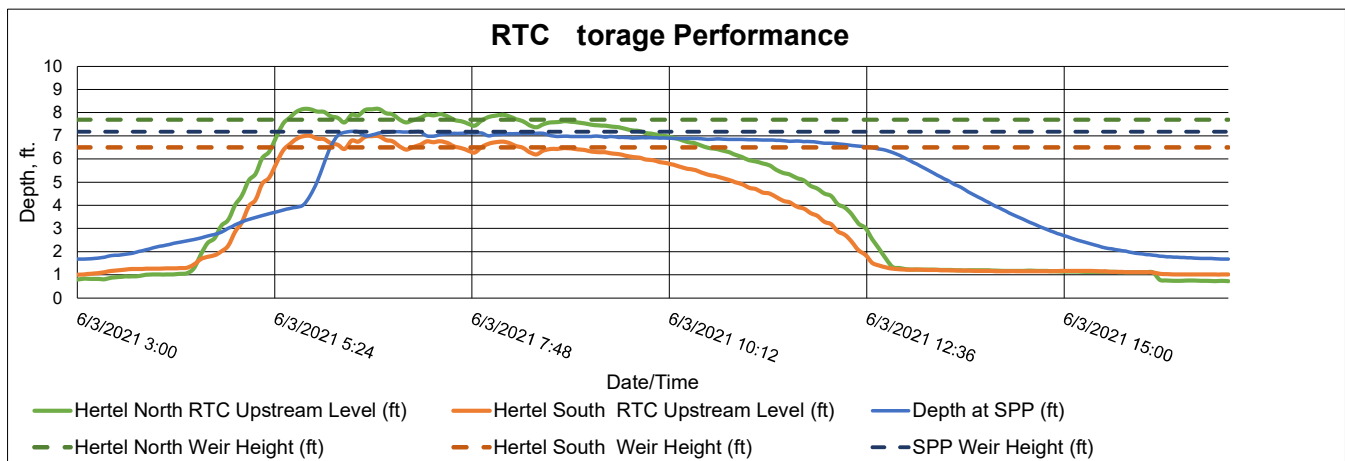
Site:	Hertel at Deer RTC
Time All Gates Active:	6/3/2021 4:20
Time All Gates Returned to Normal:	6/3/2021 16:15
Gate Activation Trigger Depth:	1.31 (South Side) ft.
Return to Normal Depth:	1.04 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,921,451 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	7/10/2021
Event Start Date/Time:	6/3/2021 4:20
Event End Date/Time:	6/3/2021 16:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	14 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	2,021 Gal.
Overflow Volume Prevented:	3,921,451 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 8, 2021

2

Site:	Hertel at Deer RTC
Time All Gates Active:	6/8/2021 2:40
Time All Gates Returned to Normal:	6/9/2021 8:35
Gate Activation Trigger Depth:	1.21 (South Side) ft.
Return to Normal Depth:	1.02 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,937,153 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	7/10/2021
Event Start Date/Time:	6/8/2021 2:40
Event End Date/Time:	6/9/2021 8:35

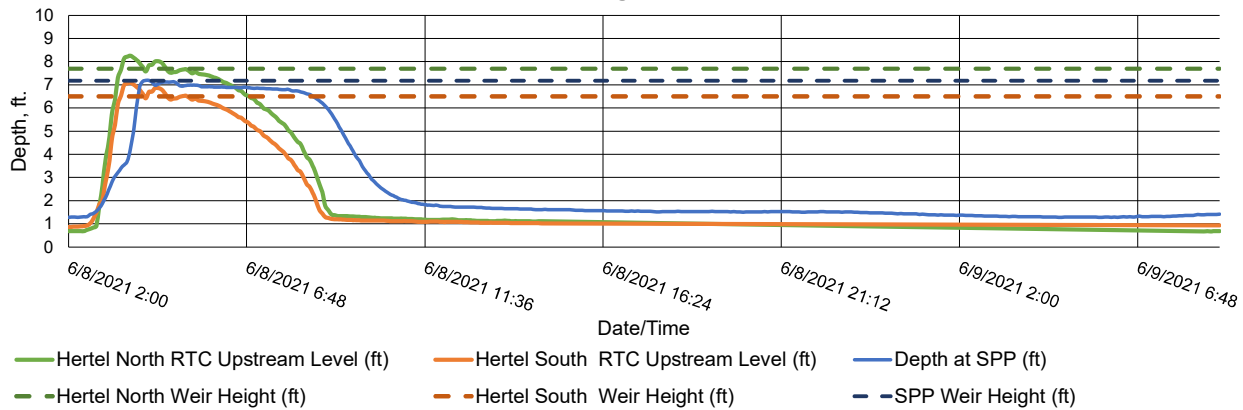
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	30 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	4,042 Gal.
Overflow Volume Prevented:	3,937,153 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

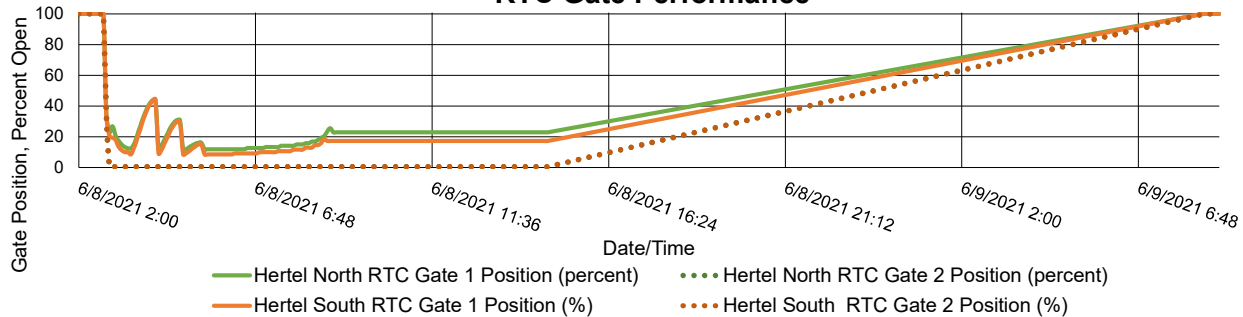
Recommended Operational Changes/Notes:

Communication was lost between June 8, 2.45 pm and June 9, 8.35 am.

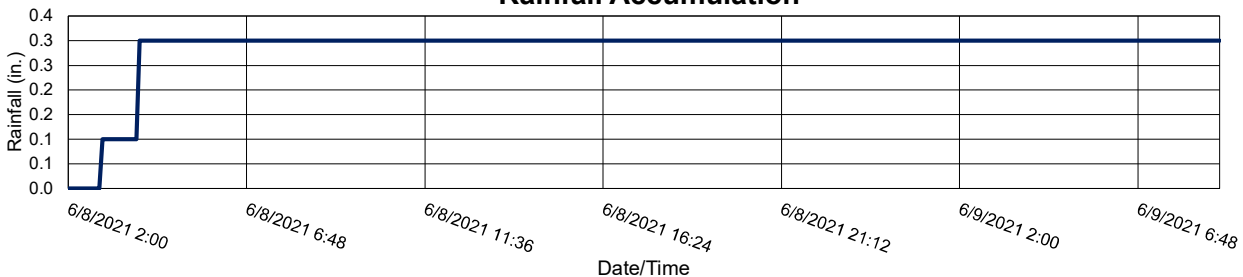
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



June 14, 2021

3

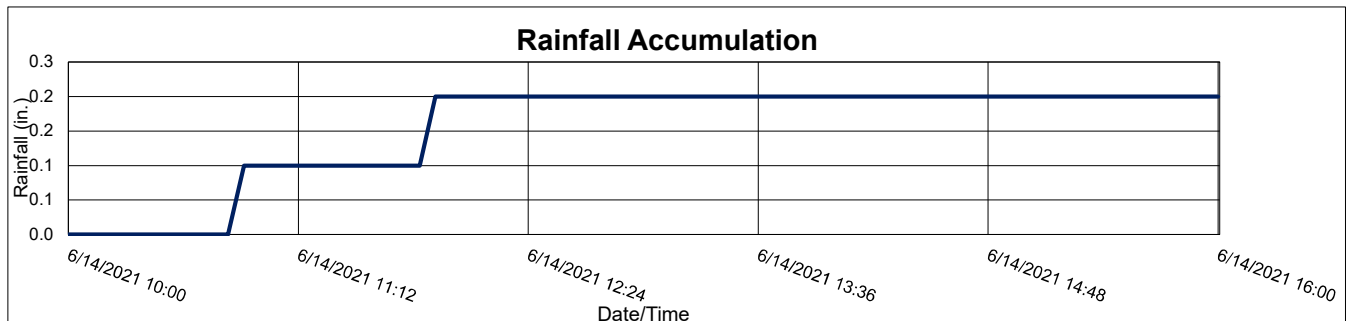
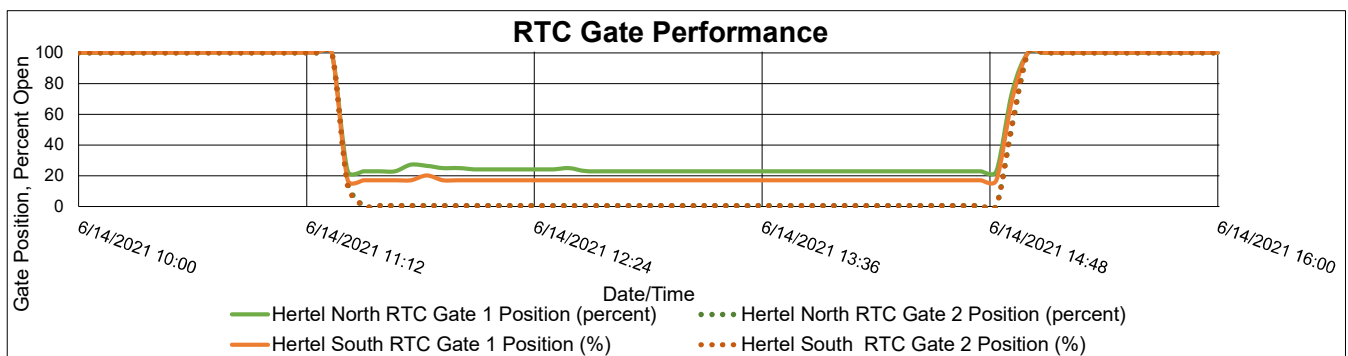
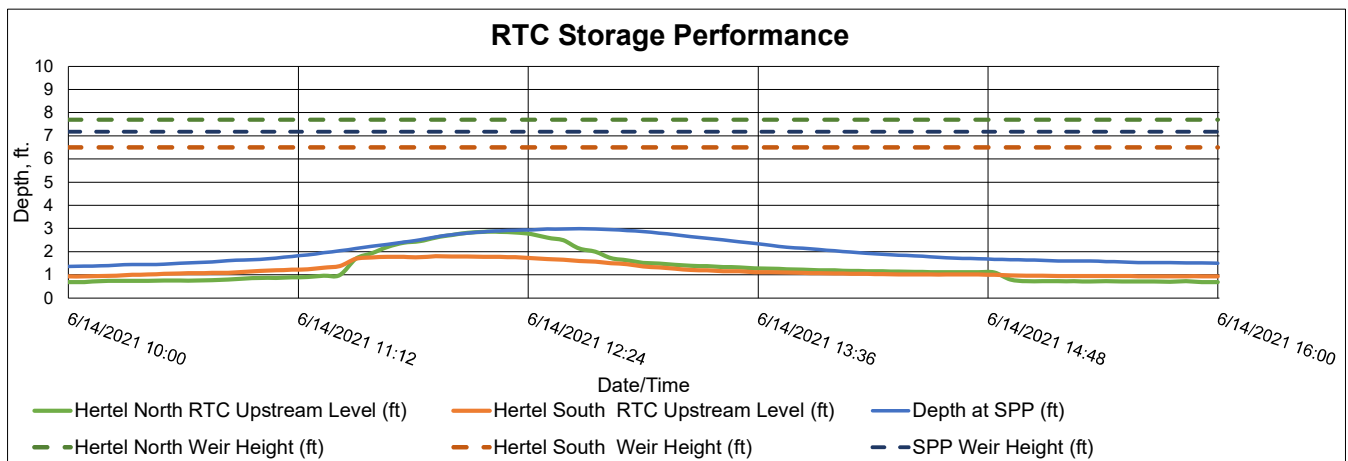
Site:	Hertel at Deer RTC
Time All Gates Active:	6/14/2021 11:20
Time All Gates Returned to Normal:	6/14/2021 15:00
Gate Activation Trigger Depth:	1.31 (South Side) ft.
Return to Normal Depth:	0.98 (South Side) ft.
Minimum Distance to Top of Weir:	4.70 ft.
Volume Stored:	268,420 Gal.
Unused Storage Volume:	3,658,154 Gal.

Analysis Date:	7/10/2021
Event Start Date/Time:	6/14/2021 11:20
Event End Date/Time:	6/14/2021 15:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	268,420 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 21, 2021

4

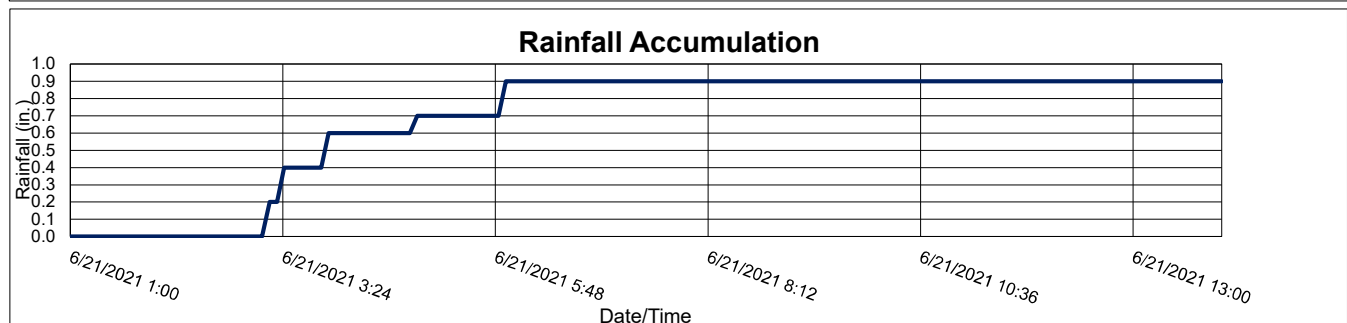
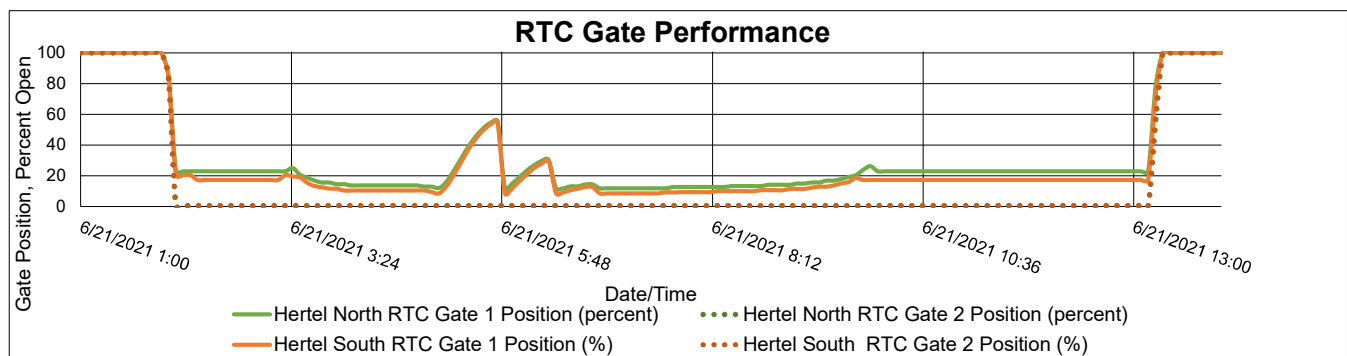
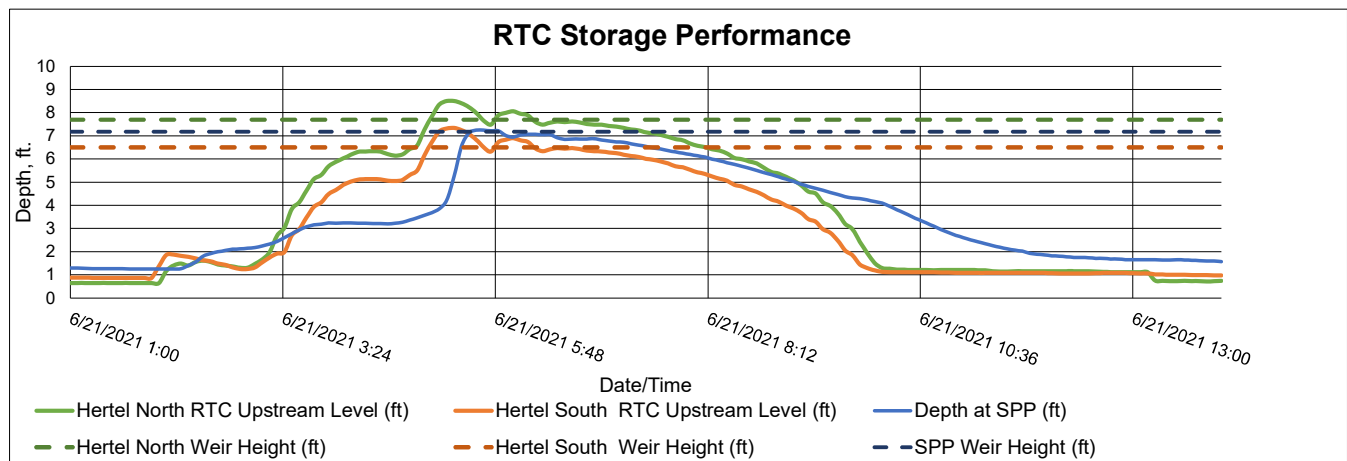
Site:	Hertel at Deer RTC
Time All Gates Active:	6/21/2021 1:55
Time All Gates Returned to Normal:	6/21/2021 13:20
Gate Activation Trigger Depth:	0.87 (South Side) ft.
Return to Normal Depth:	1.02 (South Side) ft.
Minimum Distance to Top of Weir:	0.00 ft.
Volume Stored:	3,954,253 Gal.
Unused Storage Volume:	0 Gal.

Analysis Date:	7/10/2021
Event Start Date/Time:	6/21/2021 1:55
Event End Date/Time:	6/21/2021 13:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	12 hr.
Storm Type:	Less than one year

Percent Capture	97%
Overflow Volume:	110,254 Gal.
Overflow Volume Prevented:	3,954,253 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 26, 2021

5

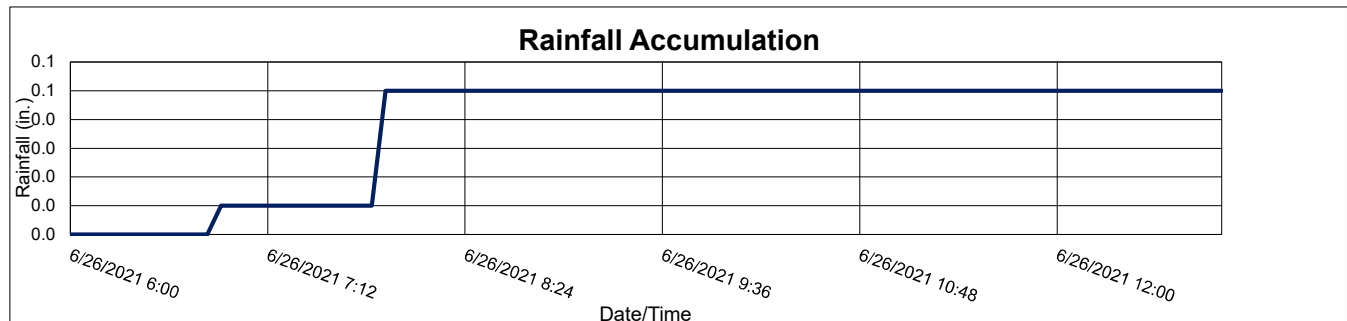
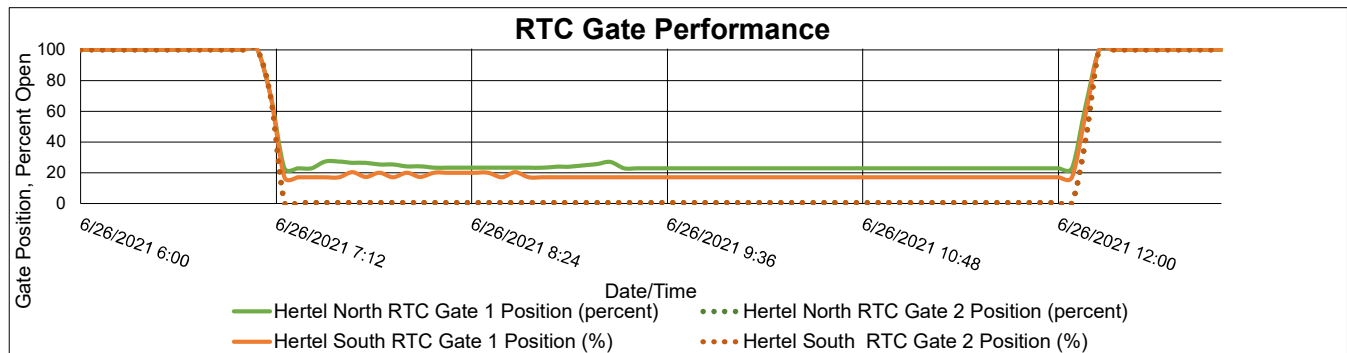
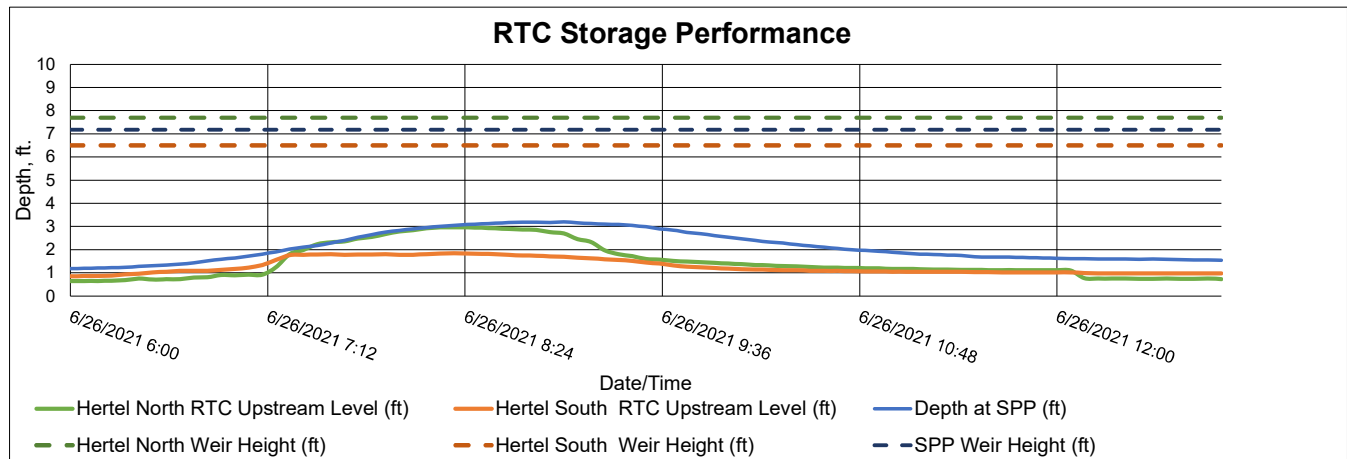
Site:	Hertel at Deer RTC
Time All Gates Active:	6/26/2021 7:05
Time All Gates Returned to Normal:	6/26/2021 12:15
Gate Activation Trigger Depth:	1.23 (South Side) ft.
Return to Normal Depth:	0.99 (South Side) ft.
Minimum Distance to Top of Weir:	4.65 ft.
Volume Stored:	302,789 Gal.
Unused Storage Volume:	3,630,363 Gal.

Analysis Date:	7/10/2021
Event Start Date/Time:	6/26/2021 7:05
Event End Date/Time:	6/26/2021 12:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.05 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	302,789 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:



July 2020 Lang Ave. and Hazelwood RTC KPI Report

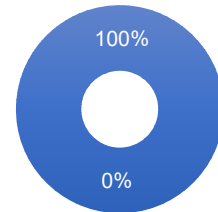
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Prevented SPP Volume



■ 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.)
NA	NA	1,704,969	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
7/13/2020	507,068	-	100%
7/16/2020	629,147	-	100%
7/22/2020	337,885	-	100%
7/29/2020	230,869	-	100%

July 13, 2020

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.05 ft.	- ft.
Return to Normal Depth:	0.88 ft.	- ft.
Time Gate 1 Activated:	7/13/2020 18:05	N/A
Time Gate 2 Activated:	7/13/2020 18:05	N/A
Time Gate 1 Returned to Normal:	7/13/2020 19:45	N/A
Time Gate 2 Returned to Normal:	7/13/2020 19:45	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	5.54 ft.	2.13 ft.
Volume Stored:	363,664 Gal.	143,404 Gal.
Unused Storage Volume:	489,841 Gal.	1,122,767 Gal.

SPP:	340
Analysis Date:	8/11/2020
Event Start Date/Time:	7/13/2020 18:05
Event End Date/Time:	7/13/2020 19:45

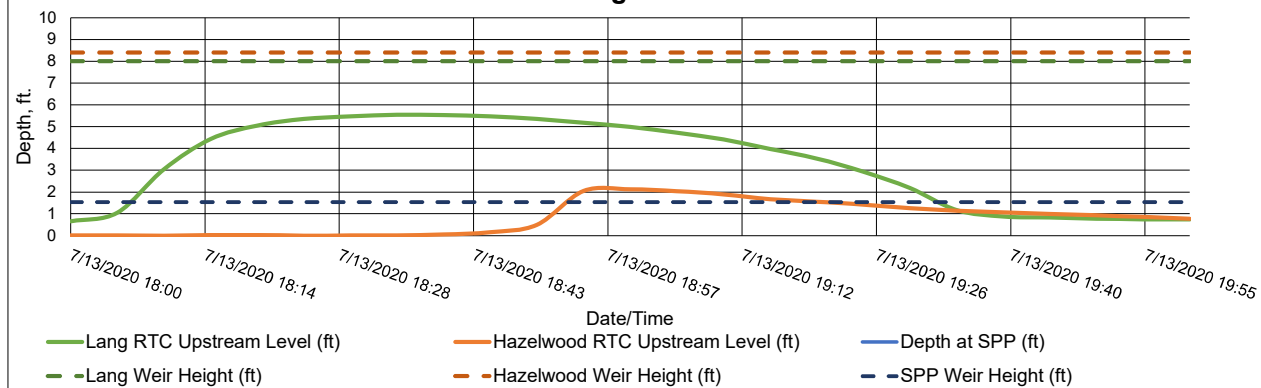
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.2 in.
Storm Event Duration:	2 hr.
Storm Type:	Less than two years

Percent Capture	100%
Overflow Volume:	NA Gal.
Overflow Volume Prevented:	507,068 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 Hazelwood storage?	Yes

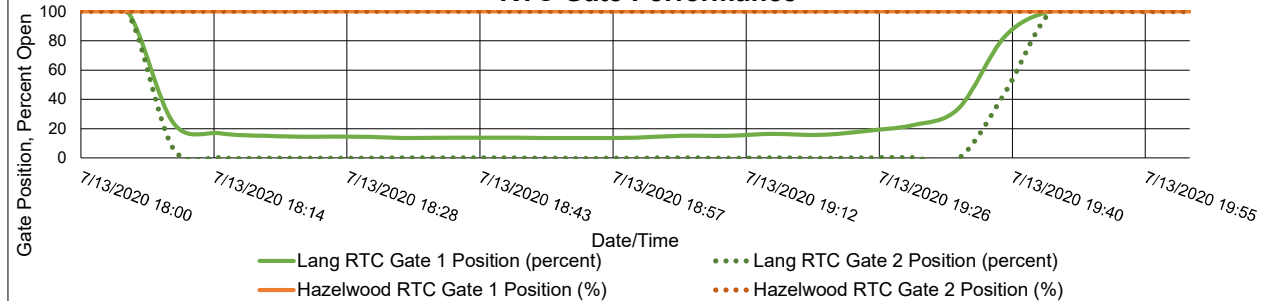
Recommended Operational Changes/Notes:

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.

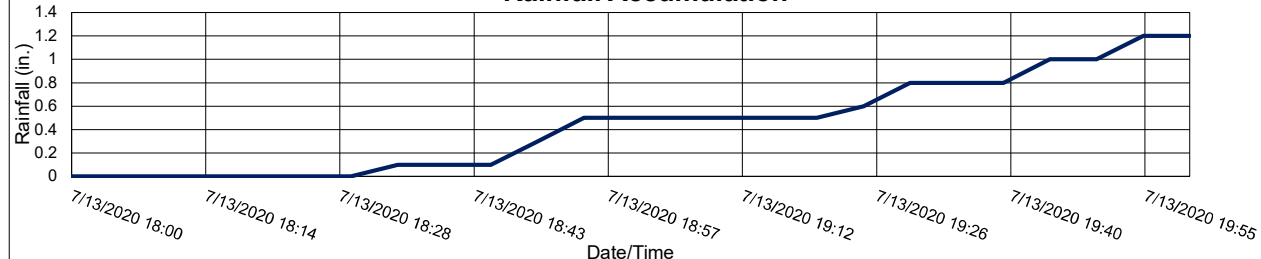
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



July 16, 2020

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.42 ft.	- ft.
Return to Normal Depth:	1.92 ft.	- ft.
Time Gate 1 Activated:	7/16/2020 10:35	N/A
Time Gate 2 Activated:	7/16/2020 10:35	N/A
Time Gate 1 Returned to Normal:	7/16/2020 16:55	N/A
Time Gate 2 Returned to Normal:	7/16/2020 17:00	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	6.34 ft.	2.09 ft.
Volume Stored:	489,806 Gal.	139,341 Gal.
Unused Storage Volume:	355,453 Gal.	1,126,829 Gal.

SPP:	340
Analysis Date:	8/11/2020
Event Start Date/Time:	7/16/2020 10:35
Event End Date/Time:	7/16/2020 16:55

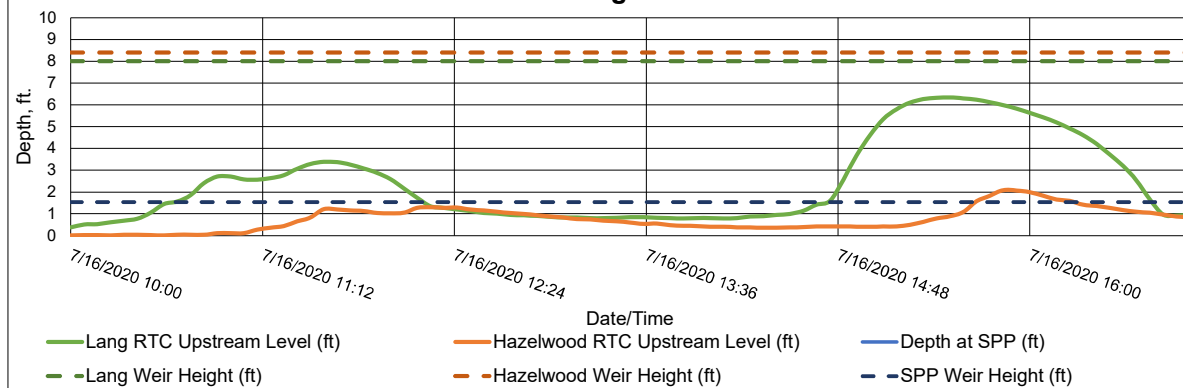
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	2.2 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than five years

Percent Capture	100%
Overflow Volume:	NA Gal.
Overflow Volume Prevented:	629,147 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 Hazelwood storage?	Yes

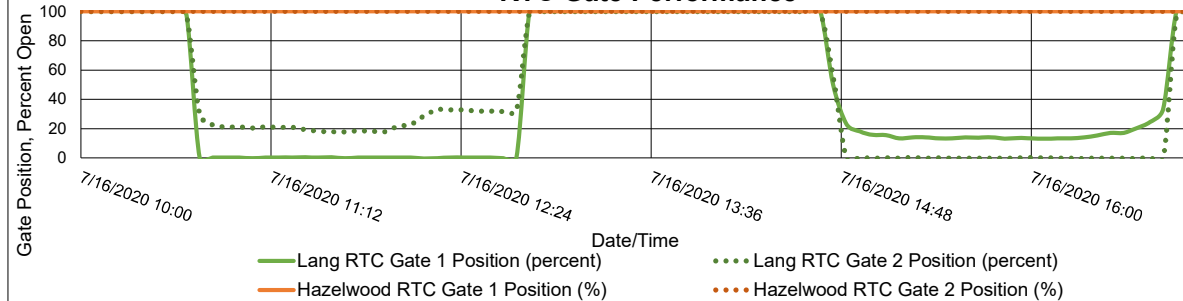
Recommended Operational Changes/Notes:

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.

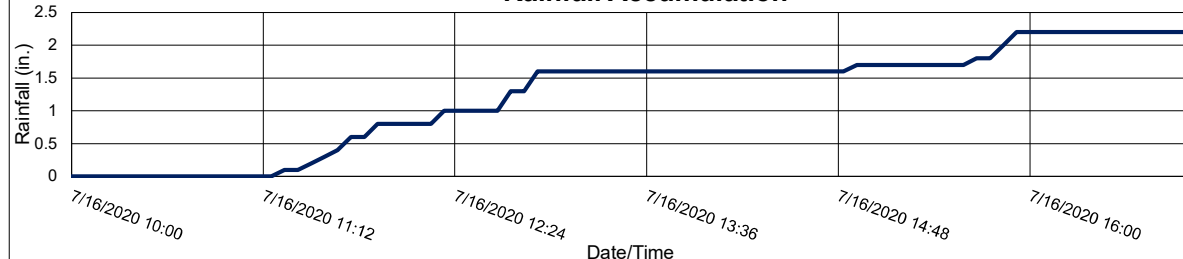
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



July 22, 2020

3

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.06 ft.	- ft.
Return to Normal Depth:	0.95 ft.	- ft.
Time Gate 1 Activated:	7/22/2020 7:35	N/A
Time Gate 2 Activated:	7/22/2020 7:35	N/A
Time Gate 1 Returned to Normal:	7/22/2020 9:35	N/A
Time Gate 2 Returned to Normal:	7/22/2020 9:35	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	4.58 ft.	1.71 ft.
Volume Stored:	232,244 Gal.	105,642 Gal.
Unused Storage Volume:	621,080 Gal.	1,160,529 Gal.

SPP:	340
Analysis Date:	8/11/2020
Event Start Date/Time:	7/22/2020 7:35
Event End Date/Time:	7/22/2020 9:35

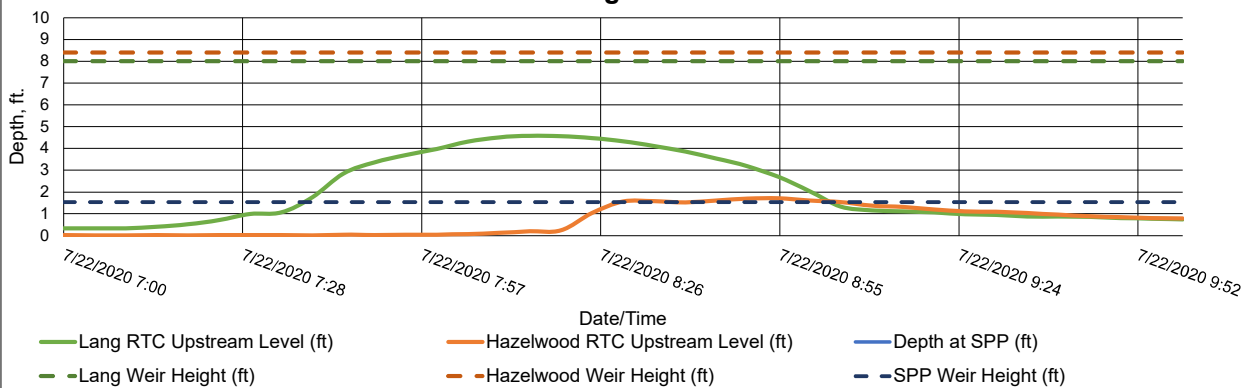
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	NA Gal.
Overflow Volume Prevented:	337,885 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 Hazelwood storage?	Yes

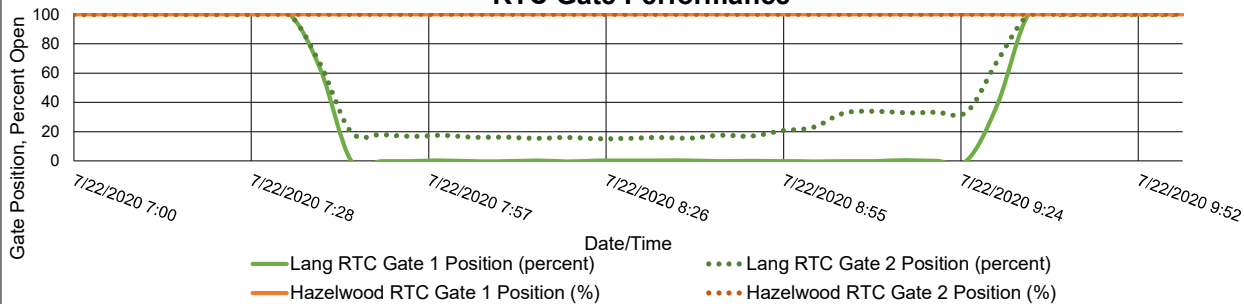
Recommended Operational Changes/Notes:

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.

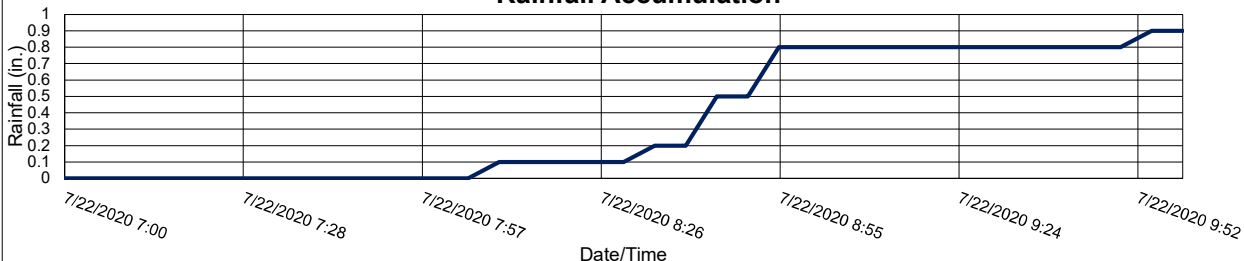
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



July 29, 2020

4

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.40 ft.	- ft.
Return to Normal Depth:	0.96 ft.	- ft.
Time Gate 1 Activated:	7/29/2020 9:45	N/A
Time Gate 2 Activated:	7/29/2020 9:45	N/A
Time Gate 1 Returned to Normal:	7/29/2020 10:55	N/A
Time Gate 2 Returned to Normal:	7/29/2020 10:55	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	3.71 ft.	1.62 ft.
Volume Stored:	132,683 Gal.	98,186 Gal.
Unused Storage Volume:	713,104 Gal.	1,167,984 Gal.

SPP:	340
Analysis Date:	8/11/2020
Event Start Date/Time:	7/29/2020 9:45
Event End Date/Time:	7/29/2020 10:55

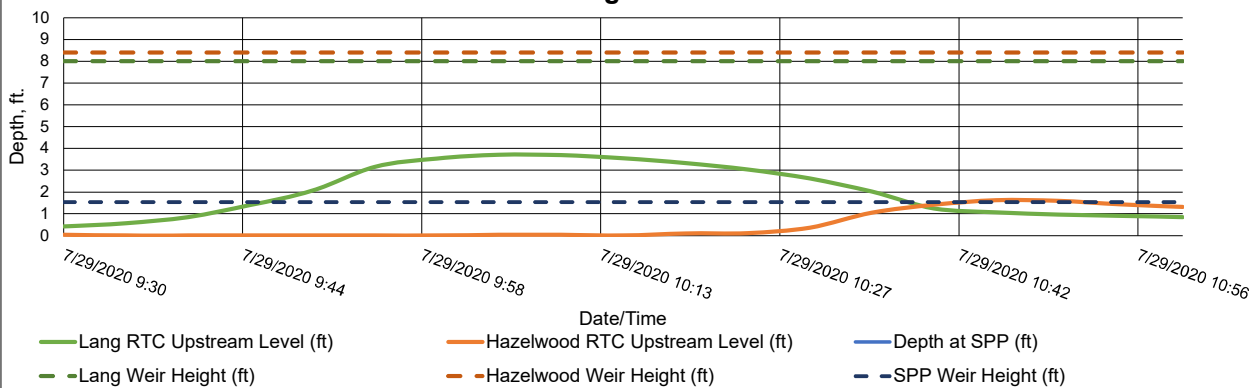
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	1.5 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	NA Gal.
Overflow Volume Prevented:	230,869 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 Hazelwood storage?	Yes

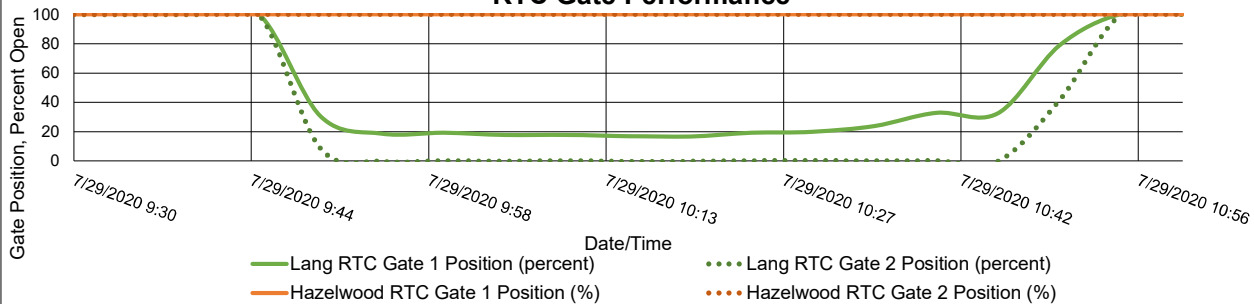
Recommended Operational Changes/Notes:

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.

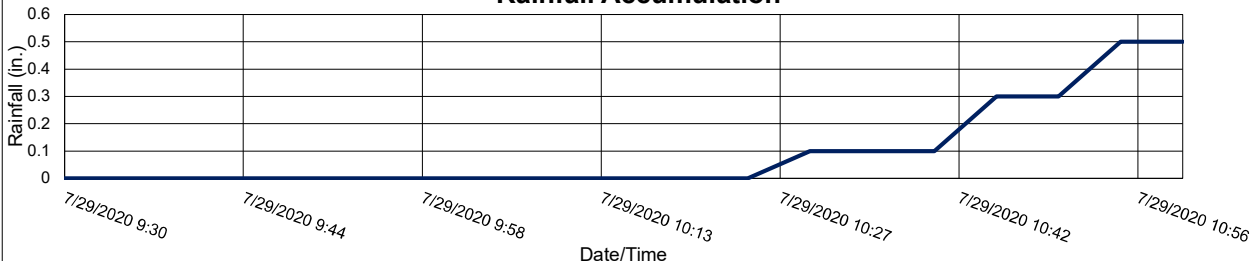
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



August 2020 Lang Ave. and Hazelwood RTC KPI Report

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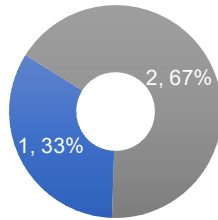
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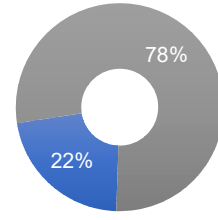
August 2020

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.)
1	2	703,309	2,497,642
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
8/4/2020	304,075	1,251,812	20%
8/10/2020	16,630	-	100%
8/15/2020	382,604	1,245,830	23%

August 4, 2020

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.86 ft.	- ft.
Return to Normal Depth:	1.04 ft.	- ft.
Time Gate 1 Activated:	8/4/2020 21:55	N/A
Time Gate 2 Activated:	8/4/2020 21:55	N/A
Time Gate 1 Returned to Normal:	8/4/2020 23:25	N/A
Time Gate 2 Returned to Normal:	8/4/2020 23:25	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	4.53 ft.	1.64 ft.
Volume Stored:	204,090 Gal.	99,985 Gal.
Unused Storage Volume:	627,047 Gal.	1,166,185 Gal.

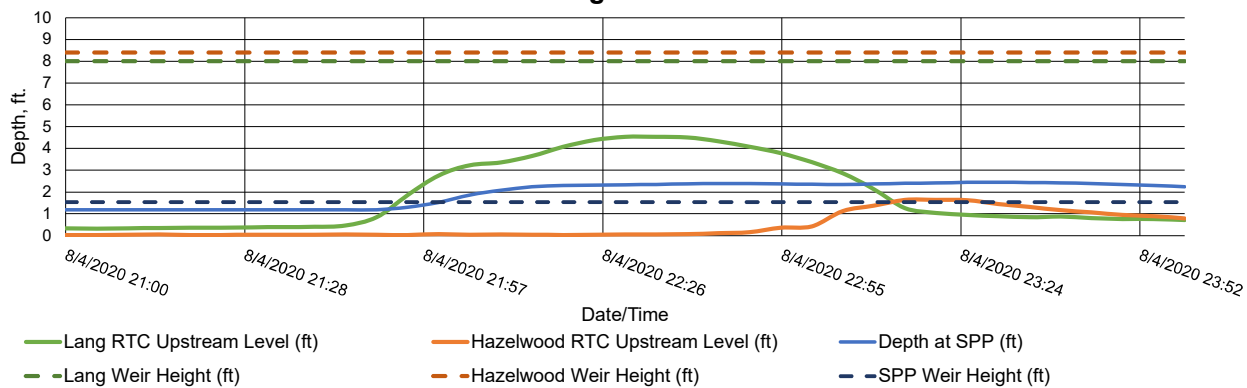
SPP:	340
Analysis Date:	9/3/2020
Event Start Date/Time:	8/4/2020 21:55
Event End Date/Time:	8/4/2020 23:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	2 hr.
Storm Type:	Less than two years

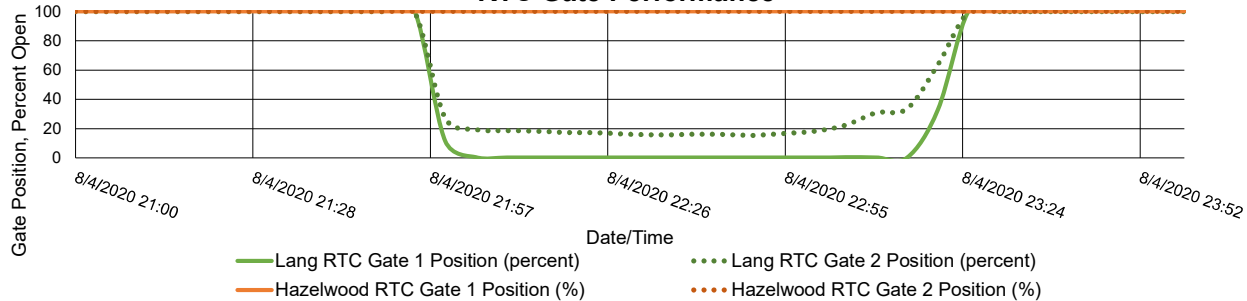
Percent Capture	20%
Overflow Volume:	1,251,812 Gal.
Overflow Volume Prevented:	304,075 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	1,251,812 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
Data was missing from August 1 at 12 am to August 4 at 9 am.

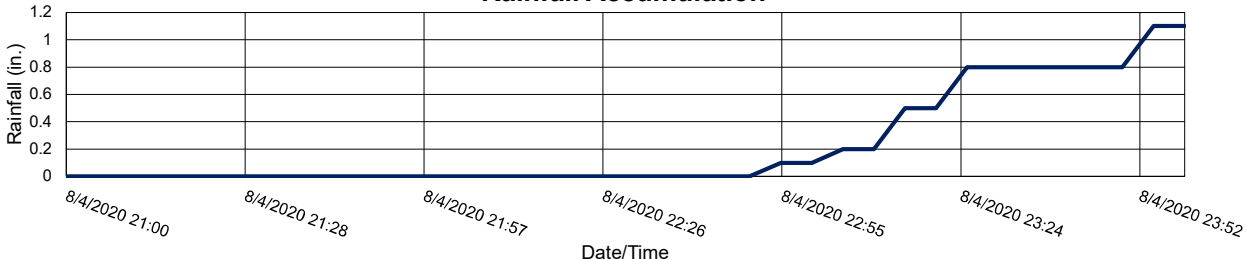
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



August 10, 2020

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.35 ft.	0.04 ft.
Return to Normal Depth:	0.49 ft.	0.13 ft.
Time Gate 1 Activated:	8/10/2020 8:40	8/10/2020 8:40
Time Gate 2 Activated:	8/10/2020 8:40	8/10/2020 8:40
Time Gate 1 Returned to Normal:	8/10/2020 9:05	8/10/2020 9:25
Time Gate 2 Returned to Normal:	8/10/2020 9:05	8/10/2020 9:25
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	0.55 ft.	0.38 ft.
Volume Stored:	1,218 Gal.	15,412 Gal.
Unused Storage Volume:	859,909 Gal.	1,249,268 Gal.

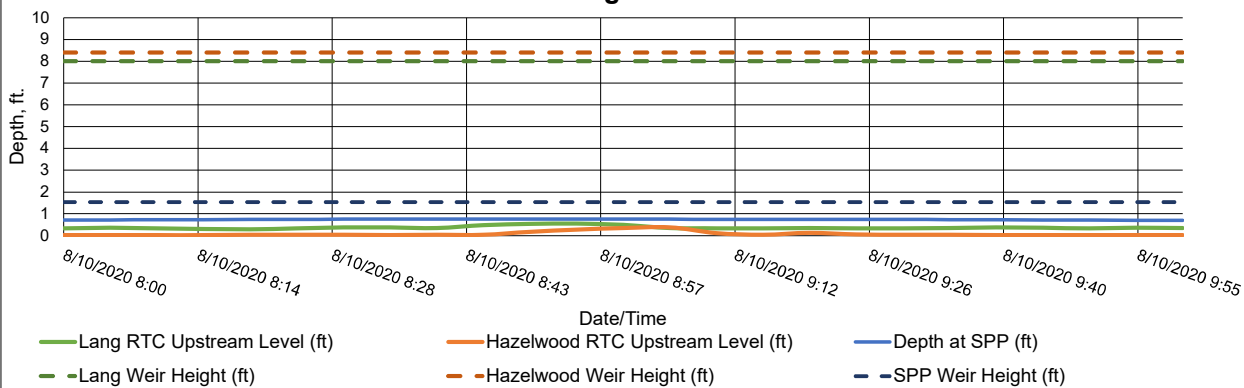
SPP:	340
Analysis Date:	9/3/2020
Event Start Date/Time:	8/10/2020 8:40
Event End Date/Time:	8/10/2020 9:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	2 hr.
Storm Type:	N/A

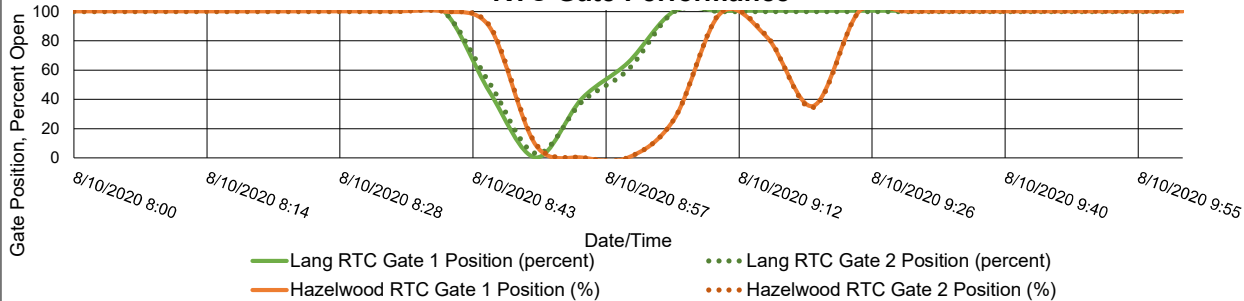
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	16,630 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:
No rainfall recorded during this storm event. This event was likely caused by a localized storm.

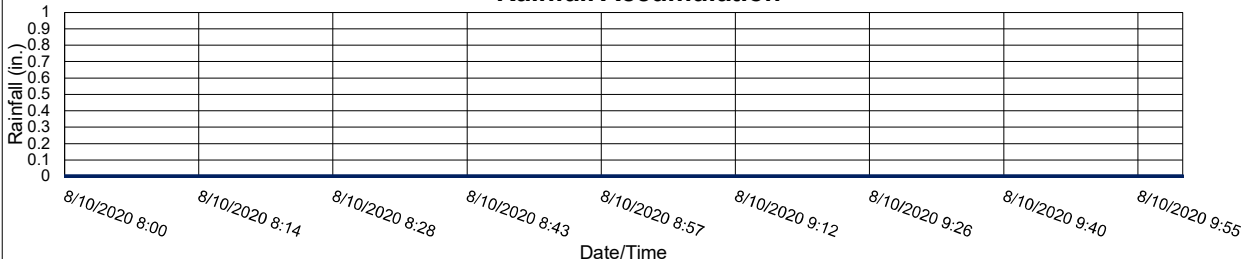
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



August 15, 2020

3

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.83 ft.	- ft.
Return to Normal Depth:	1.54 ft.	- ft.
Time Gate 1 Activated:	8/15/2020 18:55	N/A
Time Gate 2 Activated:	8/15/2020 18:55	N/A
Time Gate 1 Returned to Normal:	8/15/2020 20:25	N/A
Time Gate 2 Returned to Normal:	8/15/2020 20:25	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	5.11 ft.	1.68 ft.
Volume Stored:	279,669 Gal.	102,935 Gal.
Unused Storage Volume:	552,587 Gal.	1,163,235 Gal.

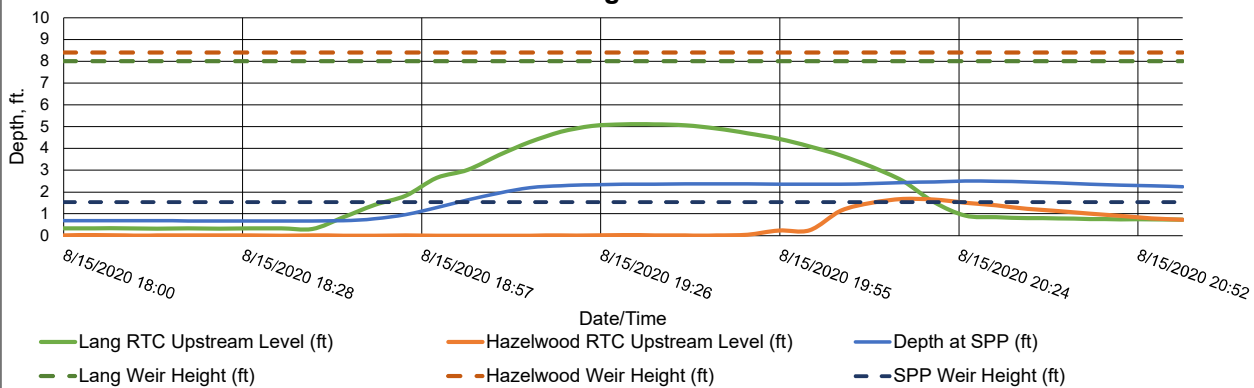
SPP:	340
Analysis Date:	9/3/2020
Event Start Date/Time:	8/15/2020 18:55
Event End Date/Time:	8/15/2020 20:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

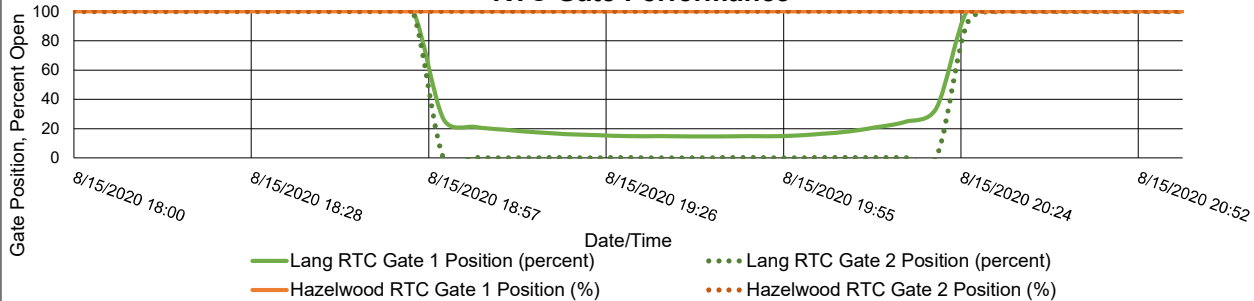
Percent Capture	23%
Overflow Volume:	1,245,830 Gal.
Overflow Volume Prevented:	382,604 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	1,245,830 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
Data was missing from August 20 at 1.40 am to August 24 at 9.10 am and from August 27 at 1 am through the rest of the month of August.

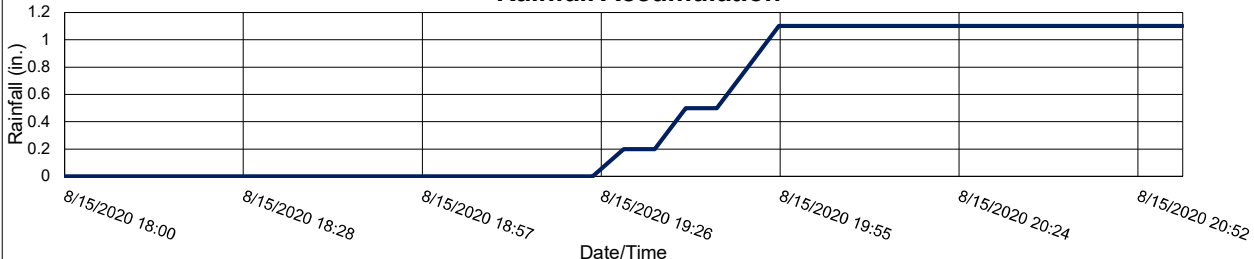
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



September 2020 Lang Ave. and Hazelwood RTC KPI Report

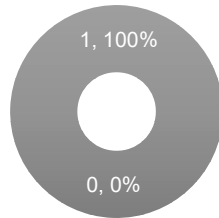
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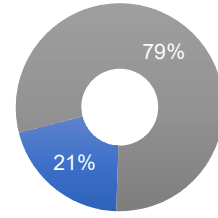
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Prevented SPP Events



■ 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.)
0	1	1,145,938	4,442,081
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
9/30/2020	1,145,938	4,442,081	21%

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.56 ft.	1.64 ft.
Return to Normal Depth:	1.00 ft.	2.70 ft.
Time Gate 1 Activated:	9/30/2020 0:30	9/30/2020 13:30
Time Gate 2 Activated:	9/30/2020 0:30	9/30/2020 13:30
Time Gate 1 Returned to Normal:	10/1/2020 0:10	9/30/2020 13:50
Time Gate 2 Returned to Normal:	10/1/2020 0:05	9/30/2020 13:50
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	7.42 ft.	2.70 ft.
Volume Stored:	1,043,025 Gal.	102,913 Gal.
Unused Storage Volume:	136,257 Gal.	1,063,516 Gal.

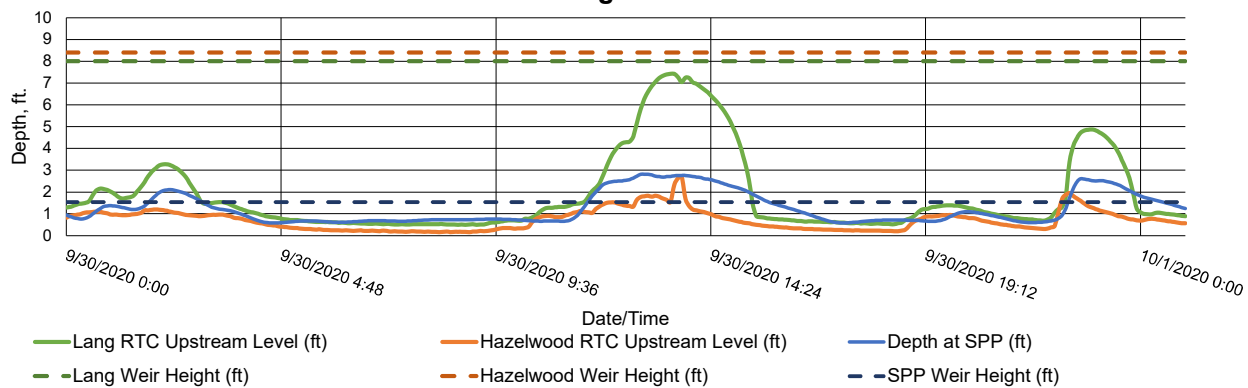
SPP:	340
Analysis Date:	10/6/2020
Event Start Date/Time:	9/30/2020 0:30
Event End Date/Time:	10/1/2020 0:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	2.3 in.
Storm Event Duration:	24 hr.
Storm Type:	Less than two years

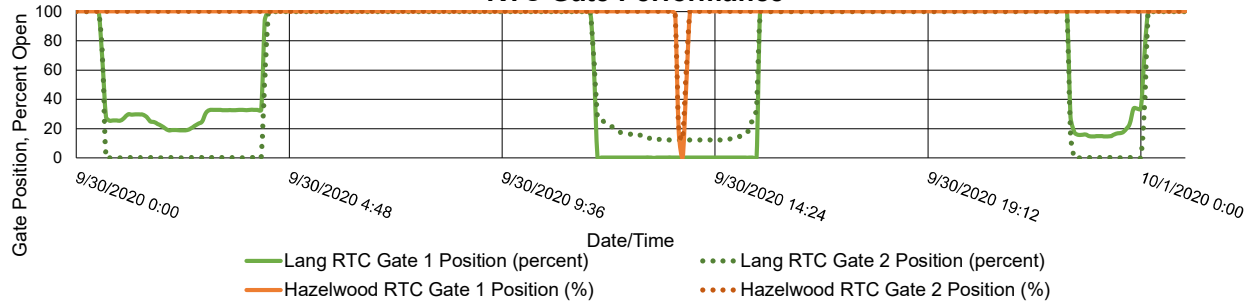
Percent Capture	21%
Overflow Volume:	4,442,081 Gal.
Overflow Volume Prevented:	1,145,938 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	4,442,081 Gal.
If No, could SPP activation have been prevented?	No
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
Lang Data was missing from the beginning of the month of September to September 18 at 10.15 am.

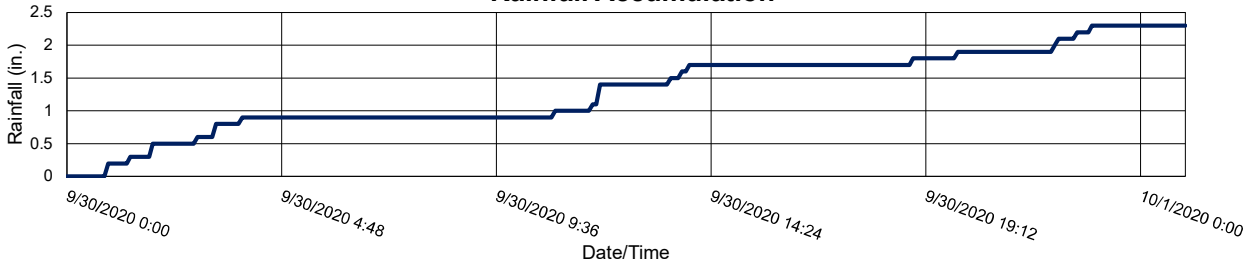
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



October 2020 Lang Ave. and Hazelwood RTC KPI Report

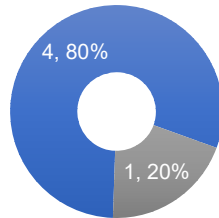
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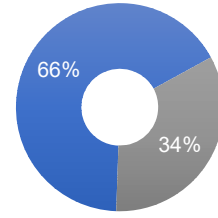
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Prevented SPP Events



■ 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.)
4	1	279,947	141,281
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
10/7/2020	40,627	-	100%
10/15/2020	26,293	-	100%
10/20/2020	43,914	-	100%
10/21/2020	45,929	-	100%
10/23/2020	123,184	141,281	47%

October 7, 2020

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.26 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	10/7/2020 9:35	N/A
Time Gate 2 Activated:	10/7/2020 9:35	N/A
Time Gate 1 Returned to Normal:	10/7/2020 11:30	N/A
Time Gate 2 Returned to Normal:	10/7/2020 11:30	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.28 ft.	0.81 ft.
Volume Stored:	461 Gal.	40,166 Gal.
Unused Storage Volume:	848,754 Gal.	1,226,004 Gal.

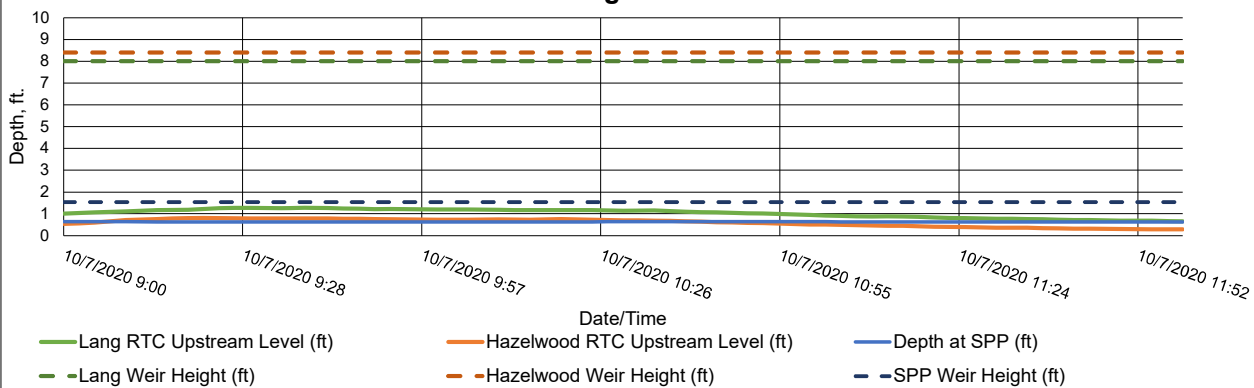
SPP:	340
Analysis Date:	11/7/2020
Event Start Date/Time:	10/7/2020 9:35
Event End Date/Time:	10/7/2020 11:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

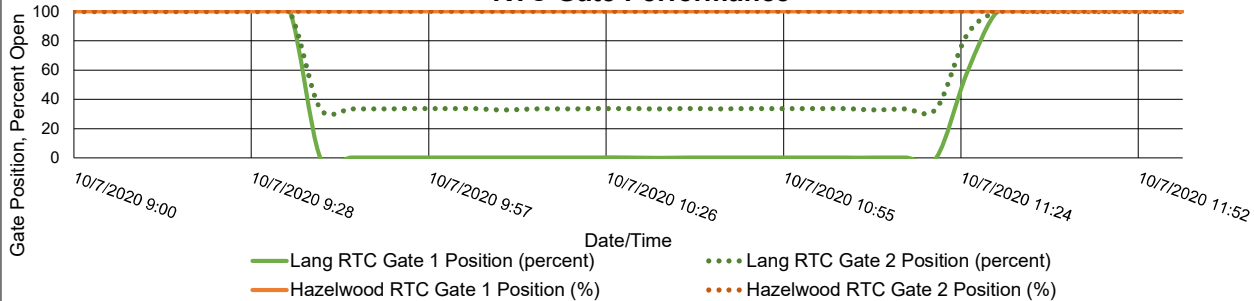
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	40,627 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:

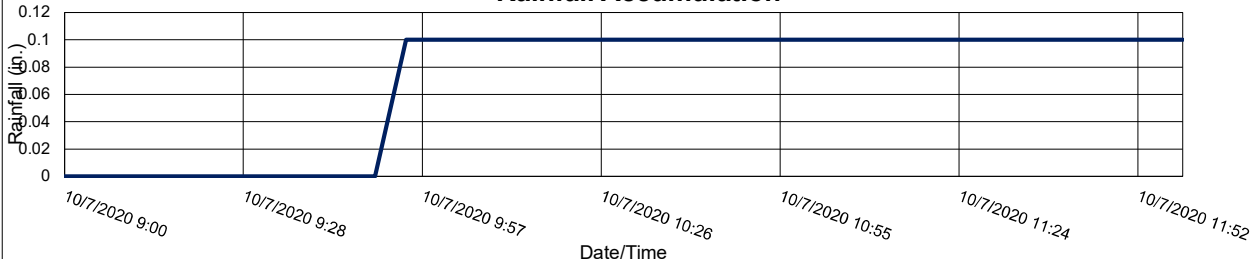
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



October 15, 2020

2

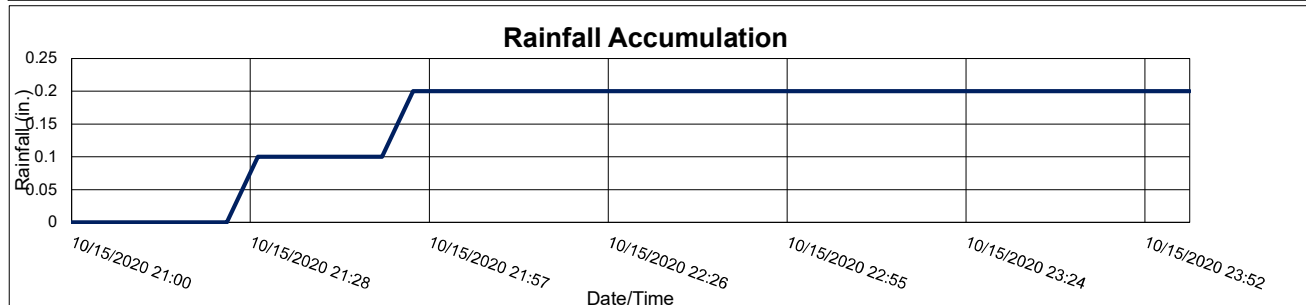
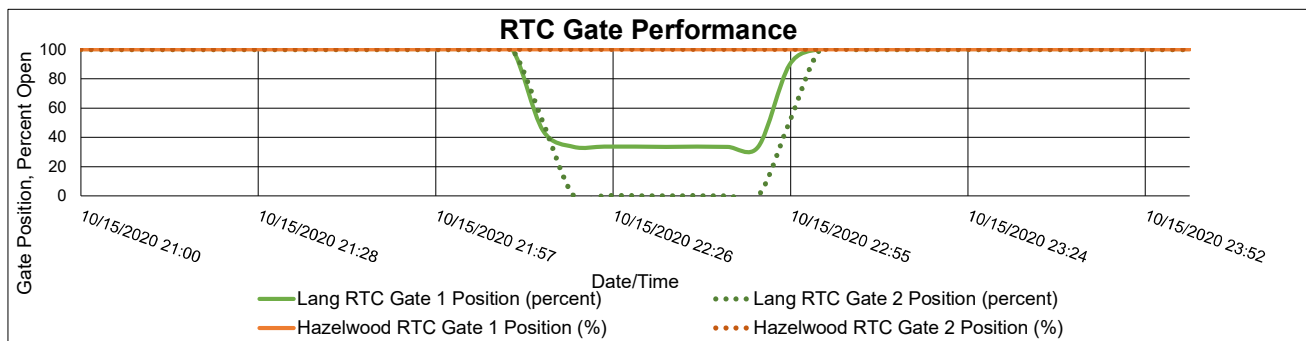
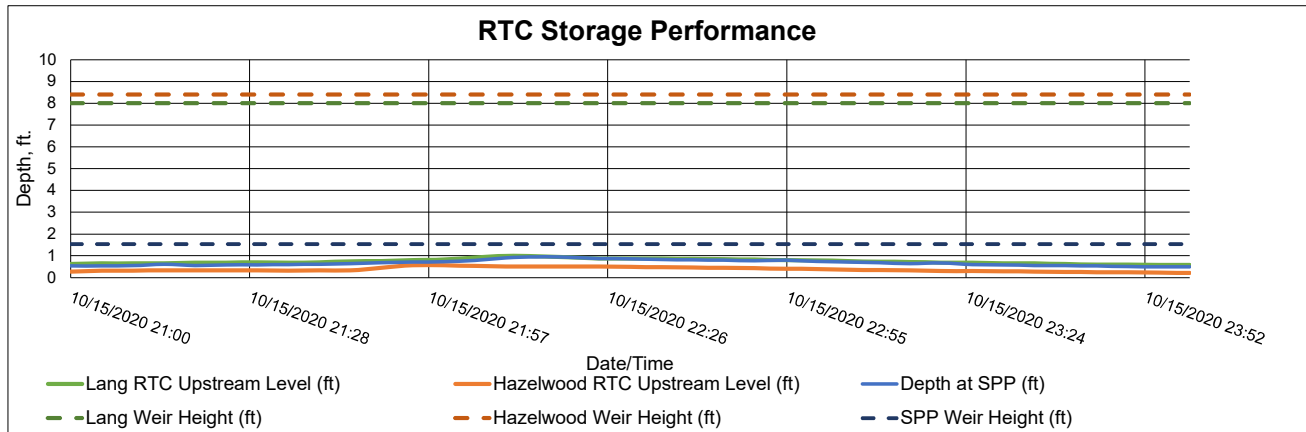
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.00 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	10/15/2020 22:10	N/A
Time Gate 2 Activated:	10/15/2020 22:10	N/A
Time Gate 1 Returned to Normal:	10/15/2020 23:00	N/A
Time Gate 2 Returned to Normal:	10/15/2020 23:00	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.00 ft.	0.57 ft.
Volume Stored:	0 Gal.	26,293 Gal.
Unused Storage Volume:	854,381 Gal.	1,239,877 Gal.

SPP:	340
Analysis Date:	11/7/2020
Event Start Date/Time:	10/15/2020 22:10
Event End Date/Time:	10/15/2020 23:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	26,293 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



October 20, 2020

3

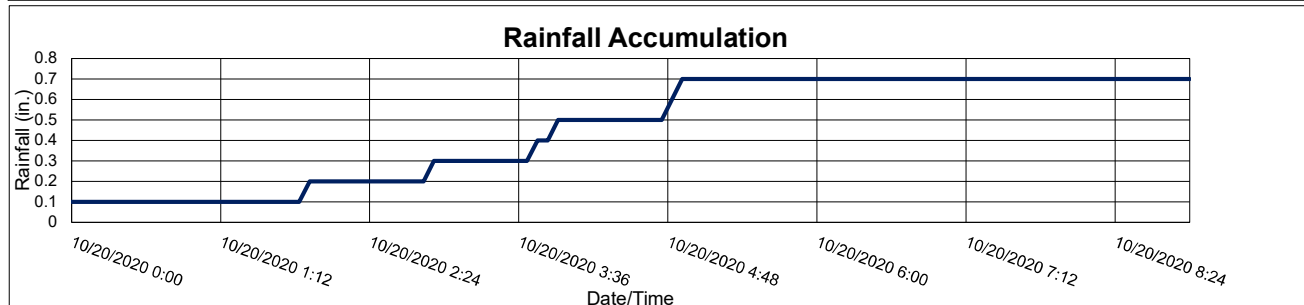
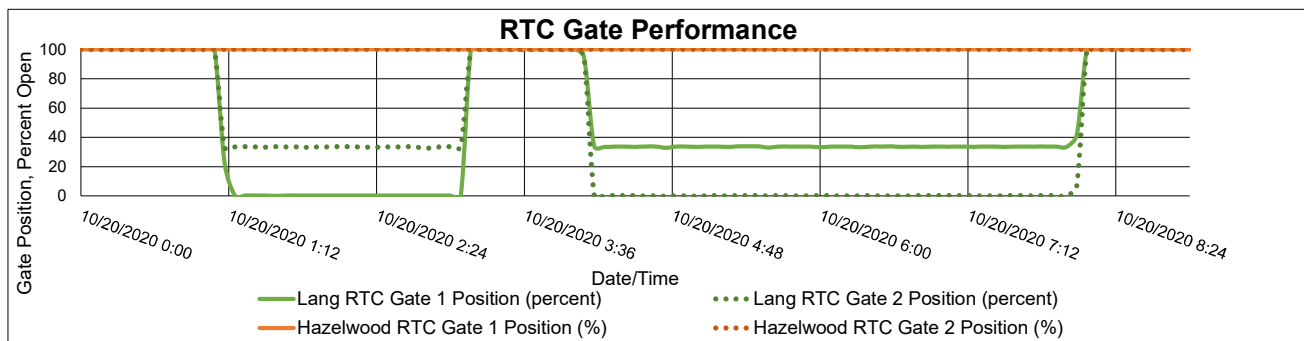
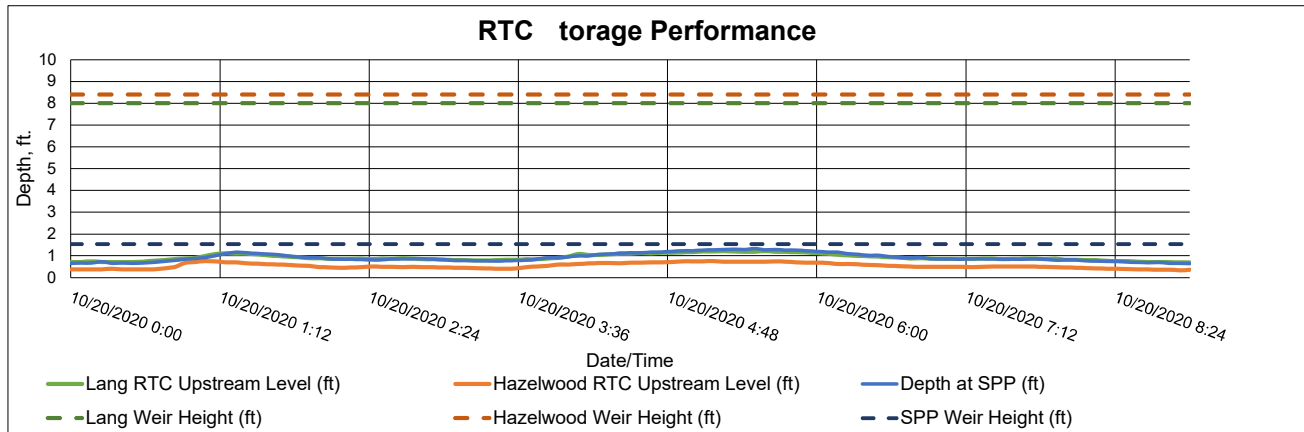
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.00 ft.	- ft.
Return to Normal Depth:	0.82 ft.	- ft.
Time Gate 1 Activated:	10/20/2020 1:05	N/A
Time Gate 2 Activated:	10/20/2020 1:05	N/A
Time Gate 1 Returned to Normal:	10/20/2020 8:10	N/A
Time Gate 2 Returned to Normal:	10/20/2020 8:05	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.21 ft.	0.76 ft.
Volume Stored:	6,714 Gal.	37,200 Gal.
Unused Storage Volume:	850,328 Gal.	1,228,970 Gal.

SPP:	340
Analysis Date:	11/7/2020
Event Start Date/Time:	10/20/2020 1:05
Event End Date/Time:	10/20/2020 8:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.7 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	43,914 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



October 21, 2020

4

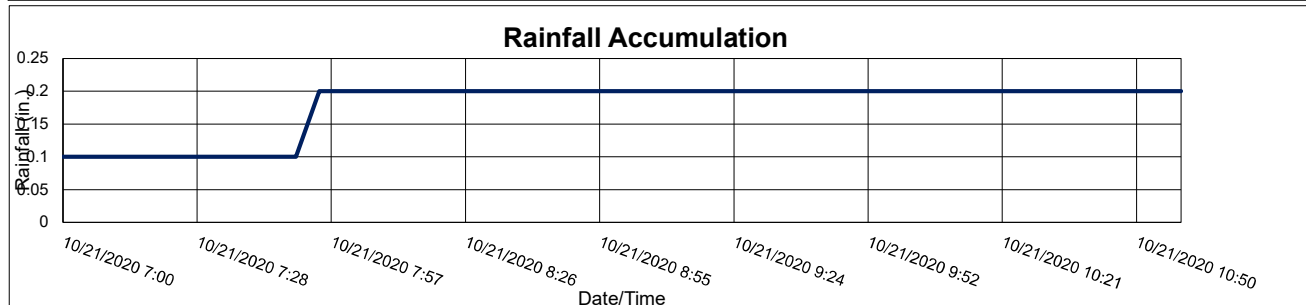
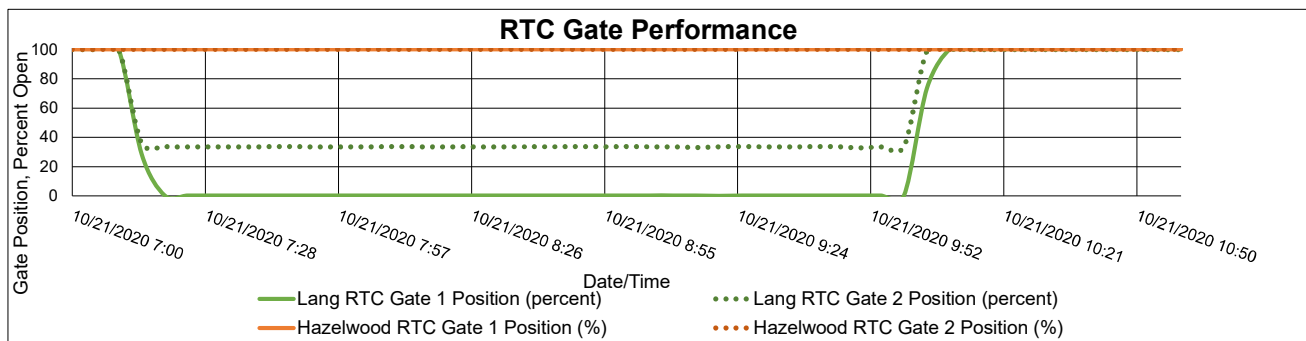
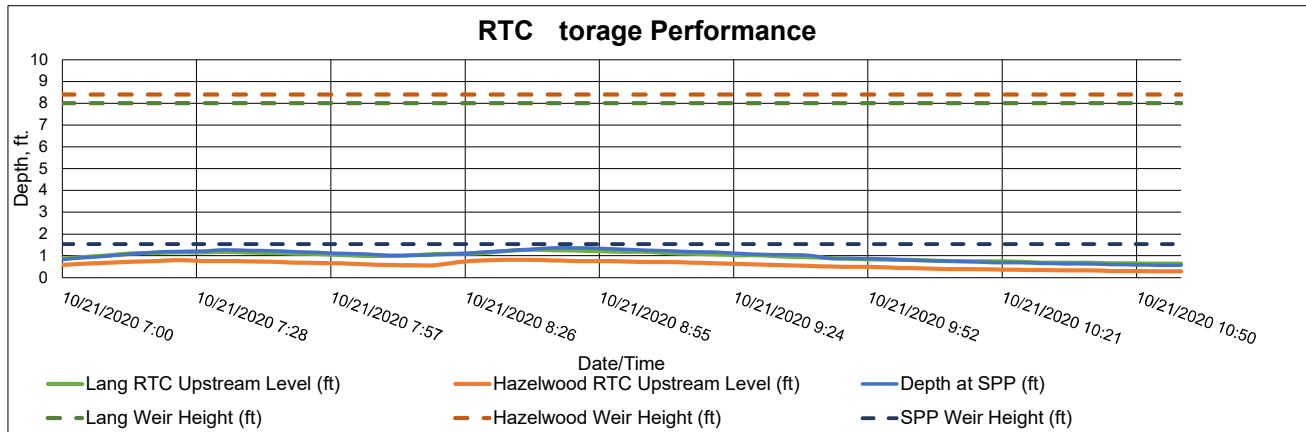
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.02 ft.	- ft.
Return to Normal Depth:	0.79 ft.	- ft.
Time Gate 1 Activated:	10/21/2020 7:10	N/A
Time Gate 2 Activated:	10/21/2020 7:10	N/A
Time Gate 1 Returned to Normal:	10/21/2020 10:10	N/A
Time Gate 2 Returned to Normal:	10/21/2020 10:10	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.28 ft.	0.82 ft.
Volume Stored:	5,284 Gal.	40,646 Gal.
Unused Storage Volume:	848,754 Gal.	1,225,525 Gal.

SPP:	340
Analysis Date:	11/7/2020
Event Start Date/Time:	10/21/2020 7:10
Event End Date/Time:	10/21/2020 10:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	4 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	45,929 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



October 23, 2020

5

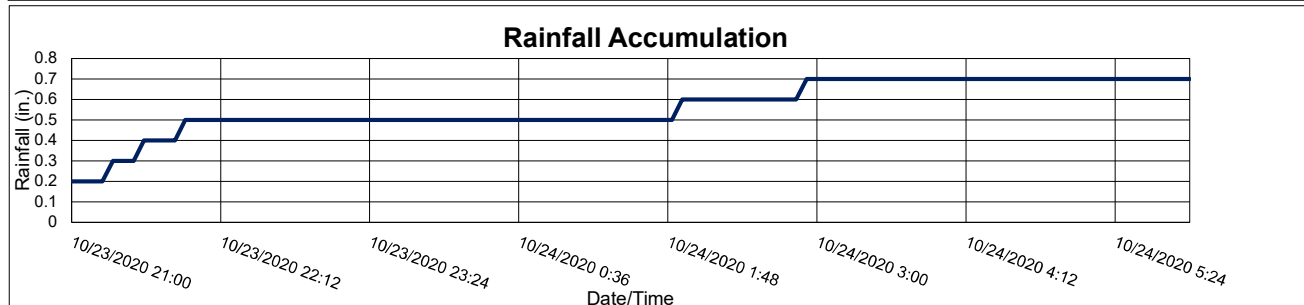
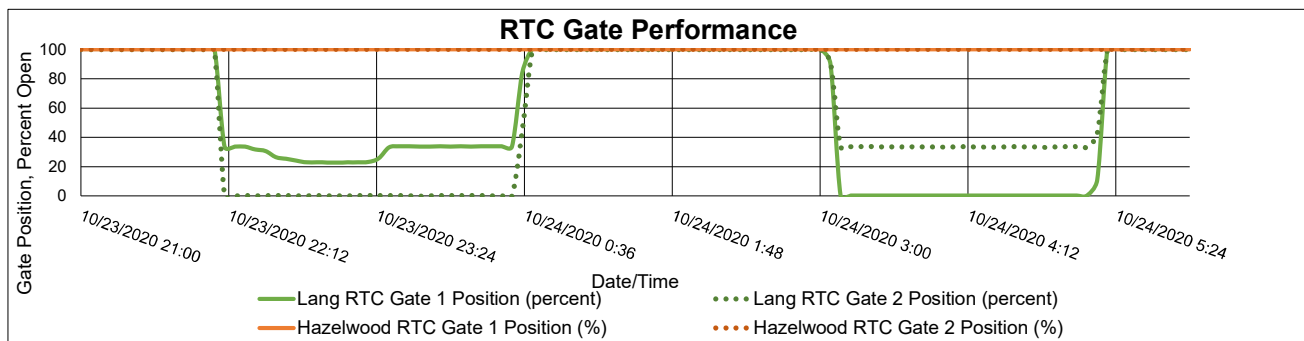
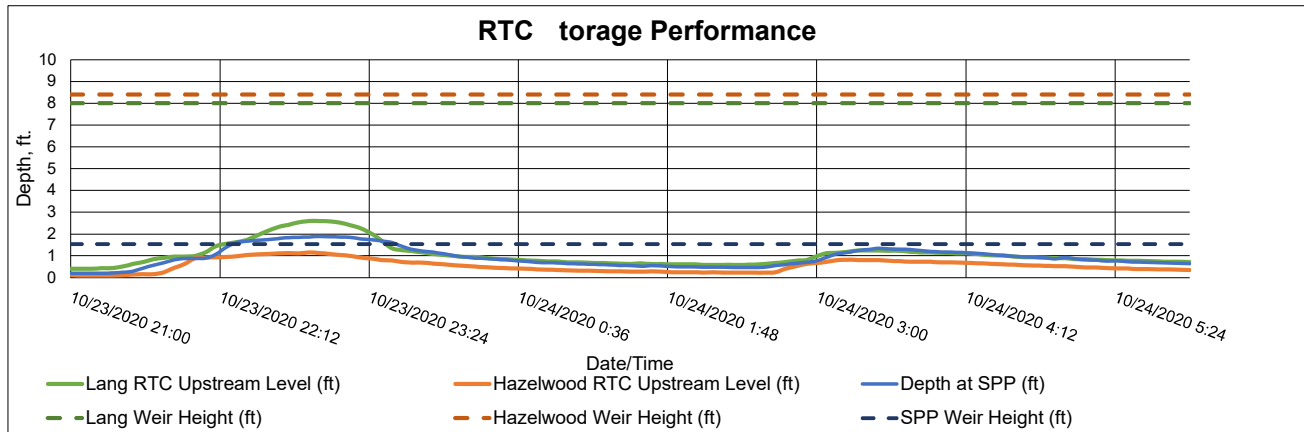
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.16 ft.	- ft.
Return to Normal Depth:	0.82 ft.	- ft.
Time Gate 1 Activated:	10/23/2020 22:05	N/A
Time Gate 2 Activated:	10/23/2020 22:05	N/A
Time Gate 1 Returned to Normal:	10/24/2020 5:20	N/A
Time Gate 2 Returned to Normal:	10/24/2020 5:15	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.25 ft.	1.15 ft.
Volume Stored:	60,810 Gal.	62,374 Gal.
Unused Storage Volume:	795,847 Gal.	1,203,796 Gal.

SPP:	340
Analysis Date:	11/7/2020
Event Start Date/Time:	10/23/2020 22:05
Event End Date/Time:	10/24/2020 5:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.7 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than one year

Percent Capture	47%
Overflow Volume:	141,281 Gal.
Overflow Volume Prevented:	123,184 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	141,281 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:



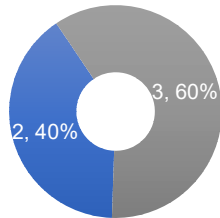
November 2020 Lang Ave. and Hazelwood RTC KPI Report

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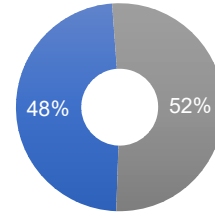


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Prevented SPP Events

■ 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.)
2	3	1,825,551	1,957,431
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
11/1/2020	1,410,631	1,331,601	51%
11/11/2020	275,821	385,897	42%
11/15/2020	29,769	-	100%
11/22/2020	33,696	-	100%
11/30/2020	75,634	239,933	24%

November 1, 2020

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.82 ft.	2.88 ft.
Return to Normal Depth:	0.75 ft.	0.70 ft.
Time Gate 1 Activated:	11/1/2020 10:55	11/1/2020 11:35
Time Gate 2 Activated:	11/1/2020 10:55	11/1/2020 14:05
Time Gate 1 Returned to Normal:	11/1/2020 15:35	11/1/2020 14:30
Time Gate 2 Returned to Normal:	11/1/2020 15:35	11/1/2020 14:30
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	8.00 ft.	6.31 ft.
Volume Stored:	857,087 Gal.	553,544 Gal.
Unused Storage Volume:	0 Gal.	489,478 Gal.

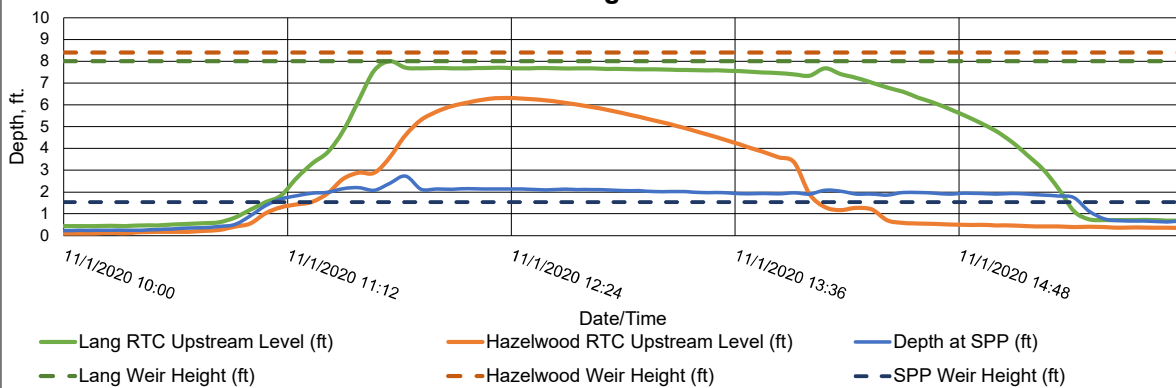
SPP:	340
Analysis Date:	12/11/2020
Event Start Date/Time:	11/1/2020 10:55
Event End Date/Time:	11/1/2020 15:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.1 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than one year

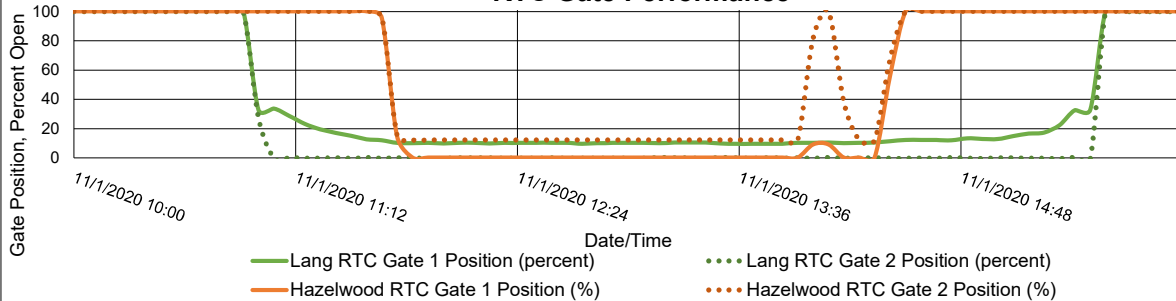
Percent Capture	51%
Overflow Volume:	1,331,601 Gal.
Overflow Volume Prevented:	1,410,631 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	1,331,601 Gal.
If No, could SPP activation have been prevented?	No
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:

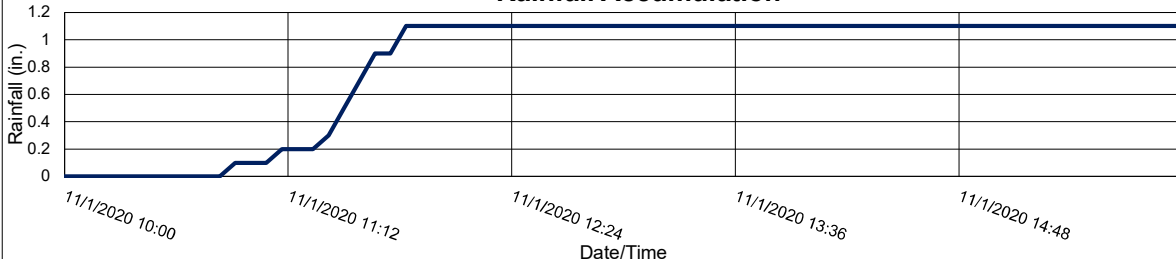
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



November 11, 2020

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.77 ft.	- ft.
Return to Normal Depth:	0.77 ft.	- ft.
Time Gate 1 Activated:	11/11/2020 4:35	N/A
Time Gate 2 Activated:	11/11/2020 4:35	N/A
Time Gate 1 Returned to Normal:	11/11/2020 7:10	N/A
Time Gate 2 Returned to Normal:	11/11/2020 7:10	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	4.15 ft.	1.49 ft.
Volume Stored:	188,052 Gal.	87,770 Gal.
Unused Storage Volume:	669,667 Gal.	1,178,401 Gal.

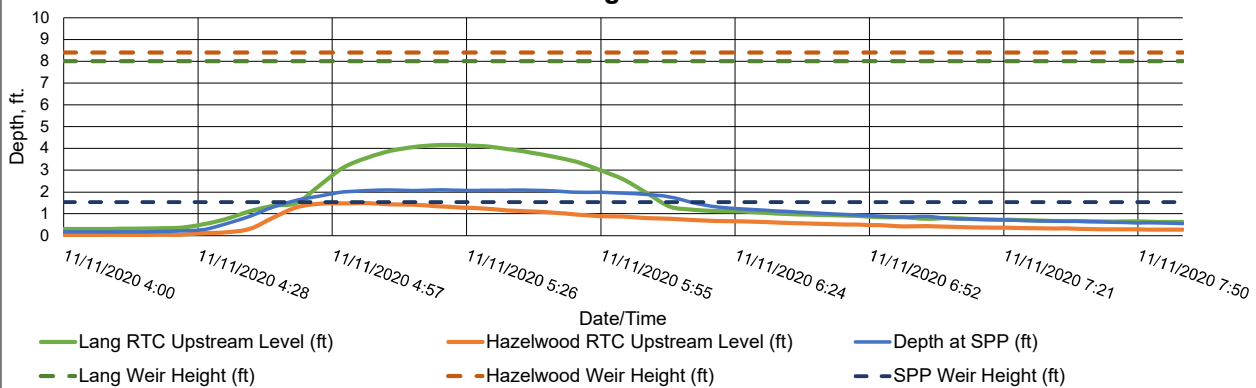
SPP:	340
Analysis Date:	12/11/2020
Event Start Date/Time:	11/11/2020 4:35
Event End Date/Time:	11/11/2020 7:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.7 in.
Storm Event Duration:	4 hr.
Storm Type:	Less than one year

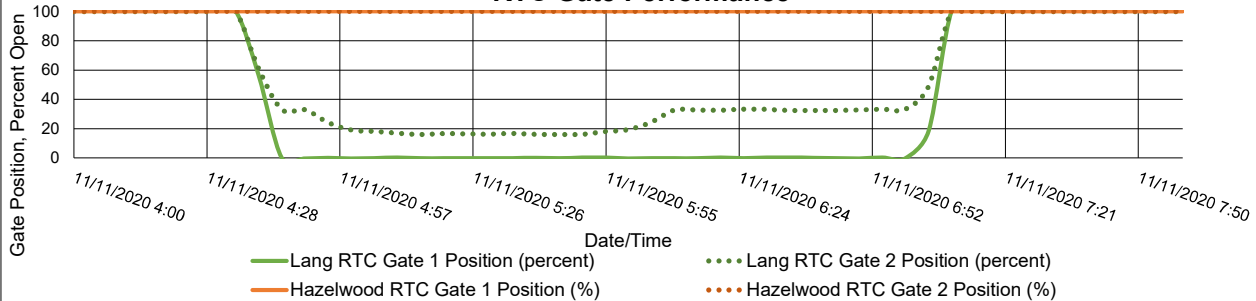
Percent Capture	42%
Overflow Volume:	385,897 Gal.
Overflow Volume Prevented:	275,821 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	385,897 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:

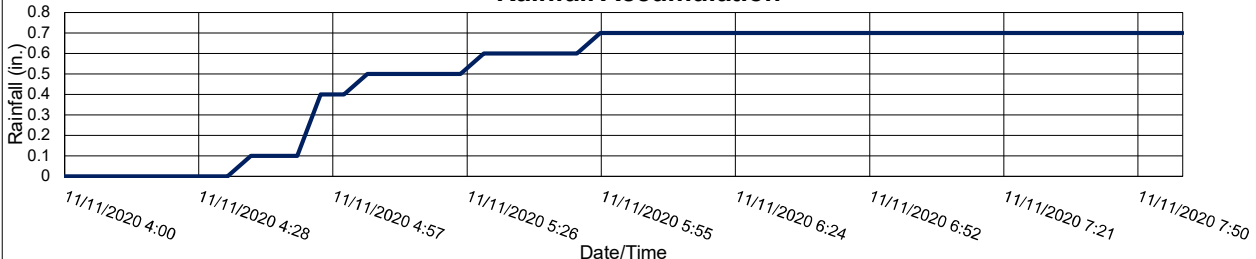
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



November 15, 2020

3

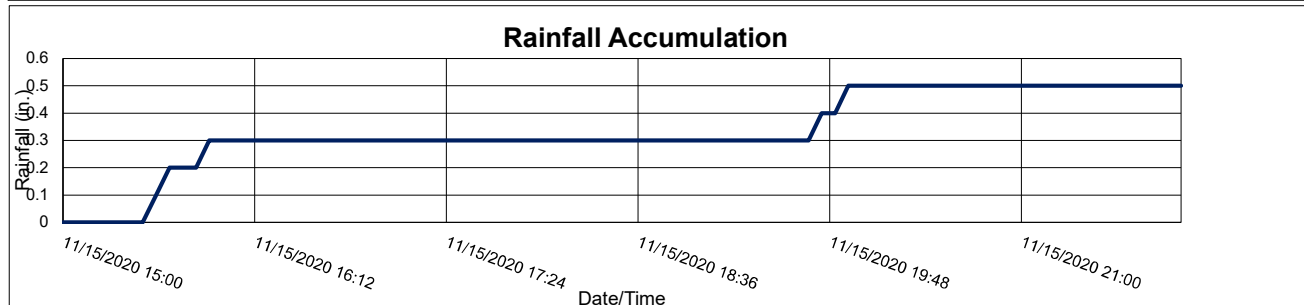
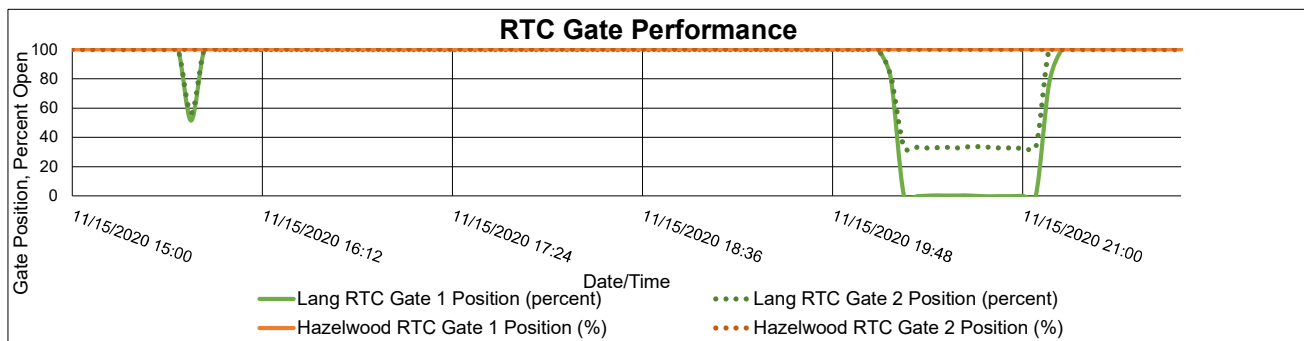
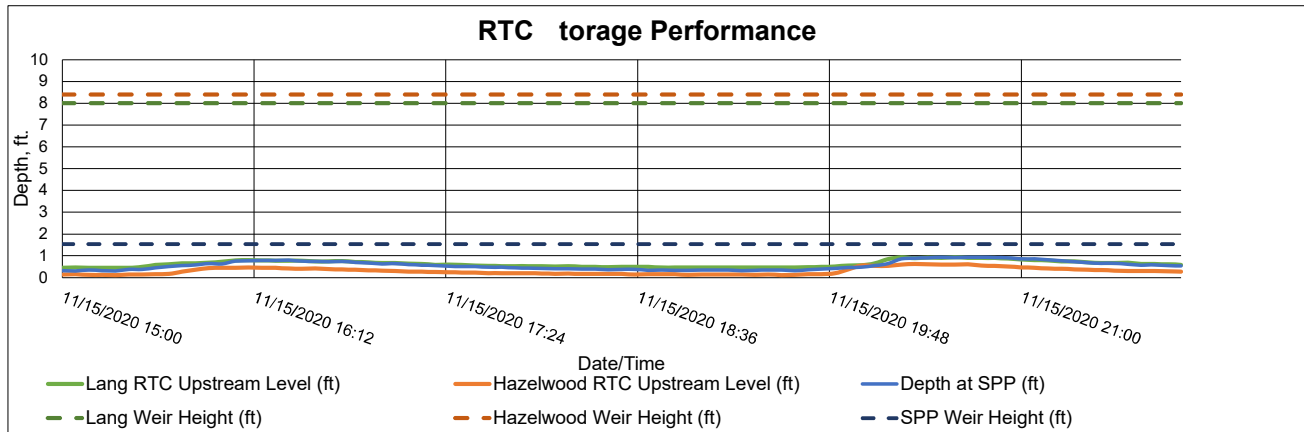
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.61 ft.	- ft.
Return to Normal Depth:	0.79 ft.	- ft.
Time Gate 1 Activated:	11/15/2020 15:40	N/A
Time Gate 2 Activated:	11/15/2020 15:40	N/A
Time Gate 1 Returned to Normal:	11/15/2020 21:15	N/A
Time Gate 2 Returned to Normal:	11/15/2020 21:05	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	0.93 ft.	0.62 ft.
Volume Stored:	3,888 Gal.	29,395 Gal.
Unused Storage Volume:	855,515 Gal.	1,236,775 Gal.

SPP:	340
Analysis Date:	12/11/2020
Event Start Date/Time:	11/15/2020 15:40
Event End Date/Time:	11/15/2020 15:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	29,769 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



November 22, 2020

4

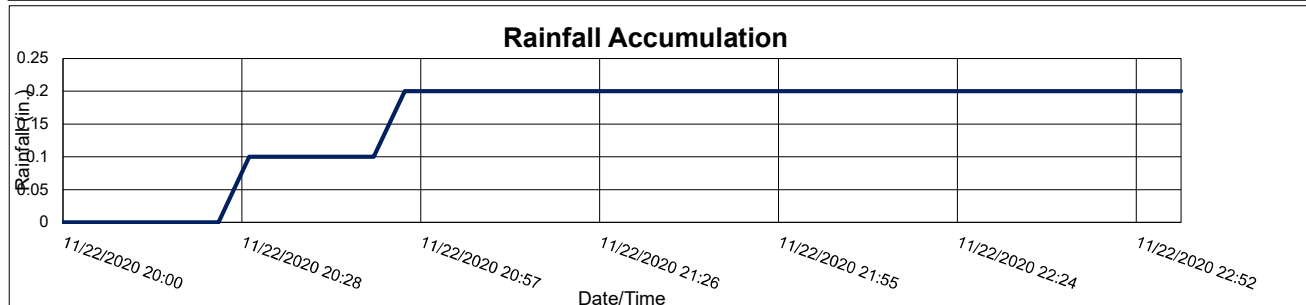
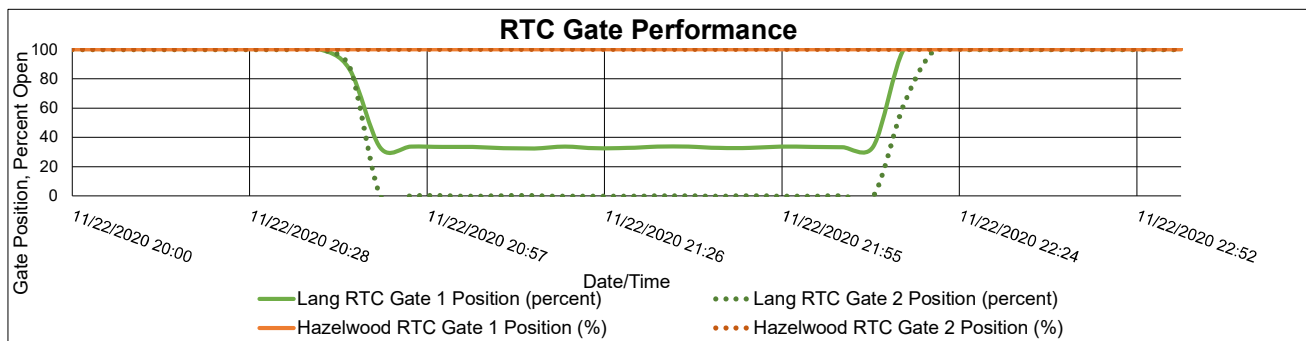
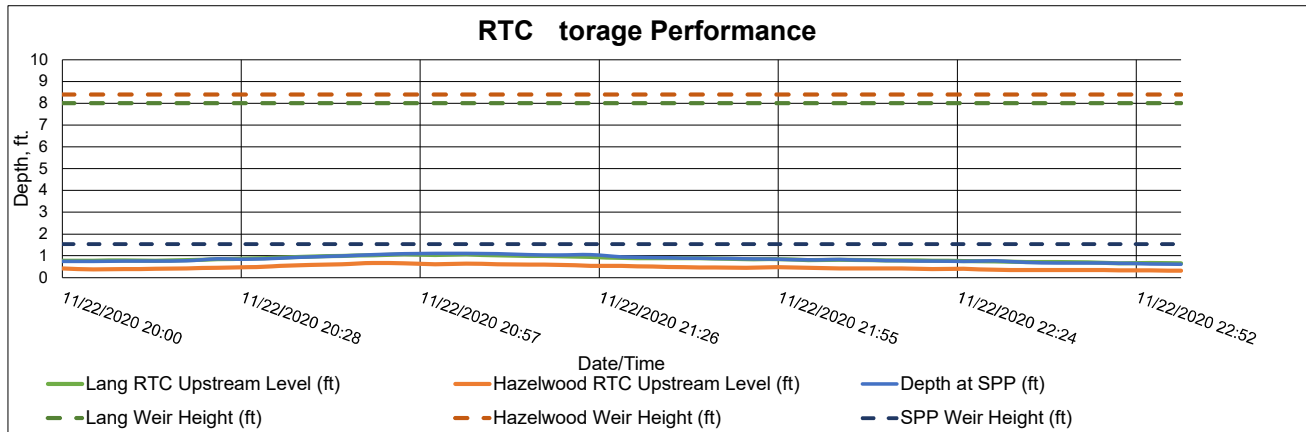
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.97 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	11/22/2020 20:40	N/A
Time Gate 2 Activated:	11/22/2020 20:40	N/A
Time Gate 1 Returned to Normal:	11/22/2020 22:15	N/A
Time Gate 2 Returned to Normal:	11/22/2020 22:15	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.06 ft.	0.67 ft.
Volume Stored:	1,556 Gal.	32,140 Gal.
Unused Storage Volume:	853,324 Gal.	1,234,031 Gal.

SPP:	340
Analysis Date:	12/11/2020
Event Start Date/Time:	11/22/2020 20:40
Event End Date/Time:	11/22/2020 22:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	33,696 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



November 30, 2020

5

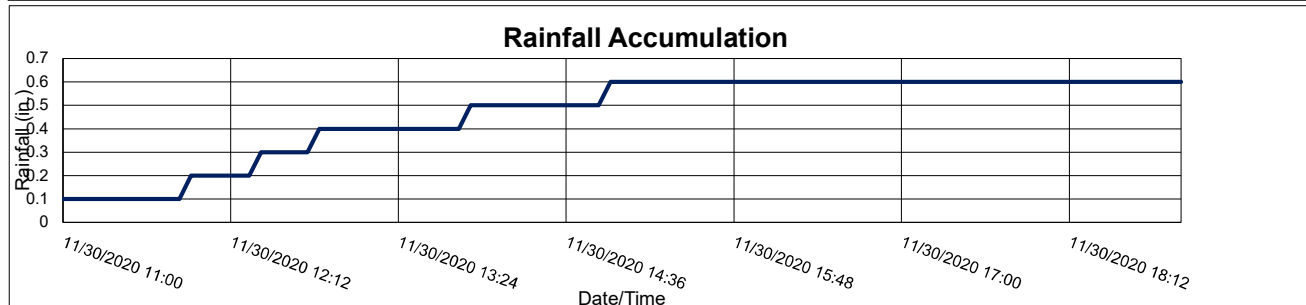
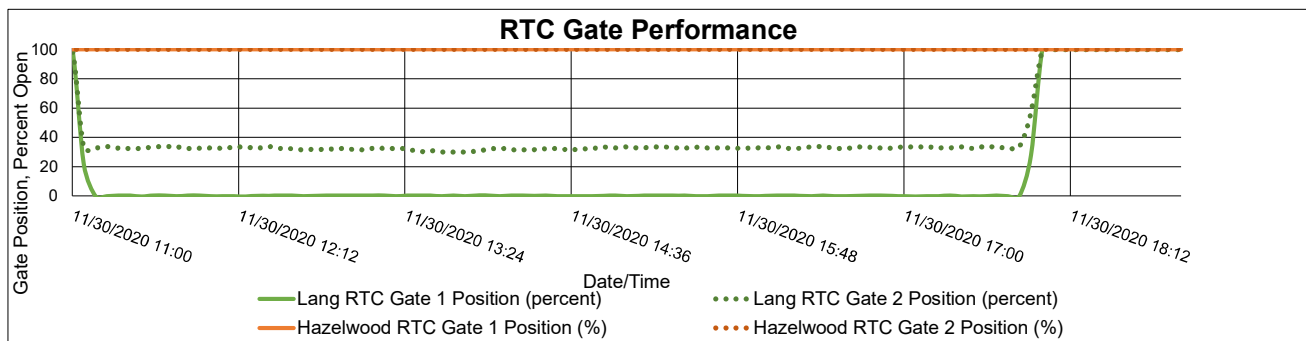
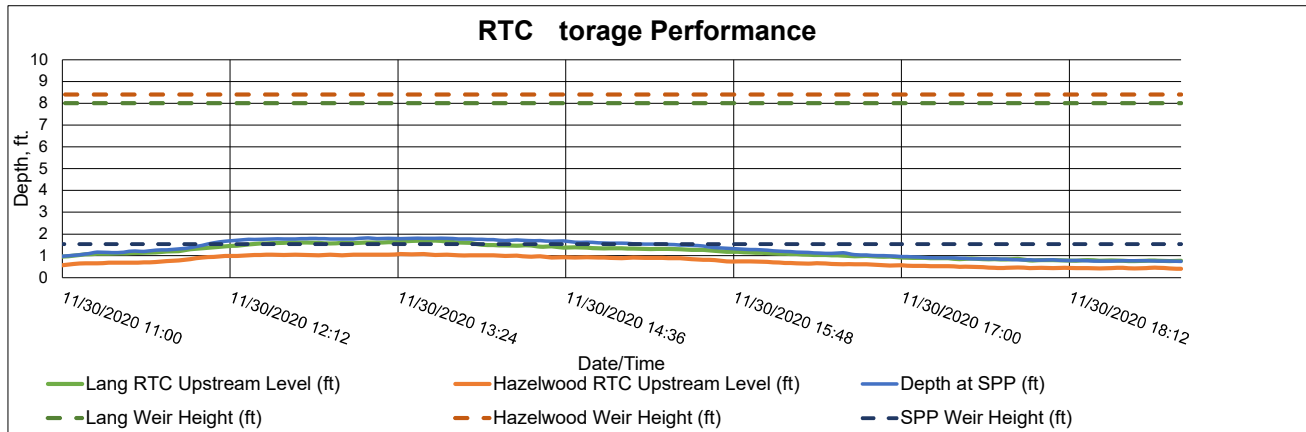
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.96 ft.	- ft.
Return to Normal Depth:	0.79 ft.	- ft.
Time Gate 1 Activated:	11/30/2020 11:00	N/A
Time Gate 2 Activated:	11/30/2020 11:00	N/A
Time Gate 1 Returned to Normal:	11/30/2020 18:00	N/A
Time Gate 2 Returned to Normal:	11/30/2020 18:00	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.70 ft.	1.08 ft.
Volume Stored:	18,205 Gal.	57,429 Gal.
Unused Storage Volume:	836,837 Gal.	1,208,741 Gal.

SPP:	340
Analysis Date:	12/11/2020
Event Start Date/Time:	11/30/2020 11:00
Event End Date/Time:	11/30/2020 18:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.6 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Percent Capture	24%
Overflow Volume:	239,933 Gal.
Overflow Volume Prevented:	75,634 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	239,933 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:



December 2020 Lang Ave. and Hazelwood RTC KPI Report

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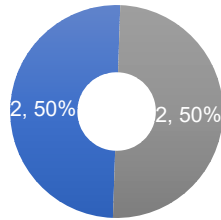
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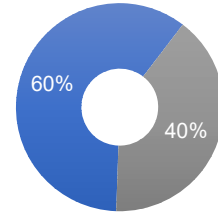
December 2020

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.)
2	2	2,069,270	1,391,227
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
12/12/2020	35,196	13,730	72%
12/21/2020	27,627	-	100%
12/28/2020	41,057	-	100%
12/30/2020	1,965,390	1,377,497	59%

December 12, 2020

1

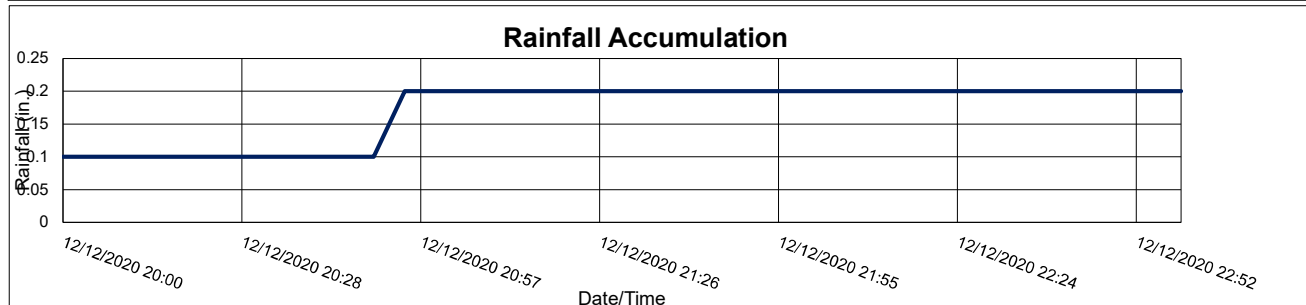
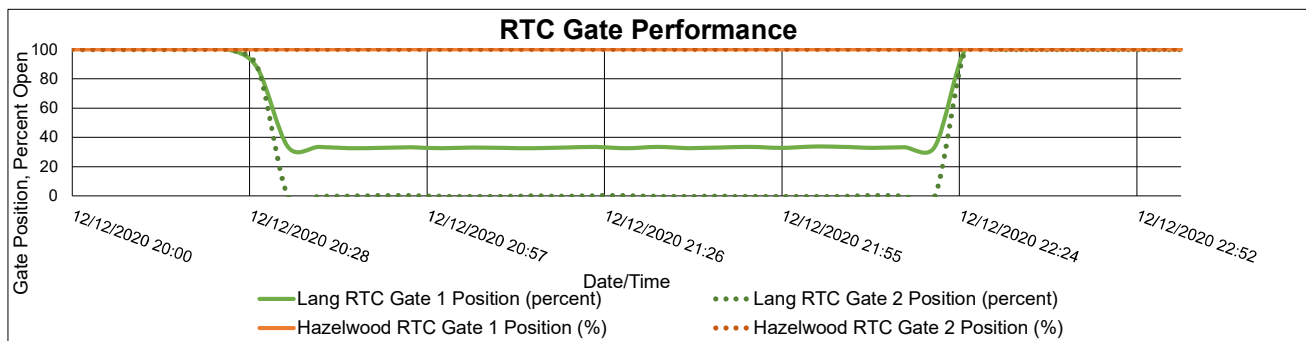
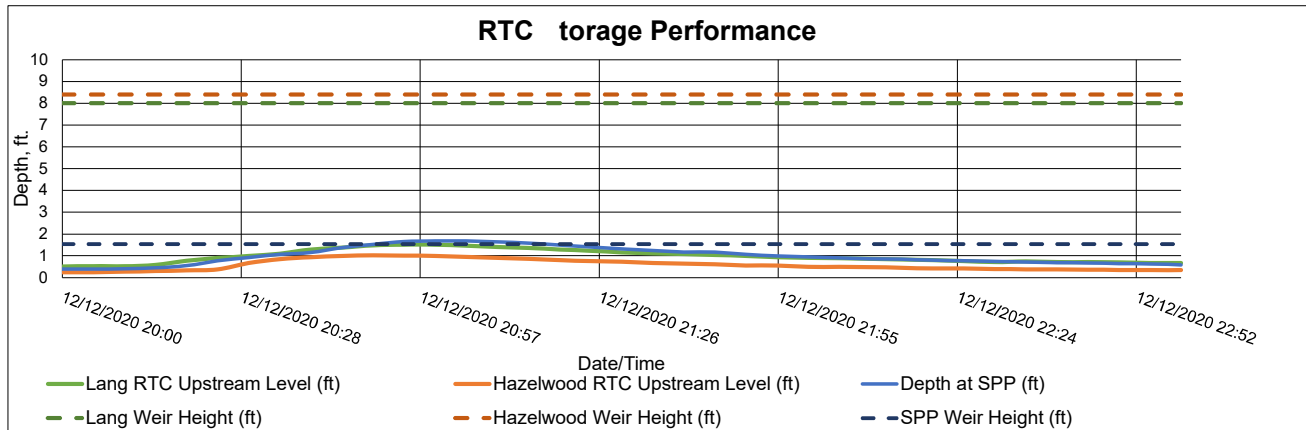
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.90 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	12/12/2020 20:25	N/A
Time Gate 2 Activated:	12/12/2020 20:25	N/A
Time Gate 1 Returned to Normal:	12/12/2020 22:25	N/A
Time Gate 2 Returned to Normal:	12/12/2020 22:25	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.51 ft.	1.02 ft.
Volume Stored:	13,206 Gal.	21,990 Gal.
Unused Storage Volume:	842,763 Gal.	1,212,223 Gal.

SPP:	340
Analysis Date:	1/5/2021
Event Start Date/Time:	12/12/2020 20:25
Event End Date/Time:	12/12/2020 22:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than one year

Percent Capture	72%
Overflow Volume:	13,730 Gal.
Overflow Volume Prevented:	35,196 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	13,730 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:



December 21, 2020

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.98 ft.	- ft.
Return to Normal Depth:	0.77 ft.	- ft.
Time Gate 1 Activated:	12/21/2020 22:15	N/A
Time Gate 2 Activated:	12/21/2020 22:15	N/A
Time Gate 1 Returned to Normal:	12/22/2020 1:10	N/A
Time Gate 2 Returned to Normal:	12/22/2020 1:10	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	0.99 ft.	0.59 ft.
Volume Stored:	166 Gal.	27,461 Gal.
Unused Storage Volume:	854,549 Gal.	1,238,710 Gal.

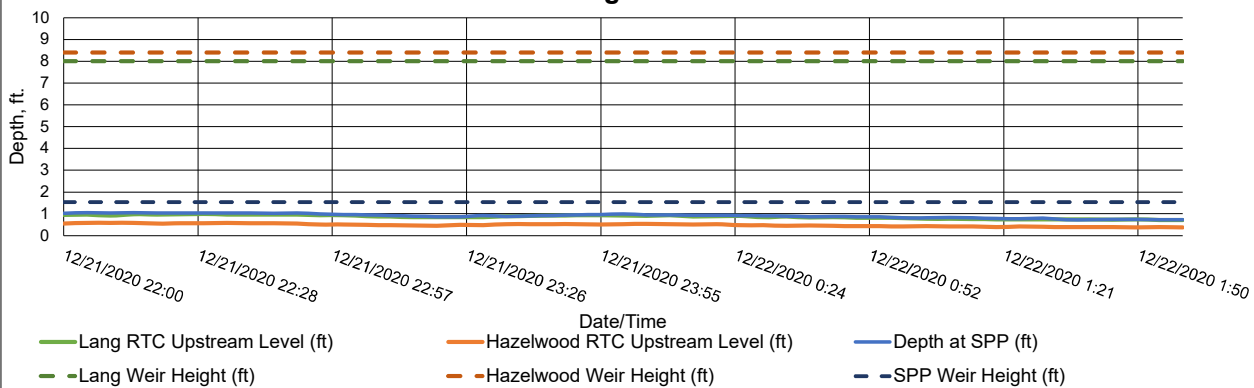
SPP:	340
Analysis Date:	1/5/2021
Event Start Date/Time:	12/21/2020 22:15
Event End Date/Time:	12/22/2020 1:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	4 hr.
Storm Type:	Less than one year

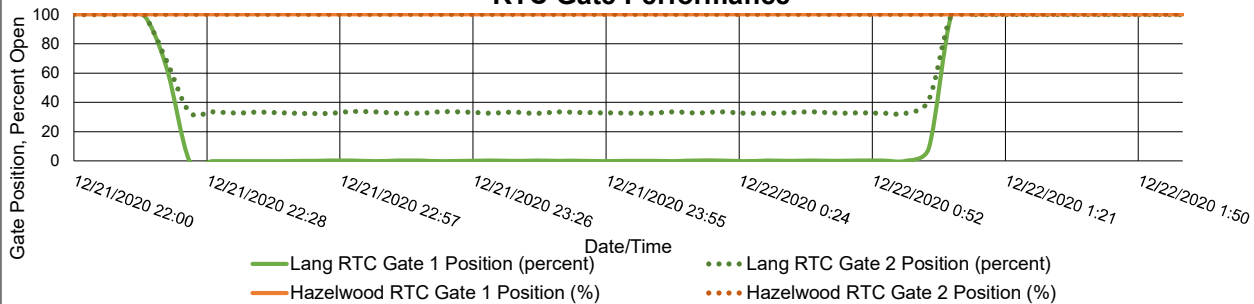
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	27,627 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:

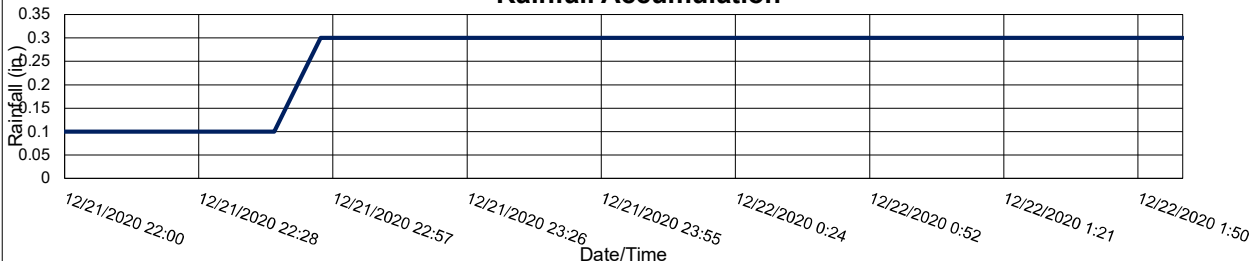
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



December 28, 2020

3

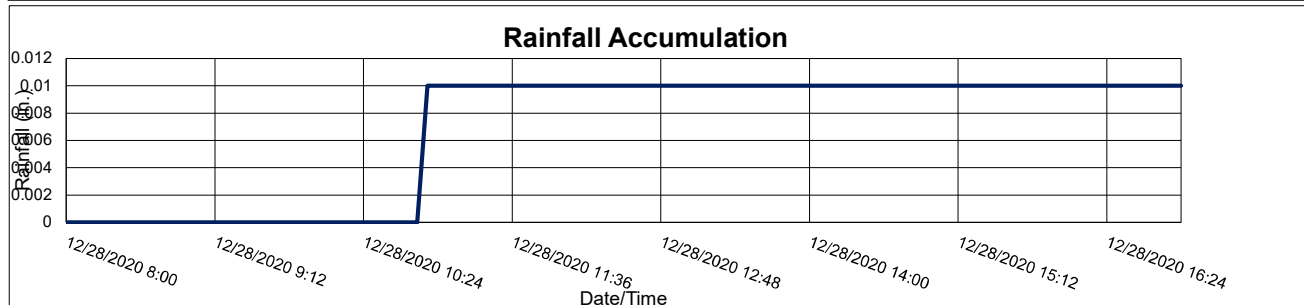
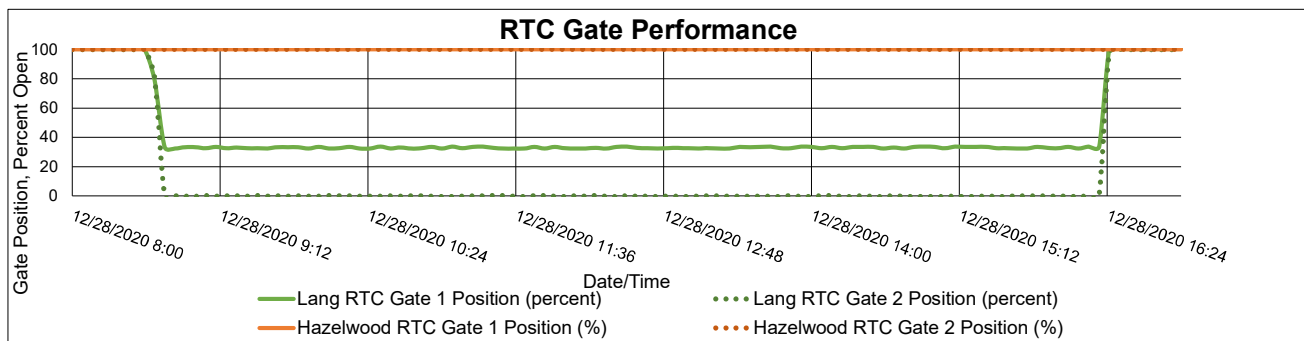
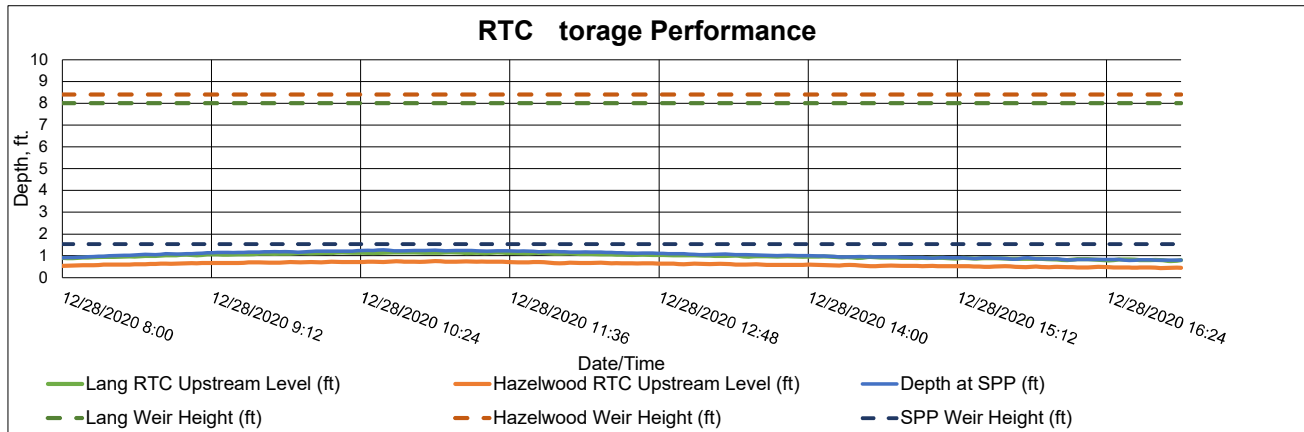
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.97 ft.	- ft.
Return to Normal Depth:	0.82 ft.	- ft.
Time Gate 1 Activated:	12/28/2020 8:35	N/A
Time Gate 2 Activated:	12/28/2020 8:35	N/A
Time Gate 1 Returned to Normal:	12/28/2020 16:25	N/A
Time Gate 2 Returned to Normal:	12/28/2020 16:25	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.16 ft.	0.76 ft.
Volume Stored:	3,497 Gal.	37,560 Gal.
Unused Storage Volume:	851,383 Gal.	1,228,610 Gal.

SPP:	340
Analysis Date:	1/5/2021
Event Start Date/Time:	12/28/2020 8:35
Event End Date/Time:	12/28/2020 16:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than one year

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	41,057 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 Hazelwood storage?	Yes

Recommended Operational Changes/Notes:



RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.98 ft.	1.95 ft.
Return to Normal Depth:	0.81 ft.	2.01 ft.
Time Gate 1 Activated:	12/30/2020 15:40	12/30/2020 20:10
Time Gate 2 Activated:	12/30/2020 15:40	12/30/2020 20:10
Time Gate 1 Returned to Normal:	12/31/2020 8:30	N/A
Time Gate 2 Returned to Normal:	12/31/2020 8:30	12/31/2020 3:15
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	7.88 ft.	8.40 ft.
Volume Stored:	825,440 Gal.	1,139,950 Gal.
Unused Storage Volume:	29,275 Gal.	0 Gal.

SPP:	340
Analysis Date:	1/5/2021
Event Start Date/Time:	12/30/2020 15:40
Event End Date/Time:	12/31/2020 8:30

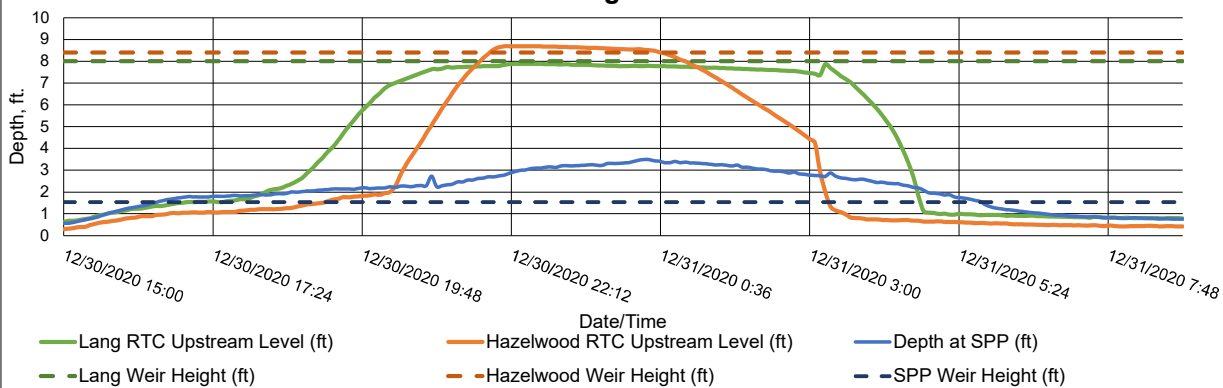
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.5 in.
Storm Event Duration:	18 hr.
Storm Type:	Less than one year

Percent Capture	59%
Overflow Volume:	1,377,497 Gal.
Overflow Volume Prevented:	1,965,390 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	1,377,497 Gal.
If No, could SPP activation have been prevented?	No
If es, could SPP activation have been prevented without Hazelwood storage?	NA

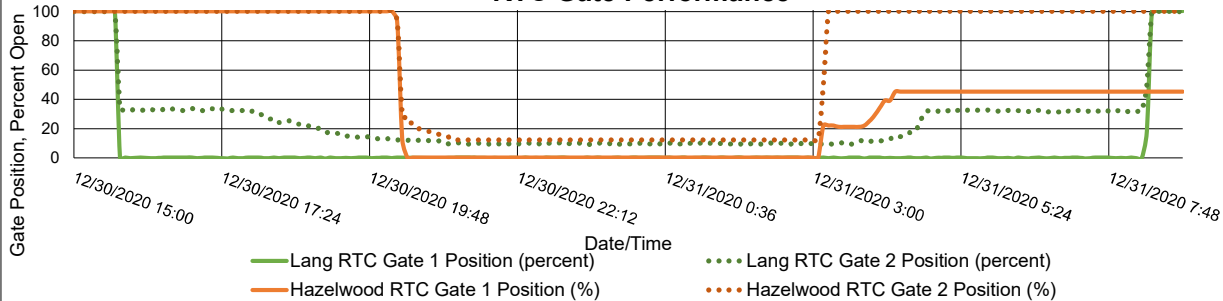
Recommended Operational Changes/Notes:

Hazelwood RTC Gate 1 was stuck at 45% open after the event.

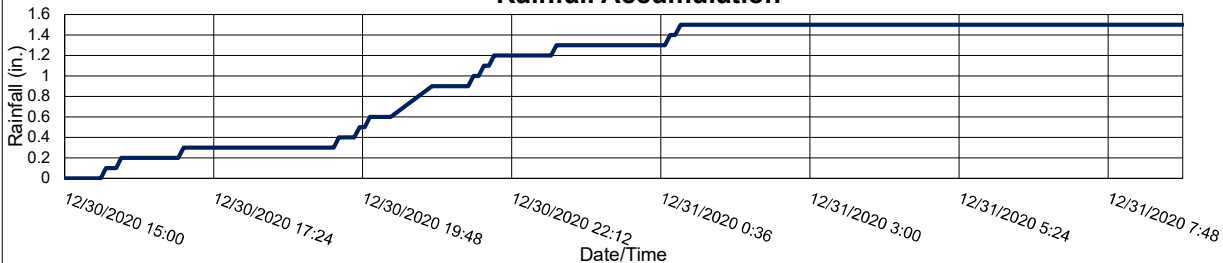
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



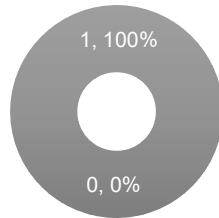
January 2021 Lang Ave. and Hazelwood RTC KPI Report

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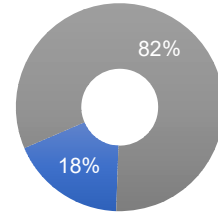


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Prevented SPP Events

■ 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.)
0	1	606,192	2,760,511
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
1/2/2021	606,192	2,760,511	18%

January 2, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.98 ft.	- ft.
Return to Normal Depth:	0.83 ft.	1.76 ft.
Time Gate 1 Activated:	1/2/2021 0:55	N/A
Time Gate 2 Activated:	1/2/2021 0:55	N/A
Time Gate 1 Returned to Normal:	1/2/2021 12:20	N/A
Time Gate 2 Returned to Normal:	1/2/2021 12:20	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	6.32 ft.	1.77 ft.
Volume Stored:	495,618 Gal.	110,574 Gal.
Unused Storage Volume:	359,098 Gal.	1,155,596 Gal.

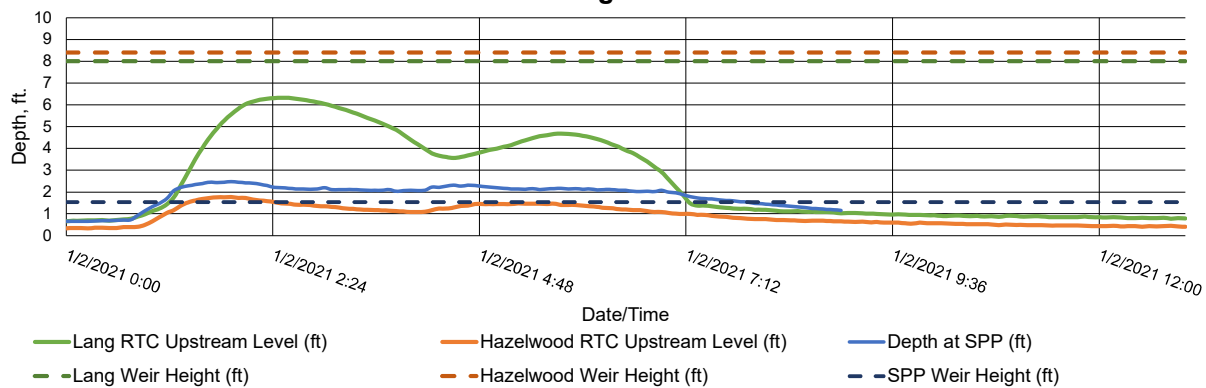
SPP:	340
Analysis Date:	2/10/2021
Event Start Date/Time:	1/2/2021 0:55
Event End Date/Time:	1/2/2021 12:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	13 hr.
Storm Type:	Less than one year

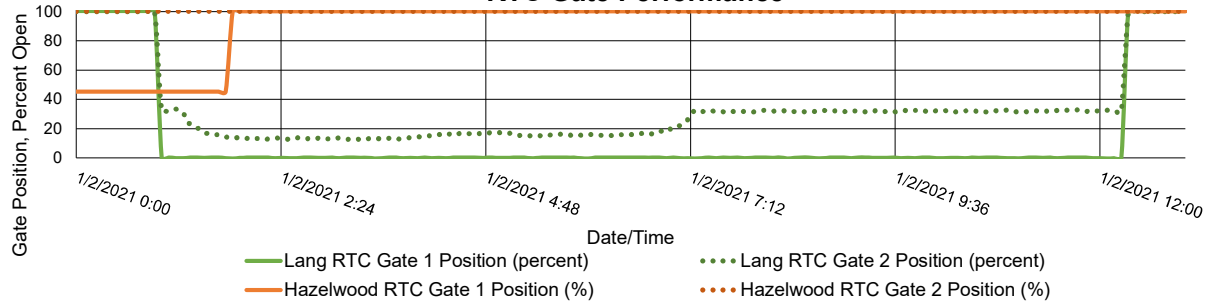
Percent Capture	18%
Overflow Volume:	2,760,511 Gal.
Overflow Volume Prevented:	606,192 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	2,760,511 Gal.
If No, could SPP activation have been prevented?	No
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
Hazelwood Gate 1 was stuck at 45% open at the beginning of the event.

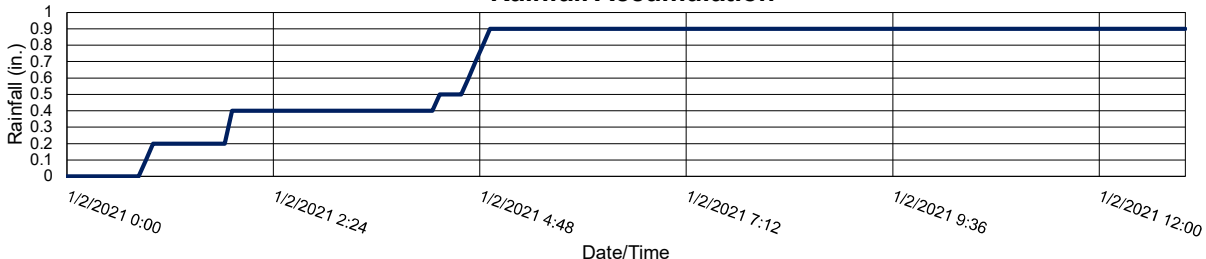
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



February 2021 Lang Ave. and Hazelwood RTC KPI Report

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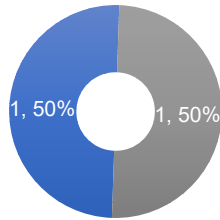
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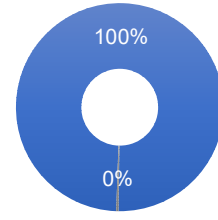
February 2021

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.)
1	1	100,883	372
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
2/24/2021	43,948	-	100%
2/27/2021	56,935	372	99%

February 24, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.95 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	2/24/2021 14:25	N/A
Time Gate 2 Activated:	2/24/2021 14:25	N/A
Time Gate 1 Returned to Normal:	2/24/2021 23:30	N/A
Time Gate 2 Returned to Normal:	2/24/2021 23:30	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.21 ft.	0.79 ft.
Volume Stored:	4,874 Gal.	39,074 Gal.
Unused Storage Volume:	850,328 Gal.	1,227,097 Gal.

SPP:	340
Analysis Date:	3/12/2021
Event Start Date/Time:	2/24/2021 14:25
Event End Date/Time:	2/24/2021 23:30

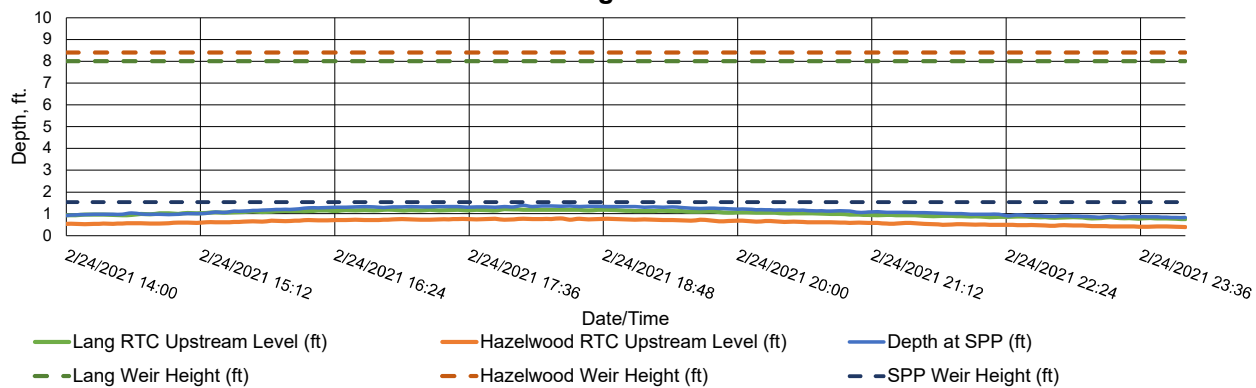
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	10 hr.
Storm Type:	N/A

Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	43,948 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 Hazelwood storage?	Yes

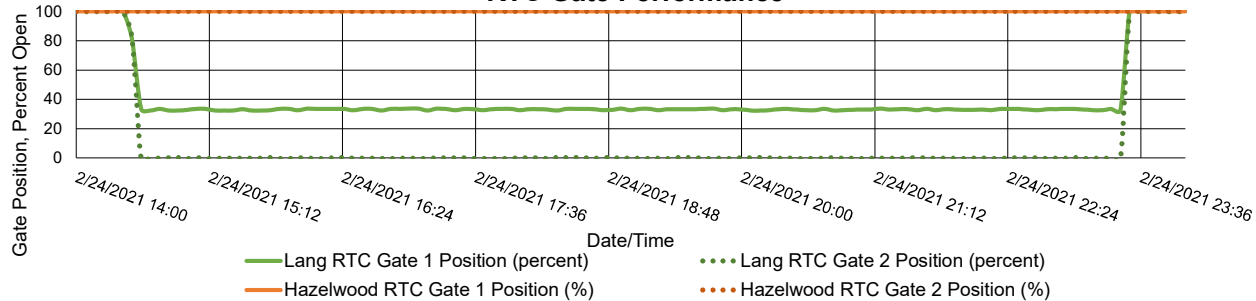
Recommended Operational Changes/Notes:

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

RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



February 27, 2021

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.91 ft.	- ft.
Return to Normal Depth:	0.82 ft.	- ft.
Time Gate 1 Activated:	2/27/2021 9:00	N/A
Time Gate 2 Activated:	2/27/2021 9:00	N/A
Time Gate 1 Returned to Normal:	2/27/2021 20:45	N/A
Time Gate 2 Returned to Normal:	2/27/2021 20:45	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.33 ft.	0.94 ft.
Volume Stored:	8,261 Gal.	48,674 Gal.
Unused Storage Volume:	847,559 Gal.	1,217,497 Gal.

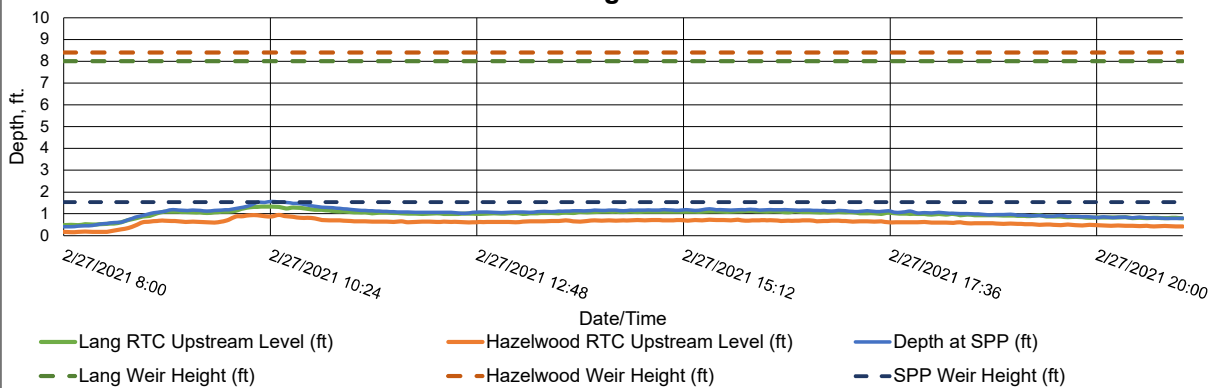
SPP:	340
Analysis Date:	3/12/2021
Event Start Date/Time:	2/27/2021 9:00
Event End Date/Time:	2/27/2021 20:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	13 hr.
Storm Type:	Less than 1 year

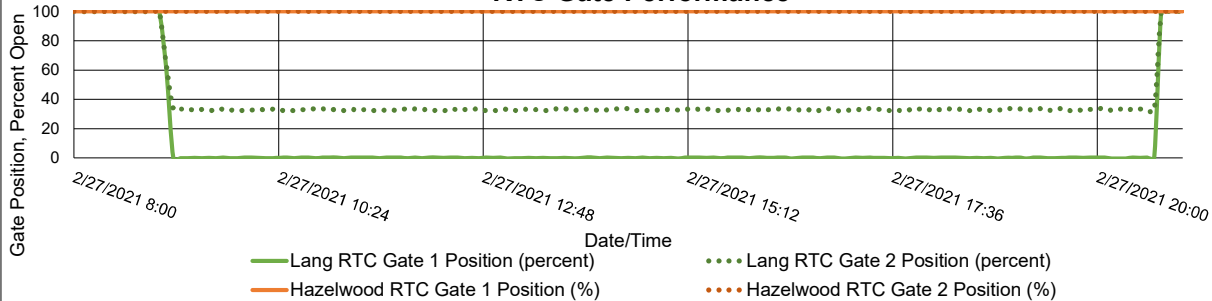
Percent Capture	99%
Overflow Volume:	372 Gal.
Overflow Volume Prevented:	56,935 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	372 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:

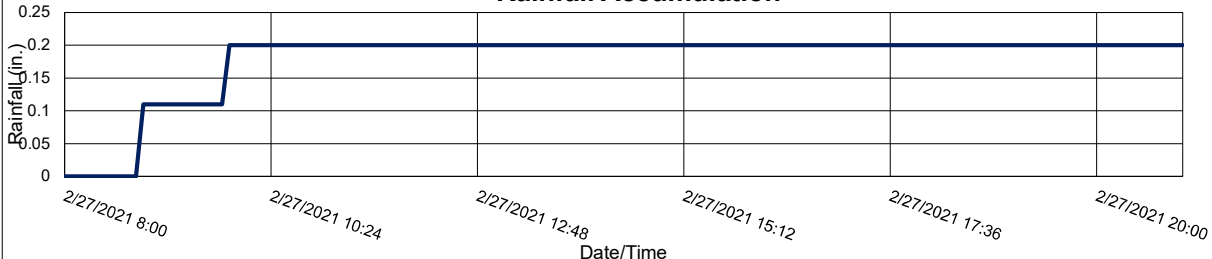
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



March 2021 Lang Ave. and Hazelwood RTC KPI Report

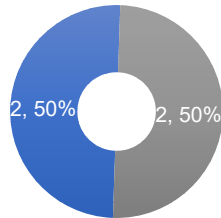
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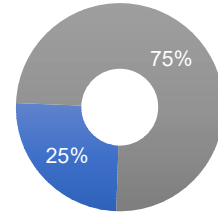
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Prevented SPP Events



■ 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.)
2	2	2,120,122	6,325,724
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
3/1/2021	53,901	-	100%
3/11/2021	28,348	-	100%
3/26/2021	1,970,237	6,288,209	24%
3/28/2021	67,636	37,515	64%

March 1, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.99 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	3/1/2021 1:15	N/A
Time Gate 2 Activated:	3/1/2021 1:15	N/A
Time Gate 1 Returned to Normal:	3/1/2021 8:40	N/A
Time Gate 2 Returned to Normal:	3/1/2021 8:40	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.31 ft.	0.92 ft.
Volume Stored:	6,506 Gal.	47,395 Gal.
Unused Storage Volume:	848,044 Gal.	1,218,775 Gal.

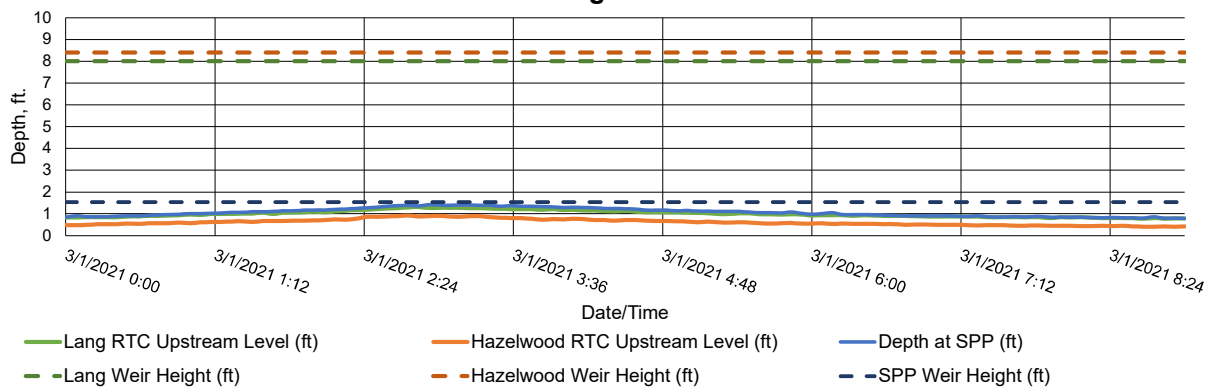
SPP:	340
Analysis Date:	4/9/2021
Event Start Date/Time:	3/1/2021 1:15
Event End Date/Time:	3/1/2021 8:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.05 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than one year

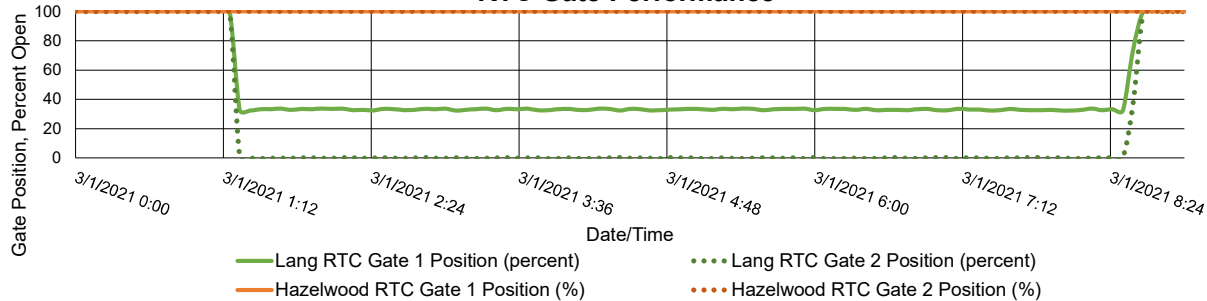
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	53,901 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:

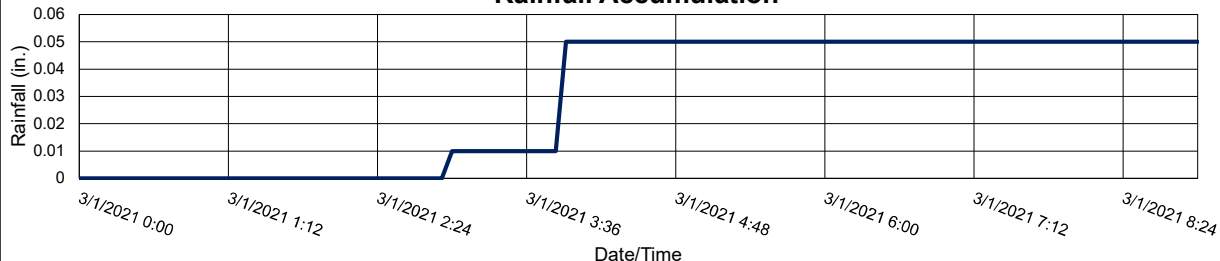
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



March 11, 2021

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.98 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	3/11/2021 21:35	N/A
Time Gate 2 Activated:	3/11/2021 21:35	N/A
Time Gate 1 Returned to Normal:	3/11/2021 22:15	N/A
Time Gate 2 Returned to Normal:	3/11/2021 22:15	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	0.98 ft.	0.60 ft.
Volume Stored:	0 Gal.	28,348 Gal.
Unused Storage Volume:	854,716 Gal.	1,237,823 Gal.

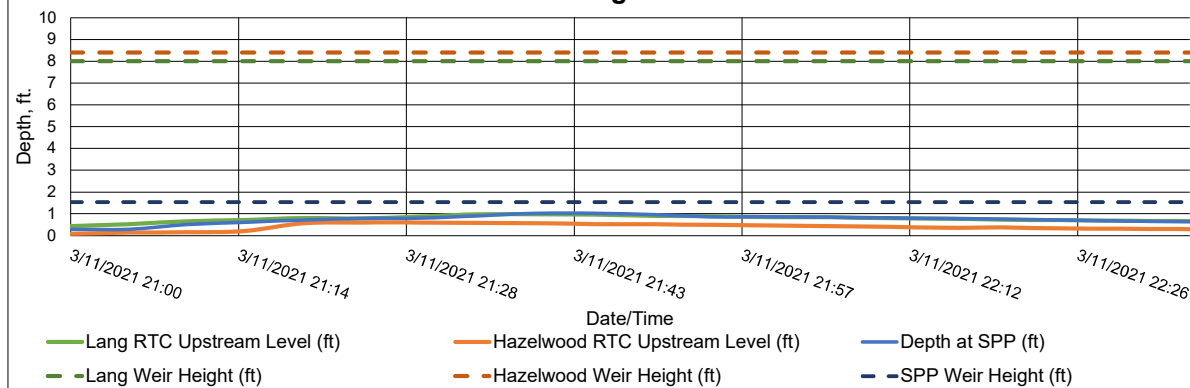
SPP:	340
Analysis Date:	4/9/2021
Event Start Date/Time:	3/11/2021 21:35
Event End Date/Time:	3/11/2021 22:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	2 hr.
Storm Type:	N/A

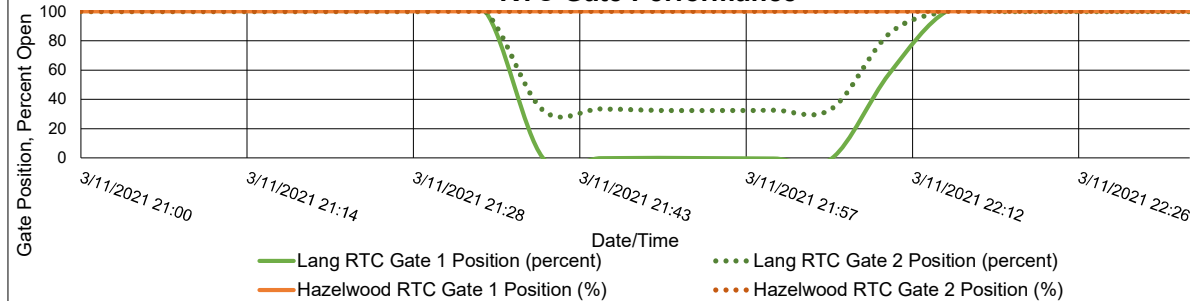
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	28,348 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:
No rainfall was recorded during this storm event. This event was likely caused by a localized storm.

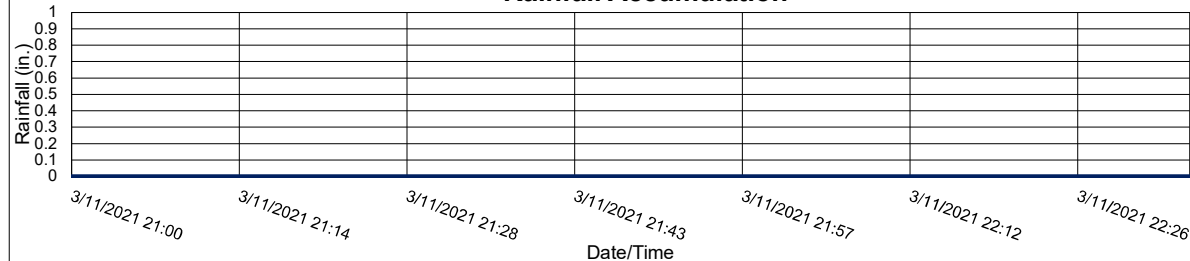
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



March 26, 2021

3

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.00 ft.	2.29 ft.
Return to Normal Depth:	0.82 ft.	2.13 ft.
Time Gate 1 Activated:	3/26/2021 3:40	3/26/2021 8:10
Time Gate 2 Activated:	3/26/2021 3:40	3/26/2021 8:10
Time Gate 1 Returned to Normal:	3/26/2021 13:50	3/26/2021 12:10
Time Gate 2 Returned to Normal:	3/26/2021 13:40	3/26/2021 12:35
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	8.00 ft.	8.40 ft.
Volume Stored:	862,866 Gal.	1,107,370 Gal.
Unused Storage Volume:	0 Gal.	0 Gal.

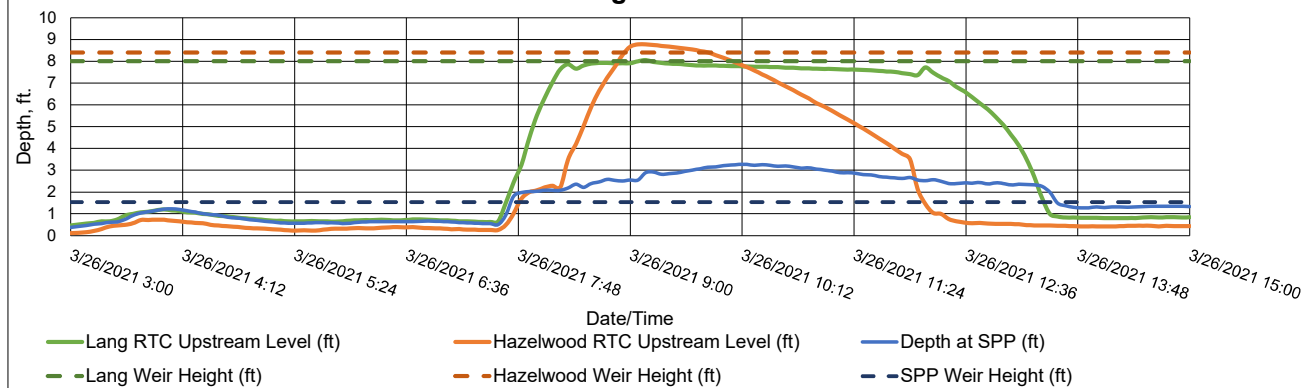
SPP:	340
Analysis Date:	4/9/2021
Event Start Date/Time:	3/26/2021 3:40
Event End Date/Time:	3/26/2021 13:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	12 hr.
Storm Type:	N/A

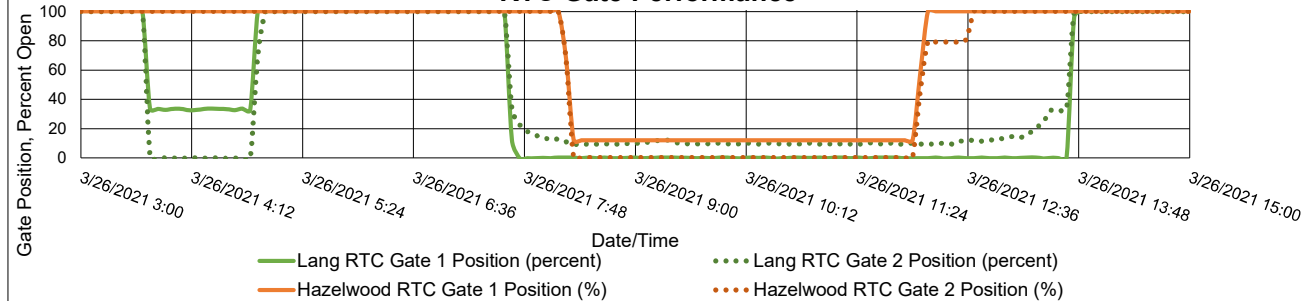
Percent Capture	24%
Overflow Volume:	6,288,209 Gal.
Overflow Volume Prevented:	1,970,237 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	No
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
No rainfall recorded during this storm event. This event was likely caused by a localized storm.

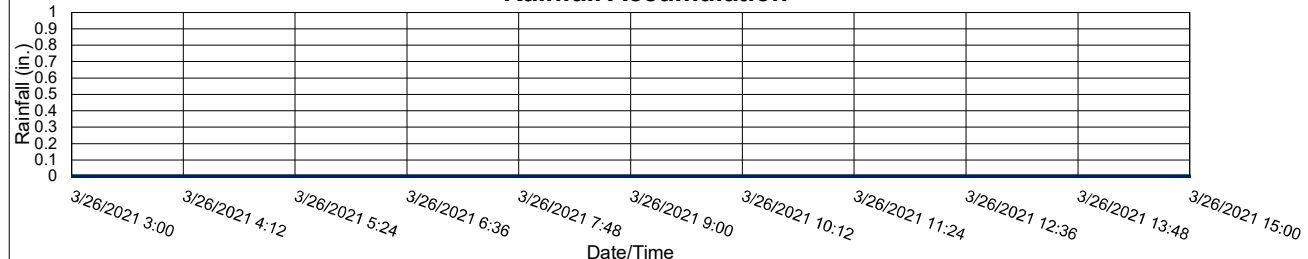
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



March 28, 2021

4

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.85 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	3/28/2021 12:30	N/A
Time Gate 2 Activated:	3/28/2021 12:30	N/A
Time Gate 1 Returned to Normal:	3/28/2021 16:50	N/A
Time Gate 2 Returned to Normal:	3/28/2021 16:50	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.52 ft.	1.02 ft.
Volume Stored:	14,210 Gal.	53,426 Gal.
Unused Storage Volume:	842,474 Gal.	1,212,744 Gal.

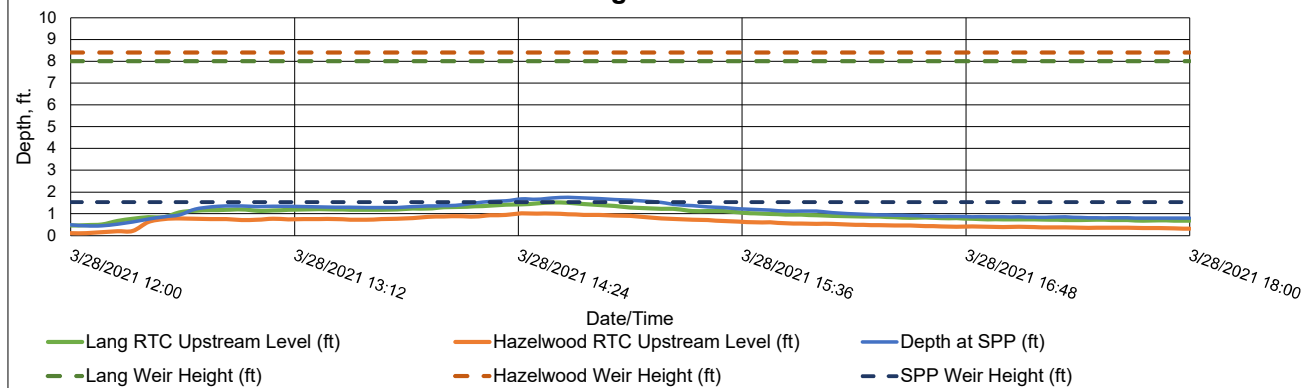
SPP:	340
Analysis Date:	4/9/2021
Event Start Date/Time:	3/28/2021 12:30
Event End Date/Time:	3/28/2021 16:50

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

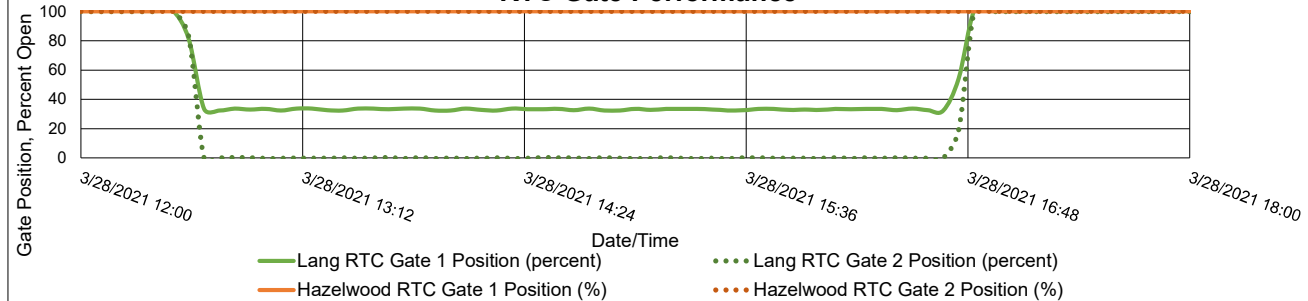
Percent Capture	64%
Overflow Volume:	37,515 Gal.
Overflow Volume Prevented:	67,636 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	37,515 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
No rainfall was recorded during this storm event. This event was likely caused by a localized storm.

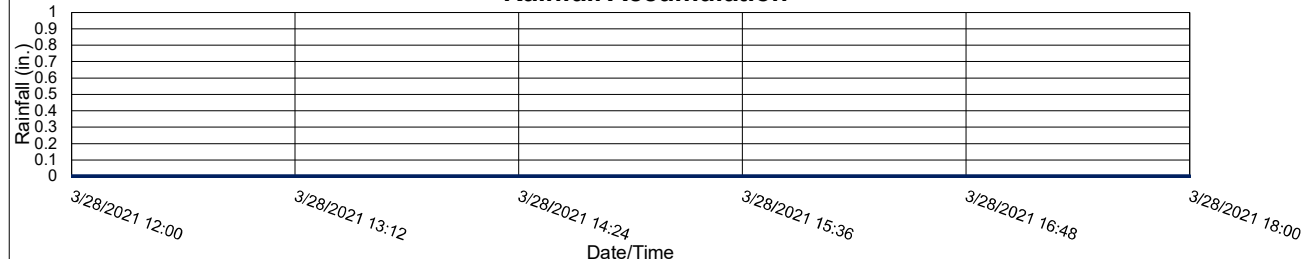
RTC Storage Performance



RTC Gate Performance



Rainfall Accumulation



April 2021 Lang Ave. and Hazelwood RTC KPI Report

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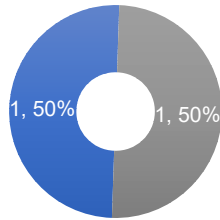
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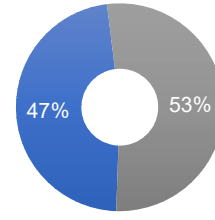
April 2021

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.)
1	1	177,411	196,227
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
4/11/2021	136,876	196,227	41%
4/29/2021	40,535	-	100%

April 11, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.96 ft.	- ft.
Return to Normal Depth:	0.77 ft.	- ft.
Time Gate 1 Activated:	4/11/2021 8:20	N/A
Time Gate 2 Activated:	4/11/2021 8:20	N/A
Time Gate 1 Returned to Normal:	4/11/2021 20:25	N/A
Time Gate 2 Returned to Normal:	4/11/2021 20:20	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	2.64 ft.	1.04 ft.
Volume Stored:	81,836 Gal.	55,040 Gal.
Unused Storage Volume:	793,504 Gal.	1,211,130 Gal.

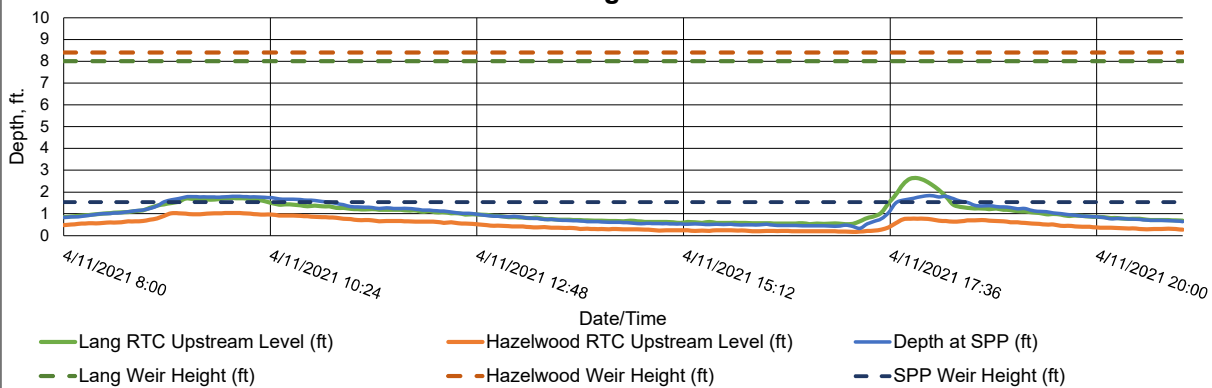
SPP:	340
Analysis Date:	5/7/2021
Event Start Date/Time:	4/11/2021 8:20
Event End Date/Time:	4/11/2021 20:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.55 in.
Storm Event Duration:	13 hr.
Storm Type:	Less than one year

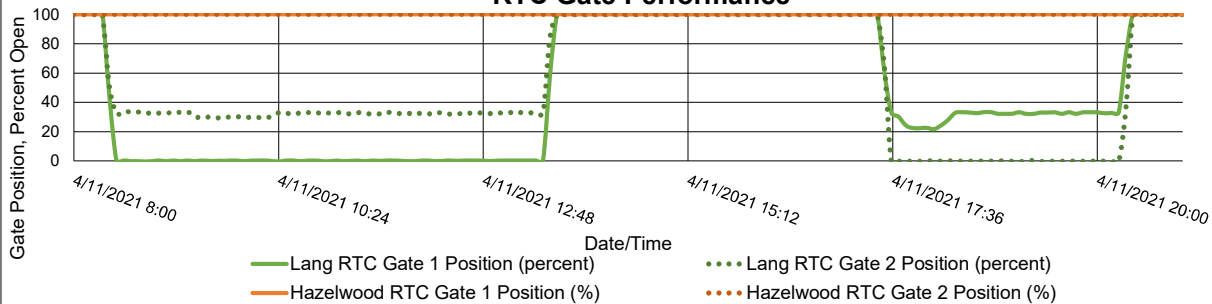
Percent Capture	41%
Overflow Volume:	196,227 Gal.
Overflow Volume Prevented:	136,876 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	196,227 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:

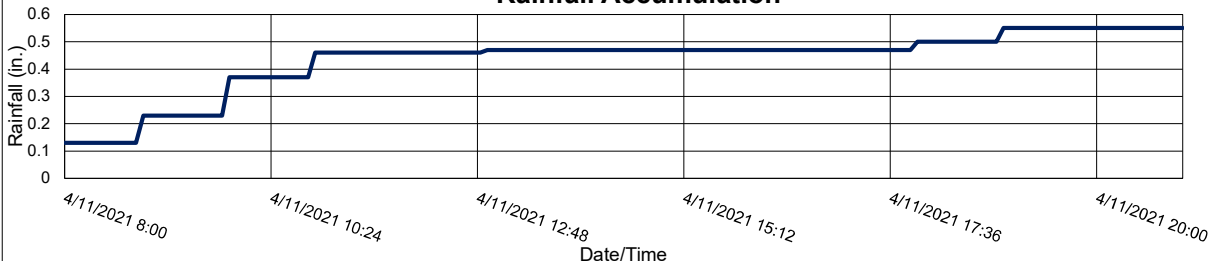
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



April 29, 2021

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.00 ft.	- ft.
Return to Normal Depth:	0.77 ft.	- ft.
Time Gate 1 Activated:	4/29/2021 13:15	N/A
Time Gate 2 Activated:	4/29/2021 13:15	N/A
Time Gate 1 Returned to Normal:	4/29/2021 17:45	N/A
Time Gate 2 Returned to Normal:	4/29/2021 17:40	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.00 ft.	0.75 ft.
Volume Stored:	4,074 Gal.	36,461 Gal.
Unused Storage Volume:	850,968 Gal.	1,229,709 Gal.

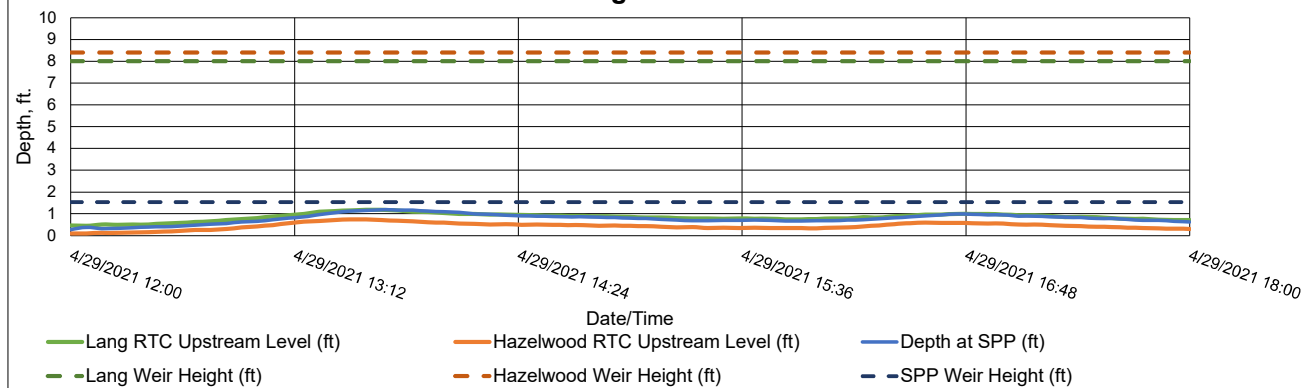
SPP:	340
Analysis Date:	5/7/2021
Event Start Date/Time:	4/29/2021 13:15
Event End Date/Time:	4/29/2021 17:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than one year

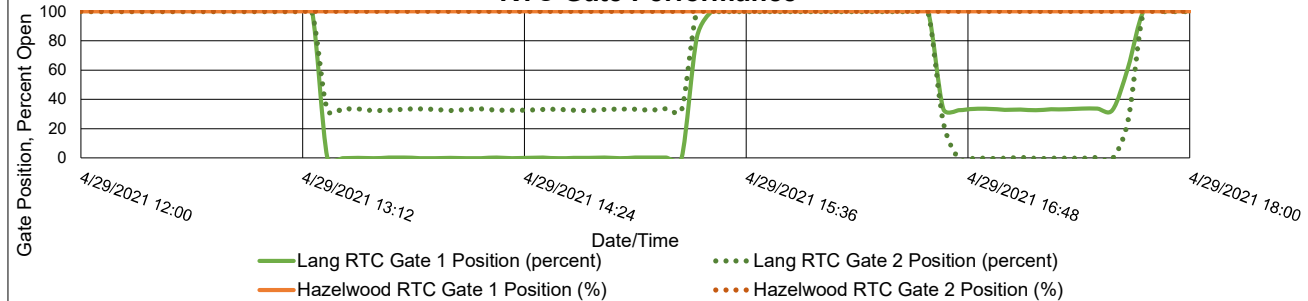
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	40,535 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:
Communication was lost at Hazelwood from 4/20 to 4/26.

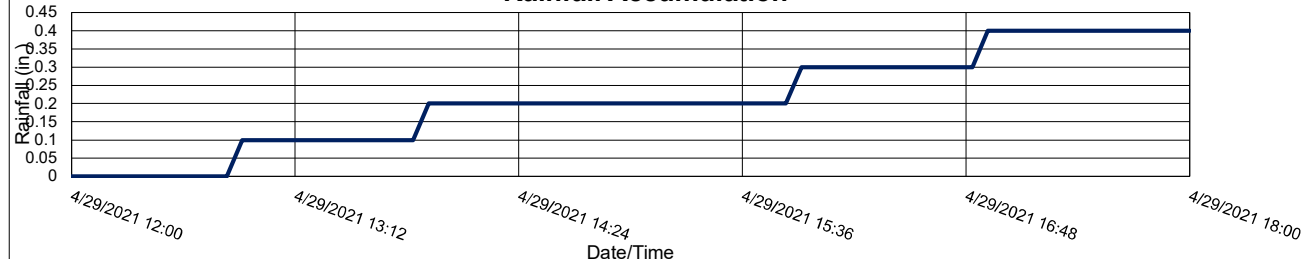
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



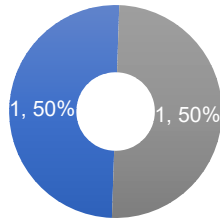
May 2021 Lang Ave. and Hazelwood RTC KPI Report

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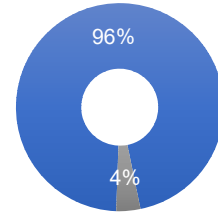


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Prevented SPP Events

■ 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.)
1	1	86,574	3,368
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
5/7/2021	54,566	3,368	94%
5/28/2021	32,008	-	100%

May 7, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.98 ft.	- ft.
Return to Normal Depth:	0.79 ft.	- ft.
Time Gate 1 Activated:	5/7/2021 2:35	N/A
Time Gate 2 Activated:	5/7/2021 2:35	N/A
Time Gate 1 Returned to Normal:	5/7/2021 8:20	N/A
Time Gate 2 Returned to Normal:	5/7/2021 8:20	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.35 ft.	0.92 ft.
Volume Stored:	7,651 Gal.	46,915 Gal.
Unused Storage Volume:	847,064 Gal.	1,219,255 Gal.

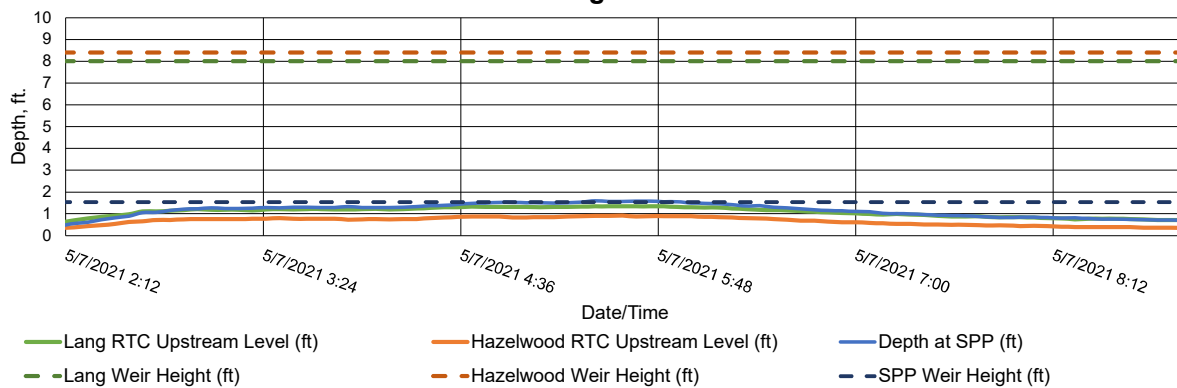
SPP:	340
Analysis Date:	6/10/2021
Event Start Date/Time:	5/7/2021 2:35
Event End Date/Time:	5/7/2021 8:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.5 in.
Storm Event Duration:	7 hr.
Storm Type:	Less than one year

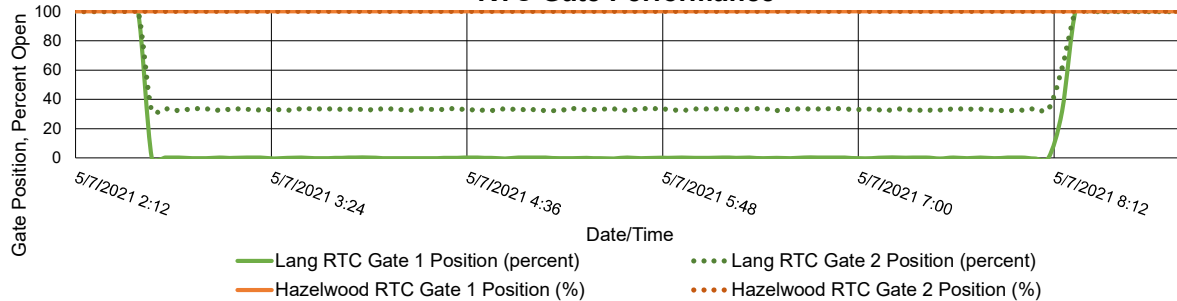
Percent Capture	94%
Overflow Volume:	3,368 Gal.
Overflow Volume Prevented:	54,566 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	3,368 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:
 Overflow volume of 3,368 gallons was observed for this event which is probably within the error range of the spreadsheet.

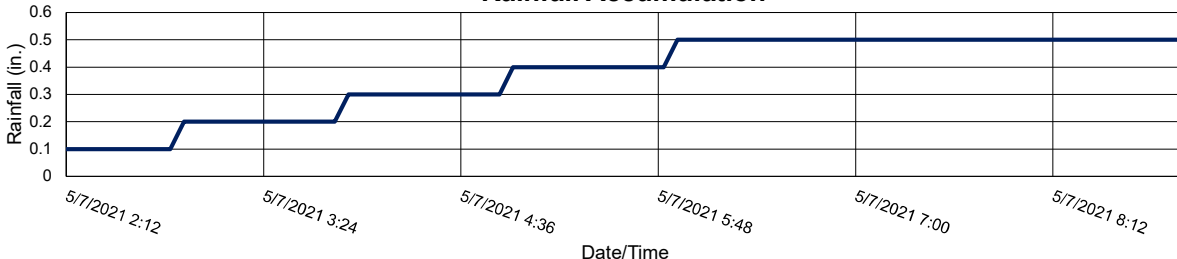
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



May 28, 2021

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.97 ft.	- ft.
Return to Normal Depth:	0.80 ft.	- ft.
Time Gate 1 Activated:	5/28/2021 15:10	N/A
Time Gate 2 Activated:	5/28/2021 15:10	N/A
Time Gate 1 Returned to Normal:	5/28/2021 19:10	N/A
Time Gate 2 Returned to Normal:	5/28/2021 19:10	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.08 ft.	0.63 ft.
Volume Stored:	1,927 Gal.	30,081 Gal.
Unused Storage Volume:	852,953 Gal.	1,236,089 Gal.

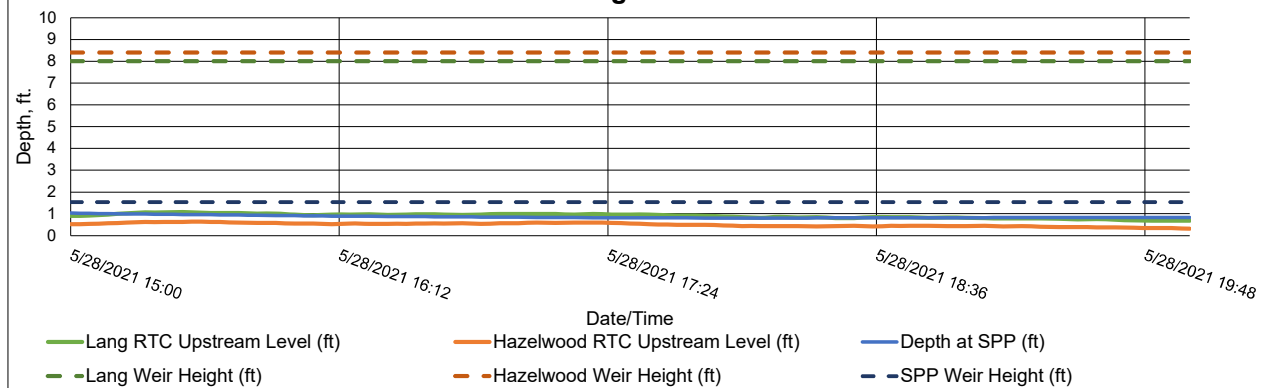
SPP:	340
Analysis Date:	6/10/2021
Event Start Date/Time:	5/28/2021 15:10
Event End Date/Time:	5/28/2021 19:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	5 hr.
Storm Type:	Less than one year

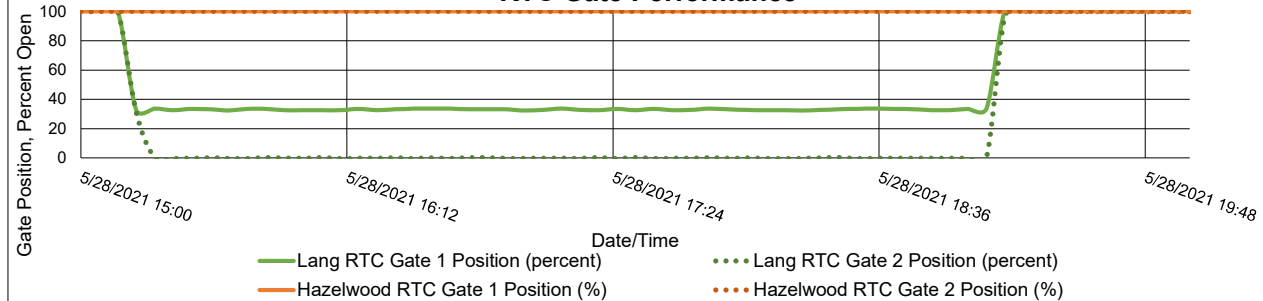
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	32,008 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:
Lost communication with the Lang SPP sensor since May 13.

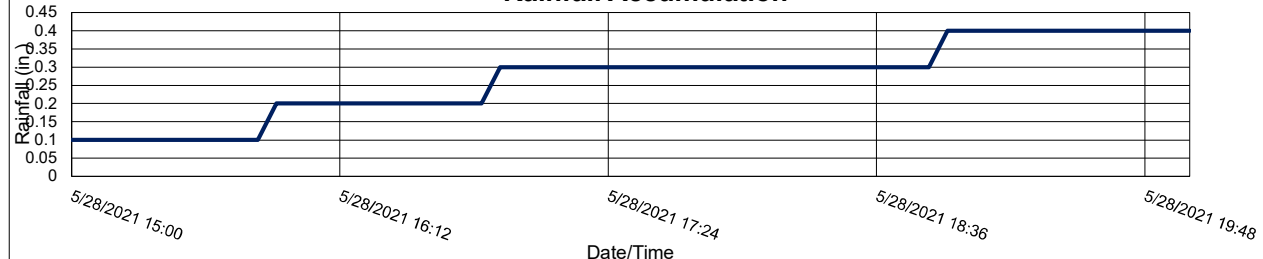
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



June 2021 Lang Ave. and Hazelwood RTC KPI Report

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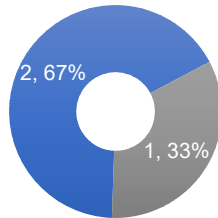
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Lang Ave & Hazelwood RTC Monthly Performance Report

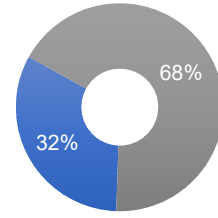
June 2021

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.)
2	1	362,555	753,518
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
6/3/2021	66,699	-	100%
6/8/2021	56,716	-	100%
6/21/2021	239,140	753,518	24%

June 3, 2021

1

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	1.10 ft.	- ft.
Return to Normal Depth:	0.85 ft.	- ft.
Time Gate 1 Activated:	6/3/2021 4:55	N/A
Time Gate 2 Activated:	6/3/2021 4:55	N/A
Time Gate 1 Returned to Normal:	6/3/2021 8:40	N/A
Time Gate 2 Returned to Normal:	6/3/2021 8:40	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.51 ft.	1.07 ft.
Volume Stored:	9,811 Gal.	56,888 Gal.
Unused Storage Volume:	842,763 Gal.	1,209,282 Gal.

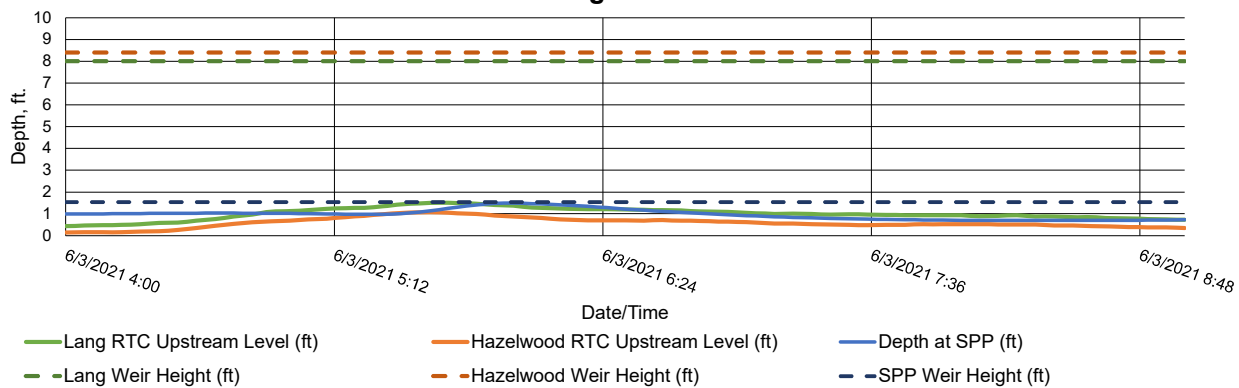
SPP:	340
Analysis Date:	7/13/2021
Event Start Date/Time:	6/3/2021 4:55
Event End Date/Time:	6/3/2021 8:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	5 hr.
Storm Type:	Less than one year

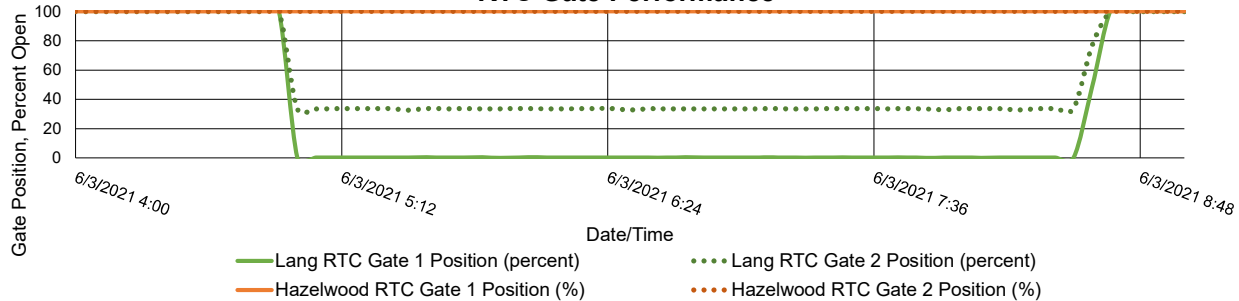
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	66,699 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:

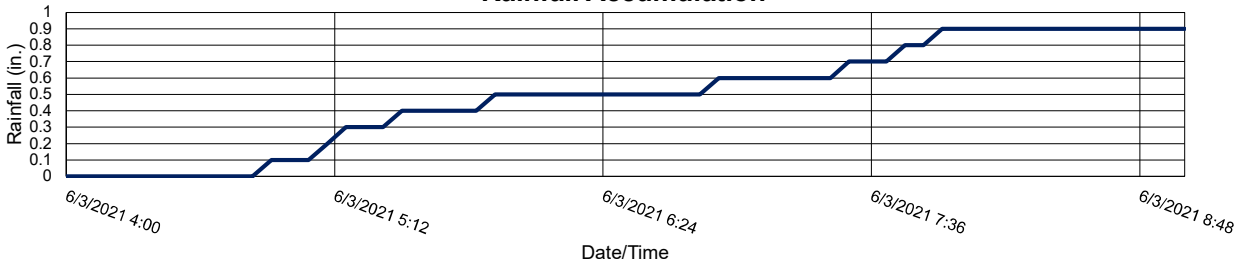
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



June 8, 2021

2

RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.99 ft.	- ft.
Return to Normal Depth:	0.82 ft.	- ft.
Time Gate 1 Activated:	6/8/2021 2:50	N/A
Time Gate 2 Activated:	6/8/2021 2:50	N/A
Time Gate 1 Returned to Normal:	6/8/2021 5:15	N/A
Time Gate 2 Returned to Normal:	6/8/2021 5:15	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	1.43 ft.	0.92 ft.
Volume Stored:	9,558 Gal.	47,157 Gal.
Unused Storage Volume:	844,991 Gal.	1,219,013 Gal.

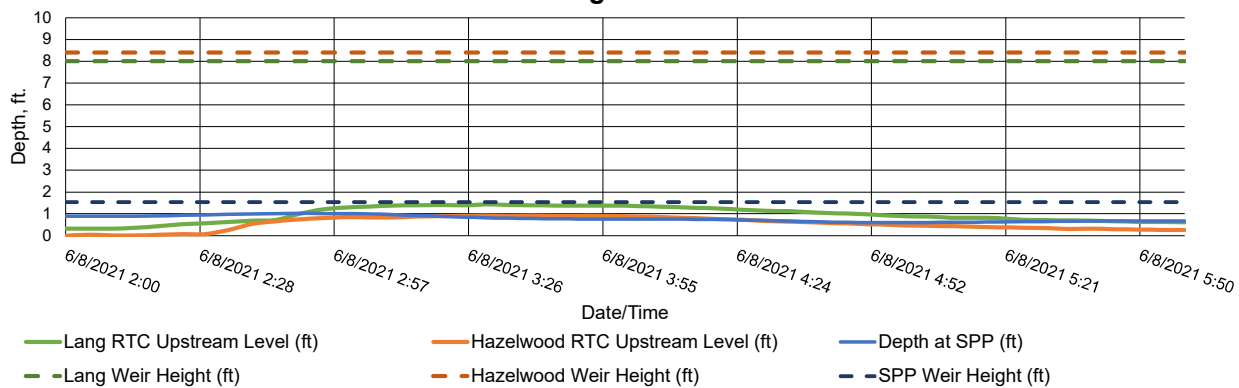
SPP:	340
Analysis Date:	7/13/2021
Event Start Date/Time:	6/8/2021 2:50
Event End Date/Time:	6/8/2021 5:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.3 in.
Storm Event Duration:	4 hr.
Storm Type:	Less than one year

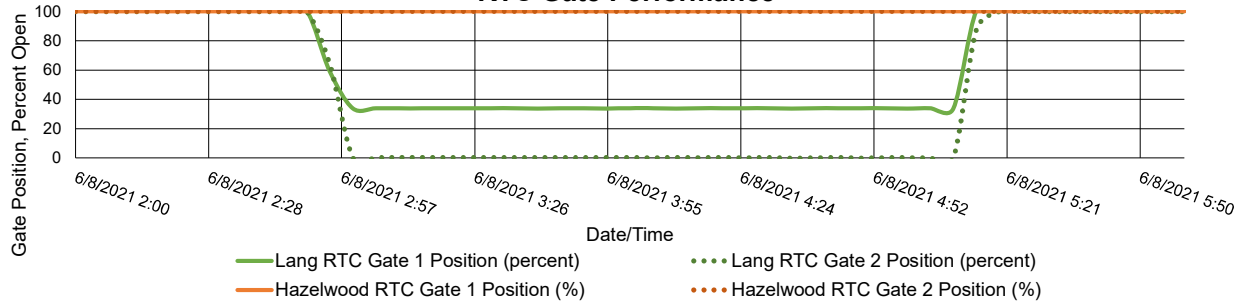
Percent Capture	100%
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	56,716 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available upstream?	NA Gal.
If No, could SPP activation have been prevented?	NA
If es, could SPP activation have been prevented without Hazelwood storage?	Yes

Recommended Operational Changes/Notes:

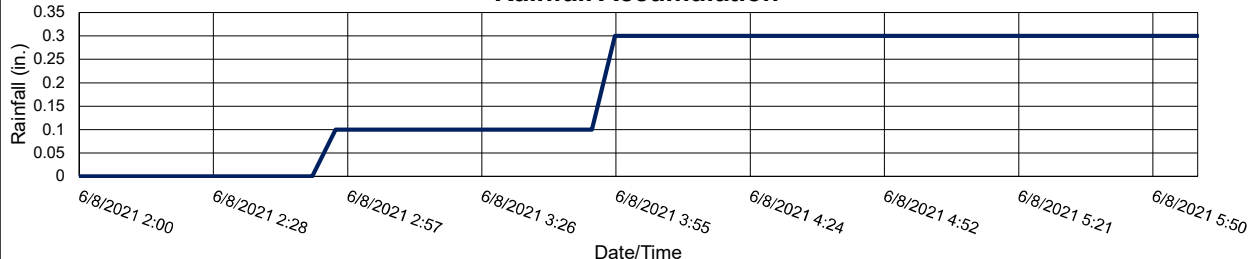
RTC storage Performance



RTC Gate Performance



Rainfall Accumulation



June 21, 2021

3

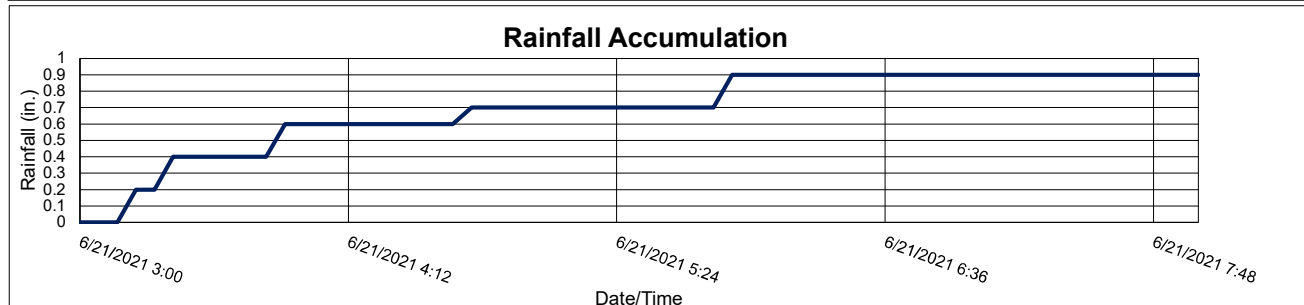
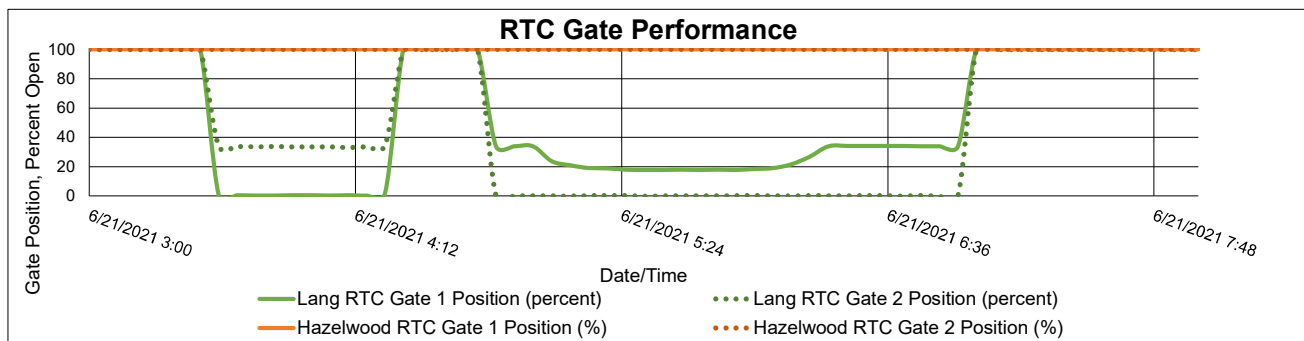
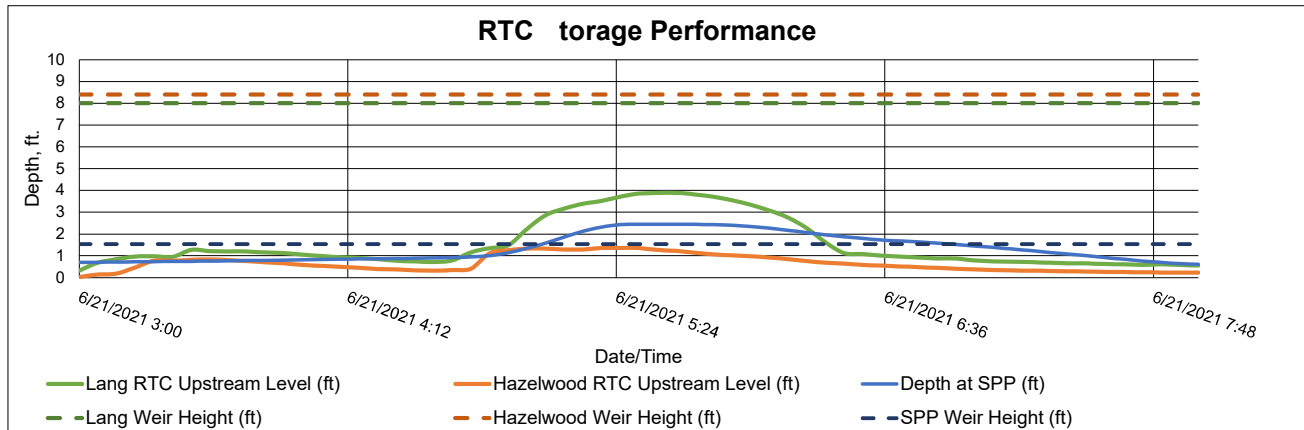
RTC Site	Lang	Hazelwood
Gate Activation Trigger Depth:	0.95 ft.	- ft.
Return to Normal Depth:	0.87 ft.	- ft.
Time Gate 1 Activated:	6/21/2021 3:25	N/A
Time Gate 2 Activated:	6/21/2021 3:25	N/A
Time Gate 1 Returned to Normal:	6/21/2021 7:00	N/A
Time Gate 2 Returned to Normal:	6/21/2021 6:55	N/A
Depth of Weir	8.00 ft.	8.40 ft.
Maximum Depth Reached:	3.89 ft.	1.36 ft.
Volume Stored:	161,510 Gal.	77,630 Gal.
Unused Storage Volume:	696,090 Gal.	1,188,541 Gal.

SPP:	340
Analysis Date:	7/13/2021
Event Start Date/Time:	6/21/2021 3:25
Event End Date/Time:	6/21/2021 7:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.9 in.
Storm Event Duration:	5 hr.
Storm Type:	Less than one year

Percent Capture	24%
Overflow Volume:	753,518 Gal.
Overflow Volume Prevented:	239,140 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available upstream?	753,518 Gal.
If No, could SPP activation have been prevented?	Yes
If es, could SPP activation have been prevented without Hazelwood storage?	NA

Recommended Operational Changes/Notes:



July 2020 North Bailey RTC KPI Report

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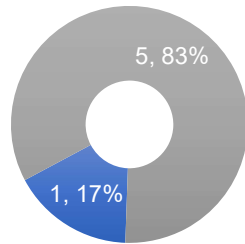


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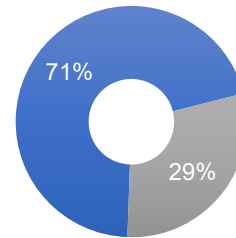
July 2020

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.)*
1	5	2,313,009	967,223
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
7/11/2020	400,340	127	100%
7/13/2020	433,695	147,952	75%
7/16/2020	427,689	265,571	62%
7/21/2020	161,978	-	100%
7/22/2020	438,794	529,556	45%
7/29/2020	450,513	24,017	95%

July 11, 2020

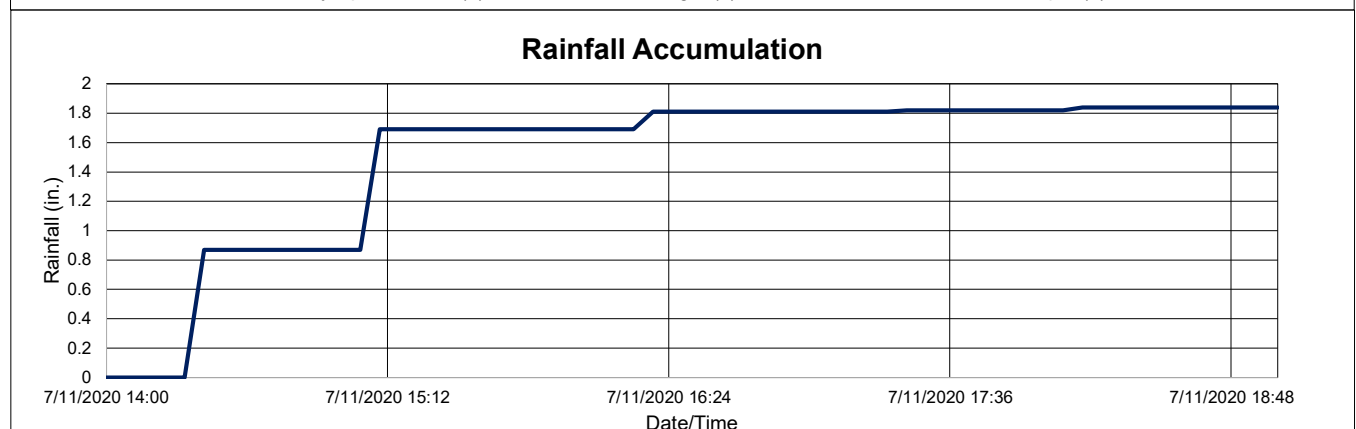
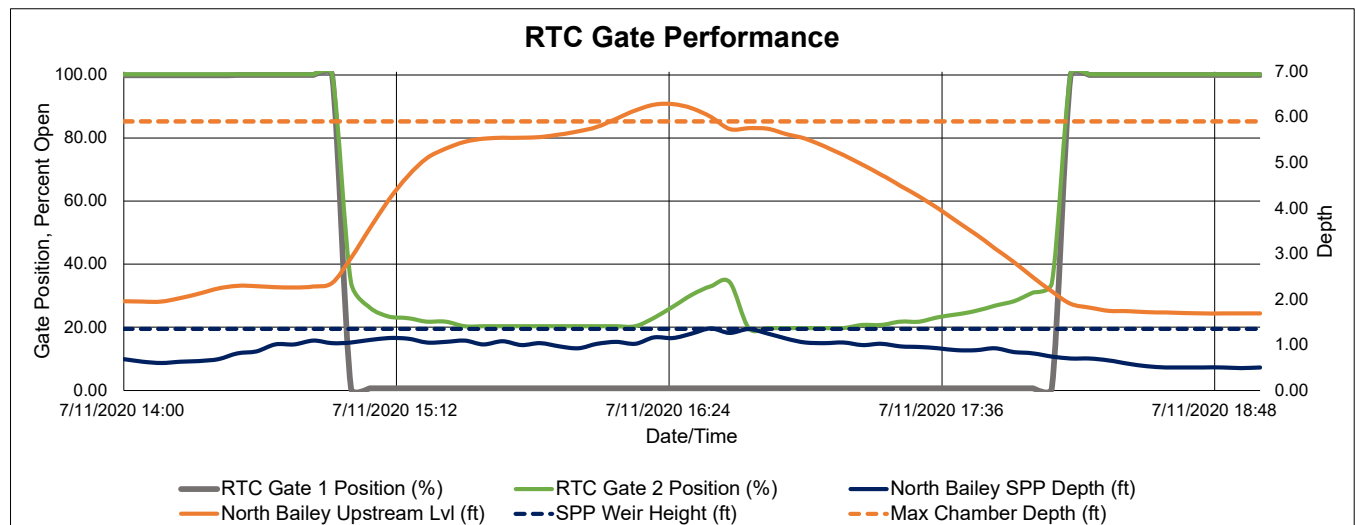
1

Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/11/2020 14:55
Event End Date/Time:	7/11/2020 18:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.84 in.
Storm Event Duration:	5 hr.
Storm Type:	Less than 5 yr. Storm

Gate Activation Trigger Depth:	2.36 ft.
Return to Normal Depth:	2.18 ft.
Time Gate 1 Activated:	7/11/2020 14:55
Time Gate 2 Activated:	7/11/2020 14:55
Time Gate 1 Returned to Normal:	7/11/2020 18:10
Time Gate 2 Returned to Normal:	7/11/2020 18:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	400,340 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	127 Gal.
Overflow Volume Prevented:	400,340 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.



July 13, 2020

2

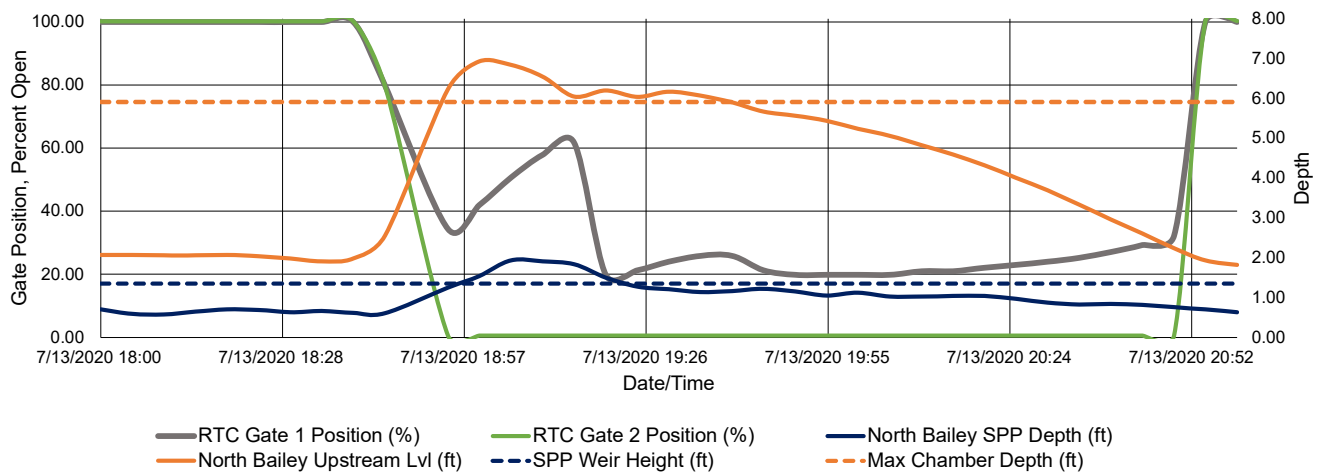
Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/13/2020 18:40
Event End Date/Time:	7/13/2020 20:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	3 hr.
Storm Type:	NA

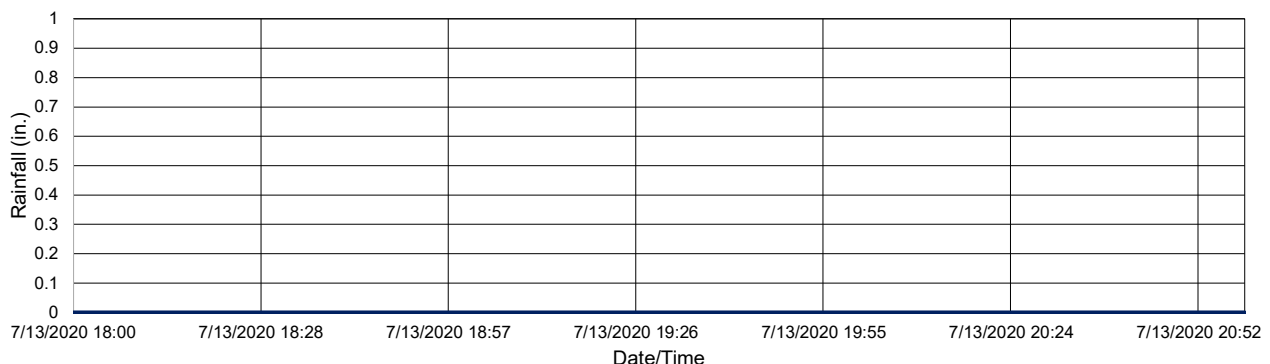
Gate Activation Trigger Depth:	1.98 ft.
Return to Normal Depth:	2.24 ft.
Time Gate 1 Activated:	7/13/2020 18:40
Time Gate 2 Activated:	7/13/2020 18:40
Time Gate 1 Returned to Normal:	7/13/2020 20:55
Time Gate 2 Returned to Normal:	7/13/2020 20:50
Percent Capture	75%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	433,695 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	147,952 Gal.
Overflow Volume Prevented:	433,695 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 recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.

RTC Gate Performance



Rainfall Accumulation

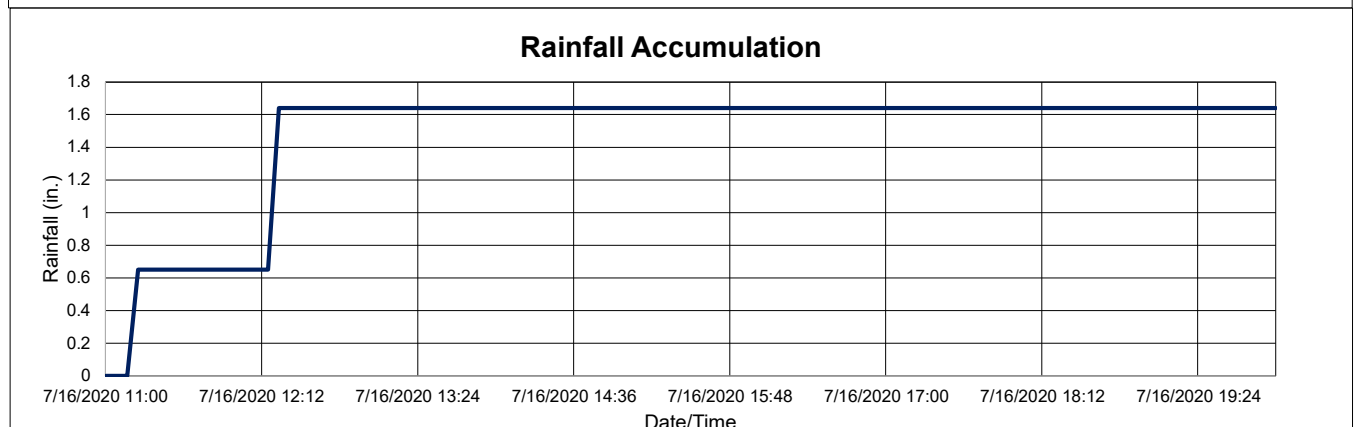
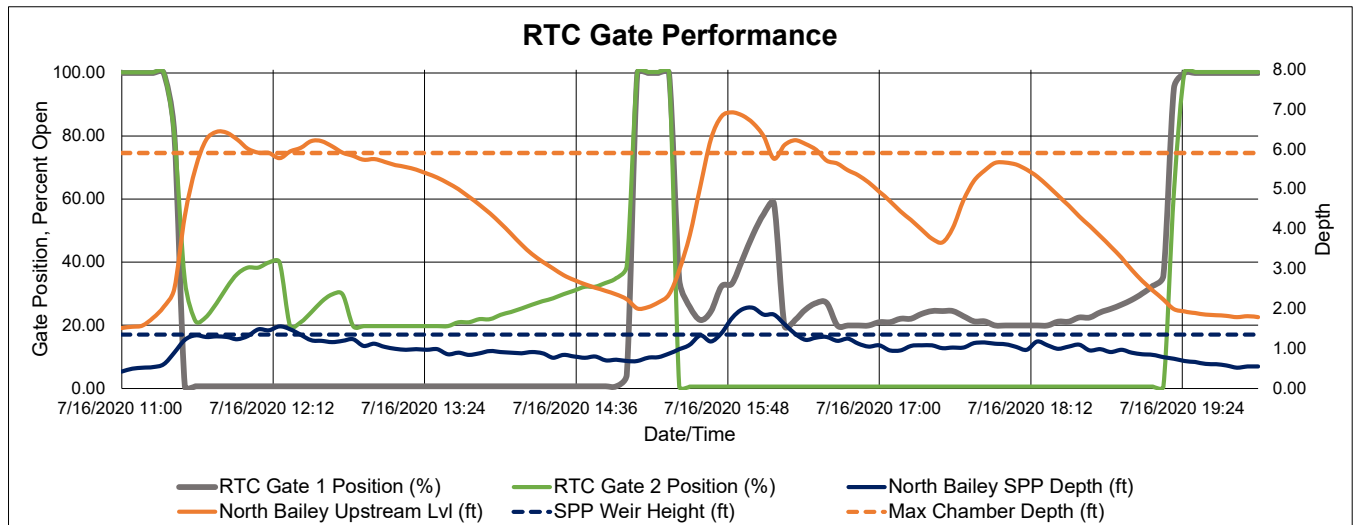


Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/16/2020 11:20
Event End Date/Time:	7/16/2020 19:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.64 in.
Storm Event Duration:	9 hr.
Storm Type:	Less than 2 yr. storm

Gate Activation Trigger Depth:	2.05 ft.
Return to Normal Depth:	1.99 ft.
Time Gate 1 Activated:	7/16/2020 11:20
Time Gate 2 Activated:	7/16/2020 11:20
Time Gate 1 Returned to Normal:	7/16/2020 19:20
Time Gate 2 Returned to Normal:	7/16/2020 19:20
Percent Capture	62%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	427,689 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	265,571 Gal.
Overflow Volume Prevented:	427,689 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.



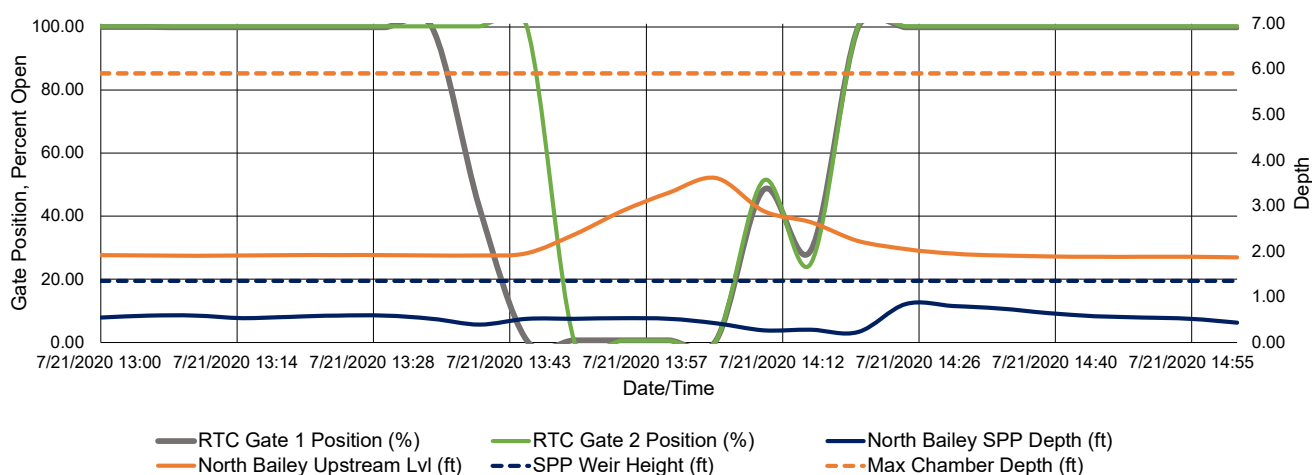
Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/21/2020 13:35
Event End Date/Time:	7/21/2020 14:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	2 hr.
Storm Type:	NA

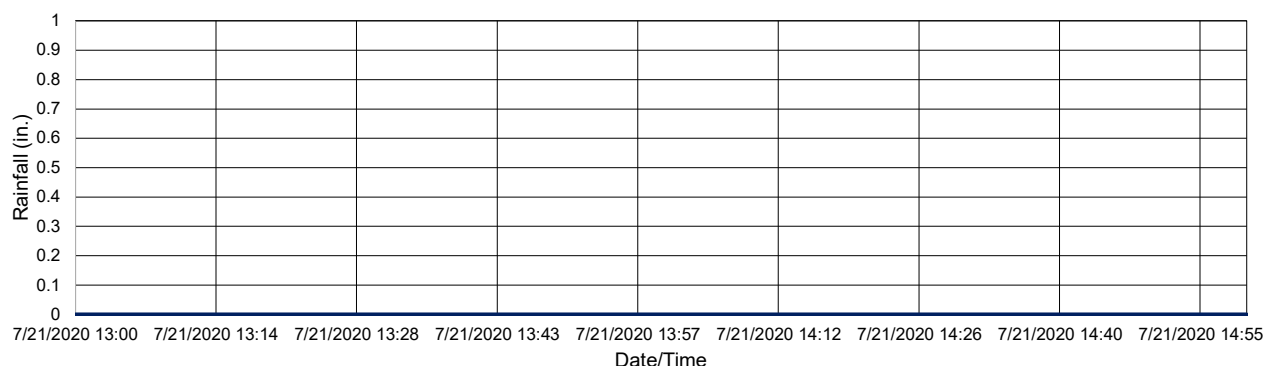
Gate Activation Trigger Depth:	1.91 ft.
Return to Normal Depth:	2.64 ft.
Time Gate 1 Activated:	7/21/2020 13:35
Time Gate 2 Activated:	7/21/2020 13:45
Time Gate 1 Returned to Normal:	7/21/2020 14:20
Time Gate 2 Returned to Normal:	7/21/2020 14:15
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.61 ft.
Volume Stored:	161,978 Gal.
Unused Storage Volume:	277,661 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	161,978 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



July 22, 2020

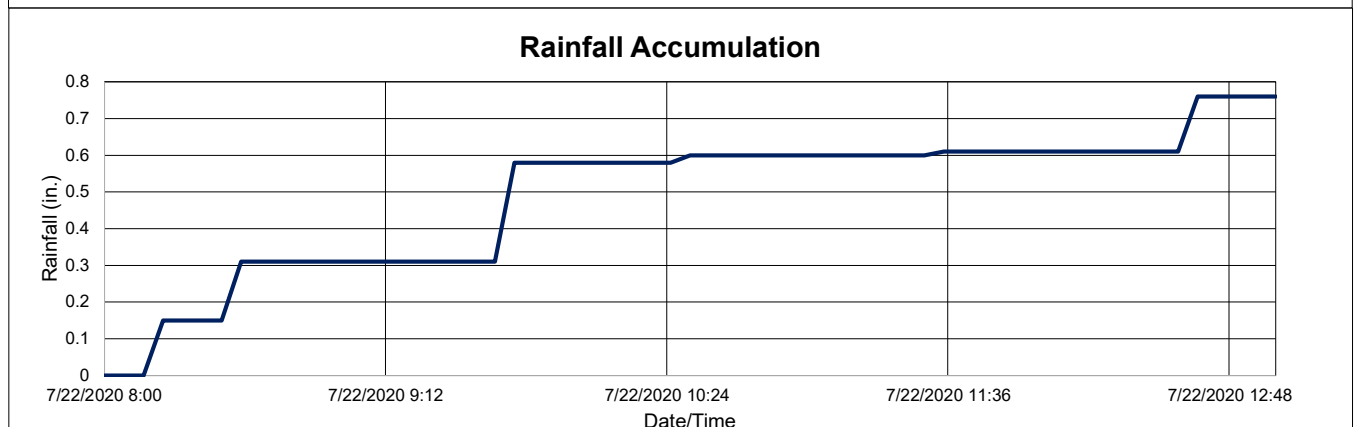
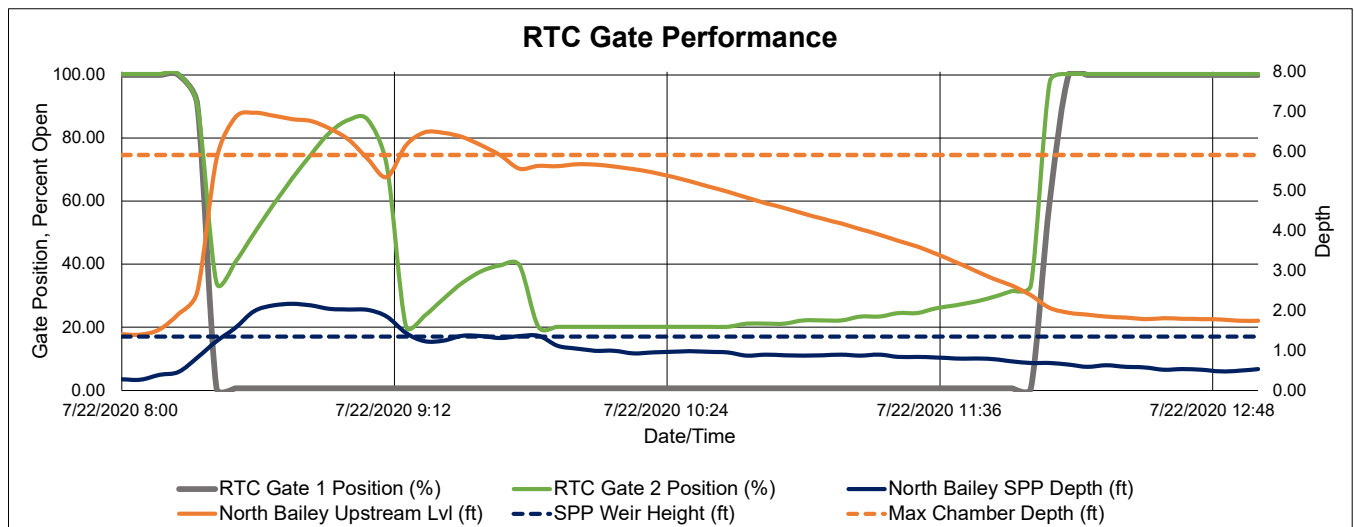
5

Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/22/2020 8:15
Event End Date/Time:	7/22/2020 12:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.76 in.
Storm Event Duration:	5 hr.
Storm Type:	Less than 1 yr. Storm

Gate Activation Trigger Depth:	1.92 ft.
Return to Normal Depth:	2.07 ft.
Time Gate 1 Activated:	7/22/2020 8:15
Time Gate 2 Activated:	7/22/2020 8:15
Time Gate 1 Returned to Normal:	7/22/2020 12:10
Time Gate 2 Returned to Normal:	1/0/1900 0:00
Percent Capture	45%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	438,794 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	529,556 Gal.
Overflow Volume Prevented:	438,794 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.



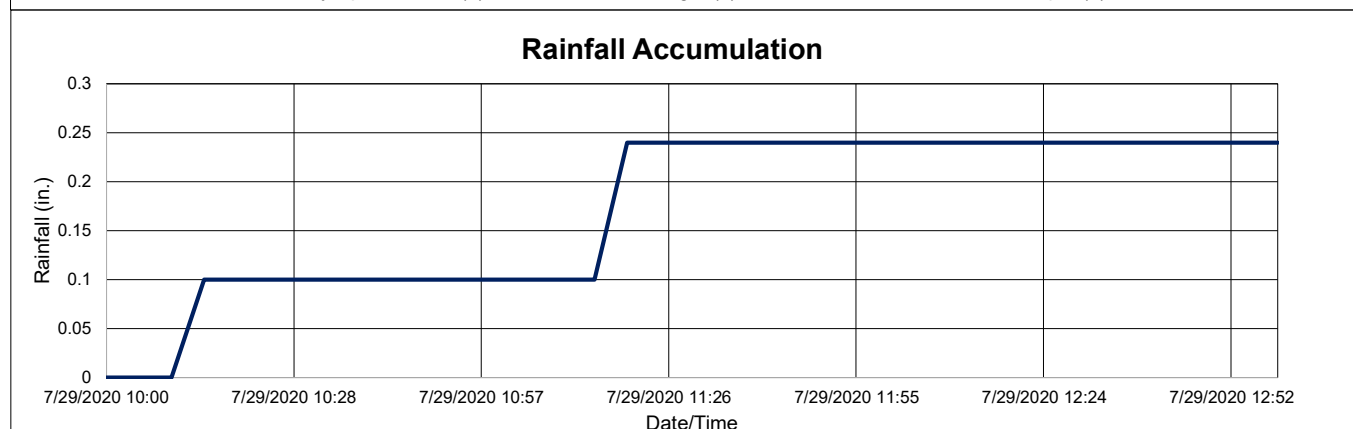
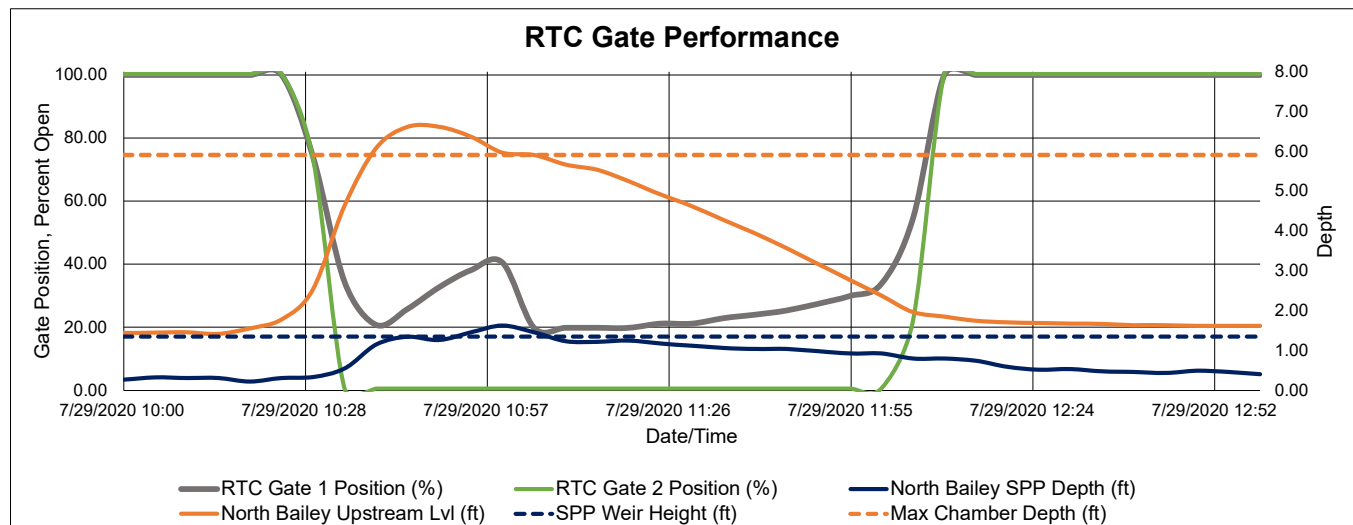
Site:	North Bailey RTC
Analysis Date:	8/11/2020
Event Start Date/Time:	7/29/2020 10:25
Event End Date/Time:	7/29/2020 12:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.24 in.
Storm Event Duration:	3 hr.
Storm Type:	Less than 1 yr. Storm

Gate Activation Trigger Depth:	1.78 ft.
Return to Normal Depth:	1.97 ft.
Time Gate 1 Activated:	7/29/2020 10:25
Time Gate 2 Activated:	7/29/2020 10:25
Time Gate 1 Returned to Normal:	7/29/2020 12:10
Time Gate 2 Returned to Normal:	7/29/2020 12:05
Percent Capture	95%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	450,513 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	24,017 Gal.
Overflow Volume Prevented:	450,513 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.



August 2020 North Bailey RTC KPI Report

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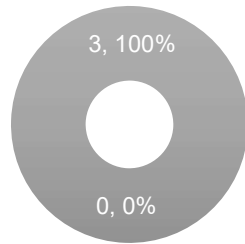


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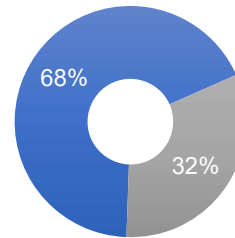
August 2020

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.)
0	3	1,305,968	620,543
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
8/4/2020	431,985	4,101	99%
8/15/2020	448,022	616,315	42%
8/27/2020	425,961	127	100%

Site:	North Bailey RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/4/2020 14:35
Event End Date/Time:	8/5/2020 0:35

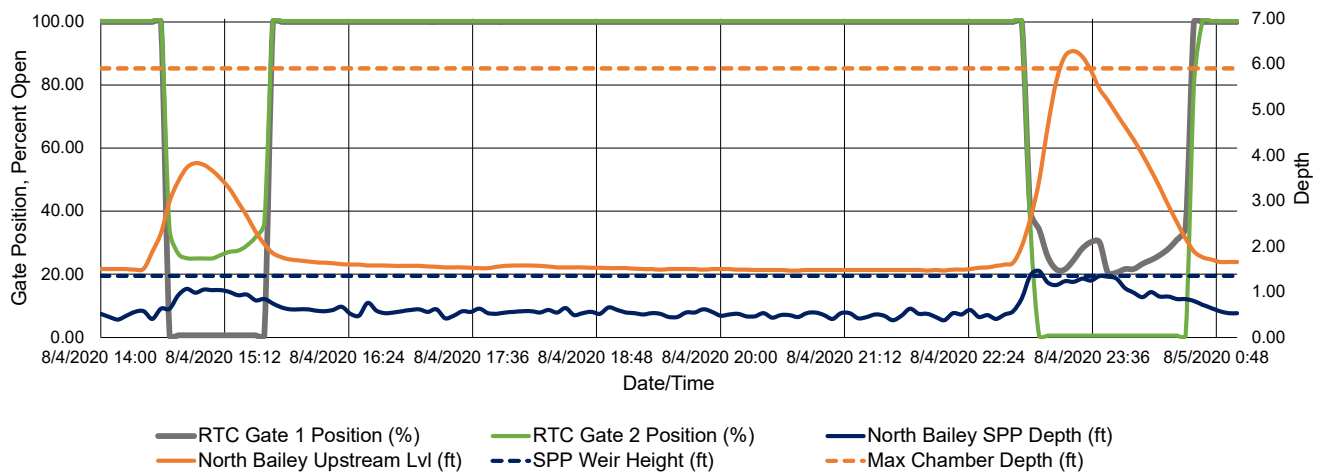
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	11 hr.
Storm Type:	Less than 1 yr. Storm

Gate Activation Trigger Depth:	2.29 ft.
Return to Normal Depth:	2.17 ft.
Time Gate 1 Activated:	8/4/2020 14:35
Time Gate 2 Activated:	8/4/2020 14:35
Time Gate 1 Returned to Normal:	8/5/2020 0:35
Time Gate 2 Returned to Normal:	8/5/2020 0:35
Percent Capture	99%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	431,985 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	4,101 Gal.
Overflow Volume Prevented:	431,985 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	4,101
Could SPP activation have been prevented?	Yes

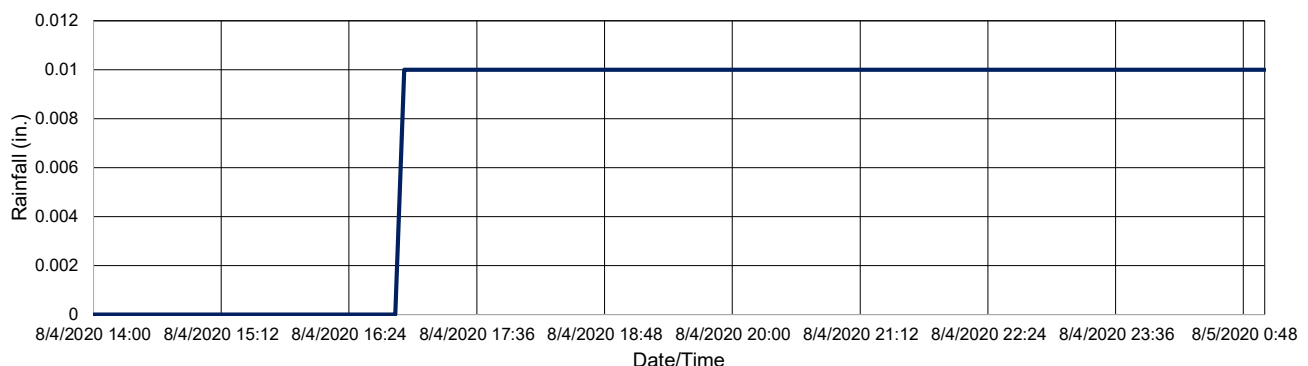
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



Site:	North Bailey RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/15/2020 19:55
Event End Date/Time:	8/15/2020 22:40

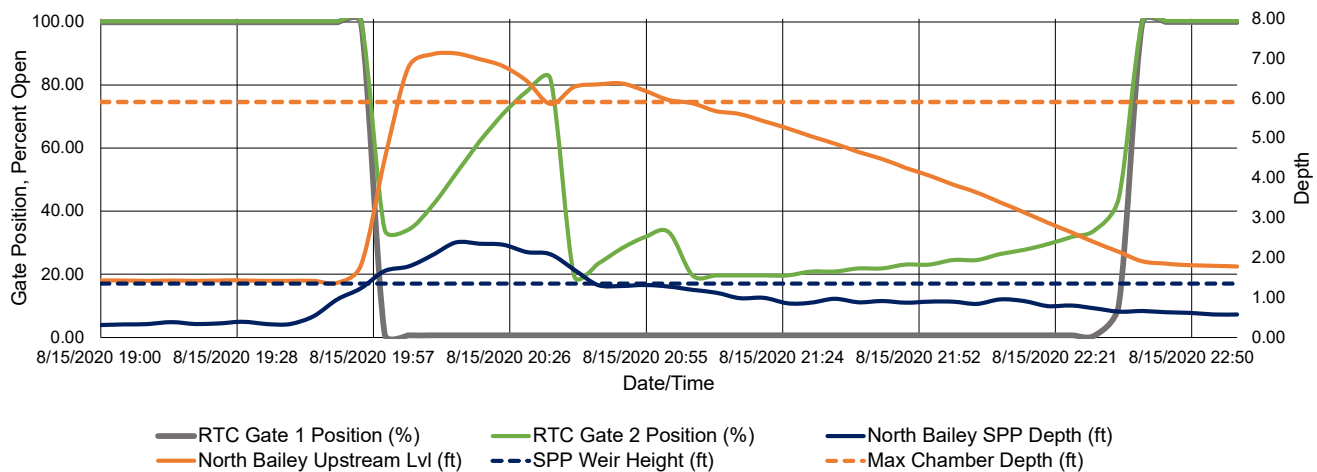
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.05 in.
Storm Event Duration:	4 hr.
Storm Type:	Less than 1 yr. Storm

Gate Activation Trigger Depth:	1.81 ft.
Return to Normal Depth:	2.15 ft.
Time Gate 1 Activated:	8/15/2020 19:55
Time Gate 2 Activated:	8/15/2020 19:55
Time Gate 1 Returned to Normal:	8/15/2020 22:40
Time Gate 2 Returned to Normal:	8/15/2020 22:35
Percent Capture	42%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	448,022 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	616,315 Gal.
Overflow Volume Prevented:	448,022 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

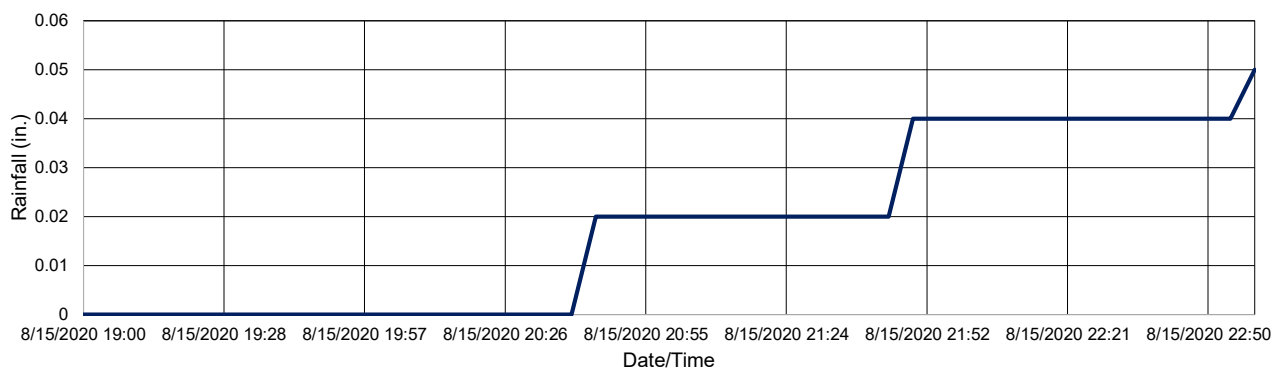
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



Site:	North Bailey RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/27/2020 0:30
Event End Date/Time:	8/27/2020 2:20

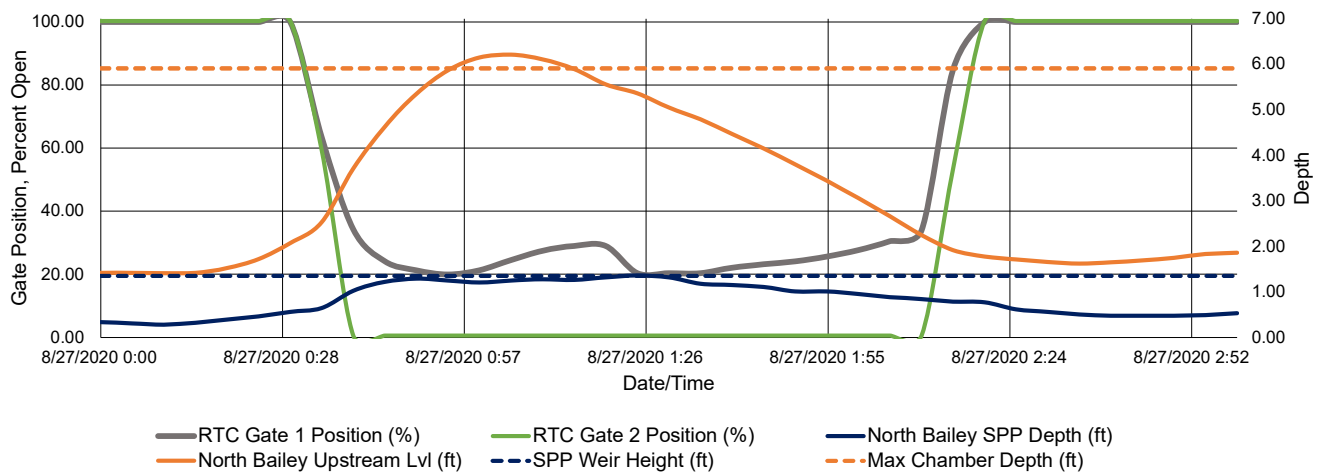
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	3 hr.
Storm Type:	NA

Gate Activation Trigger Depth:	2.07 ft.
Return to Normal Depth:	1.92 ft.
Time Gate 1 Activated:	8/27/2020 0:30
Time Gate 2 Activated:	8/27/2020 0:30
Time Gate 1 Returned to Normal:	8/27/2020 2:20
Time Gate 2 Returned to Normal:	8/27/2020 2:15
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	425,961 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	127 Gal.
Overflow Volume Prevented:	425,961 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

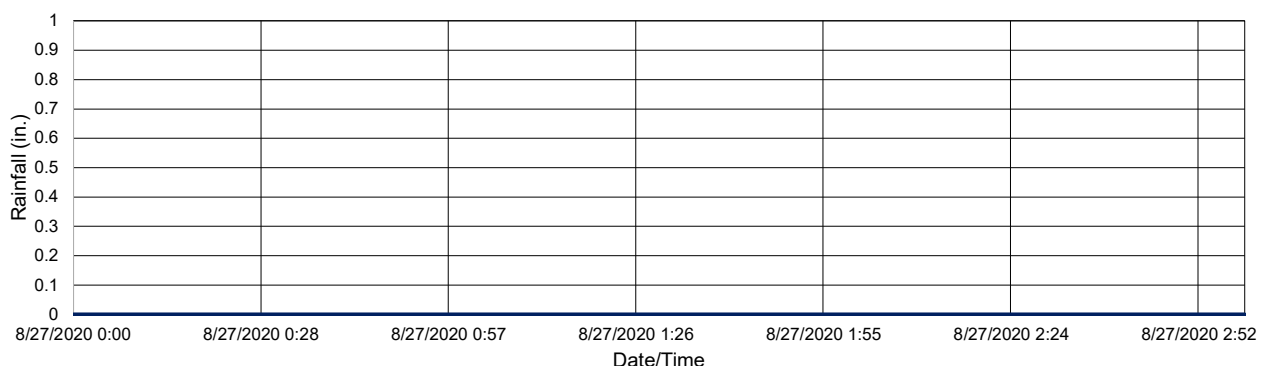
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



September 2020 North Bailey RTC KPI Report

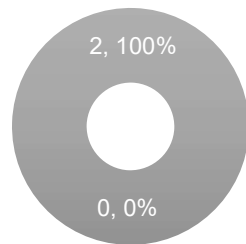
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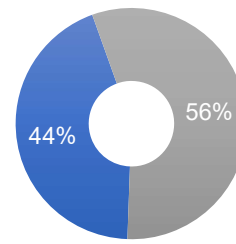
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Prevented SPP Events



■ 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.)

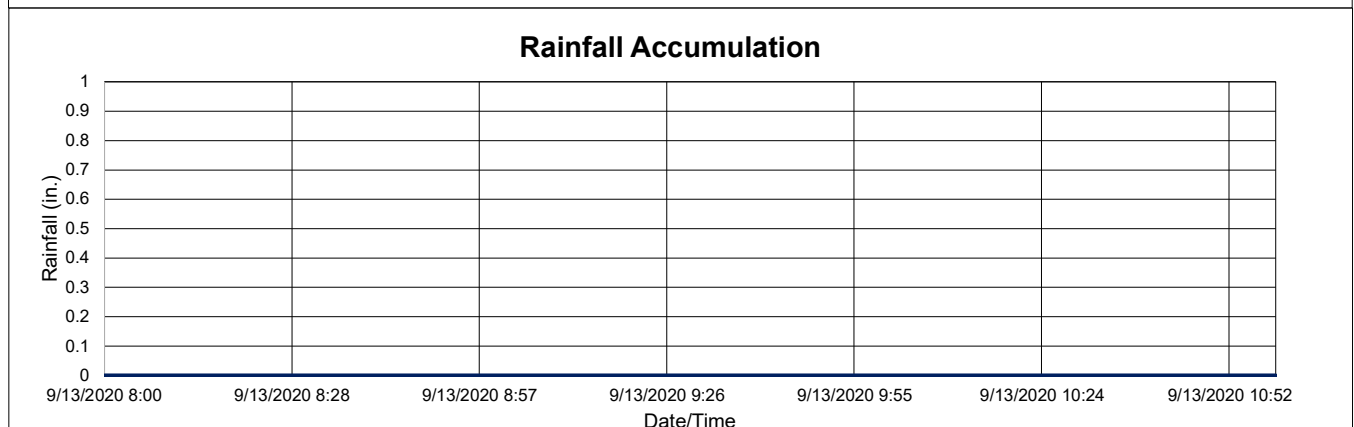
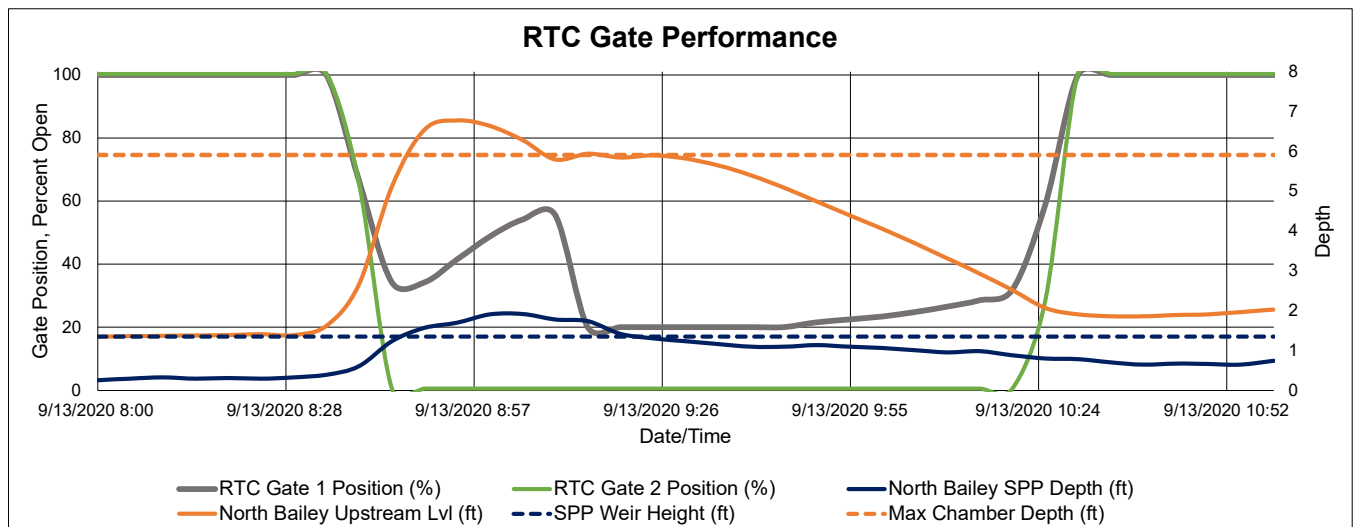
Number of Prevented SPP Overflow Events	Number of Occurred SPP Overflow Events	Prevented SPP Overflow Volume (Gal.)	Occurred SPP Overflow Volume (Gal.)
0	2	909,356	1,160,485
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
9/13/2020	463,000	186,731	71%
9/29/2020	446,356	973,754	31%

Site:	North Bailey RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/13/2020 8:35
Event End Date/Time:	9/13/2020 10:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	3 hr.
Storm Type:	NA

Gate Activation Trigger Depth:	1.62 ft.
Return to Normal Depth:	2.07 ft.
Time Gate 1 Activated:	9/13/2020 8:35
Time Gate 2 Activated:	9/13/2020 8:35
Time Gate 1 Returned to Normal:	9/13/2020 10:30
Time Gate 2 Returned to Normal:	9/13/2020 10:25
Percent Capture	71%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	463,600 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	186,731 Gal.
Overflow Volume Prevented:	463,600 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 recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. Data was not available from the beginning of the month of September to September 9 at 10 am.



Site:	North Bailey RTC
Analysis Date:	10/7/2020
Event Start Date/Time:	9/29/2020 21:50
Event End Date/Time:	10/1/2020 1:40

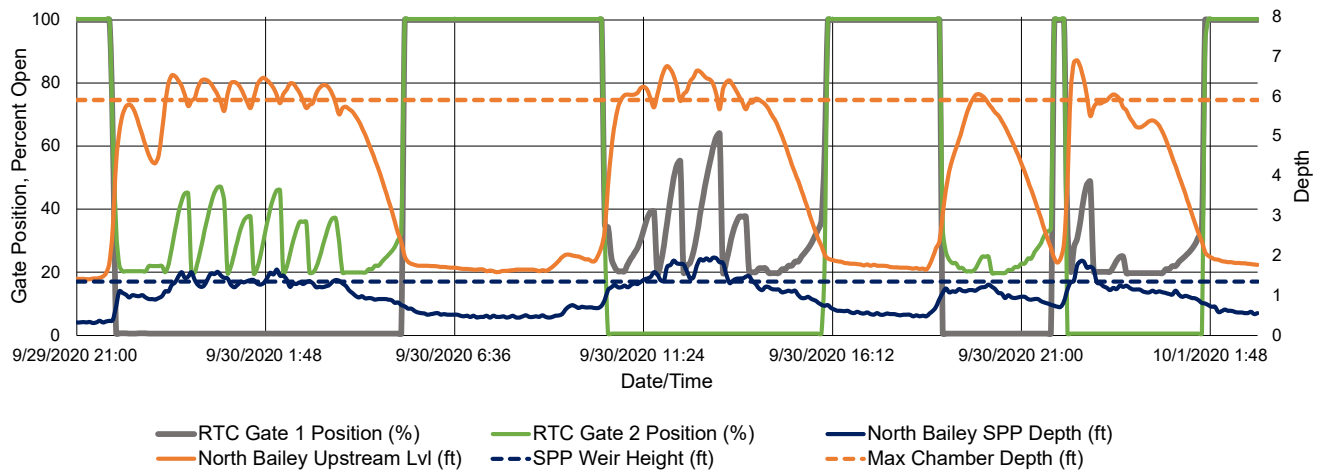
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	30 hr.
Storm Type:	Less than 1 yr. Storm

Gate Activation Trigger Depth:	1.83 ft.
Return to Normal Depth:	2.36 ft.
Time Gate 1 Activated:	9/29/2020 21:50
Time Gate 2 Activated:	9/29/2020 21:50
Time Gate 1 Returned to Normal:	10/1/2020 1:40
Time Gate 2 Returned to Normal:	10/1/2020 1:40
Percent Capture	31%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	446,356 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	973,754 Gal.
Overflow Volume Prevented:	446,356 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

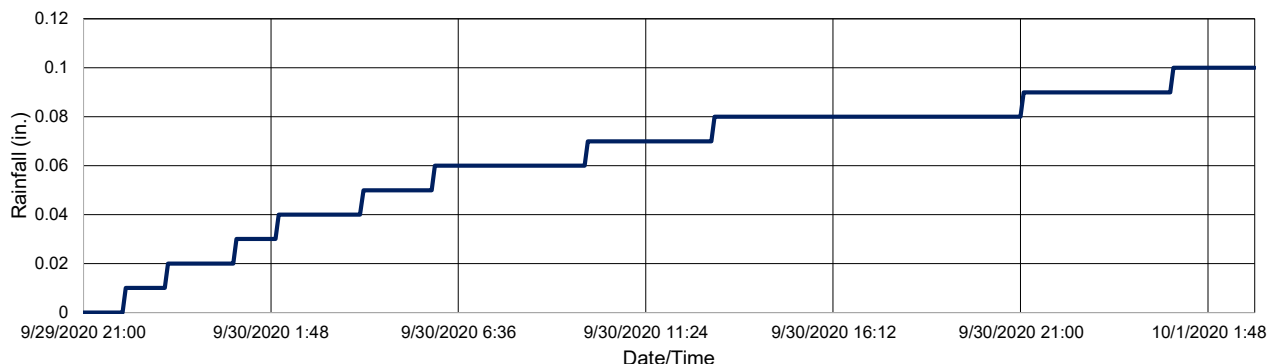
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



October 2020 North Bailey RTC KPI Report

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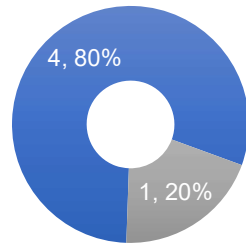


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North Bailey RTC Monthly Performance Report

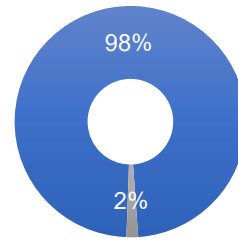
October 2020

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.)
4	1	1,500,811	24,704
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
10/2/2020	280,058	-	100%
10/7/2020	220,874	-	100%
10/20/2020	356,689	-	100%
10/21/2020	233,894	-	100%
10/23/2020	409,296	24,704	94%

Site:	North Bailey RTC
Analysis Date:	11/6/2020
Event Start Date/Time:	10/2/2020 6:00
Event End Date/Time:	10/2/2020 19:05

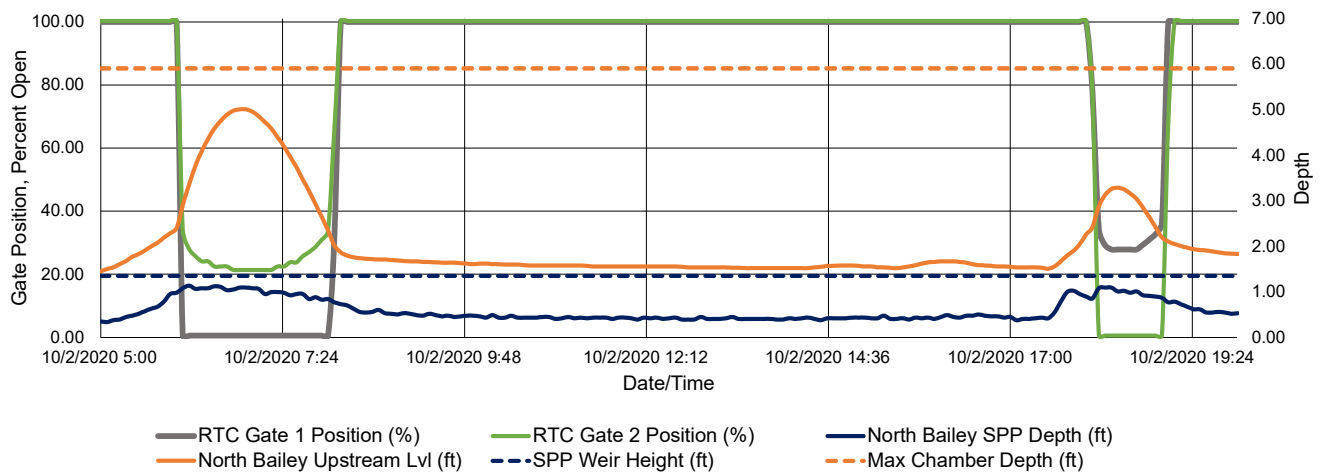
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	15 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.40 ft.
Return to Normal Depth:	2.20 ft.
Time Gate 1 Activated:	10/2/2020 6:00
Time Gate 2 Activated:	10/2/2020 6:00
Time Gate 1 Returned to Normal:	10/2/2020 19:05
Time Gate 2 Returned to Normal:	10/2/2020 19:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.01 ft.
Volume Stored:	280,058 Gal.
Unused Storage Volume:	116,664 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	280,058 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

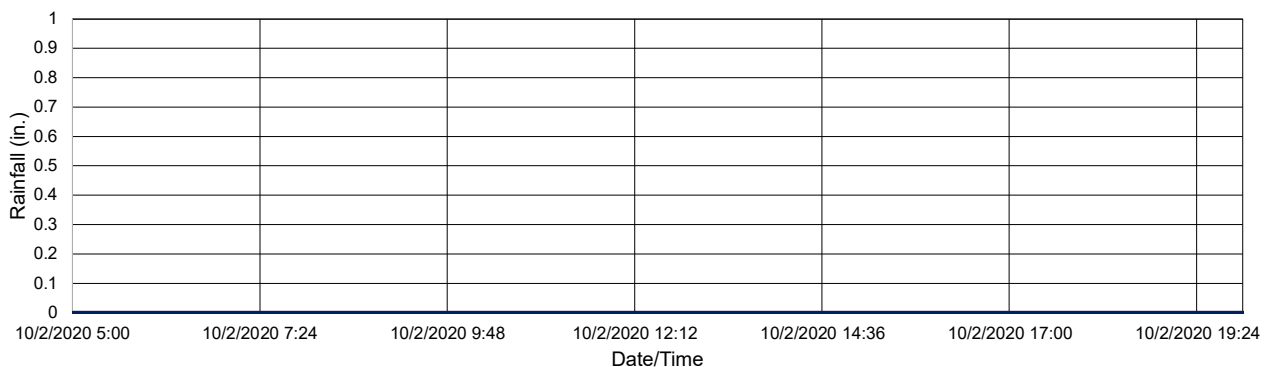
Recommended Operational Changes/Notes:

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



Site:	North Bailey RTC
Analysis Date:	11/6/2020
Event Start Date/Time:	10/7/2020 9:10
Event End Date/Time:	10/7/2020 11:30

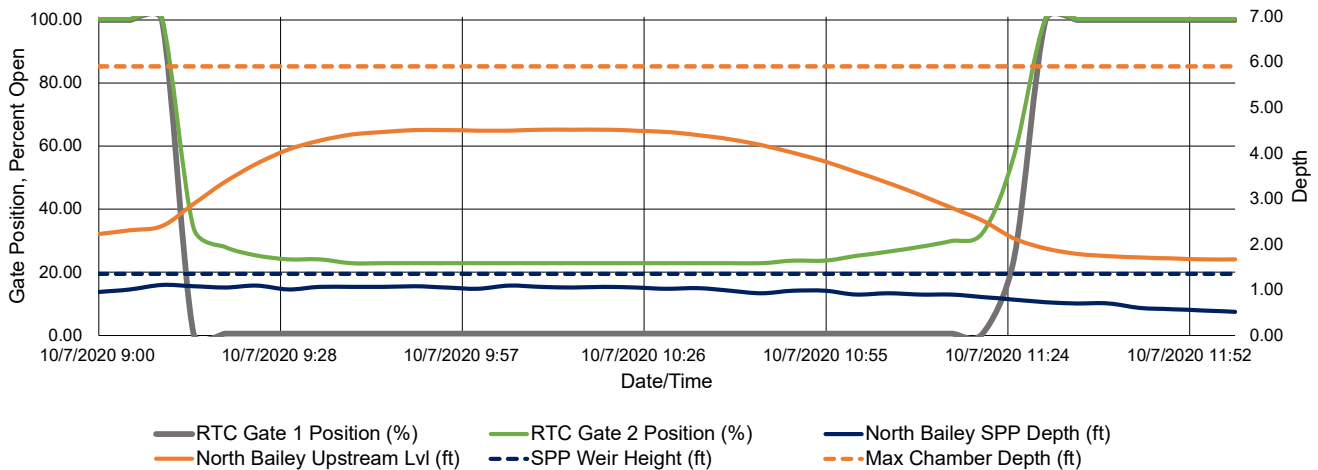
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	3 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.40 ft.
Return to Normal Depth:	2.13 ft.
Time Gate 1 Activated:	10/7/2020 9:10
Time Gate 2 Activated:	10/7/2020 9:10
Time Gate 1 Returned to Normal:	10/7/2020 11:30
Time Gate 2 Returned to Normal:	10/7/2020 11:25
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	4.52 ft.
Volume Stored:	220,874 Gal.
Unused Storage Volume:	175,849 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	220,874 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

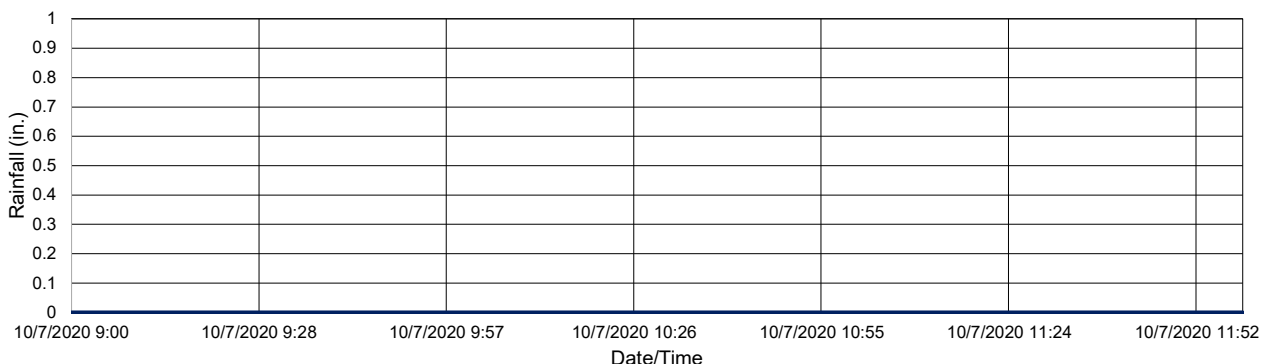
Recommended Operational Changes/Notes:

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



Site:	North Bailey RTC
Analysis Date:	11/6/2020
Event Start Date/Time:	10/20/2020 0:45
Event End Date/Time:	10/20/2020 8:25

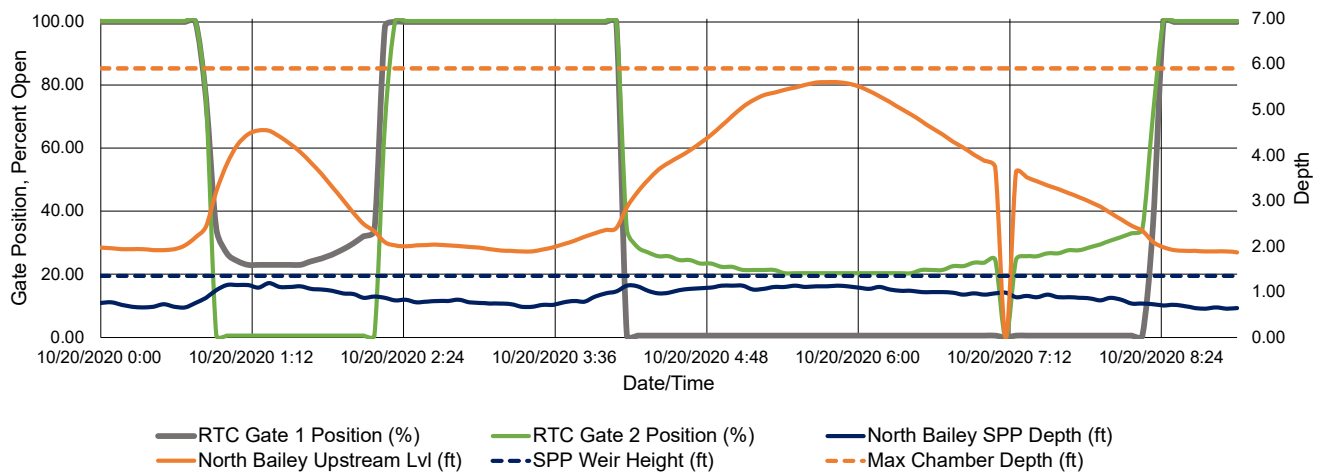
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.20 ft.
Return to Normal Depth:	2.10 ft.
Time Gate 1 Activated:	10/20/2020 0:45
Time Gate 2 Activated:	10/20/2020 0:45
Time Gate 1 Returned to Normal:	10/20/2020 8:25
Time Gate 2 Returned to Normal:	10/20/2020 8:20
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	4.55 ft.
Volume Stored:	356,689 Gal.
Unused Storage Volume:	40,033 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	356,689 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

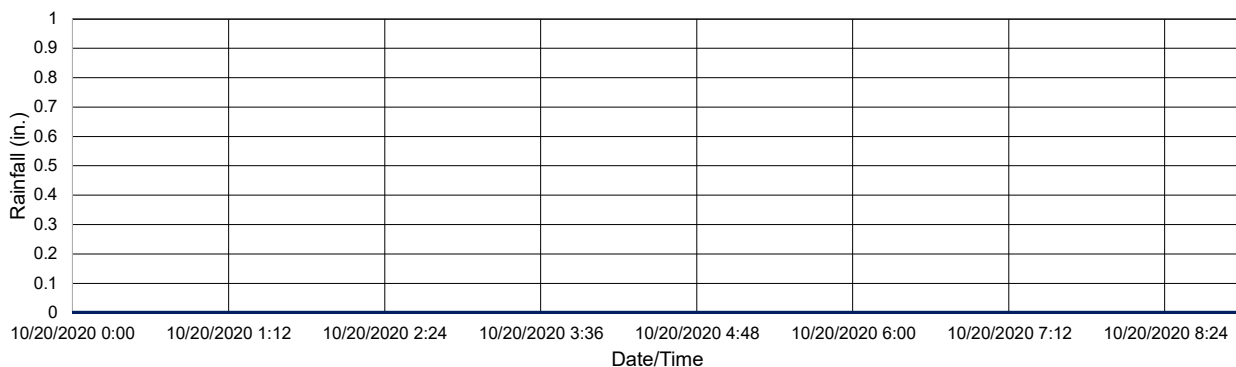
Recommended Operational Changes/Notes:

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

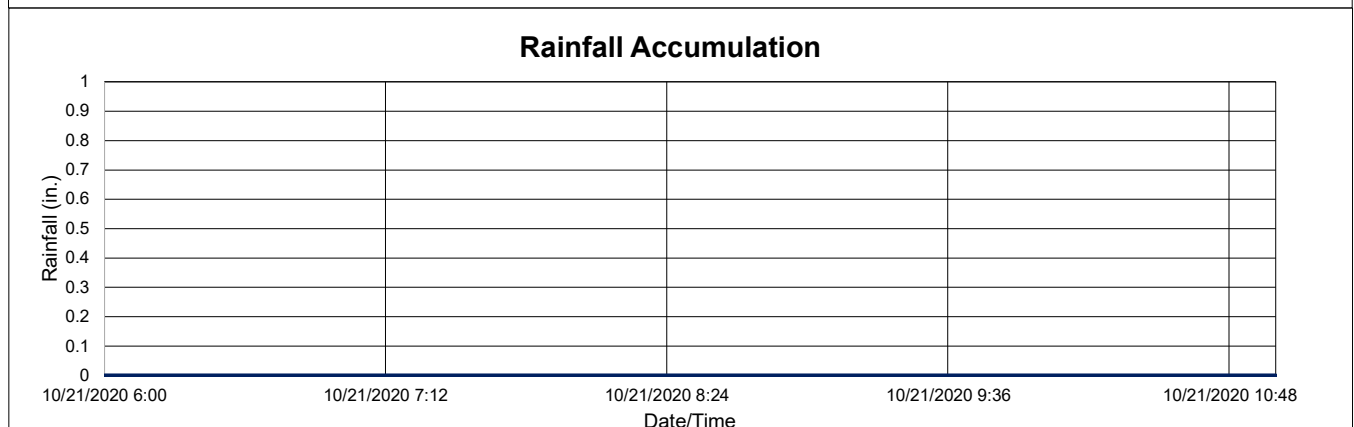
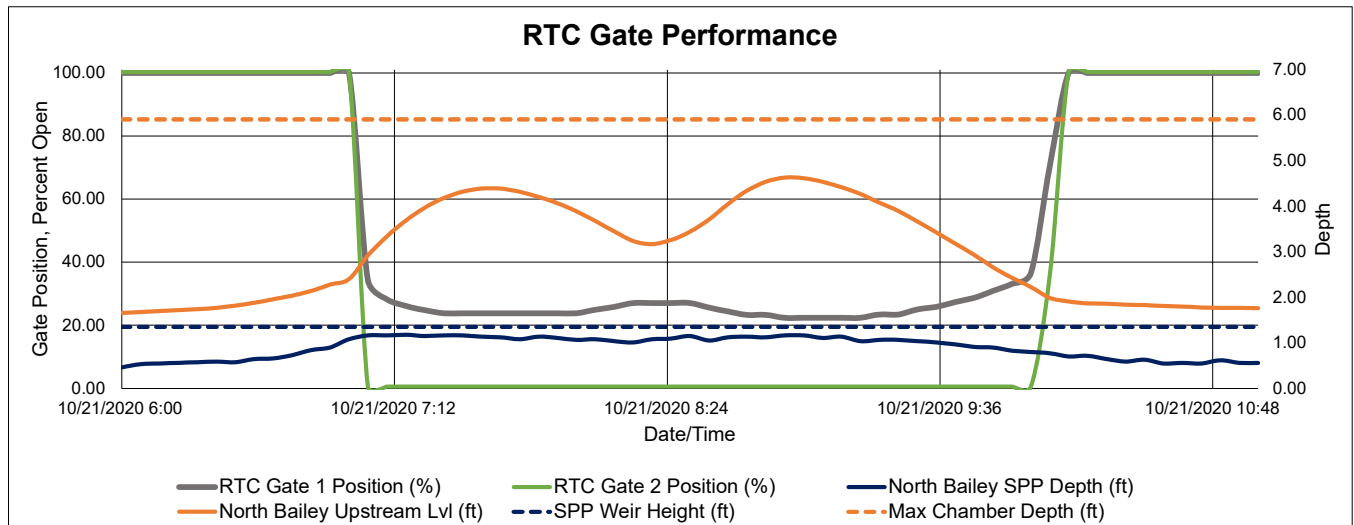


Site:	North Bailey RTC
Analysis Date:	11/6/2020
Event Start Date/Time:	10/21/2020 7:00
Event End Date/Time:	10/21/2020 10:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	5 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.40 ft.
Return to Normal Depth:	1.99 ft.
Time Gate 1 Activated:	10/21/2020 7:00
Time Gate 2 Activated:	10/21/2020 7:00
Time Gate 1 Returned to Normal:	10/21/2020 10:10
Time Gate 2 Returned to Normal:	10/21/2020 10:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	4.63 ft.
Volume Stored:	233,894 Gal.
Unused Storage Volume:	162,828 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	233,894 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.



Site:	North Bailey RTC
Analysis Date:	11/6/2020
Event Start Date/Time:	10/23/2020 21:50
Event End Date/Time:	10/24/2020 5:20

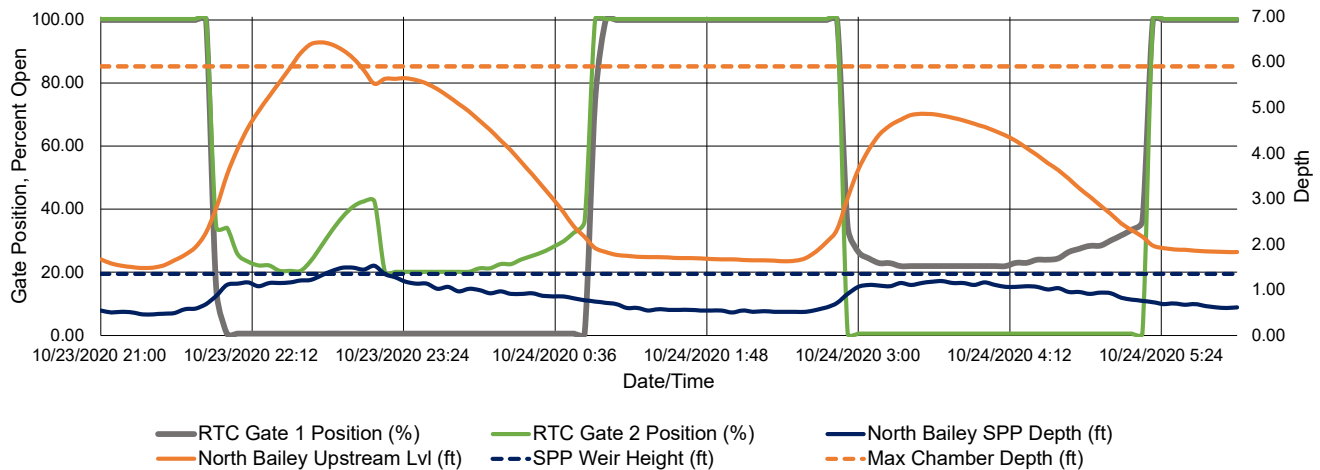
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.26 ft.
Return to Normal Depth:	2.17 ft.
Time Gate 1 Activated:	10/23/2020 21:50
Time Gate 2 Activated:	10/23/2020 21:50
Time Gate 1 Returned to Normal:	10/24/2020 5:20
Time Gate 2 Returned to Normal:	10/24/2020 5:15
Percent Capture	94%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	409,296 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	24,704 Gal.
Overflow Volume Prevented:	409,296 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

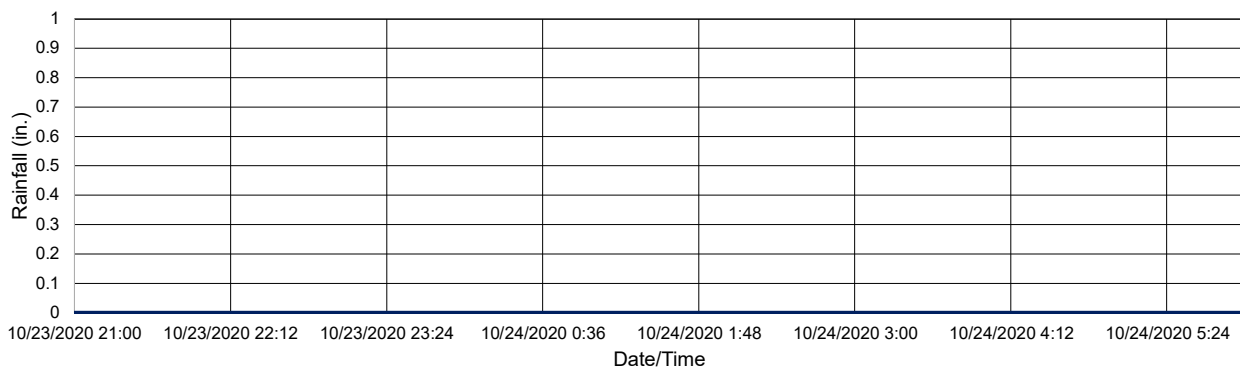
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



November 2020 North Bailey RTC KPI Report

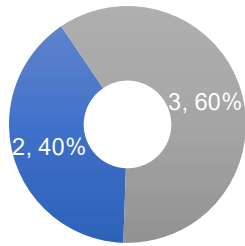
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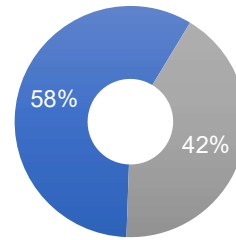
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Prevented SPP Events



■ 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.)
2	3	1,444,852	1,042,777
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
11/1/2020	419,000	939,349	31%
11/11/2020	443,847	93,234	83%
11/15/2020	98,614	-	100%
11/22/2020	86,669	-	100%
11/30/2020	396,722	10,194	97%

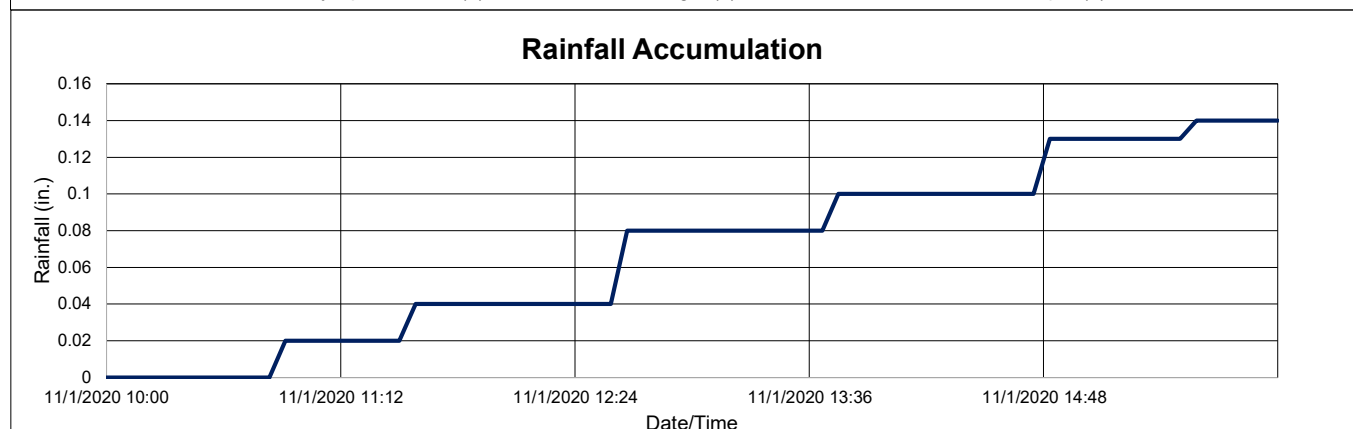
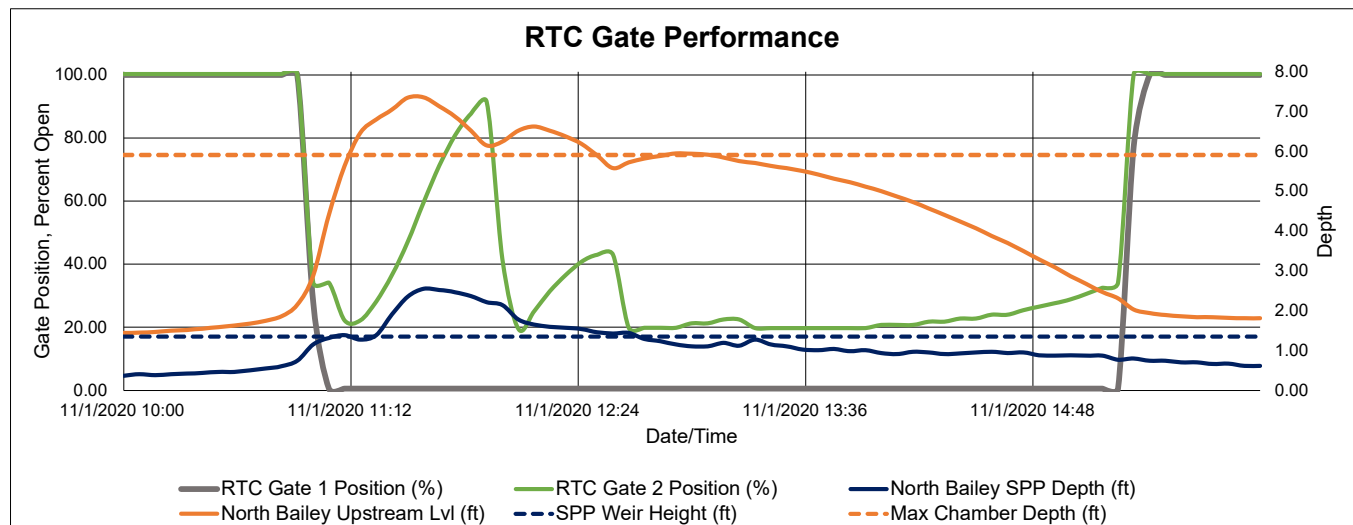
Site:	North Bailey RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/1/2020 10:55
Event End Date/Time:	11/1/2020 15:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.14 in.
Storm Event Duration:	6 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.15 ft.
Return to Normal Depth:	2.03 ft.
Time Gate 1 Activated:	11/1/2020 10:55
Time Gate 2 Activated:	11/1/2020 10:55
Time Gate 1 Returned to Normal:	11/1/2020 15:25
Time Gate 2 Returned to Normal:	11/1/2020 15:15
Percent Capture	31%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	419,000 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	939,349 Gal.
Overflow Volume Prevented:	419,000 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.



Site:	North Bailey RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/11/2020 4:35
Event End Date/Time:	11/11/2020 7:10

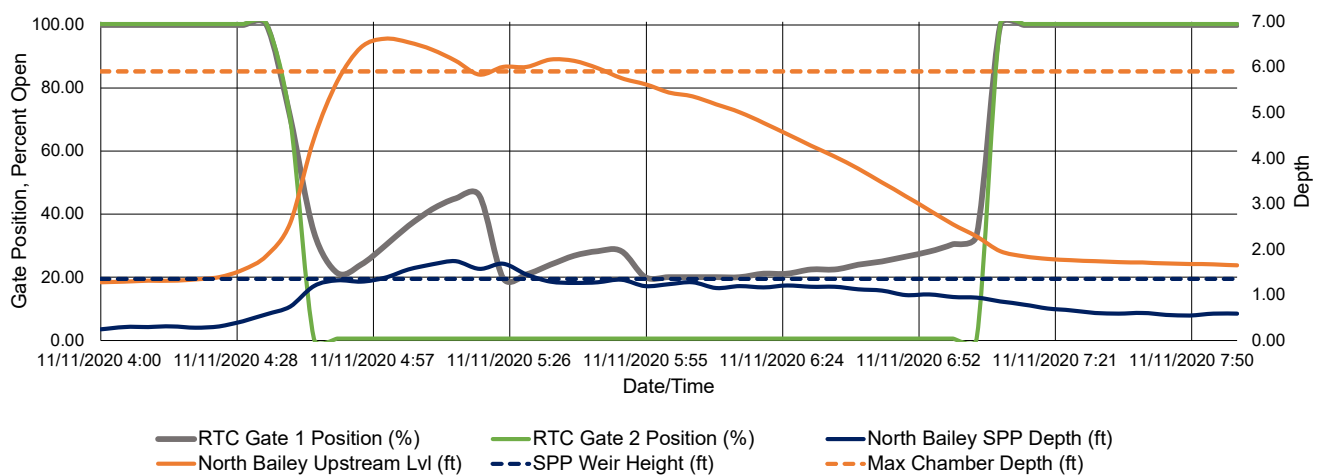
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	4 hr.
Storm Type:	NA

Gate Activation Trigger Depth:	1.86 ft.
Return to Normal Depth:	2.28 ft.
Time Gate 1 Activated:	11/11/2020 4:35
Time Gate 2 Activated:	11/11/2020 4:35
Time Gate 1 Returned to Normal:	11/11/2020 7:10
Time Gate 2 Returned to Normal:	11/11/2020 7:05
Percent Capture	83%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	443,847 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	93,234 Gal.
Overflow Volume Prevented:	443,847 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

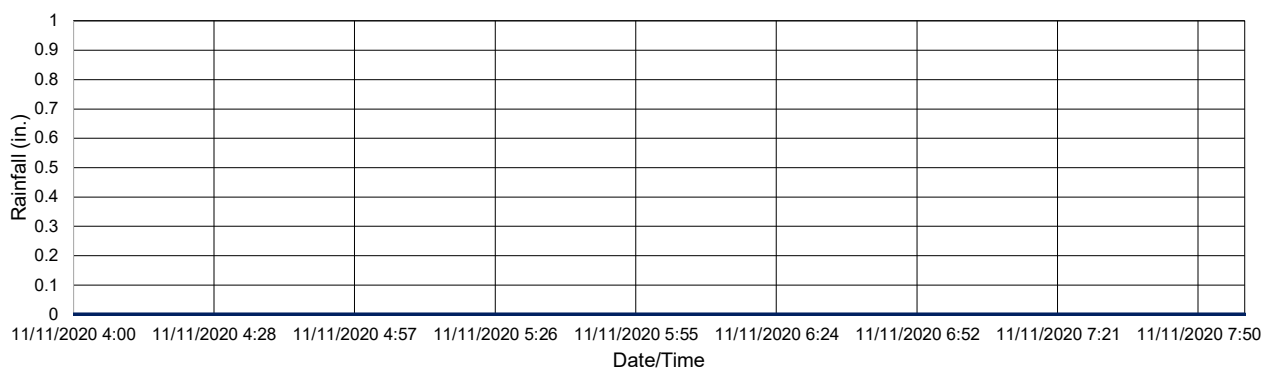
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



Site:	North Bailey RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/15/2020 20:10
Event End Date/Time:	11/15/2020 21:10

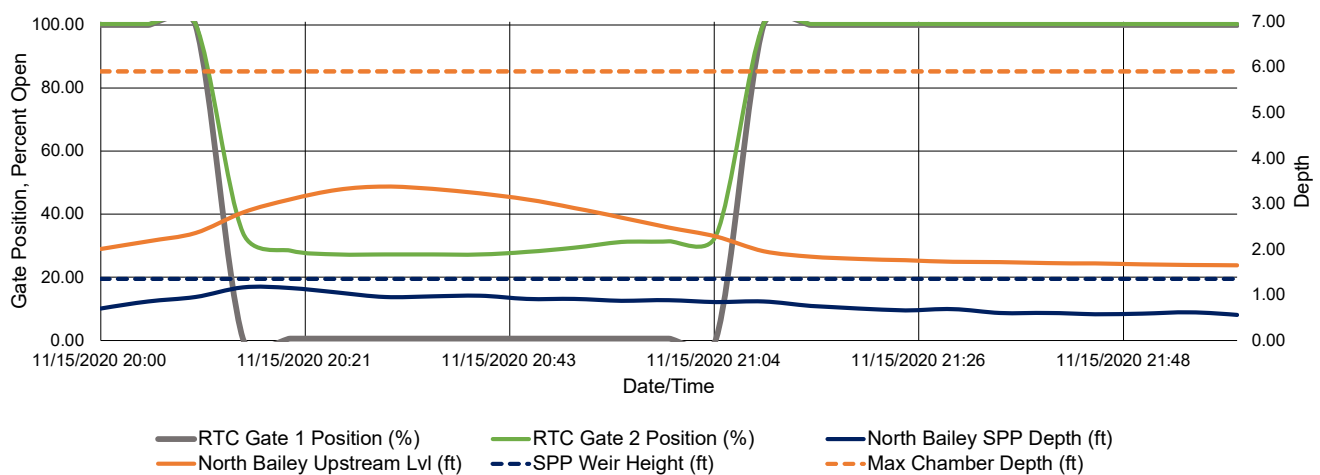
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	2 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.36 ft.
Return to Normal Depth:	2.28 ft.
Time Gate 1 Activated:	11/15/2020 20:10
Time Gate 2 Activated:	11/15/2020 20:10
Time Gate 1 Returned to Normal:	11/15/2020 21:10
Time Gate 2 Returned to Normal:	11/15/2020 21:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.38 ft.
Volume Stored:	98,614 Gal.
Unused Storage Volume:	301,726 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	98,614 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

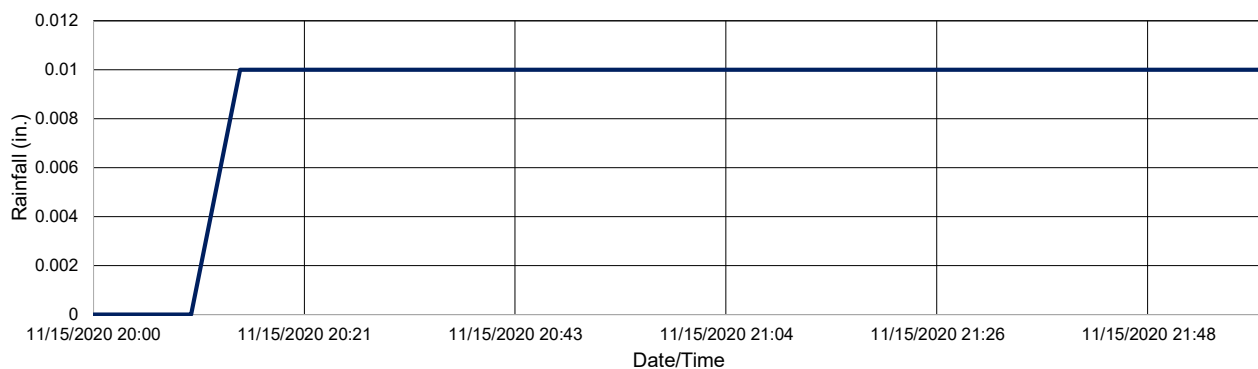
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



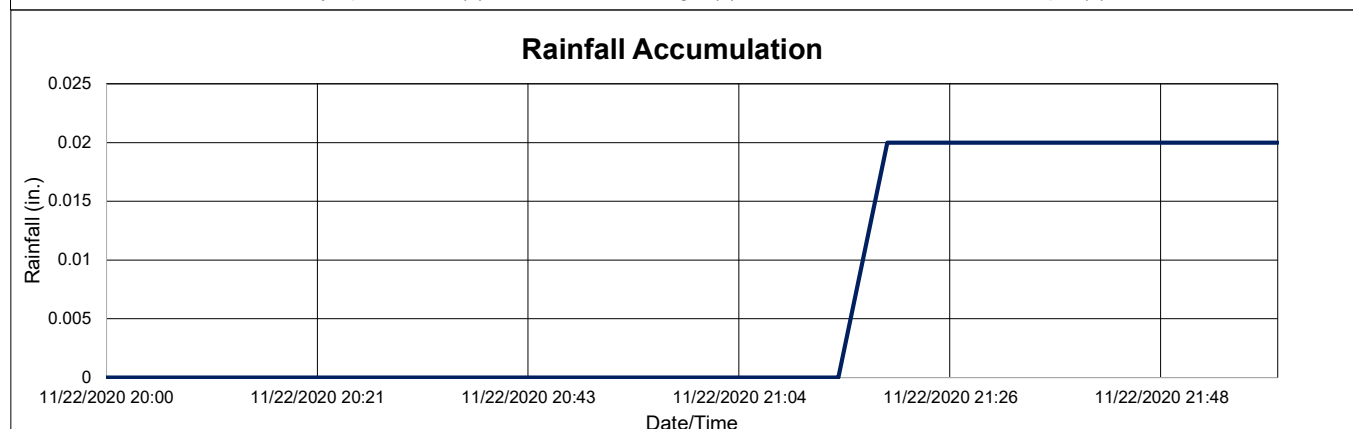
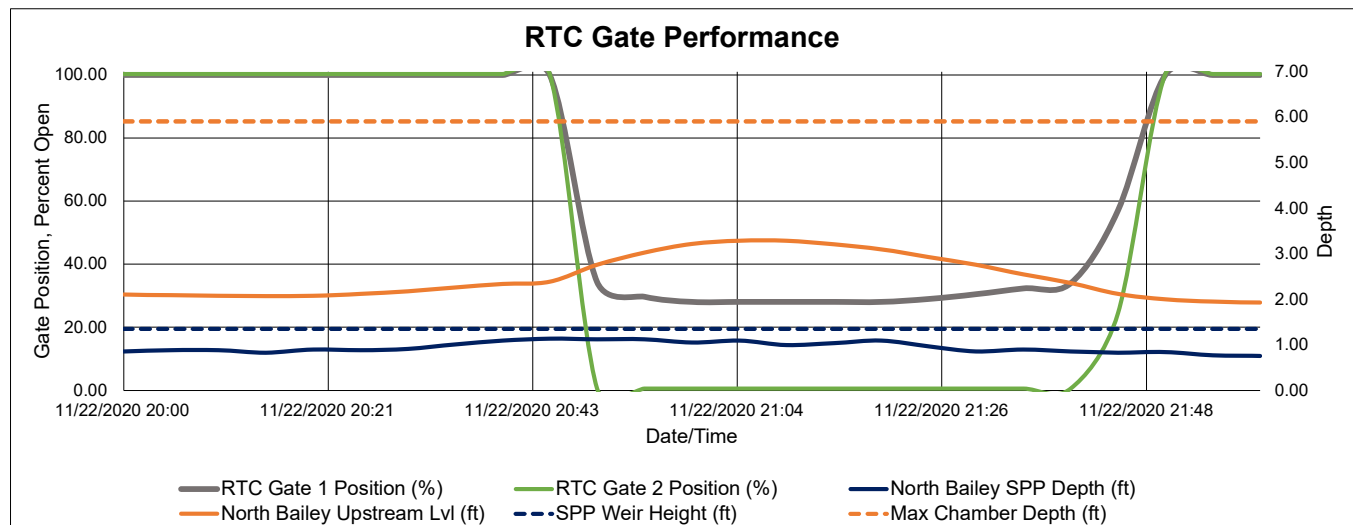
Site:	North Bailey RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/22/2020 20:45
Event End Date/Time:	11/22/2020 21:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	2 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.39 ft.
Return to Normal Depth:	2.12 ft.
Time Gate 1 Activated:	11/22/2020 20:45
Time Gate 2 Activated:	11/22/2020 20:45
Time Gate 1 Returned to Normal:	11/22/2020 21:50
Time Gate 2 Returned to Normal:	11/22/2020 21:45
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.29 ft.
Volume Stored:	86,669 Gal.
Unused Storage Volume:	310,959 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	86,669 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.



Site:	North Bailey RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/30/2020 11:10
Event End Date/Time:	11/30/2020 18:10

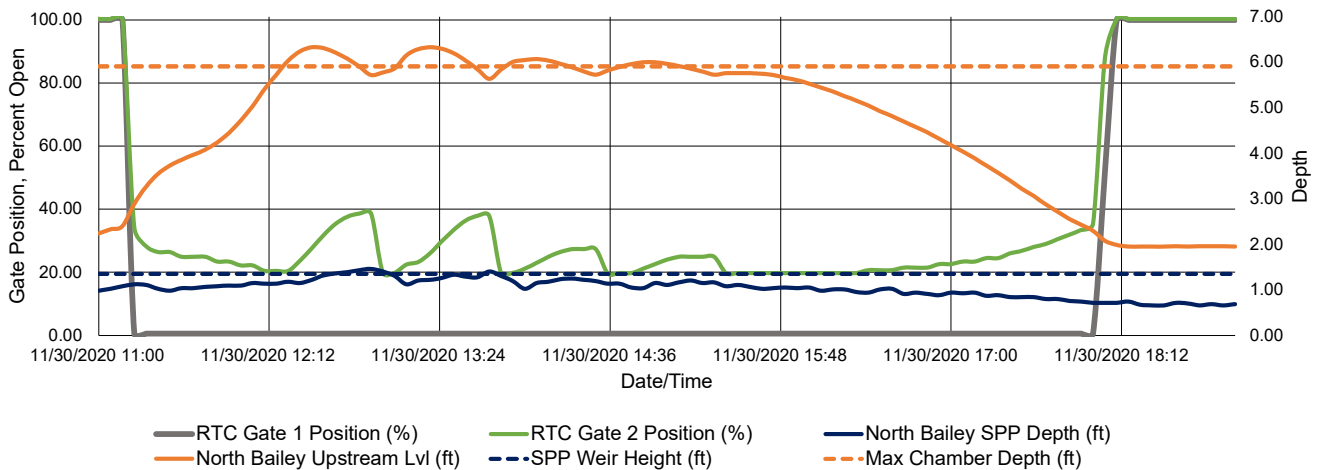
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.06 in.
Storm Event Duration:	8 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.40 ft.
Return to Normal Depth:	2.08 ft.
Time Gate 1 Activated:	11/30/2020 11:10
Time Gate 2 Activated:	11/30/2020 11:10
Time Gate 1 Returned to Normal:	11/30/2020 18:10
Time Gate 2 Returned to Normal:	11/30/2020 18:05
Percent Capture	97%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	396,722 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	10,194 Gal.
Overflow Volume Prevented:	396,722 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

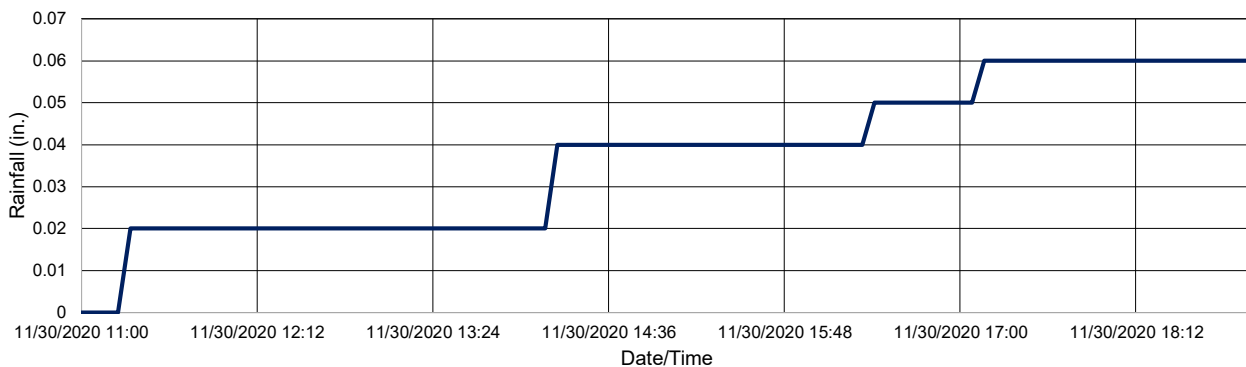
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



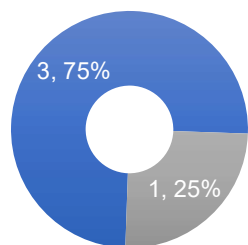
December 2020 North Bailey RTC KPI Report

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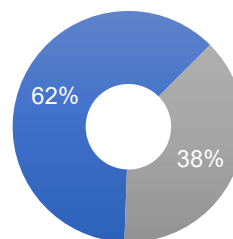
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Prevented SPP Events



■ 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.)
3	1	1,366,417	839,574
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
12/9/2020	197,350	-	100%
12/12/2020	419,000	-	100%
12/28/2020	349,727	-	100%
12/30/2020	400,340	839,574	32%

Site:	North Bailey RTC
Analysis Date:	1/8/2021
Event Start Date/Time:	12/9/2020 13:25
Event End Date/Time:	12/9/2020 20:55

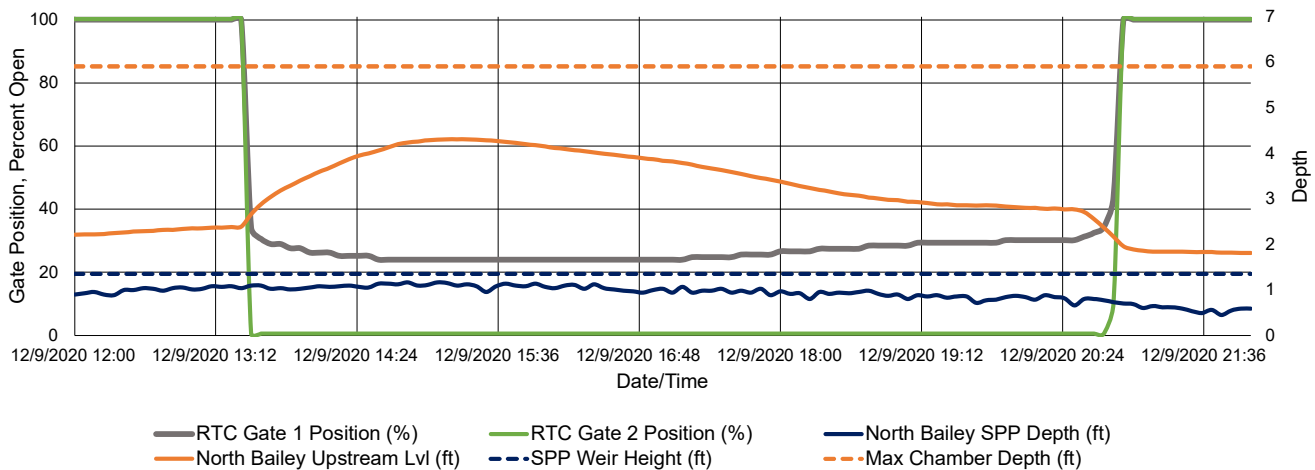
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	10 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.39 ft.
Return to Normal Depth:	2.17 ft.
Time Gate 1 Activated:	12/9/2020 13:25
Time Gate 2 Activated:	12/9/2020 13:25
Time Gate 1 Returned to Normal:	12/9/2020 20:55
Time Gate 2 Returned to Normal:	12/9/2020 20:50
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	4.31 ft.
Volume Stored:	197,350 Gal.
Unused Storage Volume:	200,279 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	197,350 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

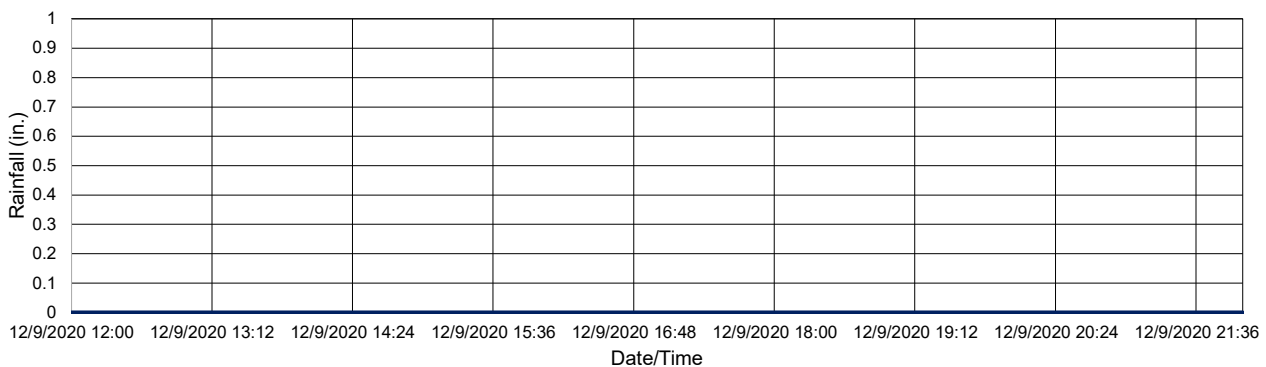
Recommended Operational Changes/Notes:

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. There was loss of communication from the beginning of December till December 7, 2020.

RTC Gate Performance



Rainfall Accumulation



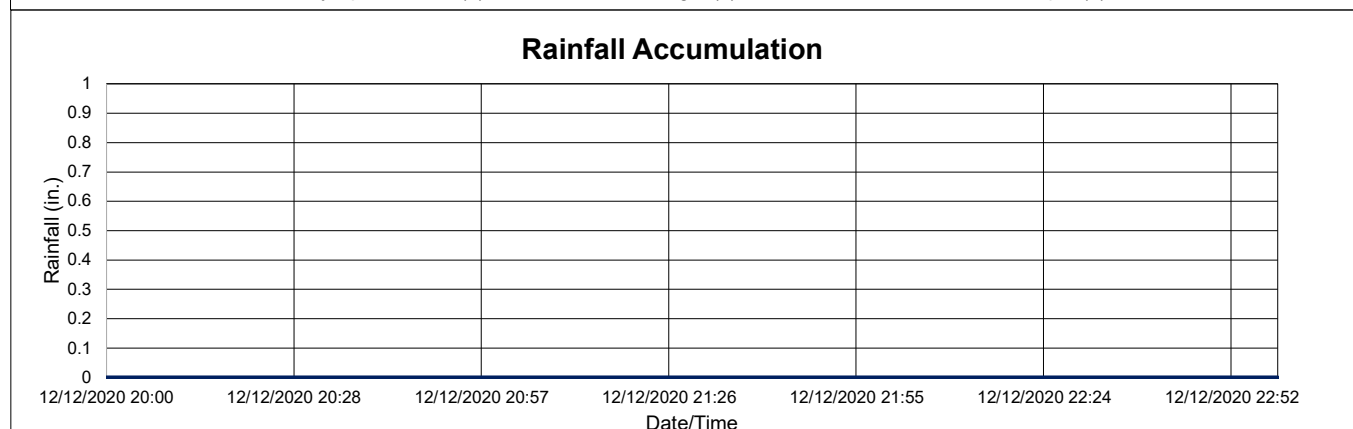
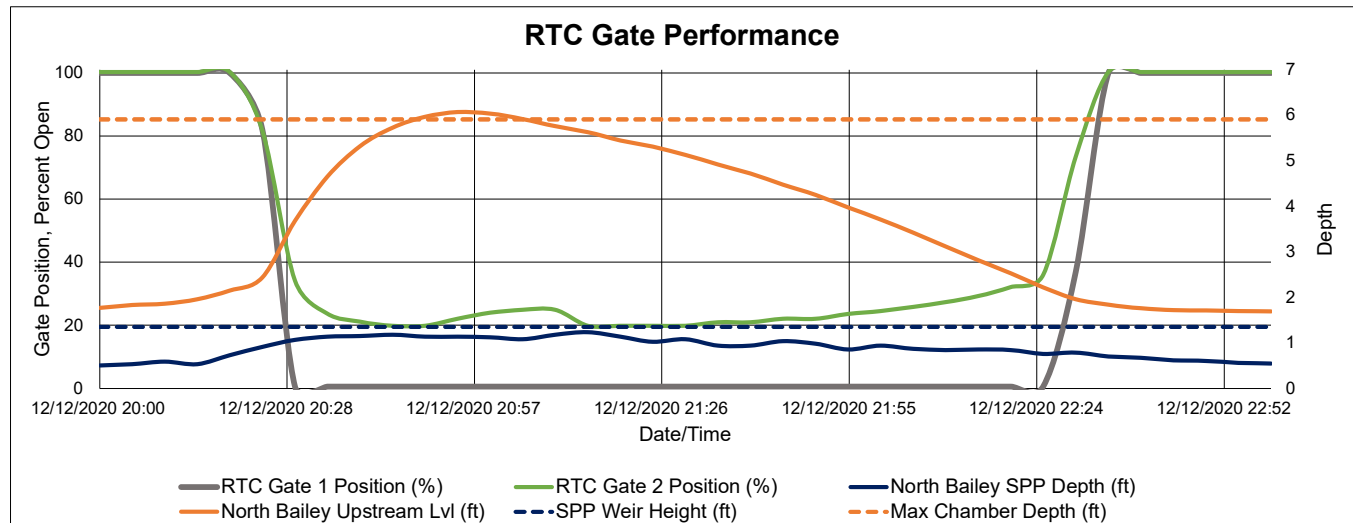
Site:	North Bailey RTC
Analysis Date:	1/8/2021
Event Start Date/Time:	12/12/2020 20:20
Event End Date/Time:	12/12/2020 22:35

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

Gate Activation Trigger Depth:	2.15 ft.
Return to Normal Depth:	1.96 ft.
Time Gate 1 Activated:	12/12/2020 20:20
Time Gate 2 Activated:	12/12/2020 20:20
Time Gate 1 Returned to Normal:	12/12/2020 22:35
Time Gate 2 Returned to Normal:	12/12/2020 22:30
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	419,000 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	419,000 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 or probably snow melt.



Site:	North Bailey RTC
Analysis Date:	1/8/2021
Event Start Date/Time:	12/28/2020 9:00
Event End Date/Time:	12/28/2020 19:15

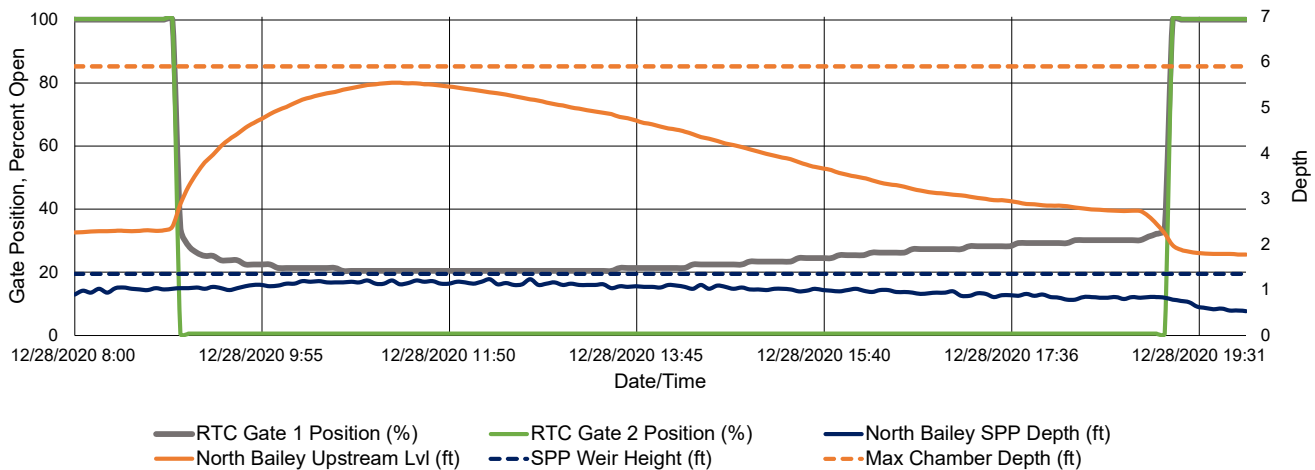
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	12 hr.
Storm Type:	N/A

Gate Activation Trigger Depth:	2.39 ft.
Return to Normal Depth:	2.24 ft.
Time Gate 1 Activated:	12/28/2020 9:00
Time Gate 2 Activated:	12/28/2020 9:00
Time Gate 1 Returned to Normal:	12/28/2020 19:15
Time Gate 2 Returned to Normal:	12/28/2020 19:10
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.55 ft.
Volume Stored:	349,727 Gal.
Unused Storage Volume:	47,902 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	349,727 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

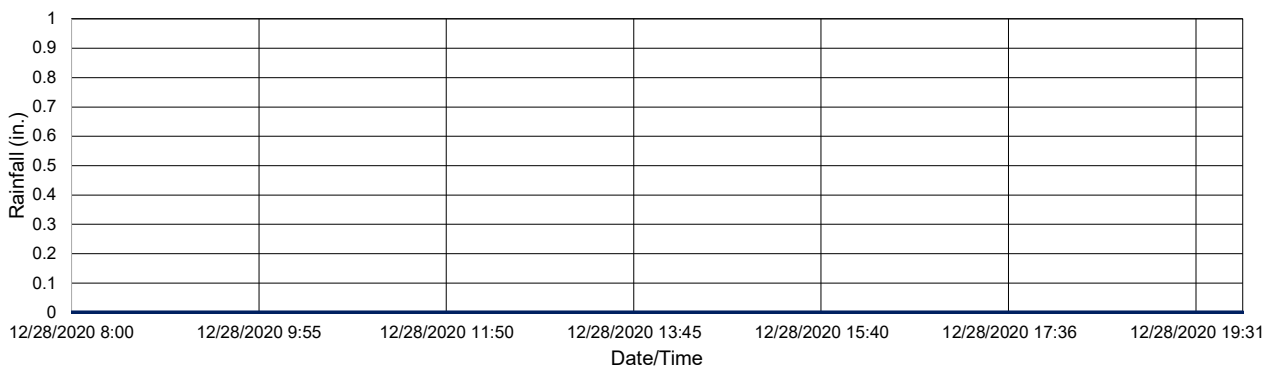
Recommended Operational Changes/Notes:

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 or probably snow melt.

RTC Gate Performance



Rainfall Accumulation



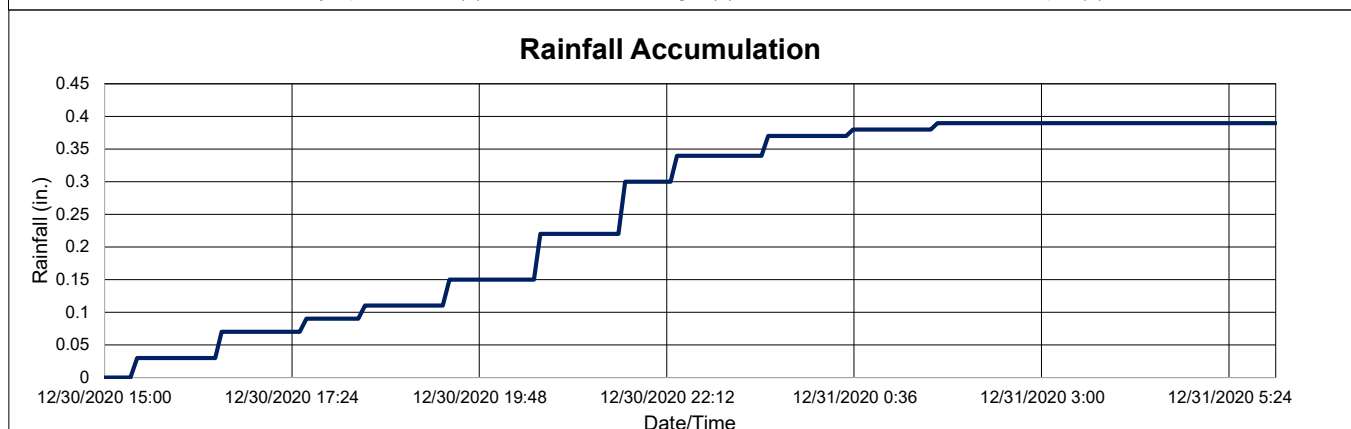
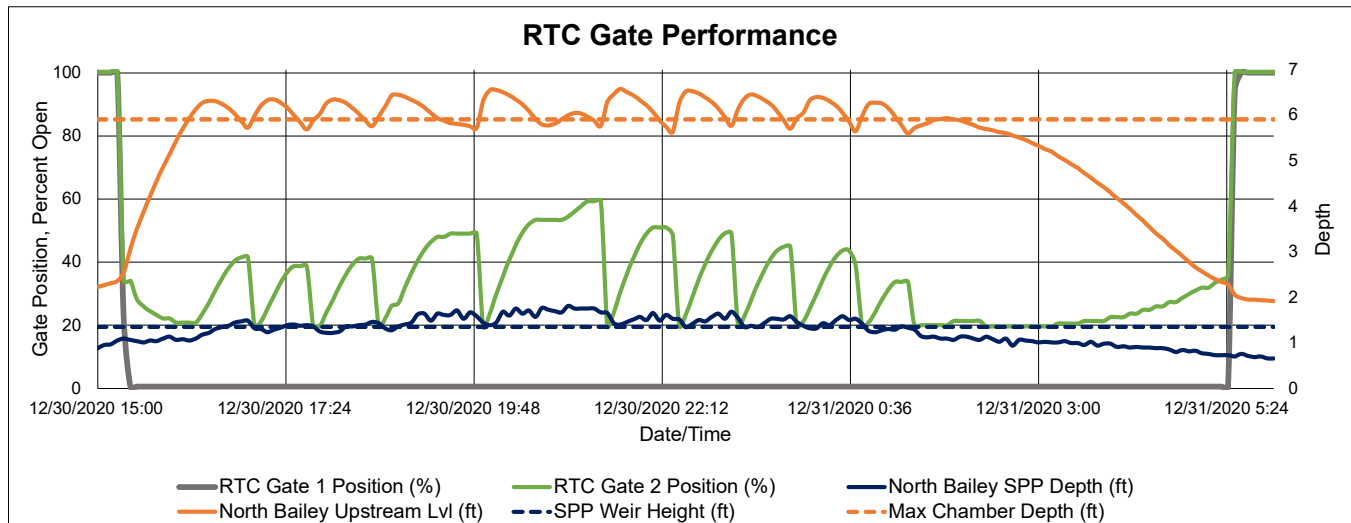
Site:	North Bailey RTC
Analysis Date:	1/8/2021
Event Start Date/Time:	12/30/2020 15:15
Event End Date/Time:	12/31/2020 5:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.39 in.
Storm Event Duration:	15 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.36 ft.
Return to Normal Depth:	2.06 ft.
Time Gate 1 Activated:	12/30/2020 15:15
Time Gate 2 Activated:	12/30/2020 15:15
Time Gate 1 Returned to Normal:	12/31/2020 5:35
Time Gate 2 Returned to Normal:	12/31/2020 5:25
Percent Capture	32%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	400,340 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	839,574 Gal.
Overflow Volume Prevented:	400,340 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.



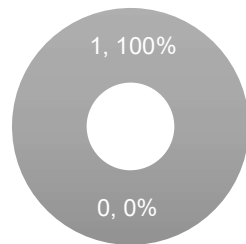
January 2021 North Bailey RTC KPI Report

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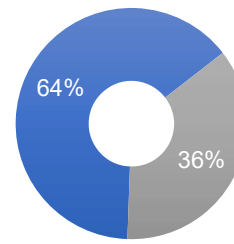


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Prevented SPP Events

■ 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.)
0	1	400,340	225,546
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
1/2/2021	400,340	225,546	64%

Site:	North Bailey RTC
Analysis Date:	2/11/2021
Event Start Date/Time:	1/2/2021 1:00
Event End Date/Time:	1/2/2021 9:50

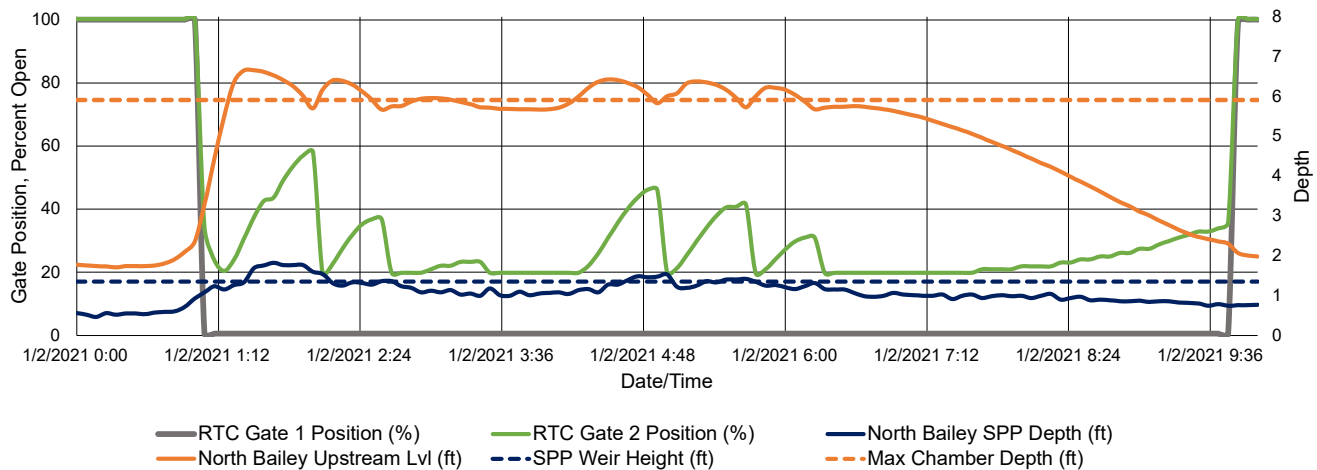
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	10 hr.
Storm Type:	Less than one year

Gate Activation Trigger Depth:	2.36 ft.
Return to Normal Depth:	2.30 ft.
Time Gate 1 Activated:	1/2/2021 1:00
Time Gate 2 Activated:	1/2/2021 1:00
Time Gate 1 Returned to Normal:	1/2/2021 9:50
Time Gate 2 Returned to Normal:	1/2/2021 9:45
Percent Capture	64%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	400,340 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	225,546 Gal.
Overflow Volume Prevented:	400,340 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

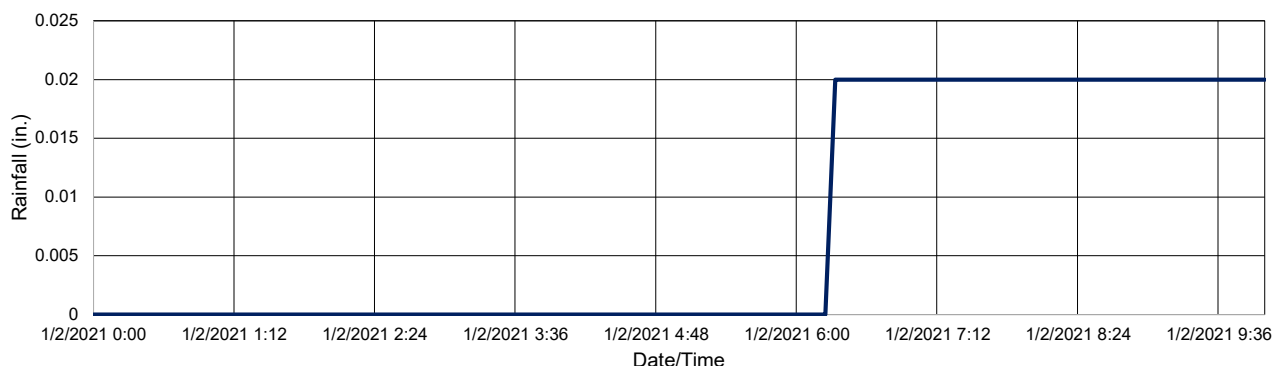
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



February 2021 North Bailey RTC KPI Report

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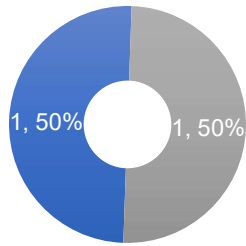
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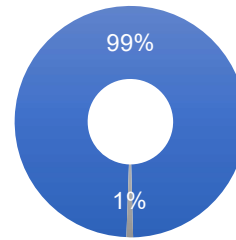
February 2021

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.)
1	1	804,263	7,389
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
2/24/2021	398,534	7,389	98%
2/27/2021	405,729	-	100%

Site:	North Bailey RTC
Analysis Date:	3/12/2021
Event Start Date/Time:	2/24/2021 12:35
Event End Date/Time:	2/24/2021 21:05

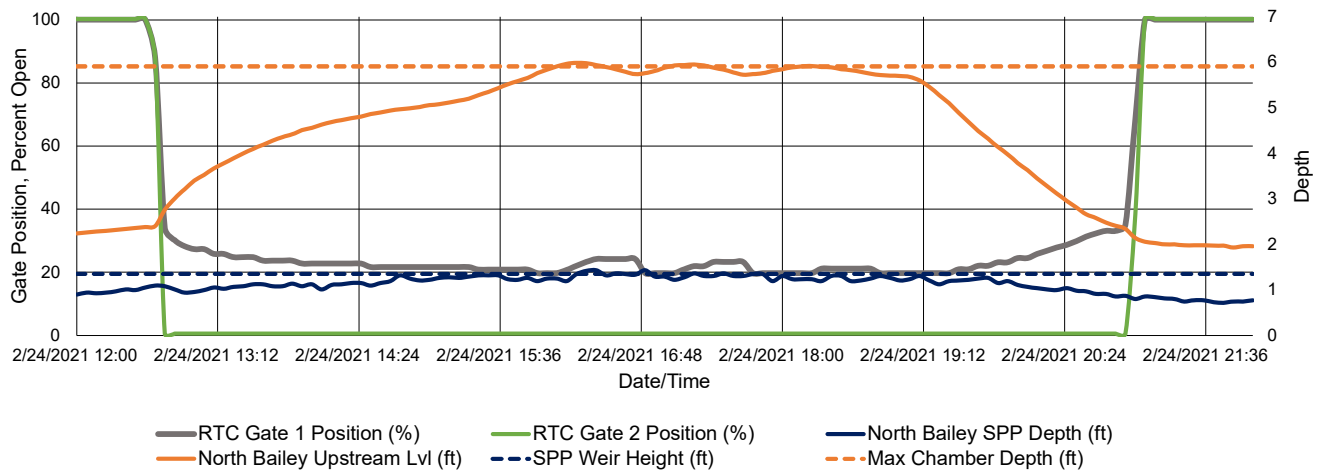
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	10 hr.
Storm Type:	NA

Gate Activation Trigger Depth:	2.38 ft.
Return to Normal Depth:	2.14 ft.
Time Gate 1 Activated:	2/24/2021 12:35
Time Gate 2 Activated:	2/24/2021 12:35
Time Gate 1 Returned to Normal:	2/24/2021 21:05
Time Gate 2 Returned to Normal:	2/24/2021 21:00
Percent Capture	98%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	398,534 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	7,389 Gal.
Overflow Volume Prevented:	398,534 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	NA
Could SPP activation have been prevented?	No

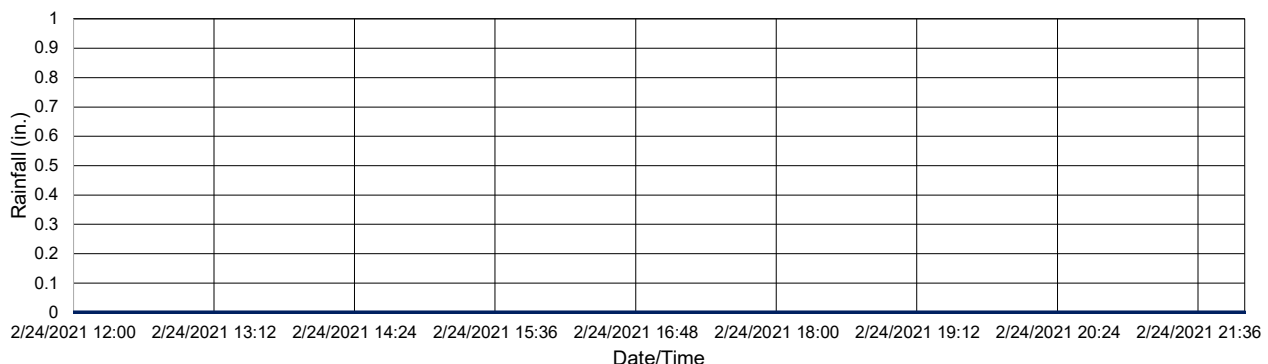
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



Site:	North Bailey RTC
Analysis Date:	3/12/2021
Event Start Date/Time:	2/27/2021 8:50
Event End Date/Time:	2/27/2021 17:05

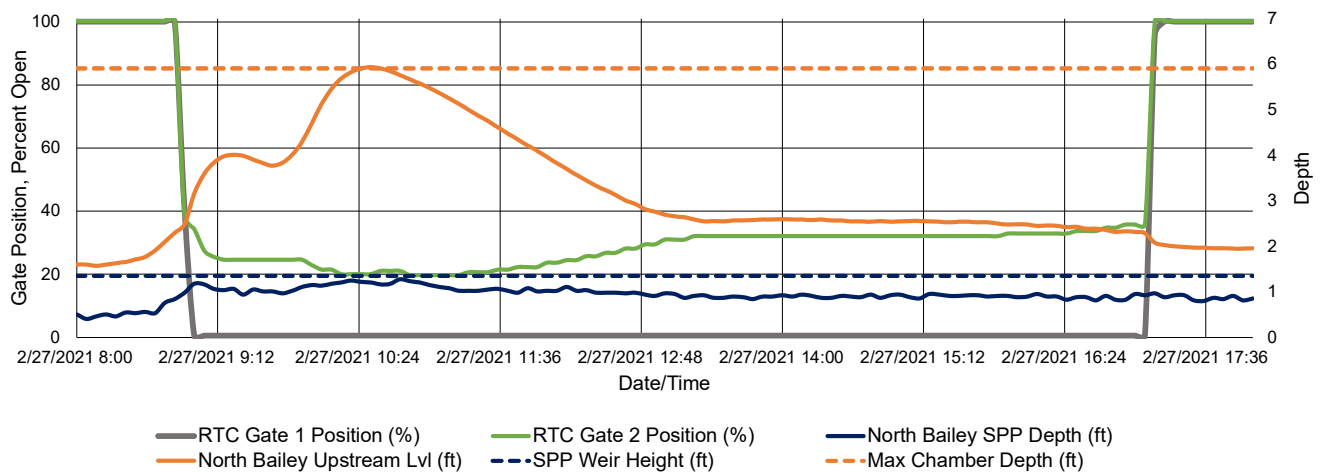
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	10 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	2.30 ft.
Return to Normal Depth:	2.08 ft.
Time Gate 1 Activated:	2/27/2021 8:50
Time Gate 2 Activated:	2/27/2021 8:50
Time Gate 1 Returned to Normal:	1/0/1900 0:00
Time Gate 2 Returned to Normal:	2/27/2021 17:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	405,729 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	405,729 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

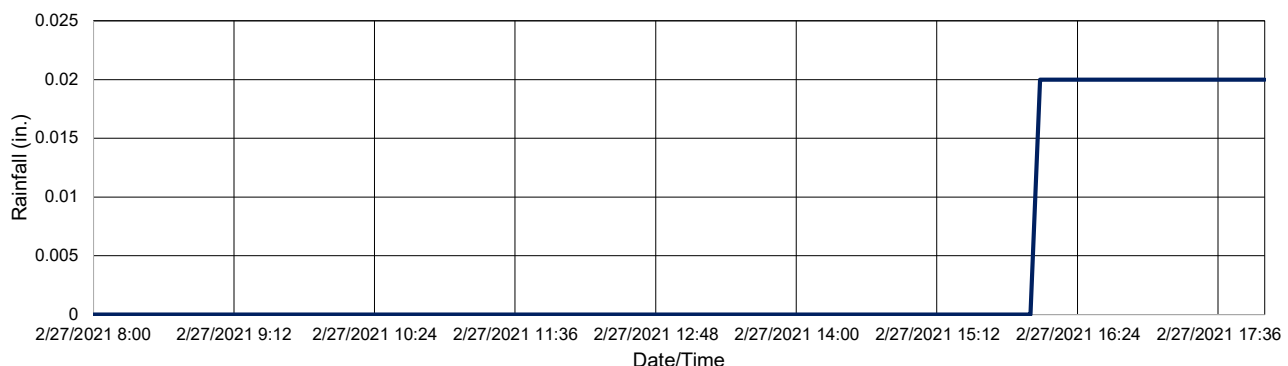
Recommended Operational Changes/Notes:

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

RTC Gate Performance



Rainfall Accumulation



March 2021 North Bailey RTC KPI Report

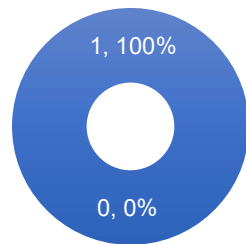
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North Bailey RTC Monthly Performance Report

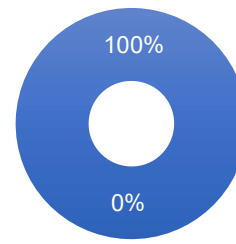
March 2021

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.)

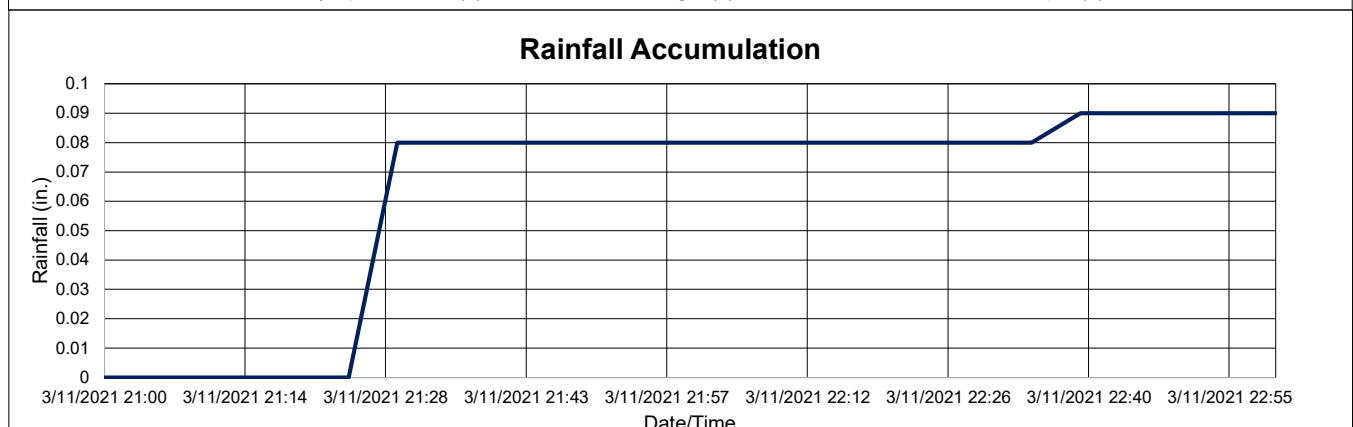
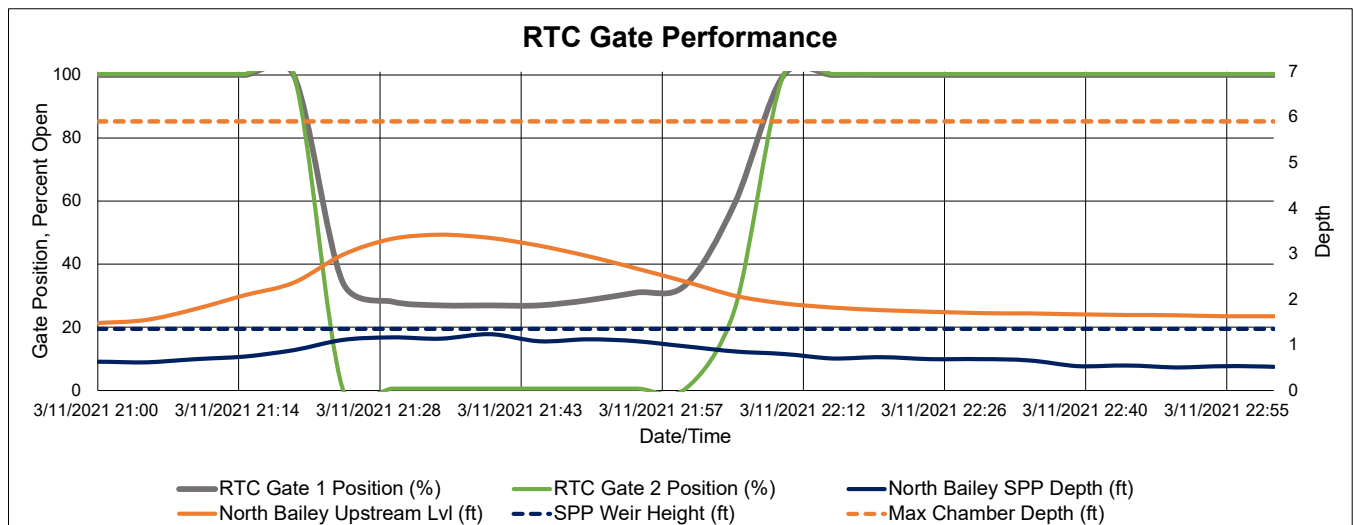
Number of Prevented SPP Overflow Events	Number of Occurred SPP Overflow Events	Prevented SPP Overflow Volume (Gal.)	Occurred SPP Overflow Volume (Gal.)
1	0	101,849	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
3/11/2021	101,849	-	100%

Site:	North Bailey RTC
Analysis Date:	3/12/2021
Event Start Date/Time:	3/11/2021 21:20
Event End Date/Time:	3/11/2021 22:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.09 in.
Storm Event Duration:	2 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	2.37 ft.
Return to Normal Depth:	2.08 ft.
Time Gate 1 Activated:	3/11/2021 21:20
Time Gate 2 Activated:	3/11/2021 21:20
Time Gate 1 Returned to Normal:	3/11/2021 22:10
Time Gate 2 Returned to Normal:	3/11/2021 22:05
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.42 ft.
Volume Stored:	101,849 Gal.
Unused Storage Volume:	297,589 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	101,849 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.
Communication was lost from 3/25/2021 to 3/30/2021.



April 2021 North Bailey RTC KPI Report

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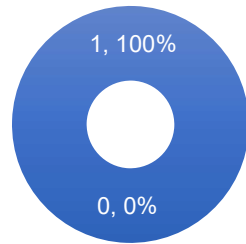


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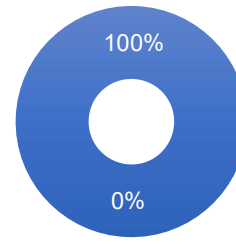
April 2021

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.)
1	0	165,232	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
4/29/2021	165,232	-	100%

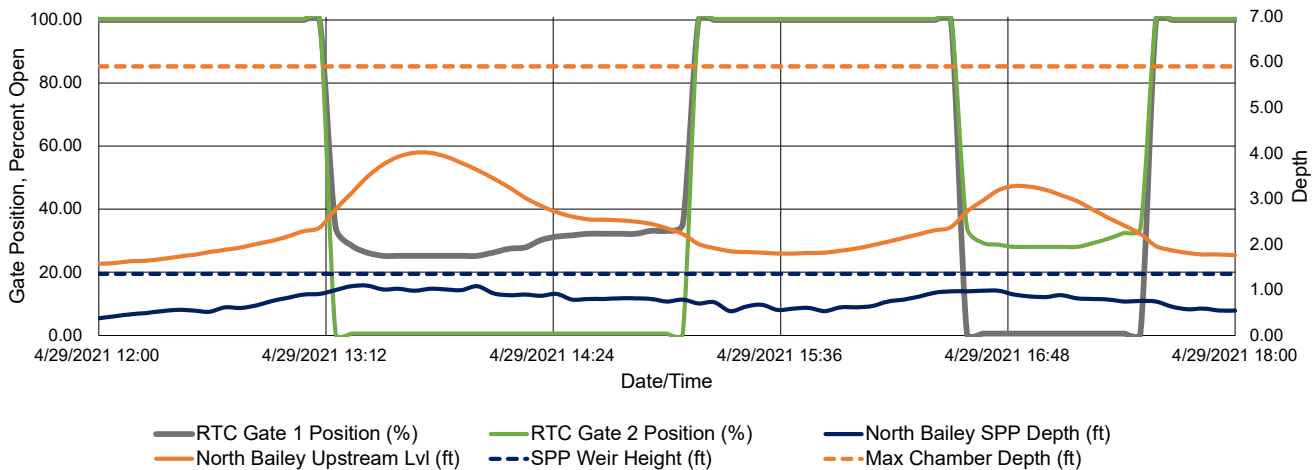
Site:	North Bailey RTC
Analysis Date:	5/7/2021
Event Start Date/Time:	4/29/2021 13:10
Event End Date/Time:	4/29/2021 17:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.34 in.
Storm Event Duration:	6 hr.
Storm Type:	< 1 yr.

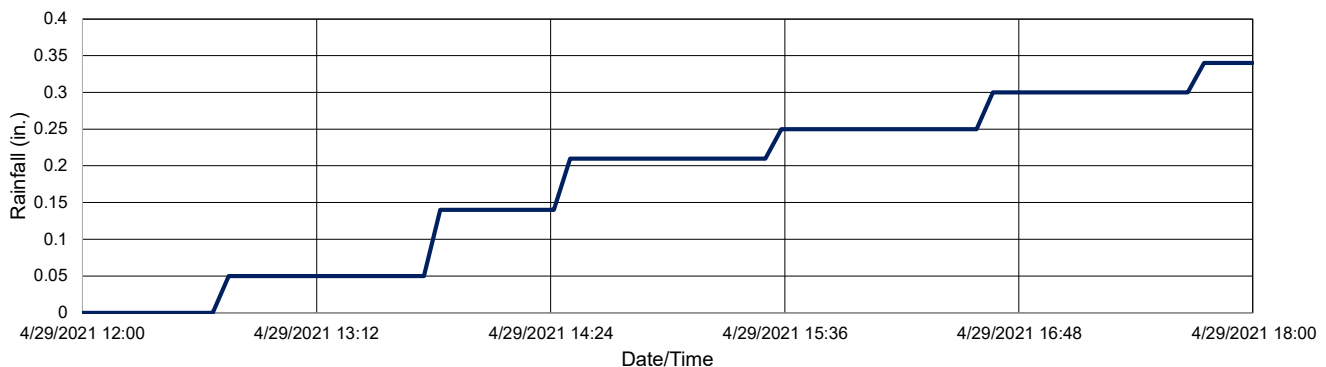
Gate Activation Trigger Depth:	2.37 ft.
Return to Normal Depth:	2.23 ft.
Time Gate 1 Activated:	4/29/2021 13:10
Time Gate 2 Activated:	4/29/2021 13:10
Time Gate 1 Returned to Normal:	4/29/2021 17:35
Time Gate 2 Returned to Normal:	4/29/2021 17:30
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	4.01 ft.
Volume Stored:	165,232 Gal.
Unused Storage Volume:	234,206 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	165,232 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. Communication was lost from 4/8 to 4/27.

RTC Gate Performance



Rainfall Accumulation



May 2021 North Bailey RTC KPI Report

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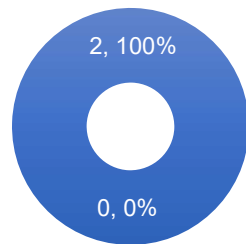
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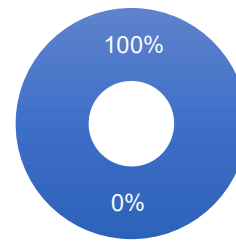
May 2021

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.)
2	0	558,423	-
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
5/7/2021	399,437	-	100%
5/28/2021	158,986	-	100%

May 7, 2021

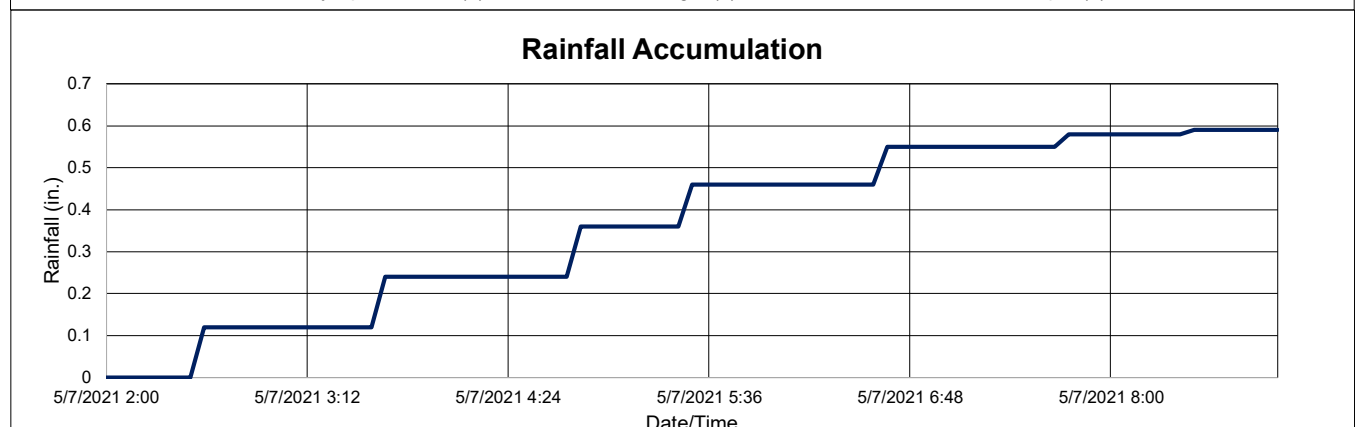
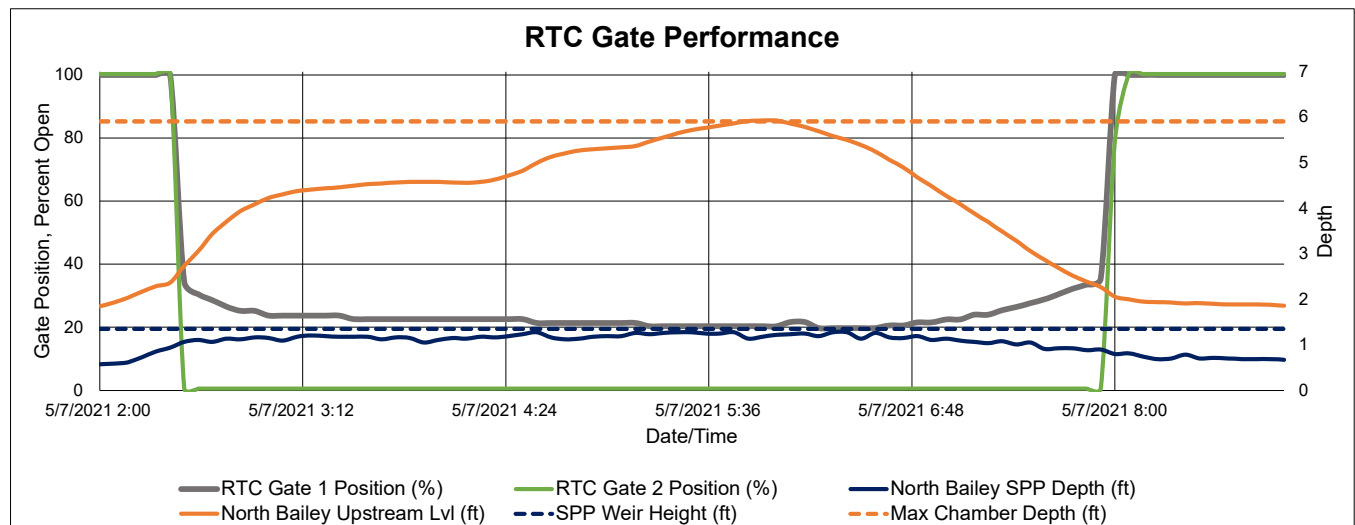
1

Site:	North Bailey RTC
Analysis Date:	6/9/2021
Event Start Date/Time:	5/7/2021 2:25
Event End Date/Time:	5/7/2021 8:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.59 in.
Storm Event Duration:	7 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	2.37 ft.
Return to Normal Depth:	2.27 ft.
Time Gate 1 Activated:	5/7/2021 2:25
Time Gate 2 Activated:	5/7/2021 2:25
Time Gate 1 Returned to Normal:	5/7/2021 8:00
Time Gate 2 Returned to Normal:	5/7/2021 8:00
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	399,437 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	399,437 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.



May 28, 2021

2

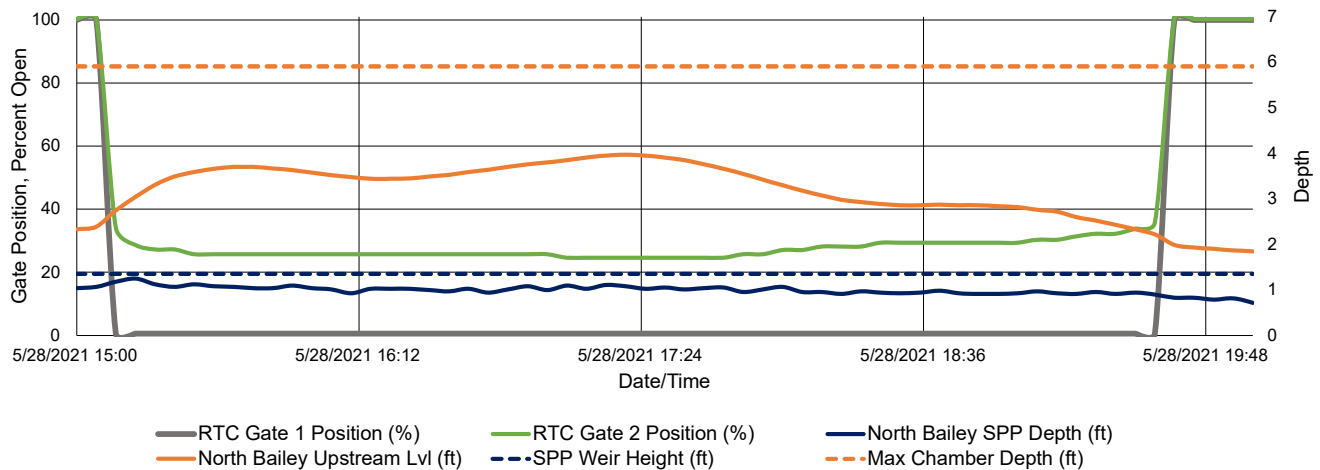
Site:	North Bailey RTC
Analysis Date:	6/9/2021
Event Start Date/Time:	5/28/2021 15:05
Event End Date/Time:	5/28/2021 19:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.35 in.
Storm Event Duration:	5 hr.
Storm Type:	< 1 yr.

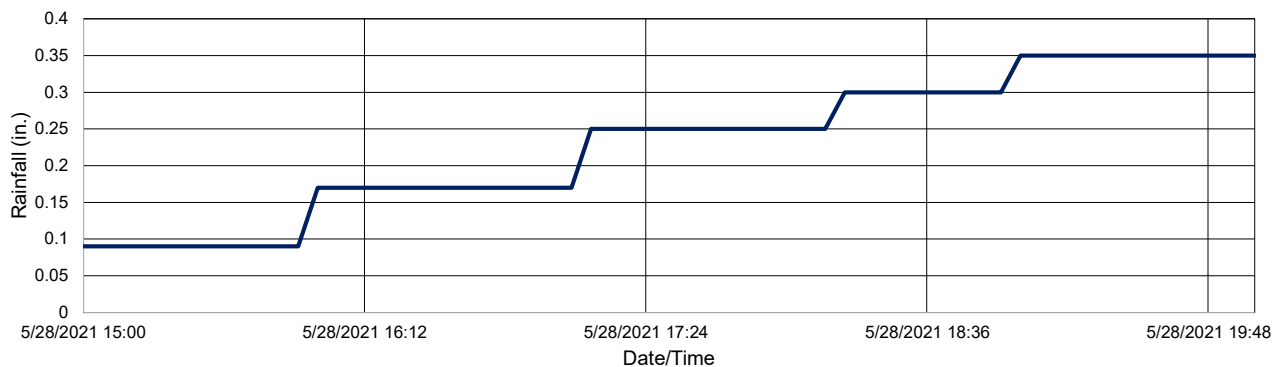
Gate Activation Trigger Depth:	2.39 ft.
Return to Normal Depth:	2.22 ft.
Time Gate 1 Activated:	5/28/2021 15:05
Time Gate 2 Activated:	5/28/2021 15:05
Time Gate 1 Returned to Normal:	5/28/2021 19:40
Time Gate 2 Returned to Normal:	5/28/2021 19:35
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.97 ft.
Volume Stored:	158,986 Gal.
Unused Storage Volume:	238,643 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	158,986 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 2021 North Bailey RTC KPI Report

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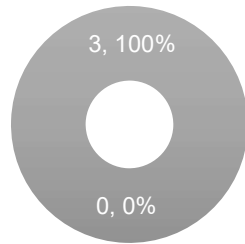


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North Bailey RTC Monthly Performance Report

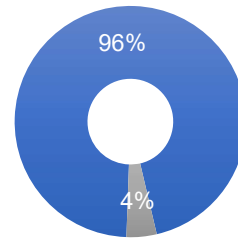
June 2021

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.)
0	3	1,220,704	53,629
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
6/3/2021	408,406	4,716	99%
6/8/2021	411,958	978	100%
6/21/2021	400,340	47,935	89%

June 3, 2021

1

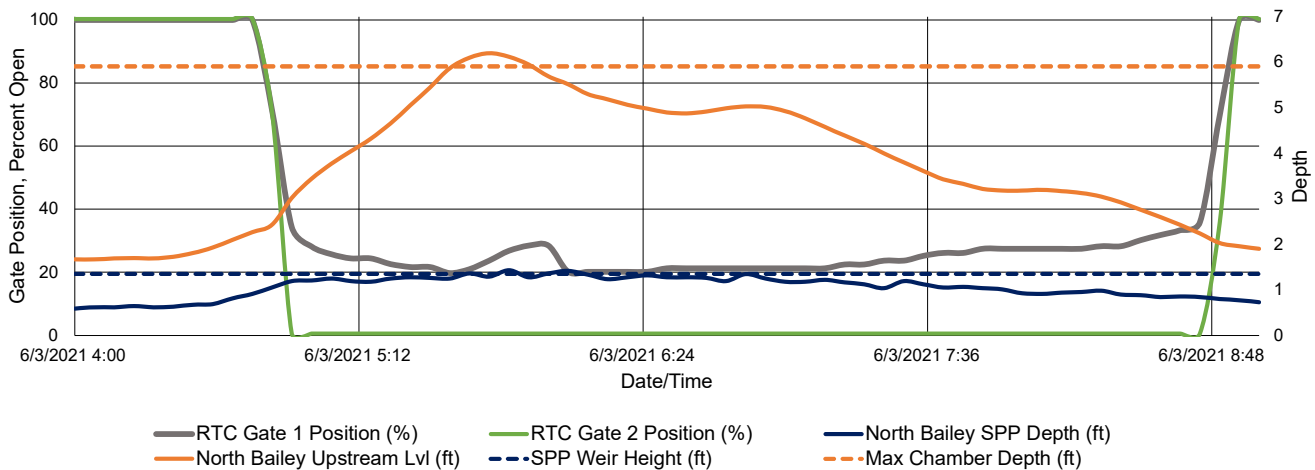
Site:	North Bailey RTC
Analysis Date:	7/12/2021
Event Start Date/Time:	6/3/2021 4:45
Event End Date/Time:	6/3/2021 8:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.42 in.
Storm Event Duration:	5 hr.
Storm Type:	< 1 yr.

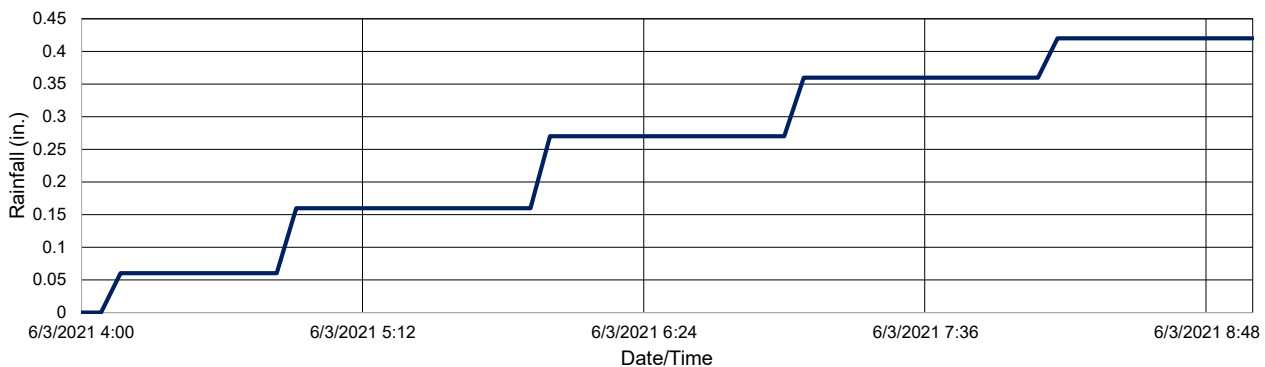
Gate Activation Trigger Depth:	2.27 ft.
Return to Normal Depth:	2.03 ft.
Time Gate 1 Activated:	6/3/2021 4:45
Time Gate 2 Activated:	6/3/2021 4:45
Time Gate 1 Returned to Normal:	6/3/2021 8:55
Time Gate 2 Returned to Normal:	6/3/2021 8:50
Percent Capture	99%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	408,406 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	4,716 Gal.
Overflow Volume Prevented:	408,406 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 8, 2021

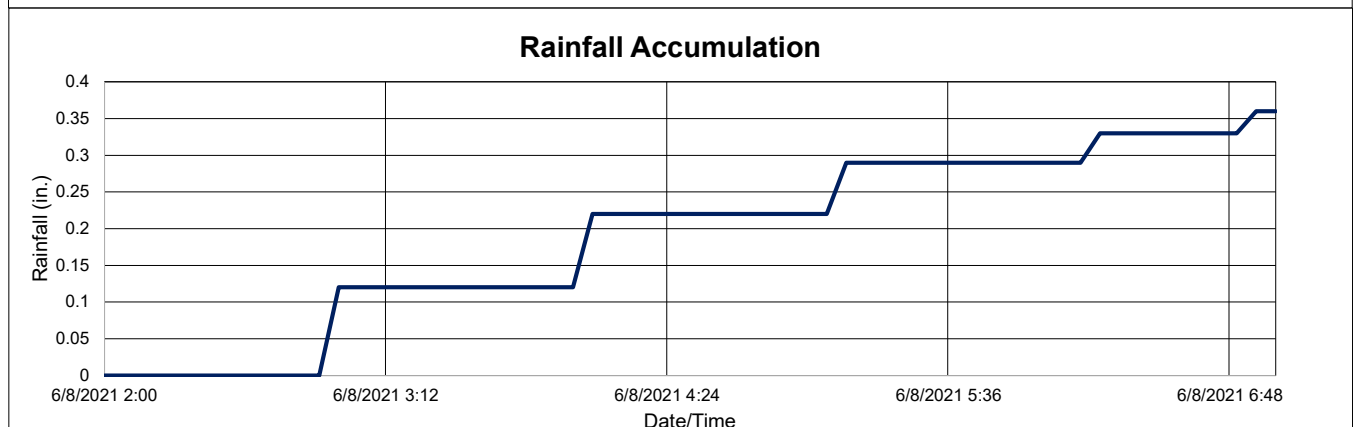
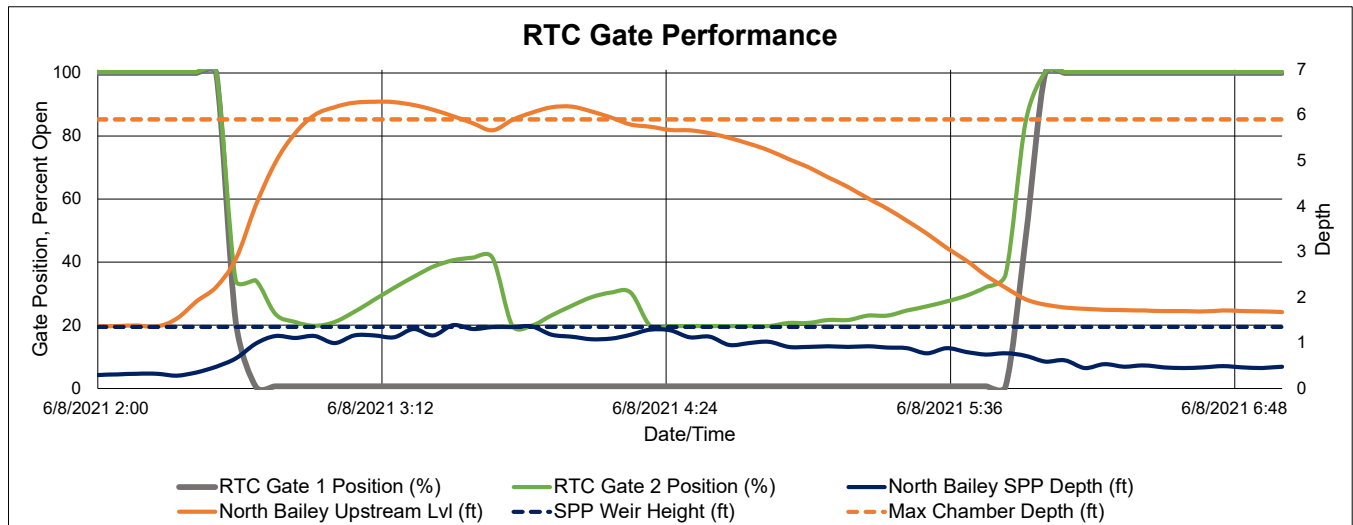
2

Site:	North Bailey RTC
Analysis Date:	7/12/2021
Event Start Date/Time:	6/8/2021 2:30
Event End Date/Time:	6/8/2021 6:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.36 in.
Storm Event Duration:	5 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	2.23 ft.
Return to Normal Depth:	1.96 ft.
Time Gate 1 Activated:	6/8/2021 2:30
Time Gate 2 Activated:	6/8/2021 2:30
Time Gate 1 Returned to Normal:	6/8/2021 6:00
Time Gate 2 Returned to Normal:	6/8/2021 5:55
Percent Capture	100%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	5.91 ft.
Volume Stored:	411,958 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	978 Gal.
Overflow Volume Prevented:	411,958 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.



June 21, 2021

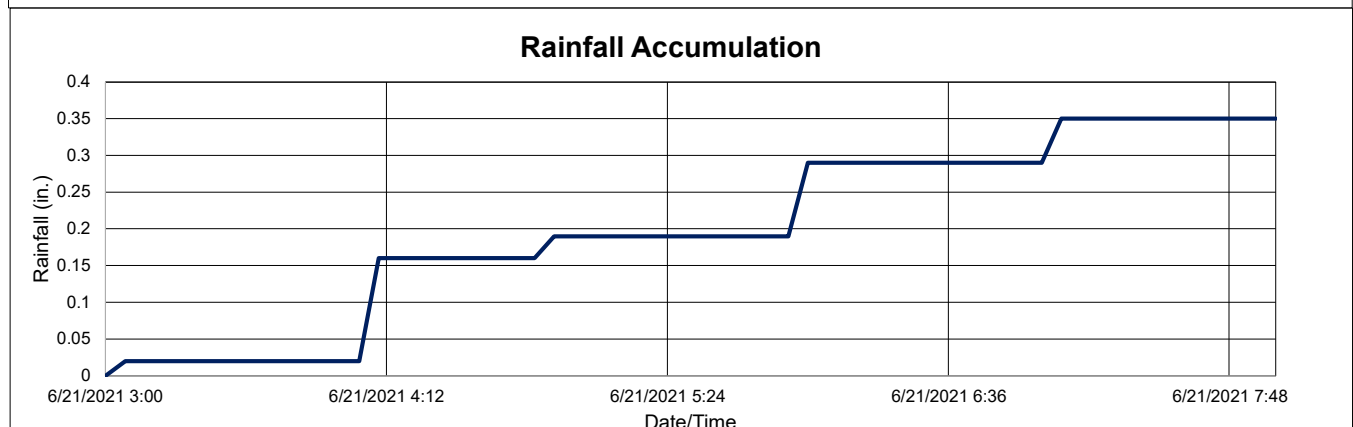
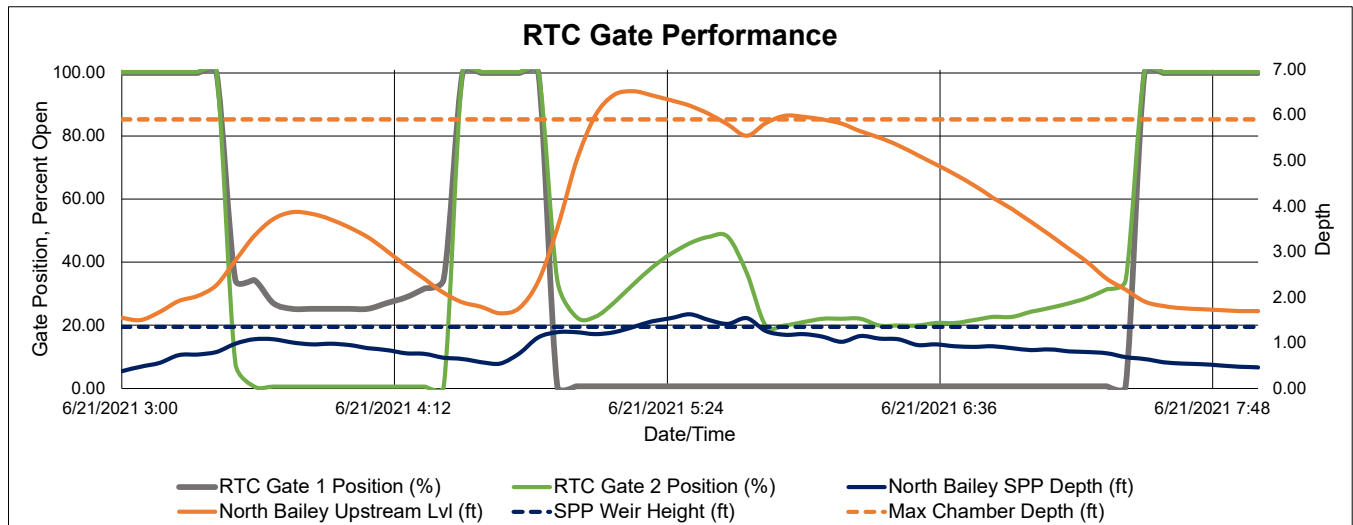
3

Site:	North Bailey RTC
Analysis Date:	7/12/2021
Event Start Date/Time:	6/21/2021 3:25
Event End Date/Time:	6/21/2021 7:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.35 in.
Storm Event Duration:	5 hr.
Storm Type:	< 1 yr.

Gate Activation Trigger Depth:	2.27 ft.
Return to Normal Depth:	2.17 ft.
Time Gate 1 Activated:	6/21/2021 3:25
Time Gate 2 Activated:	6/21/2021 3:25
Time Gate 1 Returned to Normal:	6/21/2021 7:30
Time Gate 2 Returned to Normal:	6/21/2021 7:25
Percent Capture	88%
Depth of Weir	5.91 ft.
Maximum Depth Reached:	3.87 ft.
Volume Stored:	400,340 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	47,935 Gal.
Overflow Volume Prevented:	400,340 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	47,935
Could SPP activation have been prevented?	Yes

Recommended Operational Changes/Notes:
Rainfall data sourced from BSA rain gauge station at South Buffalo.



July 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

July 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)
7/2/2020		4,035,480	No	1.25
7/8/2020		938,177	No	1.25
7/8/2020		1,865,984	No	1.25
7/10/2020		47,730,508	es	1.25
7/16/2020		5,120,610	es	1.25
7/19/2020		34,189,909	No	1.25
7/22/2020		5,287,739	es	1.25
7/26/2020		17,017,474	es	1.25
Total Volume Captured (gal)		116,185,881		

Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/2/2020 2:55
Event End Date/Time:	7/4/2020 17:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	64 hrs.
Storm Type:	N/A

Time Lead Dewatering Valve Closed	7/2/2020 2:30
Time Lead Dewatering Valve Opened	7/2/2020 2:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-3.71 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,035,480 Gal.
Did seiche occur during wet weather?	No

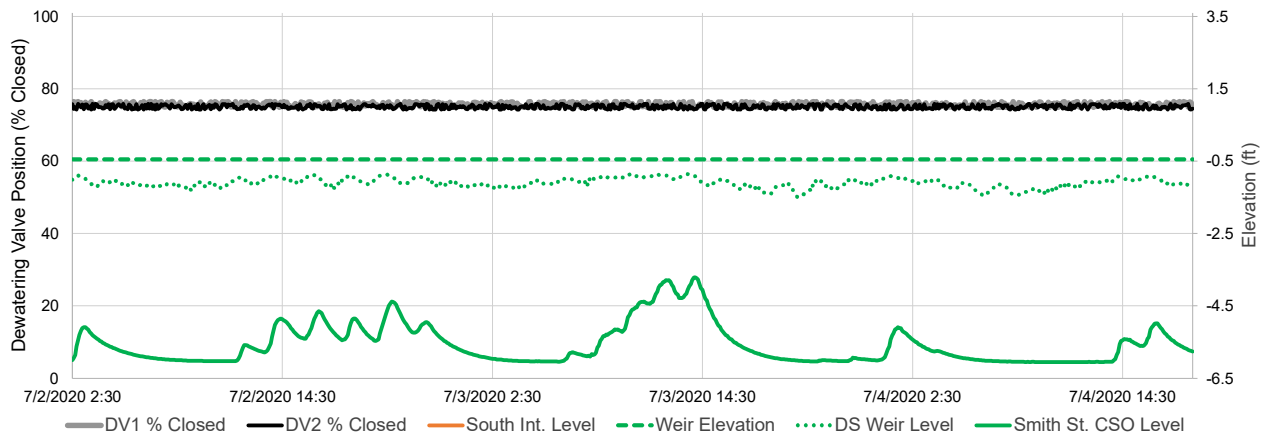
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

Recommended Operational Changes/Notes:

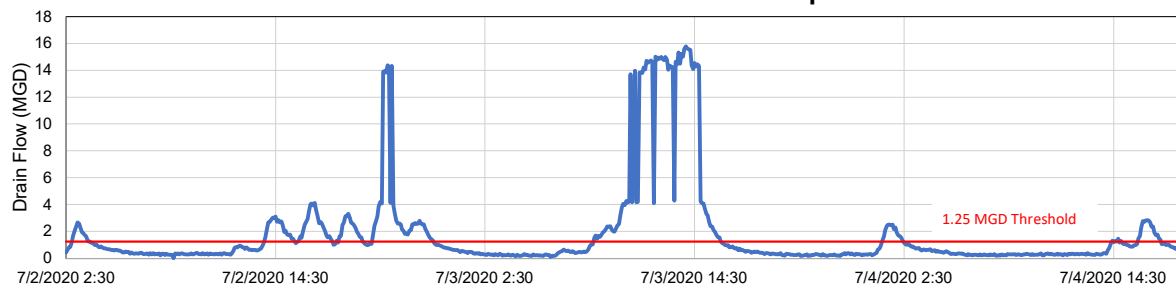
Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm.

Smith St RTC was in emergency manual mode until 7/8 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.

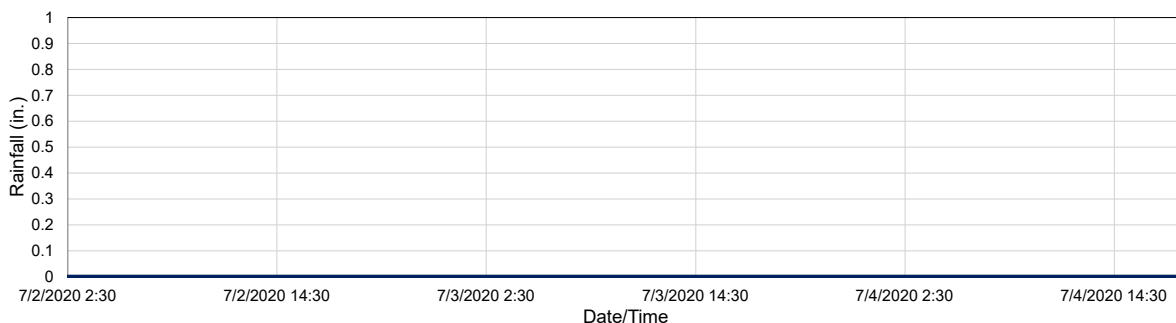
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/8/2020 3:45
Event End Date/Time:	7/8/2020 6:50

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

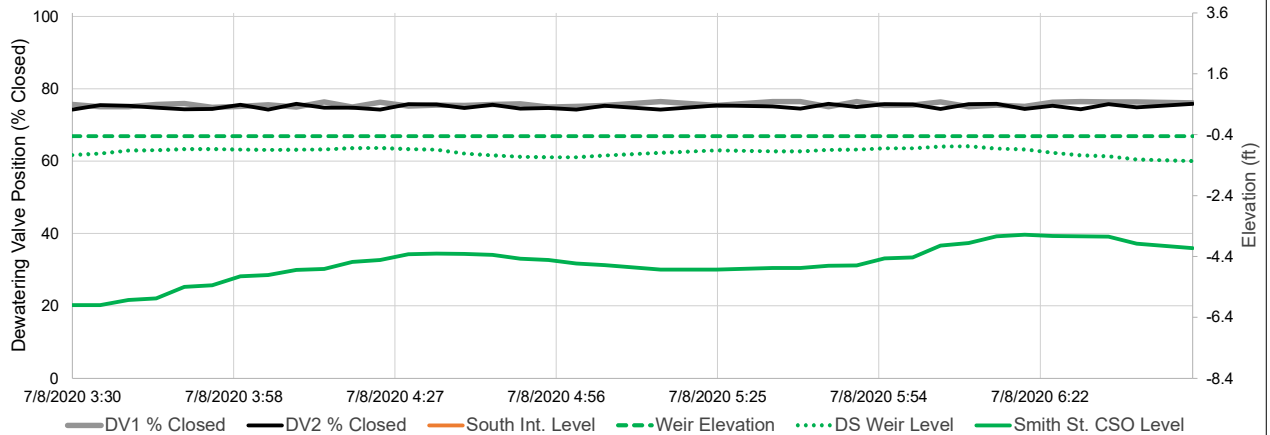
Time Lead Dewatering Valve Closed	7/8/2020 3:30
Time Lead Dewatering Valve Opened	7/8/2020 3:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-3.69 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	938,177 Gal.
Did seiche occur during wet weather?	No

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

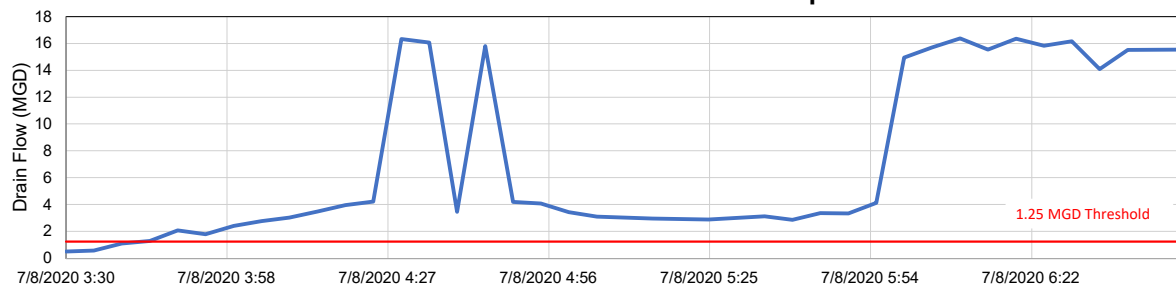
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. Smith St RTC was in emergency manual mode until 7/8 at 6.50 am 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 event. Data was unavailable from 6.50 to 9.30 am on 7/8.

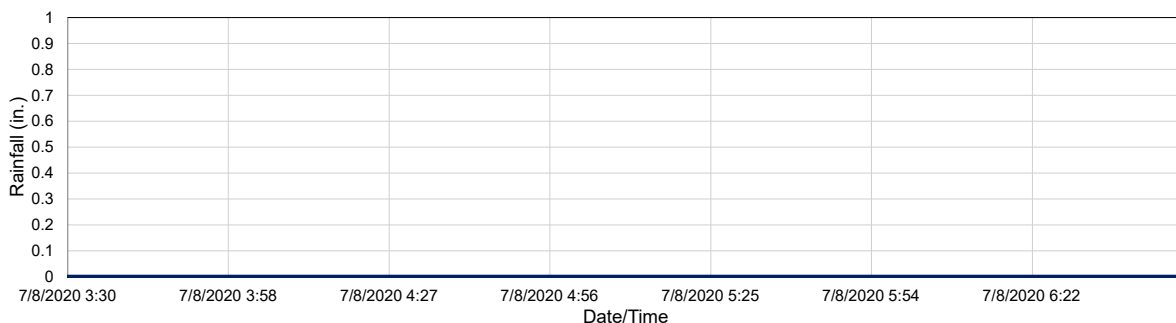
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/8/2020 9:40
Event End Date/Time:	7/9/2020 8:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	26 hrs.
Storm Type:	N/A

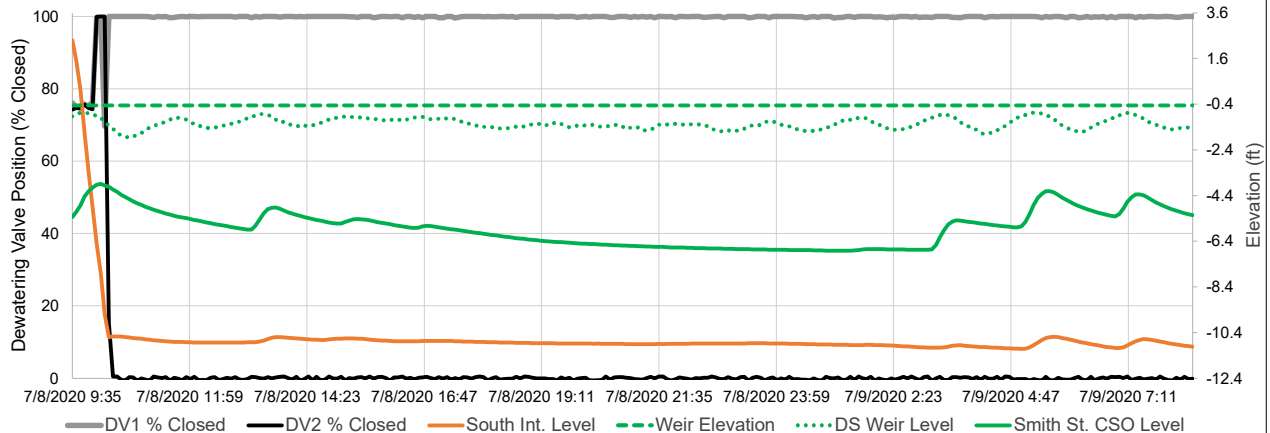
Time Lead Dewatering Valve Closed	7/8/2020 9:35
Time Lead Dewatering Valve Opened	7/8/2020 10:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-3.89 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	1,865,984 Gal.
Did seiche occur during wet weather?	No

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

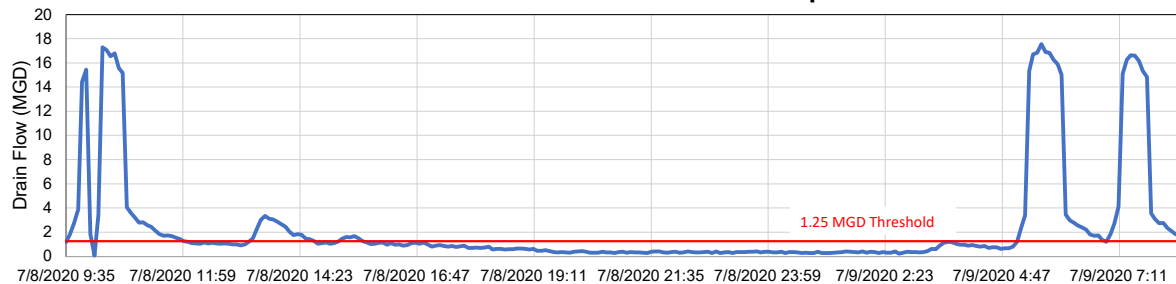
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. No rainfall recorded at South Buffalo rain gauge during this storm event. This event was likely caused by a localized storm. Smith St RTC was in Auto mode again from 7/8 at 9:30 am because South Interceptor level transmitter was replaced. No data was available between 6.50 to 9.30 am on 7/8.

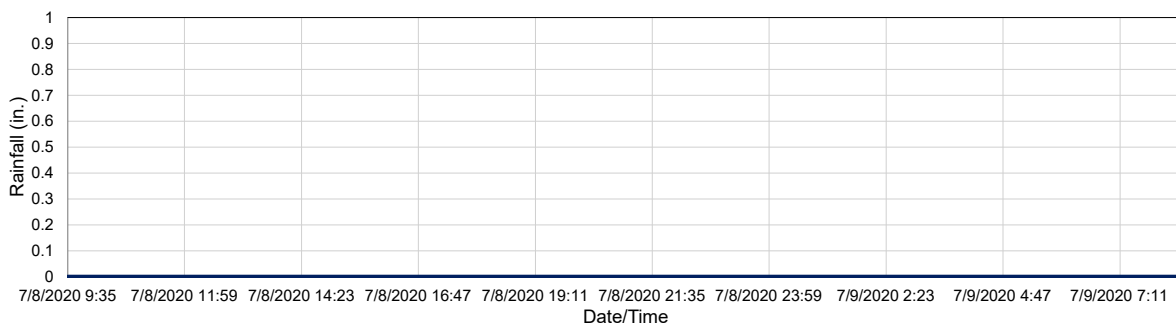
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/10/2020 2:15
Event End Date/Time:	7/14/2020 16:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	2.05 in.
Storm Event Duration:	111 hrs.
Storm Type:	Less than one year

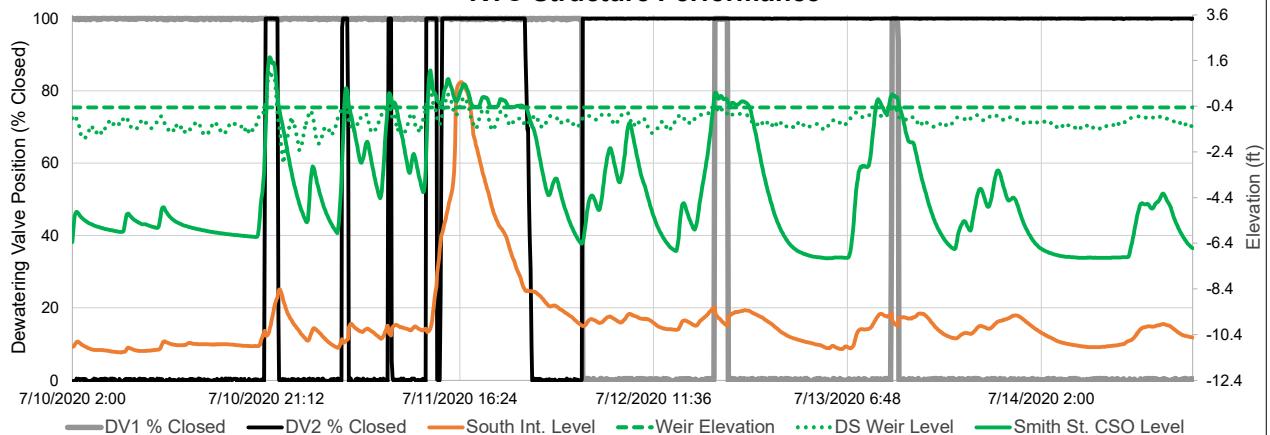
Time Lead Dewatering Valve Closed	7/10/2020 21:05
Time Lead Dewatering Valve Opened	7/13/2020 11:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.75 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	47,730,508 Gal.
Did seiche occur during wet weather?	Yes

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

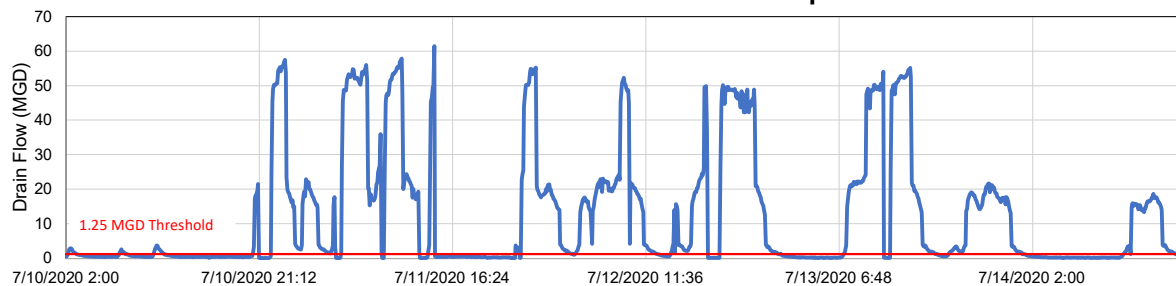
Recommended Operational Changes/Notes:

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

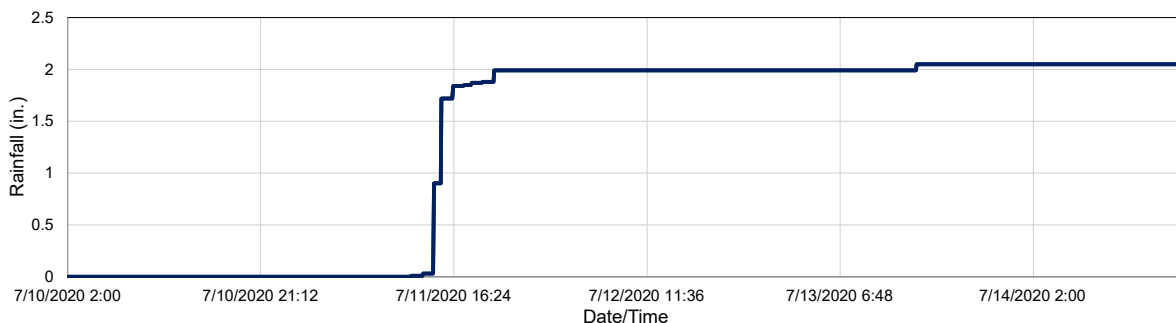
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



July 16, 2020

5

Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/16/2020 5:30
Event End Date/Time:	7/18/2020 3:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.64 in.
Storm Event Duration:	48 hrs.
Storm Type:	Less than one year

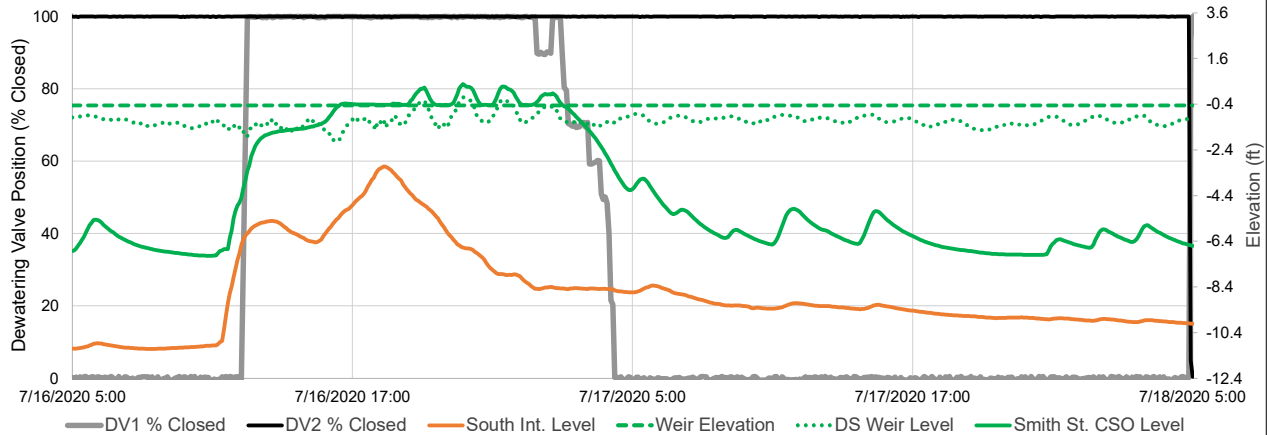
Time Lead Dewatering Valve Closed	7/16/2020 12:20
Time Lead Dewatering Valve Opened	7/17/2020 2:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.48 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,120,610 Gal.
Did seiche occur during wet weather?	Yes

Recommended Operational Changes/Notes:

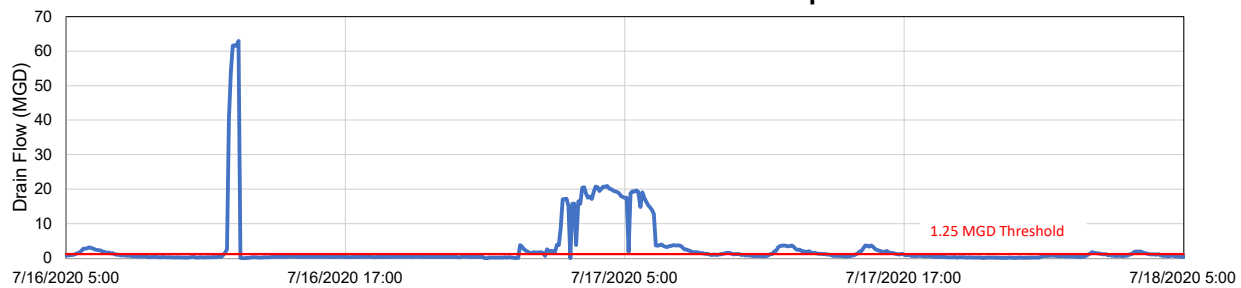
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

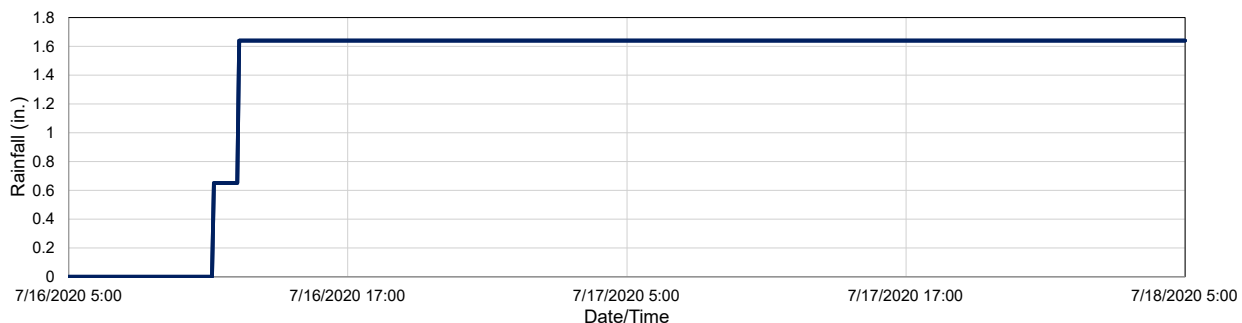
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/19/2020 3:45
Event End Date/Time:	7/20/2020 23:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	45 hrs.
Storm Type:	N/A

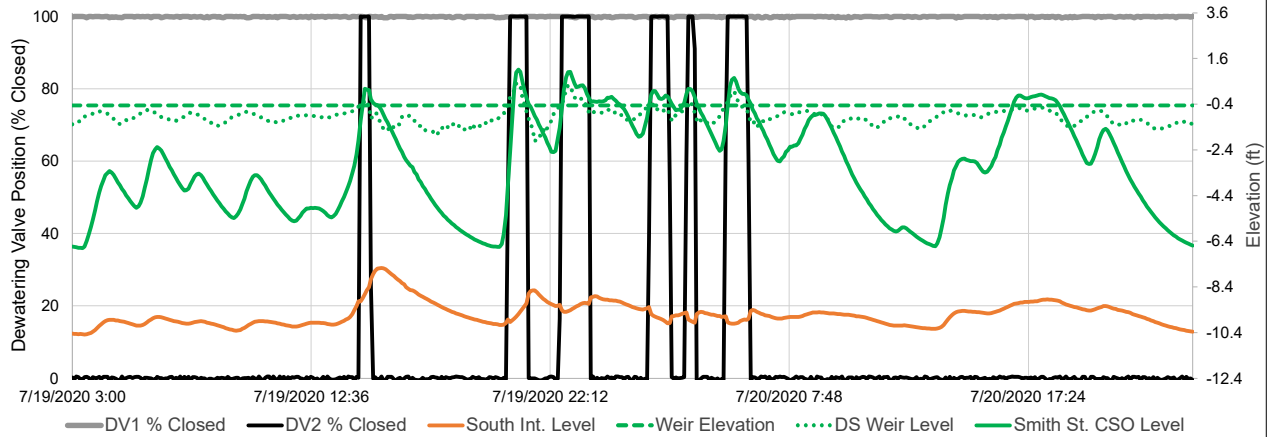
Time Lead Dewatering Valve Closed	7/19/2020 14:35
Time Lead Dewatering Valve Opened	7/20/2020 6:10
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.12 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	34,189,909 Gal.
Did seiche occur during wet weather?	No

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

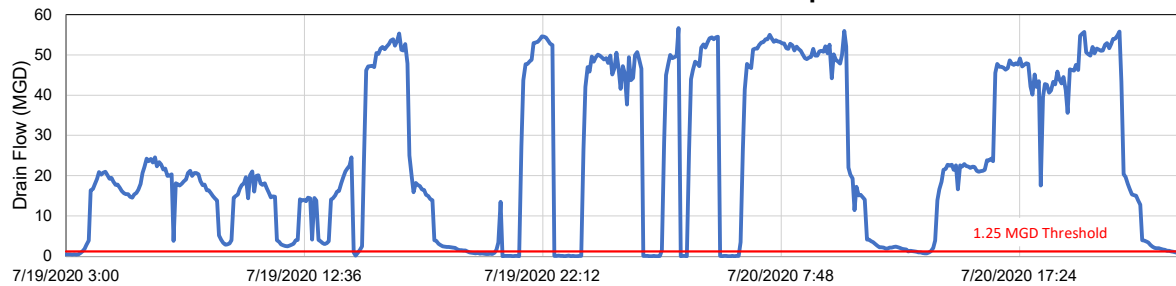
Recommended Operational Changes/Notes:

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

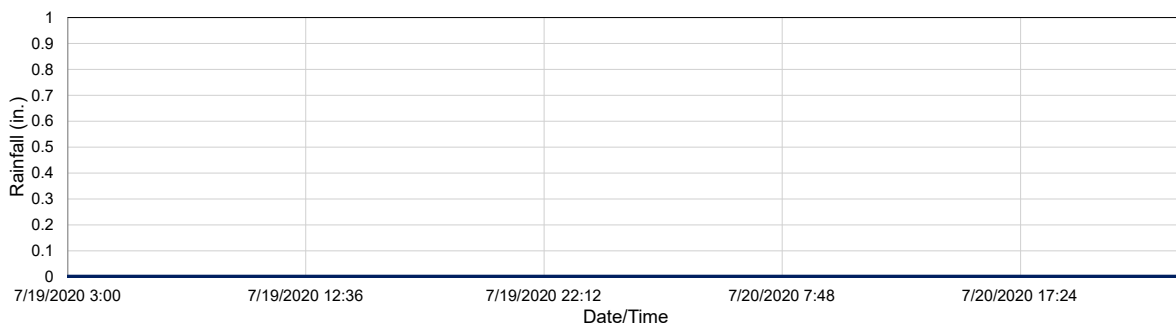
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/22/2020 8:15
Event End Date/Time:	7/23/2020 10:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.98 in.
Storm Event Duration:	27 hrs.
Storm Type:	Less than one year

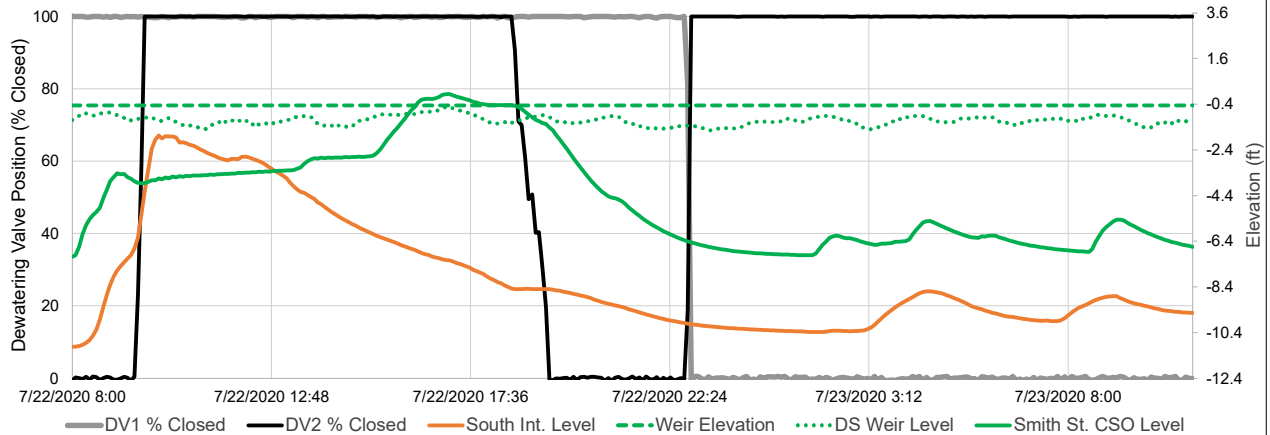
Time Lead Dewatering Valve Closed	7/22/2020 9:35
Time Lead Dewatering Valve Opened	7/22/2020 22:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.05 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,287,739 Gal.
Did seiche occur during wet weather?	Yes

Recommended Operational Changes/Notes:

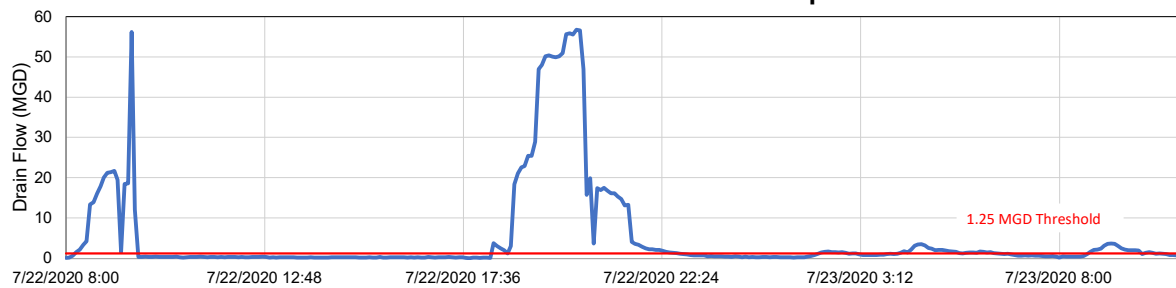
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

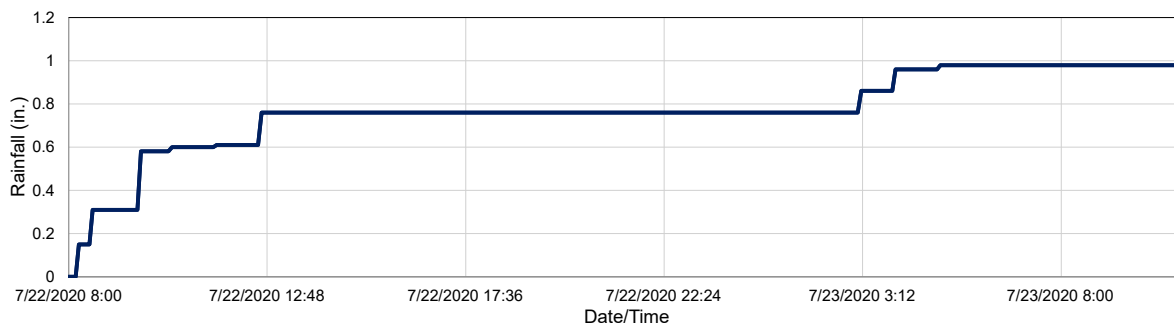
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	8/8/2020
Event Start Date/Time:	7/26/2020 7:20
Event End Date/Time:	7/30/2020 19:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.24 in.
Storm Event Duration:	108 hrs.
Storm Type:	Less than one year

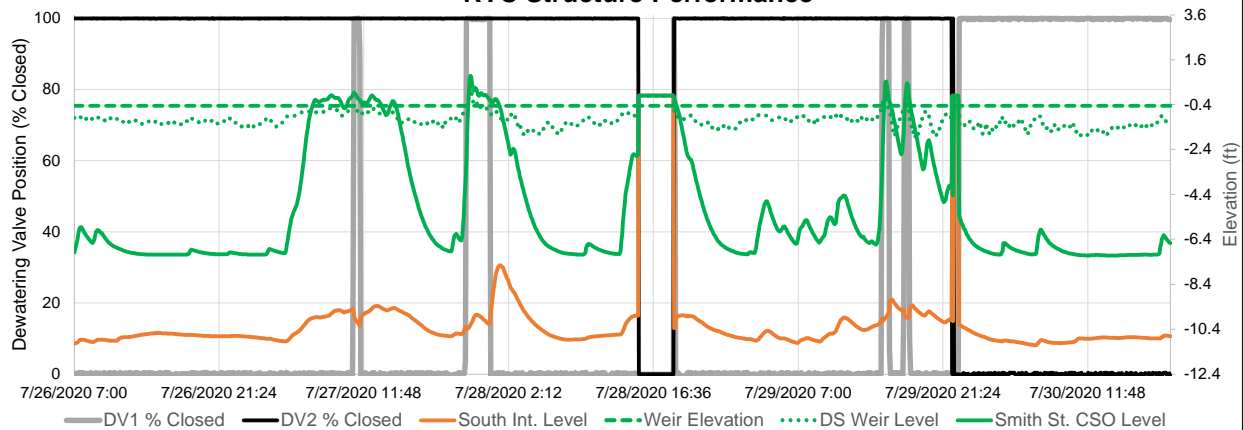
Time Lead Dewatering Valve Closed	7/27/2020 10:45
Time Lead Dewatering Valve Opened	7/29/2020 23:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.89 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	17,017,474 Gal.
Did seiche occur during wet weather?	Yes

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

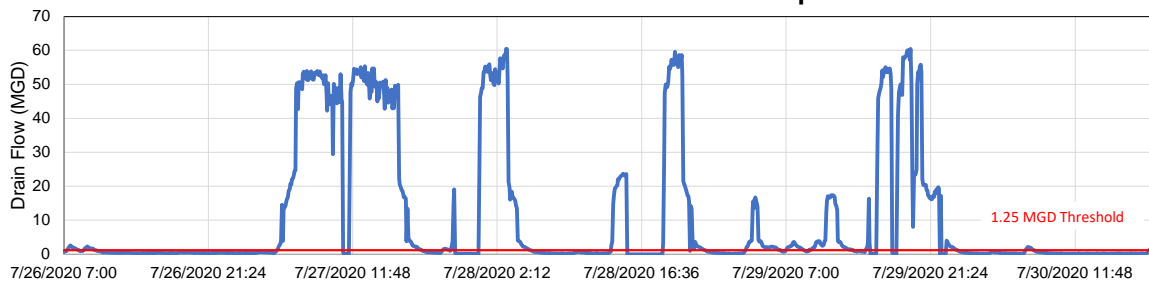
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. Data was unavailable for 7/28 between 3-7pm.

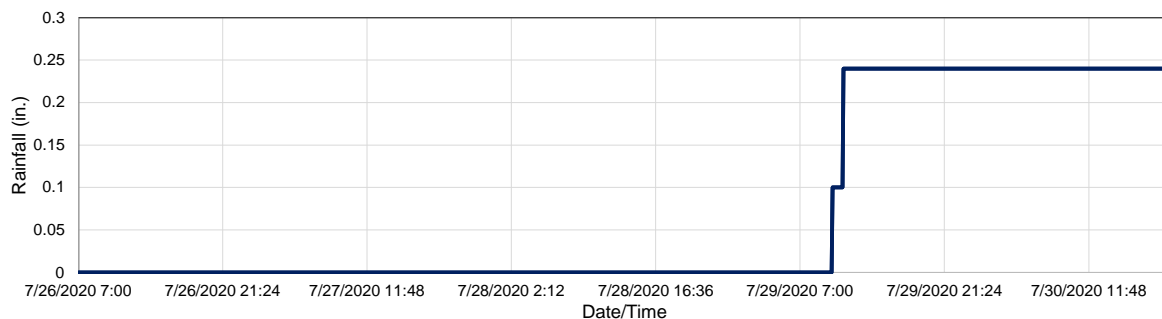
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



August 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

August 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)
8/2/2020	10,701,707	No	1.25
8/4/2020	6,616,200	es	1.25
8/11/2020	3,827,243	No	1.25
8/15/2020	6,641,554	No	1.25
8/20/2020	12,161	No	1.25
8/25/2020	17,996	No	1.25
8/27/2020	17,263,106	es	1.25
Total Volume Captured (gal)	45,079,967		

Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/2/2020 9:20
Event End Date/Time:	8/3/2020 11:10

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.11 in.
Storm Event Duration:	27 hrs.
Storm Type:	Less than one year

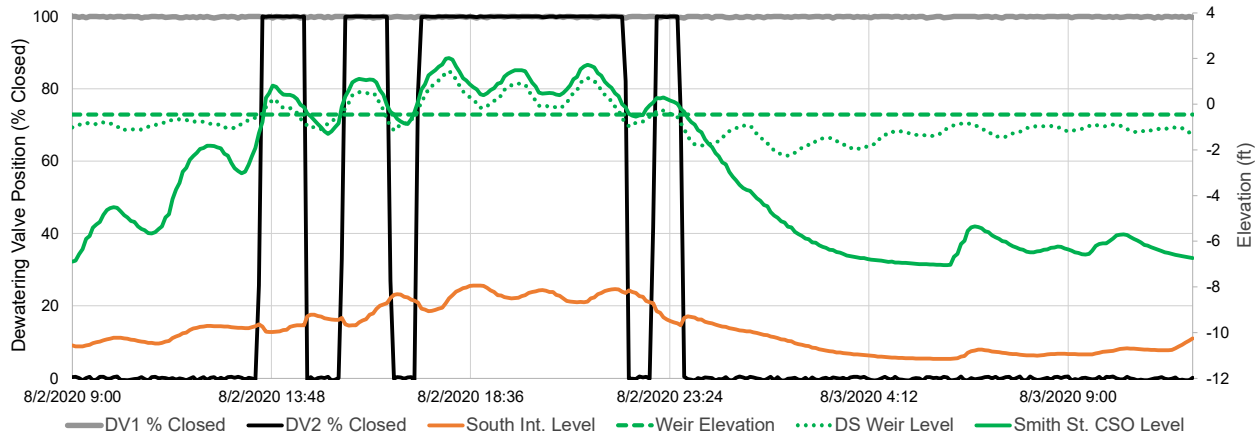
Time Lead Dewatering Valve Closed	8/2/2020 13:30
Time Lead Dewatering Valve Opened	8/2/2020 23:40
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	2.02 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	10,701,707 Gal.
Did seiche occur during wet weather?	No

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

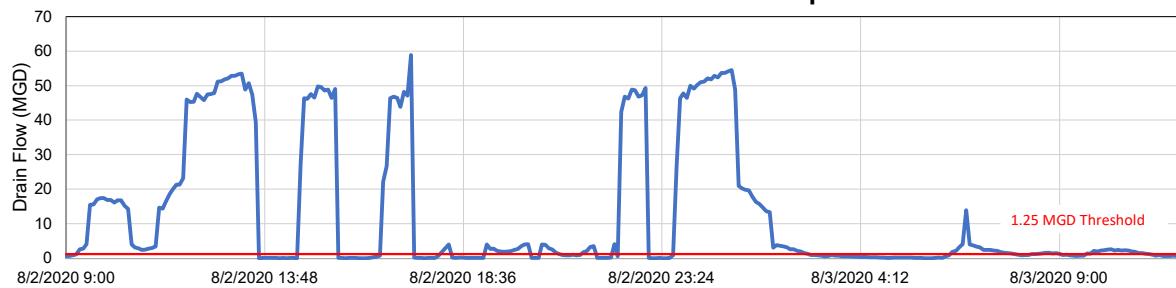
Recommended Operational Changes/Notes:

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

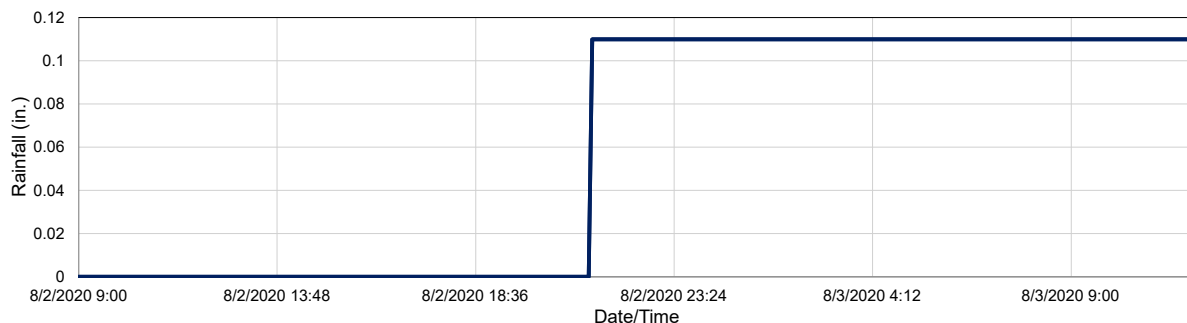
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/4/2020 14:15
Event End Date/Time:	8/5/2020 10:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	23 hrs.
Storm Type:	Less than one year

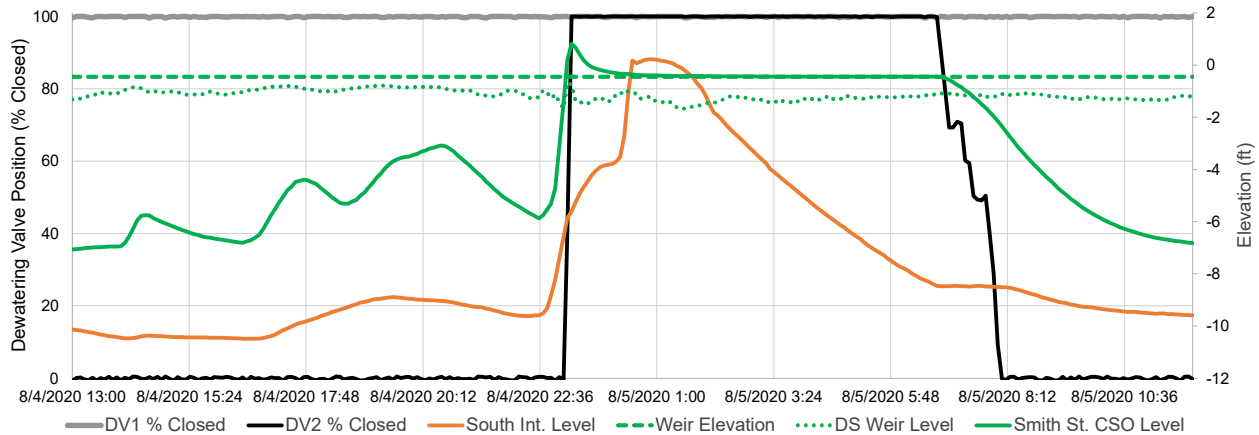
Time Lead Dewatering Valve Closed	8/4/2020 23:10
Time Lead Dewatering Valve Opened	8/5/2020 6:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.82 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	6,616,200 Gal.
Did seiche occur during wet weather?	Yes

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

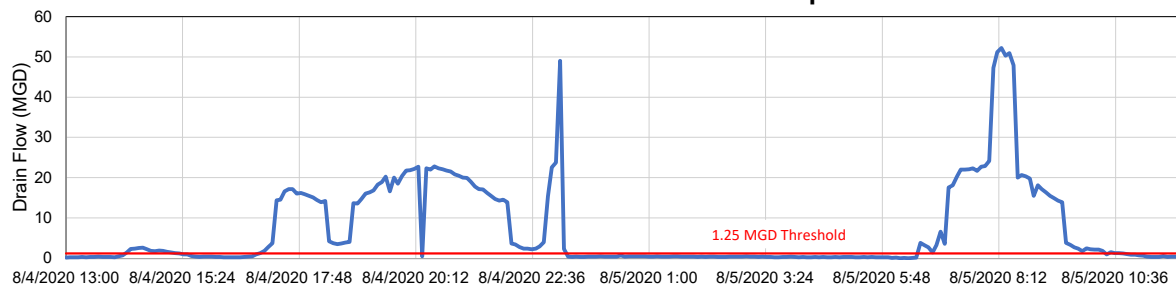
Recommended Operational Changes/Notes:

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

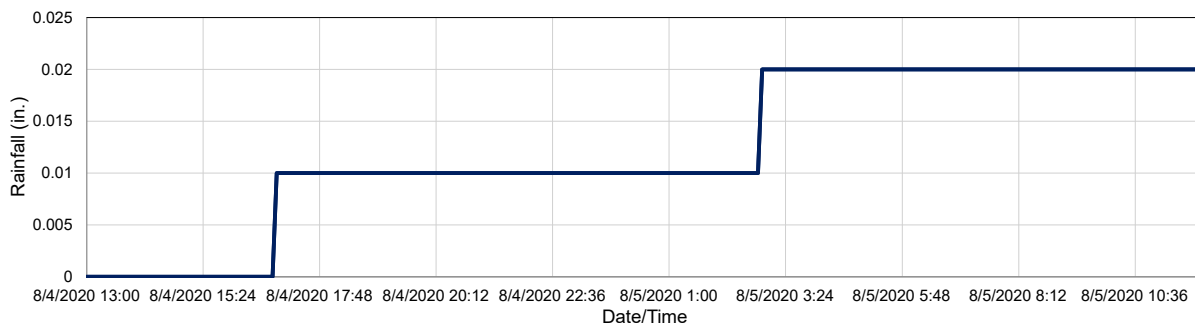
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/11/2020 8:15
Event End Date/Time:	8/11/2020 15:00

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

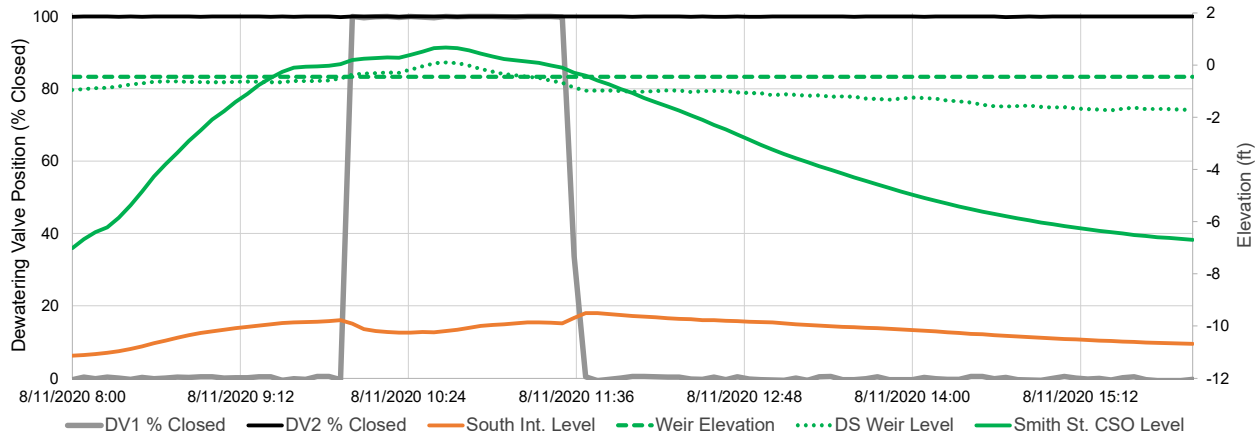
Time Lead Dewatering Valve Closed	8/11/2020 10:00
Time Lead Dewatering Valve Opened	8/11/2020 11:35
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.68 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	3,827,243 Gal.
Did seiche occur during wet weather?	No

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

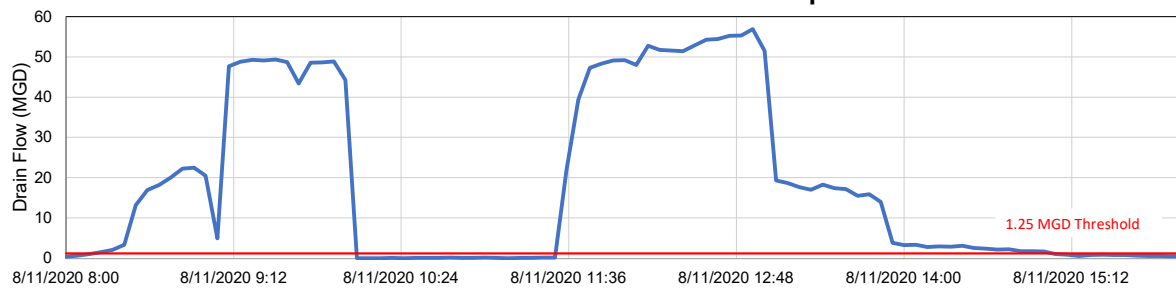
Recommended Operational Changes/Notes:

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

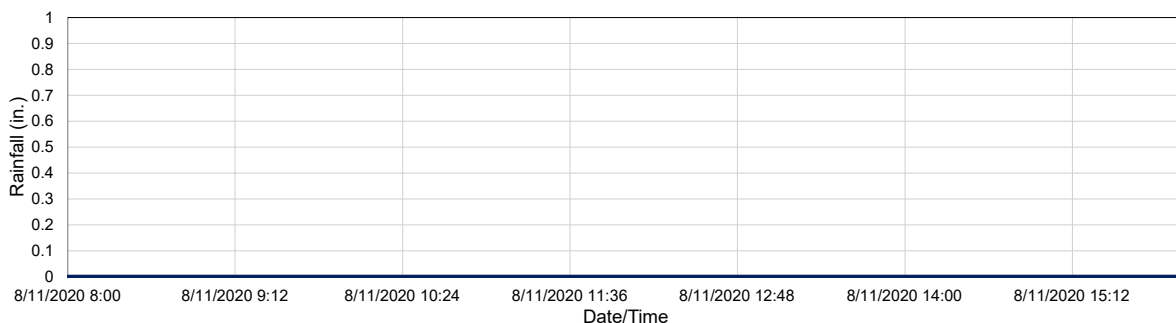
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/15/2020 10:55
Event End Date/Time:	8/18/2020 20:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.1 in.
Storm Event Duration:	83 hrs.
Storm Type:	Less than one year

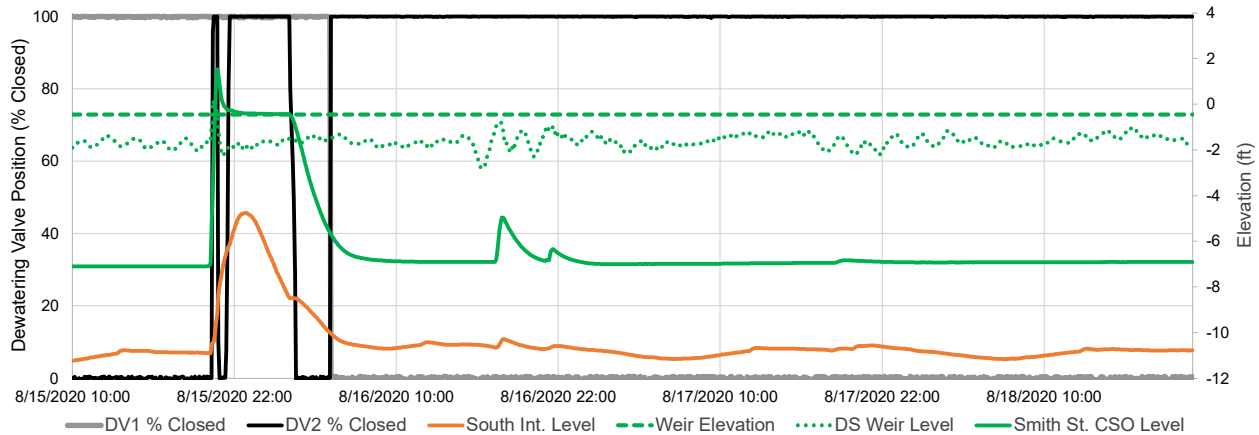
Time Lead Dewatering Valve Closed	8/15/2020 20:25
Time Lead Dewatering Valve Opened	8/16/2020 5:10
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.54 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	6,641,554 Gal.
Did seiche occur during wet weather?	No

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

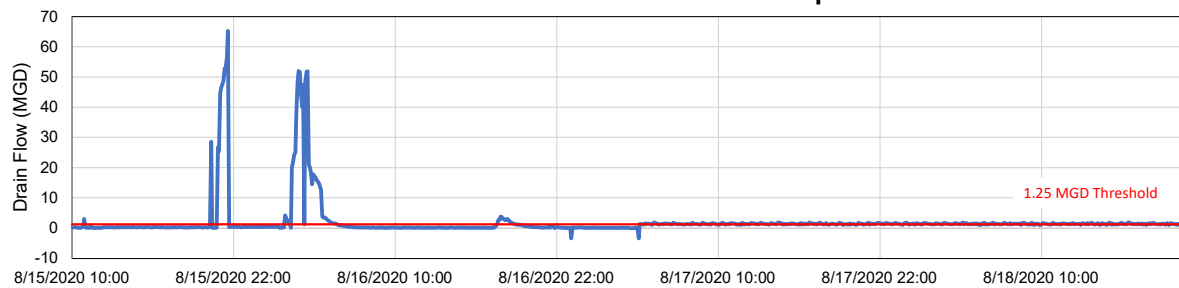
Recommended Operational Changes/Notes:

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

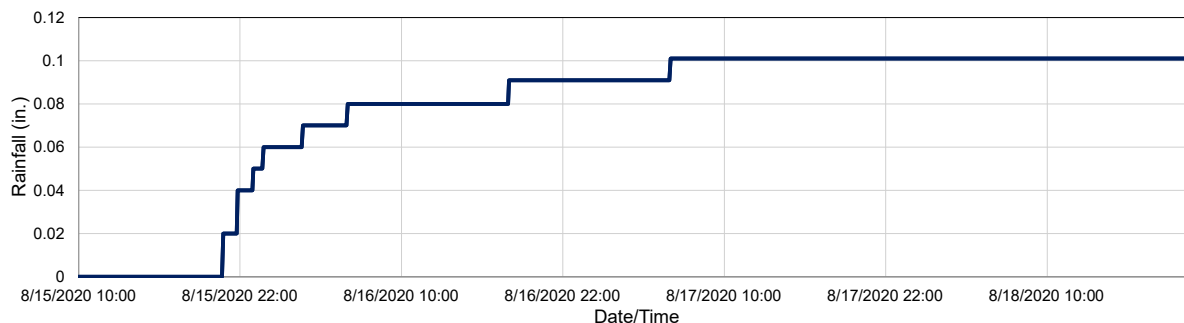
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/20/2020 5:40
Event End Date/Time:	8/20/2020 5:40

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

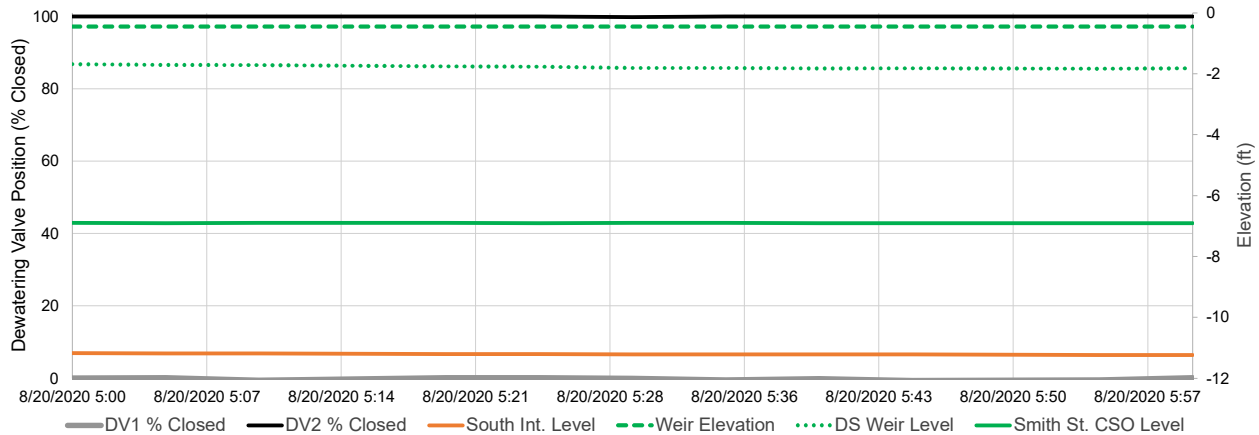
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	8/20/2020 5:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.90 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	12,161 Gal.
Did seiche occur during wet weather?	No

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

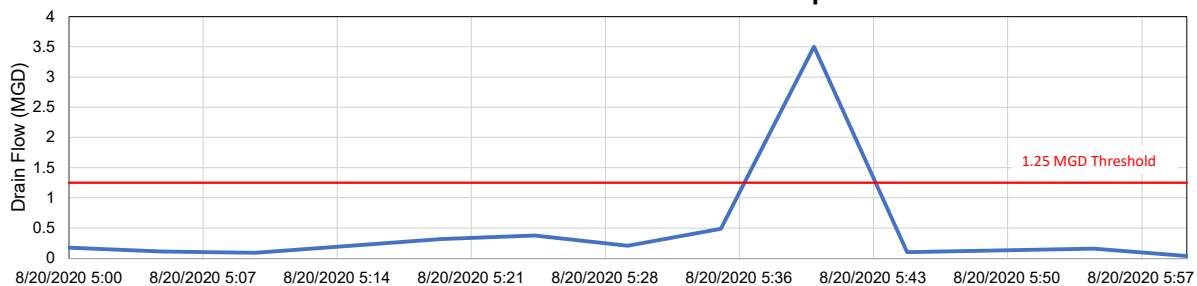
Recommended Operational Changes/Notes:

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

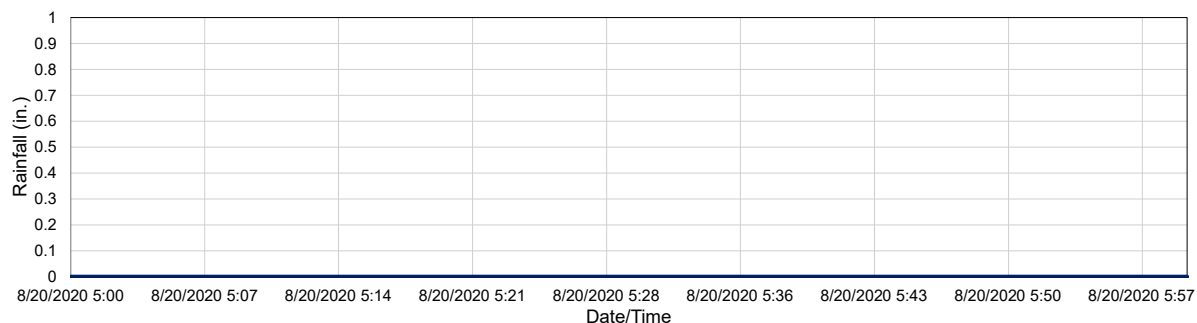
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/25/2020 3:55
Event End Date/Time:	8/25/2020 4:15

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

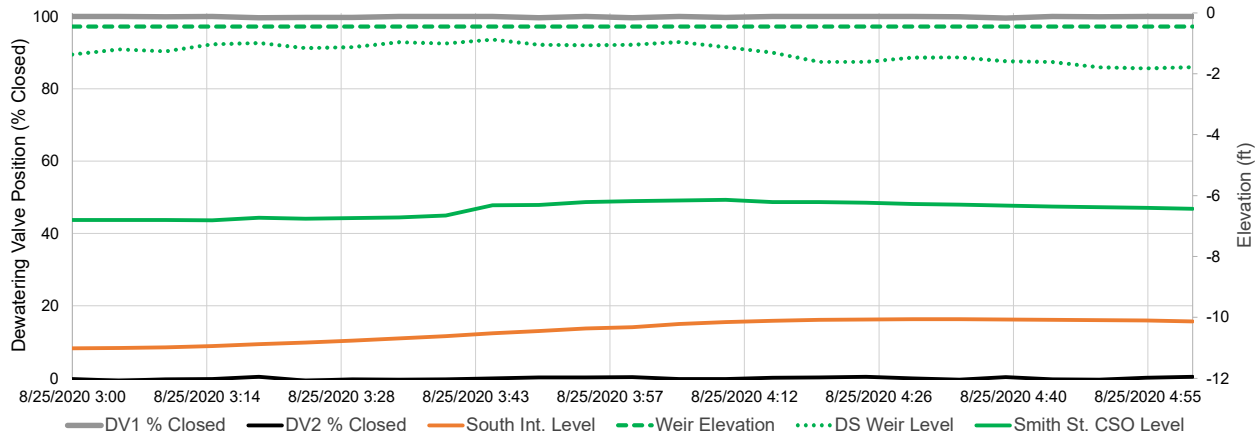
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	8/25/2020 3:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.14 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	17,996 Gal.
Did seiche occur during wet weather?	No

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

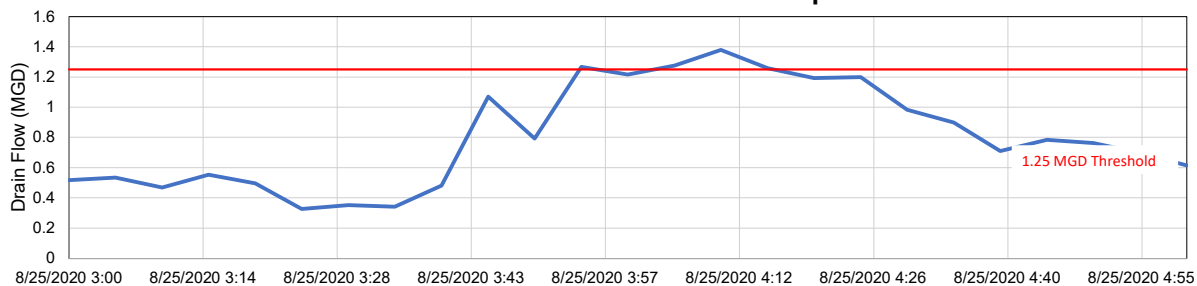
Recommended Operational Changes/Notes:

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

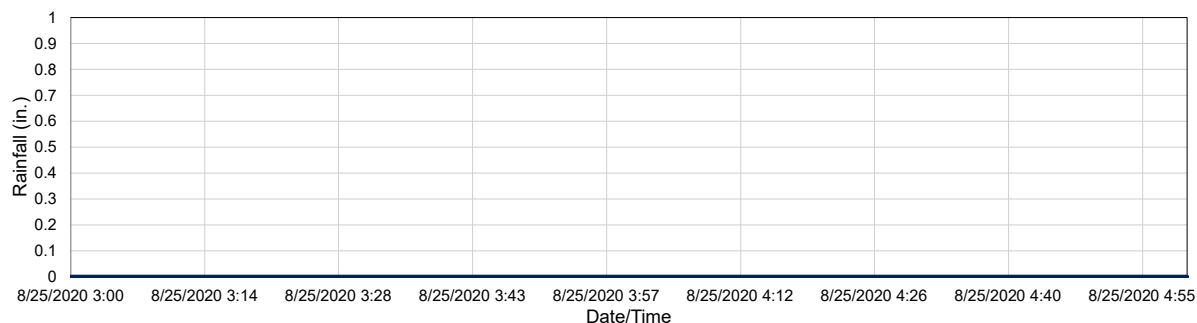
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	9/2/2020
Event Start Date/Time:	8/27/2020 5:30
Event End Date/Time:	8/30/2020 6:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	75 hr.
Storm Type:	Less than one year

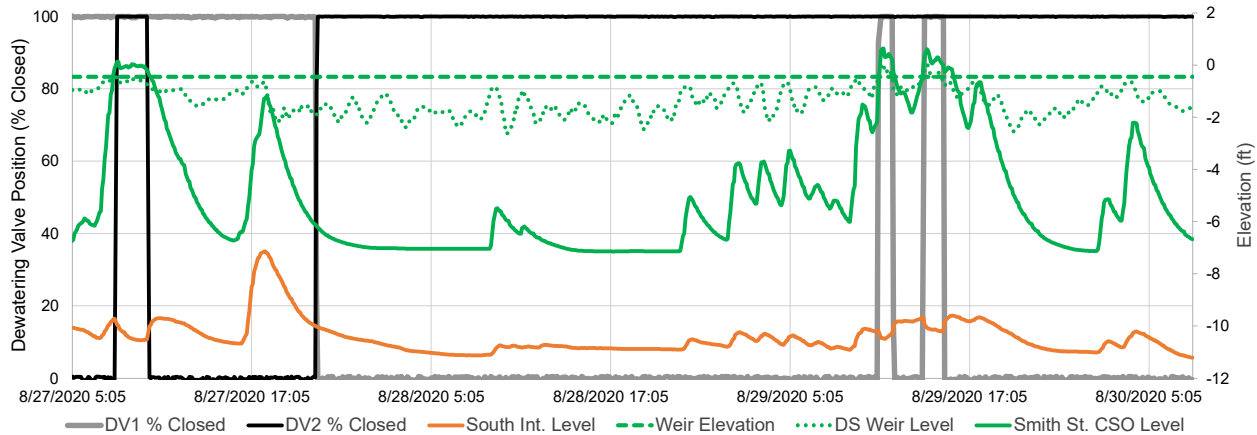
Time Lead Dewatering Valve Closed	8/27/2020 8:05
Time Lead Dewatering Valve Opened	8/29/2020 15:25
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.63 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	17,263,106 Gal.
Did seiche occur during wet weather?	Yes

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

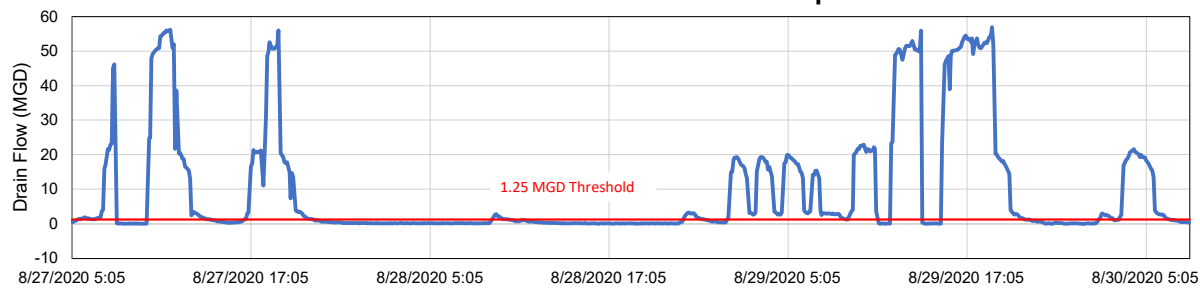
Recommended Operational Changes/Notes:

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

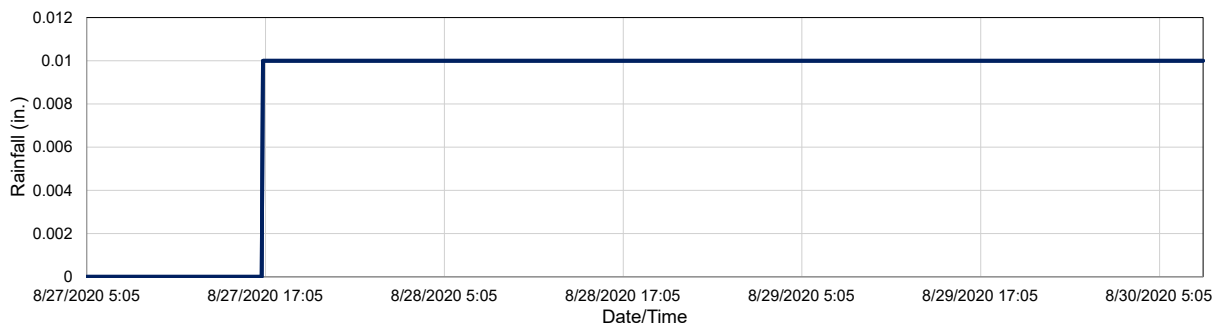
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



September 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

September 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)
9/2/2020	3,610,356	No	1.25
9/7/2020	5,712,267	No	1.25
9/29/2020	4,942,180	No	1.25
Total Volume Captured (gal)	14,264,803		

Site:	Smith RTC
Analysis Date:	10/6/2020
Event Start Date/Time:	9/1/2020 16:20
Event End Date/Time:	9/5/2020 14:30

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	98 hrs.
Storm Type:	NA

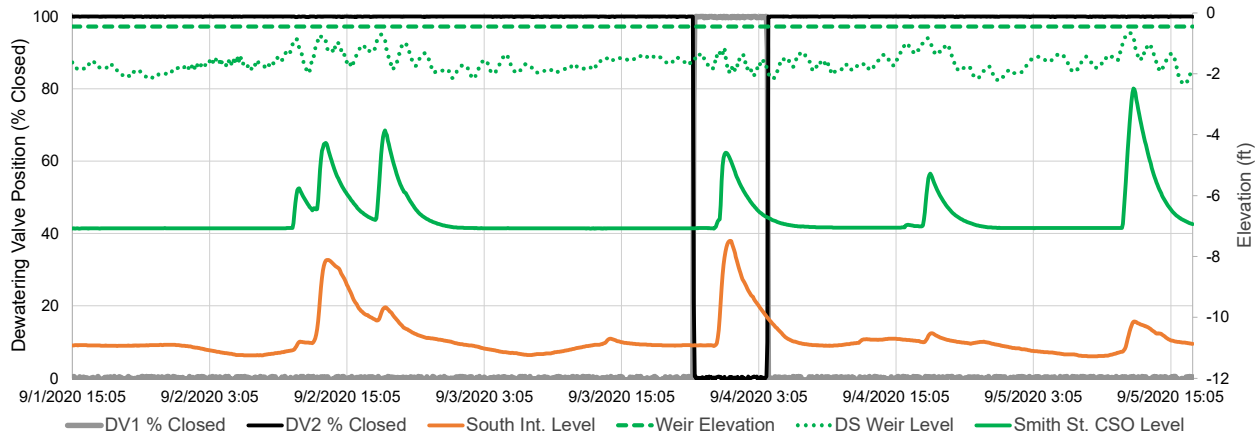
Time Lead Dewatering Valve Closed	9/3/2020 21:25
Time Lead Dewatering Valve Opened	9/4/2020 3:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-2.48 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	3,610,356 Gal.
Did seiche occur during wet weather?	No

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

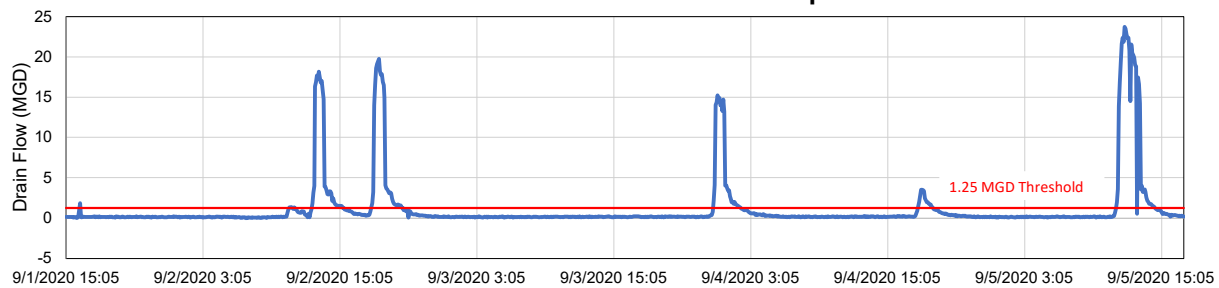
Recommended Operational Changes/Notes:

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

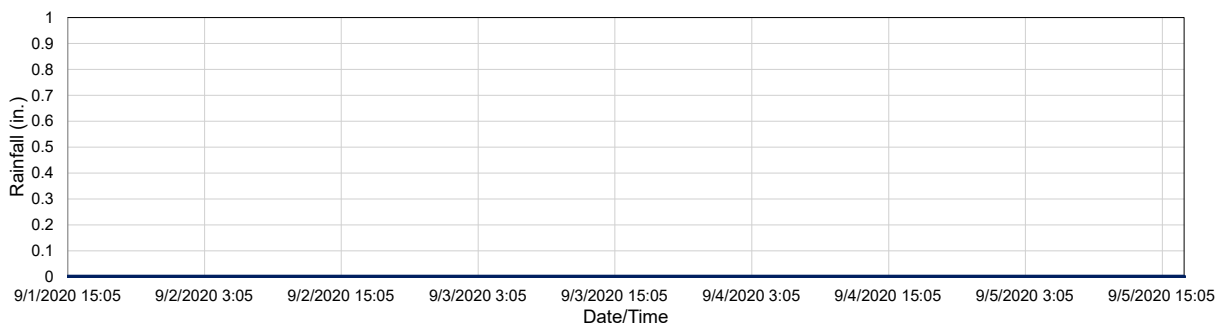
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	10/6/2020
Event Start Date/Time:	9/7/2020 2:50
Event End Date/Time:	9/7/2020 8:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	7 hrs.
Storm Type:	NA

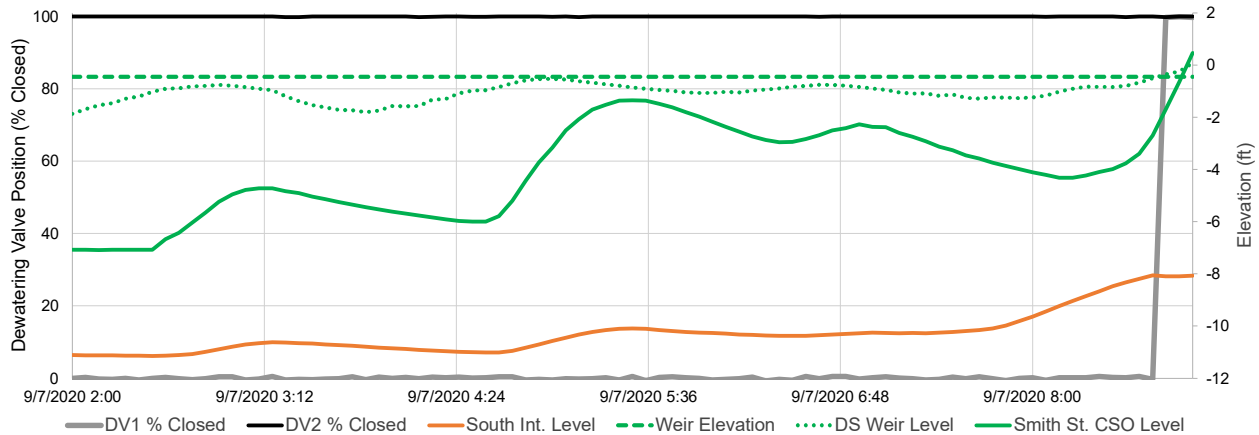
Time Lead Dewatering Valve Closed	9/7/2020 8:50
Time Lead Dewatering Valve Opened	9/7/2020 2:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.46 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,712,267 Gal.
Did seiche occur during wet weather?	No

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

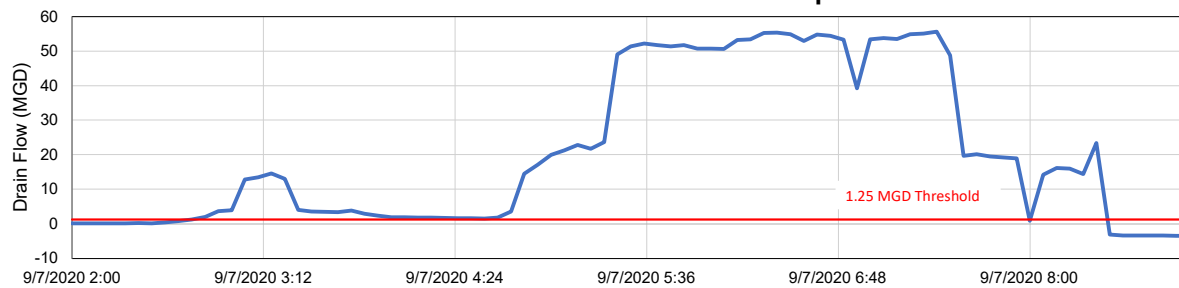
Recommended Operational Changes/Notes:

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

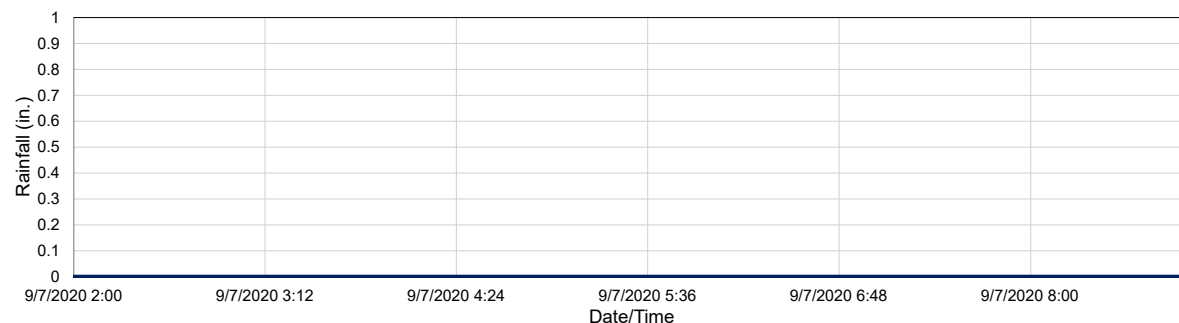
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	10/6/2020
Event Start Date/Time:	9/29/2020 0:15
Event End Date/Time:	9/30/2020 1:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.08 in.
Storm Event Duration:	26 hrs.
Storm Type:	Less than one year

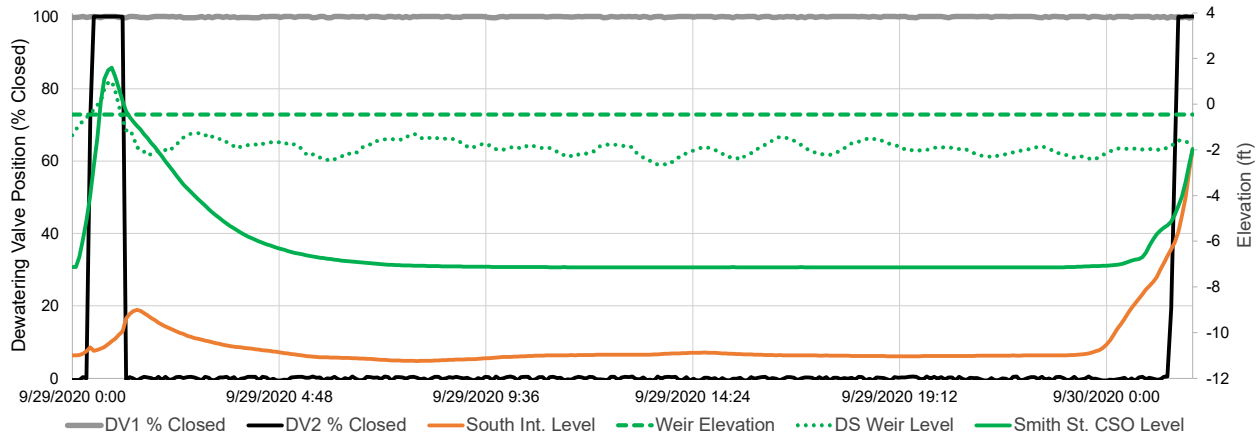
Time Lead Dewatering Valve Closed	9/29/2020 0:25
Time Lead Dewatering Valve Opened	9/29/2020 1:15
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.61 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,942,180 Gal.
Did seiche occur during wet weather?	No

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

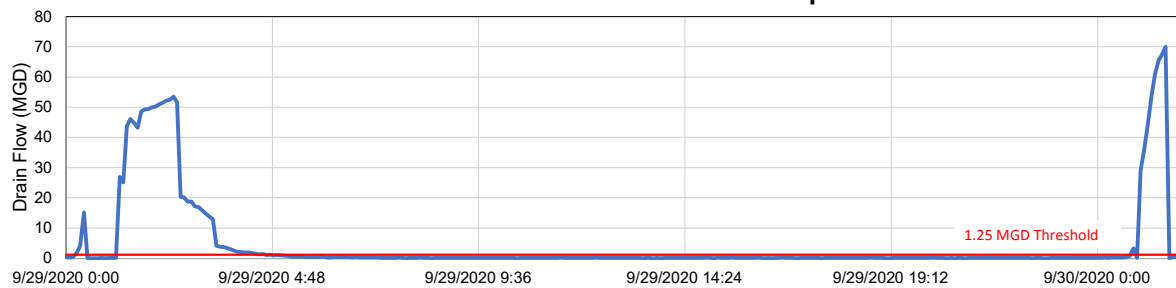
Recommended Operational Changes/Notes:

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

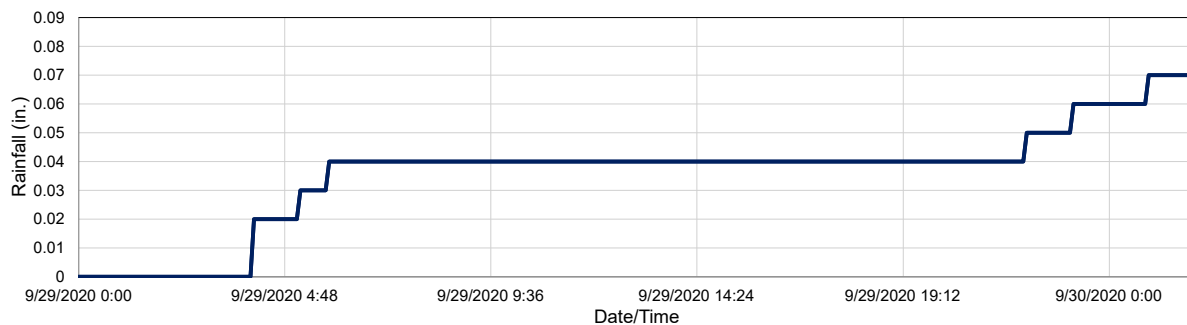
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



October 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

October 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)	
10/1/2020	5,597,438	No	1.25
10/7/2020	4,504,395	Yes	1.25
10/13/2020	3,904,533	No	1.25
10/15/2020	7,408,795	No	1.25
10/20/2020	1,394,169	No	1.25
10/23/2020	2,515,750	Yes	1.25
Total Volume Captured (gal)	25,325,080		

Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/1/2020 6:40
Event End Date/Time:	10/2/2020 17:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	36 hrs.
Storm Type:	Less than one year

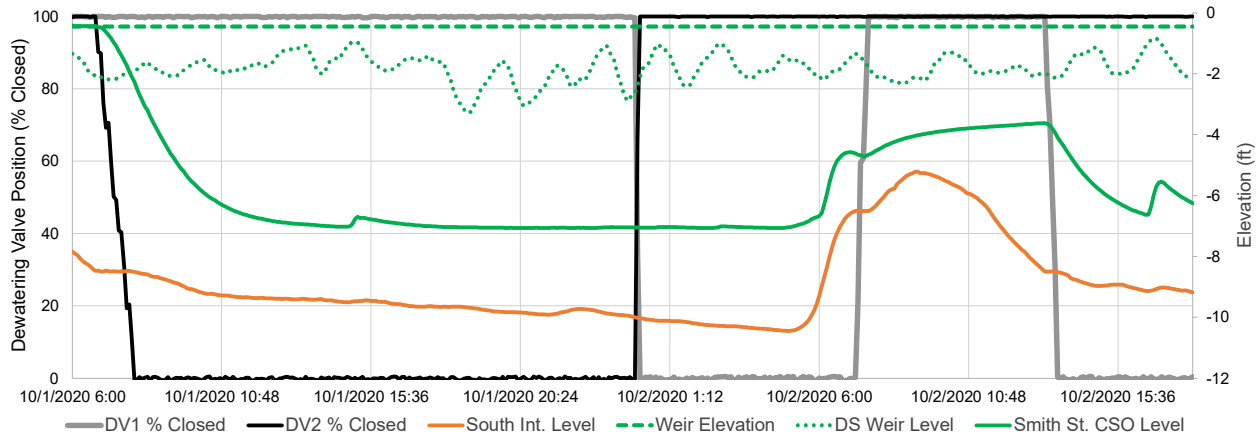
Time Lead Dewatering Valve Closed	10/1/2020 6:00
Time Lead Dewatering Valve Opened	10/2/2020 13:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.42 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,597,438 Gal.
Did seiche occur during wet weather?	No

Recommended Operational Changes/Notes:

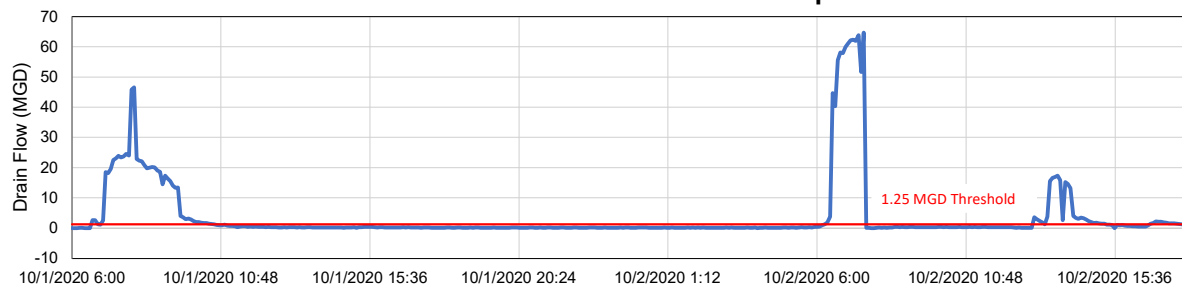
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

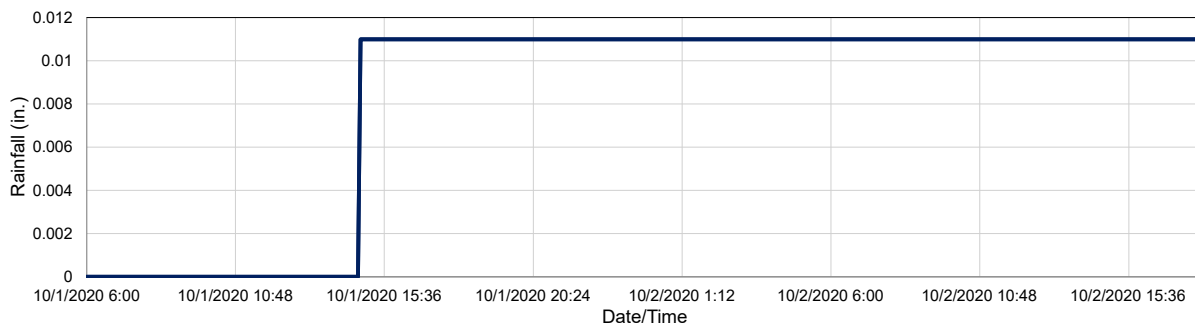
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/7/2020 9:45
Event End Date/Time:	10/7/2020 17:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hrs.
Storm Type:	N/A

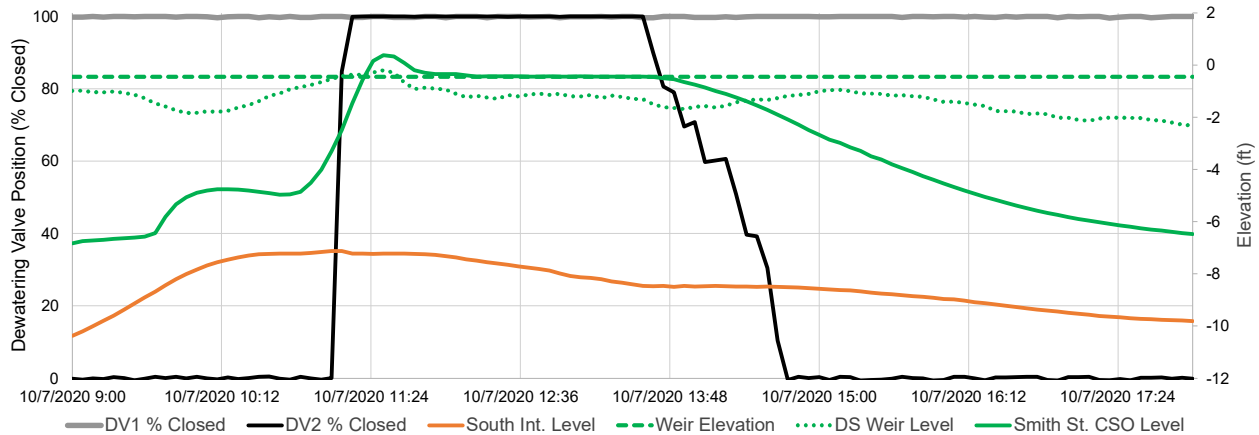
Time Lead Dewatering Valve Closed	10/7/2020 11:10
Time Lead Dewatering Valve Opened	10/7/2020 13:40
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.38 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,504,395 Gal.
Did seiche occur during wet weather?	Yes

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

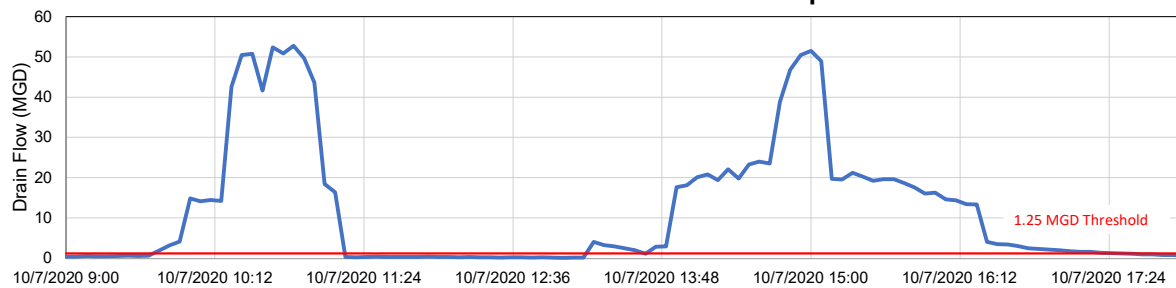
Recommended Operational Changes/Notes:

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.

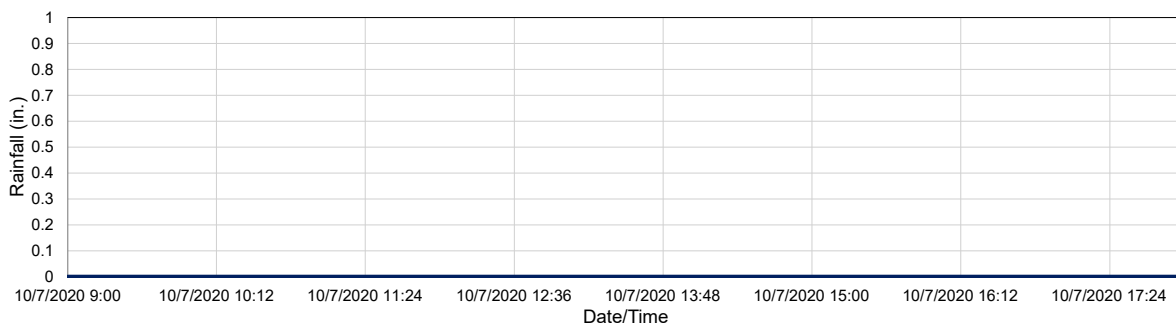
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/13/2020 4:55
Event End Date/Time:	10/13/2020 9:45

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

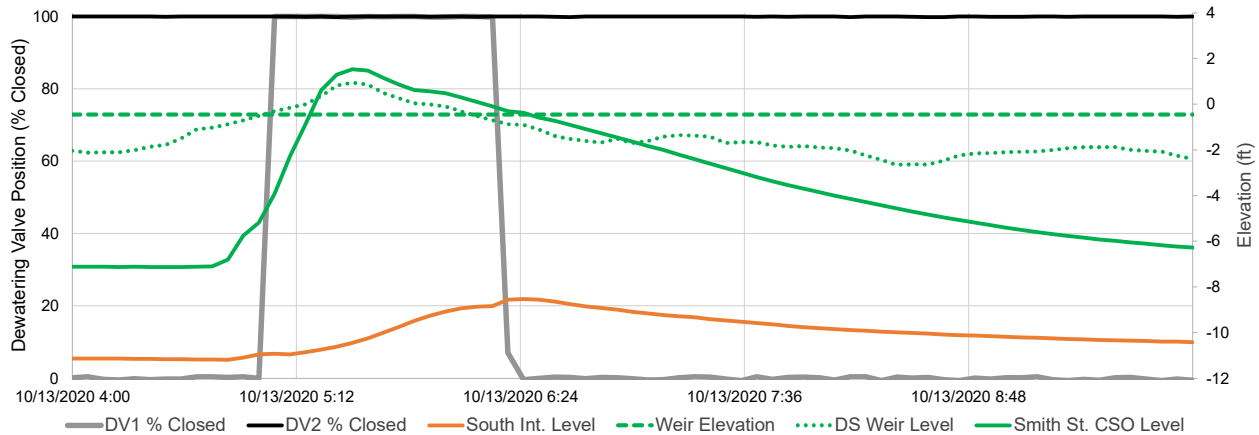
Time Lead Dewatering Valve Closed	10/13/2020 5:05
Time Lead Dewatering Valve Opened	10/13/2020 6:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.53 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	3,904,533 Gal.
Did seiche occur during wet weather?	No

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

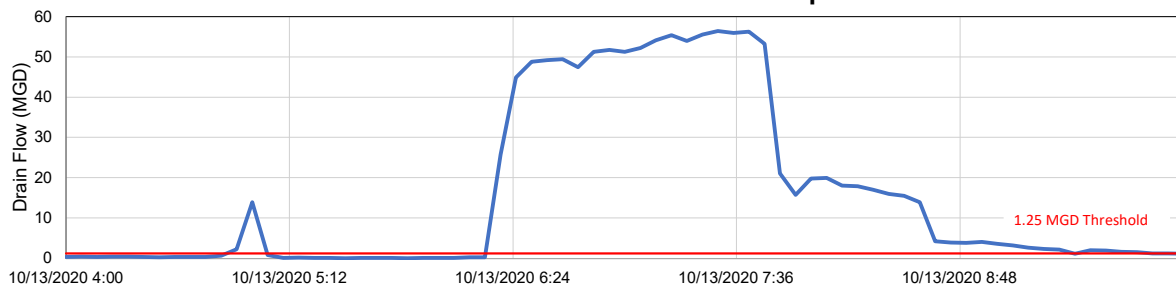
Recommended Operational Changes/Notes:

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

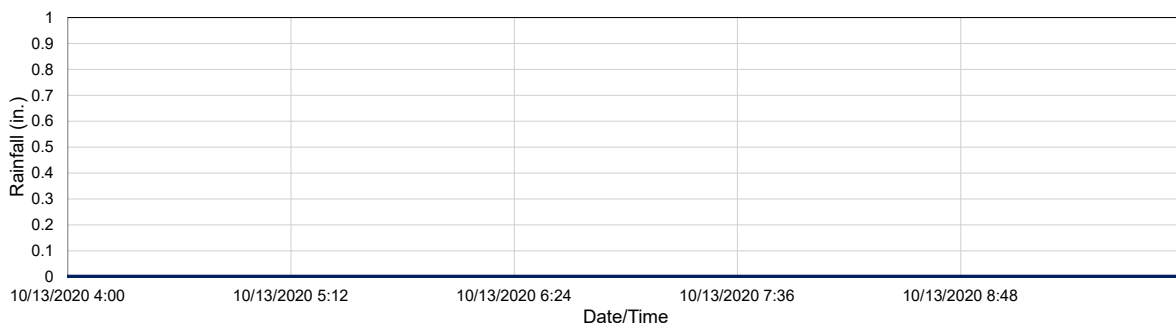
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/15/2020 13:35
Event End Date/Time:	10/16/2020 2:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	13 hrs.
Storm Type:	N/A

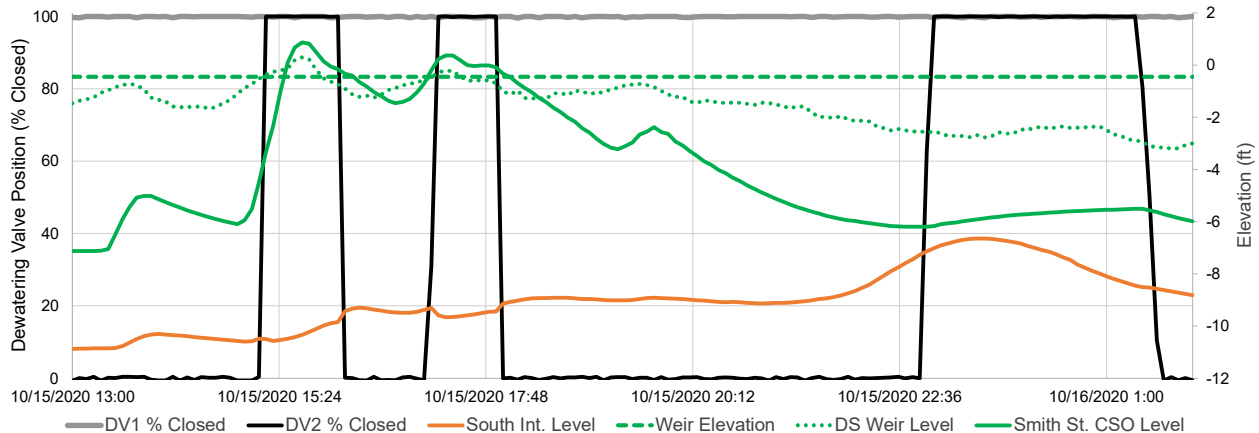
Time Lead Dewatering Valve Closed	10/15/2020 15:15
Time Lead Dewatering Valve Opened	10/16/2020 1:25
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.87 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	7,408,795 Gal.
Did seiche occur during wet weather?	No

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

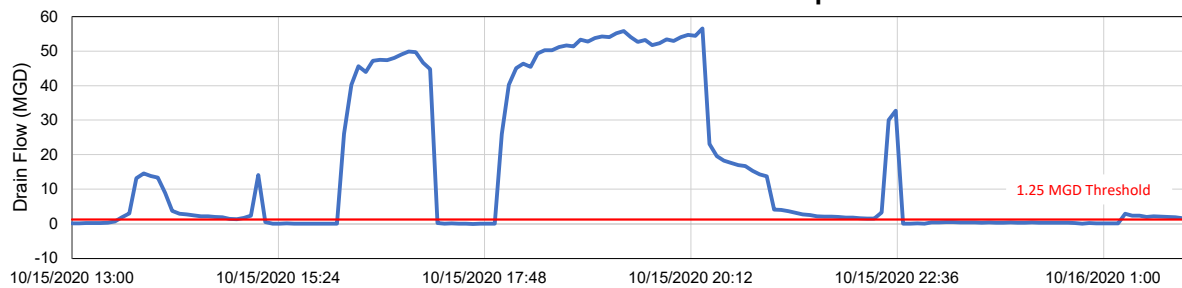
Recommended Operational Changes/Notes:

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

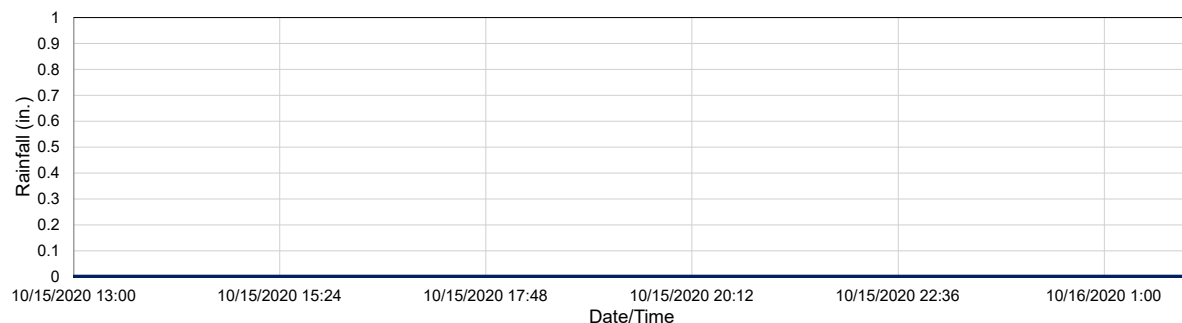
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/20/2020 3:45
Event End Date/Time:	10/22/2020 12:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	58 hrs.
Storm Type:	N/A

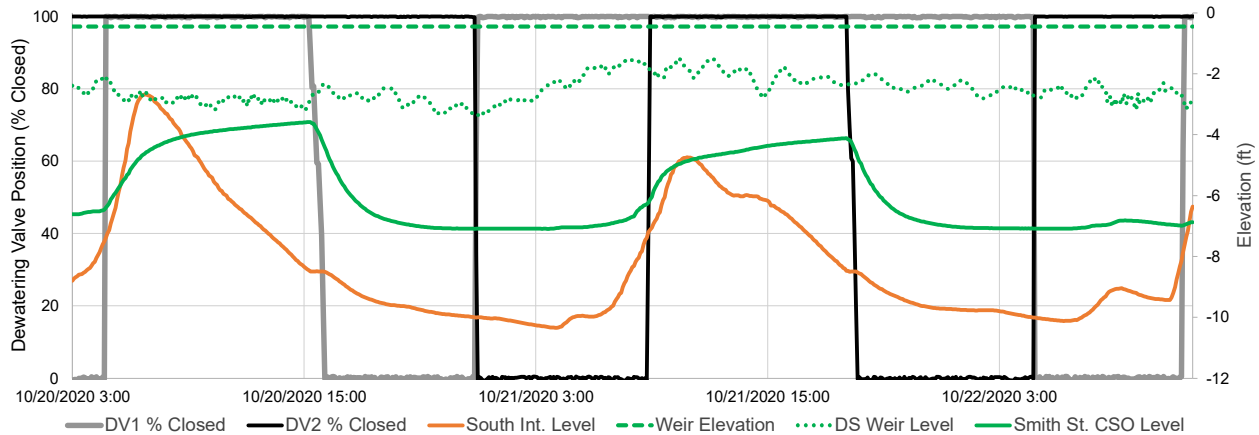
Time Lead Dewatering Valve Closed	10/20/2020 4:45
Time Lead Dewatering Valve Opened	10/22/2020 4:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-3.59 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	1,394,169 Gal.
Did seiche occur during wet weather?	No

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

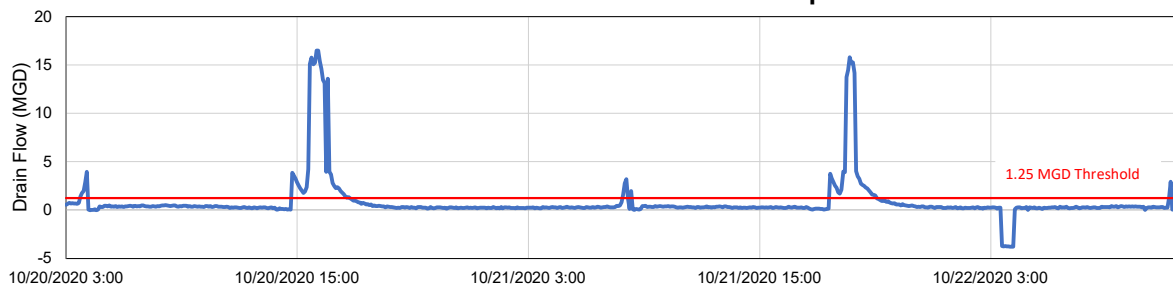
Recommended Operational Changes/Notes:

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

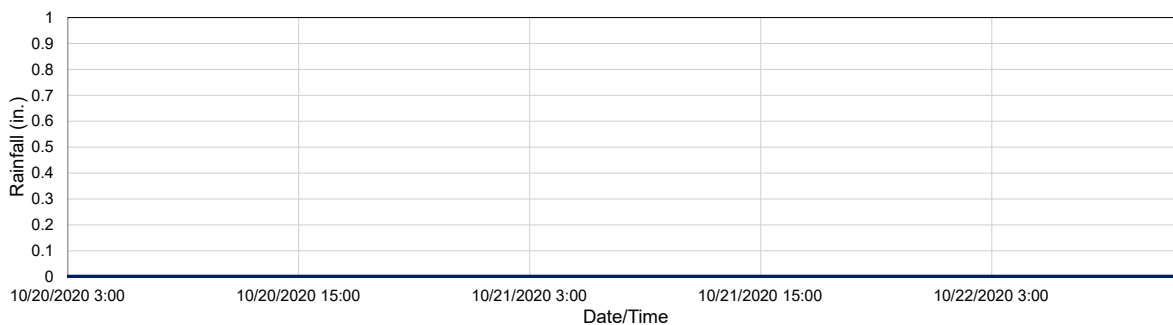
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	11/5/2020
Event Start Date/Time:	10/23/2020 18:00
Event End Date/Time:	10/24/2020 17:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	25 hrs.
Storm Type:	N/A

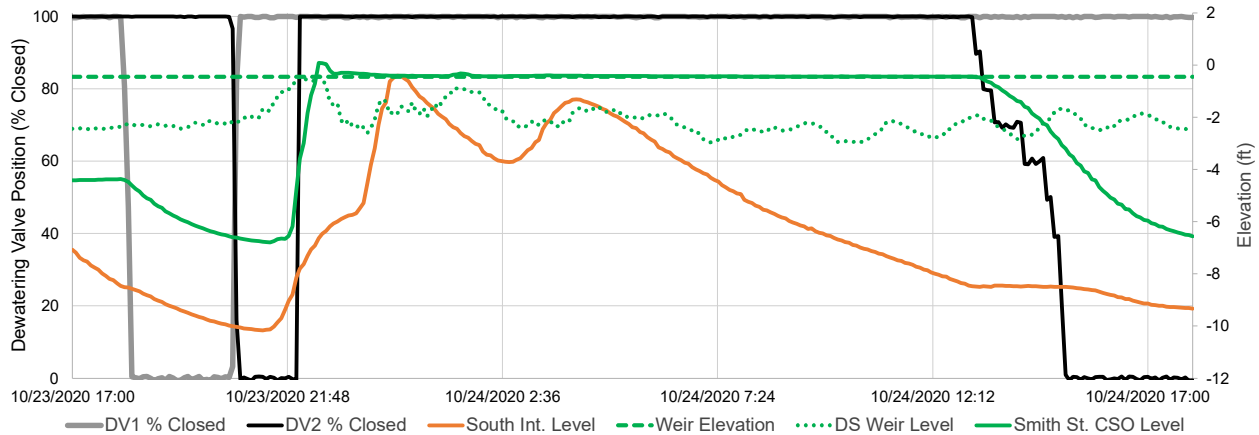
Time Lead Dewatering Valve Closed	10/23/2020 17:00
Time Lead Dewatering Valve Opened	10/24/2020 13:10
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.09 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,515,750 Gal.
Did seiche occur during wet weather?	Yes

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

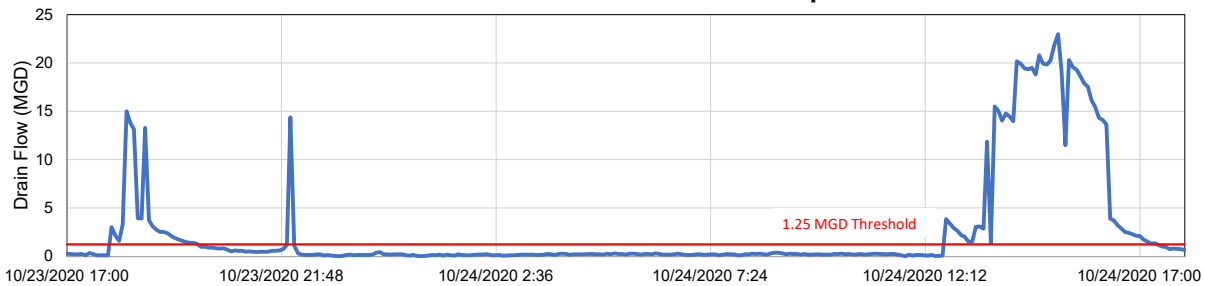
Recommended Operational Changes/Notes:

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.

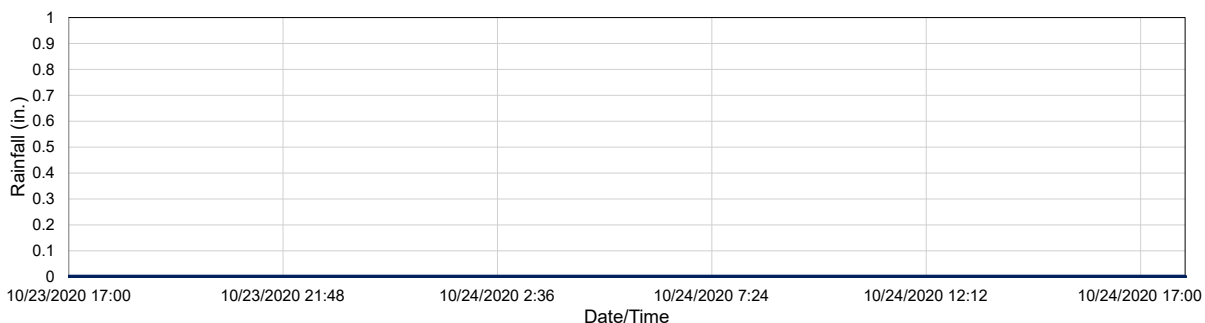
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



November 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

November 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)	
11/1/2020	10,434,256	Yes	1.25
11/11/2020	985,441	No	1.25
11/15/2020	7,590,798	Yes	1.25
11/22/2020	70,346	No	1.25
11/26/2020	93,728	No	1.25
11/30/2020	158,932	No	1.25
Total Volume Captured (gal)	19,333,501		

Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/1/2020 10:50
Event End Date/Time:	11/3/2020 6:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.18 in.
Storm Event Duration:	44 hrs.
Storm Type:	Less than one year

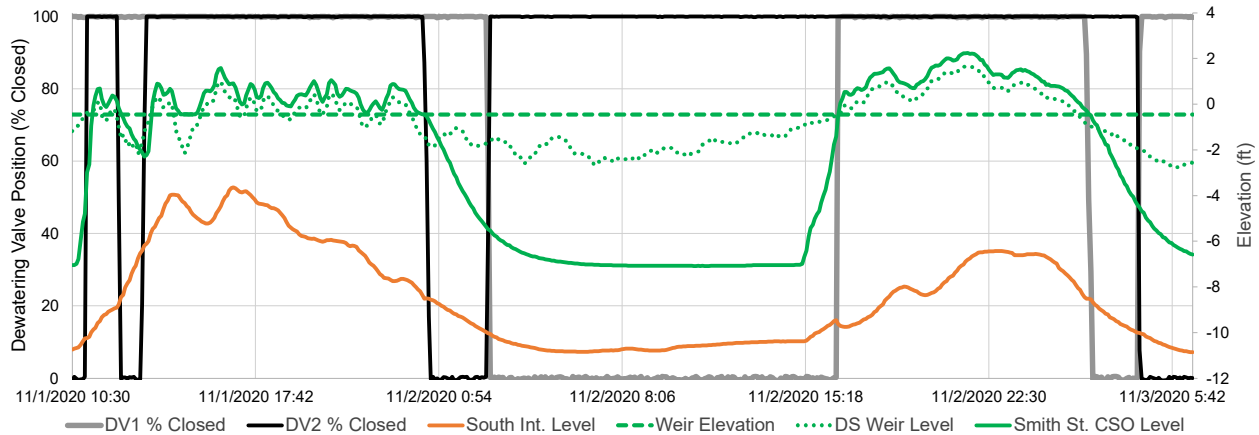
Time Lead Dewatering Valve Closed	11/1/2020 11:05
Time Lead Dewatering Valve Opened	11/3/2020 2:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	2.24 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	10,434,256 Gal.
Did seiche occur during wet weather?	Yes

Recommended Operational Changes/Notes:

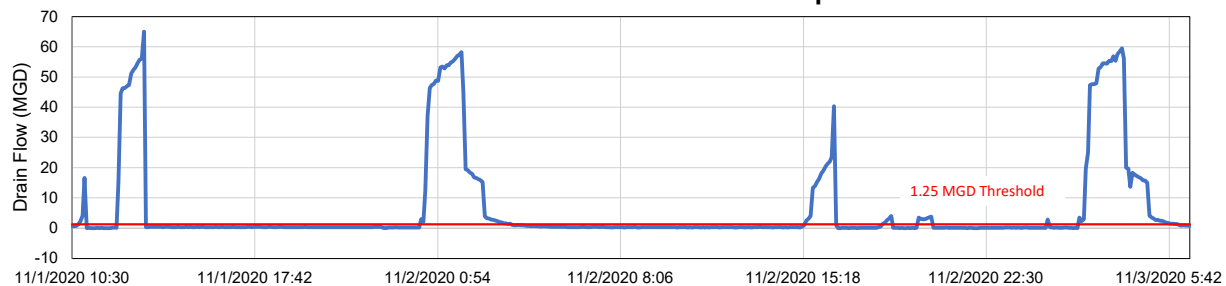
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

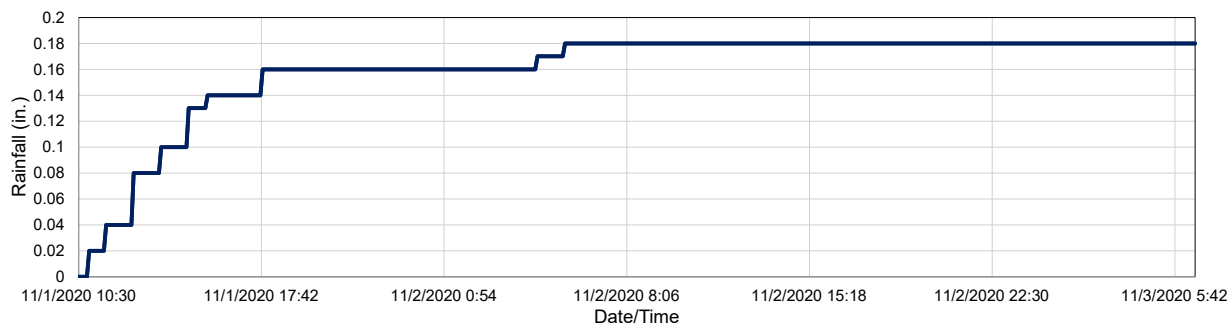
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/11/2020 4:45
Event End Date/Time:	11/11/2020 17:00

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

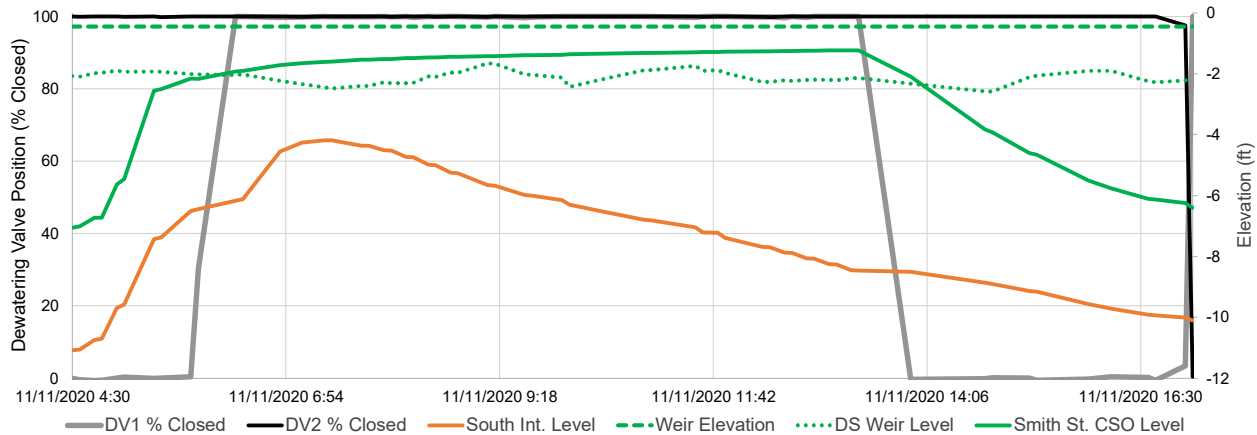
Time Lead Dewatering Valve Closed	11/11/2020 5:55
Time Lead Dewatering Valve Opened	11/11/2020 13:55
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-1.23 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	985,441 Gal.
Did seiche occur during wet weather?	No

Recommended Operational Changes/Notes:

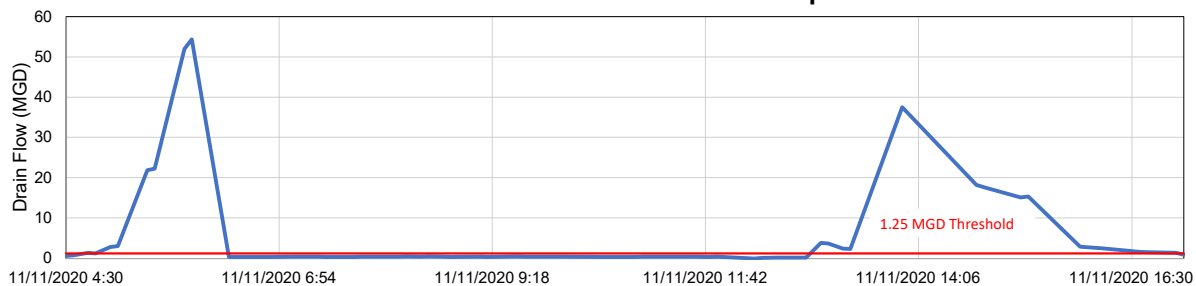
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

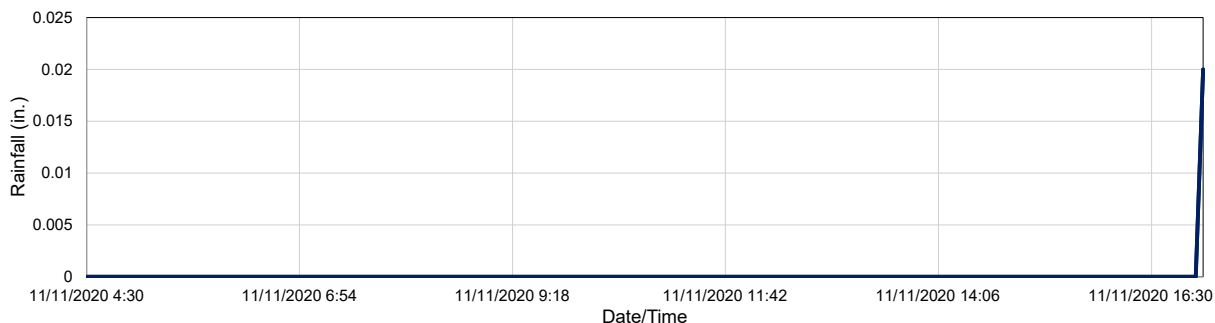
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/15/2020 16:30
Event End Date/Time:	11/16/2020 15:50

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.08 in.
Storm Event Duration:	24 hrs.
Storm Type:	Less than one year

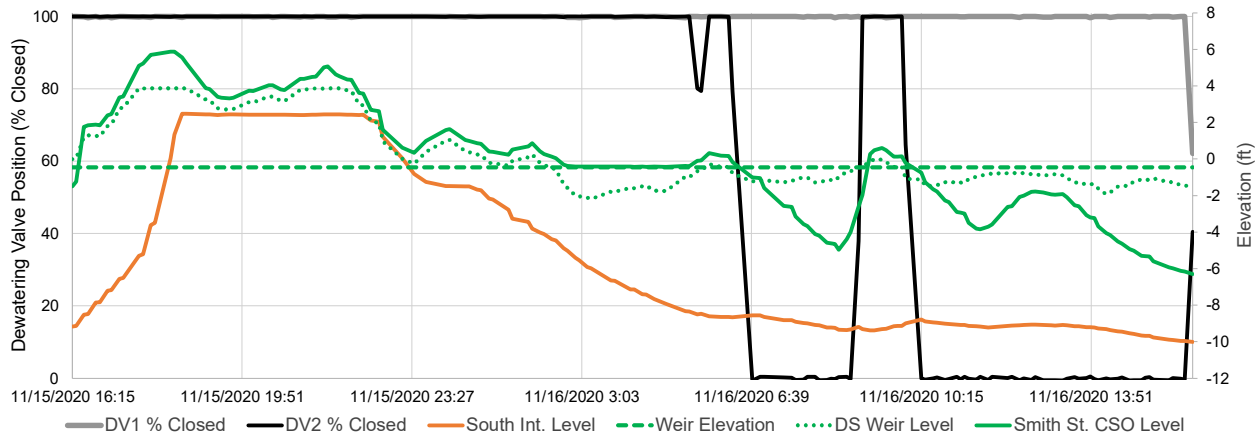
Time Lead Dewatering Valve Closed	11/15/2020 16:15
Time Lead Dewatering Valve Opened	11/16/2020 16:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	5.87 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	7,590,798 Gal.
Did seiche occur during wet weather?	Yes

Recommended Operational Changes/Notes:

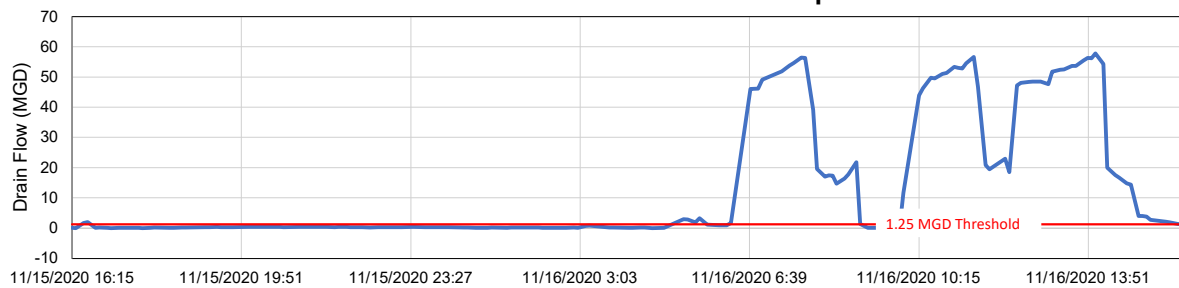
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

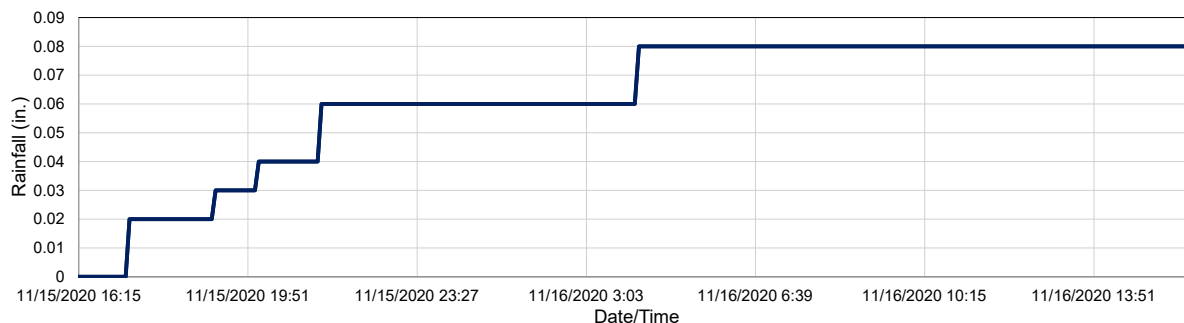
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/22/2020 22:00
Event End Date/Time:	11/23/2020 2:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.08 in.
Storm Event Duration:	6 hrs.
Storm Type:	Less than one year

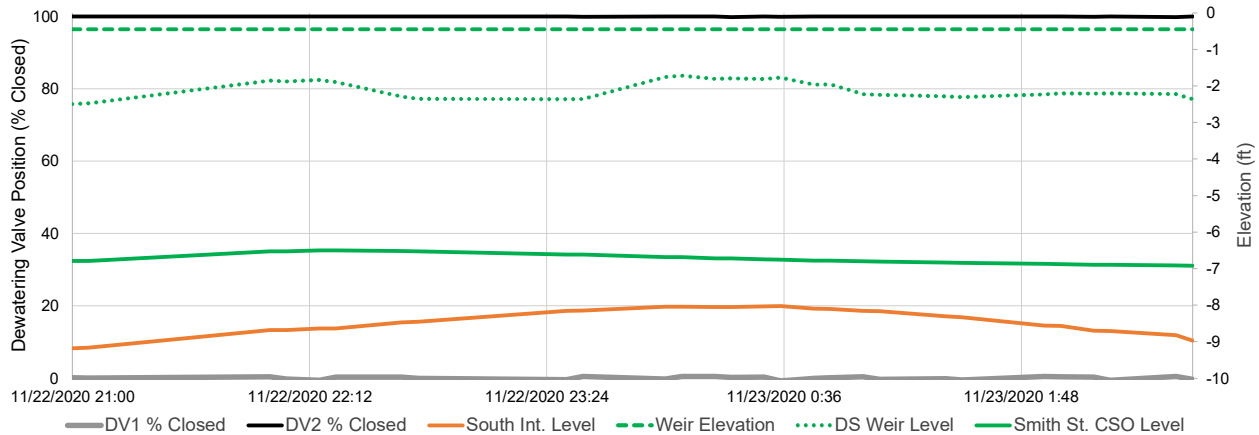
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	NA
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.50 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	70,346 Gal.
Did seiche occur during wet weather?	No

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

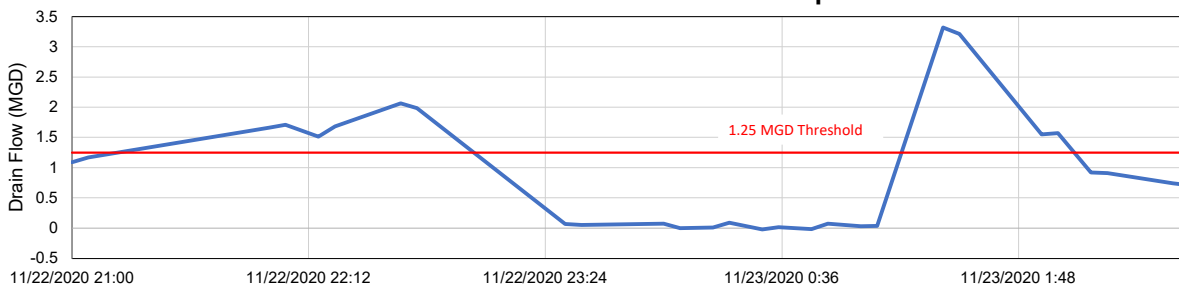
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. Data was missing for some time intervals before, during and after this event.

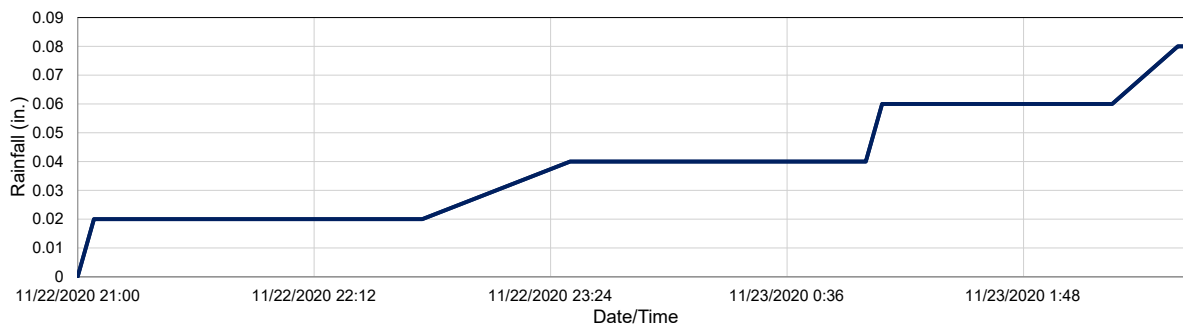
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/26/2020 10:55
Event End Date/Time:	11/26/2020 13:45

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.04 in.
Storm Event Duration:	4 hrs.
Storm Type:	Less than one year

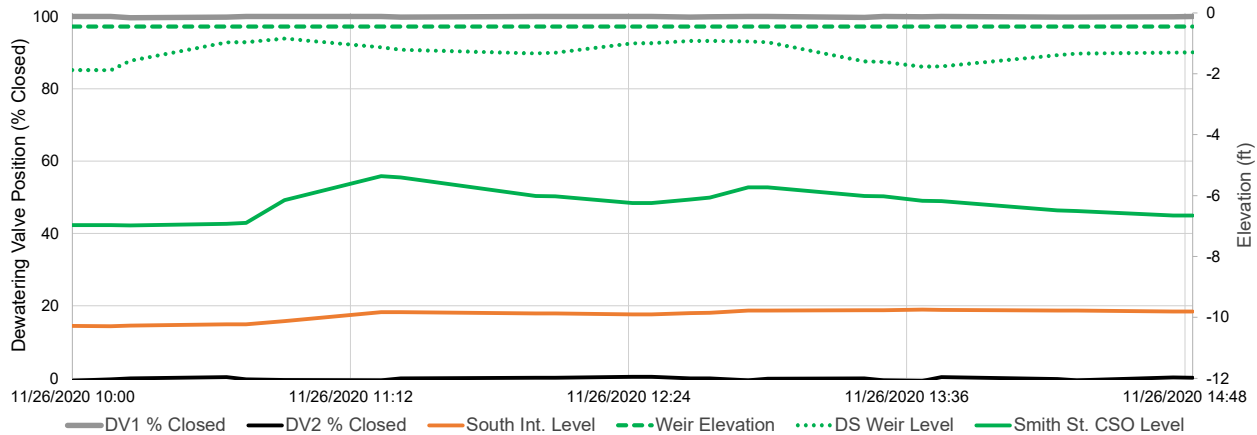
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	NA
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-5.36 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	93,728 Gal.
Did seiche occur during wet weather?	No

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

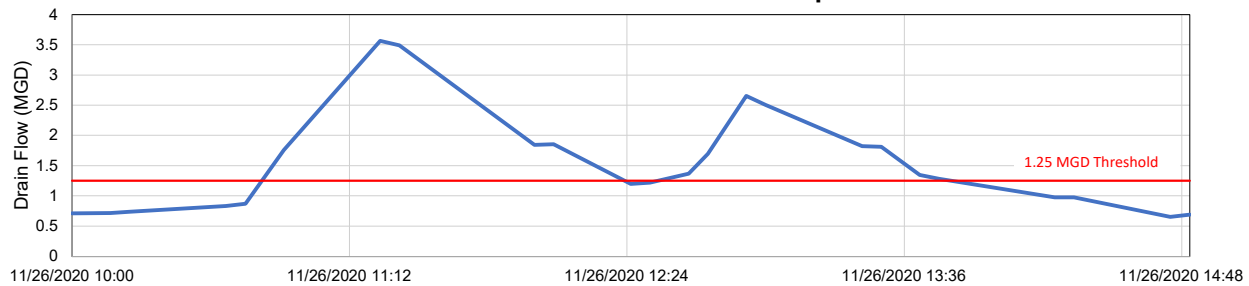
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. Data was missing for some time intervals before, during and after this event.

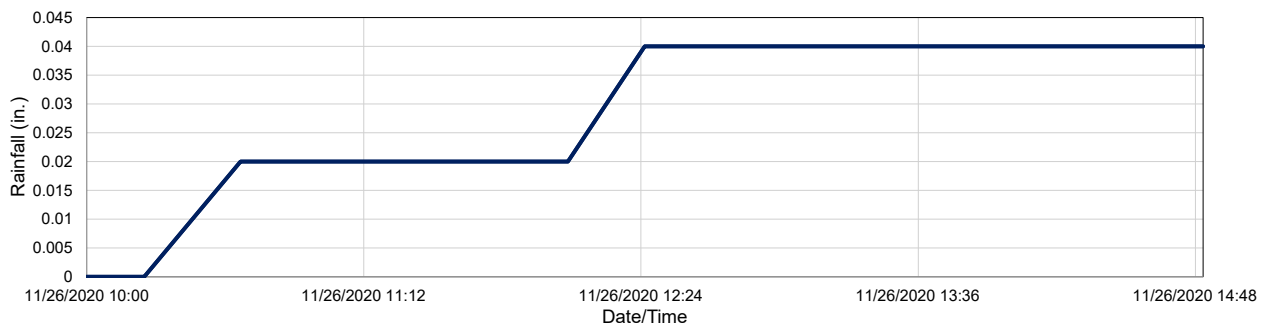
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	12/11/2020
Event Start Date/Time:	11/30/2020 9:35
Event End Date/Time:	11/30/2020 11:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	3 hrs.
Storm Type:	Less than one year

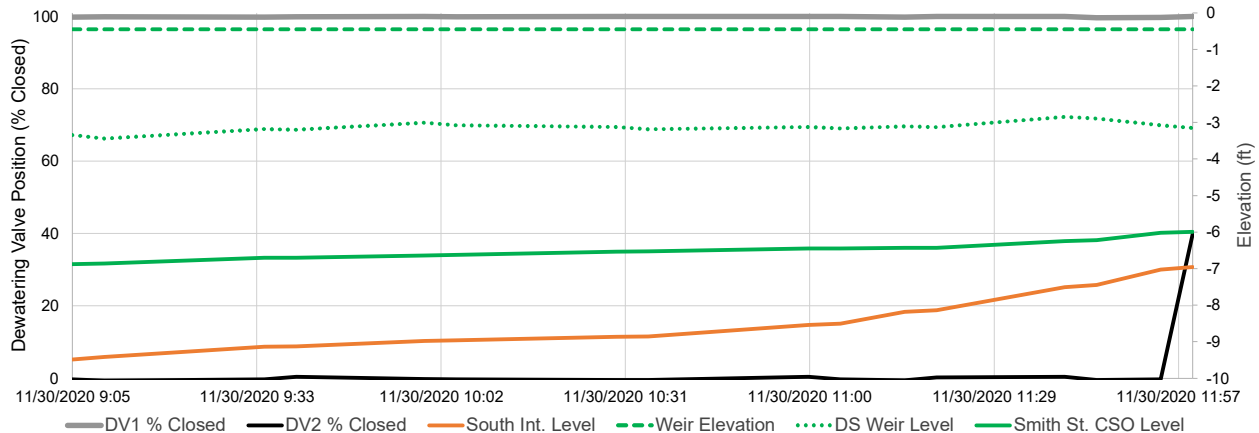
Time Lead Dewatering Valve Closed	11/30/2020 12:00
Time Lead Dewatering Valve Opened	NA
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-5.99 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	158,932 Gal.
Did seiche occur during wet weather?	No

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

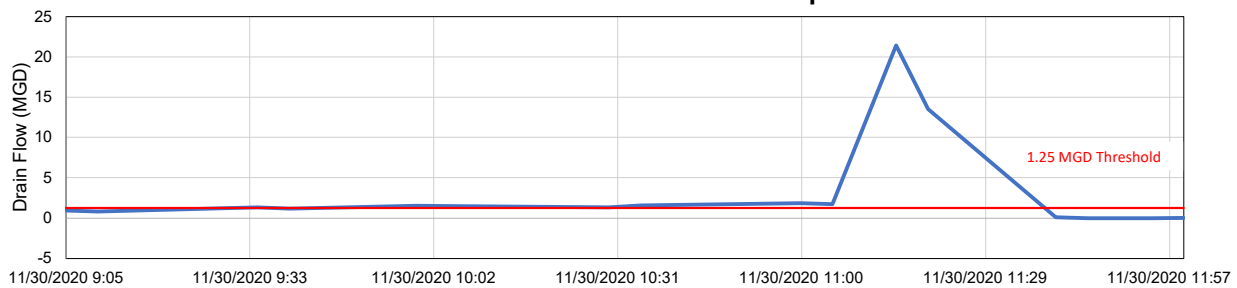
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. Data was missing for some time intervals before, during and after this event.

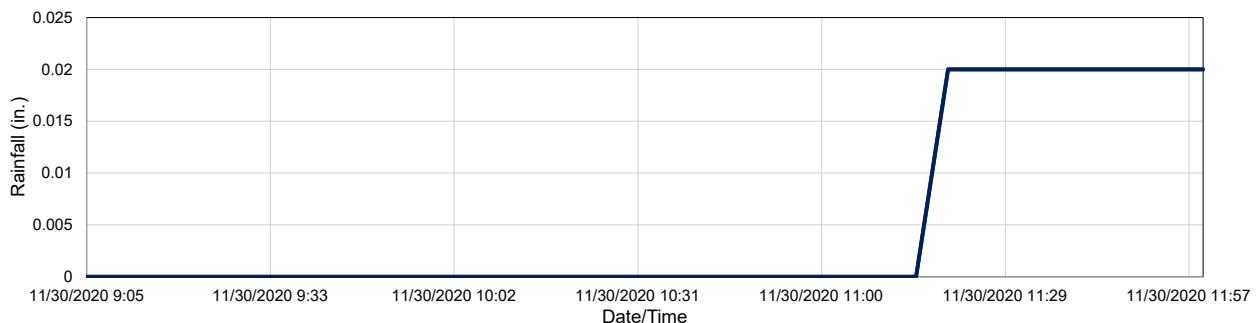
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



December 2020 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

December 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)
12/1/2020	4,271,609	No	1.25
12/8/2020	8,600,221	No	1.25
12/12/2020	4,227,990	No	1.25
12/21/2020	1,602,276	No	1.25
12/24/2020	16,553,297	No	1.25
12/28/2020	4,270,614	Yes	1.25
Total Volume Captured (gal)	39,526,007		

Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/1/2020 7:45
Event End Date/Time:	12/3/2020 17:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	59 hrs.
Storm Type:	Less than one year

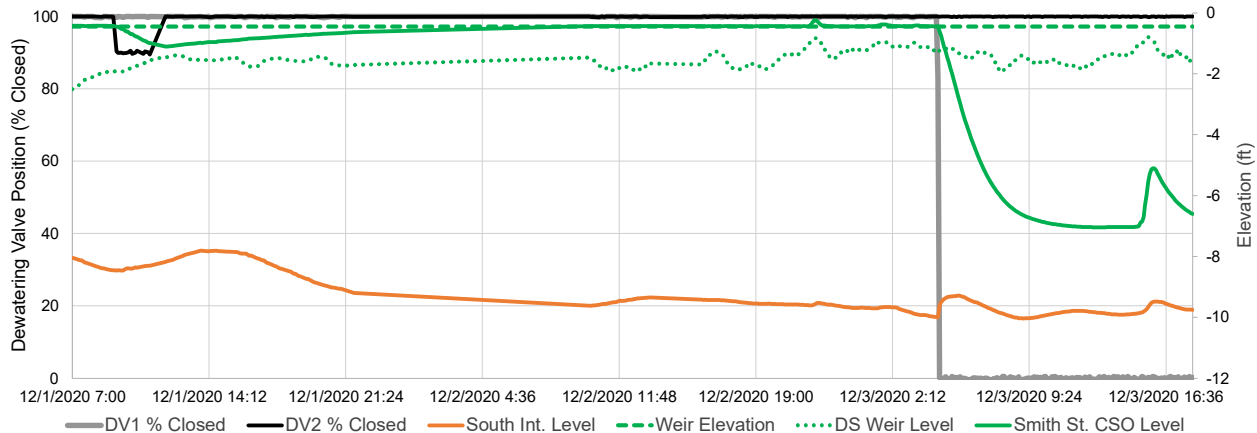
Time Lead Dewatering Valve Closed	12/1/2020 7:00
Time Lead Dewatering Valve Opened	12/3/2020 4:35
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.25 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,271,609 Gal.
Did seiche occur during wet weather?	No

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

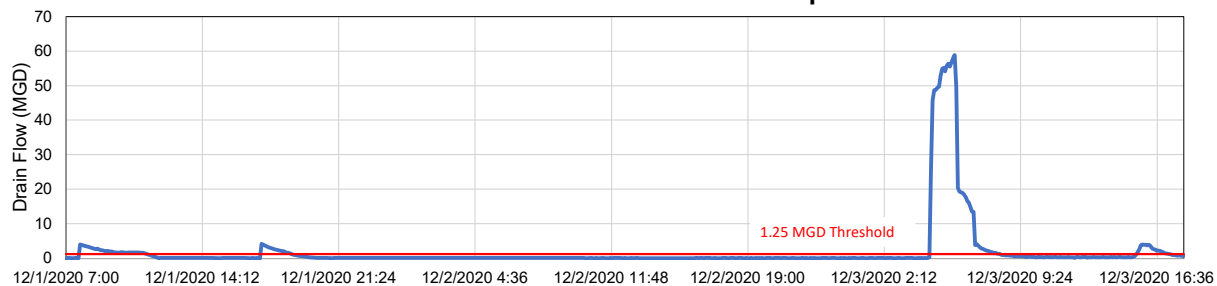
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge. Data was missing for some time intervals before, during and after this event.

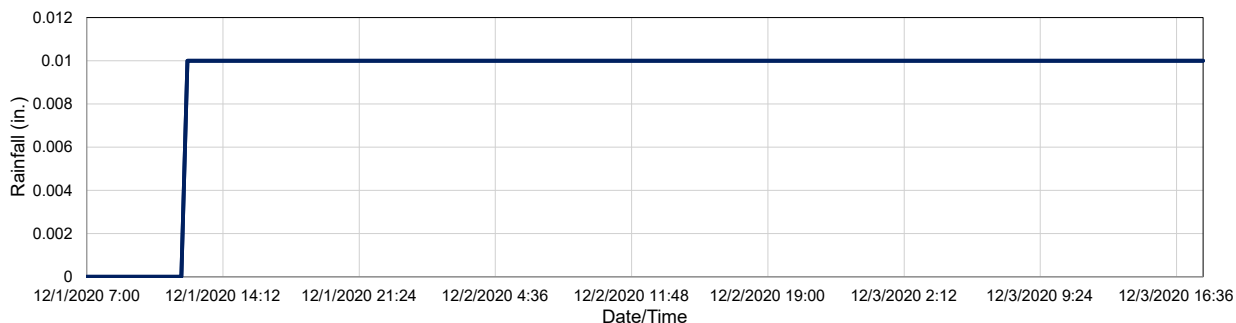
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/8/2020 22:30
Event End Date/Time:	12/9/2020 22:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	25 hrs.
Storm Type:	N/A

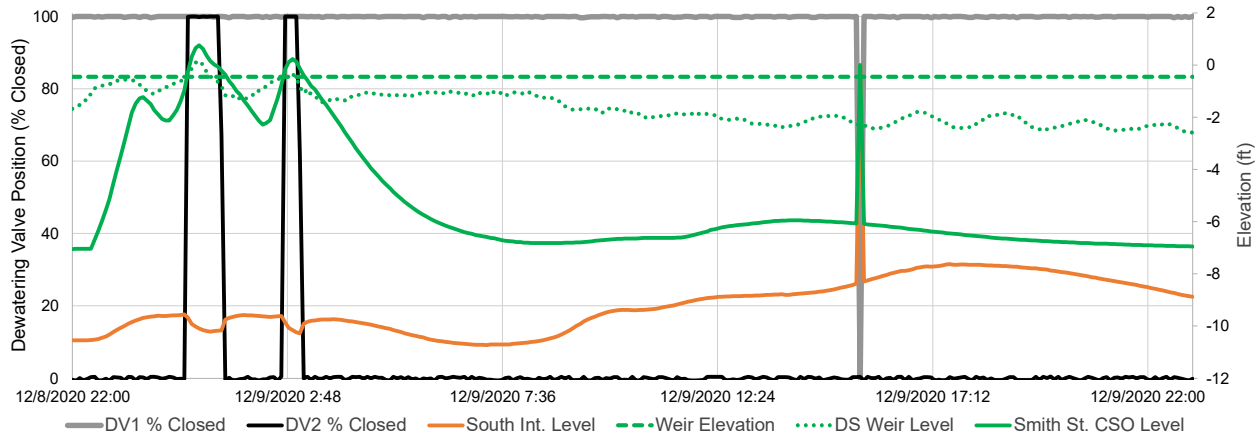
Time Lead Dewatering Valve Closed	12/9/2020 0:35
Time Lead Dewatering Valve Opened	12/9/2020 3:05
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.75 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	8,600,221 Gal.
Did seiche occur during wet weather?	No

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

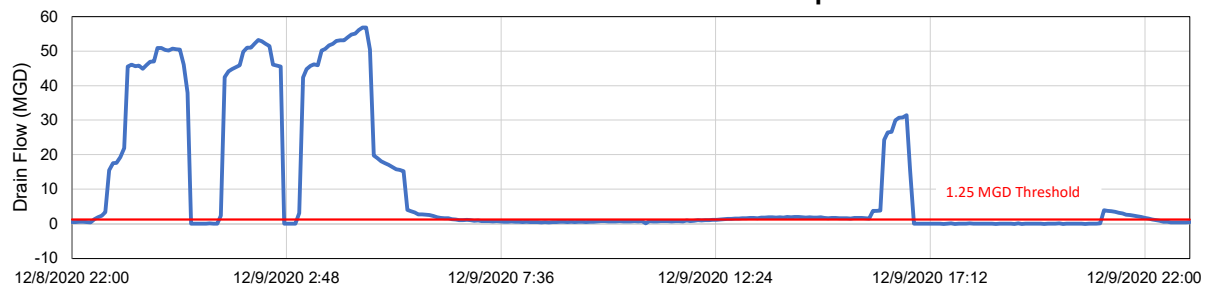
Recommended Operational Changes/Notes:

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

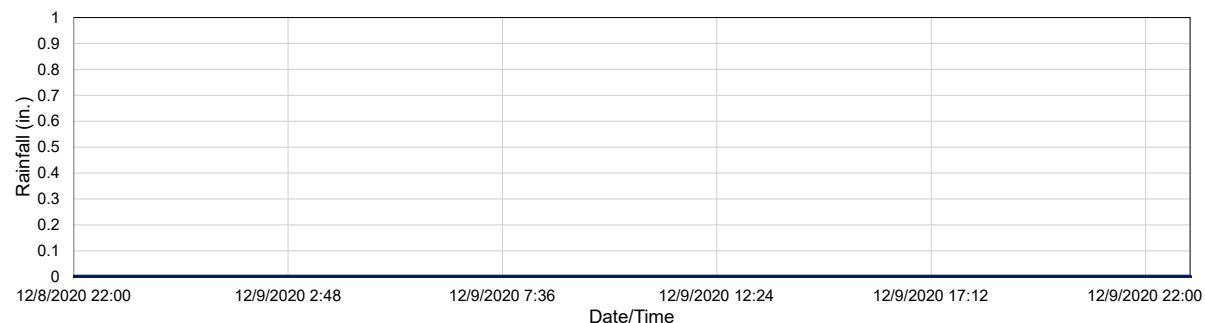
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/12/2020 21:35
Event End Date/Time:	12/13/2020 4:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hrs.
Storm Type:	N/A

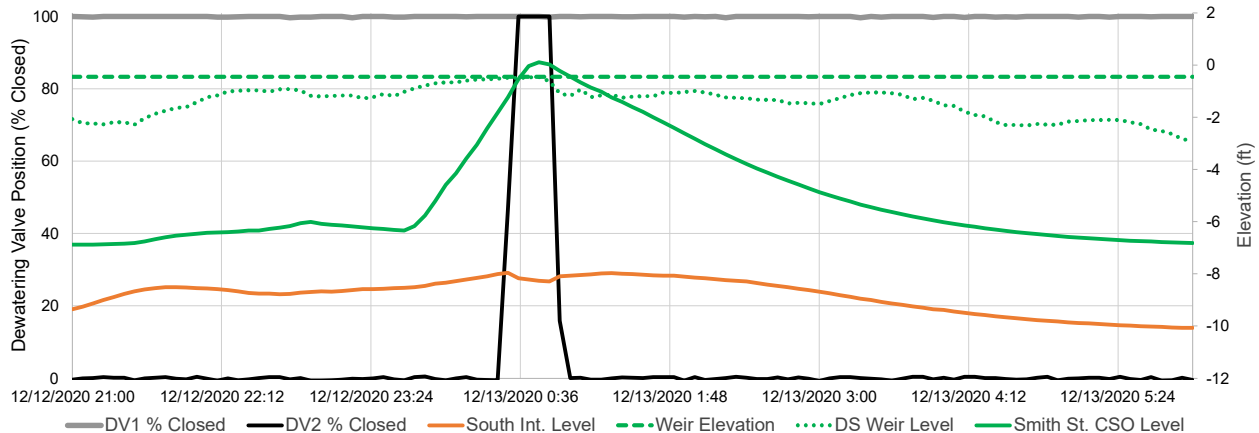
Time Lead Dewatering Valve Closed	12/13/2020 0:30
Time Lead Dewatering Valve Opened	12/13/2020 0:55
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.11 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,227,990 Gal.
Did seiche occur during wet weather?	No

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

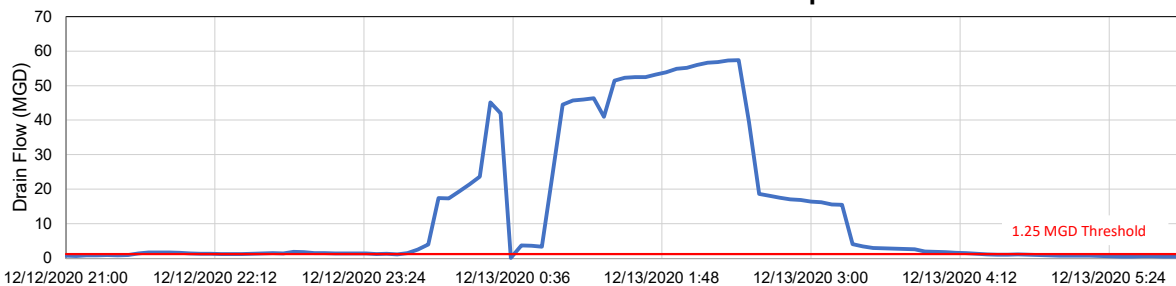
Recommended Operational Changes/Notes:

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

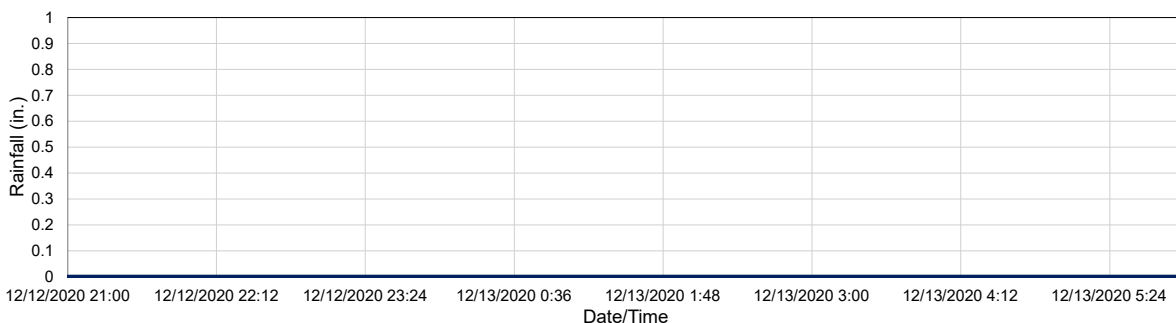
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/21/2020 22:30
Event End Date/Time:	12/22/2020 23:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.16 in.
Storm Event Duration:	9 hrs.
Storm Type:	Less than one year

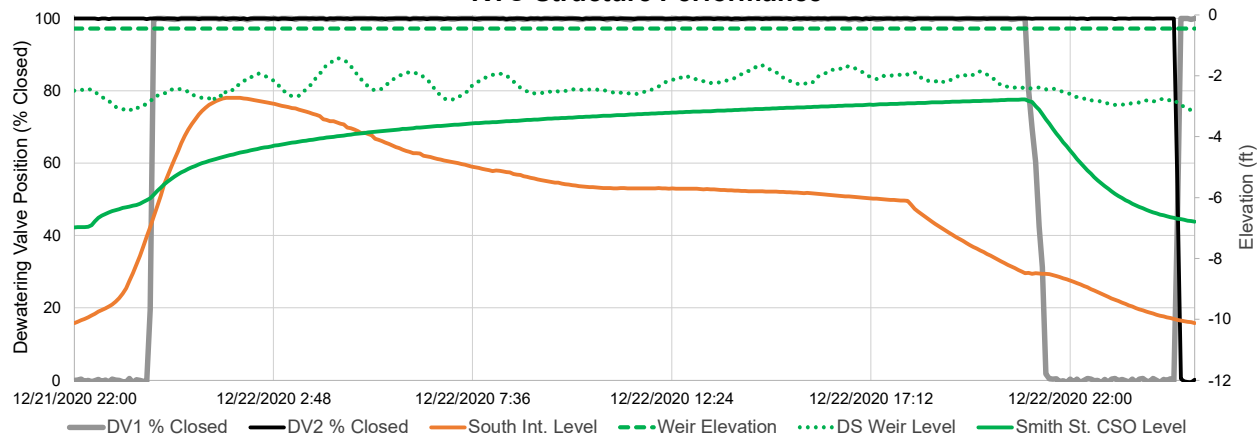
Time Lead Dewatering Valve Closed	12/21/2020 23:50
Time Lead Dewatering Valve Opened	12/22/2020 21:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-2.78 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	1,602,276 Gal.
Did seiche occur during wet weather?	No

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

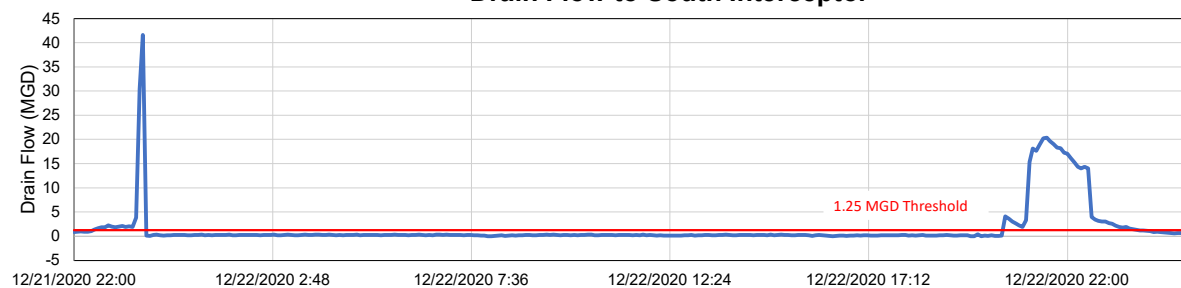
Recommended Operational Changes/Notes:

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

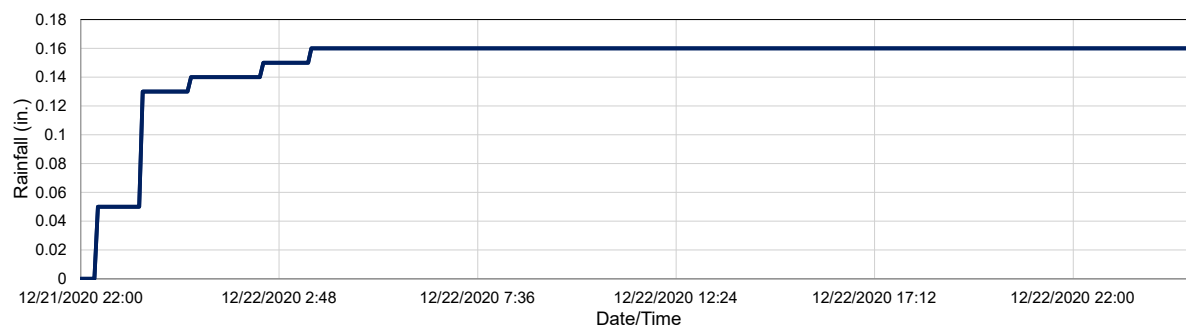
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/24/2020 12:35
Event End Date/Time:	12/26/2020 16:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.59 in.
Storm Event Duration:	53 hrs.
Storm Type:	Less than one year

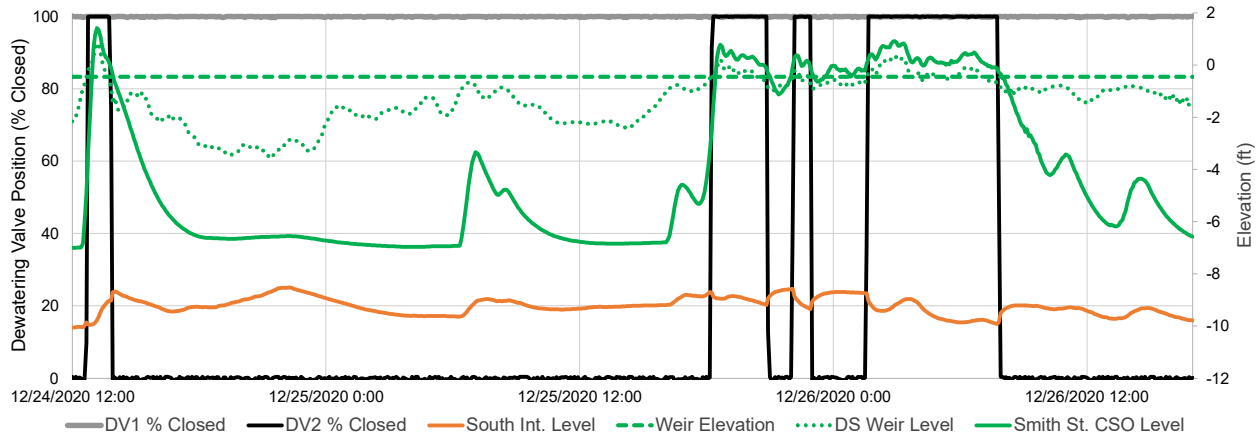
Time Lead Dewatering Valve Closed	12/24/2020 12:40
Time Lead Dewatering Valve Opened	12/26/2020 7:50
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.42 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	16,553,297 Gal.
Did seiche occur during wet weather?	No

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

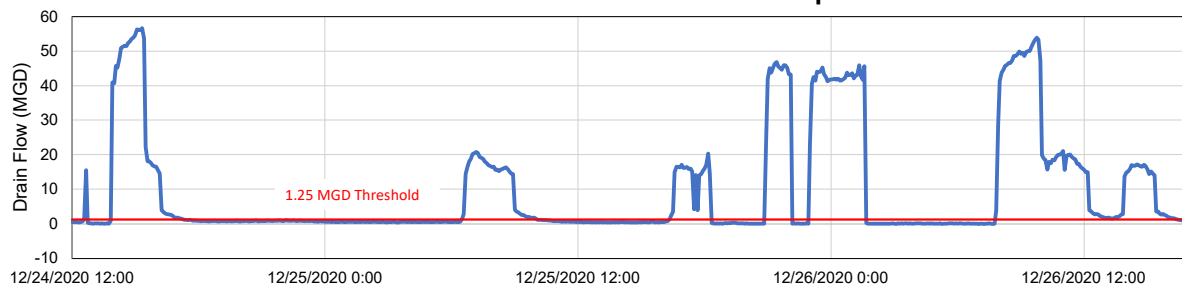
Recommended Operational Changes/Notes:

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

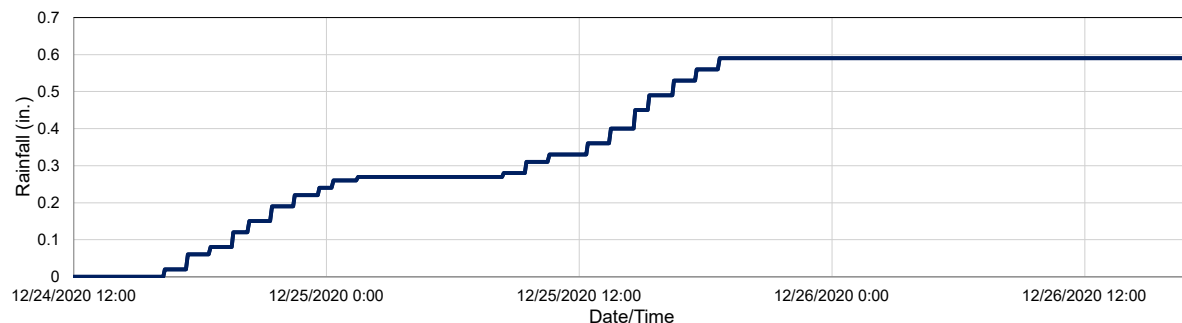
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	1/6/2021
Event Start Date/Time:	12/28/2020 7:55
Event End Date/Time:	12/30/2020 17:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.11 in.
Storm Event Duration:	59 hrs.
Storm Type:	Less than one year

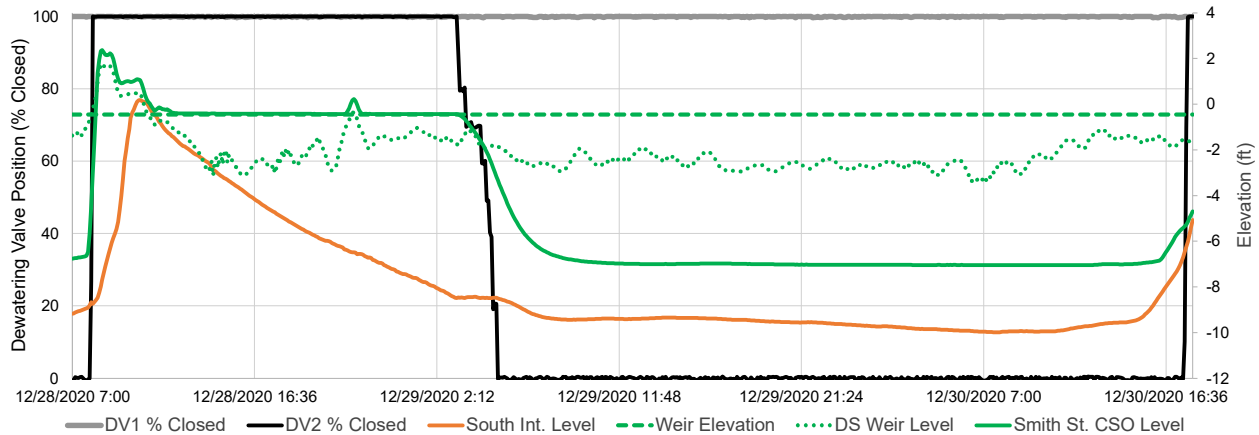
Time Lead Dewatering Valve Closed	12/28/2020 8:00
Time Lead Dewatering Valve Opened	12/29/2020 3:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	2.37 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,270,614 Gal.
Did seiche occur during wet weather?	Yes

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

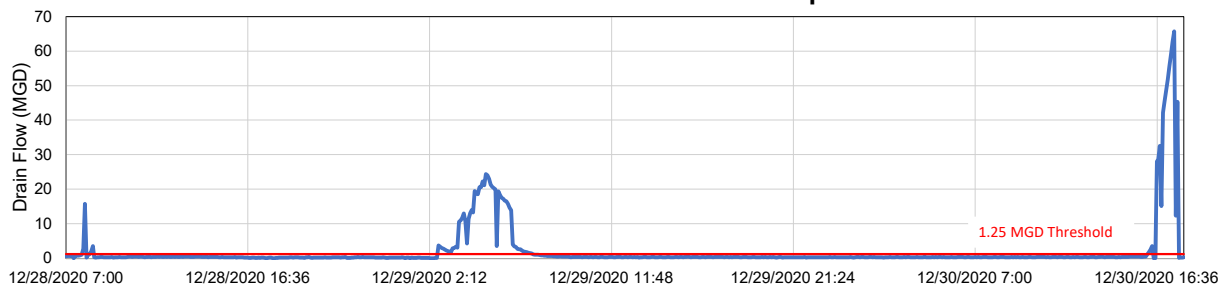
Recommended Operational Changes/Notes:

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

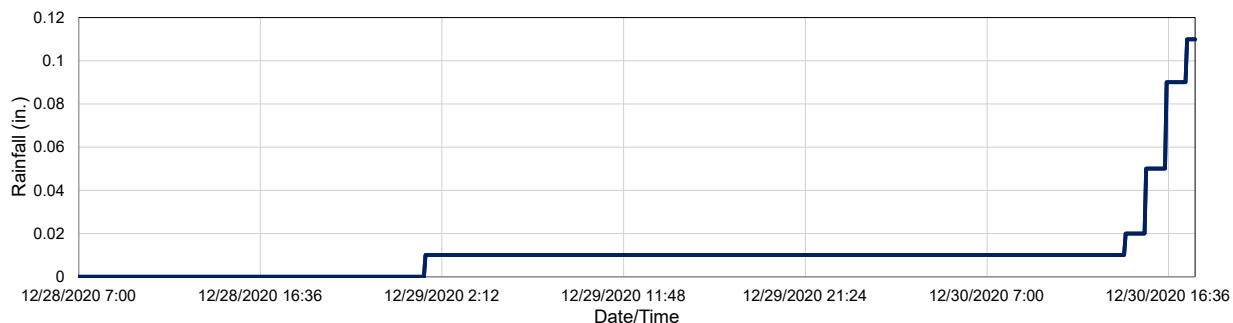
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



January 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

January 2021

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)
1/1/2021	4,353,696	No	1.25
1/3/2021	2,243,925	No	1.25
1/16/2021	174,562	No	1.25
1/19/2021	423,539	No	1.25
1/21/2021	238,981	No	1.25
Total Volume Captured (gal)	7,434,703		

Site:	Smith RTC
Analysis Date:	2/12/2021
Event Start Date/Time:	1/1/2021 0:00
Event End Date/Time:	1/1/2021 19:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	20 hrs.
Storm Type:	Less than one year

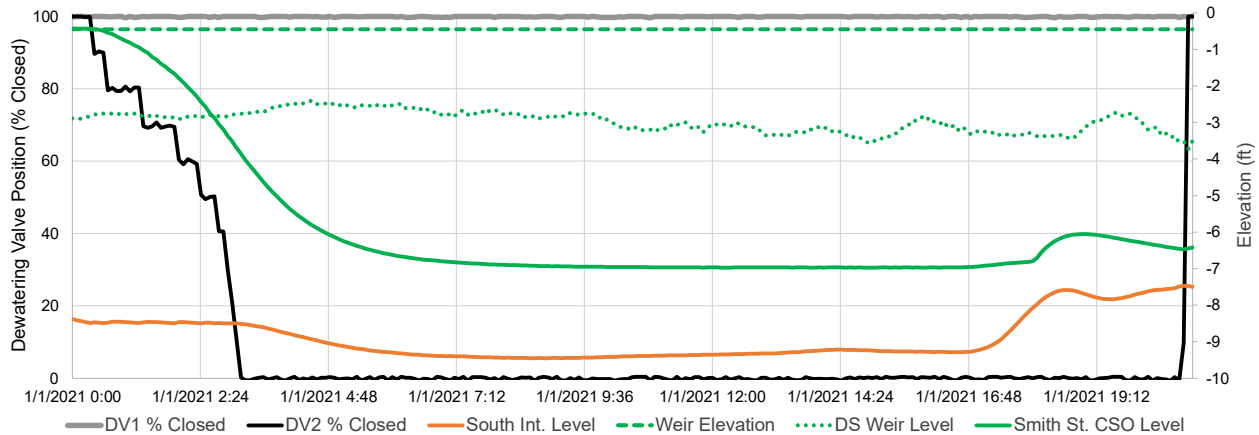
Time Lead Dewatering Valve Closed	1/1/2021 20:50
Time Lead Dewatering Valve Opened	1/1/2021 0:25
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.43 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,353,696 Gal.
Did seiche occur during wet weather?	No

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

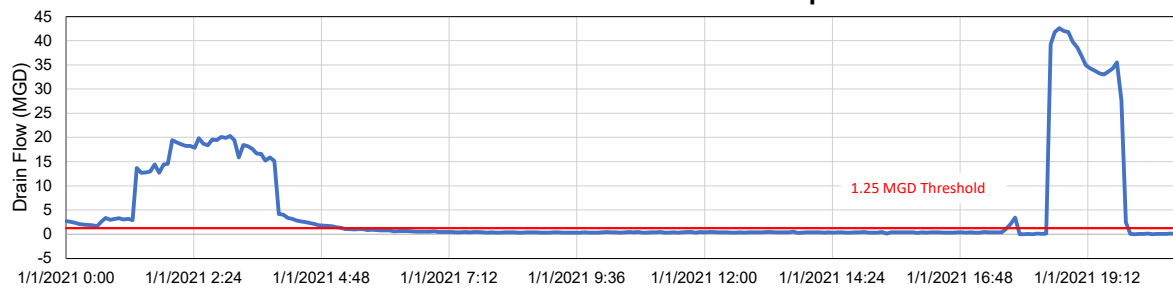
Recommended Operational Changes/Notes:

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

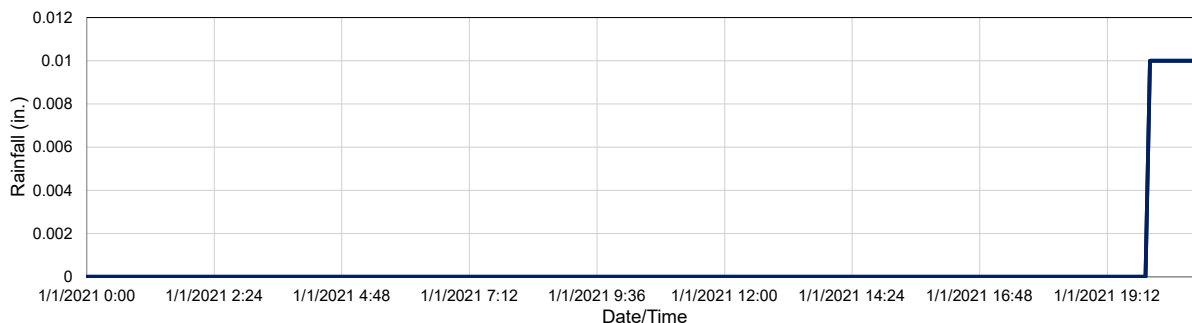
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	2/12/2021
Event Start Date/Time:	1/3/2021 1:25
Event End Date/Time:	1/3/2021 7:05

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

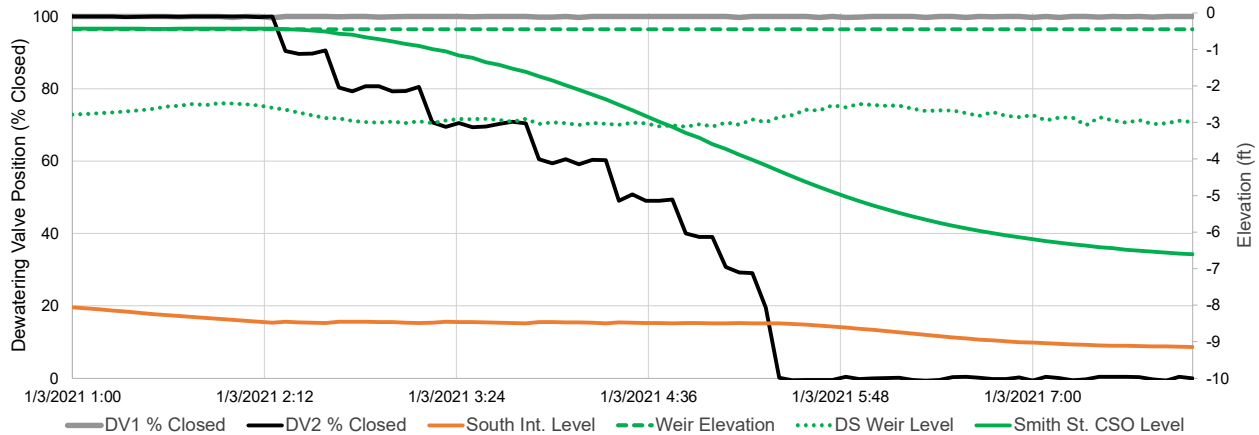
Time Lead Dewatering Valve Closed	1/3/2021 1:00
Time Lead Dewatering Valve Opened	1/3/2021 2:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.43 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,243,925 Gal.
Did seiche occur during wet weather?	No

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 or probable snow melt.

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

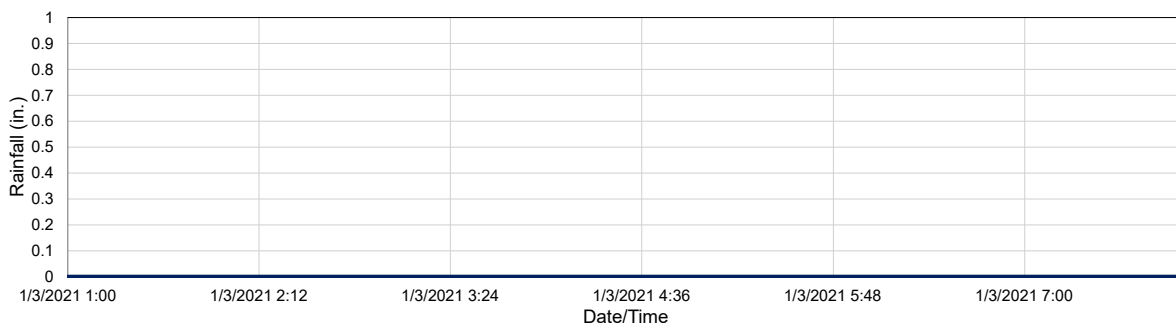
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	2/12/2021
Event Start Date/Time:	1/16/2021 22:05
Event End Date/Time:	1/17/2021 0:25

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

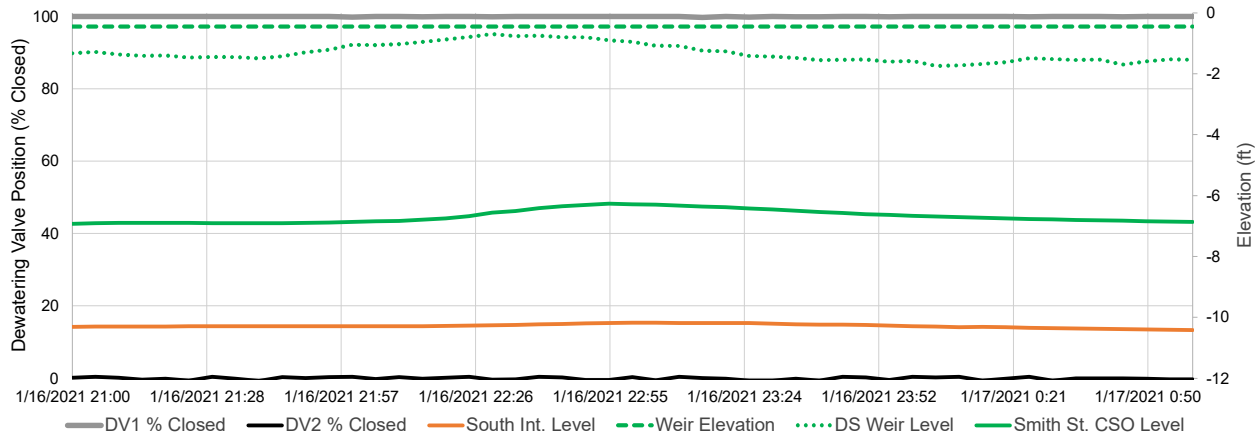
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	1/16/2021 21:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.27 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	174,562 Gal.
Did seiche occur during wet weather?	No

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

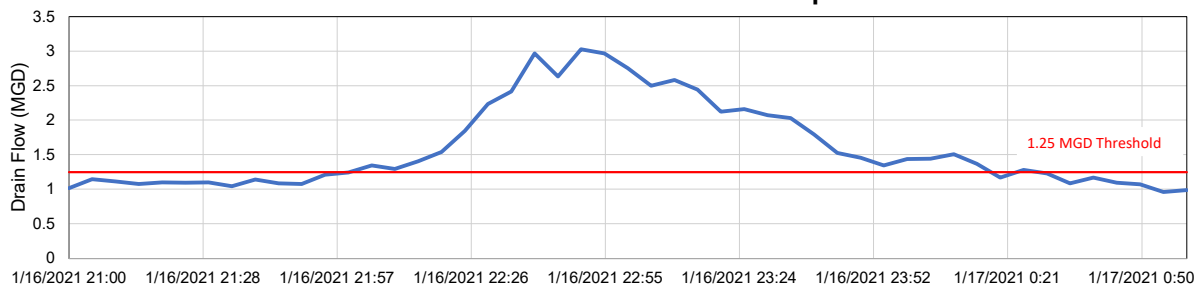
Recommended Operational Changes/Notes:

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

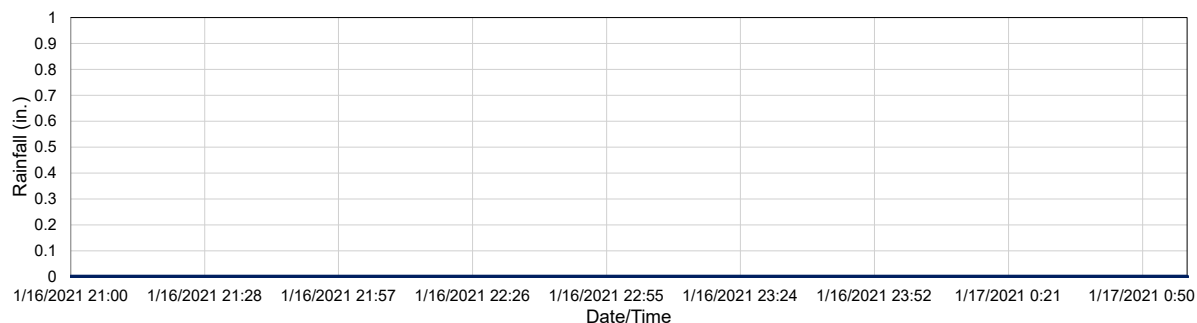
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	2/12/2021
Event Start Date/Time:	1/19/2021 11:50
Event End Date/Time:	1/19/2021 18:35

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.01 in.
Storm Event Duration:	9 hrs.
Storm Type:	Less than one year

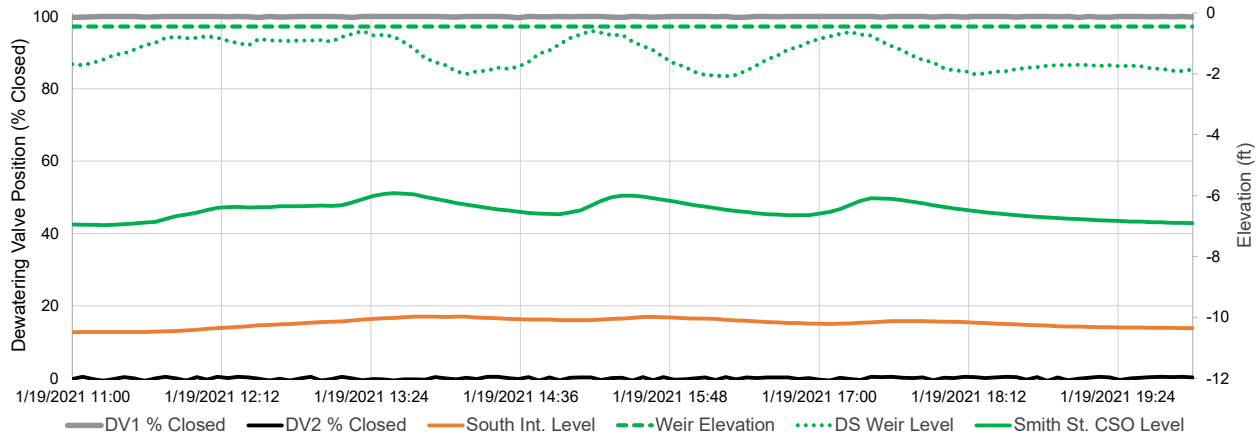
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	1/19/2021 11:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-5.92 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	423,539 Gal.
Did seiche occur during wet weather?	No

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

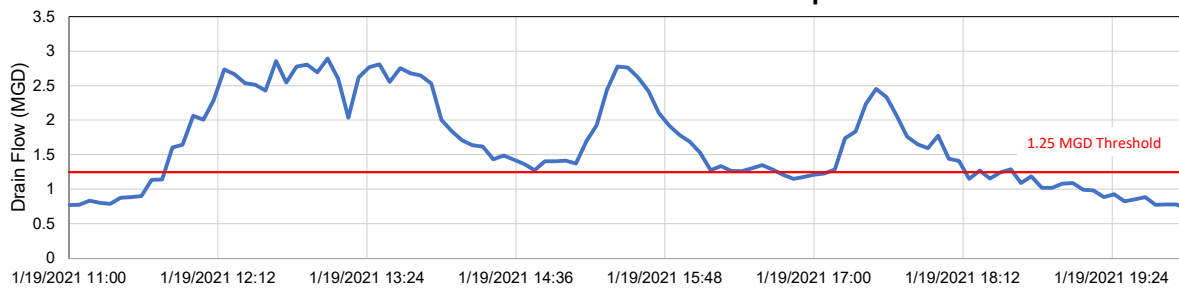
Recommended Operational Changes/Notes:

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

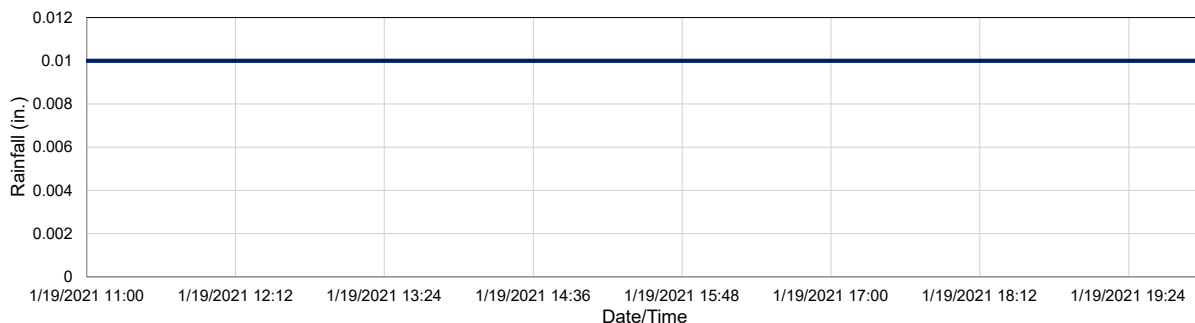
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	2/12/2021
Event Start Date/Time:	1/21/2021 7:05
Event End Date/Time:	1/21/2021 12:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	8 hrs.
Storm Type:	N/A

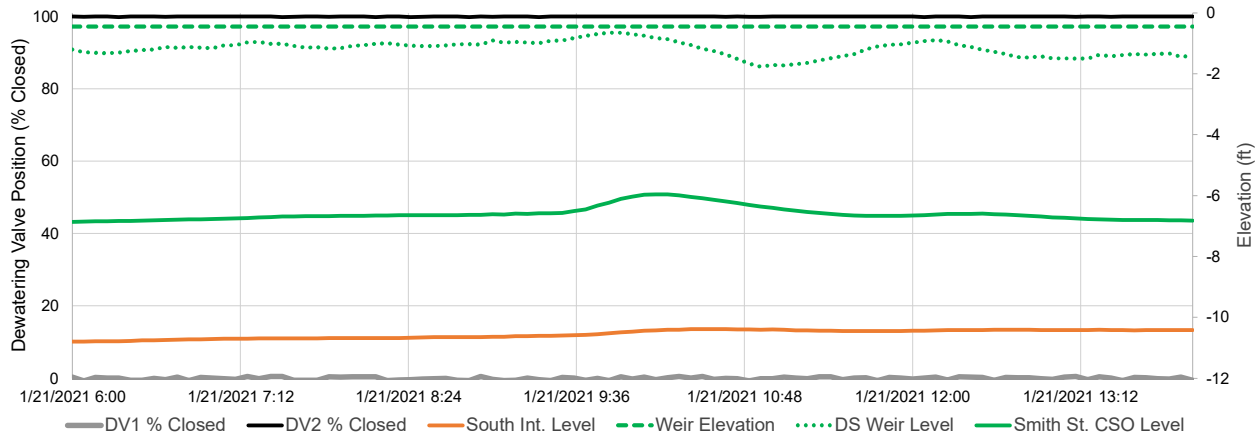
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	1/21/2021 6:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-5.96 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	238,981 Gal.
Did seiche occur during wet weather?	No

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

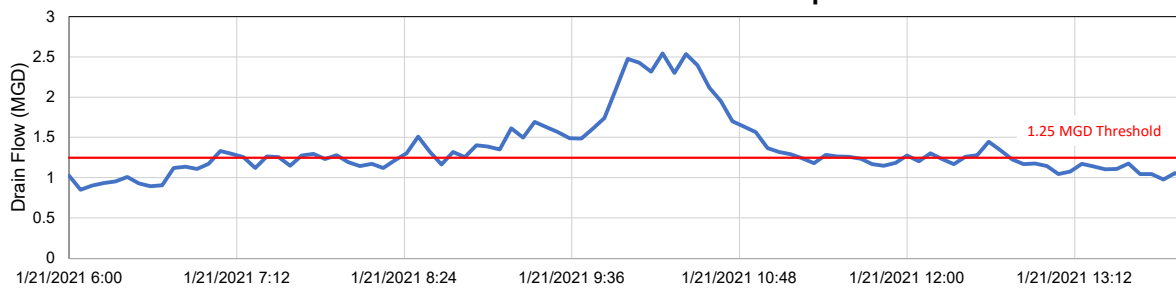
Recommended Operational Changes/Notes:

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

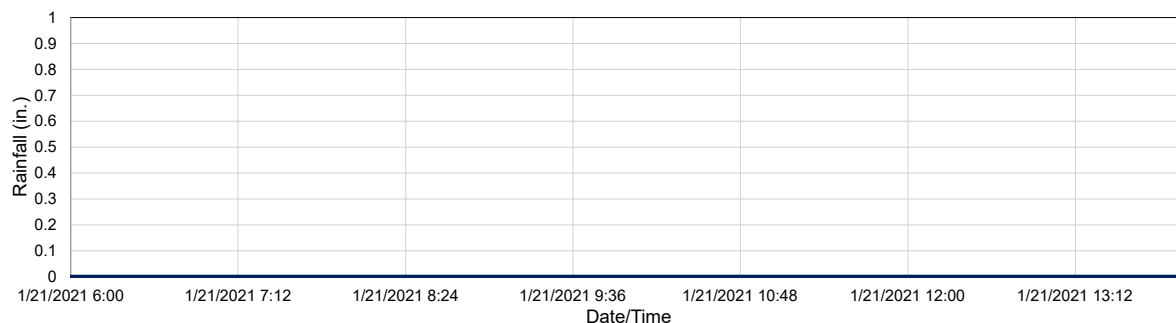
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



February 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

February 2021

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)
2/5/2021		12,092,455	Yes	1.25
2/22/2021		263,410	No	1.25
2/24/2021		2,299,334	No	1.25
2/27/2021		2,792,101	No	1.25
Total Volume Captured (gal)		17,447,300		

Site:	Smith RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/5/2021 7:45
Event End Date/Time:	2/6/2021 17:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	36 hrs.
Storm Type:	NA

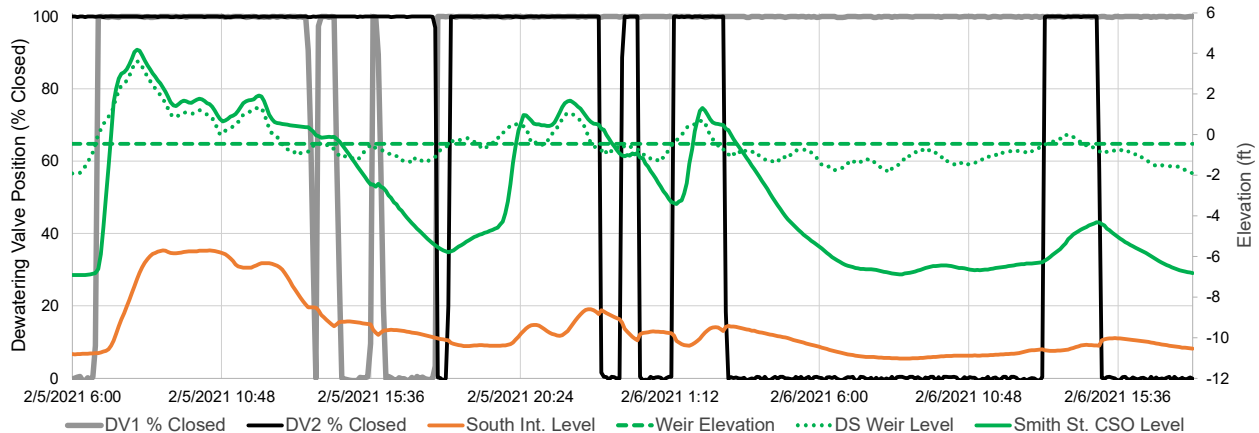
Time Lead Dewatering Valve Closed	2/5/2021 6:45
Time Lead Dewatering Valve Opened	2/6/2021 15:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	4.18 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	12,092,455 Gal.
Did seiche occur during wet weather?	Yes

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

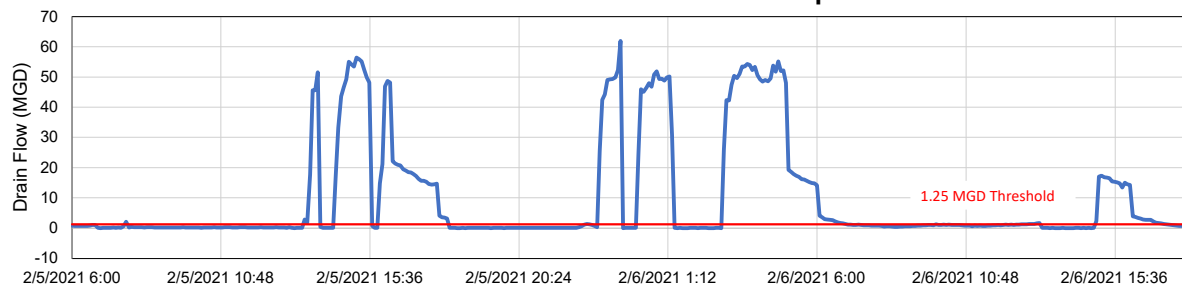
Recommended Operational Changes/Notes:

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 or probable snow melt.

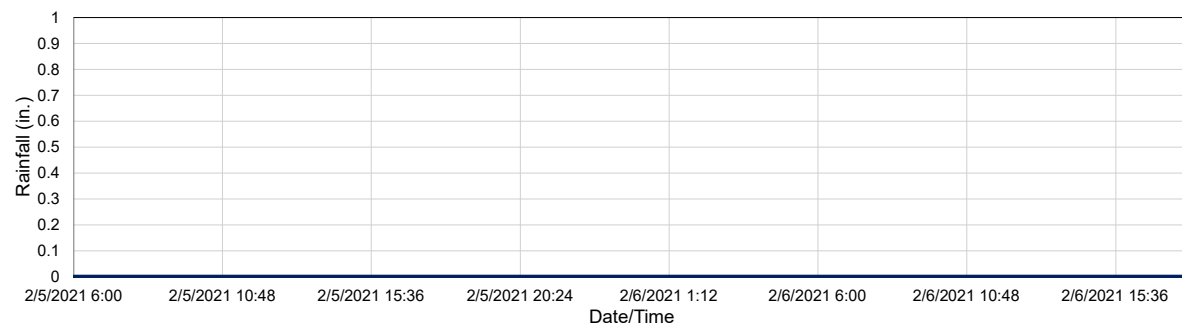
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/22/2021 15:25
Event End Date/Time:	2/22/2021 20:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	12 hrs.
Storm Type:	NA

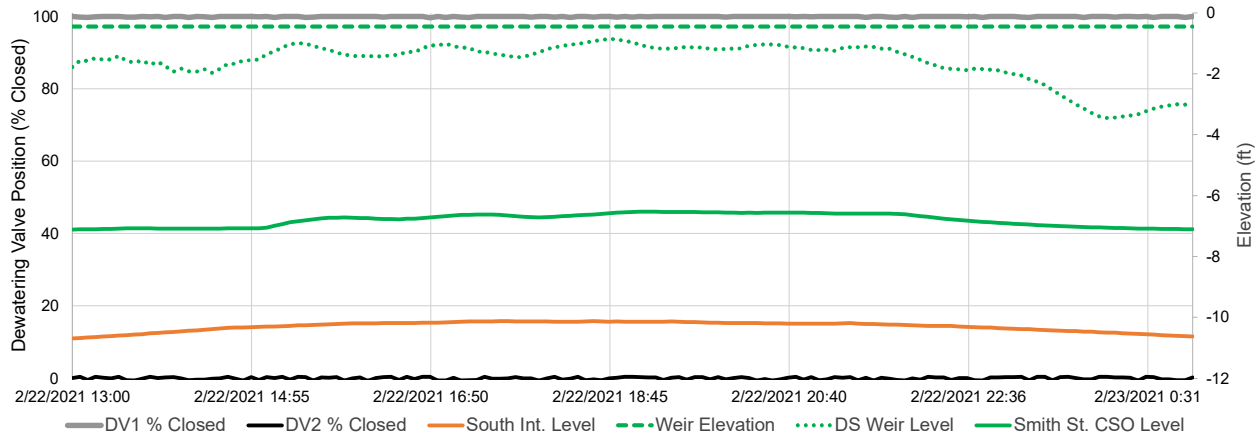
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	2/22/2021 13:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.53 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	263,410 Gal.
Did seiche occur during wet weather?	No

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

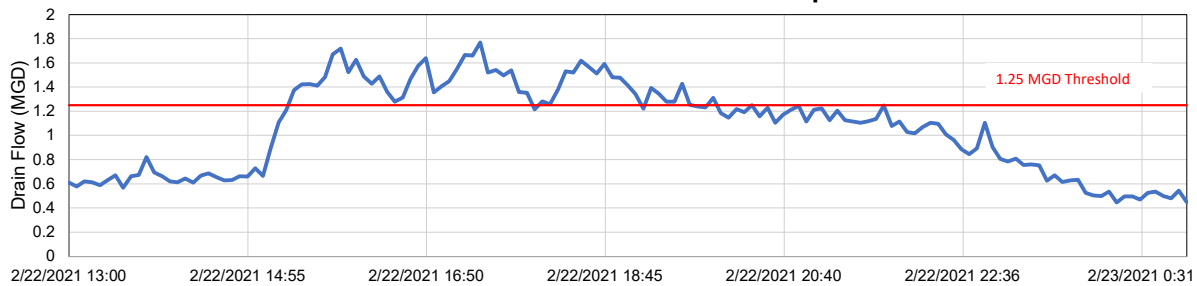
Recommended Operational Changes/Notes:

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

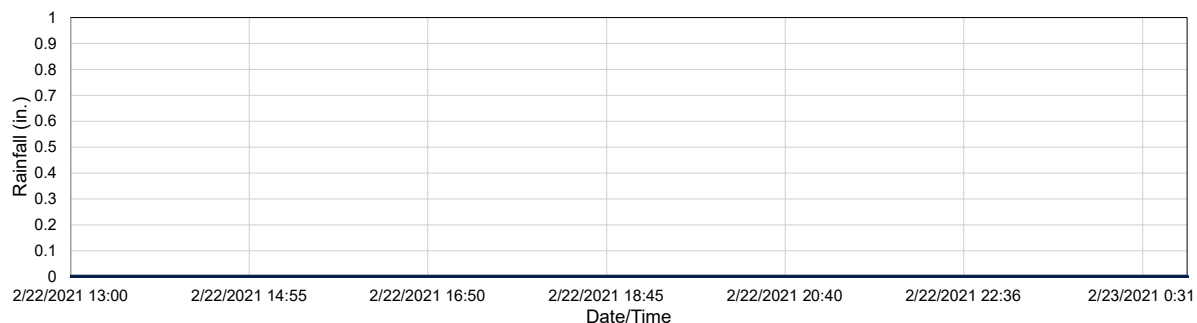
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/24/2021 13:50
Event End Date/Time:	2/25/2021 9:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	9 hrs.
Storm Type:	NA

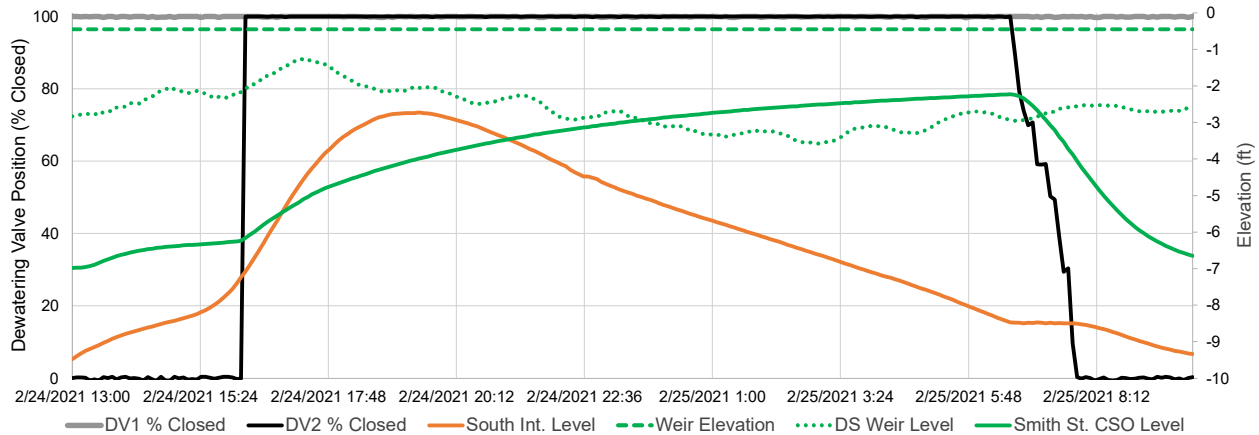
Time Lead Dewatering Valve Closed	2/24/2021 16:15
Time Lead Dewatering Valve Opened	2/25/2021 6:40
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-2.23 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,299,334 Gal.
Did seiche occur during wet weather?	No

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

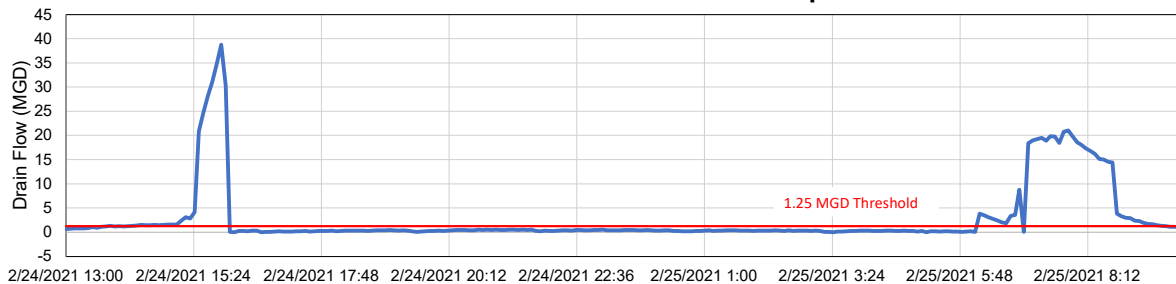
Recommended Operational Changes/Notes:

Rainfall data sourced from 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 or probable snow melt.

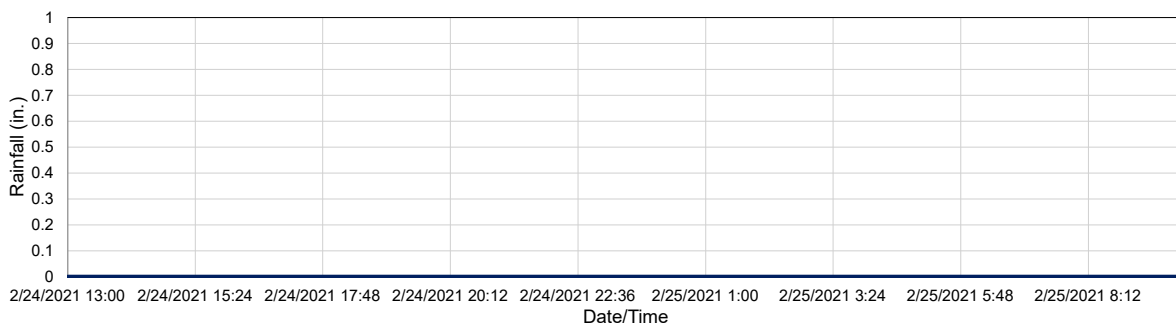
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	3/11/2021
Event Start Date/Time:	2/27/2021 10:00
Event End Date/Time:	2/28/2021 8:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	12 hrs.
Storm Type:	< 1 yr.

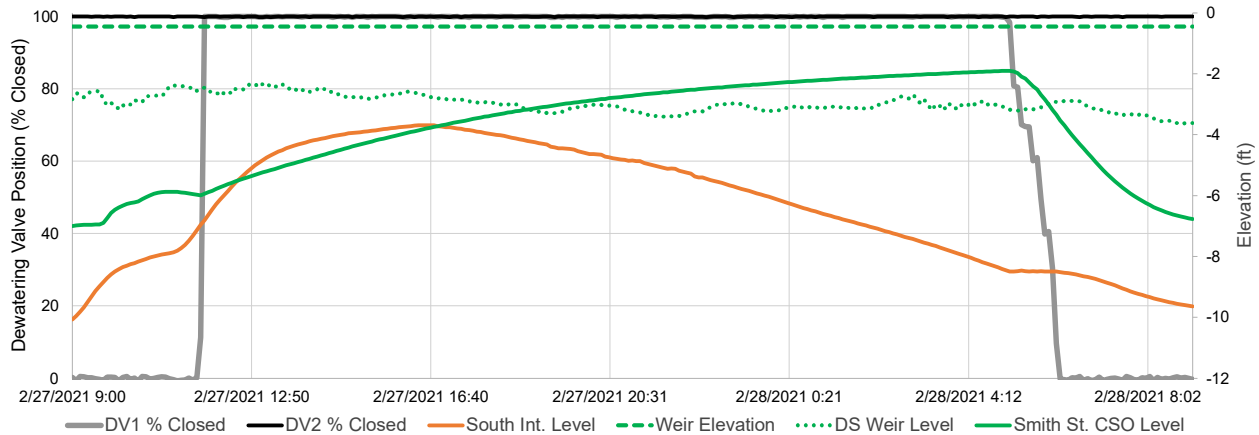
Time Lead Dewatering Valve Closed	2/27/2021 11:45
Time Lead Dewatering Valve Opened	2/28/2021 5:05
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-1.90 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,792,101 Gal.
Did seiche occur during wet weather?	No

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

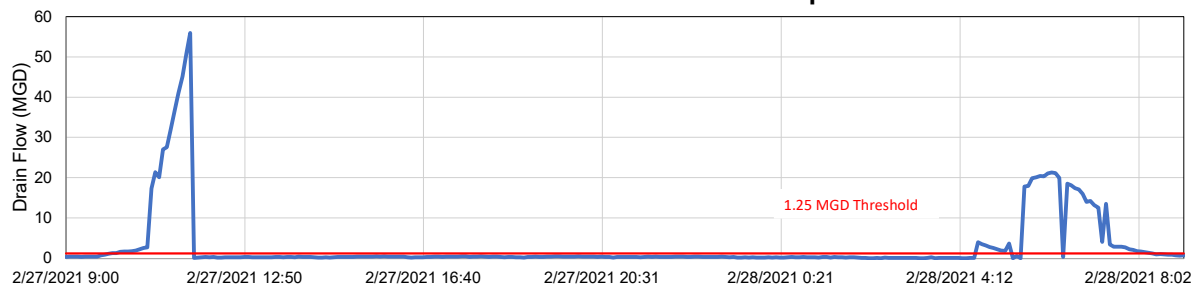
Recommended Operational Changes/Notes:

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

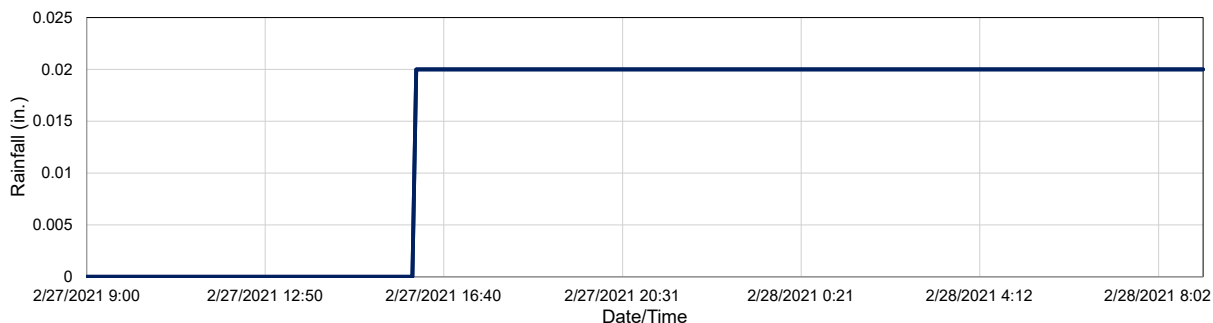
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



March 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

March 2021

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)	
3/1/2021	2,135,070	No	1.25
3/26/2021	5,458,807	Yes	1.25
3/28/2021	5,168,649	Yes	1.25
Total Volume Captured (gal)	12,762,526		

Site:	Smith RTC
Analysis Date:	4/8/2021
Event Start Date/Time:	3/1/2021 0:45
Event End Date/Time:	3/2/2021 4:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.02 in.
Storm Event Duration:	30 hrs.
Storm Type:	< 1 yr.

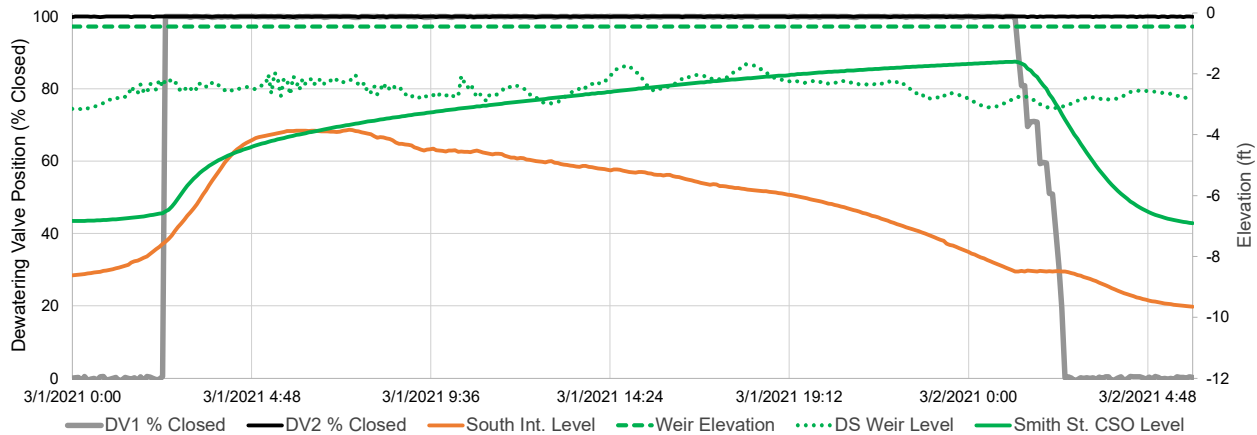
Time Lead Dewatering Valve Closed	3/1/2021 2:30
Time Lead Dewatering Valve Opened	3/2/2021 1:20
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-1.60 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,135,070 Gal.
Did seiche occur during wet weather?	No

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

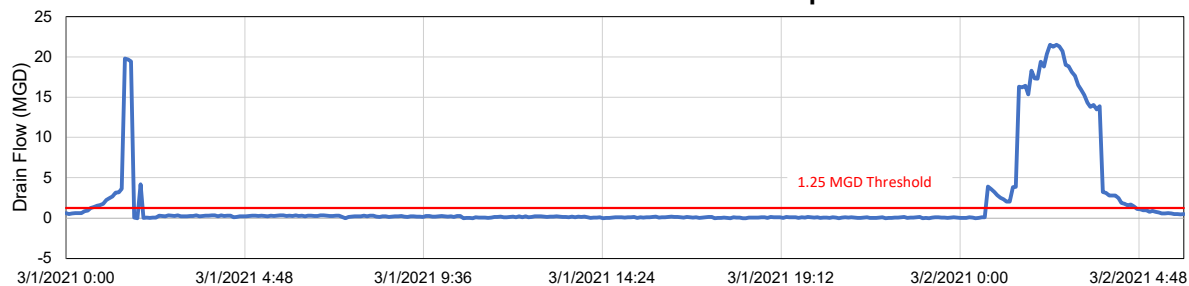
Recommended Operational Changes/Notes:

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

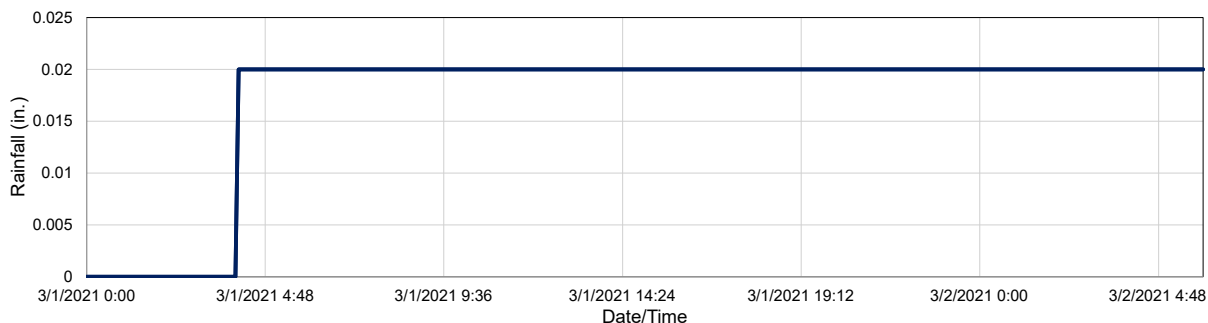
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	4/8/2021
Event Start Date/Time:	3/26/2021 3:25
Event End Date/Time:	3/27/2021 5:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.69 in.
Storm Event Duration:	27 hrs.
Storm Type:	< 1 yr.

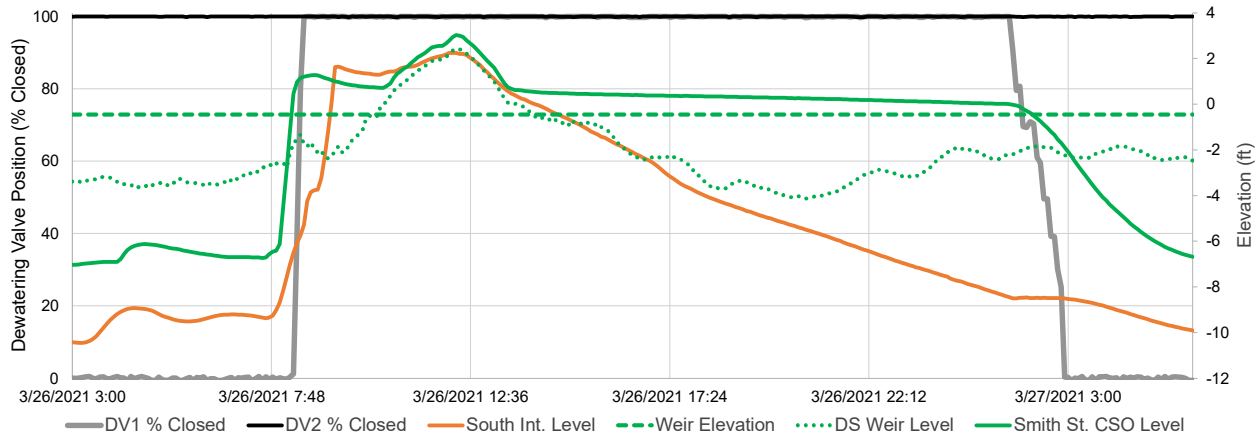
Time Lead Dewatering Valve Closed	3/26/2021 8:20
Time Lead Dewatering Valve Opened	3/27/2021 1:40
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	3.02 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,458,807 Gal.
Did seiche occur during wet weather?	Yes

Recommended Operational Changes/Notes:

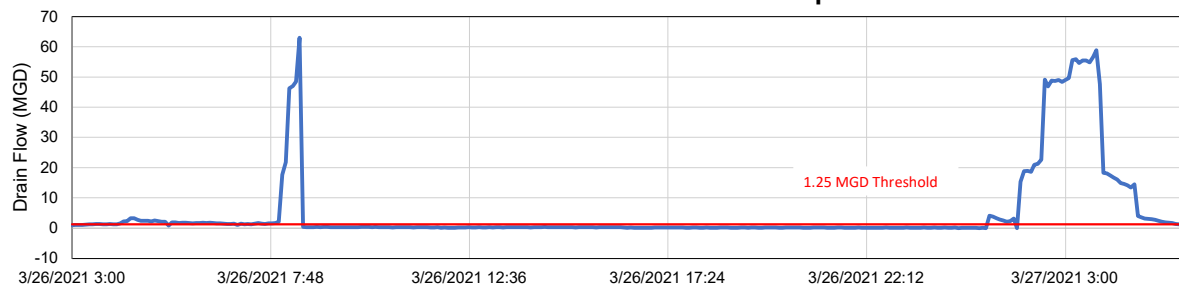
Rainfall data sourced from BSA's South Buffalo rain gauge.

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

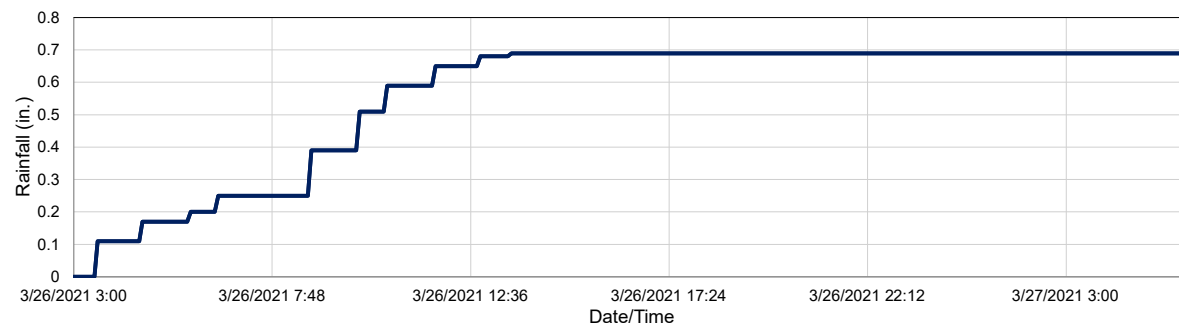
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	4/8/2021
Event Start Date/Time:	3/28/2021 13:25
Event End Date/Time:	3/29/2021 4:00

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.21 in.
Storm Event Duration:	27 hrs.
Storm Type:	< 1 yr.

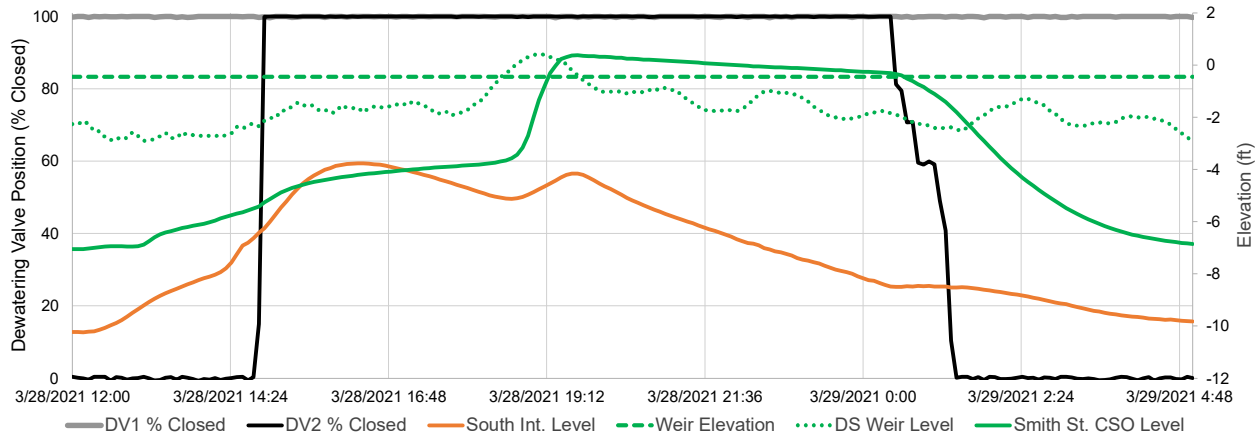
Time Lead Dewatering Valve Closed	3/28/2021 14:50
Time Lead Dewatering Valve Opened	3/29/2021 0:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.37 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,168,649 Gal.
Did seiche occur during wet weather?	Yes

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

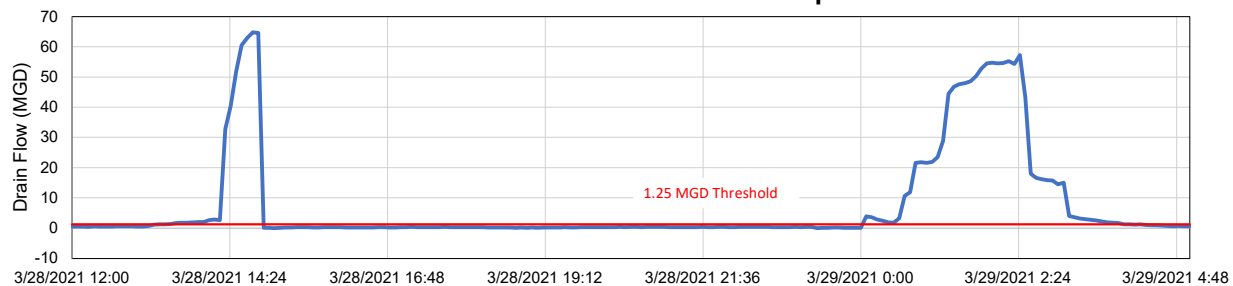
Recommended Operational Changes/Notes:

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

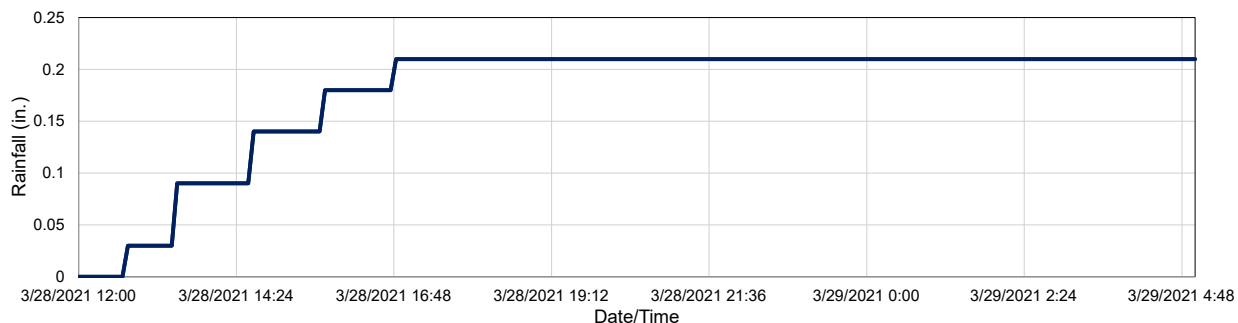
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



April 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

April 2021

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)
4/8/2021	5,731,916	No	1.25
4/20/2021	32,678	No	1.25
4/28/2021	2,871,845	No	1.25
Total Volume Captured (gal)	8,636,439		

Site:	Smith RTC
Analysis Date:	5/6/2021
Event Start Date/Time:	4/8/2021 23:30
Event End Date/Time:	4/12/2021 7:55

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.87 in.
Storm Event Duration:	83 hrs.
Storm Type:	< 1 yr.

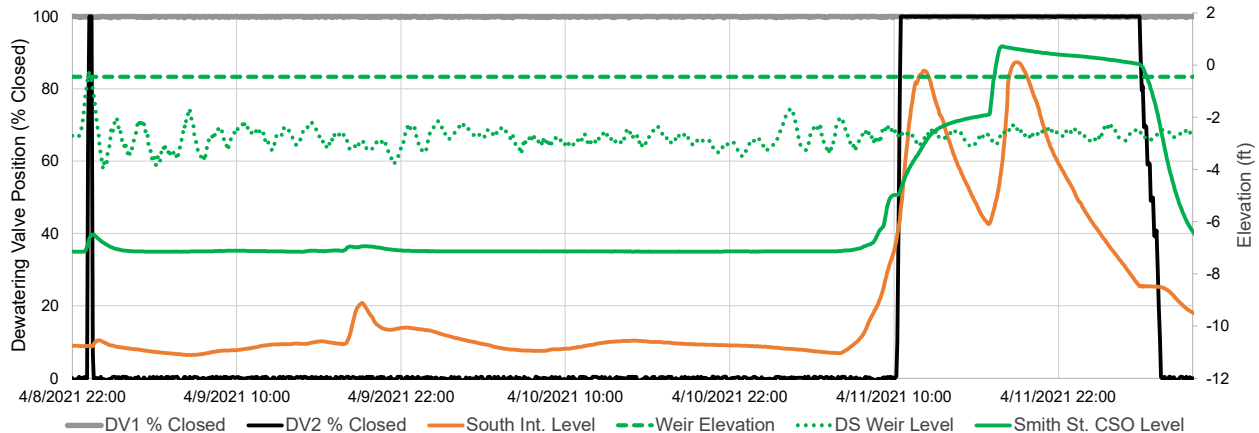
Time Lead Dewatering Valve Closed	4/8/2021 23:10
Time Lead Dewatering Valve Opened	4/12/2021 4:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.72 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,731,916 Gal.
Did seiche occur during wet weather?	No

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

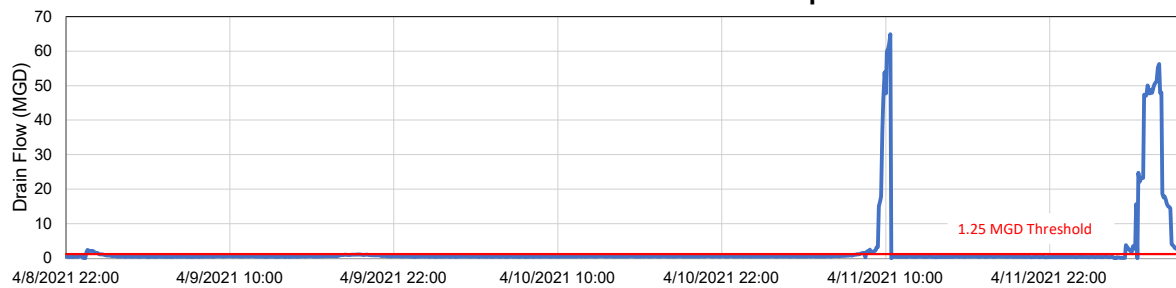
Recommended Operational Changes/Notes:

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

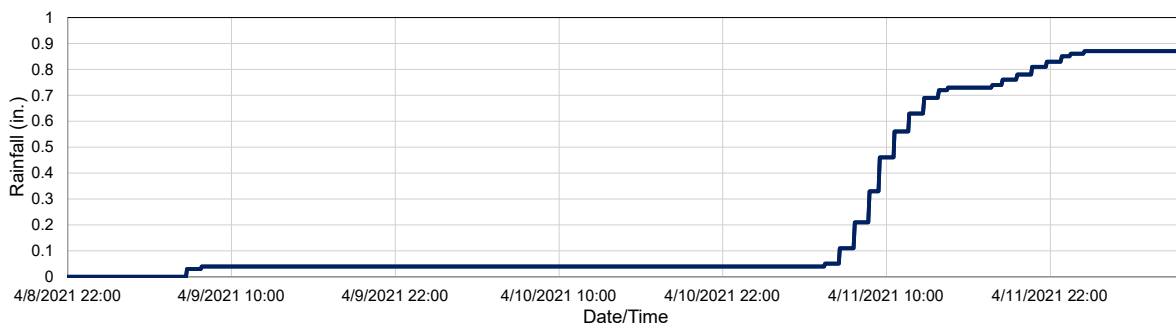
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	5/6/2021
Event Start Date/Time:	4/20/2021 5:25
Event End Date/Time:	4/20/2021 6:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.09 in.
Storm Event Duration:	21 hrs.
Storm Type:	< 1 yr.

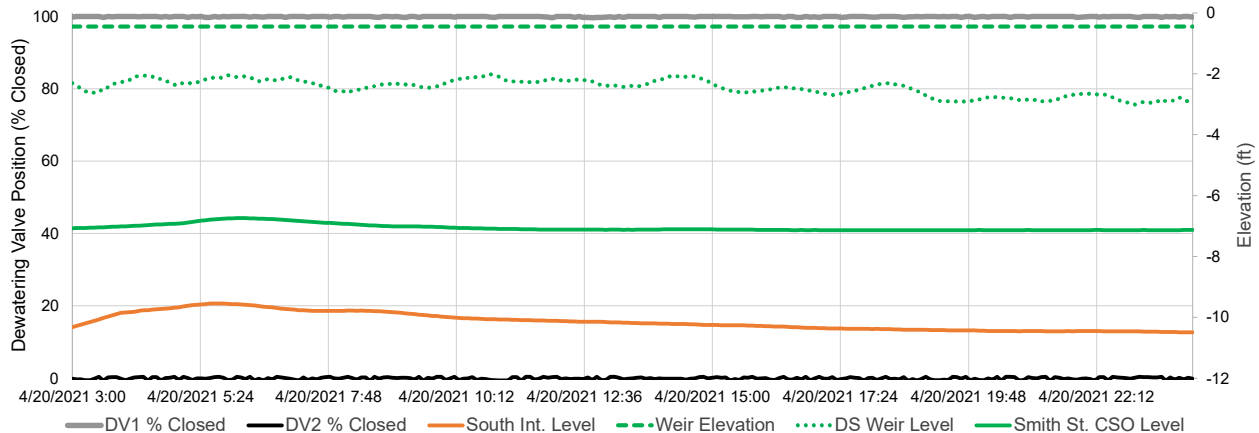
Time Lead Dewatering Valve Closed	NA
Time Lead Dewatering Valve Opened	4/20/2021 3:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.74 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	32,678 Gal.
Did seiche occur during wet weather?	No

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

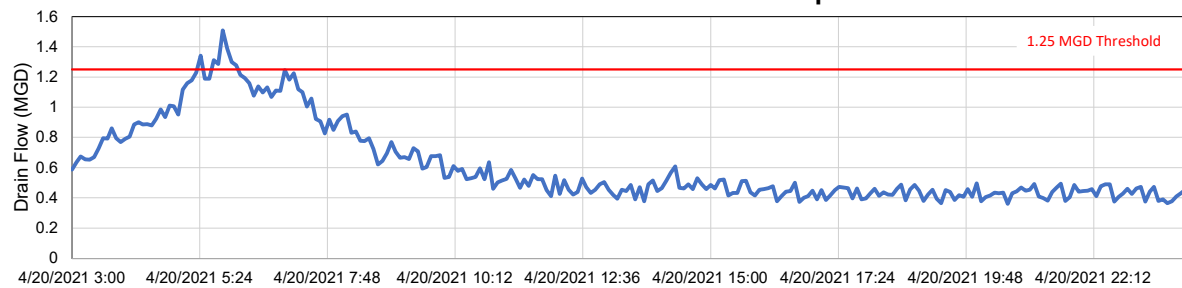
Recommended Operational Changes/Notes:

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

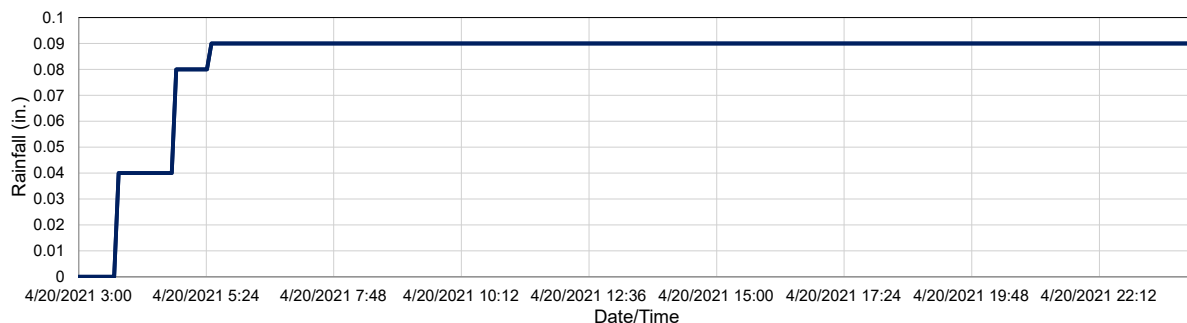
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



April 28, 2021

3

Site:	Smith RTC
Analysis Date:	5/6/2021
Event Start Date/Time:	4/28/2021 15:10
Event End Date/Time:	4/30/2021 14:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.68 in.
Storm Event Duration:	50 hrs.
Storm Type:	< 1 yr.

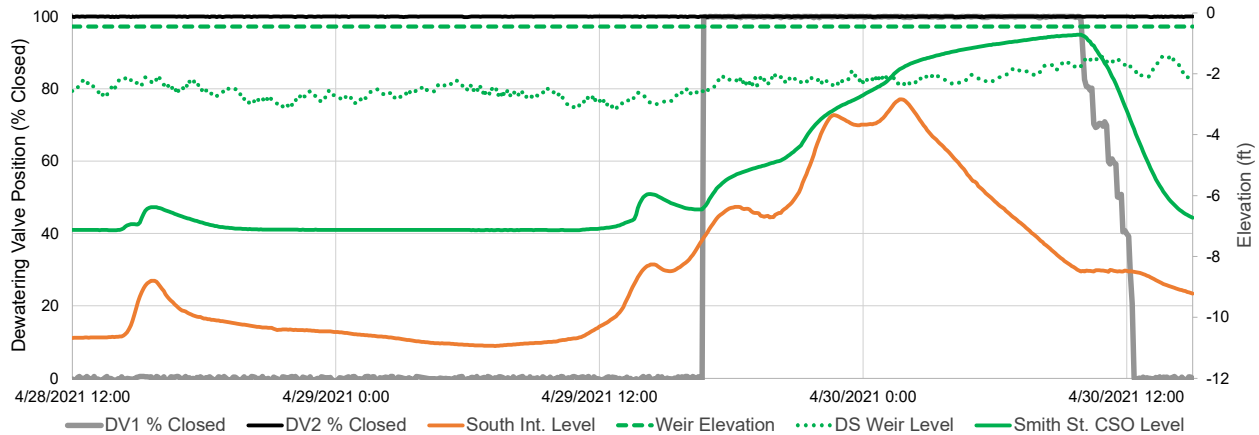
Time Lead Dewatering Valve Closed	4/29/2021 16:45
Time Lead Dewatering Valve Opened	4/30/2021 10:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.72 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,871,845 Gal.
Did seiche occur during wet weather?	No

Recommended Operational Changes/Notes:

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

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

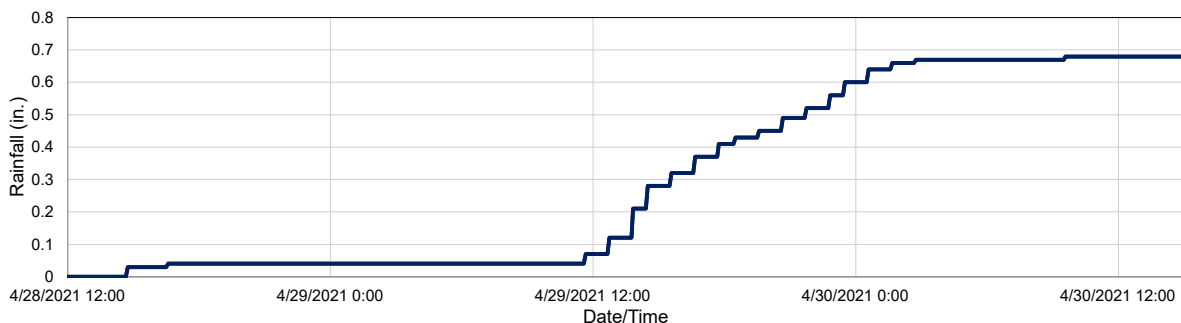
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



May 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

May 2021

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)
5/7/2021	1,949,264	No	1.25
5/28/2021	2,615,785	No	1.25
Total Volume Captured (gal)	4,565,049		

Site:	Smith RTC
Analysis Date:	6/8/2021
Event Start Date/Time:	5/7/2021 2:55
Event End Date/Time:	5/7/2021 5:05

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.46 in.
Storm Event Duration:	4 hrs.
Storm Type:	< 1 yr.

Time Lead Dewatering Valve Closed	5/7/2021 5:05
Time Lead Dewatering Valve Opened	5/7/2021 2:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-4.36 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	1,949,264 Gal.
Did seiche occur during wet weather?	No

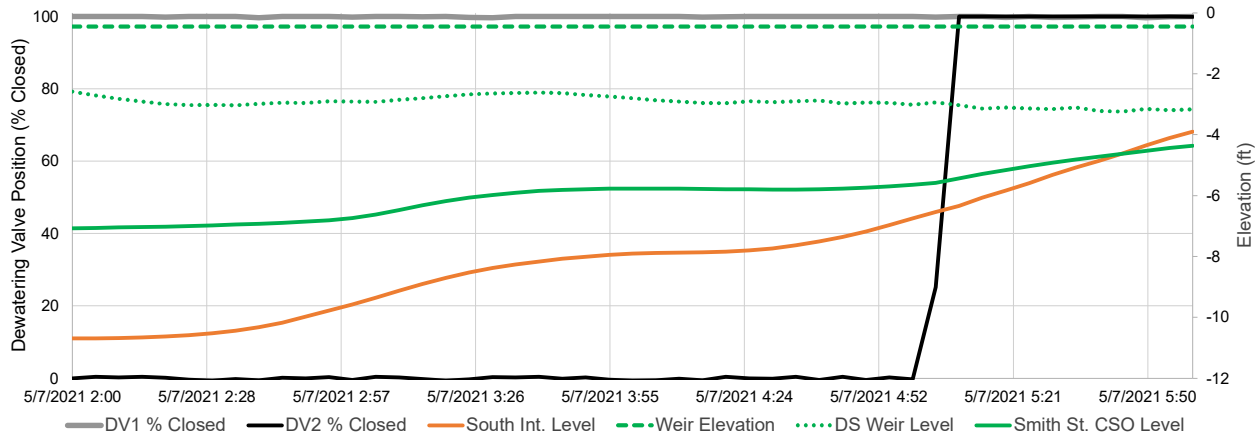
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

Recommended Operational Changes/Notes:

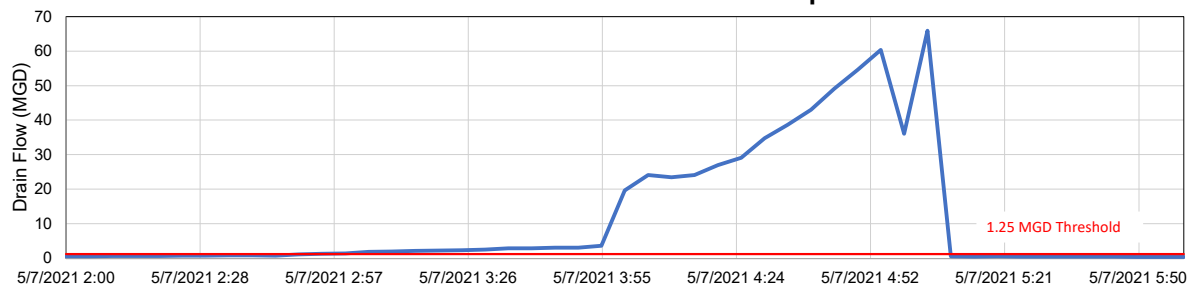
Rainfall data sourced from BSA's South Buffalo rain gauge.

The drain flow spikes to 32,766 MGD from 4.05 am to 5.35 am on May 8. The drain flow right before and right after this time frame is less than 1.25 MGD. So, on removing these data points, we don't have an activation event occurrence on May 8.

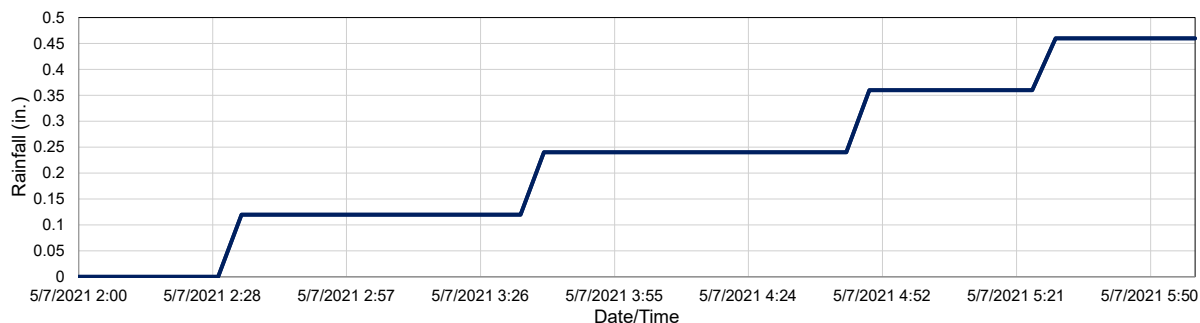
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	6/8/2021
Event Start Date/Time:	5/28/2021 14:50
Event End Date/Time:	5/29/2021 2:20

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.42 in.
Storm Event Duration:	12 hrs.
Storm Type:	< 1 yr.

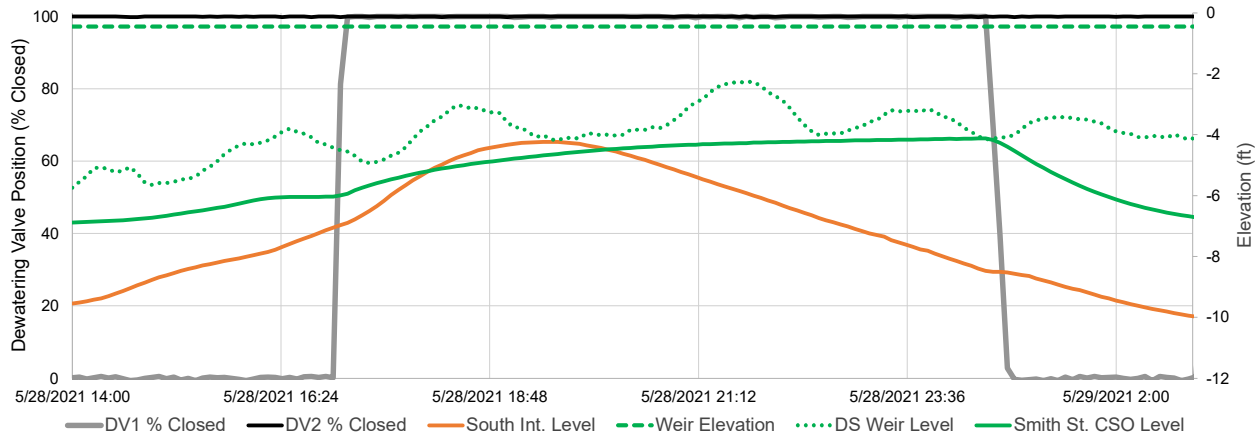
Time Lead Dewatering Valve Closed	5/28/2021 17:05
Time Lead Dewatering Valve Opened	5/29/2021 0:35
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-4.12 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,615,785 Gal.
Did seiche occur during wet weather?	No

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

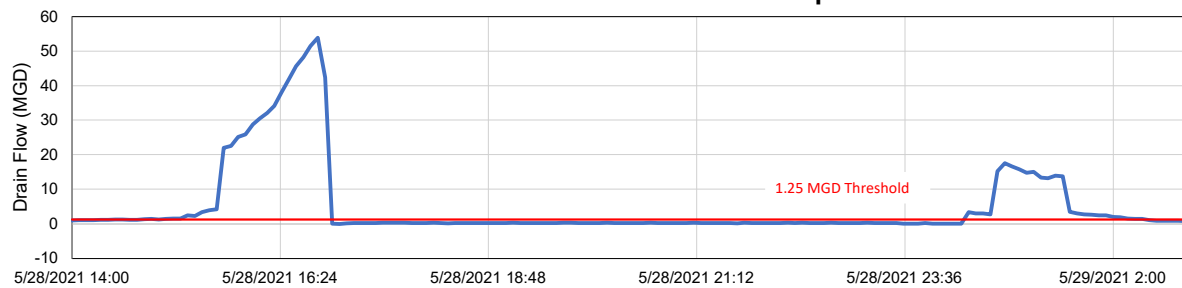
Recommended Operational Changes/Notes:

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

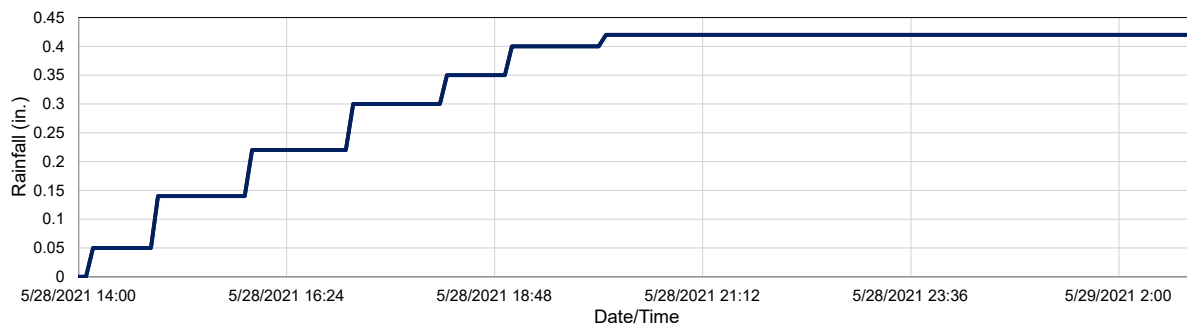
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



June 2021 Smith St. RTC KPI Report

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Smith St. RTC Monthly Performance Report

June 2021

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)
6/3/2021	1,089,434	No	1.25
6/8/2021	942,662	No	1.25
6/14/2021	99,203	No	1.25
6/21/2021	4,261,415	No	1.25
Total Volume Captured (gal)	6,392,714		

Site:	Smith RTC
Analysis Date:	7/11/2021
Event Start Date/Time:	6/3/2021 5:15
Event End Date/Time:	6/3/2021 15:15

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	11 hrs.
Storm Type:	< 1 yr.

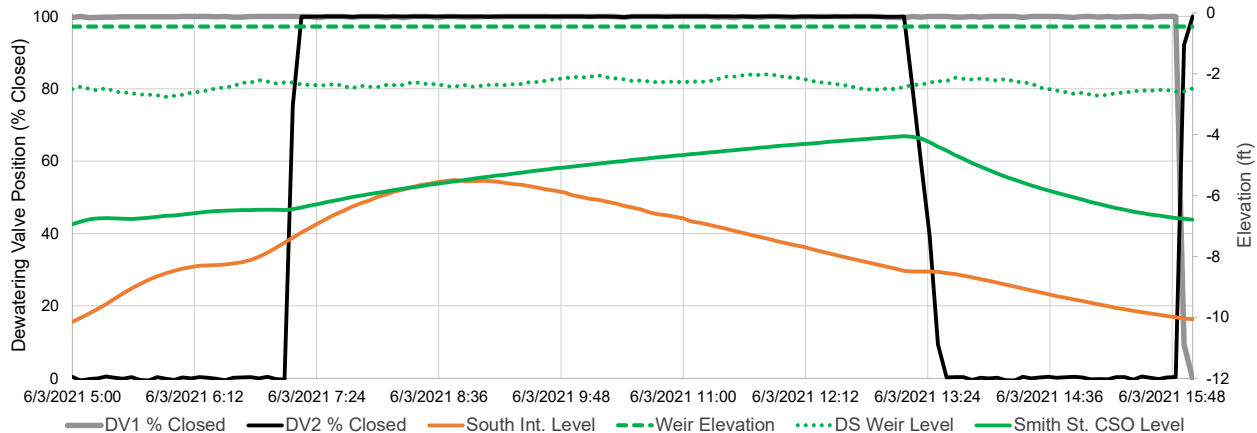
Time Lead Dewatering Valve Closed	6/3/2021 7:10
Time Lead Dewatering Valve Opened	6/3/2021 15:55
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-4.05 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	1,089,434 Gal.
Did seiche occur during wet weather?	No

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

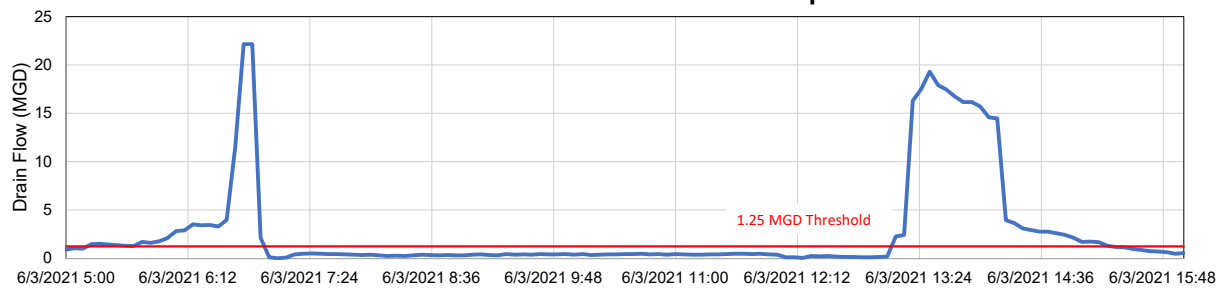
Recommended Operational Changes/Notes:

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

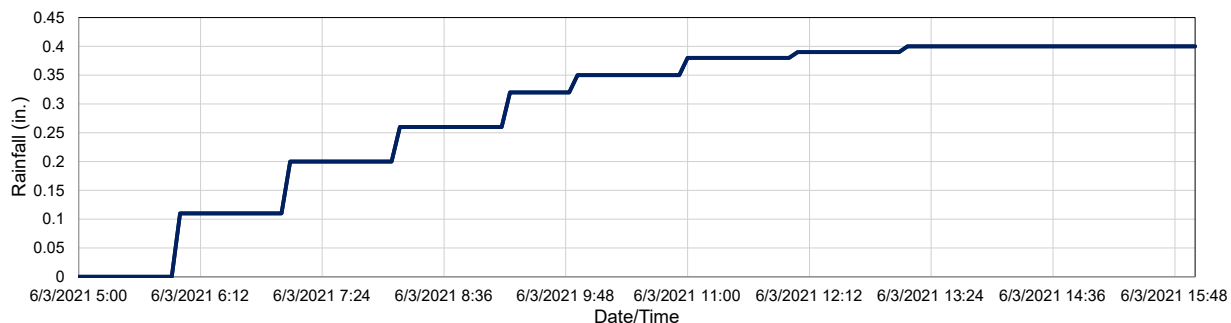
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	7/11/2021
Event Start Date/Time:	6/8/2021 4:15
Event End Date/Time:	6/8/2021 14:40

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.41 in.
Storm Event Duration:	30 hrs.
Storm Type:	< 1 yr.

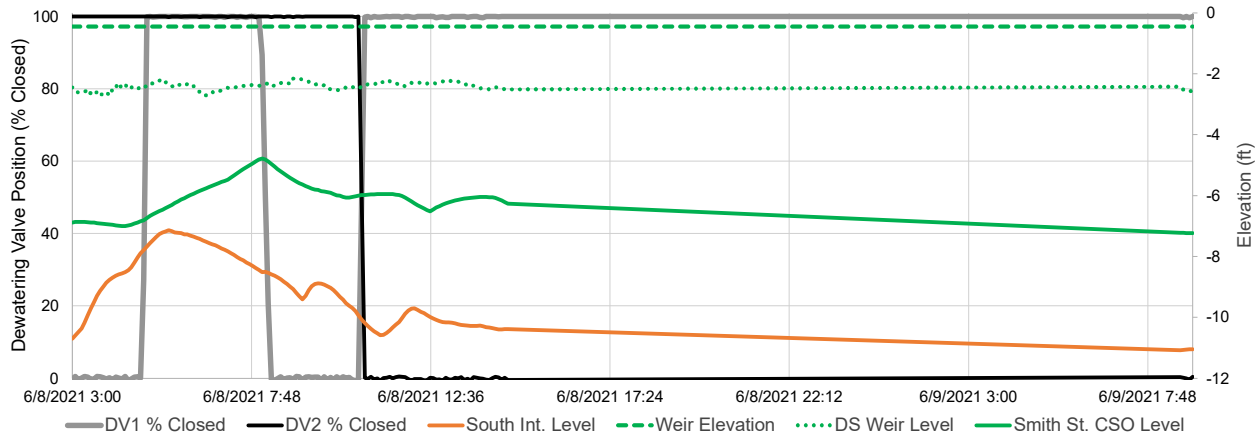
Time Lead Dewatering Valve Closed	6/8/2021 4:55
Time Lead Dewatering Valve Opened	6/8/2021 8:05
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-4.78 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	942,662 Gal.
Did seiche occur during wet weather?	No

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

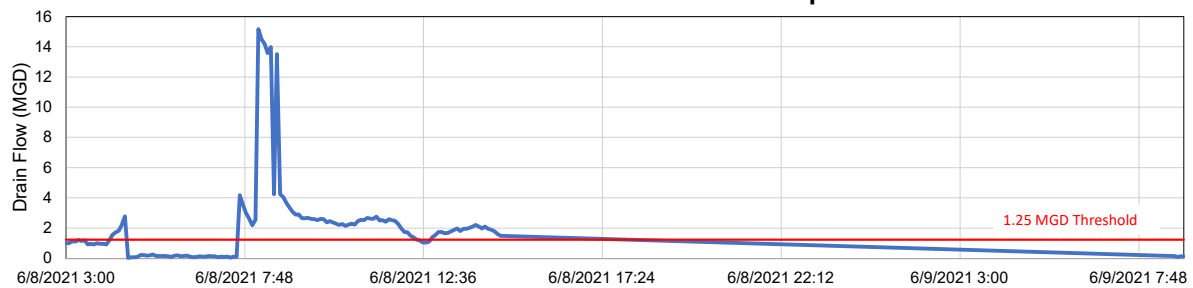
Recommended Operational Changes/Notes:

Rainfall data sourced from BSA's South Buffalo rain gauge.
Communication was lost between June 8, 2.40 pm to June 9, 8.40 am.

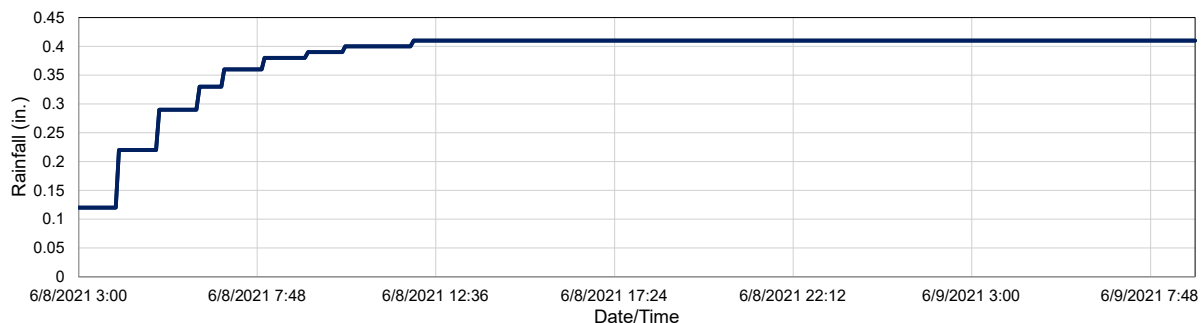
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	7/11/2021
Event Start Date/Time:	6/14/2021 19:50
Event End Date/Time:	6/17/2021 1:25

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	55 hrs.
Storm Type:	N/A

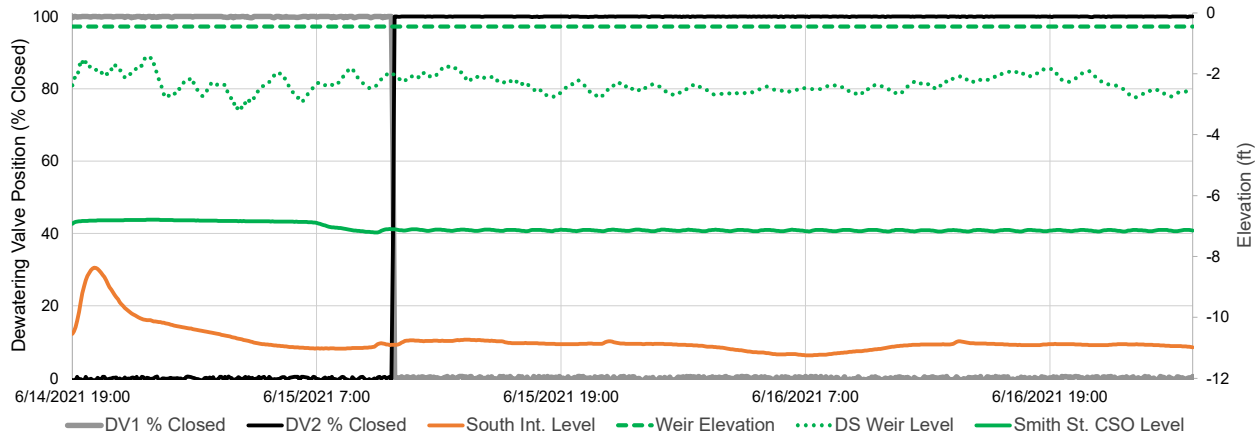
Time Lead Dewatering Valve Closed	6/15/2021 10:45
Time Lead Dewatering Valve Opened	6/15/2021 10:45
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-6.79 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	99,203 Gal.
Did seiche occur during wet weather?	No

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

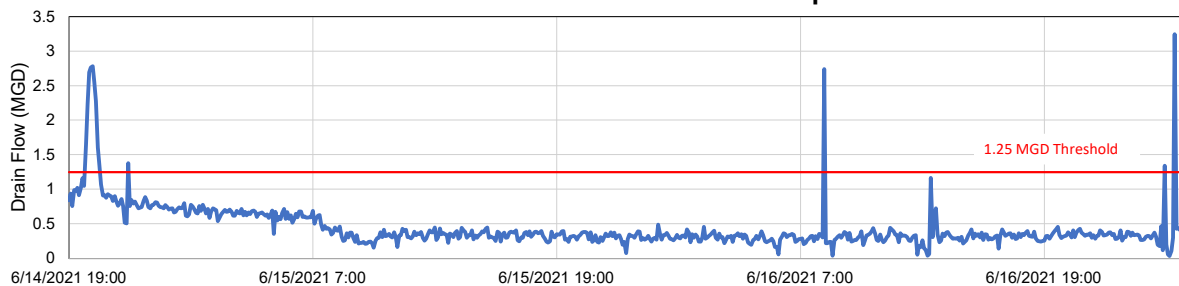
Recommended Operational Changes/Notes:

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

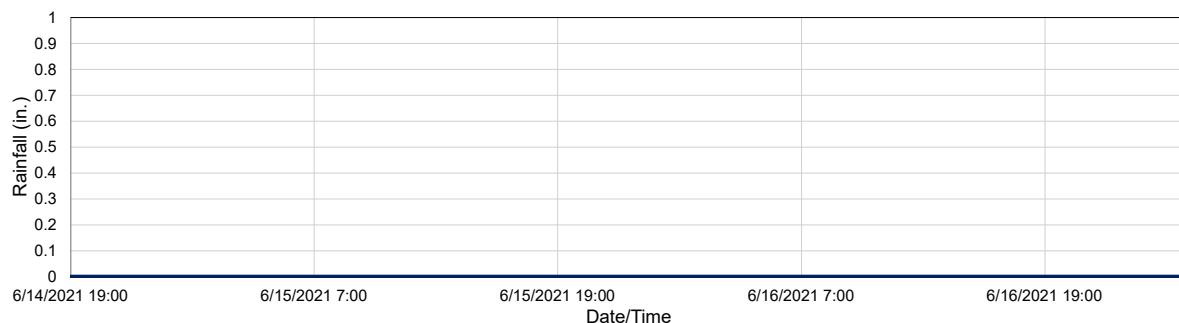
RTC Structure Performance



Drain Flow to South Interceptor



Rainfall Accumulation



Site:	Smith RTC
Analysis Date:	7/11/2021
Event Start Date/Time:	6/21/2021 5:05
Event End Date/Time:	6/21/2021 16:45

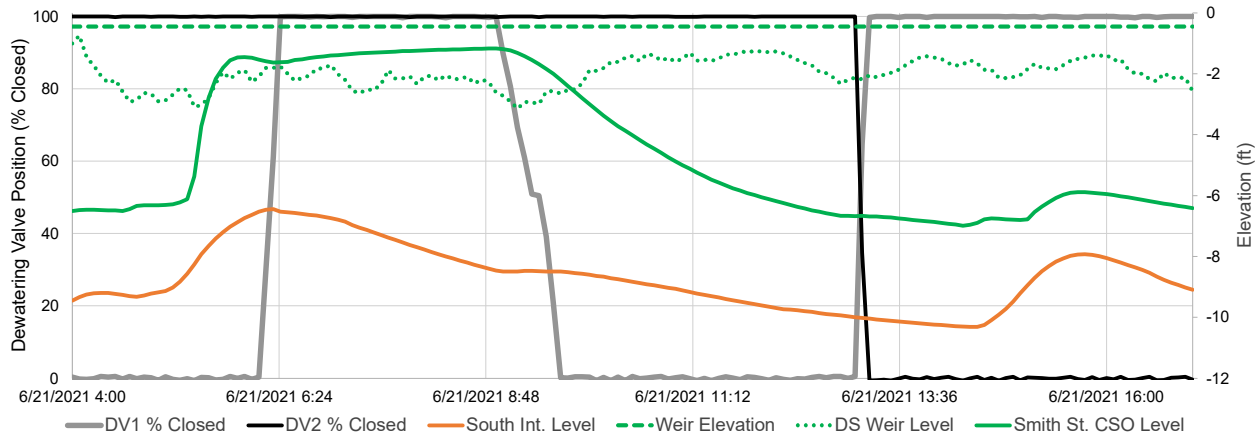
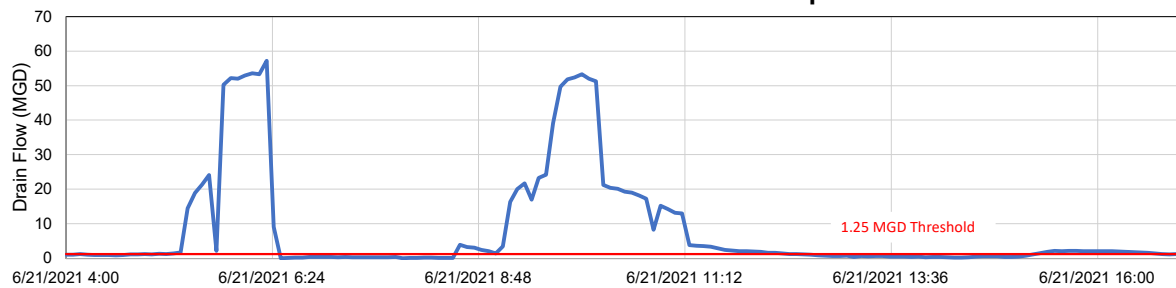
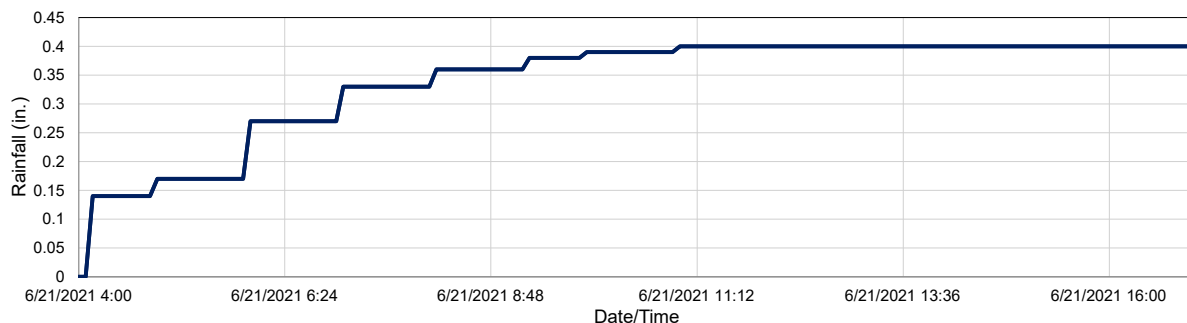
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.4 in.
Storm Event Duration:	13 hrs.
Storm Type:	< 1 yr.

Time Lead Dewatering Valve Closed	6/21/2021 6:15
Time Lead Dewatering Valve Opened	6/21/2021 9:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-1.17 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	4,261,415 Gal.
Did seiche occur during wet weather?	No

Recommended Operational Changes/Notes:

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

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

RTC Structure Performance**Drain Flow to South Interceptor****Rainfall Accumulation**



Willert Park Green Infrastructure

Post-Construction Monitoring

Buffalo Sewer Authority

August 30, 2021

B U F F A L O
SEWER AUTHORITY

→ **The Power of Commitment**

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Project manager	Paul McGarvey
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Document title	Willert Park Green Infrastructure Post-Construction Monitoring
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Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
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S4	01	Edward Bradfuhrer			Paul McGarvey		8/30/21

Executive summary

The Willert Park Green Infrastructure project was a neighborhood improvement project that was implemented by the Buffalo Sewer Authority (BSA) in 2019. The total project area is just over 25 acres and approximately 13 acres of that was converted for stormwater management. Improvements include installation of porous asphalt and green infrastructure strategies to reduce runoff and provide stormwater treatment. The primary green infrastructure strategy is located in the road median, which was widened from 15 feet to 38 feet. Plantings include new trees and bioretention facilities, such as a dry swale that is intended to capture stormwater so that it does not enter the sewer. The remaining improvement sites are at the Pratt Willert Community Center and the JFK Community Center. Impervious areas at these sites were removed and rain gardens were installed. These facilities are intended to capture runoff while also improving aesthetics of the site.

A post-construction analysis of the project was performed to determine the effect that the improvements had on flows and overflows in the combined sewer system. This included a statistical analysis on flows and rain derived inflow and infiltration (RDII) volumes in the sewershed, comparisons of peak flows and inflow volumes against a control basin, and a model recalibration to measure data in the study area. The data suggest that the project measurably reduced inflow volumes, especially from higher volume rain events. The reduced inflow volumes led to reduced overflow volumes at the downstream sewer patrol points (SPPs) and a reduction in overflow activations at SPP 281, as predicted by the sewer model. Based on the findings of this project, it is anticipated that well planned installation of additional green infrastructure projects within the City of Buffalo would be beneficial to the overall sewer system capture during rain events.

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1. Introduction and Background

The Willert Park Green Infrastructure project was an award-winning neighborhood improvement project that was implemented by the Buffalo Sewer Authority (BSA) in 2017. The project includes improvements to control runoff from approximately 25 acres within the Willert Park neighborhood, primarily on Sycamore and William Streets and in Jesse Clipper Park. Improvements on these streets focused on reclaiming impervious area that was previously used for motorized vehicles. The primary improvement in the area was a roadway reconfiguration that reduced the width of William Street and converted a large portion of the road to grassed medians, bicycle lanes, and marked street parking. These improvements, called a “road diet,” enhance the quality of life for pedestrians by forcing drivers to operate their vehicles at slower speeds than what one would see on a wider road and reduce the number of lanes that pedestrians have to cross.

The road diet also allowed the BSA to reclaim impervious area for use in stormwater sequestration. The total project area is just over 25 acres and approximately 13 acres of that was converted for stormwater management. Improvements include installation of porous asphalt and strategies to reduce runoff and provide stormwater treatment. The primary green infrastructure strategy is located in the road median, which was widened from 15 feet to 38 feet. Plantings include new trees and bioretention facilities, such as a dry swale that is intended to capture stormwater so that it does not enter the sewer. The remaining improvement sites are at the Pratt Willert Community Center and the JFK Community Center. Impervious areas at these sites were removed and rain gardens were installed. These facilities are intended to capture runoff while also improving aesthetics of the site.

The New York State Department of Environmental Conservation (NYSDEC) required that BSA perform post-construction monitoring for a period of two years following construction of the improvements. This program used flowmeters that were installed in sewers located downstream of the improvements. The data were compared to pre-construction data to estimate the benefit that improvements in Willert Park had on peak flows, inflow volumes, and overflow activations in the sewer system.

1.1 Intended Impact on the Sewer System

The theory behind green infrastructure is that installation of plants, hydraulically conductive soil, pervious surfaces, or stormwater harvesting will decrease the volume and rate of runoff to a discharge point. Ideally, this would mitigate changes to runoff caused by urbanization, where increased impervious area caused by installation of roads, buildings and sidewalks reduces the time of concentration and increases peak flows to a discharge point. This effect is illustrated using a hypothetical stream discharge shown on Figure 1, where the shorter lag time in the urban stream (yellow) has a higher peak discharge compared to a stream in an undeveloped area (green) for an equal volume of runoff.

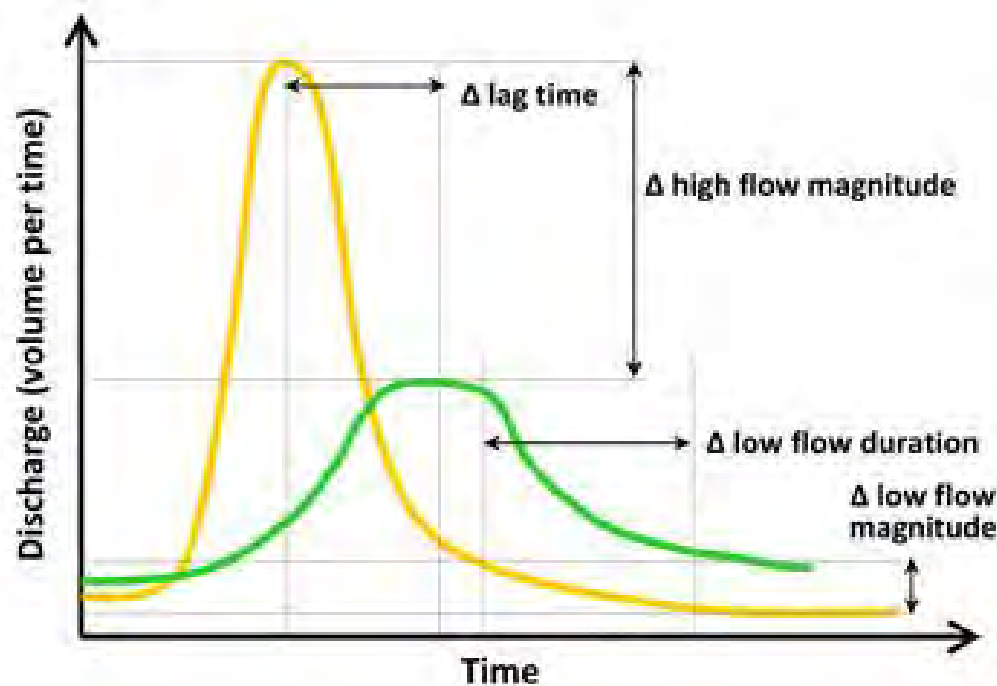


Figure 1 Hypothetical Stream Discharge Hydrographs¹

Effective green infrastructure requires permeable soils and active vegetation to sequester rainfall so that it does not enter the combined sewer system. The benefits to the sewer system are anticipated to be optimized during seasons where vegetation is active and the soil is not frozen. This usually occurs in mid to late spring through early fall. Active vegetation should capture sediment and reduce the runoff rate. Runoff on frozen soils in the colder months would likely perform similarly to impervious areas, such as concrete, because soil pores would already be filled with water and there would be little vegetation to slow down runoff. However, the effect from stormwater detention would still exist in drainage swales and stormwater holding infrastructure. If the treatment was effective, peak flows in the flow data following installation of green infrastructure would decrease along with wet weather inflow volumes during comparable rain events.

2. Analysis Methodology

The goal of this analysis was to determine if installation of green infrastructure in Willert Park has a measurable effect on flows, volumes, and overflows into receiving waterbodies. This analysis required comparing data that were collected before the treatment with data that were collected after construction was complete. Pre-construction data was collected during the period of September 2016 through August 2017. Construction of the Green Infrastructure project was complete by May 2018. Post-construction monitoring started in May 2019 and continued until May 2021.

¹ (Environmental Protection Agency n.d.)

2.1 Flowmeter Locations

Pre-construction flowmetering was performed during data collection for the BSA's SWMM model recalibration. Key sewers that were monitored are listed in Table 1 and depicted on Figure 2 . Flowmetering locations were conveniently selected to be located nearby and downstream of the Green Infrastructure project with the exception of meter SCD_FM69t, which was used as a control basin outside of the project area. For the purposes of the study, some upstream flowmeters that were used in the model recalibration but were upstream of the project area, were excluded to avoid potential errors in subtracting flow. Two nearby rain gauges were used for the project, one was installed on the Hamburg Drain Screens Building and another was installed at the Buffalo Police Station on Bailey Avenue.

Table 1 *Flowmetering Locations*

Meter Designation	Meter Type	Site Description
SCD_FM22o	Area-Velocity	Monitors SPP 326 Overflow
SCD_FM23t	Area-Velocity	Monitors flow in the 96-inch Swan Trunk
SCD_FM24o	Area-Velocity on Weir	Monitors SPP 282 Overflow
SCD_FM25t	Area-Velocity	Monitors flow in the 84-inch sewer on Pine Street at Swan
SCD_FM27o	Ultrasonic	Monitors overflows at SPP 281
SCD_FM69t	Area-Velocity	Monitors total flow in a 28.75-inch x 31.5-inch elliptical sewer on Broadway (Control Basin)

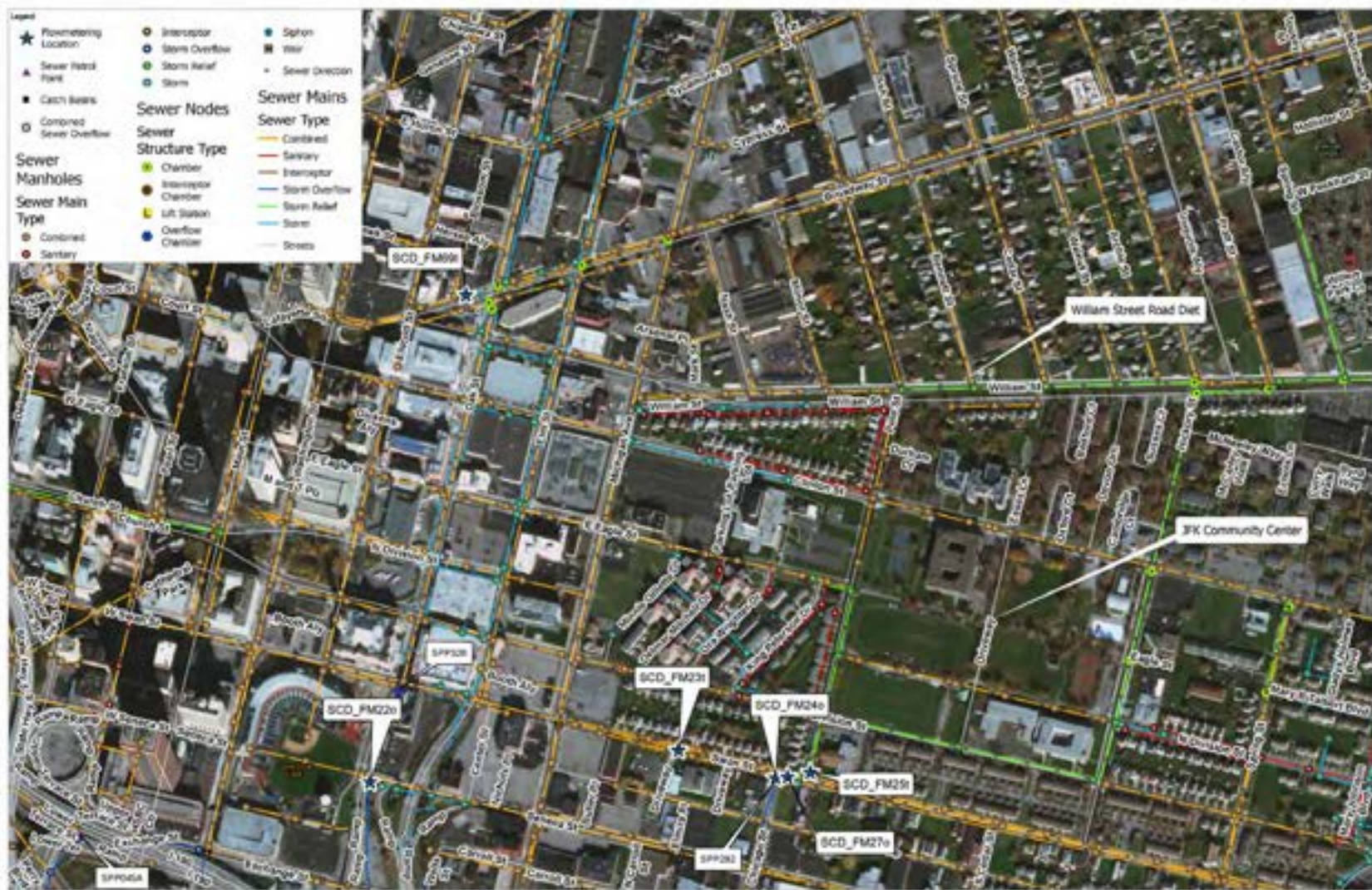


Figure 2 Flowmetering Locations

2.2 Statistical Analysis

A general analysis of the data included the use of density plots and a statistical analysis of the bulk data. Density plots are a data visualization method that plots all data as a smoothed distribution that is similar to a histogram. The purpose of a density plot is to visualize the data so that one can make judgements about the shape of a data distribution. Information that can be obtained from these plots include determination of data skewness, identification of the type of distribution to which data can be fit, or if the mean value and standard deviation of the metric of interest has changed between sample periods.

The statistical analysis looked at how the flow data and rainfall response changed between pre- and post-construction metering periods. Statistics that were reviewed with the density plots included the mean, variance, and a t-test of the data distribution. A t-test is an inferential statistic used to study if there is a statistical difference between two groups. In this case, we wanted to compare the mean values of the peak flows and the inflow before and after construction. In that sense, we could compare if the average response of the system to the external signal—precipitation—is statistically different. The result of performing a t-test is a p-value. The smaller the p-value, the stronger the evidence that one should reject the null hypothesis. For the purposes of this report, the null hypothesis is an external change in the sewershed did not occur between metering periods. Lower p-values indicate that the change in flows between the pre-construction and post-construction metering periods are likely the results of an external change. This external change can be the difference in rainfall between periods, installation of green infrastructure, or some other change.

For example, if for FM220, the p-value associated with the peak values is 0.23, this could be interpreted as there is a 23 percent chance that the change in flows was generated by chance. If the peak values are reduced after the construction, the p-value tells us that part of the response for that specific basin is independent from the previous conditions in the same basin. This difference could be caused by changes in rainfall patterns, new construction in the subbasin, or something else that would affect flows. In the event that something common to the control basin and study basins changed (like rainfall), one could expect to see high p-values in a study basin while the control basin has a low p-value. The cause of this would be a change in rainfall causing a measurable change to flow distributions in the control basin but no change in the study basins. Similarly, low p-values in the study basin and a high p-value in the control basin in similar rainfall patterns indicate that structural changes to the sewer system could have caused a change in the distribution of flows. These statistics were not used to quantify the reduction in wet weather flows as a result of the project but did provide a general idea of whether we should expect to see a change in the distribution of flows and volumes between the two periods and help support whether conclusions drawn by flow regressions are meaningful.

2.3 Precipitation/Flow Regressions

The methodology used to estimate the effectiveness of the improvements was based on the linear regression inflow analysis described in Water Environment Federation Manual of Practice (MOP) FD-6 (2009). This method compares the effect of many rain events on inflow into a sewer system. The key feature of this methodology is that a control basin is used to isolate variation in inflow caused by antecedent conditions from the effect of repairs to the system. WEF recommends comparing the fraction of inflow in the control basin in an event to the fraction of inflow in the study basin from the same event. However, the BSA owns and operates a mainly combined sewer system and the fraction of inflow entering the sewer system is expected to be near 100 percent, which may hide any changes in inflow in the data. Instead, inflow volumes and peak flows will be used for comparison to determine whether a reduction in flows occurred as a result of the constructed improvements.

The first step in the analysis was to determine the baseflow in each subbasin. Sewer hydrology is similar to river hydrology in that flow can be decomposed to dry and wet weather flow components. In river hydrology, baseflow is typically composed of groundwater infiltration and snowmelt making its way into the riverbed. Sanitary and combined sewer baseflow includes an additional component of sanitary wastewater that is a daily recurring pattern that relates to a population's daily routine in a sewershed. Figure 3 shows an example of a hypothetical dry weather diurnal pattern in a wholly residential area. Here, flow is generally highest in the morning when residents prepare for their day. A

second peak sometimes occurs in the afternoon, which corresponds with cooking and cleaning after returning home from work and school. Low flow usually occurs sometime between midnight and 6:00 A.M. when residents are sleeping.

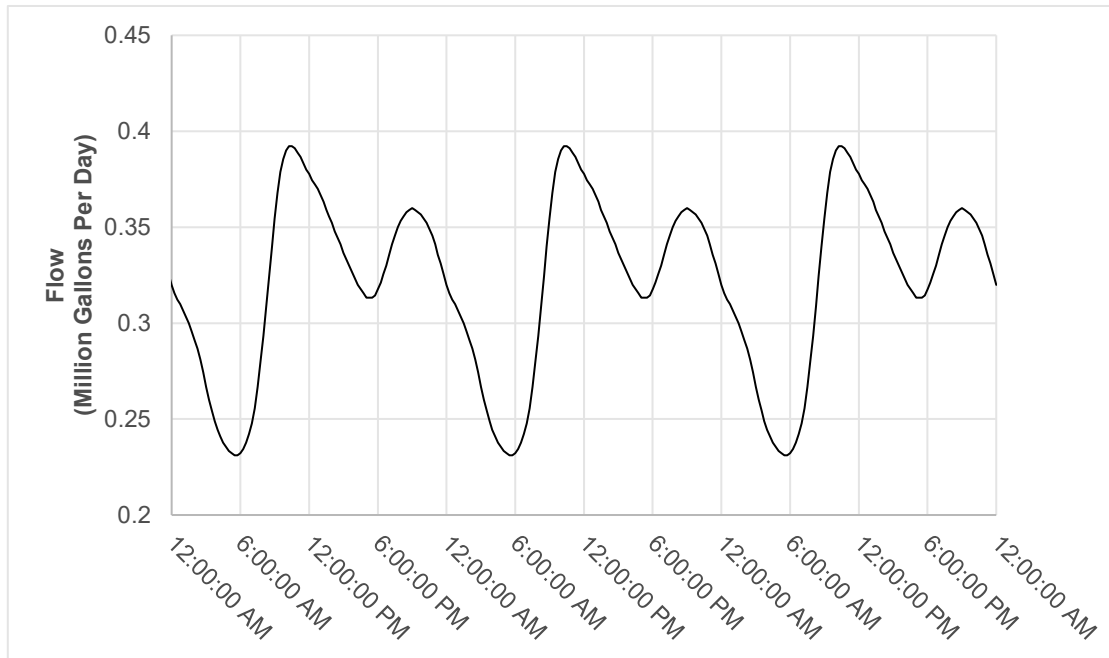


Figure 3 **Example Dry Weather Diurnal Flow**

The minimum overnight flow in the diurnal curve includes a combination of sanitary flow from far upstream buildings, groundwater infiltration, and snowmelt. In a perfectly sealed sanitary system, the minimum overnight flow should be at or near zero assuming that there are no sanitary sources of flow in the middle of the night. However, most sewer systems are not that tightly sealed, and the minimum flows can fluctuate in response to the groundwater table or snowmelt. Urban sewer systems also collect flows from industrial and commercial sources that could introduce flow in the middle of the night. Fluctuations from these sources were accounted for when separating wet weather flows from dry weather flows to ensure that only rain related flows were included in the analysis.

Wet weather flows are characterized by a spike in flow that deviates away from the diurnal curve in response to rainfall. Typical wet weather hydrographs in urban areas show a sharp spike in response to rain followed by a tail that can take days to return to normal diurnal flow, like in the synthetic hydrograph that is shown on Figure 4. Common sources of wet weather flows in combined sewer urban systems include but are not limited to street receivers, downspouts, and infiltration through holes or cracks in built infrastructure. The volume of wet weather flow during a rain event can be quantified by integrating under the wet weather flow curve and a representative sample of dry weather flow over the same time of day and duration plus/minus a constant flow rate that accounts for changes in infiltration (when appropriate).

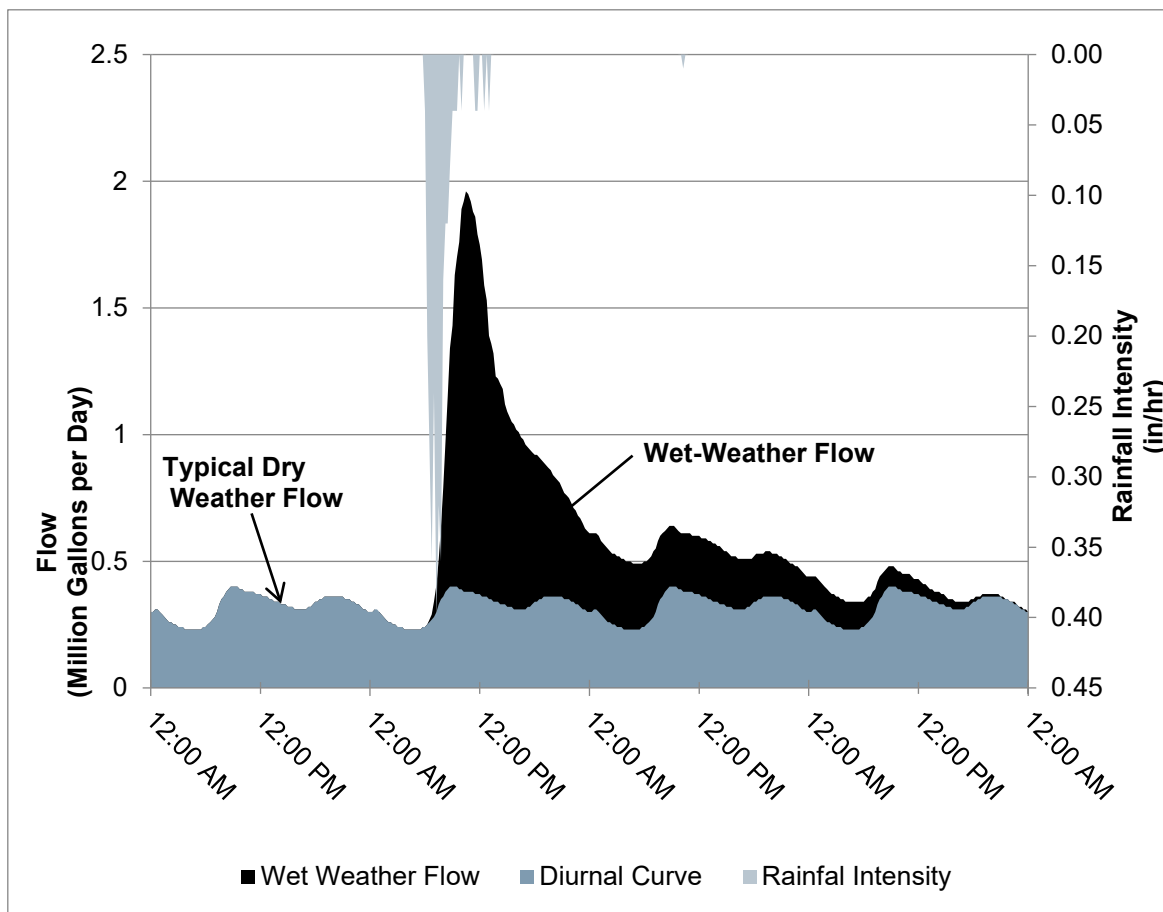


Figure 4 *Example Wet-Weather Hydrograph*

Sewer response to wet weather is proportional to the volume of rain over a sewershed. Once the volume of inflow into the sewer from a series of storms was determined, a regression was performed on the data to determine the relationship between inflow volume, peak wet weather flows and total rainfall in a rain event. When an appropriate number of rain gauges are used and sewersheds are properly identified, a mathematical relationship between these values and rainfall will be evident assuming that there are no upstream overflows or structural problems within a sewershed.

For the purposes of this analysis, the data were separated based on seasons. Western New York usually has two wet seasons, a dry season, and a dormant season. The two wet seasons are in spring and fall, which is when plants are most active and precipitation comes in the form of rain. Plant activity is high in spring and fall because temperatures are moderate. Plants do not need to go dormant during the wet seasons, so growth and water uptake is high. Plants go dormant in the winter to save energy during the winter months (dormant season) because of low temperatures and little sunlight is available for photosynthesis. A similar dormant period occurs in the dryer summertime months when there is little water available. Plants will either go dormant or die from excessive heat and sunlight so water uptake will be low, although runoff will be slowed by the plant bed and storage in detention areas.

Start and end dates for the analysis varied with each season because the tightness of the precipitation-sewer flow relationship is dependent on antecedent conditions. Factors such as temperatures, rainfall, soil water content, and snowmelt do not normally follow a strict schedule so it follows that selection of when a new season starts for the analysis could vary by up to 30 days. For the purposes of the analysis, seasons were separated when temperatures and precipitation changes and the effect of these could be seen by a change of the wet weather response in the flow data.

2.3.1 Rain Event Selection

Rain events used in the analysis were selected based on their ability to produce a measurable rainfall/runoff response in the sewer system. The goal of selection was to identify a wide range of rain events for use in determining whether a pattern could be identified in that response. Rain events used in the analysis are listed in Table 2 and 3.

Table 2 *Pre-Construction Rain Events Used in the Analysis*

Event Date	Rainfall Volume (inches)
12/5/2016	0.45
12/12/2016	0.33
12/17/2016	0.68
12/22/2016	0.32
12/26/2016	0.01
12/29/2016	0.63
12/31/2016	0.03
1/3/2017	0.78
1/6/2017	0.05
1/10/2017	0.77
3/15/2017	0.19
04/03/2017	2.49
04/19/2017	1.78
04/30/2017	2.27
05/04/2017	2.26
05/25/2017	2.06
06/04/2017	0.36
06/20/2017	0.41
06/27/2017	0.45
7/10/2017	3.27
07/17/2017	0.05
07/20/2017	1.27
7/22/2017	0.10
07/27/2017	0.08
8/3/2017	1.66
8/11/2017	0.57
8/17/2017	1.32

Event Date	Rainfall Volume (inches)
08/22/2017	0.53
09/17/2016	1.99
09/26/2016	0.69
09/29/2016	0.53
10/08/2016	0.12
10/13/2016	0.09
10/17/2016	2.68
10/27/2016	0.69
10/30/2016	0.04
11/02/2016	1.22
11/08/2016	0.3
11/19/2016	0.58
11/23/2016	0.34
11/26/2016	1.29

Table 3 *Post-Construction Rain Events Used in the Analysis*

Event Date	Rainfall Volume (inches)
12/09/2019	0.32
12/13/2019	0.92
12/17/2019	0.02
12/21/2019	0.02
12/29/2019	1.59
01/04/2020	0.39
01/10/2020	0.96
01/16/2020	0.05
01/18/2020	0.65
02/09/2020	0.64
02/13/2020	0.20

Event Date	Rainfall Volume (inches)
02/16/2020	0.20
02/25/2020	0.57
03/06/2020	0.10
03/10/2020	0.47
03/19/2020	0.57
03/28/2020	1.18
04/13/2020	0.73
04/21/2020	0.13
04/26/2020	0.47
05/11/2020	0.27
05/23/2019	0.33
05/28/2019	0.30
06/10/2019	1.08
06/13/2019	2.00
06/24/2019	0.64
06/29/2019	0.04
07/02/2019	0.15
07/06/2019	0.58
07/17/2019	0.28
07/19/2019	0.18
07/28/2019	0.47
08/07/2019	0.58
08/15/2019	0.22
08/17/2019	1.48
08/21/2019	2.16
06/27/2020	0.56
08/01/2020	0.37
08/15/2020	0.68
08/26/2020	0.47
08/29/2020	0.05
09/23/2019	0.57
09/26/2019	2.07

Event Date	Rainfall Volume (inches)
10/06/2019	0.24
10/12/2019	1.32
10/22/2019	0.77
10/25/2019	1.14
10/30/2019	1.98
11/04/2019	0.53
11/17/2019	0.14
09/13/2020	0.44
10/15/2020	0.34
10/20/2020	1.46
10/27/2020	0.2

2.4 Overflow Activations

While information from the flowmeters could be correlated to the control basin, information from the level sensors at the SPP locations could not be used for a direct pre-construction and post-construction analysis using statistics and scatter plots. To account for this, the flow and level data were provided to BSA's modeling consultant for inclusion into the BSA's hydraulic sewer model. These data were compared to the existing hydraulic model calibration to determine whether changing the model was necessary based on the new data. If a change was required, attributes associated with runoff were adjusted until the model matched the new data. The modified 1993 Typical Year rainfall was run through both the pre-2018 conditions model and the adjusted model, and wet weather SPP activations were compared to determine the impact installation of green infrastructure had on overflows in the sewer system.

3. Flow Data Analysis

Flow data were analyzed to determine the impact that green infrastructure had on the sewer system. The analysis included a statistical analysis on flow and linear regressions. This analysis was only applied to sewers with area-velocity meters (FM220, FM23t, FM25t, and FM69t) because output from those meters include flow. Level sensors provided information on whether a SPP activated during the monitoring period and could not be correlated to the control basin. Analysis using the level sensor meters was included in Section 4.

3.1 Statistical Analysis

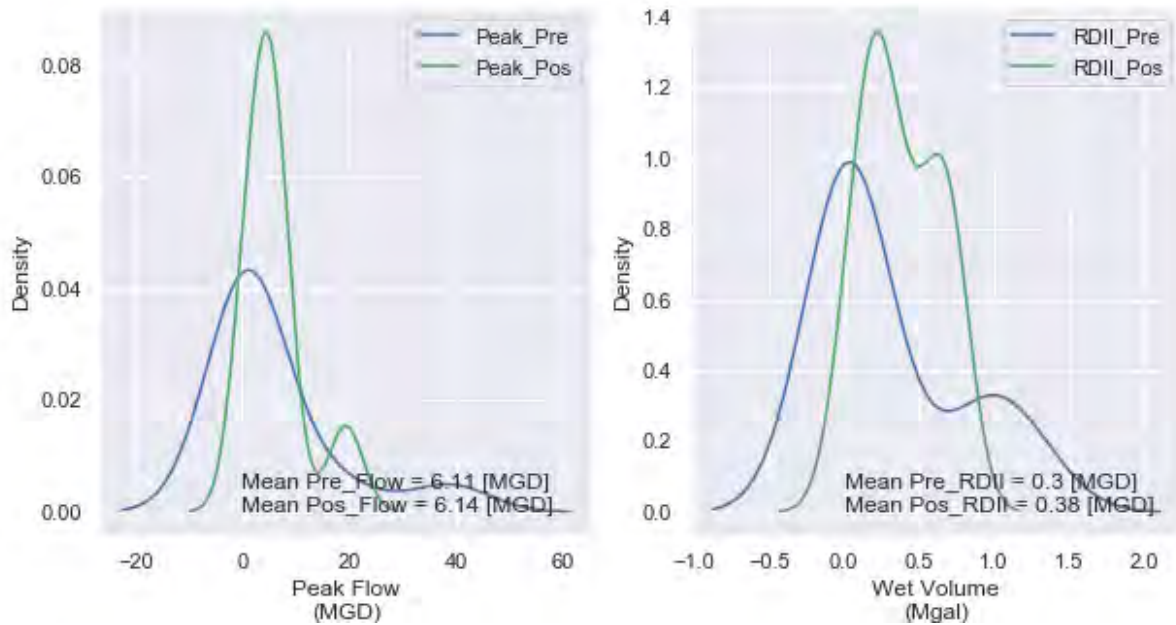
3.1.1 Winter

Relevant statistics for pre-construction and post-construction data during the winter period are listed in Table 4. The post-construction data showed a reduction in peak flows and inflow volumes compared to the pre-construction dataset. Overall, the p-values for inflow at FM23t and 25t appear to be statistically significant and p-values for peak flows are not significant between metering periods. The change was noticeable at FM23t where the shape of the density plots on Figure 5 for that meter saw a reduction in the mean peak flow and inflow volume. Variances in volumes and peaks at that meter also decreased between the two periods, indicating that the construction project had an impact on reducing the frequency of peak flows and inflow volumes.

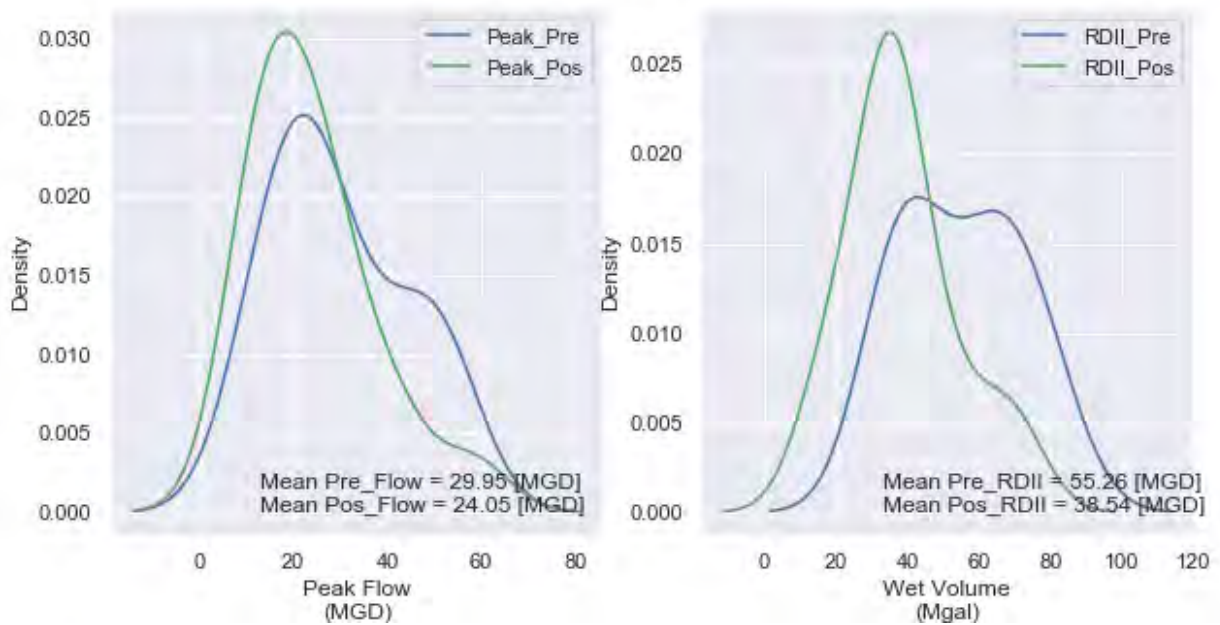
Table 4 Winter Flow Analysis Statistics

Flowmeter	Mean Peak Flow		Variance Peak Flow		Mean Inflow Volume		Variance Inflow Volume		Peak P-Value	Inflow P-Value
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
FM22o	6.1	6.1	145.7	31.8	0.3	0.4	0.2	0.1	0.99	0.59
FM23t	30.0	24.1	206.5	176	55.3	38.5	287.3	238.1	0.28	0.01
FM25t	6.9	9.6	24.3	163.5	9.9	12.6	7.7	17.1	0.51	0.07
FM69t - Control	1.3	1.5	2.2	3	0.9	1.7	0.1	0.2	0.79	8.44-6

FM22o



FM23t



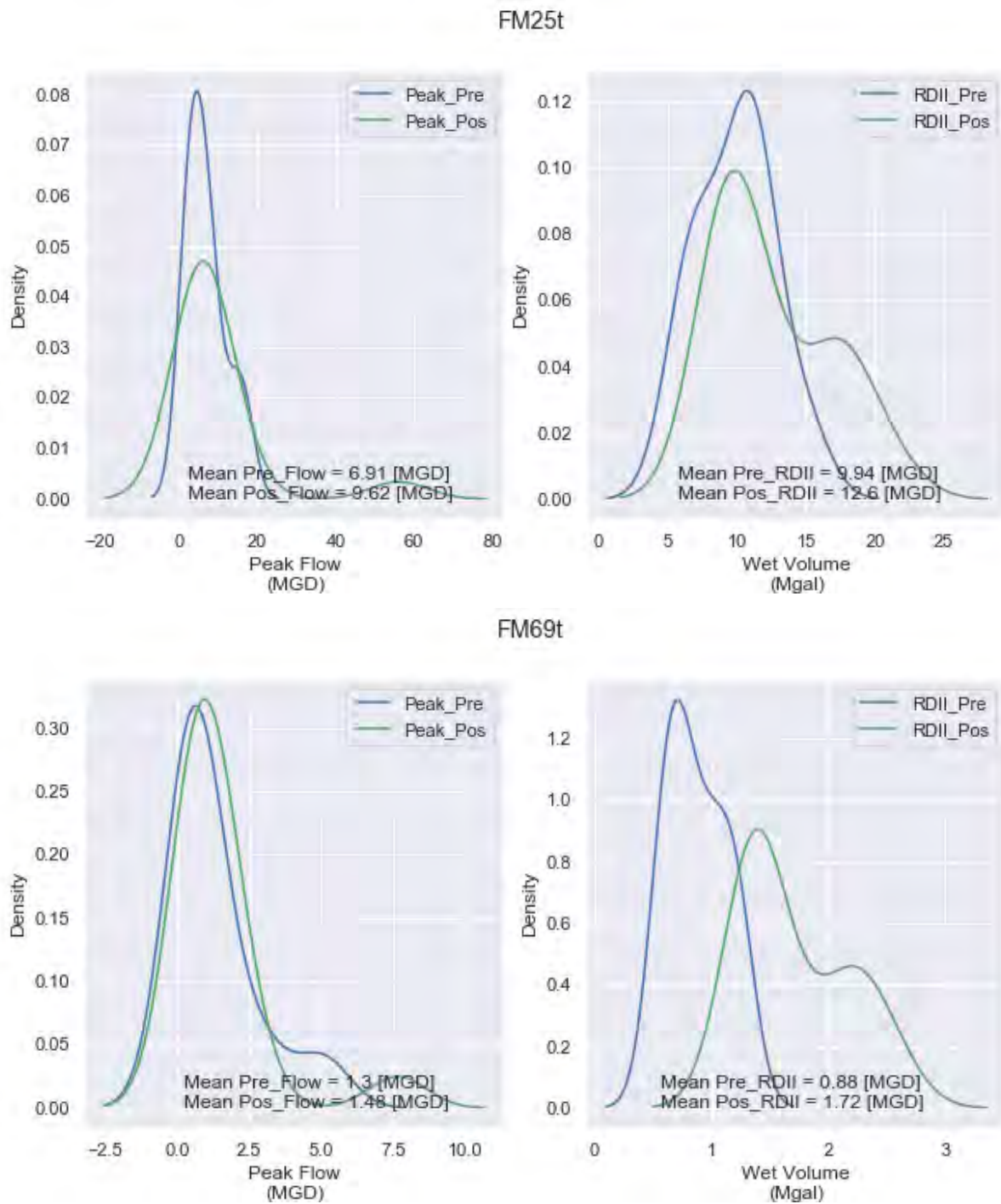


Figure 5 Winter Pre-construction and Post-construction Density Plots

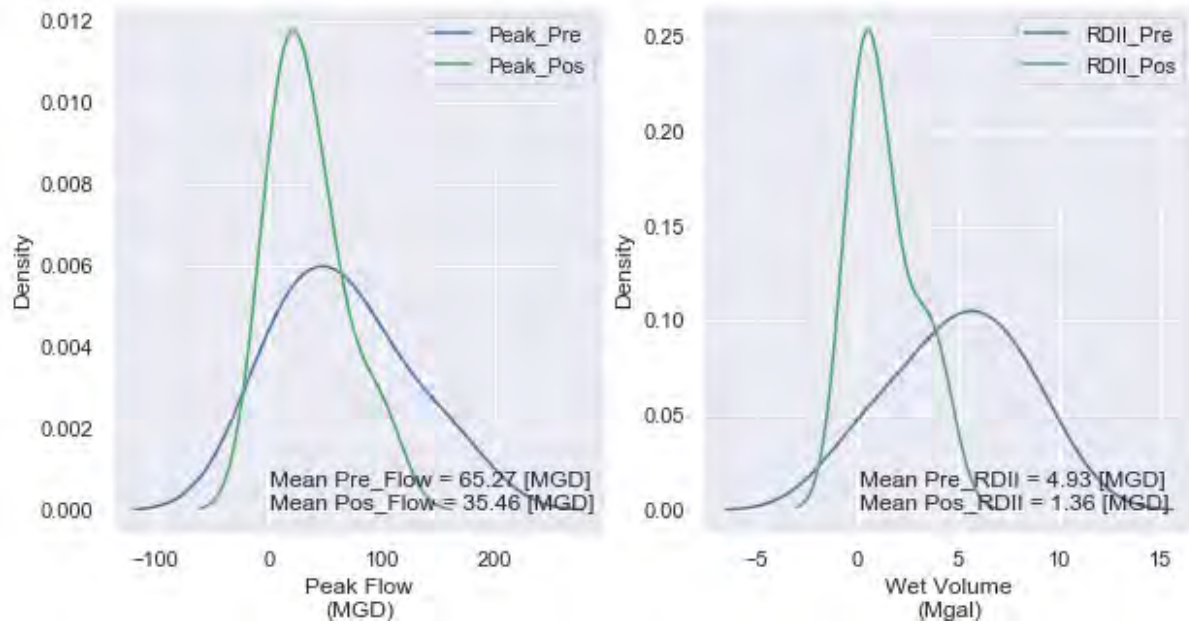
3.1.2 Spring

The spring season saw a reduction in inflow volumes and peak flows after installation of green infrastructure. Overall, both mean values and the skewness between the two periods in Table 5 were smaller. P-values from the statistical analysis are low, indicating that the reduction in inflow volume in the study basins between the two periods is statistically significant. Reductions in average peak flows may not be statistically significant because the reduction in peak flows in the study basin followed peak flows in the control.

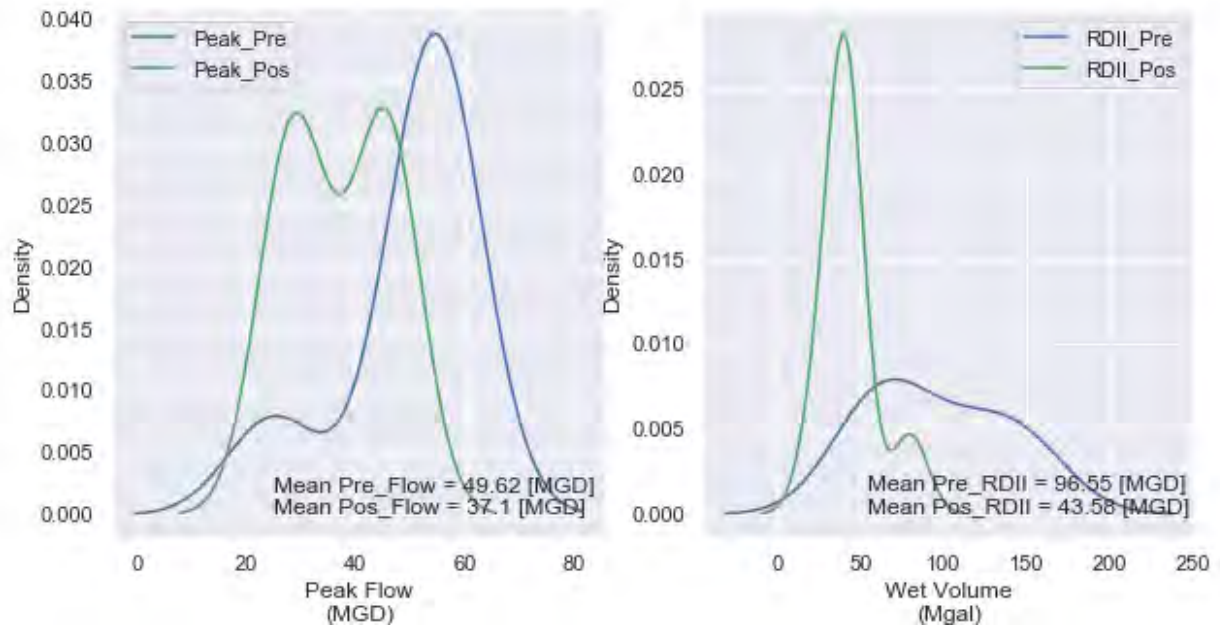
Table 5 *Spring Flow Analysis Statistics*

Flowmeter	Mean Peak Flow		Variance Peak Flow		Mean Inflow Volume		Variance Inflow Volume		Peak P-Value	Inflow P-Value
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
FM22o	65.3	35.5	3258.6	1024.9	4.9	1.4	10.0	2.3	0.24	0.02
FM23t	49.6	37.1	146.7	84.4	96.6	43.6	1659.2	262.7	0.05	0.01
FM25t	29.2	17.6	442.2	34.4	16.3	10.7	42.2	12.5	0.16	0.06
FM69t - Control	6.2	3.6	10.4	1.4	1.9	1.5	0.3	0.3	0.06	0.14

FM22o



FM23t



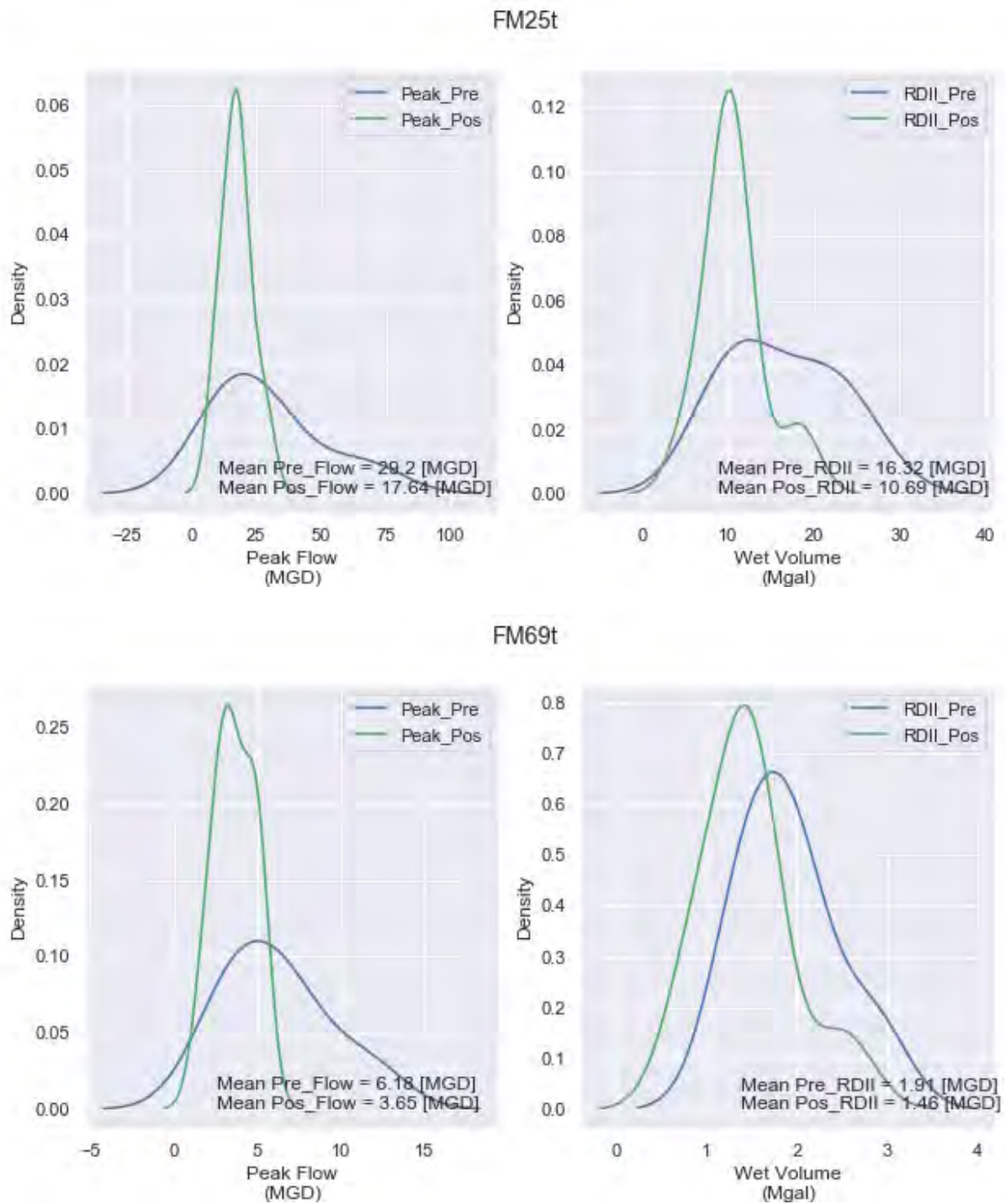


Figure 6 Spring Pre-construction and Post-construction Density Diagrams

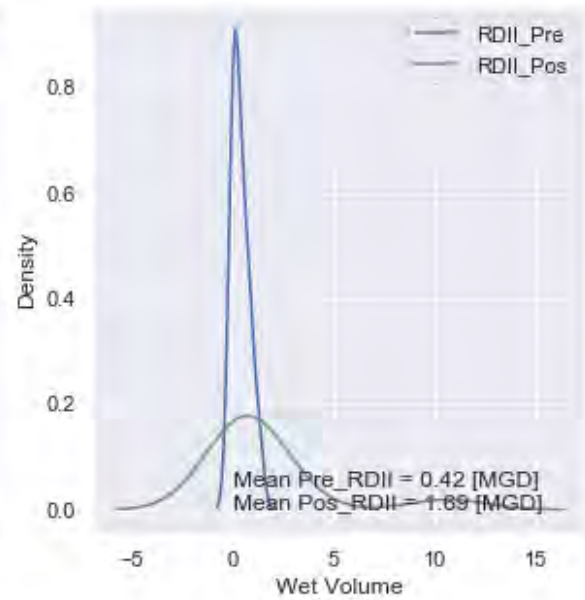
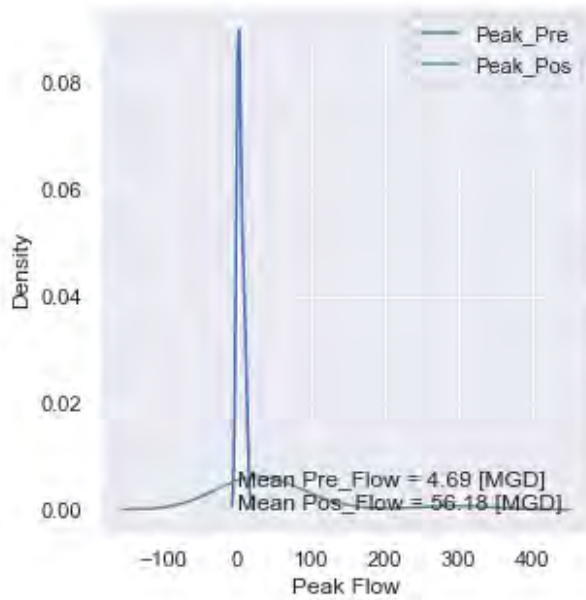
3.1.3 Summer

Results of the statistical analysis in Table 6 indicate that mean peak flows did not meaningfully change between the pre-construction and post-construction periods, except at FM22o which saw an increase in the mean peak flow that matches a change in shape of the control basin. However, the distribution of inflow volumes did appear to change between the two periods, with an increase in inflow volumes in the control basin and a decrease in inflow volumes in the main sewers. This volume reduction appears to be statistically significant at FM23t.

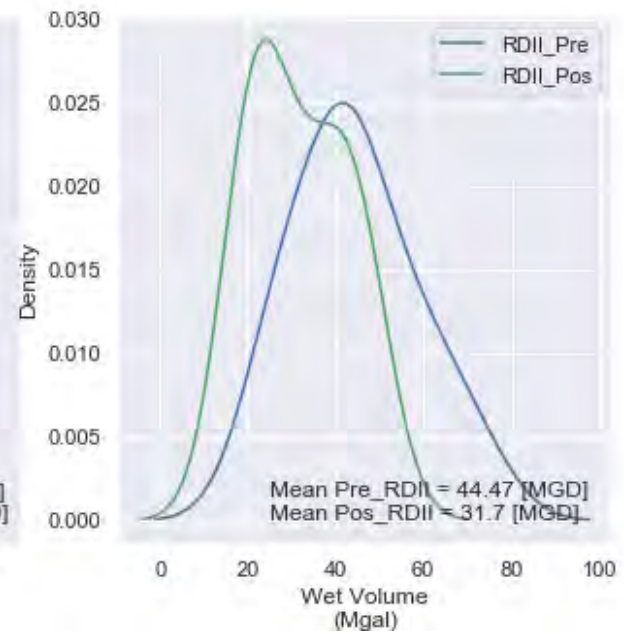
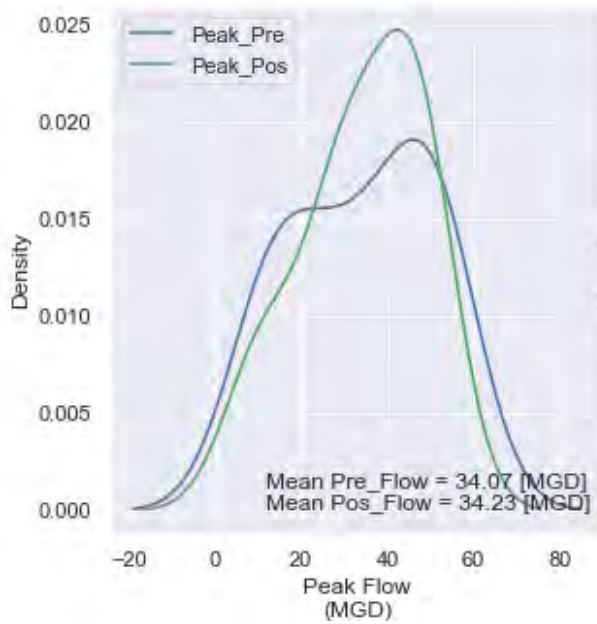
Table 6 Summer Flow Analysis Statistics

Flowmeter	Mean Peak Flow		Variance Peak Flow		Mean Inflow Volume		Variance Inflow Volume		Peak P-Value	Inflow P-Value
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
FM22o	4.7	56.2	17.4	6993.9	0.4	1.7	0.2	9.5	0.05	0.19
FM23t	34.1	34.2	272.1	195.1	44.5	31.7	199.1	122.8	0.98	0.03
FM25t	34.6	25.1	2259.3	869.8	9.7	8.2	20.9	8.7	0.58	0.36
FM69t - Control	6.0	4.5	68.3	11.2	0.8	1.0	0.4	0.1	0.59	0.39

FM22o



FM23t



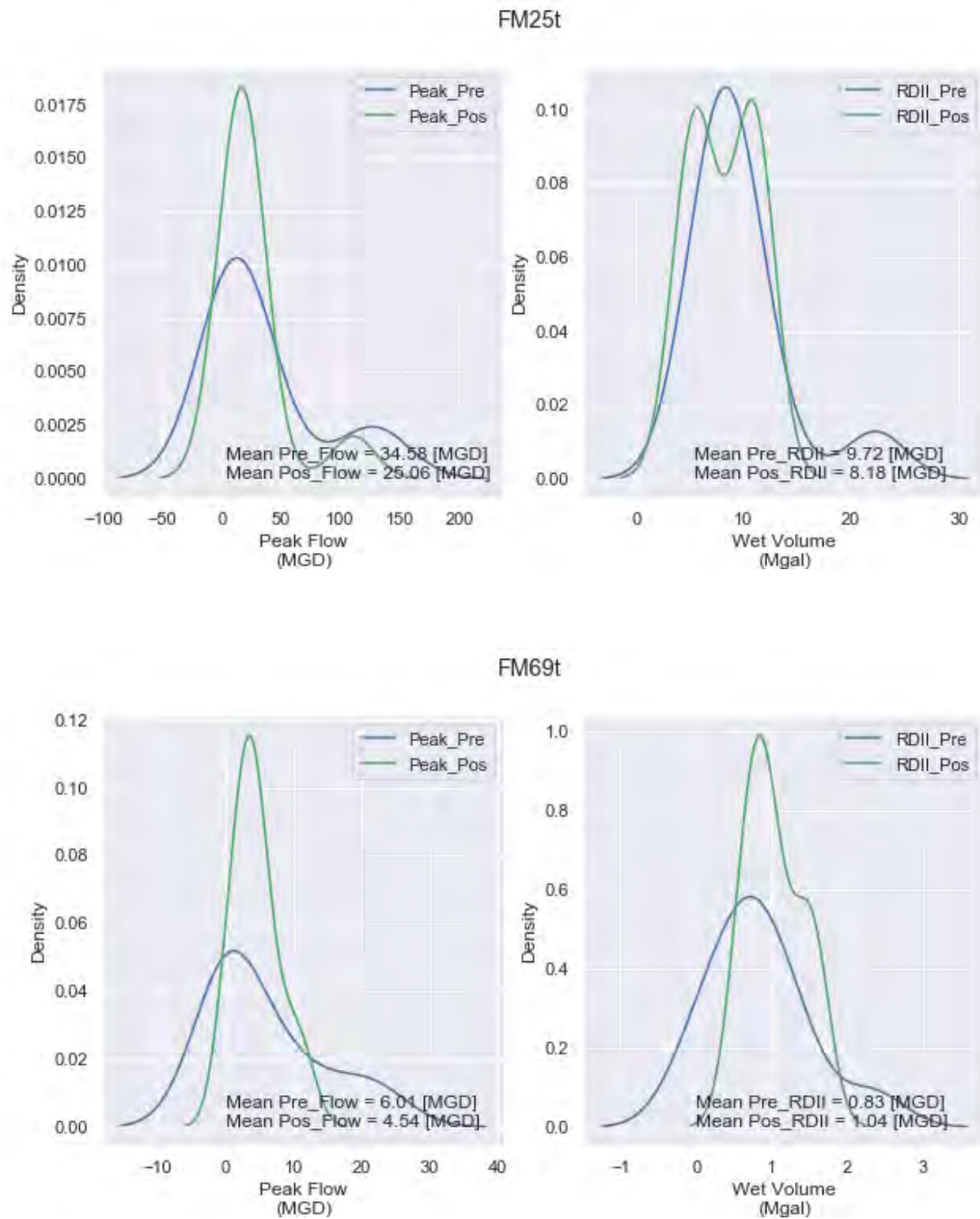


Figure 7 Summer Pre-construction and Post-construction Density Diagrams

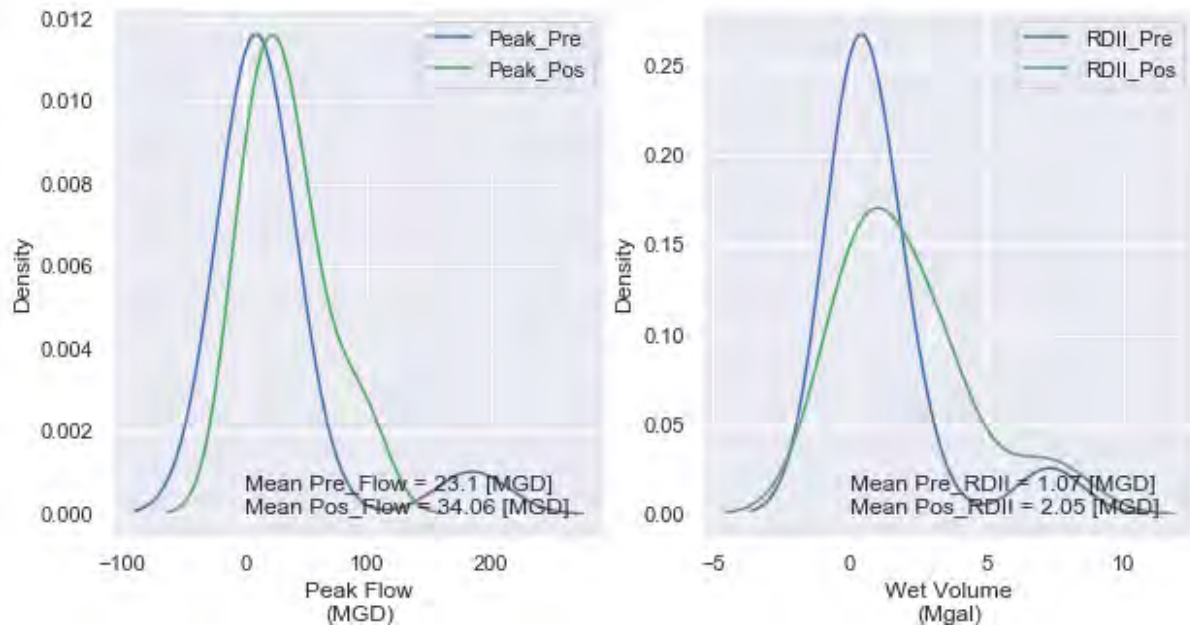
3.1.4 Fall

Peak flows and inflow volumes increased at both the control flowmeter and the study basin flowmeters between pre-construction and post-construction periods (Table 7). However, the rate at which these values changed between the two periods is not proportional (inflow volumes at FM69t doubled, and FM23t and FM25t did not). The p-value for FM69t is also statistically significant, while the other flowmeters are two orders of magnitude higher. This indicates that a change occurred between the two periods that caused the wet weather response to not change as much.

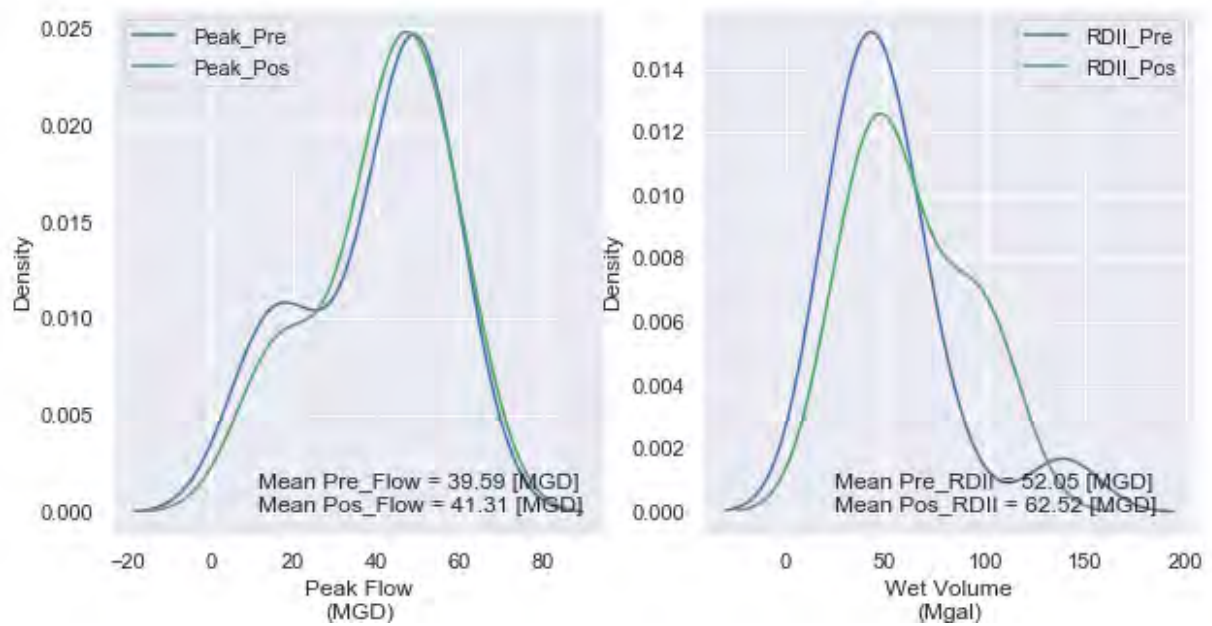
Table 7 *Fall Flow Analysis Statistics*

Flowmeter	Mean Peak Flow		Variance Peak Flow		Mean Inflow Volume		Variance Inflow Volume		Peak P-Value	Inflow P-Value
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
FM22o	23.1	34.1	2489.3	1030.0	1.1	2.1	4.0	5.5	0.57	0.30
FM23t	39.6	41.3	271.8	239.2	52.1	62.5	926.9	788.7	0.81	0.42
FM25t	15.5	16.1	320.7	74.4	11.1	14.5	40.9	41.6	0.93	0.24
FM69t - Control	3.3	3.8	8.5	5.5	1.0	2.0	0.3	0.8	0.66	0.003

FM22o



FM23t



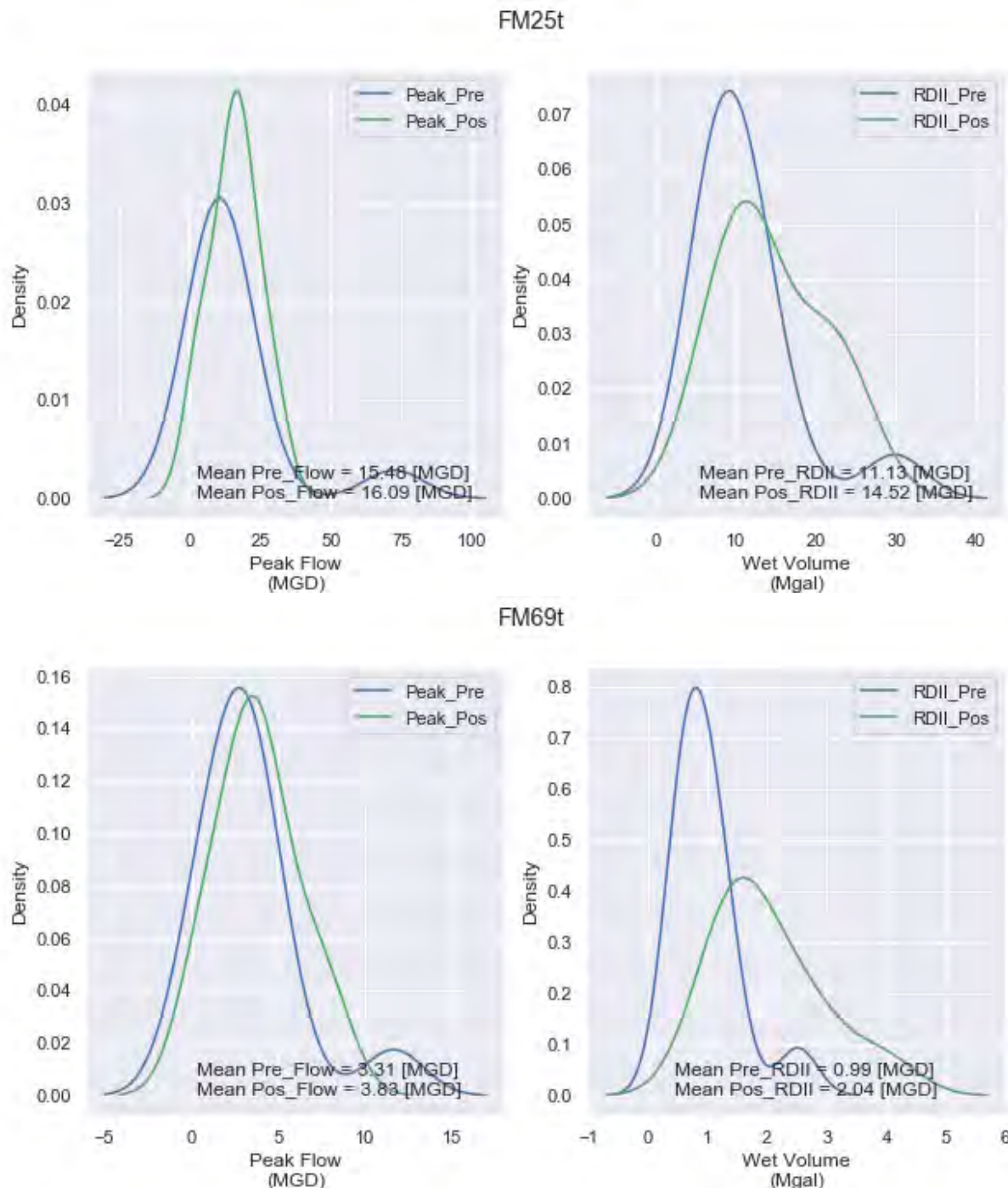


Figure 8 Fall Pre-construction and Post-construction Density Diagrams

3.2 Linear Regressions Against Control Basin

Linear regressions on the data compared pre-construction and post-construction flow and inflow volumes using a modified version of the methodology for flow data comparisons described in WEF MOP FD-6. The difference between the method outlined in the manual and the one presented here is that a percentage of rainfall that enters the sewer system was not calculated. The reason for this is that the expected percentage rainfall entering an urban combined sewer system is expected to be near 100 percent. Instead, raw inflow volumes were compared without adjusting for subbasin size or percentage of inflow coming from rainfall. Peak flows were compared using a similar method.

The regressions compared values at the study basin flowmeter with values generated by the control flowmeter (FM69t) during the same rain events. It is expected that if installation of green infrastructure positively impacted the sewer system, one would see a reduction in slopes of a linear regression between the pre-construction and post-construction periods. An effect on peak flows or inflow volumes would be evident by observing a reduction in slope of the linear regression between the pre-construction and post-construction values. No effect or an uncertain effect on the system would be represented with linear regressions with low coefficients of determination or little to no change in the slope of the linear regression line.

3.2.1 Winter

Installation of green infrastructure had an effect on peak flows in the winter period, as can be seen by the linear regressions in Figures 9, 11, and 13 for the three study area flowmeters. However, the relationship between peak flows and rainfall was not strong in the post-construction period and the low coefficient of determination in post-construction indicates that flows appear to vary with antecedent conditions. Inflow volumes at FM22o were reduced by 68 percent and FM23t were reduced by 63 percent between the pre-construction and post-construction periods (Figures 10 and 12). No effect on inflow volumes was evident from data collected at FM25t (Figure 13)

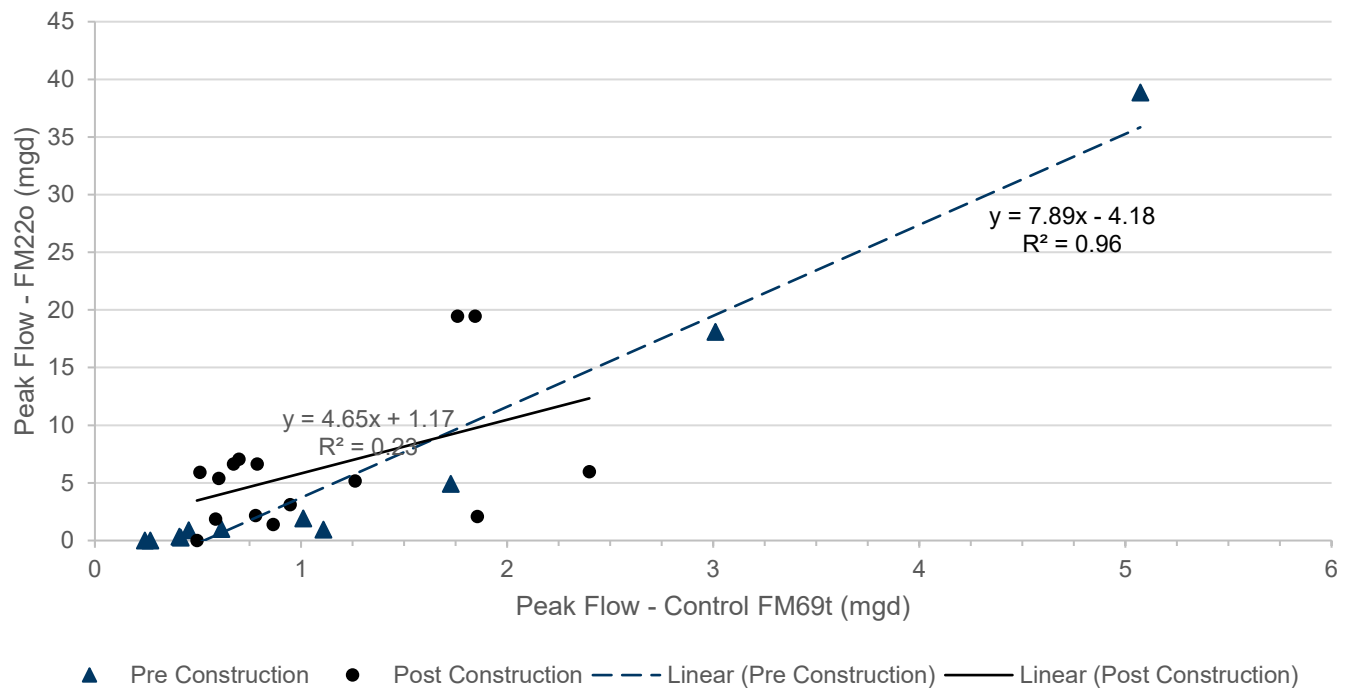


Figure 9 Winter - Peak Flow at FM22o vs. Peak Flow in Control FM69t

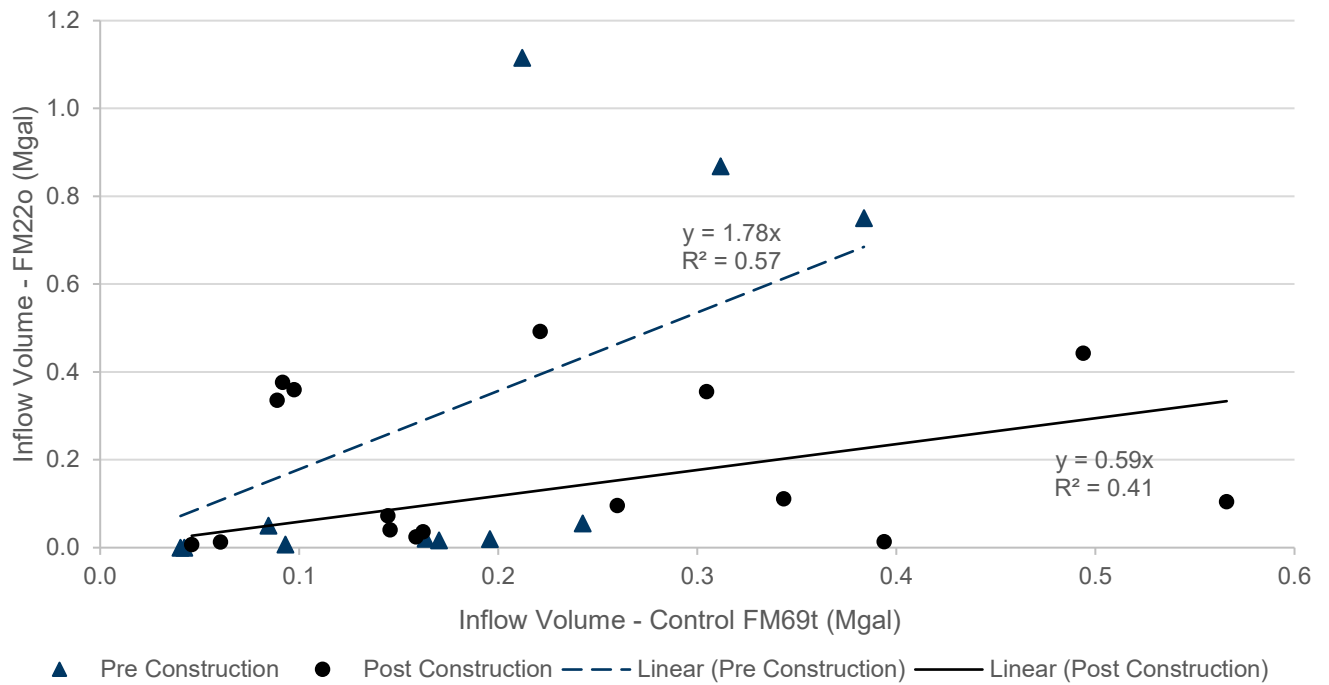


Figure 10 Winter - Inflow Volume at FM220 vs. Inflow Volume in Control FM69t

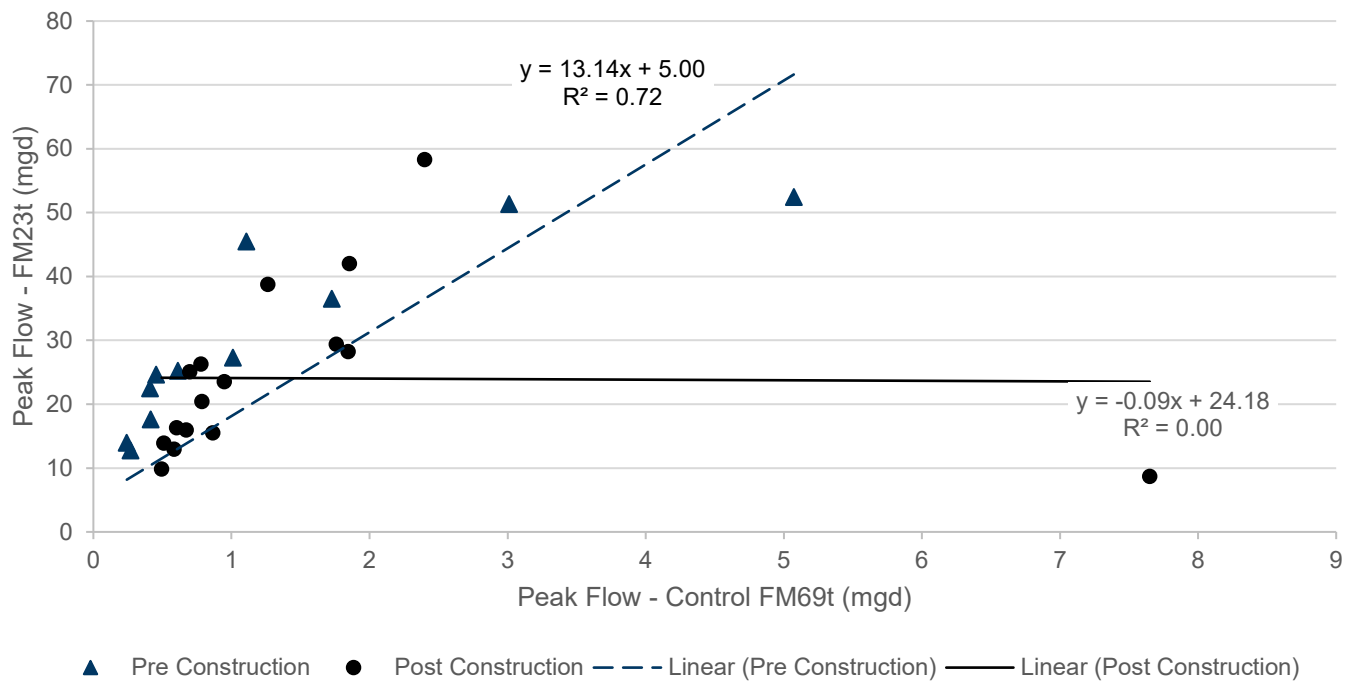


Figure 11 Winter - Peak Flow at FM23t vs. Peak Flow in Control FM69

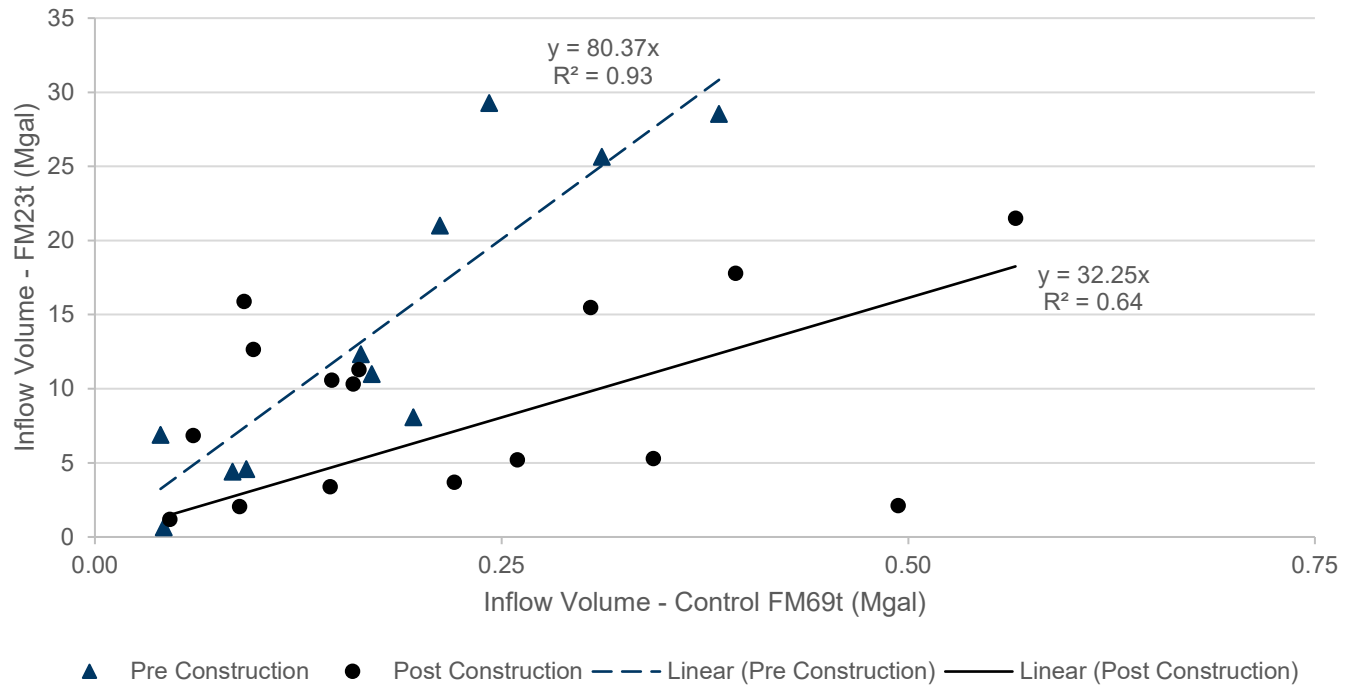


Figure 12 Winter - Inflow Volume at FM23t vs. Inflow Volume in Control FM69t

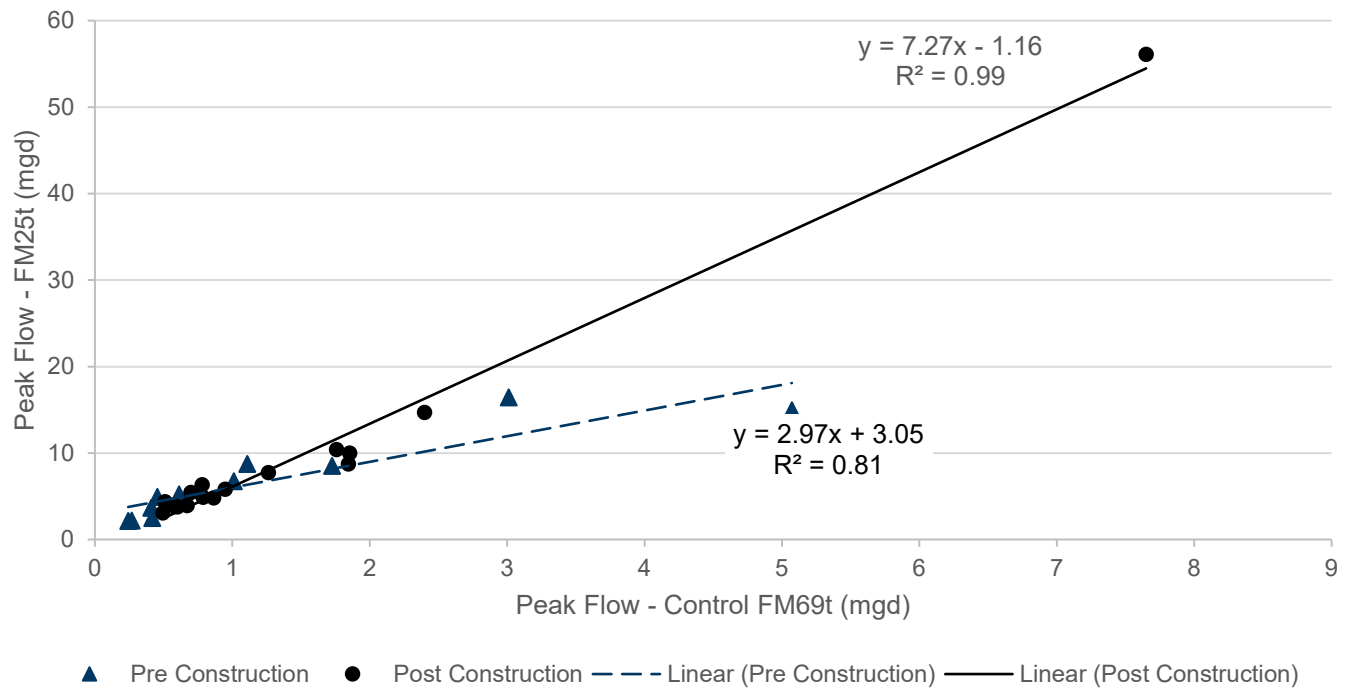


Figure 13 Winter - Peak Flow at FM25t vs. Peak Flow in Control FM69t

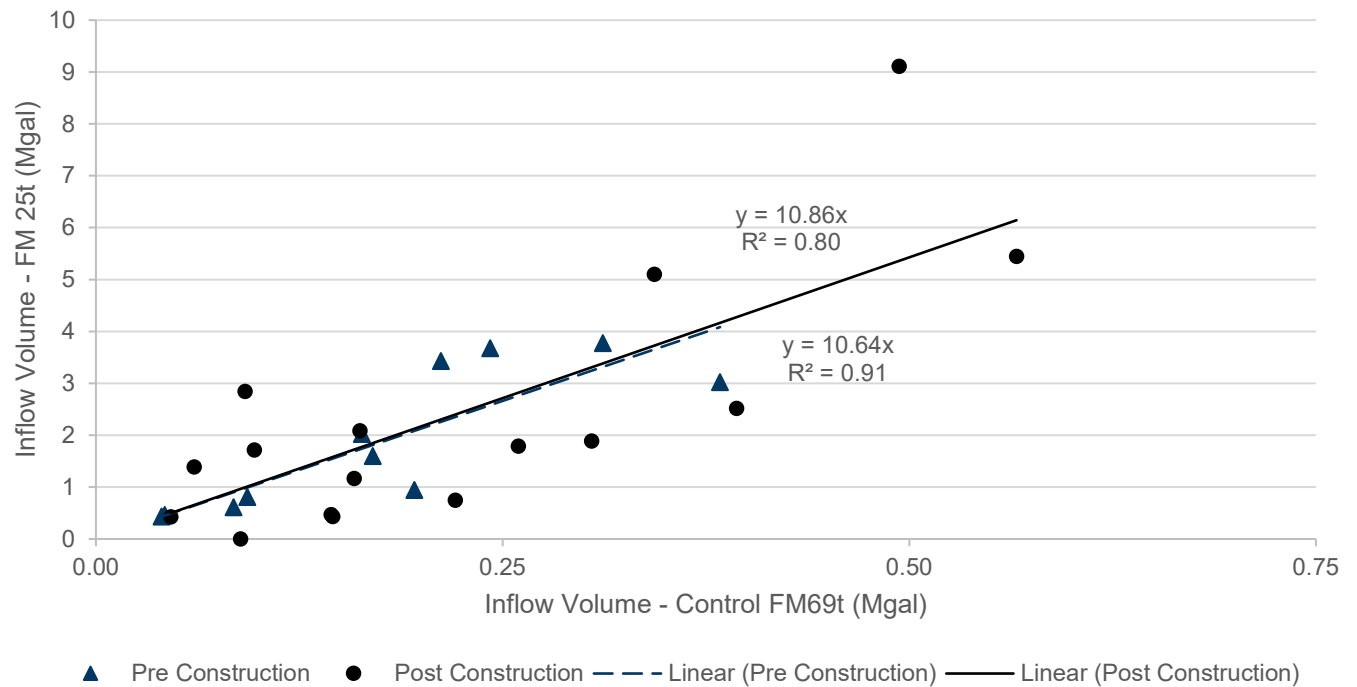


Figure 14 Winter - Inflow Volume at FM25t vs. Inflow Volume in Control FM69t

3.2.2 Spring

None of the study basin flowmeters showed a significant decrease in peak flows when compared to the pre-construction data, as shown on Figures 15, 17, and 19. However, inflow volumes in both the sewer mains (FM23t and FM25t) and the overflow sewer (FM22o) showed a decrease when comparing pre-construction and post-construction data (see Figures 16, 18, and 20). FM22o showed an inflow volume decrease of 23 percent, FM23t showed a decrease of 42 percent, and FM25t showed a decrease of 27 percent.

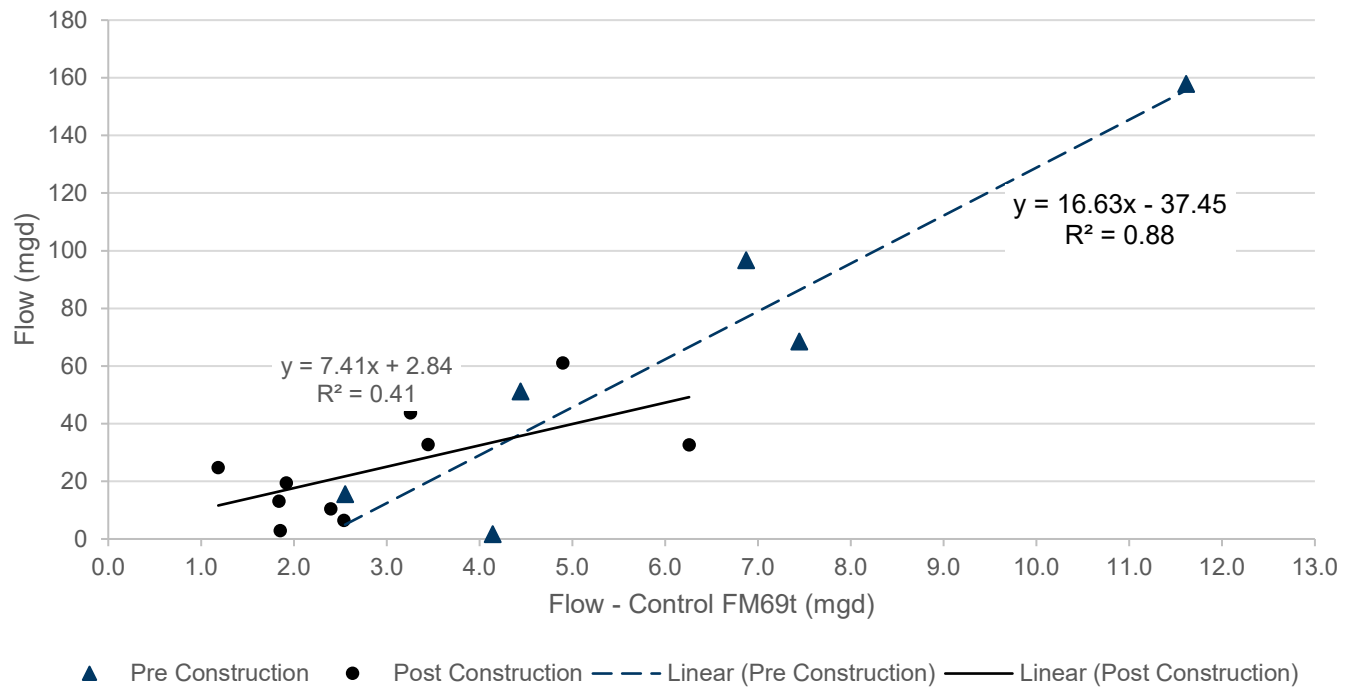


Figure 15 Spring - Peak Flow at FM220 vs. Peak Flow at Control FM69t

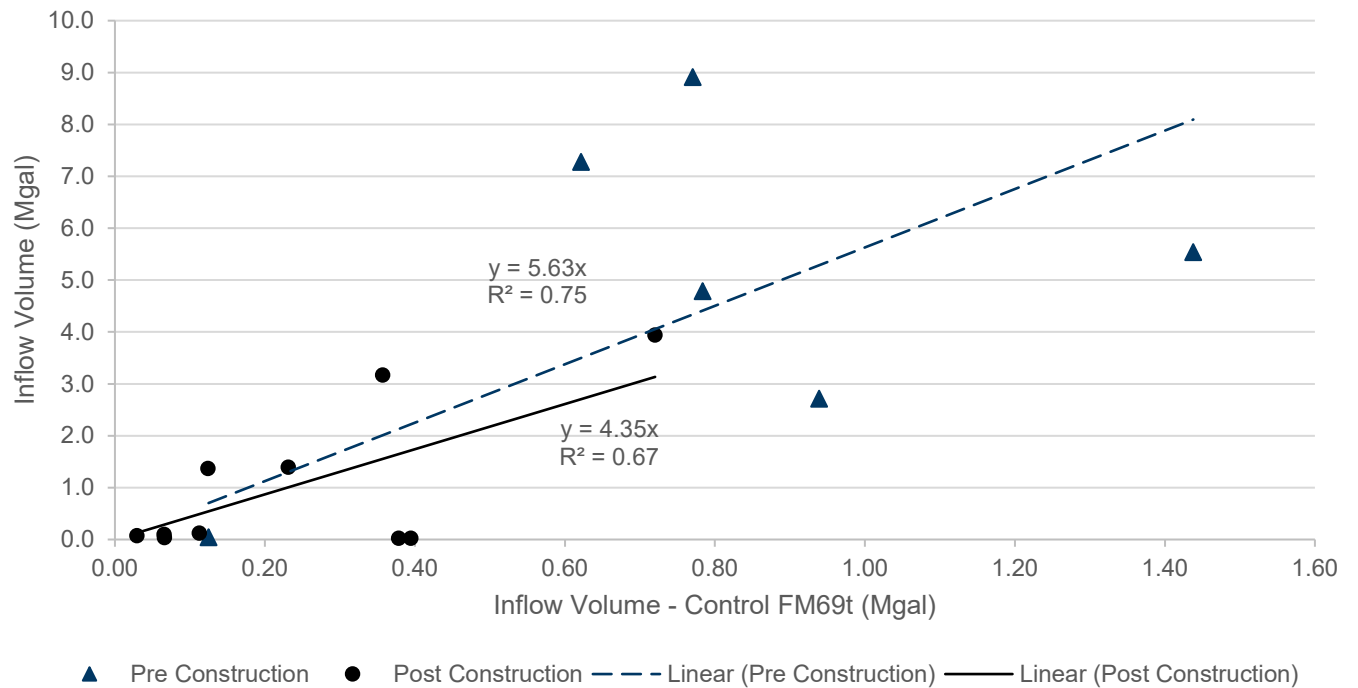


Figure 16 Spring - Inflow Volume at FM220 vs Inflow Volume in Control FM69t

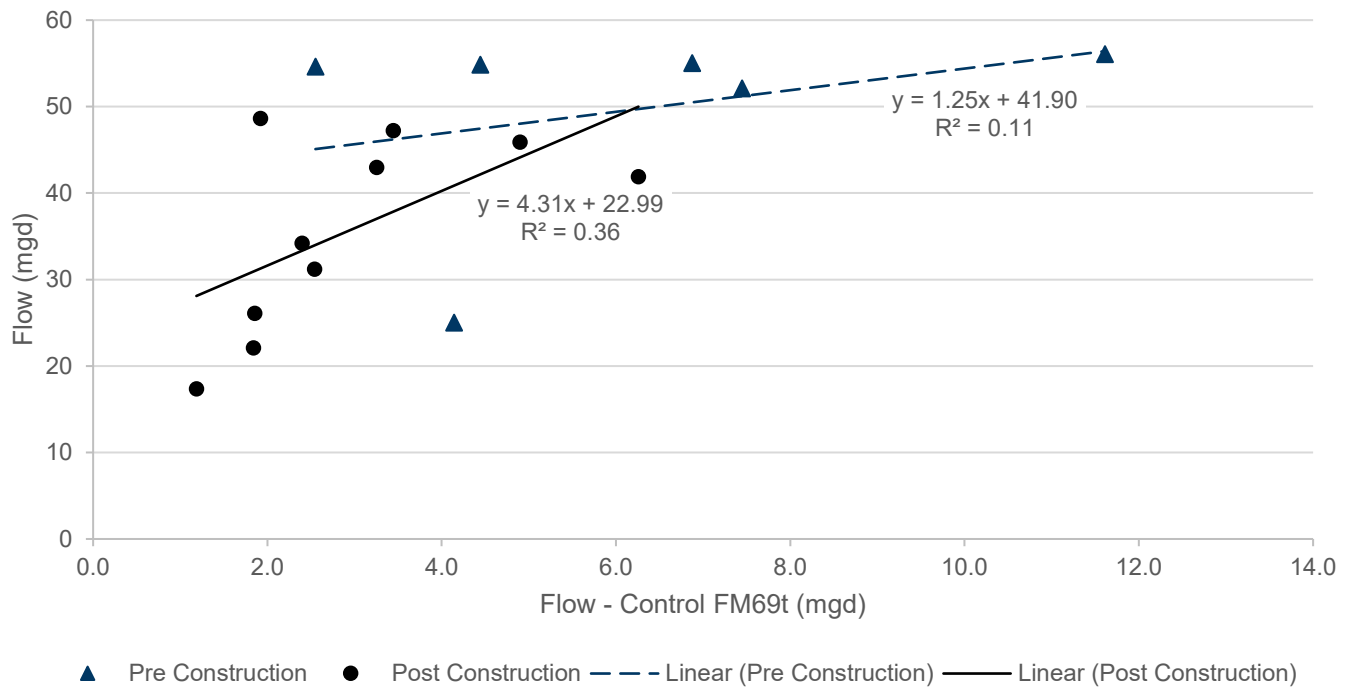


Figure 17 Spring - Peak Flow at FM23t vs. Peak Flow at Control FM69t

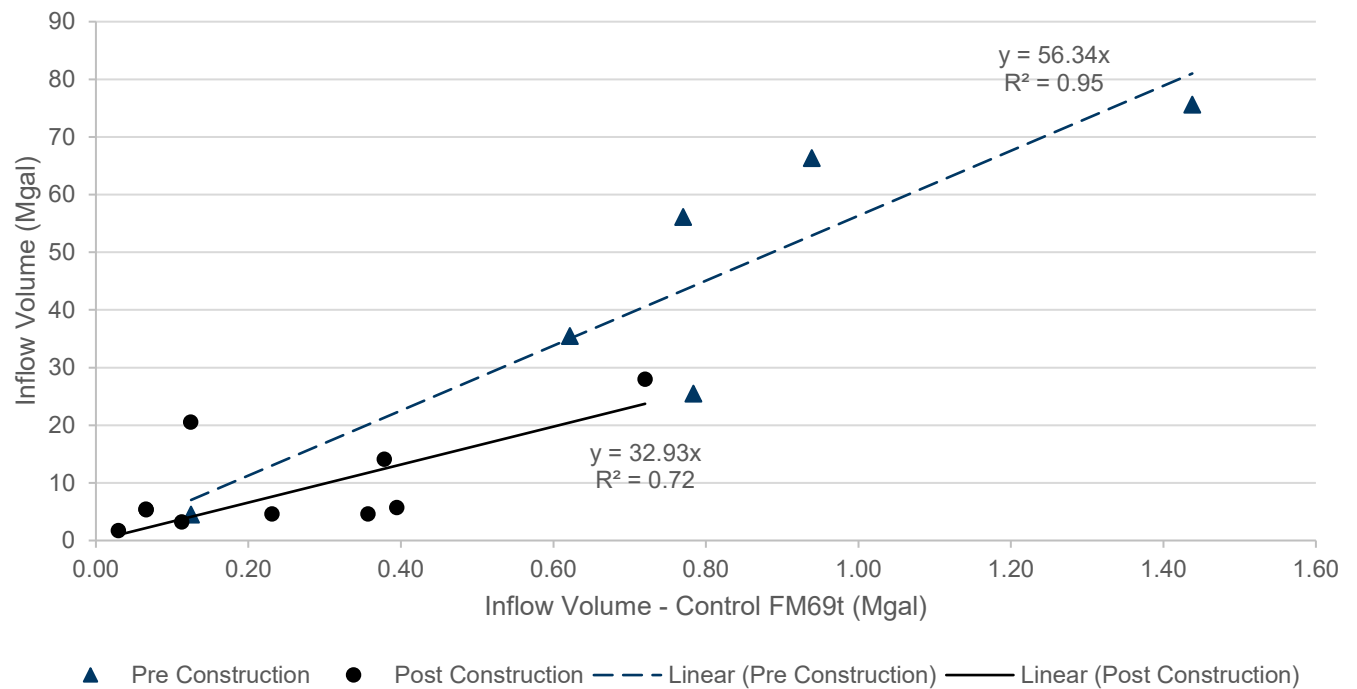


Figure 18 Spring - Inflow Volume at FM23t vs Inflow Volume in Control FM69t

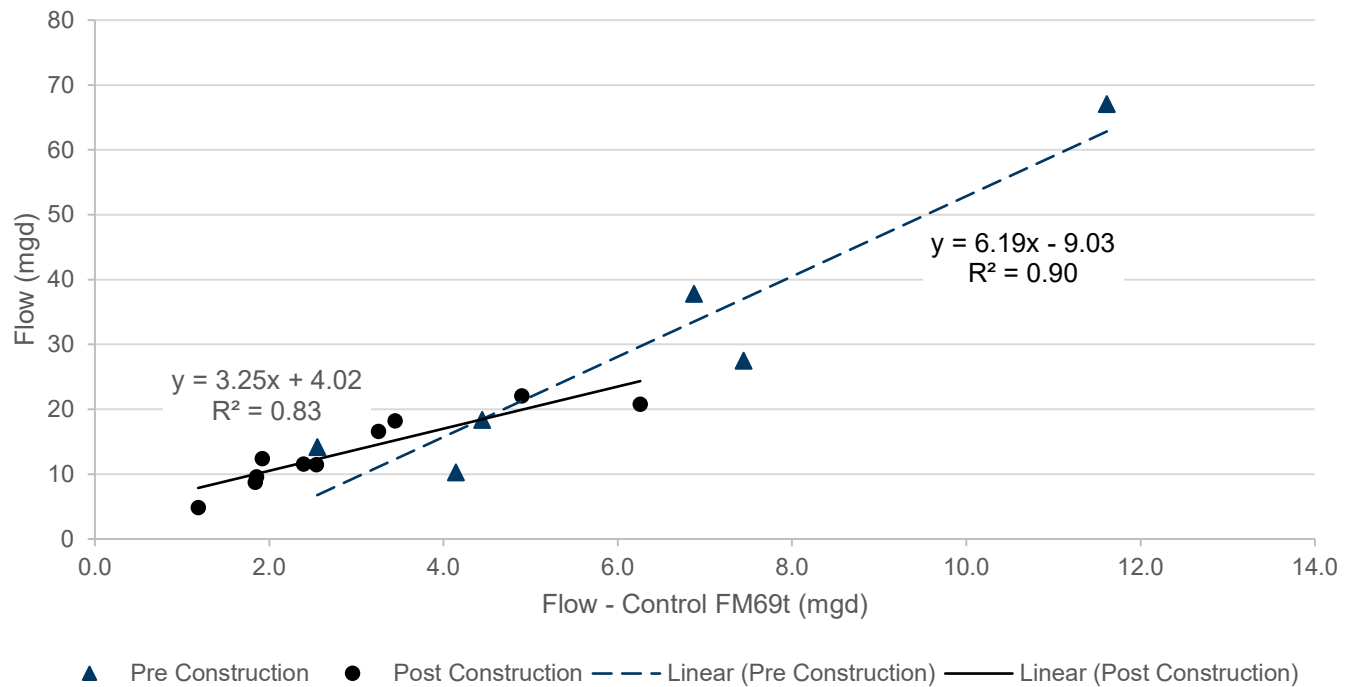


Figure 19 Spring - Peak Flow at FM25t vs. Peak Flow at Control FM69t

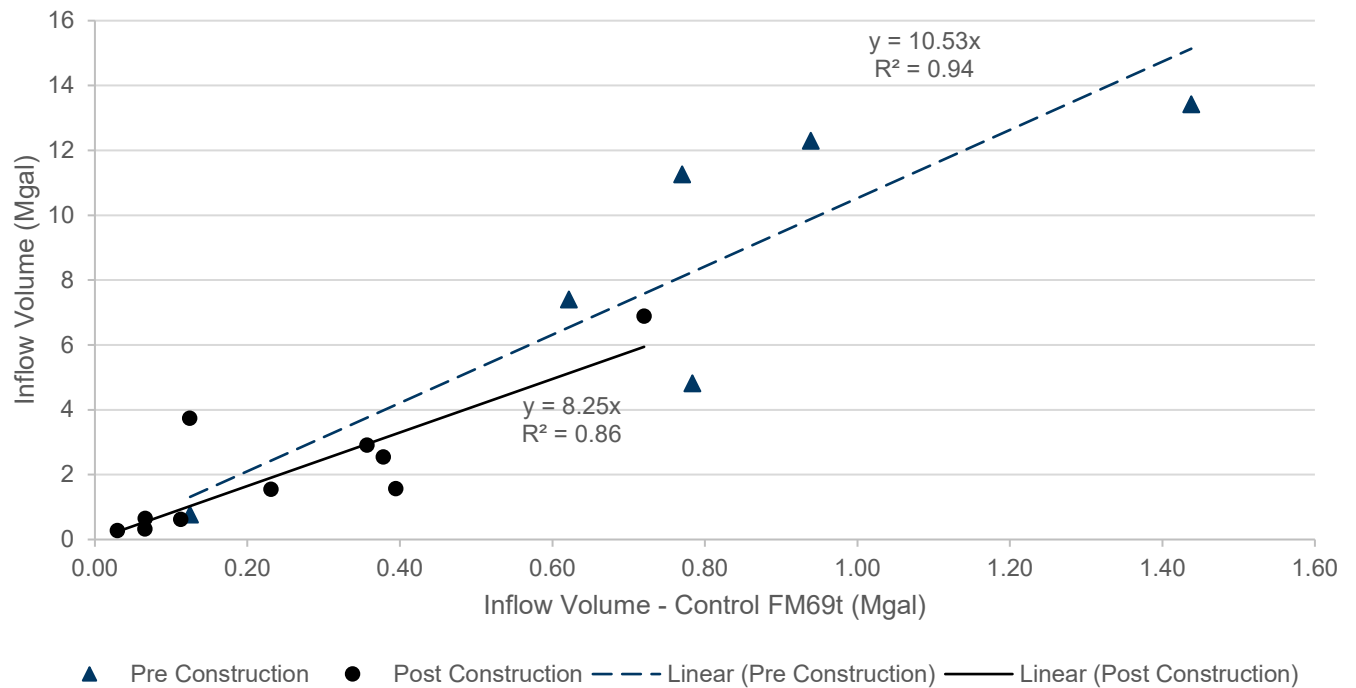


Figure 20 Spring - Inflow Volume at FM25t vs Inflow Volume in Control FM69t

3.2.3 Summer

None of the study flowmeters saw a measurable reduction in peak flows or inflow volumes when compared to the control basin during the summer months (see Figures 21 through 26). However, inflow volumes became more variable at lower volume rain events, as evidenced by the low coefficients of determination.

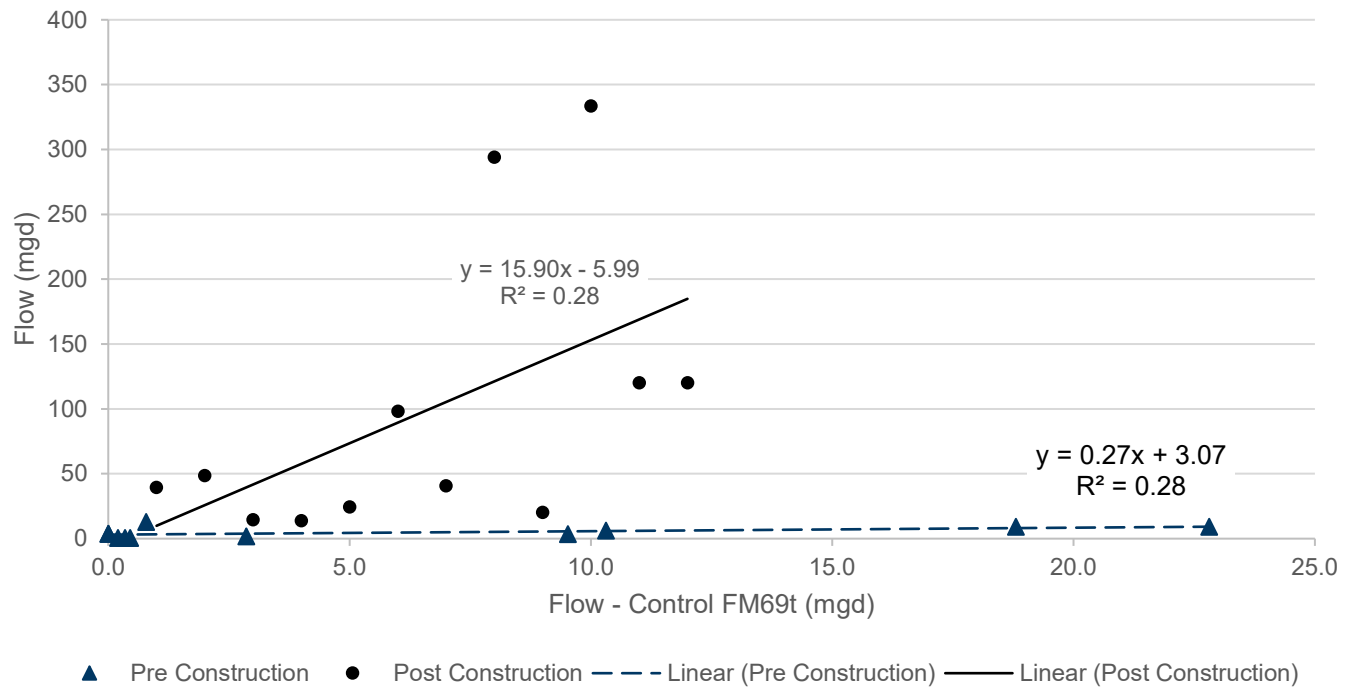


Figure 21 Summer - Peak Flow at FM22o vs. Peak Flow at Control FM69t

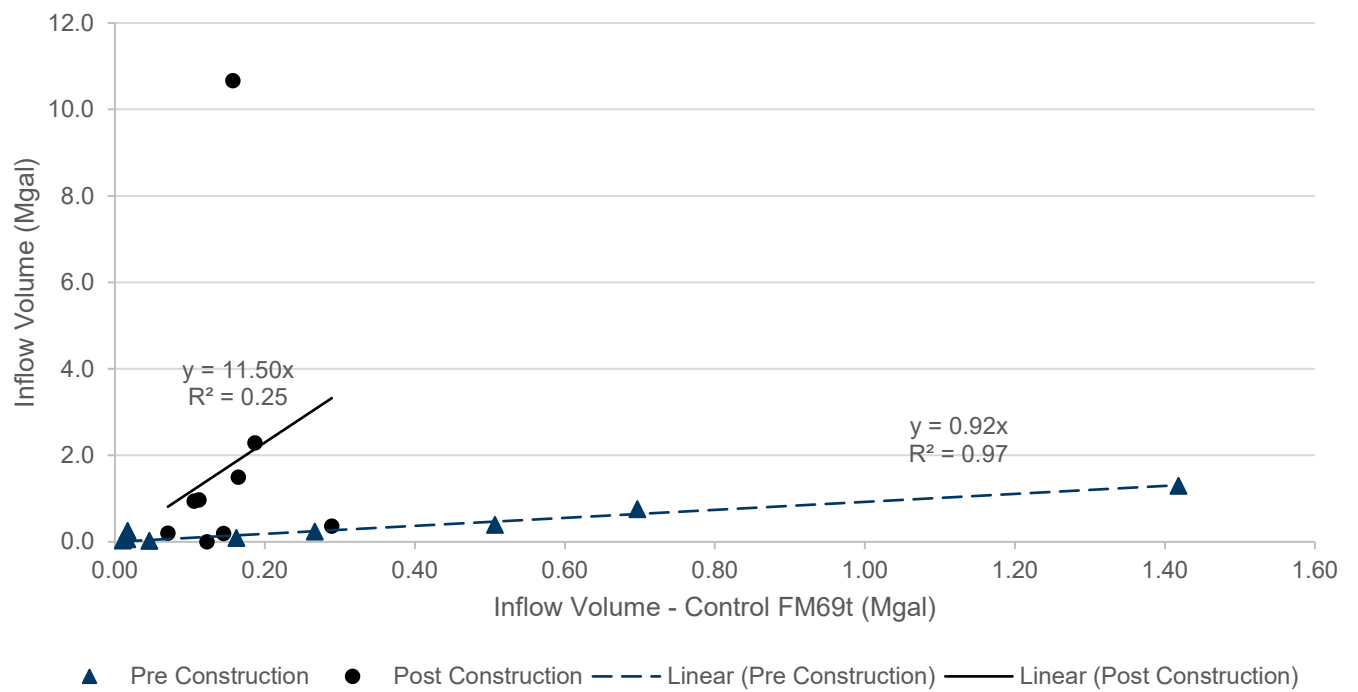


Figure 22 Summer - Inflow Volume at FM22o vs Inflow Volume in Control FM69t

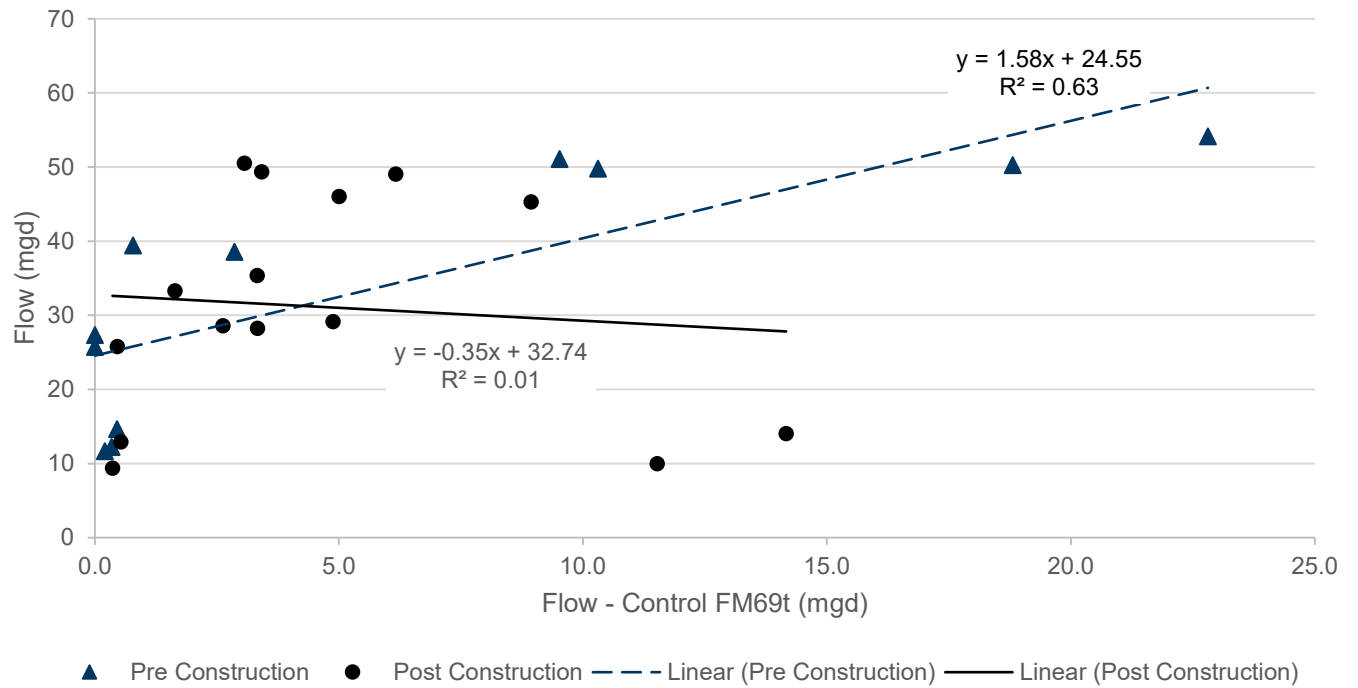


Figure 23 Summer - Peak Flow at FM23t vs Peak Flow in Control FM69t

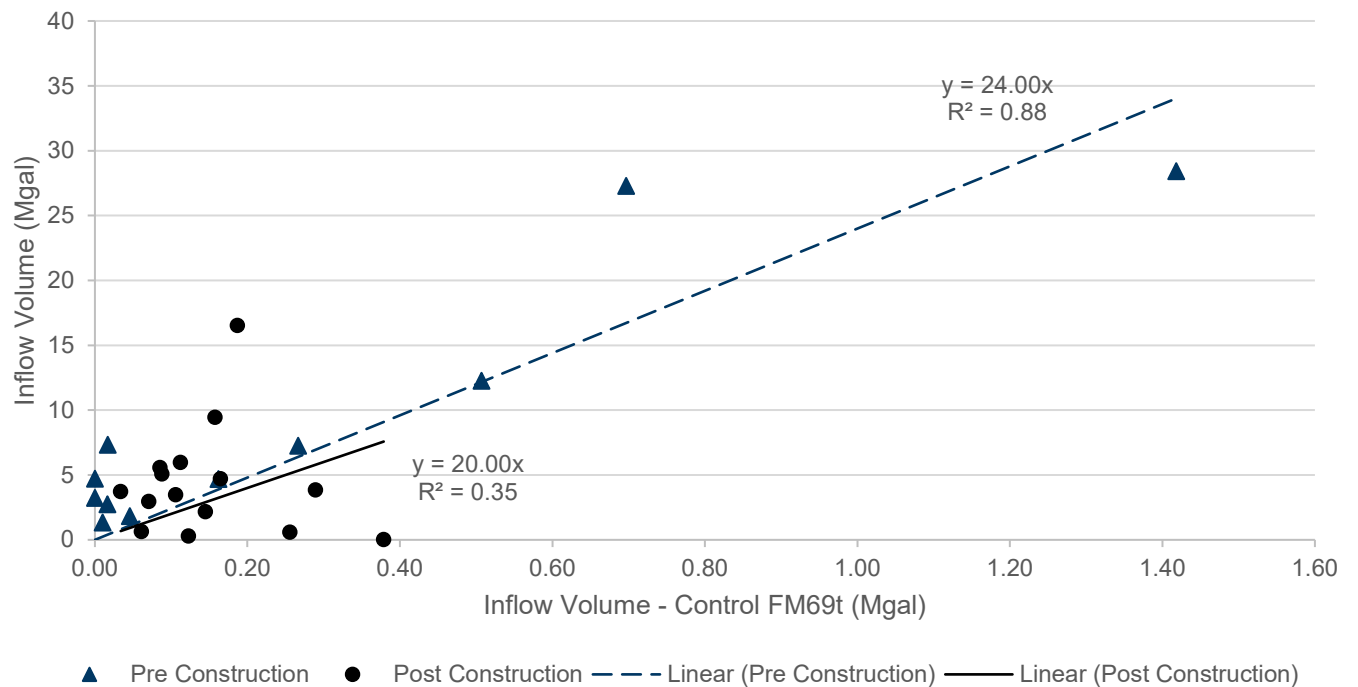


Figure 24 Summer - Inflow Volume at FM23t vs Inflow Volume in Control FM69t

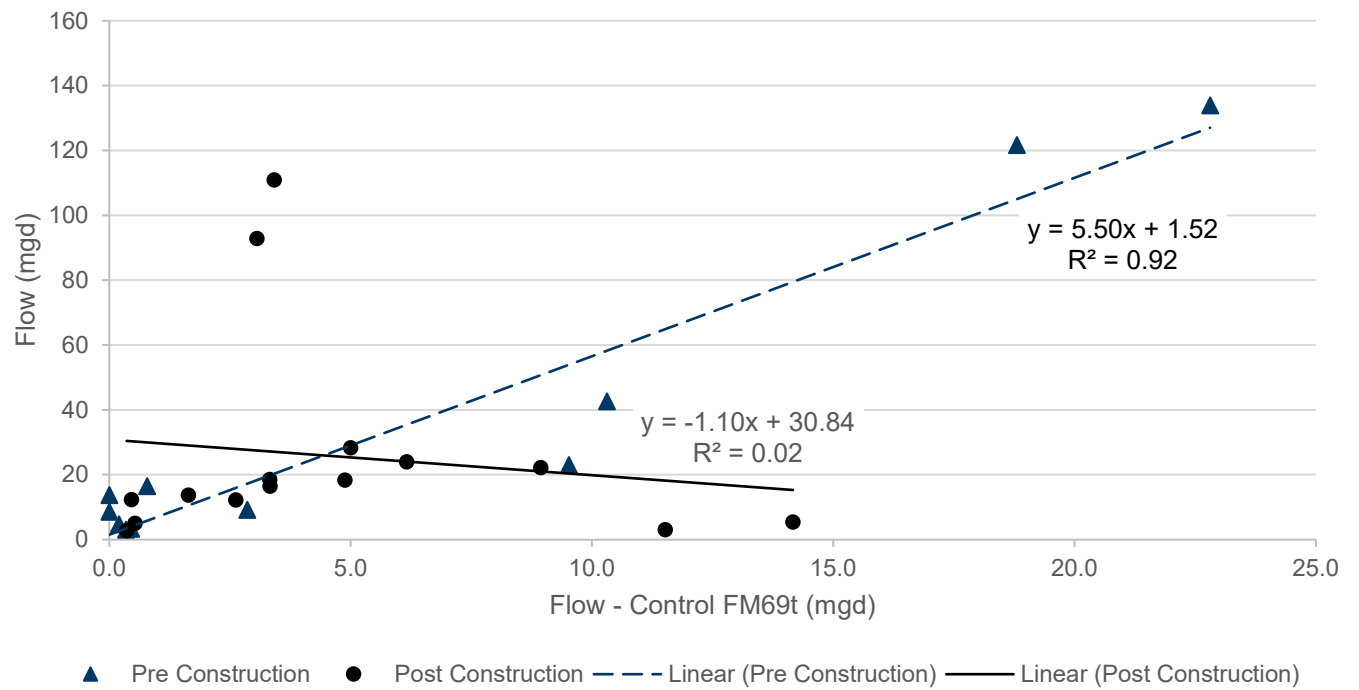


Figure 25 Summer - Peak Flow at FM25t vs Peak Flow in Control FM69t

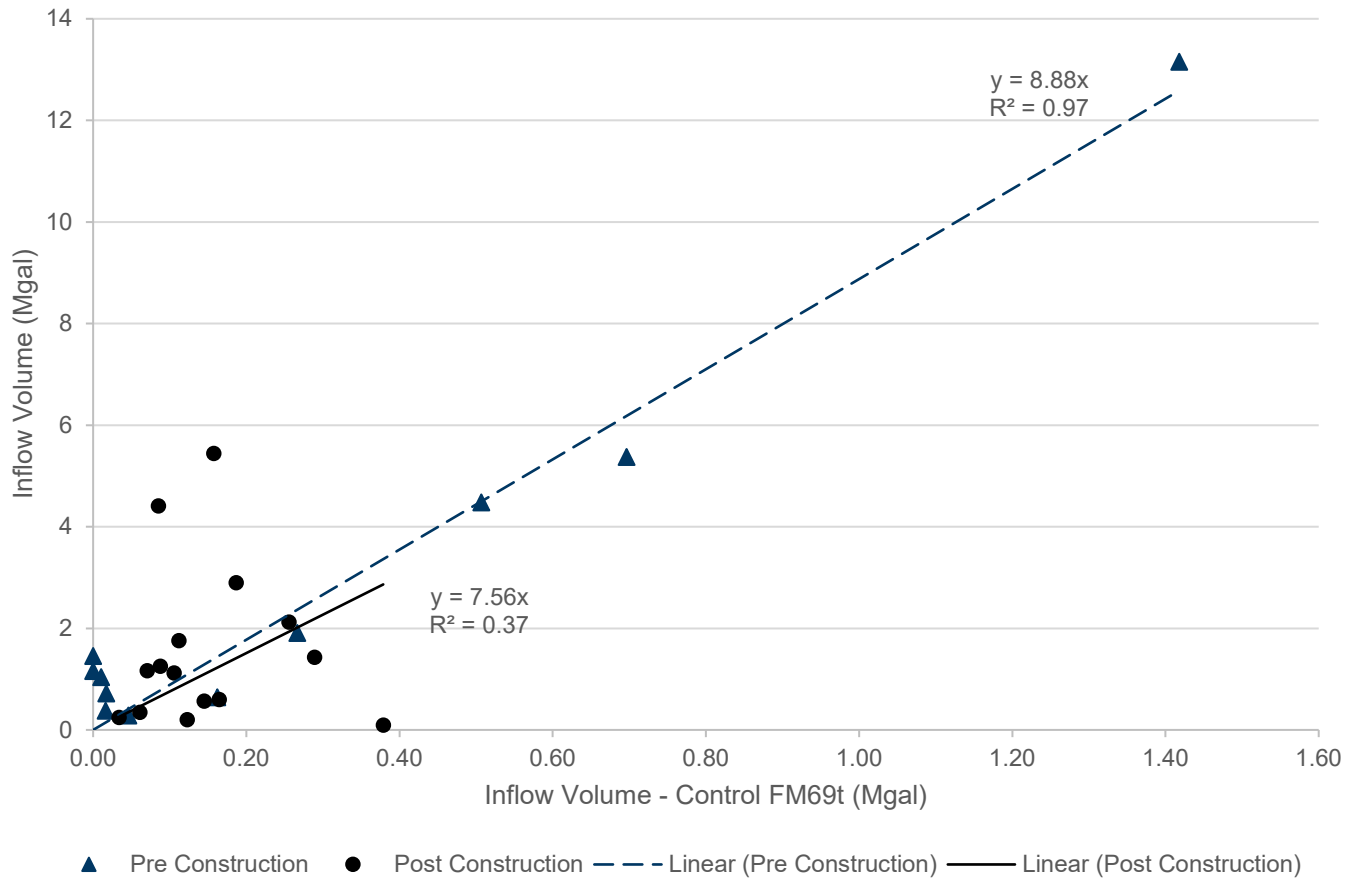


Figure 26 Summer - Inflow Volume at FM25t vs Inflow Volume in Control FM69t

3.2.4 Fall

A comparison of pre-construction and post-construction flow data in the fall found that peak flows were not appreciably reduced because of installation of green infrastructure (see Figures 27, 29 and 31). Wet weather inflow volumes were measurably lower in the post-construction period as shown on Figures 28, 30 and 32. Inflow volumes at FM22o were reduced by 53 percent, volumes at FM23t were reduced by 49 percent, and volumes at 25t reduced by 24 percent. Pre-construction data was not collected at FM27o for this period so a comparison cannot be made between the two periods.

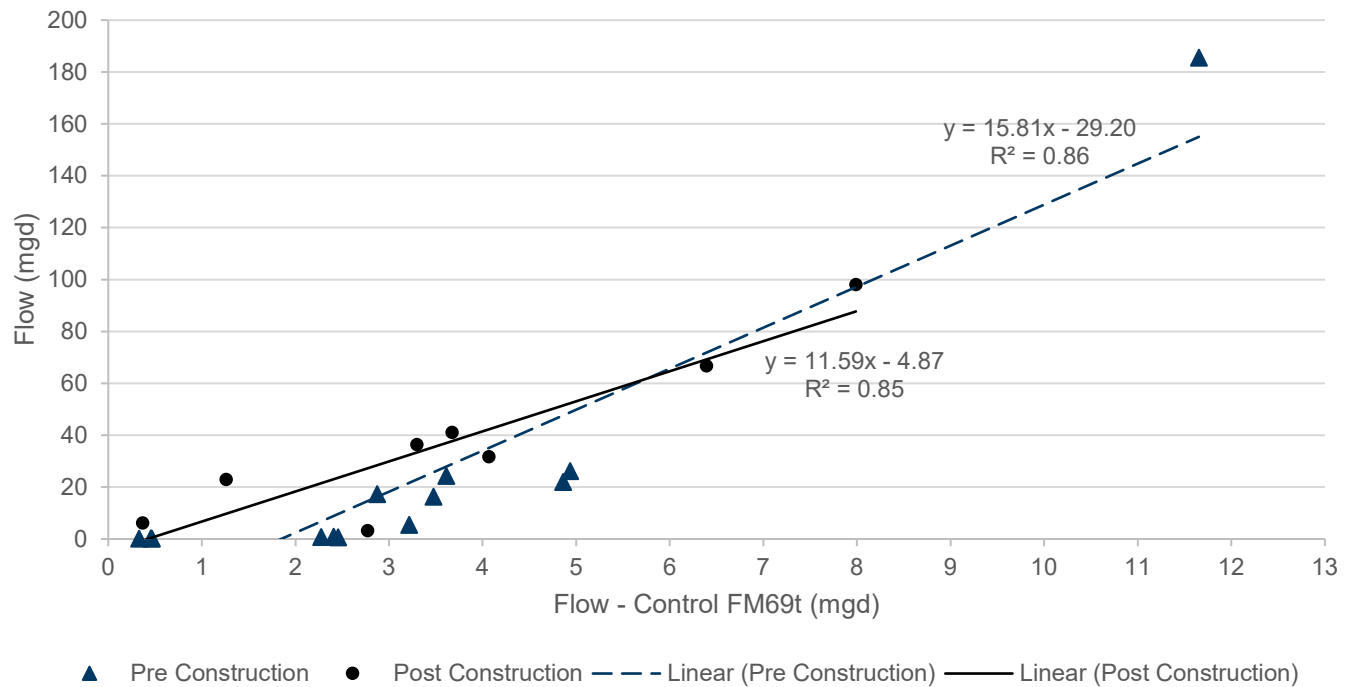


Figure 27 Fall - Peak Flow at FM220 vs. Peak Flow at Control FM69t

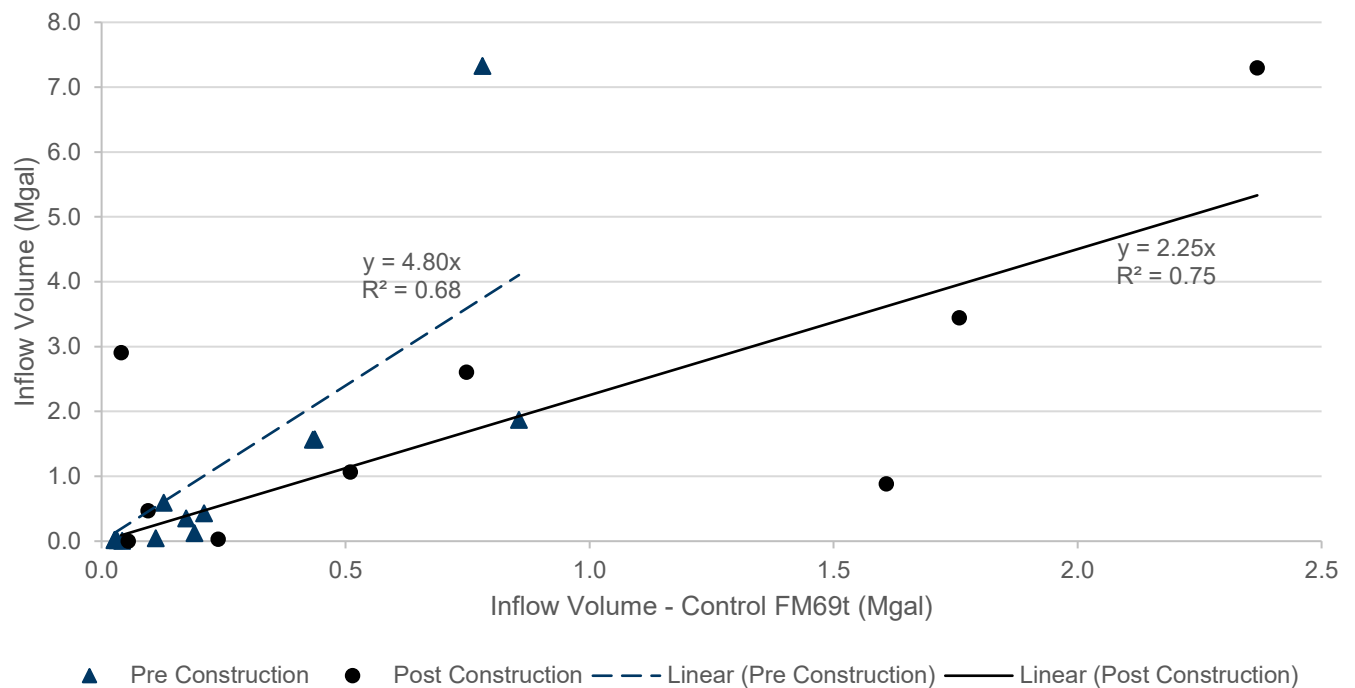


Figure 28 Fall - Inflow Volume at FM220 vs Inflow Volume in Control FM69t

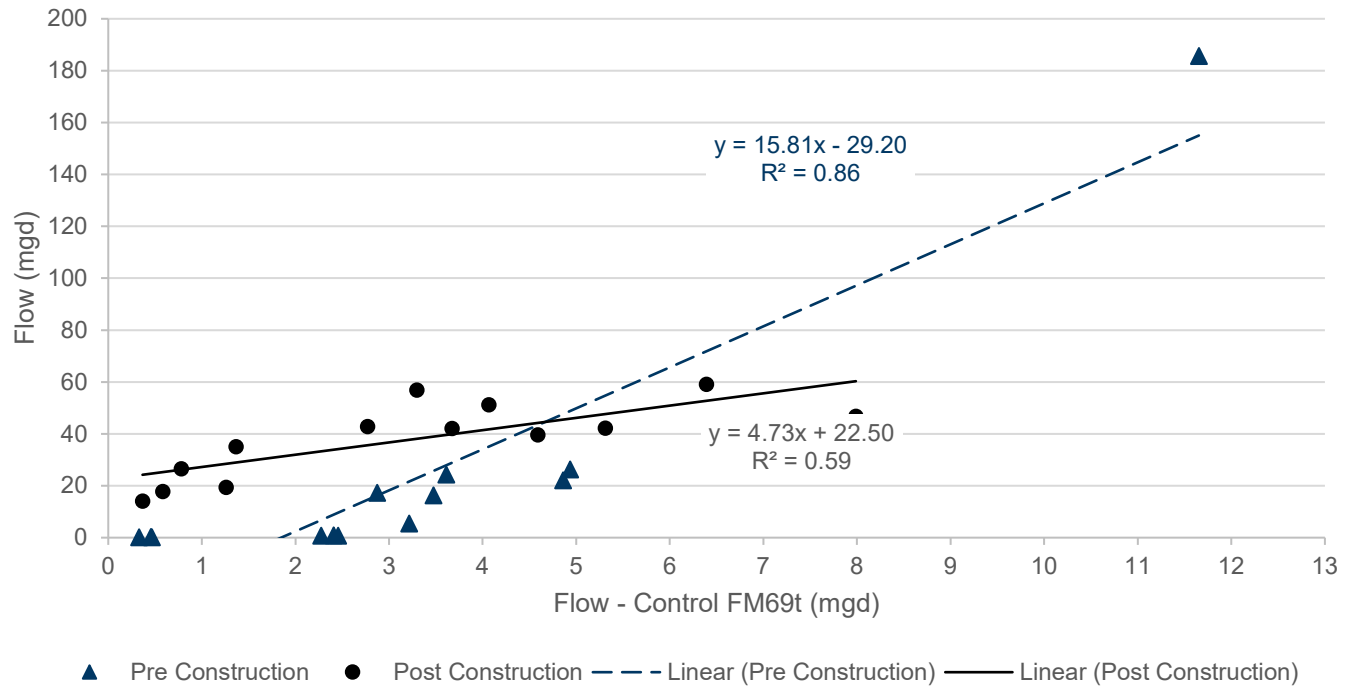


Figure 29 Fall - Peak Flow at FM23t vs Peak Flow in Control FM69t

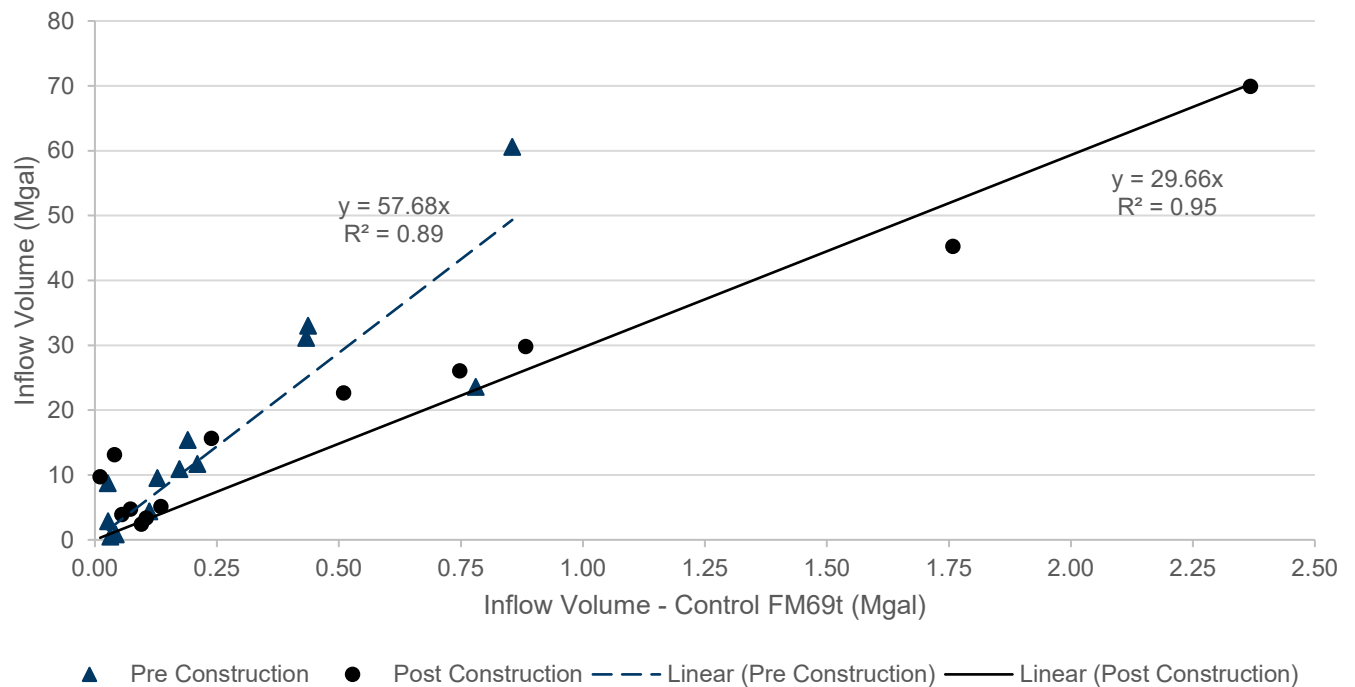


Figure 30 Fall - Inflow Volume at FM23t vs Inflow Volume in Control FM69t

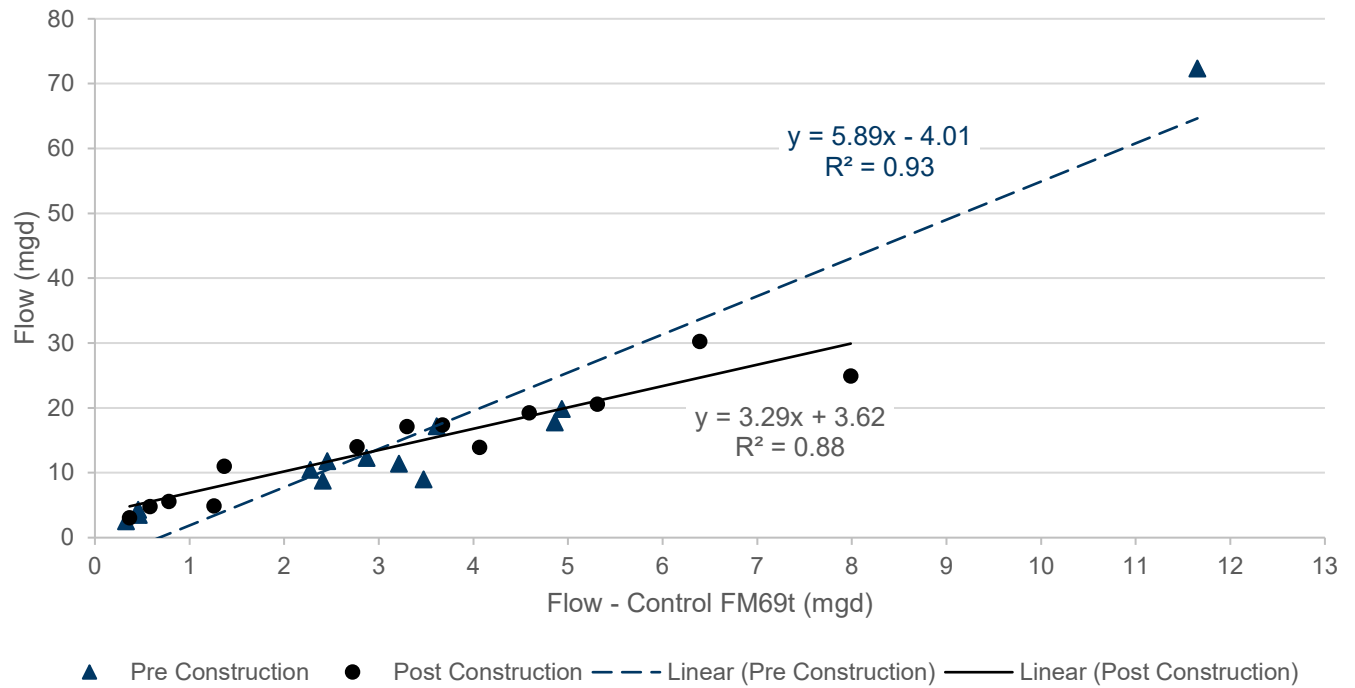


Figure 31 Fall - Peak Flow at FM25t vs Peak Flow in Control FM69t

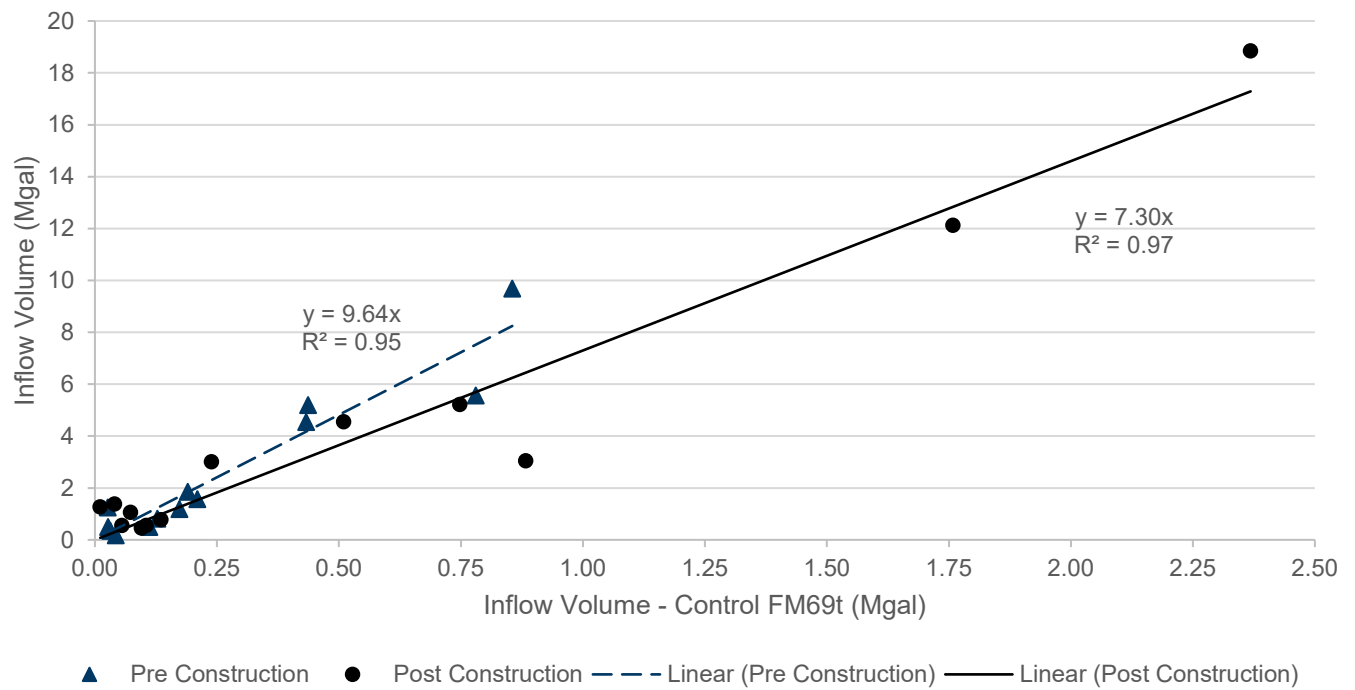


Figure 32 Fall - Inflow Volume at FM25t vs Inflow Volume in Control FM69t

4. Sewer Model Overflow Analysis

Flow data collected from the sewers and level data collected at overflow weirs was compared to the output from the calibrated sewer model. Results of the comparison found that model adjustments were required to reflect changes to the sewer system response as a result of installation of green infrastructure. The recalibrated model output was compared to the original model calibration using the typical year rain event. The results that are presented in Table 8 show that a reduction in overflow volumes occurred as a result of green infrastructure installation. The model runs also showed that activations at SPP 281 decreased from three to two.

Table 8 Overflow Volumes at Tributary Sewer Patrol Points in the Typical Year Rain Event

Sewer Patrol Point	Volume – Pre-Construction (Million Gallons)	Volume – Post Construction (Million Gallons)	Percent Decrease
SPP 050	0	0	N/A
SPP 281	1.56	0.87	44%
SPP 282	0	0	N/A
SPP 326	30.60	30.68	Increase

5. Conclusion

Wet weather responses from the three different types of analysis found that there is a relatively consistent and noticeable reduction in wet weather inflow volumes between the pre-construction and post-construction periods in the project area as a result of the green infrastructure installation. The reduction in volumes measured at FM23t on the Swan trunk ranged between 40-60 percent in the winter, spring, and fall months. FM25t on Pine Street measured a volume reduction around 25 percent for spring and fall months. Peak flows did not appreciably decrease as a result of the green infrastructure installation across all seasons, and a decrease in flows and volumes during the summer months could be measured between the pre-construction and post-construction periods with a low coefficient of determination.

The lack of a decrease in flows and volumes during the summer and no measurable decrease in peak flows is likely related to the nature of green infrastructure. The effectiveness of green infrastructure is dependent on infiltrative capacity of soils and plant activity, where benefit was highest in the wet season and lower in the winter. This means that the greatest benefit from green infrastructure in Buffalo would occur in the spring and fall when plant activity is highest and the silt soils in the region are most receptive to groundwater infiltration. High plant activity increases evapotranspiration and plant life slows runoff rates into the sewer up to the carrying capacity of the system.

During the summer months, Buffalo usually enters a short period with little to no rainfall. This causes plants and soils to dry up and potentially go dormant until temperatures decrease and rain returns. Dormant plants are not ready to absorb runoff and water will not be as effective as they would be during spring and fall. Silty and clay soils that are common in Western New York also tend to dry up and contract at the surface during the dry season. Summer rains will not infiltrate until the soils hydrate and expand. These factors would reduce the effectiveness of green infrastructure during these periods.

The generally non-measurable change in peak flows could be related to large distances of upstream sewers with no treatment in relation to the project area. The upstream sewers with significant impervious area would experience high amounts of peak runoff. This could overtake the effects of the relatively smaller area of green infrastructure that was installed. Subsequently, peak flows may not decrease enough to be measurable as a result of the project.

Overall, the data suggest that the Willert Park Green Infrastructure Project measurably reduced inflow volumes. The reduced inflow volumes led to reduced overflow volumes at the downstream SPPs and a reduction in overflow activations, as predicted by the sewer model. Based on the findings of this project, it is anticipated that well planned installation of additional green infrastructure projects within the City of Buffalo would be beneficial to other parts of the sewer system and can be an effective part of CSO control.

