BUFFALO SEWER AUTHORITY

SPDES Permit No. NY0028410

Long Term Control Plan Annual Post Construction Monitoring Status Report Reporting Period: July 2019 through June 2020 Amended Administrative Order CWA-02-2014-3033 (Amends CWA-02-2012-3024)

September 2020

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ATTACHMENT:

- A. RTC Monthly Performance Report
- B. RTC Performance Measurements Email

1. INTRODUCTION

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

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

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

2. DISCUSSION OF PCM TASKS BEGUN OR COMPELTED

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

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

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

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

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

3. RESULTS OF PCM EFFORTS

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

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

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

4. MODEL UPDATES COMPLETED

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

5. CERTIFICATION STATEMENT

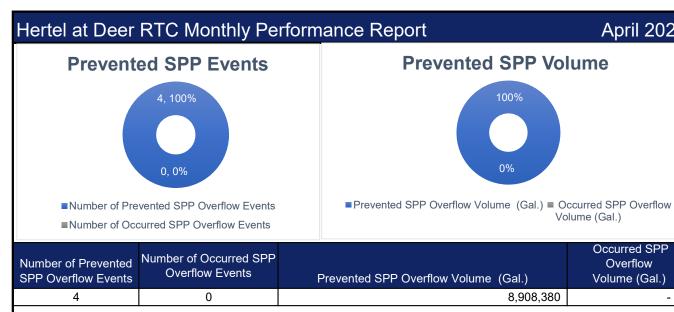
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage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

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

Date

April 2020 Hertel at Deer RTC KPI Report





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

April 2020

Volume (Gal.)

Occurred SPP

Overflow

Volume (Gal.)

-

	April 19	, 2020	1
Site:	Hertel at Deer RTC	Analysis Date:	5/8/2020
Time All Gates Active:	4/19/2020 13:20	Event Start Date/Time:	4/19/2020 13:20
Time All Gates Returned to Normal:	4/21/2020 3:45	Event End Date/Time:	4/21/2020 3:40
Gate Activation Trigger Depth:	1.47 (South Side) ft.		<u> </u>
Return to Normal Depth:	1.02 (South Side) ft.	Analyst Name Organization	Ducho Chab Areadia
Minimum Distance to Top of Weir:	0.00 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	3,883,334 Gal.	Total Rainfall Accumulation:	0 in.
Unused Storage Volume:	22,866 Gal.	Storm Event Duration:	38 hr.
		Storm Type:	N/A
Percent Capture	100%		
Overflow Volume:	0 Gal.	Recommended Operatio	nal Changes/Notes:
Overflow Volume Prevented:	3,883,334 Gal.	No rainfall recorded at South Buff	alo rain gauge during this
SPP Activation Prevented:	Yes	storm event. This event was likely	caused by a localized
If No, what is the overflow volume when store	age NA Gal.	storm.	
was available upstream?			
If No, could SPP activation have been preven	nted? NA		
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	Date/Time		.00
— Hertel North RTC Upstream Level (ft)	-Hertel South RTC Upstream	Level (ft) — Depth at SPP (ft)	
Hertel North Weir Height (ft)	- Hertel South Weir Height (ft)		
	RTC Gate Perform	nance	
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	April 21,	2020	2
Site:	Hertel at Deer RTC	Analysis Date:	5/8/2020
Time All Gates Active:	4/21/2020 6:50	Event Start Date/Time:	4/21/2020 6:50
Time All Gates Returned to Normal:	4/22/2020 1:00	Event End Date/Time:	4/22/2020 1:00
Gate Activation Trigger Depth:	1.55 (South Side) ft.		· ·
Return to Normal Depth:	1.04 (South Side) ft.		
Minimum Distance to Top of Weir:	4.69 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	186,938 Gal.	Total Rainfall Accumulation:	0 in.
Unused Storage Volume:	3,709,280 Gal.	Storm Event Duration:	20 hr.
		Storm Type:	N/A
Percent Capture	100%		
Overflow Volume:	0 Gal.	Recommended Operation	
Overflow Volume Prevented:	186,938 Gal.	No rainfall recorded at South Buff	
SPP Activation Prevented:	Yes	storm event. This event was likely	caused by a localized
If No, what is the overflow volume when stora	age NA Gal.	storm.	
was available upstream?	NA NA		
If No, could SPP activation have been preven	nted? NA		
	RTC torage Perfor	mance	
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	Date/Time		
— Hertel North RTC Upstream Level (ft) –	Hertel South RTC Upstream	Level (ft) — Depth at SPP (ft)	
Hertel North Weir Height (ft) -	-Hertel South Weir Height (ft)	 – SPP Weir Height (ft) 	
	RTC Gate Perform	ance	
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	4/21, 4/21,	4/21, 4/21, 4/21,	4/22.
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	3		
Site:	Hertel at Deer RTC	Analysis Date:	5/8/2020
Time All Gates Active:	4/26/2020 3:00	Event Start Date/Time:	4/26/2020 3:00
Time All Gates Returned to Normal:	4/29/2020 2:35	Event End Date/Time:	4/29/2020 2:35
Gate Activation Trigger Depth:	1.51 (South Side) ft.		
Return to Normal Depth:	1.01 (South Side) ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Minimum Distance to Top of Weir:	3.26 ft.		
Volume Stored:	935,711 Gal.	Total Rainfall Accumulation:	0.4 in.
Unused Storage Volume:	2,965,899 Gal.	Storm Event Duration:	72 hr. Less than 1 year
Percent Capture	100%	Storm Type:	Less than I year
Overflow Volume:	0 Gal.	Recommended Operation	nal Changes/Notes:
Overflow Volume Prevented:	935,711 Gal.	Rainfall data sourced from BSA rai	_
SPP Activation Prevented:	Yes	Buffalo.	
If No, what is the overflow volume when stora	age NA Gal.		
was available upstream?			
If No, could SPP activation have been preven	nted? NA		
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	Date/Time		
—Hertel North RTC Upstream Level (ft)	-Hertel South RTC Upstream L	evel (ft)Depth at SPP (ft)	
Hertel North Weir Height (ft) -	Hertel South Weir Height (ft)	 – SPP Weir Height (ft) 	
	RTC Gate Perform	ance	
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	April 30	, 2020	4
Site:	Hertel at Deer RTC	Analysis Date:	5/8/2020
Time All Gates Active:	4/30/2020 6:50	Event Start Date/Time:	4/30/2020 6:50
Time All Gates Returned to Normal:	5/3/2020 4:00	Event End Date/Time:	5/3/2020 4:00
Gate Activation Trigger Depth:	1.52 (South Side) ft.		-,-,
Return to Normal Depth:	1.03 (South Side) ft.		
Minimum Distance to Top of Weir:	0.00 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	3,902,397 Gal.	Total Rainfall Accumulation:	0.91 in.
Unused Storage Volume:	0 Gal.	Storm Event Duration:	72 hr.
		Storm Type:	Less than 1 year
Percent Capture	100%		, ,
Overflow Volume:	0 Gal.	Recommended Operatio	nal Changes/Notes:
Overflow Volume Prevented:	3,902,397 Gal.	Rainfall data sourced from BSA ra	
SPP Activation Prevented:	Yes	Buffalo.	
If No, what is the overflow volume when store	age		
was available upstream?	NA Gal.		
If No, could SPP activation have been prever	nted? NA		
	RTC torage Perfor	mance	
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	Date/Time		
— Hertel North RTC Upstream Level (ft)	-Hertel South RTC Upstream	Level (ft) — Depth at SPP (ft)	
Hertel North Weir Height (ft)	 Hertel South Weir Height (ft) 		
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May 2020 Hertel at Deer RTC KPI Report



Hertel at Deer RTC Monthly Performance Report

May 2020





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.)
7	1	22,352,051	419,335
	•		
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
5/11/2020	1,451,430	-	100%
5/14/2020	138,207	-	100%
5/15/2020	735,366	-	100%
5/17/2020	4,991,847	-	100%
5/22/2020	3,892,990	-	100%
5/25/2020	3,946,542	-	100%
5/28/2020	3,279,941	-	100%
5/29/2020	3,915,728	419,335	90%

	May 11,	2020	1
Site:	Hertel at Deer RTC	Analysis Date:	6/9/2020
Time All Gates Active:	5/11/2020 6:30	Event Start Date/Time:	5/11/2020 6:30
Time All Gates Returned to Normal:	5/12/2020 0:45	Event End Date/Time:	5/12/2020 0:45
Gate Activation Trigger Depth:	1.58 (South Side) ft.		-, ,
Return to Normal Depth:	0.99 (South Side) ft.		
Minimum Distance to Top of Weir:	2.47 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	1,451,430 Gal.	Total Rainfall Accumulation:	0.3 in.
Unused Storage Volume:	2,448,016 Gal.	Storm Event Duration:	18 hr.
		Storm Type:	Less than one year
Percent Capture	100%		
Overflow Volume:	0 Gal.	Recommended Operation	nal Changes/Notes:
Overflow Volume Prevented:	1,451,430 Gal.		
SPP Activation Prevented:	Yes		
If No, what is the overflow volume when stora	age NA Gal.		
was available upstream?			
If No, could SPP activation have been preven	nted? NA		
	RTC torage Perfor	rmance	
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$ \begin{array}{c} 5_{71} & 5_{7$	5/11/2020 13:12 48 Date/Time Hertel South RTC Upstream - Hertel South Weir Height (ft)	Level (ft) — Depth at SPP (ft)	5 ^{7/1} 1/2020 22:48
	RTC Gate Perforn	nance	
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a 80 O			
40 20 5/11/2020 6:00 5/11/2020 8:24 5/11/2020 10 5/11/2020 10	5/11/2020 5/11/2020 13:12 D:48 Date/Time	^{5/11/2020} ^{5/11/2020} ^{20:24}	5/11/2020 22:48
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Hertel South RTC Ga	te 1 Position (%) •••• H	lertel South RTC Gate 2 Position (%)	
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Site:		Hertel at Deer RTC	Analysis Date:	6/9/20
ime All Gates Active:		5/14/2020 19:50	Event Start Date/Time:	5/14/2020 19:
ime All Gates Returned t	to Normal:	5/15/2020 0:20	Event End Date/Time:	5/15/2020 0:
Gate Activation Trigger De	epth:	1.54 (South Side) ft.		
Return to Normal Depth:	·	1.02 (South Side) ft.		
linimum Distance to Top	of Weir:	4.73 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
/olume Stored:		138,207 Gal.	Total Rainfall Accumulation:	0.1 in.
Jnused Storage Volume:		3,758,338 Gal.	Storm Event Duration:	5 hr.
			Storm Type:	Less than one year
Percent Capture		100%		
Overflow Volume:		0 Gal.	Recommended Operatio	nal Changes/Notes:
Overflow Volume Prevent	ed:	138,207 Gal.		
SPP Activation Prevented		Yes		
f No, what is the overflow	volume when store	nge NA Gal.		
vas available upstream?				
No, could SPP activation	n have been prever	nted? NA		
		RTC Storage Perfo	rmance	
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Hertel North RTC Ups		 Hertel South RTC Upstream 		
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		RTC Gate Perform	nance	
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o 5/14/2020 19:30	^{5/14/2020} 20:42	^{5/14/2020} 21:54	5/14/2020 23:06	;/15/2020 0:18
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<u>ت</u>	Hertel North RTC Gate	Date/Time e 1 Position (percent) •••••	Hertel North RTC Gate 2 Position (perc	ent)
	Hertel South RTC Gat	e 1 Position (%)	Hertel South RTC Gate 2 Position (%)	
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	May 15,	2020	3
te:	Hertel at Deer RTC	Analysis Date:	6/9/202
ne All Gates Active:	5/15/2020 18:25	Event Start Date/Time:	5/15/2020 18:2
me All Gates Returned to Normal:	5/16/2020 2:55	Event End Date/Time:	5/16/2020 2:
ate Activation Trigger Depth:	1.56 (South Side) ft.		-//
turn to Normal Depth:	1.01 (South Side) ft.		
nimum Distance to Top of Weir:	3.58 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
plume Stored:	735,366 Gal.	Total Rainfall Accumulation:	0.1 in.
nused Storage Volume:	3,162,234 Gal.	Storm Event Duration:	9 hr.
	0,202,201 001	Storm Type:	Less than one year
rcent Capture	100%		
erflow Volume:	0 Gal.	Recommended Operation	nal Changes/Notes:
erflow Volume Prevented:	735,366 Gal.		
P Activation Prevented:	Yes		
No, what is the overflow volume when stor	age		
s available upstream?	NA Gal.		
lo, could SPP activation have been preve	nted? NA		
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- Hertel North Weir Height (ft)	^{5/15/2020} 21:36 Date/Time Hertel South RTC Upstream	Level (ft) — Depth at SPP (ft)	^{5716/2020} 2:24
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Hertel South RTC Ga	te 1 Position (%)	lertel South RTC Gate 2 Position (%)	
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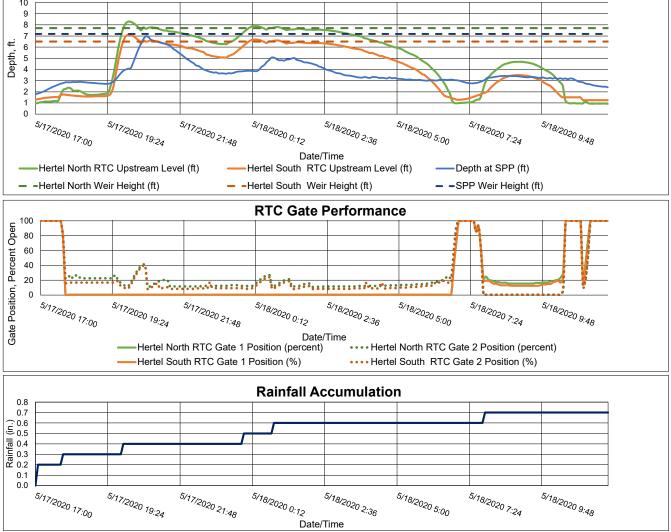
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5/15/2020 18:00

5/15/2020 19:12

5/15/2020 20:24

		N	lay	17, 2	2020		4
Site:		Hertel at Deer	RTC		Analysis Date:		6/10/2020
Time All Gates Active:		5/17/2020 17	':40		Event Start Dat	te/Time:	5/17/2020 17:40
Time All Gates Returned to Normal:		5/18/2020 10):35		Event End Date	e/Time:	5/18/2020 10:35
Gate Activation Trigger Depth:	1.53	(South Sid	de)	ft.			
Return to Normal Depth: Minimum Distance to Top of Weir:	1.50	(South Sid	de) 0.00	ft. D ft.	Analyst Name,	Organization:	Rucha Shah, Arcadis
Volume Stored:		4,99	1,847	Gal.	Total Rainfall A	ccumulation:	0.7 in.
Unused Storage Volume:			0	Gal.	Storm Event D	uration:	19 hr.
					Storm Type:		Less than one year
Percent Capture		100)%				
Overflow Volume:			0	Gal.	Recommended Operational Changes/Notes:		onal Changes/Notes:
Overflow Volume Prevented:		4,99	1,847	Gal.	Hertel South Upstr	eam Level went o	ut of range a few times but the
SPP Activation Prevented:		Ye	S				y using the North Upstream
If No, what is the overflow volume when storage was available upstream?		NA		Gal.	level to make control decisions. Hertel South Upstream Lev was assumed for analysis during those times by using the g obtained from EmNet as it follows a similar trend as the No		se times by using the good data
If No, could SPP activation have been prever	NA	4		Upstream Level.			
	PI	C Storage		rform			
10		C Storage	; Pe				



	May 22, 2020					
Site:	Hertel at Deer RTC	Analysis Date:	6/9/2020			
Time All Gates Active:	5/22/2020 23:20	Event Start Date/Time:	5/22/2020 23:20			
Time All Gates Returned to Normal:	5/24/2020 2:50	Event End Date/Time:	5/24/2020 2:45			
Gate Activation Trigger Depth:	1.59 (South Side) ft.					
Return to Normal Depth:	1.03 (South Side) ft.	Analyst Name, Organization:	Rucha Shah, Arcadis			
Minimum Distance to Top of Weir:	0.00 ft.		-			
Volume Stored:	3,892,990 Gal.	Total Rainfall Accumulation:	1.5 in.			
Unused Storage Volume:	0 Gal.	Storm Event Duration:	29 hr.			
Percent Capture	100%	Storm Type:	Less than one year			
Overflow Volume:	0 Gal.	Recommended Operation	nal Changes/Notes			
Overflow Volume Prevented:	3,892,990 Gal.		iai onanges/notes.			
SPP Activation Prevented:	Yes					
If No, what is the overflow volume when stora	ige Nu cul					
was available upstream?	NA Gal.					
If No, could SPP activation have been prever	nted? NA					
10	RTC torage Perfor	mance				
9						
Depth,						
3						
2						
0						
5/22/2020 22:30 5/23/2020 3:18	^{5/23/2020} 8:06	5/23/2020 17:42	⁵ /24/2020 3:18			
<<: ₃₀		4 17:42	<<:30			
——Hertel North RTC Upstream Level (ft) —	Date/Time —Hertel South RTC Upstream I	Level (ft) — Depth at SPP (ft)				
	-Hertel South Weir Height (ft)	SPP Weir Height (ft)				
	RTC Gate Perform					
c 100	RIC Gale Perform	lance				
E 60						
5/2 $5/2$	5/20 5/20	5/20 5/20	5/2.			
Sizeria Si	5/23/2020 8:06 5/23/2020 12:5	5/23/2020 17:42	^{5/24/2020} 3:18			
Ogate Position 0 0 0 0 0 0 0 0 0 0 0 0 0	Date/Time	*4 **2	······································			
⁽³⁾ — Hertel North RTC Gate	e 1 Position (percent) •••• He	ertel North RTC Gate 2 Position (perce	ent)			
Hertel South RTC Gat	e 1 Position (%) •••• He	ertel South RTC Gate 2 Position (%)				
	Rainfall Accumula	ation				
1.6						
i 1.2 i 1.0 i 0.8 i 0.6 i 0.4						
82 0.4						
5/23/20- 5/23/20- 5/23/20-	⁵ /23/202	5/23/202 5/23/22	5/24/20-			
5.5 5/23/2020 3:18	^{5/23/2020} 8:06	5/23/2020 17:42	^{5/24/2020 3:18}			
	Date/Time					

	May 25,	2020	6
Site:	Hertel at Deer RTC	Analysis Date:	6/9/202
Time All Gates Active:	5/25/2020 6:40	Event Start Date/Time:	5/25/2020 6:4
Time All Gates Returned to Normal:	5/25/2020 23:30	Event End Date/Time:	5/25/2020 23:3
Gate Activation Trigger Depth:	1.06 (South Side) ft.		-, -,
Return to Normal Depth:	1.12 (South Side) ft.		
Minimum Distance to Top of Weir:	0.00 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	3,946,542 Gal.	Total Rainfall Accumulation:	0.2 in.
Unused Storage Volume:	0 Gal.	Storm Event Duration:	18 hr.
ondood otorago volume.	0 66.	Storm Type:	Less than one year
Percent Capture	100%	Storm Type.	Less than one year
Overflow Volume:	0 Gal.	Recommended Operation	al Changes/Notes:
		Recommended Operation	al changes/Notes.
Overflow Volume Prevented:	3,946,542 Gal.		
SPP Activation Prevented:	Yes		
If No, what is the overflow volume when stora	NA Gal.		
was available upstream?			
If No, could SPP activation have been preven	nted? NA		
10	RTC Storage Perfor	mance	
9			
8			
Ceptition Contraction Contract			
5/25/2020 6:00 → Hertel North RTC Upstream Level (ft) Hertel North Weir Height (ft)	^{5/2} 5/2020 13:12 Date/Time Hertel South RTC Upstream		^{5/25/2} 020 22:48
400	RTC Gate Perform	ance	
₽ 00			
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \end{array} \\ \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \\ \end{array} \\ \\ \end{array} \\ \\ \\ \end{array} \\ \\ \\ \\ \end{array} \\ \\ \\ \end{array} \\ \\ \\ \end{array} \\ \\ \\ \\ \end{array} \\$	5/25/2020 13:12 10:48	^{5/25/2020} 18:00	5/25/2020 22:48
U Hertel North RTC Gat	Date/Time	ertel North RTC Gate 2 Position (perce	
— Hertel South RTC Ga		ertel South RTC Gate 2 Position (%)	,
		. 4 1	
0.3	Rainfall Accumula	ation	
_ 0.2			
(j) 0.2 jo 0.2 jo 0.1 0.1			
^{сс} 0.1			
0.0			
5/25/2020 6:00 5/25/2020 8:24	^{5/25/2020} 10:48 Date/Time	^{5/25/2020} 18:00	^{5/25/2020} 22:48
	Date/ Time		

	May 28,	2020	7
Site:	Hertel at Deer RTC	Analysis Date:	6/9/2020
Time All Gates Active:	5/28/2020 12:50	Event Start Date/Time:	5/28/2020 12:50
Time All Gates Returned to Normal:	5/29/2020 2:10	Event End Date/Time:	5/29/2020 2:10
Gate Activation Trigger Depth:	1.53 (South Side) ft.		
Return to Normal Depth:	1.01 (South Side) ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Minimum Distance to Top of Weir:	0.50 ft.		
Volume Stored:	3,279,941 Gal.	Total Rainfall Accumulation: Storm Event Duration:	0.3 in.
Unused Storage Volume:	623,682 Gal.		15 hr. Less than one year
Percent Capture	100%	Storm Type:	Less than one year
Overflow Volume:	0 Gal.	Recommended Operation	al Changes/Notes:
Overflow Volume Prevented:	3,279,941 Gal.		
SPP Activation Prevented:	Yes		
If No, what is the overflow volume when stora	age NA Gal.		
was available upstream?			
If No, could SPP activation have been preven	nted? NA		
	RTC Storage Perfor	mance	
10			
8			
∉ ⁷ ₆			
Depth,			
3			
1			
5/28/2 5/28/2 5/28/2	5/28/0	5/28/0 5/20/0	5/20/2
5/28/2020 12:00 5/28/2020 14:24	^{5/28/20} 20 16:48	5/28/2020 21:36	5/29/2020 2:24
	Date/Time	-0	
— Hertel North RTC Upstream Level (ft) –	Hertel South RTC Upstream L	evel (ft) — Depth at SPP (ft)	
Hertel North Weir Height (ft) -	-Hertel South Weir Height (ft)	 – SPP Weir Height (ft) 	
	RTC Gate Perform	ance	
			
iti 5/28/2020 12:00 5/28/2020 14:24	^{5/28/2020} 16:48	5/28/2020 21:36	5/29/2020 2:24
Cate North DTC Cate		-0 _{21:36}	0 -0 2:24
Hertel North RTC Gate	Date/Time e 1 Position (percent)	ertel North RTC Gate 2 Position (perce	nt)
—Hertel South RTC Gat	(1)	ertel South RTC Gate 2 Position (%)	
	Rainfall Accumula	tion	
0.4 0.3			
(i) 0.3 Image: Display the second seco			
	5/2	5/2. 5/2	5/2
5/28/2020 12:00 5/28/2020 14:24	^{5/28/2020} 16:48	5/28/2020 21:36	5/29/2020 2:24
~· <i>U</i> 0 ···24	^{70:4} 8 Date/Time	- '.36 .00	, ~~<4

	Ma	y 29, 2020			8
Site:	Hertel at Deer RT	C Analys	sis Date:		6/9/20
ime All Gates Active:	5/29/2020 12:20		Start Date/Time:		5/29/2020 12:
ime All Gates Returned to Normal:	5/30/2020 22:10		End Date/Time:		5/30/2020 22:
Gate Activation Trigger Depth:	1.54 (South Side)				
Return to Normal Depth:	1.05 (South Side)	f+			
finimum Distance to Top of Weir:	0.00	Analys	st Name, Organiza	ition: Ruci	ha Shah, Arcadis
olume Stored:	3,915,728	Gal. Total I	Rainfall Accumulat	tion:	3.2 in.
Inused Storage Volume:	0	Gal. Storm	Event Duration:		35 hr.
		Storm	Туре:	Les	s than 10 years
ercent Capture	90%				
verflow Volume:	419,335	Gal. R	ecommended Op	erational Cha	anges/Notes:
verflow Volume Prevented:	3,915,728	Gal.			
PP Activation Prevented:	No				
No, what is the overflow volume when sto	orage	Cal			
as available upstream?	NA	Gal.			
No, could SPP activation have been prev	rented? No				
	RTC Storage F	Performance	9		
10	U				
9					
7					
			++		
3					
2					
$5/29/20_{20} t_{2:00}$ $5/29/20_{20} t_{2:00}$ $5/29/20_{20} t_{6:48}$ $5/29/20_{20} t_{6:48}$ $- \text{Hertel North RTC Upstream Level (ft)}$ $- \text{Hertel North Weir Height (ft)}$	^{5/30/2020} 2:24 Date/Time — Hertel South RTC Up – -Hertel South Weir He	pstream Level (ft)	<i>\$/30/2020 12:00</i> — Depth at SPF – −SPP Weir He	P (ft)	^{5/30/2020} 21:36
	RTC Gate Pe	0 ()		3 ()	
80					
80					
$ \begin{array}{c} 60\\ 40\\ 20\\ 0\\ 5/29/20_{20}\\ 12:00\\ 5/29/20_{20}\\ 16:48\\ 16:48\\ $					
20		• • • • • • • • • • • • • •		• • • • • • • • • • • • •	
	5/20	5/20	5/20 5	/20	5/20
5/29/2020 12:00 5/29/2020 16:48	^{5/30/2020} 2:24	^{5/30/2020} 7:12	5/30/2020 12:00	^{/30/2020} 16:48	^{5/30/2020} 21:36
	Date/Tim		00	48	
Hertel North RTC G	ate 1 Position (percent)		n RTC Gate 2 Positio	n (percent)	
— Hertel South RTC 0	Sate 1 Position (%)	•••• Hertel Sout	h RTC Gate 2 Positi	on (%)	
	D · <i>C</i> · · · ·				
3.5	Rainfall Acc	umulation			
3.0					
2.5					
2.5 2.0 1.5 1.0					<u> </u>
1.0					
0.5					
0.0 $5/20$ $5/20$	5/2-	5/20	5/20 5	/20	5/20
5/29/2020 12:00 5/29/2020 16:48	^{5/30/2020} 2:24	5/30/2020 7:12	^{5/30/2020} 12:00	^{/30/2020} 16:48	^{5/30/2020} 21:36
'<:00 '0:48	*/:36 Solution Solution Solution	· · /2	'<:00	·0:48	< ⁷ :36

Date/Time

June 2020 Hertel at Deer RTC KPI Report



Hertel at Deer RTC Monthly Performance Report

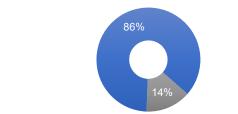
June 2020

Prevented SPP Events



Number of Occurred SPP Overflow Events

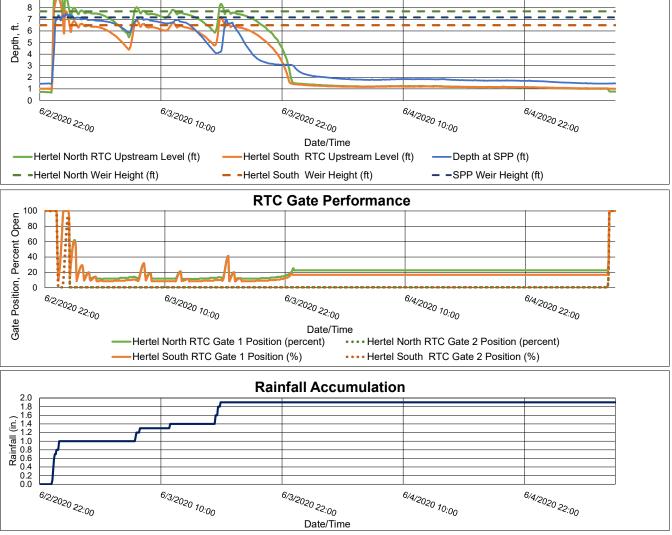
Prevented SPP Volume



■ Prevented SPP Overflow Volume (Gal.) ■ Occurred SPP Overflow Volume (Gal.)

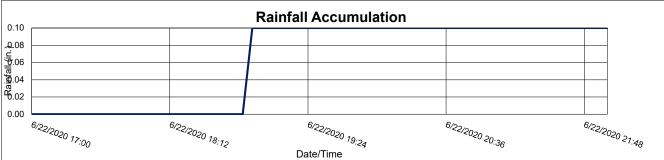
Number of Prevented SPP Overflow Events	Number of Occurred SPP Overflow Events	Prevented SPP Overflow Volume (Gal.)	Occurred SPP Overflow Volume (Gal.)
3	2	18,539,563	3,033,155
Event Date	SPP Overflow Volume Prevented	SPP Overflow Volume Occurred	Percent Capture
6/2/2020	3,949,510	2,481,520	61%
6/10/2020	3,900,141	551,635	88%
6/22/2020	967,427	-	100%
6/23/2020	3,931,361	-	100%
6/27/2020	5,791,124	-	100%

		Jun	ie 2,	2020	1
Site:	He	rtel at Deer RTC		Analysis Date:	7/6/202
Time All Gates Active:	6,	/2/2020 23:10		Event Start Date/Time:	6/2/2020 23:1
Time All Gates Returned to Normal:	6	6/5/2020 6:25		Event End Date/Time:	6/5/2020 6:2
Gate Activation Trigger Depth:	1.03	(South Side)	ft.		
Return to Normal Depth: Minimum Distance to Top of Weir:	9.06	(South Side) 0.00	ft. ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:		3,949,510	Gal.	Total Rainfall Accumulation:	1.9 in.
Unused Storage Volume:		0	Gal.	Storm Event Duration:	57 hr.
				Storm Type:	Less than one year
Percent Capture		61%			
Overflow Volume:		2,481,520	Gal.	Recommended Operation	nal Changes/Notes:
Overflow Volume Prevented:		3,949,510	Gal.		
SPP Activation Prevented:		No			
If No, what is the overflow volume when stora was available upstream?	age	NA	Gal.		
If No, could SPP activation have been preven	nted?	No			
10	RTC	torage F	Perfo	rmance	
9					



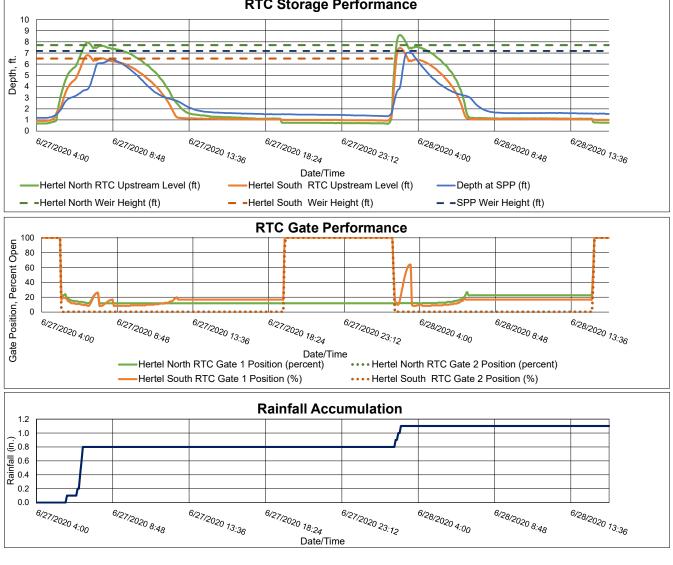
	June 10	, 2020	2
Site:	Hertel at Deer RTC	Analysis Date:	7/6/2020
Time All Gates Active:	6/10/2020 23:45	Event Start Date/Time:	6/10/2020 23:45
Time All Gates Returned to Normal:	6/11/2020 16:20	Event End Date/Time:	6/11/2020 16:20
Gate Activation Trigger Depth:	1.50 (South Side) ft.		
Return to Normal Depth:	1.07 (South Side) ft.		
Minimum Distance to Top of Weir:	0.00 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	3,900,141 Gal.	Total Rainfall Accumulation:	0.7 in.
Unused Storage Volume:	0 Gal.	Storm Event Duration:	18 hr.
		Storm Type:	Less than one year
Percent Capture	88%		
Overflow Volume:	551,635 Gal.	Recommended Operation	al Changes/Notes:
Overflow Volume Prevented:	3,900,141 Gal.		
SPP Activation Prevented:	No		
If No, what is the overflow volume when store	age NA Gal.		
was available upstream?	(10 N		
If No, could SPP activation have been preven	nted? No		
	RTC torage Perfor	rmance	
10 9			
8			
		<u></u>	
t ² : 6 fige of 4			
0			
6/10/2020 23:00 6/11/2020 1:24	^{6/11/2020} 6:12	^{6/11/2020} 11:00 ^{6/11/2020} 13:24	^{6/1} 1/2020 15:48
<3:00 1.24		5.36 11:00 ^{13:} 24	1 ^{73:4} 8
——Hertel North RTC Upstream Level (ft) —	Date/Time —Hertel South RTC Upstream	Level (ft) — Depth at SPP (ft)	
, ,	-Hertel South Weir Height (ft)		
100	RTC Gate Perforn	nance	
	******	• • • • • • • • • • • • • • • • • • • •	
$\frac{6}{110}$ $\frac{6}{110}$ $\frac{6}{110}$	6/11/2- 6/11/2-	6/11/2- 6/11/2-	6/11/2-
Bartel Nath DTC Cat	^{6/1} 1/2020 6:12 ^{6/1} 1/202	^{6/11/2020} ^{11:00} ^{6/11/2020} ^{13:22}	^{6/1} 1/2020 15:48
gate	Date/Time		
Hener North RTC Gat	e 1 Position (percent) •••• H	lertel North RTC Gate 2 Position (perce	nt)
Hertel South RTC Gat	te 1 Position (%)	lertel South RTC Gate 2 Position (%)	
	Delutina		
0.8	Rainfall Accumul	ation	
0.7			
Image: 0.4 Image: 0.4 Image: 0.4 Image: 0.4 Image: 0.4 Image: 0.4 Image: 0.4 Image: 0.4			
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	for for		64
6/10/2020 23:00 6/11/2020 1:24	^{6/11/2020} 6:12	^{6/1} 1/2020 11:00 ^{6/11/2020} 13:24	^{6/1} 1/2020 15:48
-0:00 '.<4 0.	⁴⁸ ^{0.7} 2 Date/Time		1 ^{, 0:4} 8
	Date, Hille		

			June 22	, 2020	3
Site:		Hertel at	Deer RTC	Analysis Date:	7/6/202
Time	All Gates Active:	6/22/20	20 18:15	Event Start Date/Time:	6/22/2020 18:1
Time	All Gates Returned to Normal:	6/22/20	20 21:20	Event End Date/Time:	6/22/2020 21:1
Gate	Activation Trigger Depth:	1.28 (Sou	th Side) ft.		
Retur	rn to Normal Depth:		th Side) ft.		
	num Distance to Top of Weir:		3.24 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volun	me Stored:		967,427 Gal.	Total Rainfall Accumulation:	0.1 in.
Jnus	ed Storage Volume:	2,	960,228 Gal.	Storm Event Duration:	5 hr.
				Storm Type:	Less than one year
	ent Capture		100%		
	flow Volume:		0 Gal.	Recommended Operatio	nal Changes/Notes:
	flow Volume Prevented:		967,427 Gal.		
	Activation Prevented:		Yes		
	, what is the overflow volume when	storage NA	Gal.		
	available upstream?				
f No,	, could SPP activation have been pr	evented?	NA		
		RTC to	rage Perfor	mance	
10 9					
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, 7 ≓ 6				<u></u>	
ē 4					
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1					
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	⁶ /22/2020 17:00	10	^{6/22/2020} 19:24	^{6/22/2020} 20:36	^{6/22/2020} 21:48
	17:00			~0 <u>.36</u>	< <i>1:48</i>
_	-Hertel North RTC Upstream Level (ft)		Date/Time	Level (ft) — Depth at SPP (ft)	
	, ,		Weir Height (ft)		
	-Hertel North Weir Height (ft)	Herter South	i weir Height (it)	 – SPP Weir Height (ft) 	
		RTC G	ate Perform	nance	
400					
u ¹⁰⁰ 80)				
u ¹⁰⁰ 80					
u ¹⁰⁰ 80		~			
u ¹⁰⁰ 80		~			
u ¹⁰⁰ 80					<u> </u>
u ¹⁰⁰ 80					6/22/2020 21:47
u ¹⁰⁰ 80		~	6/22/2020 19:23		6/22/2020 21:47
, Percent Open 0 8 00 0 5 00	6/22/2020 16:59	Gate 1 Position (pe	^{6/22/2020} 19:23 Date/Time	ertel North RTC Gate 2 Position (perce	
00eu 80	6/22/2020 16:59 —Hertel North RTC		^{6/22/2020} 19:23 Date/Time prcent) H		
00eu 80	6/22/2020 16:59 —Hertel North RTC	C Gate 1 Position (pe C Gate 1 Position (%	^{6/22/2020} 19:23 Date/Time prcent) H	ertel North RTC Gate 2 Position (perce ertel South RTC Gate 2 Position (%)	
00eu 80	6/22/2020 16:59 —Hertel North RTC	C Gate 1 Position (pe C Gate 1 Position (%	^{6/22/2020} 19:23 Date/Time prcent) H	ertel North RTC Gate 2 Position (perce ertel South RTC Gate 2 Position (%)	



	June 23	, 2020	4
Site: Time All Gates Active:	Hertel at Deer RTC 6/23/2020 14:05	Analysis Date: Event Start Date/Time:	7/6/2020 6/23/2020 14:05
Time All Gates Returned to Normal: Gate Activation Trigger Depth:	6/23/2020 22:05	Event End Date/Time:	6/23/2020 22:05
Return to Normal Depth:	1.29 (South Side) ft. 1.11 (South Side) ft.		
Minimum Distance to Top of Weir:	0.00 ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Volume Stored:	3,931,361 Gal.	Total Rainfall Accumulation:	0.9 in.
Unused Storage Volume:	0 Gal.	Storm Event Duration:	10 hr.
		Storm Type:	Less than one year
Percent Capture Overflow Volume:	100% 0 Gal.	Recommended Operation	ol Changes/Notae
Overflow Volume Prevented:	3,931,361 Gal.	Recommended Operation	ial Changes/Notes:
SPP Activation Prevented:	Yes		
If No, what is the overflow volume when stora	age NA Cal		
was available upstream?	NA Gal.		
If No, could SPP activation have been preven	nted? NA		
	RTC Storage Perfor	:manoo	
10	KIC Storage Perior		
9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9			
7			
ft 6			
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	6/23/22 6/23/22	6/23/22 6/23/22 6/23/22	6/23/22
^{6/23/2020} 13:00	^{6/23/2020} 16:36	^{6/23/2020} 19:00 ^{6/23/2020} 20:12	^{6/23/2020} 22:36
	Date/Time		
	Hertel South RTC Upstream		
Hertel North Weir Height (ft)	 Hertel South Weir Height (ft) 	 – SPP Weir Height (ft) 	
_ 100	RTC Gate Perform	nance	
ti 60 90 40 0 20			
	*****	<u>, , , , , , , , , , , , , , , , , , , </u>	
o o o o o o o o o o o o o o o o o o o	^{6/23/2020} ^{16:36}	^{6/23/2020} 19:00 ^{6/23/2020} 20:12	^{6/23/2020} 22:36
e e e e e e e e e e e e e e e e e e e		⁵ <0 19:00 19:00	⁰ ²¹ :24 ²² :36
Hertel North RTC Gat	Date/Time e 1 Position (percent) •••• H	ertel North RTC Gate 2 Position (perce	ent)
— Hertel South RTC Ga		ertel South RTC Gate 2 Position (%)	
	Rainfall Accumula	ation	
1.0			
_0.8			
0.0 0.0 0.1 0.0 0.2 0.0			
	6/2 6/2	6/2. 6/2 6/2	6/c
6/23/2020 13:00 6/23/2020 14:12	^{6/23/2020} 16:36	^{6/23/2020} ^{19:00} ^{6/23/2020} ^{20:12}	^{6/23/2020} 22:36
00	Date/Time		.<4

		June	27,	2020	5
Site:	F	lertel at Deer RTC		Analysis Date:	7/6/2020
Time All Gates Active:		6/27/2020 5:10		Event Start Date/Time:	6/27/2020 5:10
Time All Gates Returned to Normal:		6/28/2020 15:05		Event End Date/Time:	6/28/2020 15:05
Gate Activation Trigger Depth:	1.29	(South Side)	ft.		
Return to Normal Depth:	1.03	(South Side)	ft.	Analyst Name, Organization:	Rucha Shah, Arcadis
Minimum Distance to Top of Weir:		0.00	ft.	Analyst Name, Organization.	Rucha Shah, Arcaus
Volume Stored:		5,791,124	Gal.	Total Rainfall Accumulation:	0.7 in.
Unused Storage Volume:		0	Gal.	Storm Event Duration:	19 hr.
				Storm Type:	Less than one year
Percent Capture		100%			
Overflow Volume:		0	Gal.	Recommended Operation	hal Changes/Notes:
Overflow Volume Prevented:		5,791,124	Gal.		
SPP Activation Prevented:		Yes			
If No, what is the overflow volume when stora available upstream?	ige was	NA	Gal.		
If No, could SPP activation have been preven	ited?	NA			
	RT	C Storage Pe	rforn	nance	



July 2019 Lang Ave. RTC KPI Report

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

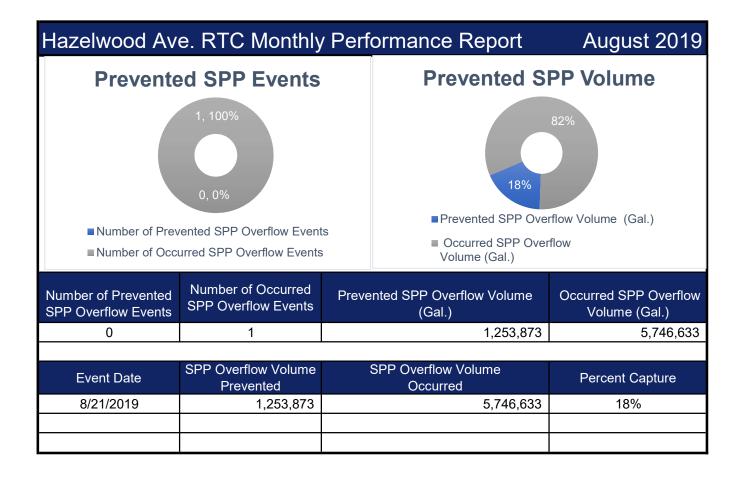


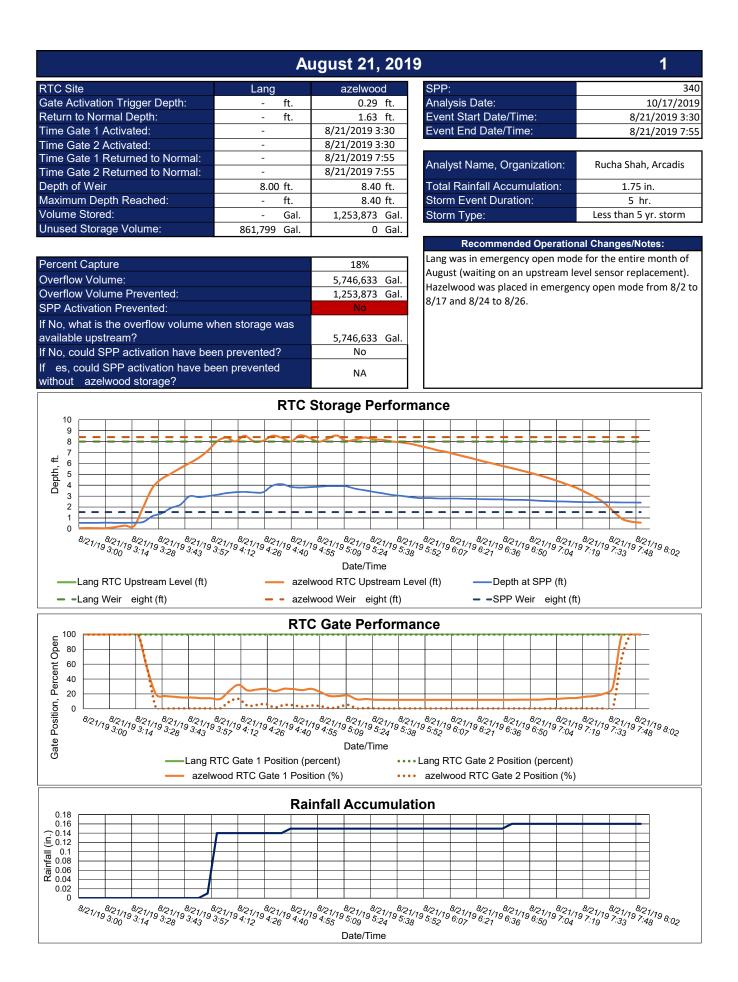
esign & Consultancy or natural and uilt assets

August 2019 Lang Ave. and Hazelwood RTC **KPI** Report







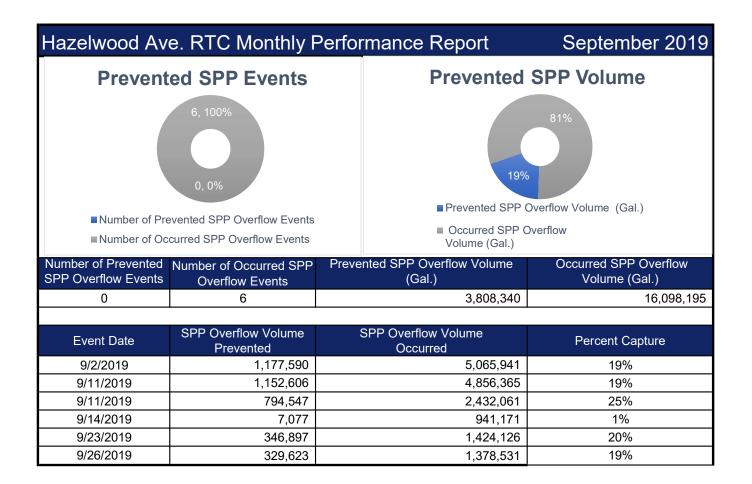


September 2019 Lang Ave. and Hazelwood RTC KPI Report





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	S	eptember 2,	2019	1
TC Site	Lang	azelwood	SPP:	Hazelwo
ate Activation Trigger Depth:	- ft.	1.50 ft.	Analysis Date:	10/14/20
eturn to Normal Depth:	- ft.	1.14 ft.	Event Start Date/Time:	9/2/2019 3:45
ime Gate 1 Activated:	-	9/2/2019 3:45	Event End Date/Time:	9/2/2019 8:00
ime Gate 2 Activated:	-	9/2/2019 3:45	Evolit End Bato, Fillio.	3, 2, 2013 0.00
ime Gate 1 Returned to Normal:	-	N/A		
ime Gate 2 Returned to Normal:	-	N/A	Analyst Name, Organization:	Rucha Shah, Arcadis
epth of Weir	8 ft.	8.4 ft.	Total Rainfall Accumulation:	1.90 in.
laximum Depth Reached:	0.00 ft.	8.40 ft.	Storm Event Duration:	4 hr.
olume Stored:				
	0 Gal.	1,177,590 Gal.	Storm Type:	Less than 5 yr. storm
nused Storage Volume:	861,799 Gal.	0 Gal.		
			Recommended Operation	
ercent Capture		19%	Lang was in emergency open mod	
verflow Volume:		5,065,941 Gal.	September (waiting on an upstrea	im level sensor
verflow Volume Prevented:		1,177,590 Gal.	replacement).	
PP Activation Prevented:		1,177,590 Gal. No		
		NU		
No, what is the overflow volume w	nen storage was	5065941		
vailable?				
No, could SPP activation have bee		No		
es, could SPP activation have be	een prevented	NA		
ithout azelwood storage?				
	RTC	Storage Perform	mance	
10				
9				
8 7				
₩ 6				
Depth De				
tu 6 5 4 3 2				
U G G G G G G G G G G G G G G G G G G G	90. 90. 90. 90			
L, 6 C C C C C C C C C C C C C C C C C C	azel		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Le	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$\begin{array}{c} \mathbf{f}_{1} \\ \mathbf{f}_{2} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}$		Date/Time wood RTC Upstream Lo wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$\begin{array}{c} \mathbf{f}_{1} \\ \mathbf{f}_{2} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}_{3} \\ \mathbf{f}_{4} \\ \mathbf{f}$		Date/Time wood RTC Upstream Lo wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ft	
$= \frac{100}{60}$	azel azel RT(Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performation	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ff ance	
$= \frac{100}{60}$	azel azel RT(Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performation	evel (ft) — Depth at SPP (ft) — -SPP Weir eight (ff ance	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	azel azel RT(Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)Depth at SPP (ft) SPP Weir eight (ff) ance	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 9:37) 9:2/19 5:25 (19 5:36) 9:2/19 5:35 Date/Time	evel (ft)Depth at SPP (ft) Depth at SPP (ft) SPP Weir eight (ff) ance ance ance $ance = ance = anc$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Performation $(J_1, g_{5:16}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:45}^$	evel (ft)Depth at SPP (ft) Depth at SPP (ft) SPP Weir eight (ft) ance ance ance $anceand andandand andand and and and and and and and and and $	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Performation $(J_1, g_{5:16}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:45}^$	evel (ft)Depth at SPP (ft) Depth at SPP (ft) SPP Weir eight (ff) ance ance ance $ance = ance = anc$	
$= \frac{1}{9} \frac{1}{9} \frac{1}{9} \frac{1}{2} \frac{1}{9} \frac{9}{3} \frac{9}{2} \frac{1}{9} \frac{9}{3} \frac{9}{2} $		Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Performation $(J_1, g_{5:16}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:37}^{9/2/19}, g_{5:45}^{9/2/19}, g_{5:45}^$	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 9 5:37 9 5:45 9 6: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 95:37 95:45 96: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 95:37 95:45 96: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		Date/Time wood RTC Upstream Lo wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 95:37 95:45 96: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Date/Time wood RTC Upstream Lo wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 95:37 95:45 96: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Date/Time wood RTC Upstream Lo wood Weir eight (ft) C Gate Perform C Gate Sector (19 5:16 95:37 95:45 96: Date/Time (19 0)	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	azel RT(9/2/19 9/2/19 9/2/19 9/2 4/19 4.33 9 4.48 9 5.02 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Performa (79 5:76 9'2'19 9'2'19 5:37 Date/Time 6) infall Accumula	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{\sqrt{2}/19} \frac{9/2}{6:74} \frac{9/2}{6:26} \frac{9/2}{19} \frac{9/2}{6:43} \frac{9/2}{6:57} \frac{9/2}{7:12} \frac{9/2}{7:2}$ - Lang RTC Gate 2 Position (%) - azelwood RTC Gate 2 Position (%) tion	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Date/Time wood RTC Upstream La wood Weir eight (ft) C Gate Performa (79 5:76 9'2'19 9'2'19 5:37 Date/Time 6) infall Accumula	evel (ft) Depth at SPP (ft) SPP Weir eight (ft) ance $\frac{1}{2}$ $\frac{1}{$	

		S	eptember 11	, 2019	2
Lete Activation Trigger Depth: n. n. 1.30 ft. Market Start Date? Market Start Da	RTC Site	Lano	azelwood	SPP:	Hazelwoo
eterm to Normal Dept:					10/14/201
ime Gate 1 Activated: - 9/11/2013 3:00 Ime Gate 2 Returned to Normat: - N/A reght of Weir Ime Gate 2 Returned to Normat: - N/A Returned Storage Volume: - Returned to 155,555 Gat: - 1152,606 Gat: - Normation of Storage Performance - Capture - Capt					
Imple Gale 2 Activated: Imple Gale 2 Returned to Normal: Imple Gale 1 Returned to Normal: Imple Gale 2 Returned to Normal: Imple Gale 3		-			
Imple Cate 1 Returned to Normat: - N/A repth of War 8 ft. 8 dt. 8 dt. symtum Depth Reached: 0.00 ft. 8.40 ft. olume Storde: 0.01 ft. 8.40 ft. olume Storde: 0.01 ft. 8.40 ft. synthw Depth Reached: 0.01 ft. 8.40 ft. olume Storde: 0.01 ft. 8.40 ft. synthw Volume: 8.61,799 Gal. 0.61. werflow Volume: 4.856,365 Gal. No, could SPP activation have been prevented: 1.152,606 Gal. No, could SPP activation have been prevented: NA No, could SPP activation have been prevented: NA werflow Volume: 4.856,355 No, could SPP activation have been prevented NA werflow Volume: 4.856,355 No, could SPP activation have been prevented NA werflow Volume: 4.856,355 No, could SPP activation have been prevented NA werflow Volume: 4.856,355 No, could SPP activation have been prevented NA werflow Volume: 4.856,355 uang RTC Upateman Level (ft) azehvood RTC U		-			
imple date 2 Returned to Normal: N/A basimum Depth Reached: 0.00 ft. 8.4 ft. basimum Depth Reached: 0.00 ft. 8.40 ft. ohume Storad: 0.6al. 1,155,666 Gal. invest Storad: 0.6al. 1,152,666 Gal. invest Storad: 0.6al. 1,152,666 Gal. invest Storage Volume: 4,856,365 Gal. 1,152,666 Gal. invest Storage Volume: 4,856,365 Gal. 1,152,666 Gal. invest Storage Volume: 4,856,365 Gal. 1,152,666 Gal. No. Wolume: 4,856,365 Gal. 1,152,666 Gal. invest Storage Pactivation have been prevented? No 1,152,666 Gal. into a xna, Xrange Storage Volume: 4,856,365 Gal. 1,152,666 Gal. into a xna, Xrange Storage Volume: 4,856,365 Gal. 1,152,666 Gal. into a xna, Xrange Storage Volume: 4,856,365 Gal. 1,152,666 Gal. No. associal SPP activation have been prevented? No associal SPP activation have been prevented? No. associal SPP activation have been prevented? No associal SPP activation have been prevented? into a xna, Xrange Storage Syntage Syntage Syntage Syntage Syntage Syntage Syntage Syntage S		-			
ept of Weir lassimum Depth Reached: diverse Stored: hused Stored: hused Stored: werfow Volume: ercent Capture werfow Volume Prevented: PP Activation have been prevented? no, could SPP activation have been prevented? No could SPP activation		-		Analyst Name, Organization:	Rucha Shah, Arcadis
lavinum Depth Reached: 0.00 ft. 8.40 ft. hused Storage Volume: 0.60 lt. 1,152,666 Gal. hused Storage Volume: 861,799 Gal. 0.61. ercent Capture 14,856,385 Gal. hused Storage Volume: 4,856,385 Gal. hused Storage Volume:		8 ft		Total Rainfall Accumulation	2 0 in
olume Storage Volume: executed Storage Volume when storage was valiable? No, could SPP activation have been prevented? executed Storage Volume when storage was valiable? No, could SPP activation have been prevented? executed Storage Volume when storage was valiable? No, could SPP activation have been prevented? executed SPP activation have been prevented? NA Throug age trying					
hused Storage Volume: ercent Capture verflow Volume: PActivation Prevented: No, what is the overflow volume when storage was valiable? No, outdl SPP activation have been prevented? No, outdl SPP activation been prevented? No,					
Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: Large was in mergency open mode for the entire month of september (waiting on an upstream level sensor replacement). Recommended Operational Changes/Notes: replacement). Recommended Operational Changes/Notes: replacement). Recommended Operational Changes/Notes: replacement, Recommended Operational Changes/Notes: replacement). Recommended Operational Changes/Notes: replacement). Recommended Operational Changes/Notes: replacement, Recommended Operational Changes/Notes: replacement, Recommended Operational Changes/Notes: replacement, Recommended Operational Changes/Notes: Recommended Operational Changes/Notes: Recommende				Storm Type.	
ercent Capture 19% worldw Volume: Year and Prevented: 1,152,606 Galt PP Activation Prevented: 1,152,606 Galt PP Activation Prevented: 1,152,606 Galt PR Activation Prevented: Na September (waiting on an upstream level sensor replacement). RTC Storage Performance	indsed Storage Volume.	801,799 Gal.	0 Gai.	Recommended Operatio	nal Changes/Notes:
Provertion Volume: verflow Volume Prevented: No, could SPP activation have been prevented? No, could SPP activation have been prevented? No who that is the overflow volume when storage was valiable? No could SPP activation have been prevented? No who that is the overflow volume when storage was valiable? No could SPP activation have been prevented? No who that is the overflow volume when storage was valiable? No could SPP activation have been prevented? No who that is the overflow volume when storage was valiable? No who the overflow volume when storage was valiabl					
Vernow Volume: PP Activation Prevented: No, what is the overflow volume when storage was associal SPP activation have been prevented? No, ould SPP activation have been prevented? No es, could SPP activation have been prevented? No are scould SPP activation have been prevented? No TC Storage Performance TC Storage Performance	ercent Capture		19%		
Verified Volume Prevented: No. soluti SPP activation have been prevented? No. could SPP activation have been prevented? NA NA NA NA NA NA NA NA NA NA	Overflow Volume:		4,856,365 Gal.		am level sensor
No, what is the overflow volume when storage was valuable? No, could SPP activation have been prevented? ishout azelwood storage?	Overflow Volume Prevented:		1,152,606 Gal.	replacement).	
No, what is the overflow volume when storage was valuable? No, could SPP activation have been prevented? ishout azelwood storage?	PP Activation Prevented:		No		
Validable? No. could SPP activation have been prevented? No. could SPP		when storage was			
No, could SPP activation have been prevented? No NA RTC Storage Performance		men storage was	4856365		
ntout azelwood storage? NA RTC Storage Performance		en prevented?	No		
Im RTC Storage Performance 1			NO		
RTC Storage Performance		een prevented	NA		
u u	linoui azelwood storage?				
u u		RTC	Storage Perforr	mance	
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0 9/11/19 3/07/19 3/17/19 3/17/19 4/17/19 4/17/19 4/17/19 4/17/19 4/17/19 4/17/19 4/17/19 5/17/1	2				
$Date/Time \\ - Lang RTC Upstream Level (ft) - azelwood RTC Upstream Level (ft) - SPP Weir eight (ft) - SPP We$					•
$Date/Time \\ - Lang RTC Upstream Level (ft) - azelwood RTC Upstream Level (ft) - SPP Weir eight (ft) - SPP We$					
Lang RTC Upstream Level (ft)azelwood RTC Upstream Level (ft)Depth at SPP (ft)		9/11/10 9/11/10 9/11/10	9/11/10 9/11/10 9/11/10	9/11/10 9/11/10 9/11/10 9/11/10 9/11/10 9/11/10 9/11/10 9/11/10	9/11/10 9/11/10 9/11/10 ·
Lang Weir eight (ft) azelwood Weir eight (ft) SPP Weir eight (ft) - SPP We		^{9/1} 1/19 ^{9/1} 1/19 ^{9/1} 1/19 3:50 ^{9/1} 1/19 ^{9/1} 1/19	^{9/1} 1/19 ^{9/1} 1/19 ^{9/1} 1/19 4:33	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9/11/19 9/11/19 9/11/19 7:1 6:28
$\mathbf{RTC \ Gate \ Performance} \\ \mathbf{P} $		9/11/19 9/11/19 9/11/19 3:50		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9/11/19 9/11/19 9/11/19 7:1 6:28
$\mathbf{RTC \ Gate \ Performance} \\ \mathbf{P} $	$\begin{bmatrix} 1 \\ 0 \\ 9/1 \\ 1/19 \\ 3:07 \end{bmatrix} \xrightarrow{9/1 \\ 1/19 \\ 3:21 \end{bmatrix} \xrightarrow{9/1 \\ 1/19 \\ 3:36 \end{bmatrix} \xrightarrow{9/1 \\ 3:36 } 9/1$		Date/Time		9/11/19 9/11/19 9/11/19 7:1 96:28
100 1	- Lang RTC Upstream Level (ft)	azel	Date/Time wood RTC Upstream Le	evel (ft) — Depth at SPP (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation	- Lang RTC Upstream Level (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation	- Lang Weir eight (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)	
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Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performation	evel (ft)Depth at SPP (ft) SPP Weir eight (f	ft)
Lang RTC Gate 1 Position (%) azelwood RTC Gate 1 Position (%) Rainfall Accumulation 2.5 (i) 15 0.5 0 0 0 0 0 0 0 0 0 0 0 0 0	- Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performation	evel (ft)Depth at SPP (ft) SPP Weir eight (f	ft)
- azelwood RTC Gate 1 Position (%) ···· azelwood RTC Gate 2 Position (%) Rainfall Accumulation	- Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa 9/11/19 9/11/19 5/02	evel (ft)Depth at SPP (ft) SPP Weir eight (f	ft)
Rainfall Accumulation	$\begin{array}{c} 1\\ 0\\ 9/1_{1/19} \begin{array}{c} 9/1_{1/19} \begin{array}{c} 9/1_{1/19} \\ 3:2_{7} \end{array} \\ 9/1_{1/19} \begin{array}{c} 9/1_{1/19} \\ 3:2_{1} \end{array} \\ 9/1_{1/19} \begin{array}{c} 9/1_{1/19} \\ 3/1_{1/19} \end{array} \\ $	azel RT(9/11/19 9/11/19 9/11/19 3:50 9/11/19 4:19	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa Generation 9/11/19 9/11/19 5:02 Date/Time	evel (ft)Depth at SPP (ft) Depth at SPP (ft) SPP Weir eight (f ance $g_{11/19} g_{11/19} g_{11/19$	ft)
	$\begin{array}{c} 1\\ 0\\ 9^{j}1_{1/19} \begin{array}{c} 9^{j}_{3:27} \\ 3^{j}_{2:27} \\ 3^{j}_{3:27} \\ - Lang \\ \end{array}$	azel RT (9/1/19 9/1/19 9/11/19 3:50 9/1/19 4:04 RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Perform C Gate Perform $g_{1/1/19}$ $g_{1/1/19}$ $g_{1/1/1$	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $g_{1/1/19} g_{1/1/19} g_{1/1} g_{1/1} g_$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $1/19_{7:1}$
2.5 (i) 2 1.5 0.5 0.5 0	$\begin{array}{c} 1\\ 0\\ 9/1 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\$	azel RT (9/1/19 9/1/19 9/11/19 3:50 9/1/19 4:04 RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Perform C Gate Perform $g_{1/1/19}$ $g_{1/1/19}$ $g_{1/1/1$	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $g_{1/1/19} g_{1/1/19} g_{1/1} g_{1/1} g_$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
	$\begin{array}{c} 1\\ 0\\ 9/1 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 1/1 \\ 9 \\ 3: 0 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\ 7 \\$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
	$\begin{array}{c} 1 \\ 0 \\ 9/1 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 9/2 \\ 1/1 \\ 9/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
	$\begin{array}{c} 1 \\ 0 \\ 9/1 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
	$\begin{array}{c} 1 \\ 0 \\ 9^{j_{1}}1_{1/19} \\ 3^{j_{2}}0^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{2}}1_{1/19} \\ 3^{j_{2}}2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:12}$
	$\begin{array}{c} 1 \\ 0 \\ 9^{j_{1}}1_{1/19} \\ 3^{j_{2}}0^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{2}}1_{1/19} \\ 3^{j_{2}}2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
	$\begin{array}{c} 1 \\ 0 \\ 9/1 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/1 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2 \\ 1/2 \\ 9/2 \\ 1/2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:1}$
9/1/19 2:24 9/1/19 2:24	$\begin{array}{c} 1 \\ 0 \\ 9^{j_{1}}1_{1/19} \\ 3^{j_{2}}0^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}2^{j_{1}}1_{1/19} \\ 3^{j_{3}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}0^{j_{1}}1_{1/19} \\ 3^{j_{1}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{1}}1_{1/19} \\ 3^{j_{2}}2^{j_{2}}1_{1/19} \\ 3^{j_{2}}2$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:12}$
· · //19 _{2:24}	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ Date/Time $g_{1/1/19}$ $g_{2/1/19}$ $g_{2/1/19}$ $g_{2/10}$ $g_{2/$	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance $\frac{9/1}{5:3}, \frac{9/1}{5:3}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac{9/1}{5:6}, \frac{9/1}{5:45}, \frac{9/1}{5:6}, \frac$	ft) $9^{9/1}_{6:28}$ $9^{9/1}_{6:43}$ $9^{9/1}_{6:57}$ $9^{9/1}_{7:12}$
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	azel RT (9/11/19 9/11/19 9/11/19 3:50 9/11/19 9/11/19 9/11/19 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa Generation (ft) C Gate Performa (ft) C Gate Performa (ft) C Gate Performa (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	evel (ft)Depth at SPP (ft) SPP Weir eight (f ance 	$\frac{ft}{2} = \frac{9/1}{6.28} + \frac{9/1}{6.43} + \frac{9/1}{6.57} + \frac{9/1}{7} + \frac{9}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{1}{7} + \frac{1}{7$

	<u> </u>	eptember 11	, 2019	3
TC Site	Lang	azelwood	SPP:	Hazelwoo
ate Activation Trigger Depth:	- ft.	0.91 ft.	Analysis Date:	10/14/201
eturn to Normal Depth:	- ft.	- ft.	Event Start Date/Time:	9/11/2019 21:45
ime Gate 1 Activated:	-	9/11/2019 21:45	Event End Date/Time:	9/12/2019 0:30
ime Gate 2 Activated:	-	9/11/2019 21:45		
ime Gate 1 Returned to Normal:	-	N/A		Dualas Chala Anas dia
ime Gate 2 Returned to Normal:	-	N/A	Analyst Name, Organization:	Rucha Shah, Arcadis
epth of Weir	8 ft.	8.4 ft.	Total Rainfall Accumulation:	4.4 in.
laximum Depth Reached:	0.00 ft.	6.62 ft.	Storm Event Duration:	3 hr.
olume Stored:	0 Gal.	794,547 Gal.	Storm Type:	Less than 1000 yr. storm
nused Storage Volume:	861,799 Gal.	425,026 Gal.		· · ·
v	,	,	Recommended Operation	onal Changes/Notes:
		250/	Lang was in emergency open mo	
ercent Capture		25%	September (waiting on an upstre	
overflow Volume:		2,432,061 Gal.	replacement).	
verflow Volume Prevented:		794,547 Gal.		
PP Activation Prevented:		No		
No, what is the overflow volume w	hen storage was	2432061		
/ailable?		2152001		
No, could SPP activation have bee	en prevented?	No		
es, could SPP activation have be	een prevented	NA		
ithout azelwood storage?		INA		
	DTC	Storage Perfor		
10		Storage Ferror	Inditce	
9				
8			- - 	
<i>t</i> ² ⁷ [−] [−] [−]				
Ϋ́μ				
4 Gebt				
	9/11/10 9/11/10 9/11	^{9/1} /10 9 ^{9/1} /1/10 9 ^{9/1} /1/10		12/10 0 ^{9/1} 2/10 0 ^{9/1} 2/10 0
	azelv	9/1/19 23:02 Date/Time wood RTC Upstream I wood Weir eight (ft)		
= Lang RTC Upstream Level (ft)	- azelv	Date/Time wood RTC Upstream L	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$\begin{array}{c} 3\\ 2\\ 1\\ 9/1/1/9 & 21:36 \end{array}$	- azelv	Date/Time wood RTC Upstream L wood Weir eight (ft)	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$\begin{array}{c} 3\\ 2\\ 1\\ 9/1/1/9 & 21:36 \end{array}$	- azelv	Date/Time wood RTC Upstream L wood Weir eight (ft)	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$ \begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \end{array} \\ 9/1 / 1/19 \\ 21:36 \end{array} \\ 9/1 / 1/19 \\ 21:50 \end{array} \\ \begin{array}{c} 9/1 \\ 9/1 \\ 22:04 \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} $ \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 9/1 \\ 22:04 \end{array} \\ \end{array} \\	- azelv	Date/Time wood RTC Upstream L wood Weir eight (ft)	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 9^{/1} 1^{/1} 9^{2/1} 3^{9/1} 1^{/1} 9^{2/1} 3^{9/1} 1^{/1} 9^{2/2} 3^{9/1}$	- azelv	Date/Time wood RTC Upstream L wood Weir eight (ft)	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 9^{/1} 1^{/1} 9^{2/1} 3^{9/1} 1^{/1} 9^{2/1} 3^{9/1} 1^{/1} 9^{2/2} 3^{9/1}$	- azelv	Date/Time wood RTC Upstream L wood Weir eight (ft)	.evel (ft) — Depth at SPP (ft) – -SPP Weir eight (
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$	azelv azelv RTC	Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform	Level (ft)Depth at SPP (ft) SPP Weir eight (mance	(ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 1\\ 0\\ 9/11/19 & 21:36\\ 9/11/19 & 21:50\\ 9/110 & 20\\ 9/11/19 & 21:50\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\ 9/110 & 20\\$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$ $\begin{array}{c} 100\\ 80\\ 40\\ 20\\ 0\\ 9^{\prime}1_{1/19} & 2_{1:36} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$ $\begin{array}{c} 100\\ 80\\ 40\\ 20\\ 0\\ 9^{\prime}1_{1/19} & 2_{1:36} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$ $\begin{array}{c} 100\\ 80\\ 40\\ 20\\ 0\\ 9^{\prime}1_{1/19} & 2_{1:36} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$ $\begin{array}{c} - \text{Lang RTC Upstream Level (ft)} \\\text{Lang Weir eight (ft)} \\ \end{array}$ $\begin{array}{c} 100\\ 80\\ 40\\ 20\\ 0\\ 9^{\prime}1_{1/19} & 2_{1:36} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{1:50} \\ 9^{\prime}1_{1/19} & 2_{2:04} \\ \end{array}$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9/71/79 & 27:36\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft) Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (Depth at SPP (ft) SPP Weir eight (SPP Weir eight ((ft)
$\begin{array}{c} 3\\ 3\\ 1\\ 0\\ 9^{/1}1/19 \\ 21:36\\ 9^{/1}1/19 \\ 21:50\\ 9^{/1}1/19 \\ 22:04\\ - Lang RTC Upstream Level (ft)\\Lang Weir eight (ft)\\ \hline \\ 0\\ 9^{/1}1/19 \\ 21:36\\ 9^{/1}1/19 \\ 21:36\\ 9^{/1}1/19 \\ 21:36\\ 9^{/1}1/19 \\ 21:36\\ 9^{/1}1/19 \\ 21:36\\ 0\\ 0\\ 9^{/1}1/19 \\ 21:36\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%) nfall Accumula	Level (ft)Depth at SPP (ft) SPP Weir eight (pance $19_{23:76}^{9/1}/19_{23:37}^{9/1}/19_{23:45}^{9/1}/19_{23}}^{9/1}/19_{23:45}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{2$	(ft) $1_{2/19} 0_{:14}^{9/12/19} 0_{:28}^{9/12/19} 0_{:43}$ b)
$\begin{array}{c} 3\\ 2\\ 1\\ 0\\ 9/71/79 & 27:36\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 9/71/79 & 27:50\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0$		Date/Time wood RTC Upstream I wood Weir eight (ft) C Gate Perform 1/19 22:48 9/11/19 23:02 Date/Time) ion (%)	Level (ft)Depth at SPP (ft) SPP Weir eight (pance $19_{23:76}^{9/1}/19_{23:37}^{9/1}/19_{23:45}^{9/1}/19_{23}}^{9/1}/19_{23:45}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{23}}^{9/1}/19_{2$	(ft)

		S	September 14,	2019		4
RTC Site		Lang	azelwood	SPP:		Hazelwood
	n Trigger Depth:	- ft.	2.38 ft.	Analysis Date:		10/14/2019
Return to Norm		- ft.	1.16 ft.	Event Start Date/Time:	9,	/14/2019 1:30
Time Gate 1 A	ctivated:	-	9/14/2019 1:30	Event End Date/Time:	9,	/14/2019 2:30
Time Gate 2 A		-	9/14/2019 1:30			
	eturned to Normal:	-	N/A	Analyst Name, Organiz	ation: Ruc	ha Shah, Arcadis
	eturned to Normal:	-	N/A			
Depth of Weir		8 ft.	8.4 ft.	Total Rainfall Accumula	ation:	0.8 in.
Maximum Dept		0.00 ft.	2.44 ft.	Storm Event Duration:		1 hr.
Volume Stored		0 Gal.	7,077 Gal.	Storm Type:	Less	than 1 yr. storm
Unused Storag	je Volume:	861,799 Gal.	1,091,413 Gal.			
				Recommended C		
Percent Captur	re		1%	Lang was in emergency of		
Overflow Volun	ne:		941,171 Gal.	September (waiting on ar	i upstream level	sensor
Overflow Volun	me Prevented:		7,077 Gal.	replacement).		
SPP Activation	Prevented:		No			
If No. what is th	he overflow volume v	vhen storage was	044474			
available?			941171			
	P activation have be	en prevented?	Yes			
	PP activation have b					
without azelw			NA			
		RTC	Storage Perforn	nance		
10 9						
8						
6 41, 5						
Depth, ft.						
3						
2						
0 ^{9/14/19} 1 ——Lang RT	9/14, Sef TC Upstream Level (ft) 'eir eight (ft)	aze	^{9/1} 4/19 _{1:55} Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft)		. ,	^{9/14/19} 2:38
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft)	aze	Date/Time Iwood RTC Upstream Le	evel (ft) — Depth at S – SPP Weir	PP (ft)	9/14/19 2:38
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft)	aze	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft)	evel (ft) — Depth at S – SPP Weir	PP (ft)	^{9/14/19} 2:38
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft)	aze	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft)	evel (ft) — Depth at S – SPP Weir	PP (ft)	9/14/19 2:38
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft)	aze	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft)	evel (ft) — Depth at S – SPP Weir	PP (ft)	9/14/19 2:38
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft)	aze	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft)	evel (ft) — Depth at S – SPP Weir	PP (ft)	9/14/19 2:38
0 9/14/19 1 — Lang RT — -Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) /eir eight (ft)	- aze - aze RT	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa	evel (ft)Depth at S SPP Weir	PP (ft) eight (ft)	
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft) /eir eight (ft)	aze aze RT(Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa	evel (ft)Depth at S SPP Weir	PP (ft)	9/14/19 2:38
0 9/14/19 1 — Lang RT — -Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) feir eight (ft)	aze aze RT(Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time	evel (ft)Depth at S SPP Weir ance 	PP (ft) eight (ft)	
0 9/14/19 1 — Lang RT — -Lang W 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft)	aze RT <i>(</i> ¹ / ₉ _{1:40} RTC Gate 1 Position (9)	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft) 'eir eight (ft)	aze aze RT(Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance 	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/19 1 — Lang RT — -Lang W	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/19 1 Lang RT Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/19 1 Lang RT Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/19 1 Lang RT Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/14/79 1 Lang R1 – -Lang W Lang R1 – -Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft)	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	
0 9/74/79 7 Lang RT - Lang W 0 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft) 1:26 Upstream Level (ft) 9/14 Lang azel	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	9/14/19 2:38
O gate Dosition 0 100 0 100 0 0 0 0 0 0 0 0 0 0 0 0	TC Upstream Level (ft) 'eir eight (ft) 1:26 Upstream Level (ft) 9/14 Lang azel	42e - aze RT (19 1:40 RTC Gate 1 Position (% wood RTC Gate 1 Position (%	Date/Time Iwood RTC Upstream Le Iwood Weir eight (ft) C Gate Performa ^{9/14/19} 1:55 Date/Time %)	evel (ft)Depth at S SPP Weir ance ance 9/14/19 2:09 • Lang RTC Gate 2 Position (f • azelwood RTC Gate 2 Pos	PP (ft) eight (ft) ^{7/1} 4/19 _{2:24} %)	

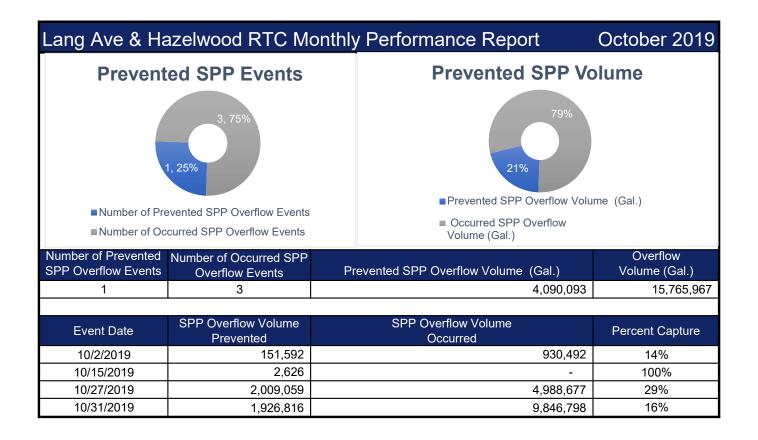
		S	Septem	ber 23,	, 2019				5
C Site		Lang	azel	wood	SPP:				Hazelwoo
e Activation Trigger Depth:		- ft.	-	86 ft.	Analysis D	ate:			10/14/2019
urn to Normal Depth:		- ft.	-	03 ft.	Event Start Date/Time:		:	9/23/201	
e Gate 1 Activated:		-	9/23/201		Event End Date/Time:			9/23/201	
e Gate 2 Activated:		-	9/23/2019 18:00		Evolit Ella Bator Hillo.			-1 -1 -	
e Gate 1 Returned to Norn	nal:	-	N/A		Analyst Name, Organization:				
e Gate 2 Returned to Norn	nal:	-	N/	A	Analyst Na	ame, Organi	zation:	Rucha Sha	n, Arcadis
oth of Weir		8 ft.		8.4 ft.	Total Rain	fall Accumu	lation:	0.7	in.
kimum Depth Reached:		0.00 ft.		4.63 ft.	Storm Eve	nt Duration:		2 ł	nr.
ume Stored:		0 Gal.	346,8	897 Gal.	Storm Typ	e:		Less than 1	yr. storm
ised Storage Volume:	5	361,799 Gal.	801,:	144 Gal.					
					Ree	commended	Operationa	l Changes/N	otes:
cont Conturo			20	0/	Lang was in	emergency	open mode	for the entire	e month of
cent Capture			20					n level sensor	
erflow Volume:				126 Gal.	replacemer				
erflow Volume Prevented:				897 Gal.					
P Activation Prevented:			No	J					
o, what is the overflow volu	ume when s	torage was	1424	126					
ilable?									
o, could SPP activation ha			Ye	S					
es, could SPP activation ha	ave been pr	evented	N	4					
out azelwood storage?									
		RTC	Storage	Perform	nance				
10									
8									
7									_
6									-
5									-
4									
4 3									
3 2									-
	9/2	90-	90-	9/2-	9/2-	9/2-	9/2	9/2-	90-
3 2 1		— aze		•	evel (ft)	^{9/23/19} 19:26 Depth at -		9/23/19 19:55	^{9/23/19} 20:00
³ ² ¹ ⁹ / _{23/19} _{17:45} ^{9/_{23/19} _{18:00} Lang RTC Upstream Leve - Lang Weir eight (ft)}		- aze	Date lwood RTC U	/Time Jpstream Le eight (ft)	evel (ft)	Depth at	SPP (ft)	9/2 _{3/19} 19:55	9/23/19 20:06
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \end{array}$		- aze	Date Iwood RTC U	/Time Jpstream Le eight (ft)	evel (ft)	Depth at	SPP (ft)	^{9/23/19} 19:55	^{9/23/19} 20:00
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \end{array}$		- aze	Date Iwood RTC U	/Time Jpstream Le eight (ft)	evel (ft)	Depth at	SPP (ft)	^{9/23/19} 19:55	9/23/19 20:05
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \end{array}$		- aze	Date Iwood RTC U	/Time Jpstream Le eight (ft)	evel (ft)	Depth at	SPP (ft)	^{9/23/19} 19:55	9/23/19 20:05
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \\ 9/2_{3/19} \\ 7_{7:45} \\ 9/2_{3/19} \\ 7_{8:00} \\ - Lang RTC Upstream Leve \\ - Lang Weir eight (ft) \\ 100 \\ 80 \\ 60 \\ 40 \\ \end{array}$		- aze	Date Iwood RTC U	/Time Jpstream Le eight (ft)	evel (ft)	Depth at	SPP (ft)	^{9/23/19} 19:55	9/23/19 20:09
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \\ 9^{/2}3^{/19} 17^{.45} \\ - \text{Lang RTC Upstream Lev} \\ - \text{Lang Weir eight (ft)} \\ 100 \\ 80 \\ 60 \\ 40 \\ 20 \\ \end{array}$	el (ft)	aze	Date.	/Time Jpstream Le eight (ft)	ance	Depth at	SPP (ft) r eight (ft)	^{9/23/19} 19:55	9/23/19 20.05
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \\ 9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$ Lang RTC Upstream Leve - Lang Weir eight (ft) 100 80 60 40 20 0 $9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$	el (ft)	- aze	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	ance	Depth at SPP Wein	SPP (ft) r eight (ft)		
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \\ 9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$ Lang RTC Upstream Leve - Lang Weir eight (ft) 100 80 60 40 20 0 $9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$	el (ft)	aze aze RT	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c} 3 \\ 2 \\ 1 \\ 0 \\ 9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$ Lang RTC Upstream Leve - Lang Weir eight (ft) 100 80 60 40 20 0 $9^{/23/19} & 17.45 \\ 9^{/23/19} & 18.00 \\ \end{array}$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
0.8	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	aze RT $ aze$ RT $ aze$ RT $$	Date. Iwood RTC L Iwood Weir C Gate P 9/23/19 18:43 Date %) ition (%)	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	$ \begin{array}{c} - & aze \\ - & - & aze \\ \hline \\ RT \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	Date	/Time Jpstream Le eight (ft) Performa 9/23/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		^{9/23/19} 20:06
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	el (ft)	$ \begin{array}{c} - & aze \\ - & - & aze \\ \hline \\ RT \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	Date	/Time Jpstream Le eight (ft) Performa ^{9/2} 3/19 18:5; p/Time	evel (ft)	Depth at a - SPP Wein	SPP (ft) r eight (ft) 9/23/19 19:40 (%)		

	S	eptember 26	, 2019	6
RTC Site	Lang	azelwood	SPP:	Hazelwood
Gate Activation Trigger Depth:	- ft.	1.12 ft.	Analysis Date:	10/14/2019
Return to Normal Depth:	- ft.	1.01 ft.	Event Start Date/Time:	9/26/2019 7:15
Time Gate 1 Activated:	-	9/26/2019 7:15	Event End Date/Time:	9/26/2019 8:45
Time Gate 2 Activated:	-	9/26/2019 7:15		
Time Gate 1 Returned to Normal:	-	N/A		
Time Gate 2 Returned to Normal:	-	N/A	Analyst Name, Organization:	Rucha Shah, Arcadis
Depth of Weir	8 ft.	8.4 ft.	Total Rainfall Accumulation:	1.8 in.
Maximum Depth Reached:	0.00 ft.	4.14 ft.	Storm Event Duration:	1.5 hr.
Volume Stored:	0 Gal.	329,623 Gal.	Storm Type:	Less than 25 yr. storm
Unused Storage Volume:	861,799 Gal.	876,465 Gal.		· · ·
	· · · · · · · · · · · · · · · · · · ·	,	Recommended Operatio	nal Changes/Notes:
		1001	Lang was in emergency open mo	
Percent Capture		19%	September (waiting on an upstre	
Overflow Volume:		1,378,531 Gal.	replacement).	
Overflow Volume Prevented:		329,623 Gal.		
SPP Activation Prevented:		No		
If No, what is the overflow volume w	/hen storage was	1378531		
available?				
If No, could SPP activation have be		Yes		
If es, could SPP activation have be	een prevented	NA		
without azelwood storage?				
	RTC	Storage Perfori	mance	
10				
9 8				
7				
Le contraction de la contracti				
2				
9/26/19 6:57 9/26/19 7:12	9/26/19 7:26	^{9/26/19} 7:55 Date/Time	^{9/26/19} 8:09	9/26/19 8:38
Lang RTC Upstream Level (ft)		vood RTC Upstream L		6 1)
Lang Weir eight (ft)		vood Weir eight (ft)	SPP Weir eight (
ç ¹⁰⁰	RIC	Cate Perform	ance	•
80				<u> </u>
2 60				
Add 80 D 60 40 0 20 0				
		••••••	·····	
μ μ μ μ μ μ μ μ μ μ μ μ μ μ	^{9/26/19} 7:26	9/26/19 7:55 19 7:40	^{9/26/19} 8:09	^{9/26/19} 8:38
	26		8:09 8:24	0 0:38 0 0:52
Gate		Date/Time		
Lang r	RTC Gate 1 Position (%	,	 Lang RTC Gate 2 Position (%) 	
azelv	wood RTC Gate 1 Positi	ion (%)	 azelwood RTC Gate 2 Position (%)
	Dei		41.e.m	
1.8	Rai	nfall Accumula	ltion	
1.8				
<u><u> </u></u>				
1.6 .1.6 .1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.		/		
0.2				
^{9/26/19} 4:48		^{9/26/19} 7:12		^{9/26/19} 9:36
··48				9.36
		Date/Time		

October 2019 Lang Ave. and Hazelwood RTC **KPI** Report







	0	ctober 2, 201	9	1
C Site	Lang	azelwood	SPP:	
te Activation Trigger Depth:	- ft.	0.99 ft.	Analysis Date:	11/13/20
turn to Normal Depth:	- ft.	1.05 ft.	Event Start Date/Time:	10/2/2019 5
ne Gate 1 Activated:	-	10/2/2019 5:15	Event End Date/Time:	10/2/2019 6
ne Gate 2 Activated:	-	10/2/2019 5:15		
ne Gate 1 Returned to Normal:	-	10/2/2019 6:15	Analyst Name, Organization:	Rucha Shah, Arcadis
ne Gate 2 Returned to Normal:	-	10/2/2019 6:15	Analyst Name, Organization.	Rucha Shan, Arcauls
pth of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	0.7 in.
ximum Depth Reached:	(1.28) ft.	2.71 ft.	Storm Event Duration:	2 hr.
lume Stored:	- Gal.	151,592 Gal.	Storm Type:	Less than 1 yr. storm
used Storage Volume:	861,799 Gal.	1,063,070 Gal.		
			Recommended Operatio	nal Changes/Notes:
rcent Capture		14%	Lang upstream depth sensor was	out of service during this
erflow Volume:		930,492 Gal.	event, returned to service on Oct	ober 7, 2019.
erflow Volume Prevented:		151,592 Gal.		
		151,592 Gal. No	Lang RTC did not activate during	this event
P Activation Prevented:		NU		
lo, what is the overflow volume w	nen storage was			
ailable upstream?		930,492 Gal.		
lo, could SPP activation have bee		Yes		
es, could SPP activation have be	en prevented	NA		
hout azelwood storage?				
	RTC	Storage Perforn	nance	
10 9				
	======	= = = = = = = =	 	= = = = = = = = = = = = = = = = = = = =
5				
5				
3				
2				
0				
^{10/2/19} 5:00 ^{10/2/19} 5:14	^{10/2/19} 5:28	10/2/19 5:43	10/2/19 5:57 10/2/19 6:1	10/2/10
5.00 5.14	- 0.28		- 0.37	10/2/19 6:26
		Date/Time		2 ^{1,9} 6:26
- Lang RTC Upstream Level (ft)				2 ^{3 /9 6} :26
	azel	Date/Time		
—Lang RTC Upstream Level (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	- azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)Depth at SPP (ft) SPP Weir eight (f	t)
Lang RTC Upstream Level (ft)Lang Weir eight (ft)	- azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft)Depth at SPP (ft) SPP Weir eight (f	t)
Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $1_{0/2/19} _{5:00}$ $1_{0/2/19} _{5:72}$	- azel	Date/Time wood RTC Upstream Let wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	t)
Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 0 $1_{0/2/19}_{5:00}$ $1_{0/2/19}_{5:14}$	azel RT(Date/Time wood RTC Upstream Let wood Weir eight (ft) C Gate Performa 10/2/19 5:43 Date/Time	evel (ft) Depth at SPP (ft) SPP Weir eight (f Ince $1_{0/2/19} \leq 5^{-1}$	t)
Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 0 $1_{0/2/19}_{5:00}$ Lang R	azel RTC	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa 10/2/19 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5_{:57}$ Lang RTC Gate 2 Position (percent)	t)
Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 0 $1_{0/2/19}_{5:00}$ Lang R	azel RT(Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa 10/2/19 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f Ince $1_{0/2/19} \leq 5^{-1}$	t)
Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $10/2/19_{5:00}$ $10/2/19_{5:74}$ — Lang R	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa 10/2/19 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
-Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $1_{0/2/19}_{5:00}$ $1_{0/2/19}_{5:74}$ Lang R 0.72	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
-Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $1_{0/2/19}_{5:00}$ $1_{0/2/19}_{5:74}$ Lang R 0.72	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
-Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $1_{0/2/19}_{5:00}$ $1_{0/2/19}_{5:74}$ Lang R 0.72	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
-Lang RTC Upstream Level (ft) Lang Weir eight (ft) 100 80 60 40 20 $1_{0/2/19}_{5:00}$ $1_{0/2/19}_{5:74}$ Lang R 0.72	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- azel RTC International Internation (provided in the second seco	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f INCE $1_{0/2/19} 5:57$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- azel RTC RTC ^{10/2/19} 5:28 TC Gate 1 Position (pr rood RTC Gate 1 Position Rai	Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa ^{10/2/19} 5:43 Date/Time ercent)	evel (ft)Depth at SPP (ft) SPP Weir eight (ft) SPP Weir eight (ft) ance 	t)

		0	ctober 15, 20 ⁻	19	2
TC Si	ite	Lang	azelwood	SPP:	3
	ctivation Trigger Depth:	- ft.	- ft.	Analysis Date:	11/13/20
	to Normal Depth:	- ft.	0.06 ft.	Event Start Date/Time:	10/15/2019 11
ne G	ate 1 Activated:	-	10/15/2019 11:35	Event End Date/Time:	10/15/2019 11
ne G	ate 2 Activated:	-	10/15/2019 11:15		
ne G	ate 1 Returned to Normal:	-	10/15/2019 11:55	Analyst Name, Organization:	Rucha Shah, Arcadis
ne G	ate 2 Returned to Normal:	-	10/15/2019 11:55	Analyst Name, Organization.	Rucha Shah, Arcauls
pth q	of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	0 in.
	um Depth Reached:	(0.02) ft.	0.07 ft.	Storm Event Duration:	1 hr.
lume	e Stored:	- Gal.	2,626 Gal.	Storm Type:	Less than 1 yr. storm
useq	d Storage Volume:	861,799 Gal.	1,263,545 Gal.		
				Recommended Operation	nal Changes/Notes:
	t Capture		100%		
	w Volume:		0 Gal.		
	w Volume Prevented:		2,626 Gal.		
P Aq	ctivation Prevented:		Yes		
	what is the overflow volume w	hen storage was			
	le upstream?		NA Gal.		
	ould SPP activation have be		NA		
	could SPP activation have be	een prevented	Yes		
nout	azelwood storage?				
		RTC	Storage Perform	nance	
10 9					
8	=======================================			_ = = = = = = = = = = = = = = = = = = =	
7					
6					
5					
5					
3					
3 2 1	10/15/10 10/15/10	10/15/10 10/15	10/15/10	10/15/10 10/15/10	10/15/10 10/15/10
3 2 1 0	$\frac{1_{0/15/19}}{1_{1:02}} \frac{1_{0/15/19}}{1_{1:09}} \frac{1_{0/15/19}}{1_{1:09}}$ -Lang RTC Upstream Level (ft) -Lang Weir eight (ft)	aze	^{10/15/19} 11:31 Date/Time Iwood RTC Upstream Le		
3 2 1 0	-Lang RTC Upstream Level (ft)	aze	Date/Time lwood RTC Upstream Le	evel (ft) — Depth at SPP (ft) – SPP Weir eight (f	
	-Lang RTC Upstream Level (ft)	aze	Date/Time lwood RTC Upstream Le lwood Weir eight (ft)	evel (ft) — Depth at SPP (ft) – SPP Weir eight (f	
	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft)	aze	Date/Time lwood RTC Upstream Le lwood Weir eight (ft)	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance	
	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft)	aze	Date/Time lwood RTC Upstream Le lwood Weir eight (ft)	evel (ft) — Depth at SPP (ft) – SPP Weir eight (f	
	=Lang RTC Upstream Level (ft) =Lang Weir eight (ft)	aze	Date/Time lwood RTC Upstream Le lwood Weir eight (ft)	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance	
	=Lang RTC Upstream Level (ft) =Lang Weir eight (ft)	- aze	Date/Time lwood RTC Upstream Le lwood Weir eight (ft)	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance	t)
	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 	- aze	Date/Time lwood RTC Upstream Let lwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent)	evel (ft)Depth at SPP (ft) SPP Weir eight (f	t)
	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
3 2 1 0 100 80 60 40 20 0	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time lwood RTC Upstream Let lwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent)	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 100 80 60 40 20 0 1.2	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 100 80 60 40 20 0 1.2	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 80 60 40 20 0	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 80 60 40 20 0	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 100 80 60 40 20 0 1.2 1 0.8 0.6 0.4 0.2	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 		Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft) Depth at SPP (ft) SPP Weir eight (f ance $1_{0/15/19}$ $1_{1:38}$ - Lang RTC Gate 2 Position (percent) - azelwood RTC Gate 2 Position (%)	t)
100 80 60 40 20 0 1.2 1 0.8 0.6 0.4 0.2 0	-Lang RTC Upstream Level (ft) -Lang Weir eight (ft) 10/15/19 11:02 Lang F Lang F Lang F Lang F	aze RT RT 10/15/19 11:16 RTC Gate 1 Position (p wood RTC Gate 1 Pos Ra	Date/Time Iwood RTC Upstream Let Iwood Weir eight (ft) C Gate Performa 5/19 11:24 Date/Time percent) ••••••••••••••••••••••••••••••••••••	evel (ft)Depth at SPP (ft)Depth at SPP (ft) 	it)

	0	ctober 27, 20	19	3
RTC Site	Lang	azelwood	SPP:	340
Gate Activation Trigger Depth:	1.39 ft.	1.31 ft.	Analysis Date:	11/13/2019
Return to Normal Depth:	0.64 ft.	1.51 ft.	Event Start Date/Time:	10/27/2019 3:05
Time Gate 1 Activated:	10/27/2019 3:05	10/27/2019 3:05	Event End Date/Time:	10/27/2019 10:45
Time Gate 2 Activated:	10/27/2019 3:05	10/27/2019 3:05	Evont End Bato, Finto.	10/27/2019 10:49
Time Gate 1 Returned to Normal:	10/27/2019 10:45	10/27/2019 9:20		
Time Gate 2 Returned to Normal:	10/27/2019 10:45	10/27/2019 9:20	Analyst Name, Organization:	Rucha Shah, Arcadis
Depth of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	0.7 in.
Maximum Depth Reached:	7.88 ft.	8.40 ft.	Storm Event Duration:	6 hr.
Volume Stored:	816,771.74 Gal.	1,192,287 Gal.	Storm Type:	Less than 1 yr. storm
Unused Storage Volume:	29,275 Gal.	0 Gal.		
			Recommended Operation	al Changes/Notes:
Percent Capture		29%		
Overflow Volume: Overflow Volume Prevented:		4,988,677 Gal.		
		2,009,059 Gal.		
SPP Activation Prevented:		No		
If No, what is the overflow volume w	vhen storage was	4 000 577 0		
available upstream?		4,988,677 Gal.		
If No, could SPP activation have be		No		
If es, could SPP activation have b	een prevented	NA		
without azelwood storage?				
	RTC	Storage Perform	nance	
10 9				
8				
≠ ⁷				
₽ 6 ₽ 5				
2 C C C C C C C C C C C C C C C C C C C				
3				
2				
0				
10/27/19 3:00	10/27/7	10 ~	^{10/27/19} 7:48	
3:00			······································	
		Date/Time		
Lang RTC Upstream Level (ft)	— azel	wood RTC Upstream Le	• • • • • • • • • • • • • • • • • • • •	
 – Lang Weir eight (ft) 	– - azel	wood Weir eight (ft)	 – SPP Weir eight (ft)
	RT	C Gate Performa	ance	
¹⁰⁰ ¹⁰⁰ ¹⁰⁰				
80				
te 60				:
2 40				_
00 00 000 000 000 000 000 000 000 000				
				•
10/27/19 3:00	10/27/	⁽¹⁹ 5:24	10/27/19 7:48	
0 0 3:00			· · · · · · · · · · · · · · · · · · ·	
Gate I		Date/Time		
Lang	RTC Gate 1 Position (p		Lang RTC Gate 2 Position (percent)	
azel	wood RTC Gate 1 Posi	tion (%)	azelwood RTC Gate 2 Position (%)	
	Del		tion	
0.8	Ra	infall Accumula		
0.7				_
	1			
(i) 0.6 i) 0.5 Te 0.4 iii 0.3 iiii 0.2 0.2		I		
0.1				
0.1	10/27/2	10/27/-	10/2>/-	
0.1	^{10/27/19} 4:48	^{10/27/19} 7:12	10/27/19 9:36	

	0	ctober 31, 20	19	4
TC Site	Lang	azelwood	SPP:	34
ate Activation Trigger Depth:	1.47 ft.	2.52 ft.	Analysis Date:	11/13/201
eturn to Normal Depth:	0.75 ft.	1.35 ft.	Event Start Date/Time:	10/31/2019 13:5
ime Gate 1 Activated:	10/31/2019 13:55	10/31/2019 15:00	Event End Date/Time:	11/1/2019 0:0
ime Gate 2 Activated:	10/31/2019 13:55	10/31/2019 15:00		
ime Gate 1 Returned to Normal:	11/1/2019 0:00	10/31/2019 22:40		
ime Gate 2 Returned to Normal:	11/1/2019 0:00	10/31/2019 22:40	Analyst Name, Organization:	Rucha Shah, Arcadis
epth of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	2.1 in.
laximum Depth Reached:	8.00 ft.	8.40 ft.	Storm Event Duration:	10 hr.
olume Stored:	843,896.72 Gal.	1,082,919 Gal.	Storm Type:	Less than 5 yr. storm
nused Storage Volume:	0 Gal.	0 Gal.		, ,
			Recommended Operation	nal Changes/Notes:
ercent Capture		16%		
verflow Volume:		9,846,798 Gal.		
verflow Volume Prevented:		1,926,816 Gal.		
PP Activation Prevented:		1,920,810 Gal.		
		NU		
No, what is the overflow volume w	when storage was			
/ailable upstream?		NA Gal.		
No, could SPP activation have be		No		
es, could SPP activation have b ithout azelwood storage?	een prevented	NA		
anout azerwood storage:	DIA			
10	RIC	Storage Perform	nance	
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8 7				
₩ 5				
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3				- han-
	10:		10.	
	10/31/19 17:00		10/31/19 19·32	10/31/19 21·52
	10/31/19 17:09		10/31/19 19:33	10/31/19 21:57
³ 1 0 10/3 _{1/19} 14:45		Date/Time		^{10/31/19} 21:57
Lang RTC Upstream Level (ft)	azel	Date/Time wood RTC Upstream Le	evel (ft) — Depth at SPP (ft)	
³ 1 1 10/31/19 14:45	- azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
= -Lang Weir eight (ft)	- azel	Date/Time wood RTC Upstream Le	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
= -Lang Weir eight (ft)	- azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	
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= -Lang Weir eight (ft)	- azel	Date/Time wood RTC Upstream Le wood Weir eight (ft)	evel (ft) — Depth at SPP (ft) — SPP Weir eight (f	t)
= -Lang RTC Upstream Level (ft) $= -Lang Weir eight (ft)$ $= -Lang Weir eight (ft)$	azel azel RT(Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa Date/Time	avel (ft)Depth at SPP (ft) SPP Weir eight (f	
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$\begin{array}{c} 3\\ 1\\ 0\\ 1\\ 0\\ 1\\ 0\\ 1\\ 0\\ 3\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\$		Date/Time wood RTC Upstream Le wood Weir eight (ft) C Gate Performa Date/Time ercent)	 Depth at SPP (ft) SPP Weir eight (ft) SPP Weir eight (ft) ance 10/31/19 19:33 Lang RTC Gate 2 Position (percent) azelwood RTC Gate 2 Position (%) 	t)
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November 2019 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)





Design & Consultancy for natural and built assets

January 2020 Lang Ave. and Hazelwood RTC **KPI** Report (no events this month)





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



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



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

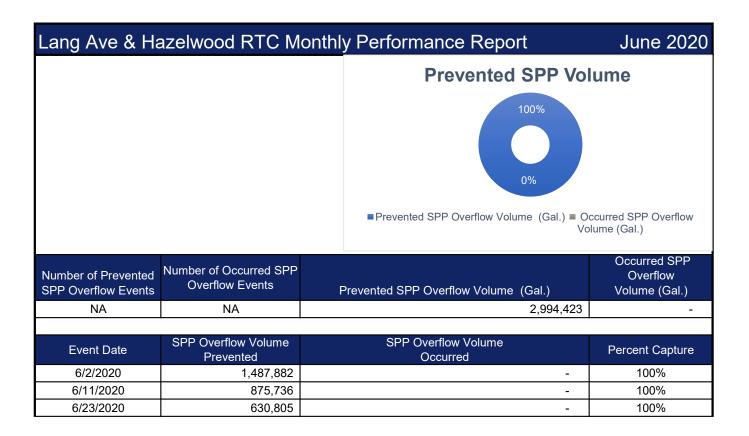


April 2020 Lang Ave. and Hazelwood RTC KPI Report (no gate activations)



June 2020 Lang Ave. and Hazelwood RTC **KPI** Report





	Jı	ine 2, 2020		1
RTC Site	Lang	azelwood	SPP:	340
Gate Activation Trigger Depth:	1.32 ft.	5.55 ft.	Analysis Date:	7/3/2020
Return to Normal Depth:	0.79 ft.	8.31 ft.	Event Start Date/Time:	6/2/2020 22:40
Time Gate 1 Activated:	6/2/2020 22:40	6/2/2020 23:30	Event End Date/Time:	
	6/2/2020 22:40	6/2/2020 23:30	Event End Date/Time.	6/3/2020 4:15
Time Gate 2 Activated: Time Gate 1 Returned to Normal:	6/3/2020 4:15	6/3/2020 3:00		
			Analyst Name, Organization:	Rucha Shah, Arcadis
Time Gate 2 Returned to Normal:	6/3/2020 4:15	6/3/2020 3:00		
Depth of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	1 in.
Maximum Depth Reached:	8.00 ft.	8.40 ft.	Storm Event Duration:	6 hr.
Volume Stored:	847,803 Gal.	640,080 Gal.	Storm Type:	Less than one year
Unused Storage Volume:	0 Gal.	0 Gal.		
			Recommended Operation	hal Changes/Notes:
Dans and Orighting		1000/	Overflow volume for the event wi	ill be estimated and filled
Percent Capture		100%	at a later date, if applicable. Lang	SPP depth sensor is not
Overflow Volume:		NA Gal.	working and good data to estimat	•
Overflow Volume Prevented:		1,487,882 Gal.	available.	
SPP Activation Prevented:		NA		
If No, what is the overflow volume v	hen storage was			
available upstream?	non storage was	NA Gal.		
If No, could SPP activation have be	en prevented?	NA Gai.		
If es, could SPP activation have b	een prevented	No		
without azelwood storage?				
10	RTC	torage Perform	nance	
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		$ \rightarrow $		
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0 6/2/20 22:00 6/2/20 23:	^{6/3/20} 0:2	^{6/3/20} 1:36	6/3/20 2:48	^{3/20} 4:00
		Date/Time		-0
Lang RTC Upstream Level (ft)	— azel	wood RTC Upstream Le	()	
 – Lang Weir eight (ft) 	🗕 – azel	wood Weir eight (ft)	 – SPP Weir eight (ft)
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	12	24	s ^s <:4 ₈	° 4:00
ate		Date/Time		
Lang F	RTC Gate 1 Position (p	ercent) •••	Lang RTC Gate 2 Position (percent)	
-	wood RTC Gate 1 Posi		 azelwood RTC Gate 2 Position (%) 	
	Rai	infall Accumula	tion	
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	_/			
(i) 0.8 i) 0.6 i) 0.4 i) 0.4 i) 0.2				
0.2				
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^{6/2/20} 22:00 ^{6/2/20} 23:	^{6/3/20} 0:2	^{6/3/20} 1:36	^{6/3/20} 2:48	^{3/20} 4:00
-0		Date/Time	-	
		23.3/11110		

	Jı	une 11, 2020		2
RTC Site	Lang	azelwood	SPP:	340
Gate Activation Trigger Depth:	- ft.	2.46 ft.	Analysis Date:	7/3/2020
Return to Normal Depth:	- ft.	0.48 ft.	Event Start Date/Time:	6/11/2020 0:15
Time Gate 1 Activated:	-	6/11/2020 0:15	Event End Date/Time:	6/11/2020 2:50
Time Gate 2 Activated:	-	6/11/2020 0:15		
Time Gate 1 Returned to Normal:	-	6/11/2020 2:50	Analyst Name, Organization:	Rucha Shah, Arcadis
Time Gate 2 Returned to Normal:	-	6/11/2020 2:50		-
Depth of Weir	8.00 ft.	8.40 ft.	Total Rainfall Accumulation:	0.5 in.
Maximum Depth Reached:	- ft.	7.55 ft.	Storm Event Duration:	3 hr.
Volume Stored:	0 Gal.	875,736 Gal.	Storm Type:	Less than one year
Unused Storage Volume:	861,799 Gal.	214,331 Gal.	Pocommonded On custing	al Changes/Neter
			Recommended Operation	
Percent Capture		100%	No data available for Lang for this for the event will be estimated an	
Overflow Volume:		NA Gal.	applicable. Lang SPP depth sensor	
Overflow Volume Prevented:		875,736 Gal.	data to estimate Lang SPP level is	
SPP Activation Prevented:		NA		
If No, what is the overflow volume w	when storage was			
available upstream?		NA Gal.		
If No, could SPP activation have be	en prevented?	NA		
If es, could SPP activation have b	een prevented	No		
without azelwood storage?		NU		
	RTC	torage Perform	nance	
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	σ 9.57	· ··<6 Date/Time	··JS ~·<4	4 ^{5.0} 2
—Lang RTC Upstream Level (ft)	— 276	lwood RTC Upstream Le	evel (ft) Depth at SPP (ft)	
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₽ ¹⁰⁰	KI (C Gate Performa	ance	////
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a a	<σ 0.5	∕ ^{/.} <6 Date/Time	······································	4 502
U Č Lang I	RTC Gate 1 Position (p		 Lang RTC Gate 2 Position (percent) 	
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		()		
	Ra	infall Accumulat	tion	
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0.1				
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^{6/1} 1/2020 0:00	^{6/1} 1/2020 0:57	^{6/1} 1/2020 1:26	^{6/11/2020} 1:55	^{6/1} 1/2020 2:52
Ŭ		Date/Time		

					Ju	ne 2	23, 20	020						3
RTC S	lite			ang		6	azelwoo	bd	S	PP:				340
-	Activation Trigger De	epth:	-	1.55 f	t.		-	ft.		nalysis Date:				7/3/2020
	to Normal Depth:	1		0.72 f			-	ft.		vent Start Date/Tin	ne:		6/23	3/2020 15:25
	Gate 1 Activated:		6/23/2	2020 15			N/A			vent End Date/Tim				3/2020 17:20
	Gate 2 Activated:		6/23/2	020 15	:25		, N/A						0/20	72020 27120
Time (Gate 1 Returned to N	Normal:	6/23/2	020 17	:20		N/A		•			Durah	- 611	
	Gate 2 Returned to N			2020 17			N/A		A	nalyst Name, Orga	inization:	Ruch	a Shar	n, Arcadis
Depth	of Weir			8.00 f	t.		8.40	D ft.	Т	otal Rainfall Accum	nulation:		0.9 i	in.
Maxim	um Depth Reached:			6.30 f	t.		2.22	2 ft.	S	torm Event Duratic	n:		3 h	r.
	e Stored:		478	3,862 0	Gal.	:	151,943	Gal.	S	torm Type:		Less	than o	one year
Unuse	d Storage Volume:		362	2,728 0	Gal.	1,1	114,227	Gal.						
										Recommende	d Operatior	nal Chan	ges/N	otes:
Doroor	at Contura						1000/		0	verflow volume for t	he event wi	ill be esti	mated	l and filled
	nt Capture						100%		at	a later date, if appli	cable. Lang	SPP dept	th sen	sor is not
	ow Volume:					NA		Gal.	w	orking and good dat	a to estimat	te Lang Sl	PP lev	el is not
-	ow Volume Prevente					(630,805	Gal.	a١	vailable.		-		
	ctivation Prevented:						NA							
lf No, ۱	what is the overflow	volume w	hen sto	age wa	as									
	ole upstream?					NA		Gal.						
lf No, d	could SPP activation	have bee	en preve	ented?			NA							
	could SPP activatio		een pre∖	rented			Yes							
withou	t azelwood storage	e?					105							
40				R	тс	tora	ige Pe	erform	nan	ce				
10														
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± 7 € 6														
Depth, ft.														
d 4														
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_	^{5/23/2020} 15:00 –Lang RTC Upstream I –Lang Weir eight (ft)	^{23/2020} 15:26 Level (ft)	3	^{3/23/2020}	azelv	Da vood R	^{6/2} 3/2020 ate/Time TC Upst /eir eig	tream Le					^{6/23/2} 0	²⁰ 17:52
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Gate Position, Percent Ope 0 7 0 9 0 0	⁶ /23/2020 15:00	2/23/2020 15:2	28	^{6/23/2020}	⁰ 15:57		^{6/23/2020}			^{6/23/2020} 16:55	^{6/23/2020} 17:2	24	^{6/23/20}	²⁰ 17:52
Ű	-	-	RTC Gate			ercent)	ate/Time	••••		g RTC Gate 2 Positio elwood RTC Gate 2 I	. ,			
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	^{6/23/2020} 15:00	^{23/2020} 15:28	9	^{3/23/2020}	15:57	Da	^{6/23/2020} ate/Time	⁹ ^{16:26}		^{6/23/2020} 16:55	^{6/23/2020} 17:2	24	^{6/23/20}	²⁰ 17:52

July 2019 Smith St. RTC KPI Report



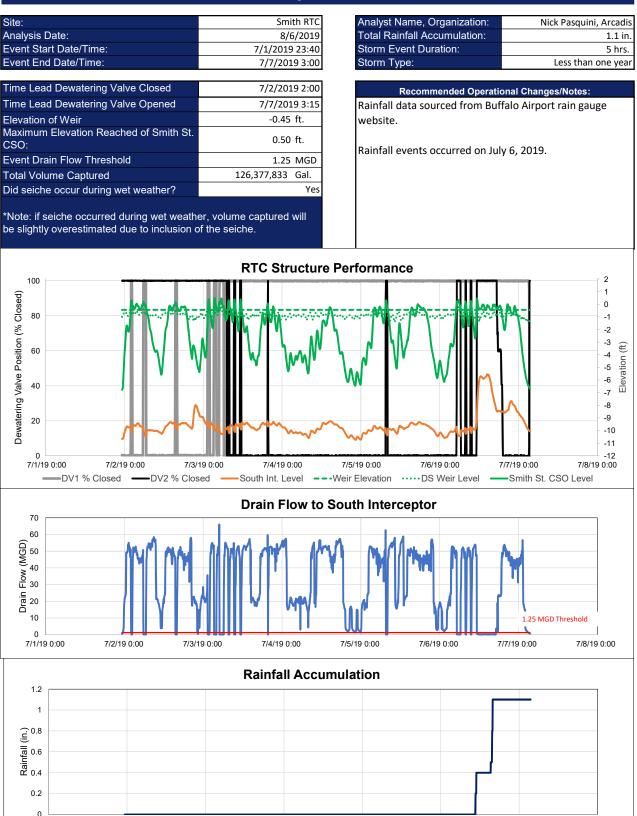
Smith St. RTC Monthly Performance Report

July 2019

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

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

July 1, 2019



7/1/19 0:00

7/2/19 0:00

7/3/19 0:00

7/4/19 0:00

7/5/19 0:00

Date/Time

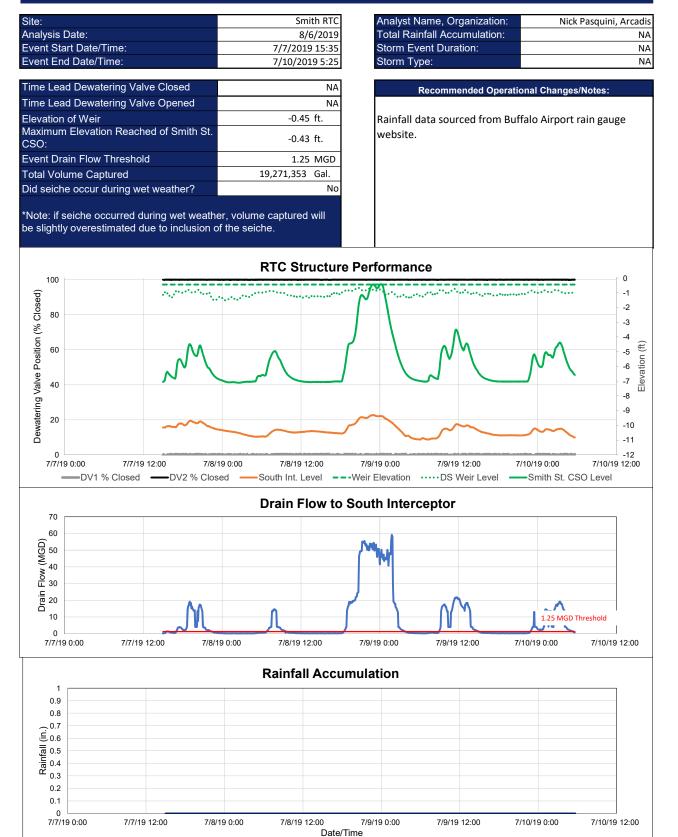
7/6/19 0:00

7/7/19 0:00

7/8/19 0:00

1____

July 7, 2019



July 10, 2019

Analyst Name, Organization:

Total Rainfall Accumulation:

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge

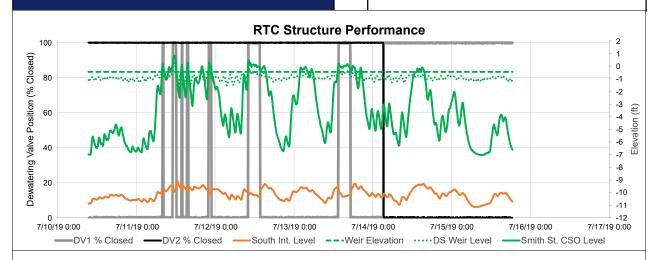
Storm Event Duration:

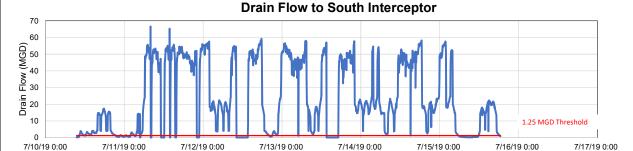
Storm Type:

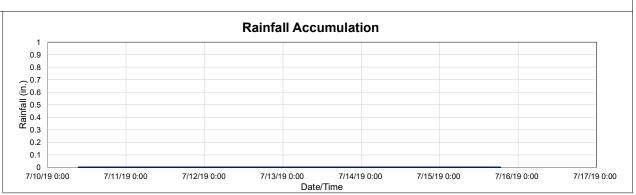
website.

Site:	Smith RTC
Analysis Date:	8/6/2019
Event Start Date/Time:	7/10/2019 10:25
Event End Date/Time:	7/15/2019 18:10
Time Lead Dewatering Valve Closed	7/11/2019 8:00
Time Lead Dewatering Valve Opened	7/13/2019 17:10
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.83 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	96,465,708 Gal.
Did seiche occur during wet weather?	No

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







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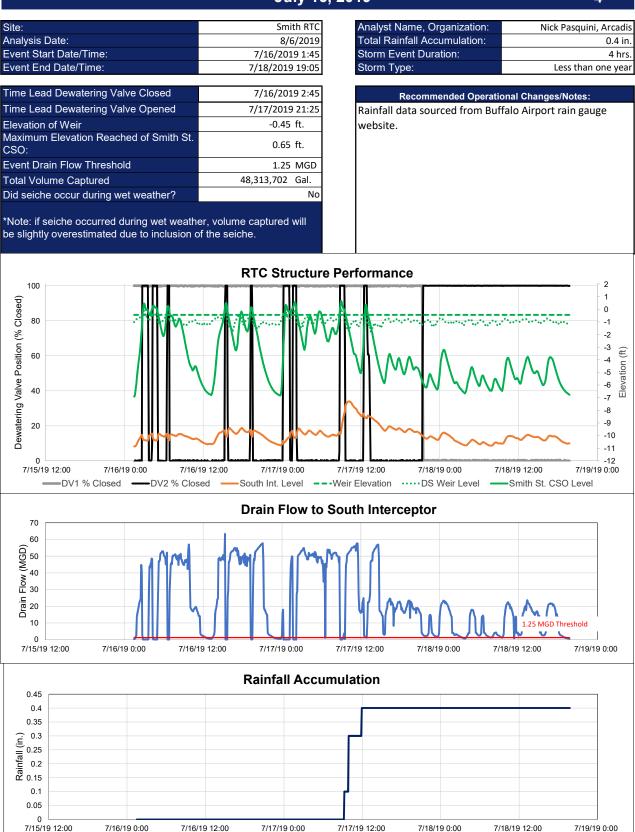
NA

NA

NA

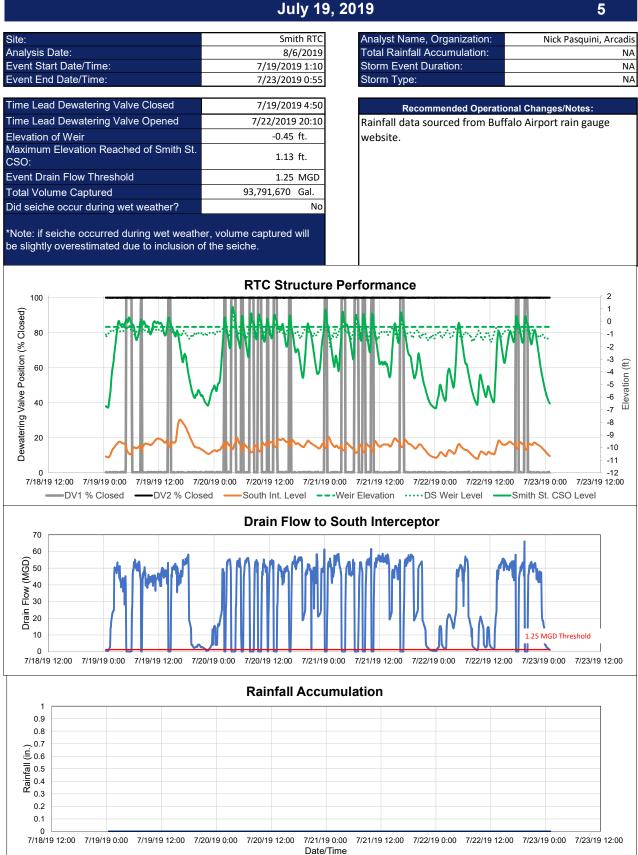
Nick Pasquini, Arcadis

July 16, 2019



Date/Time

4



July 23, 2019

Analyst Name, Organization:

Total Rainfall Accumulation:

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge

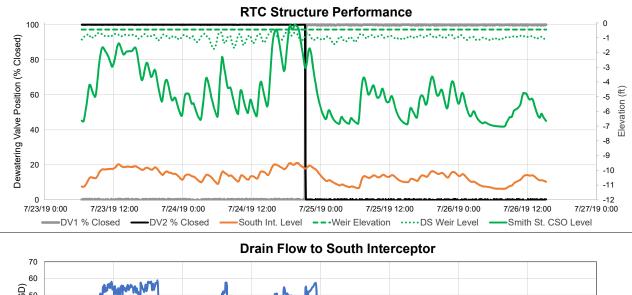
Storm Event Duration:

Storm Type:

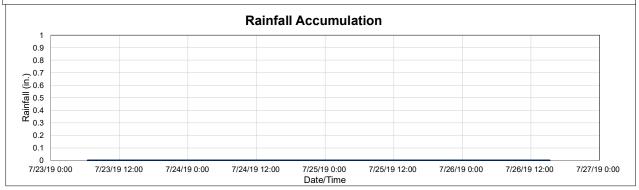
website.

Site:	Smith RTC
Analysis Date:	8/6/2019
Event Start Date/Time:	7/23/2019 7:00
Event End Date/Time:	7/26/2019 14:55
Time Lead Dewatering Valve Closed	7/24/2019 21:25
Time Lead Dewatering Valve Opened	NA
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.11 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	57,044,115 Gal.
Did seiche occur during wet weather?	No

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







6

NA

NA

NA

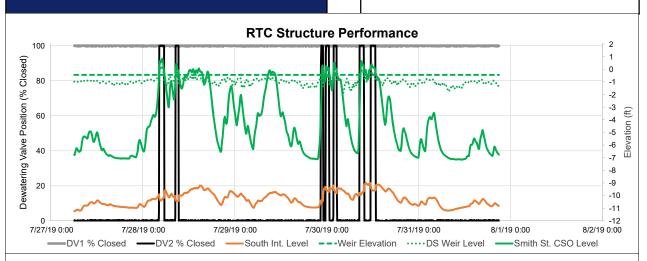
Nick Pasquini, Arcadis

July 27, 2019

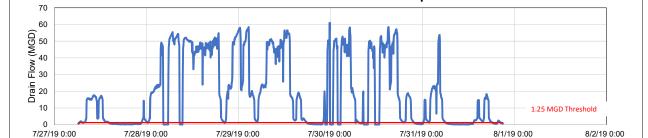
Site:	Smith RTC	Analys
Analysis Date:	8/6/2019	Total F
Event Start Date/Time:	7/27/2019 6:35	Storm
Event End Date/Time:	7/31/2019 20:20	Storm
Time Lead Dewatering Valve Closed	7/28/2019 4:20	
Time Lead Dewatering Valve Opened	7/30/2019 12:50	Rainfa
Elevation of Weir	-0.45 ft.	websit
Maximum Elevation Reached of Smith St. CSO:	0.83 ft.	
Event Drain Flow Threshold	1.25 MGD	
Total Volume Captured	68,496,355 Gal.	
Did seiche occur during wet weather?	No	
*Note: if seiche occurred during wet weath be slightly overestimated due to inclusion c	2 · · · · · · · · · · · · · · · · · · ·	

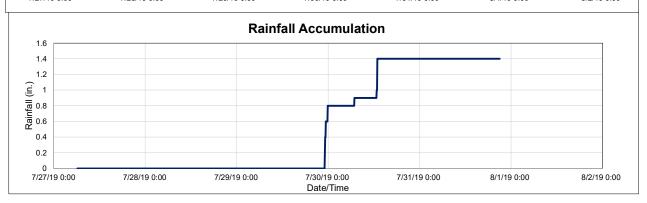
Analyst Name, Organization:	Nick Pasquini, Arcadis
Total Rainfall Accumulation:	1.4 in.
Storm Event Duration:	4 hrs.
Storm Type:	Less than 2 years

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.









7

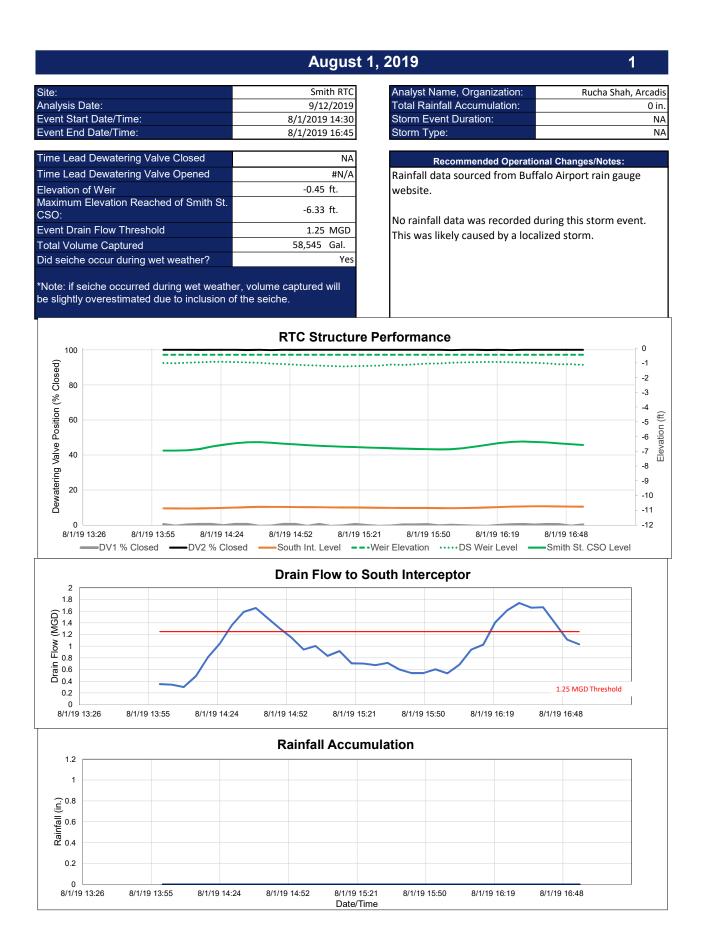
August 2019 Smith St. RTC KPI Report

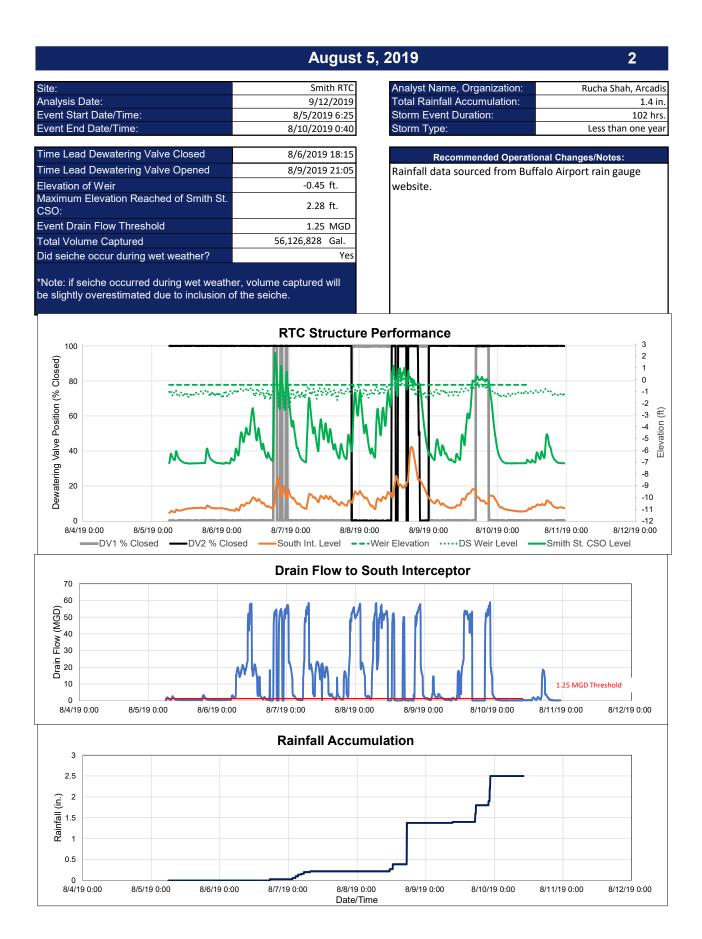


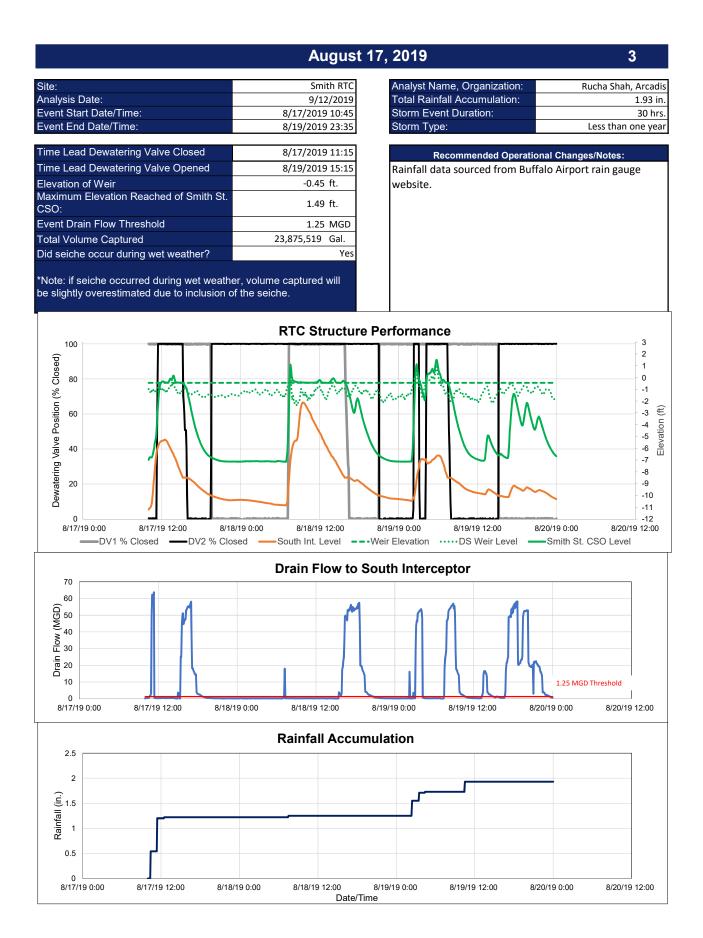
Smith St. RTC Monthly Performance Report

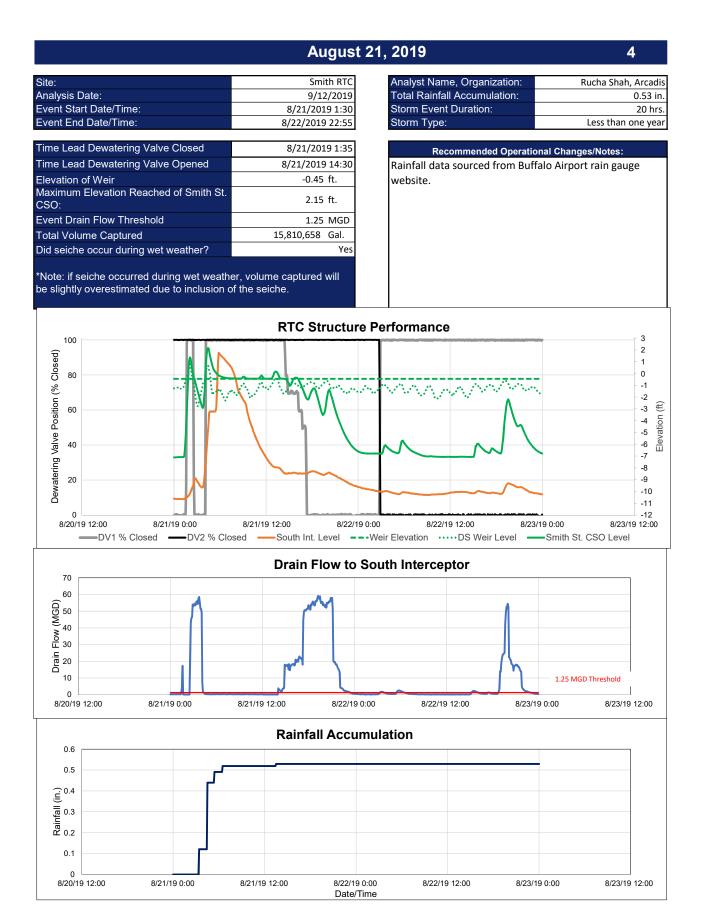
August 2019

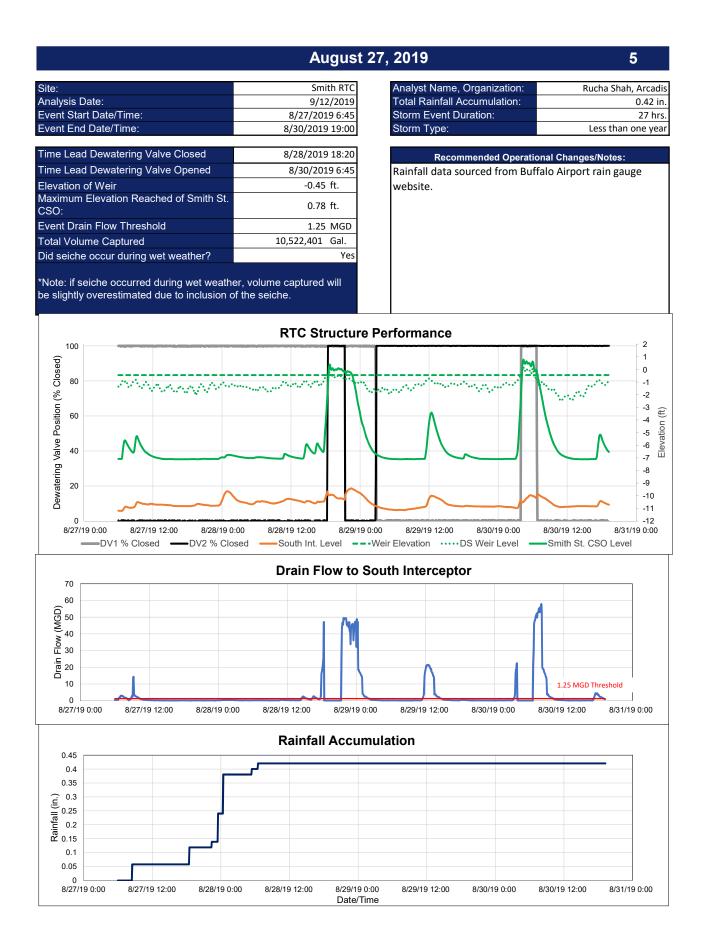
Event Date	Volume Captured (gal)	Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche)	Event drain flow threshold (MGD)
8/1/2019	58,545	Yes	1.25
8/5/2019	56,126,828	Yes	1.25
8/17/2019	23,875,519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











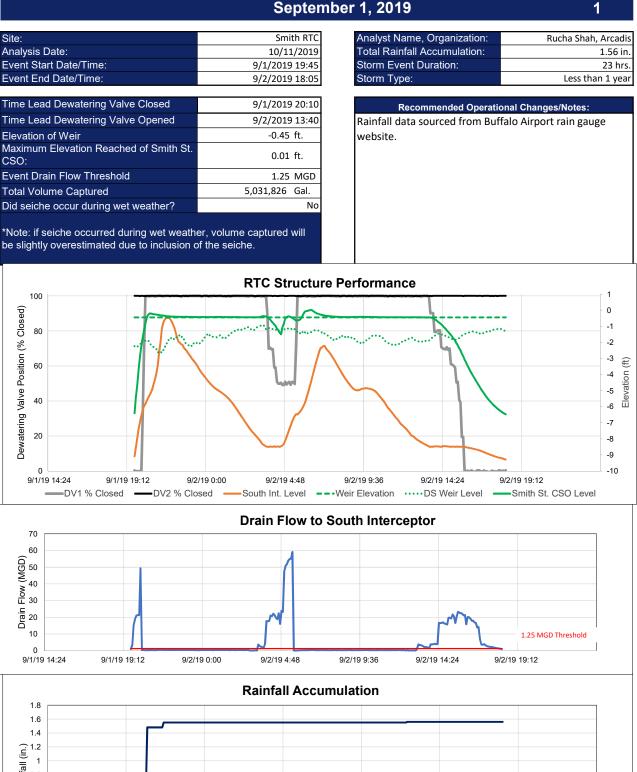
September 2019 Smith St. RTC KPI Report



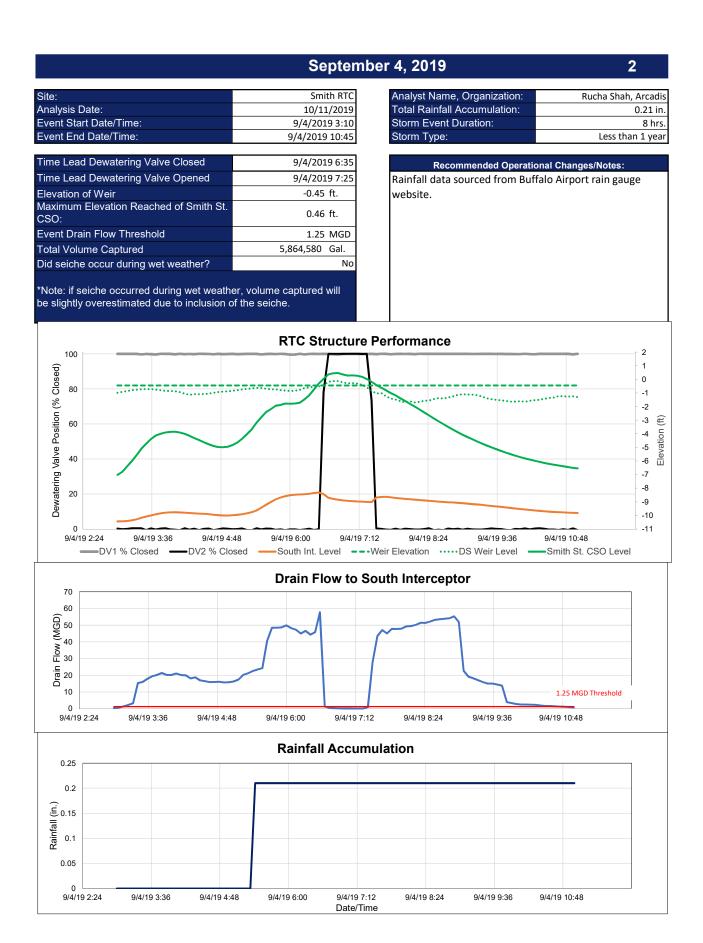
September 2019

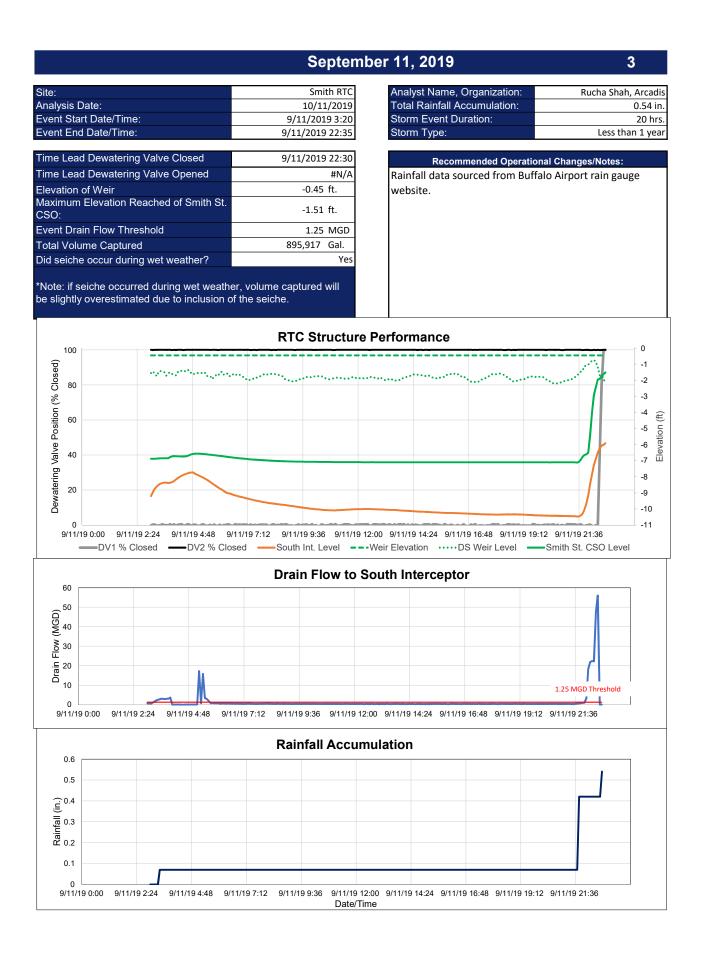
Event Date	Volume Captured (gal)	Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche)	Event drain flow threshold (MGD)
9/1/2019	5,031,826	No	1.25
9/4/2019	5,864,580	No	1.25
9/11/2019	895,917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

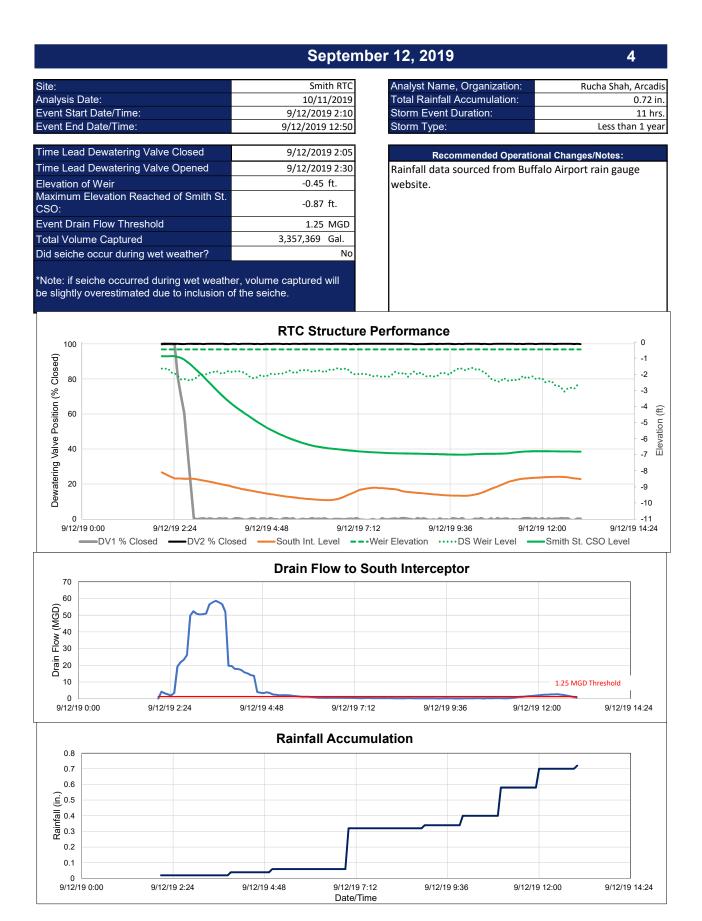
September 1, 2019

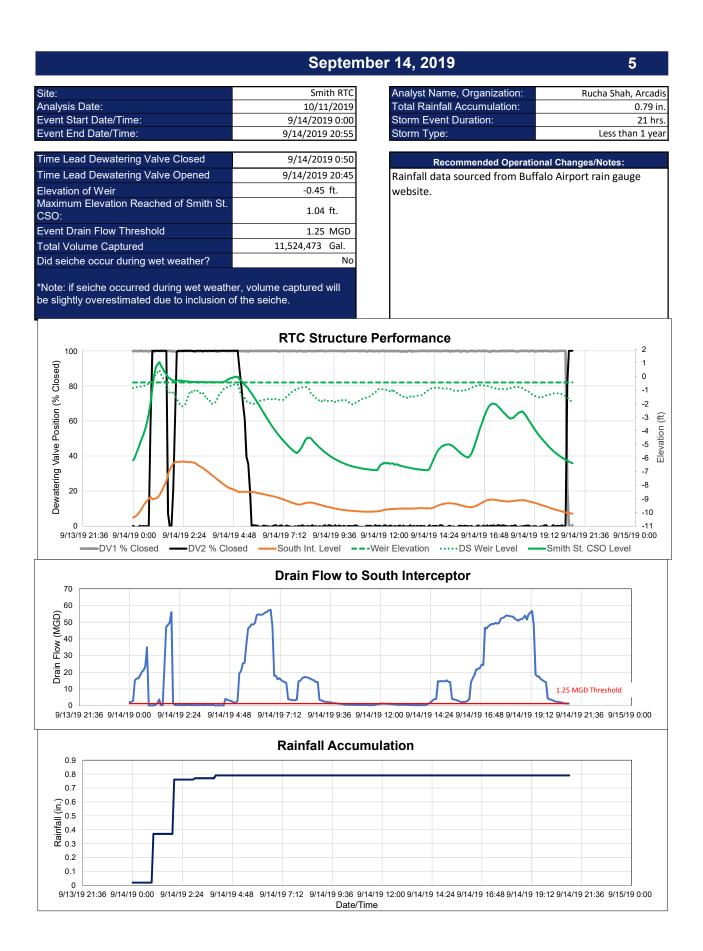


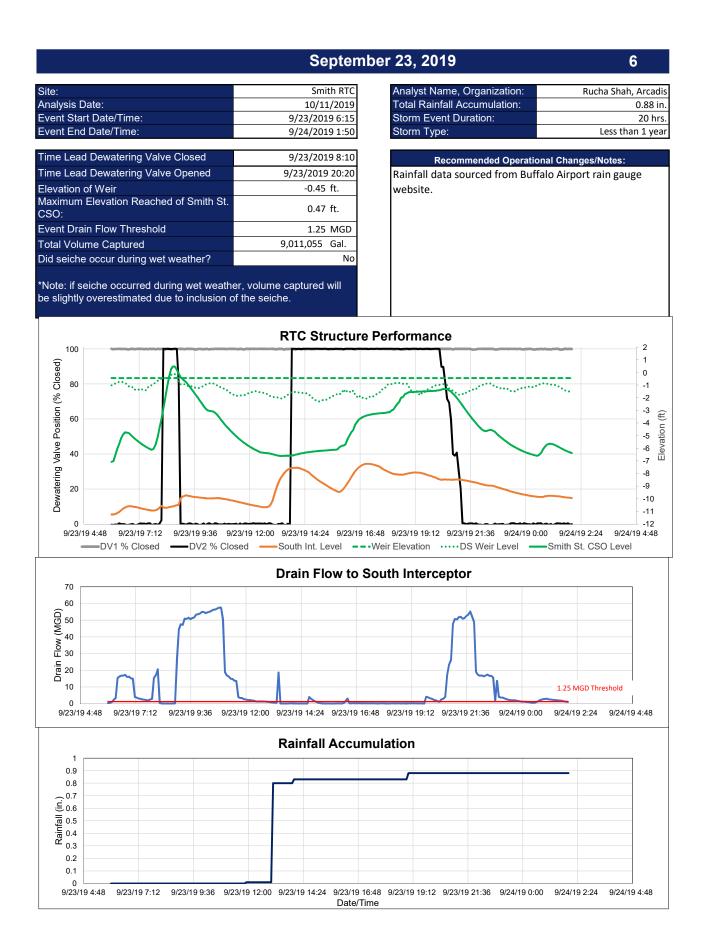


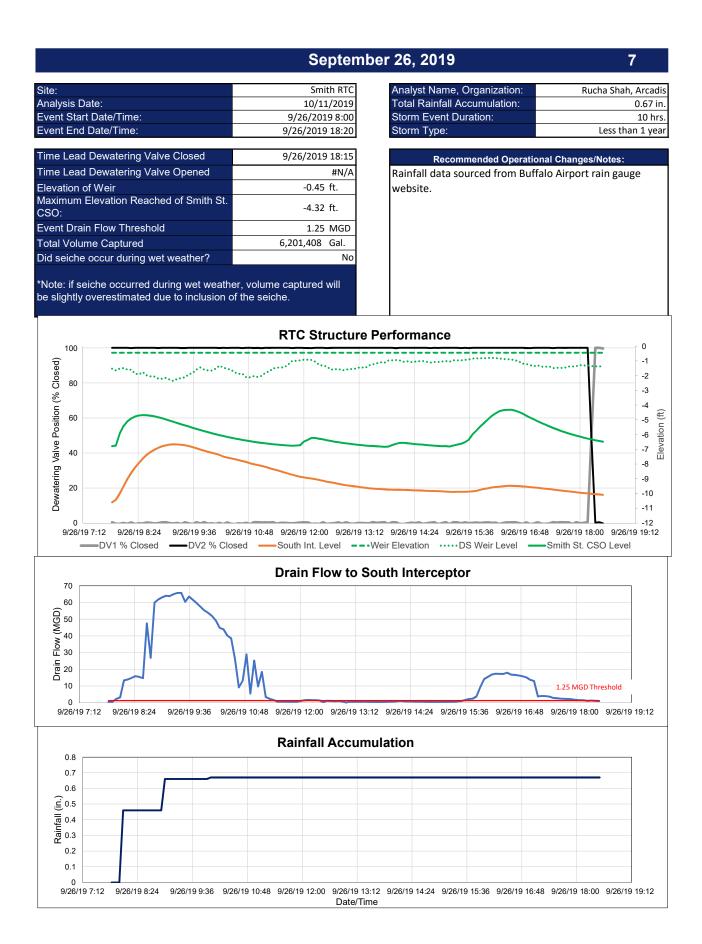


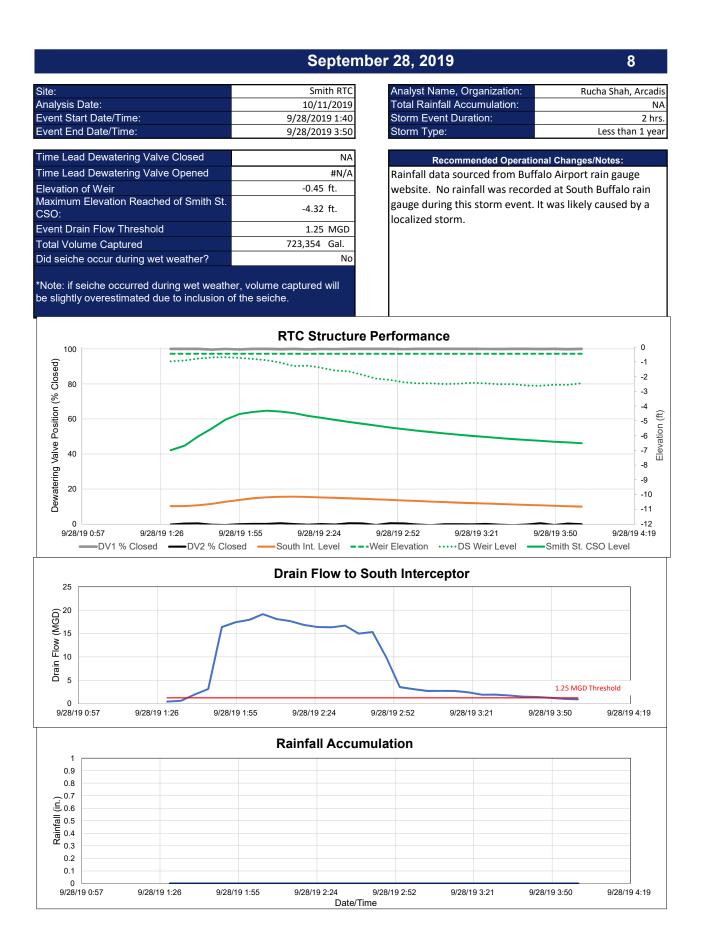










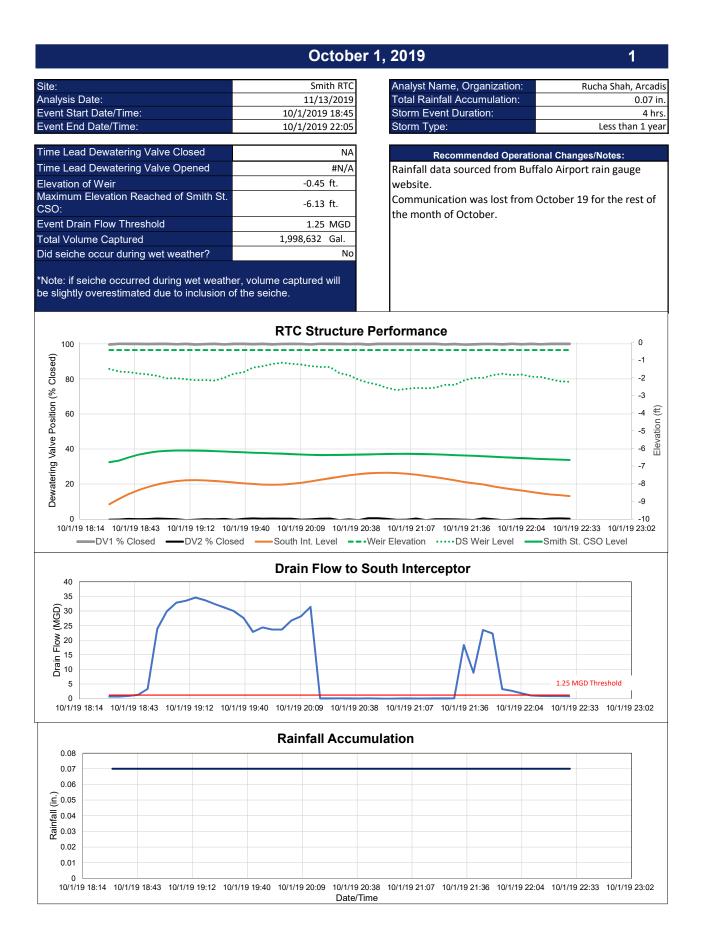




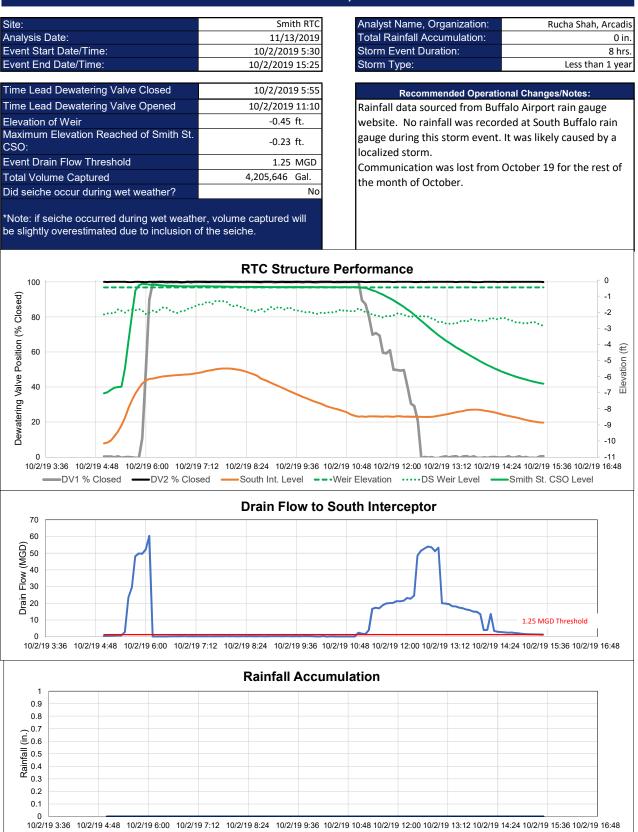


ctober 2019

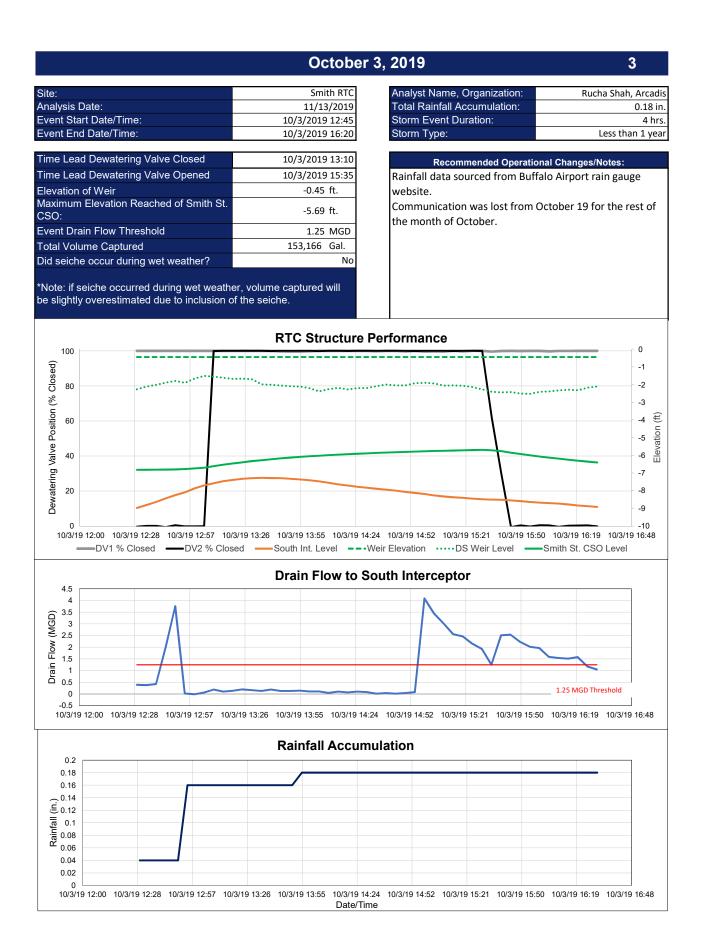
Event Date	Volume Captured (gal)	Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche)	Event drain flow threshold (MGD)
10/1/2019	1,998,632	No	1.25
10/2/2019	4,205,646	No	1.25
10/3/2019	152,166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



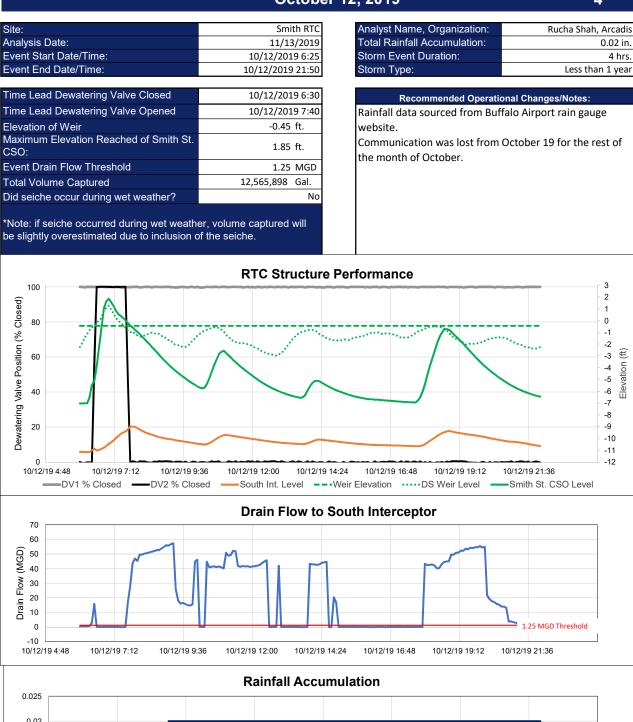
October 2, 2019

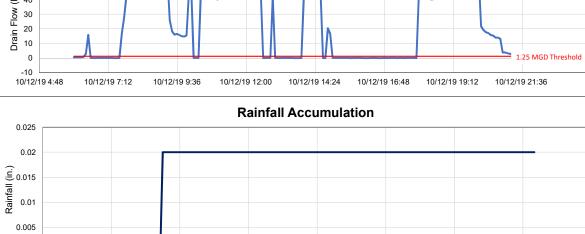


Date/Time



October 12, 2019





10/12/19 14:24

Date/Time

10/12/19 16:48

10/12/19 19:12

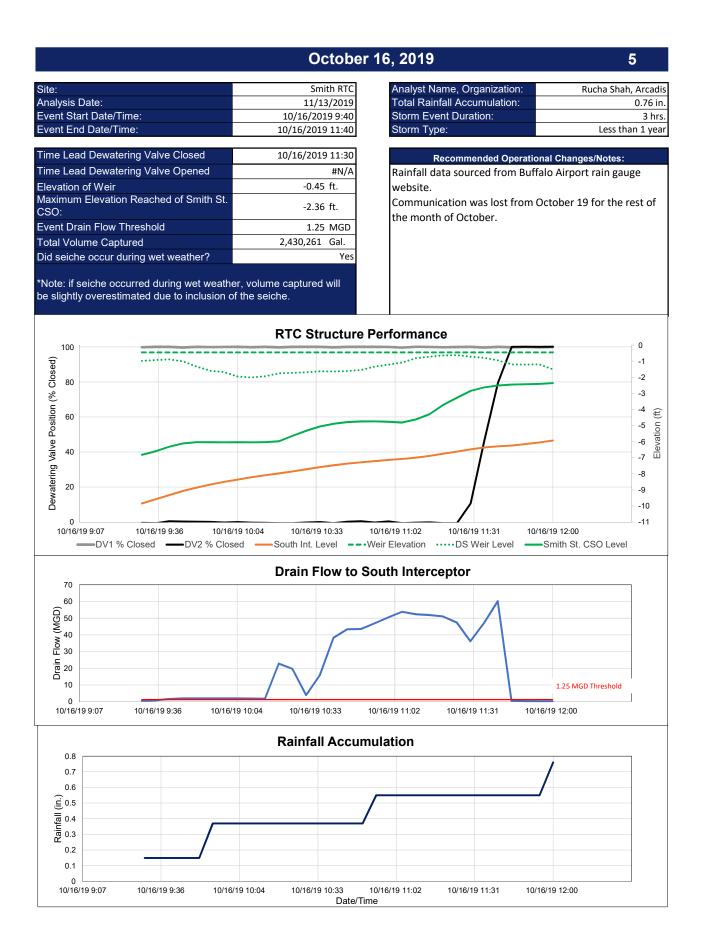
10/12/19 21:36

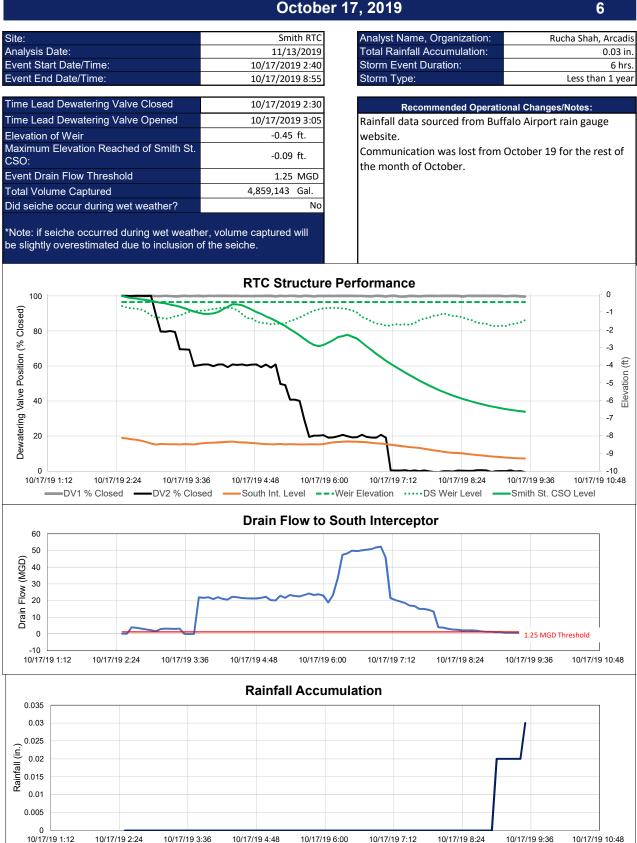
0 10/12/19 4:48

10/12/19 7:12

10/12/19 9:36

10/12/19 12:00





Date/Time

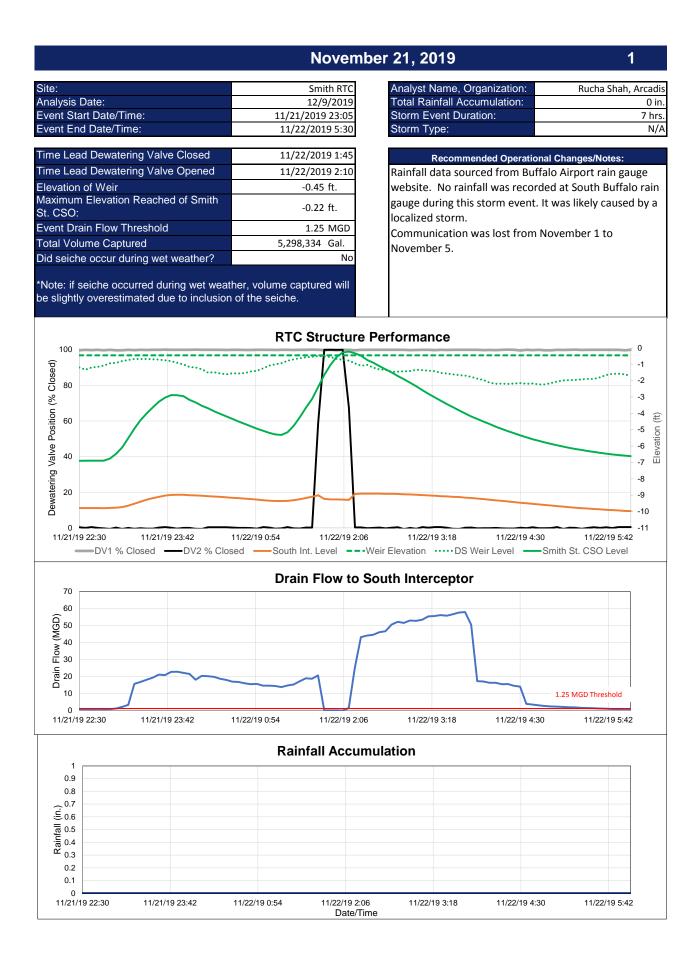
October 17, 2019

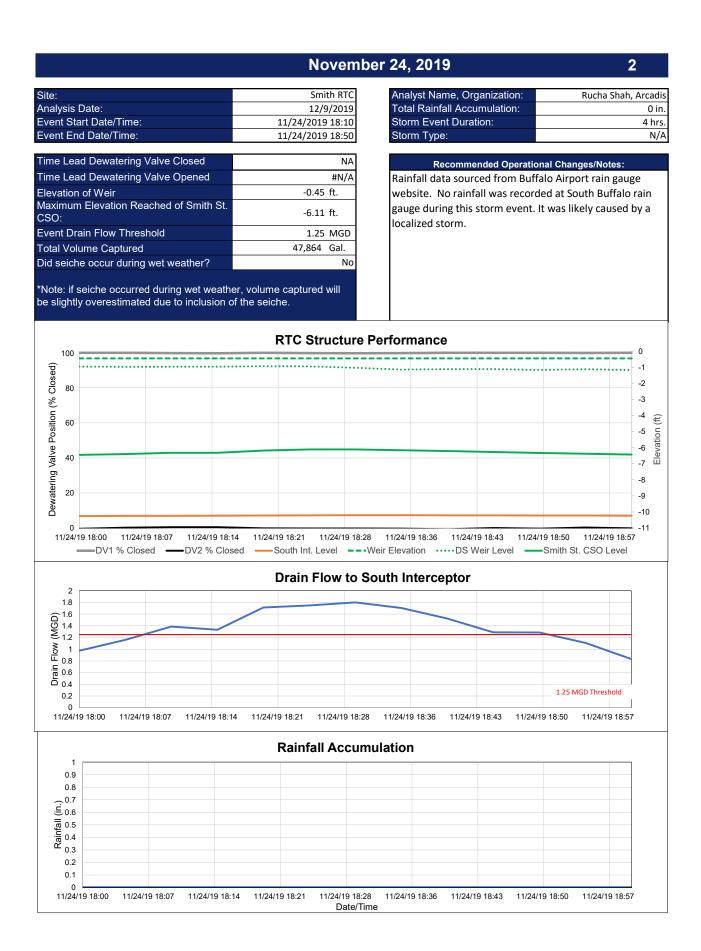
November 2019 Smith St. RTC KPI Report

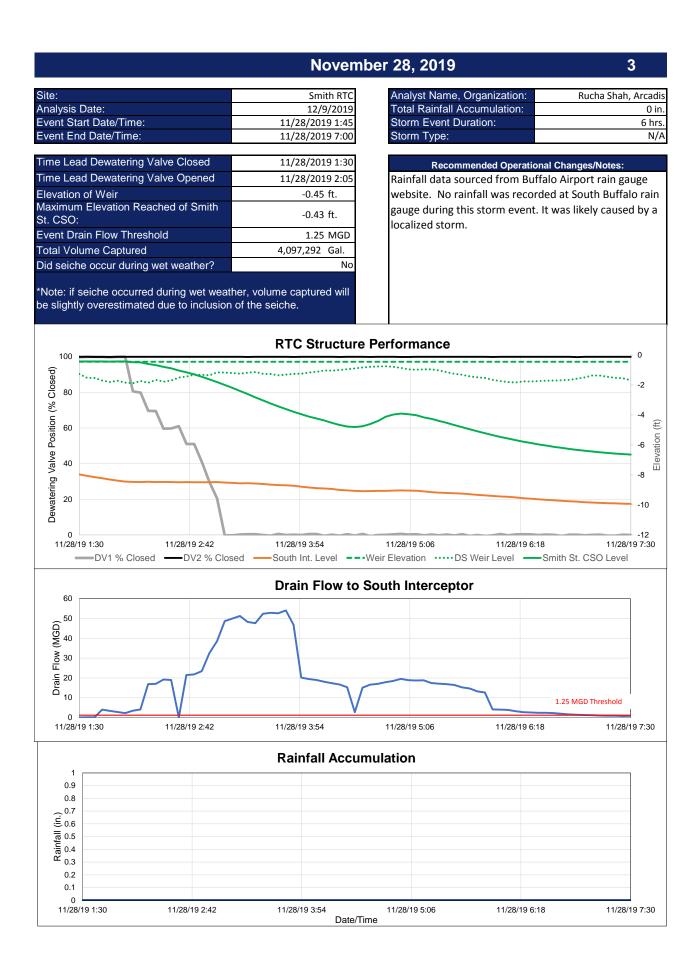


November 2019

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





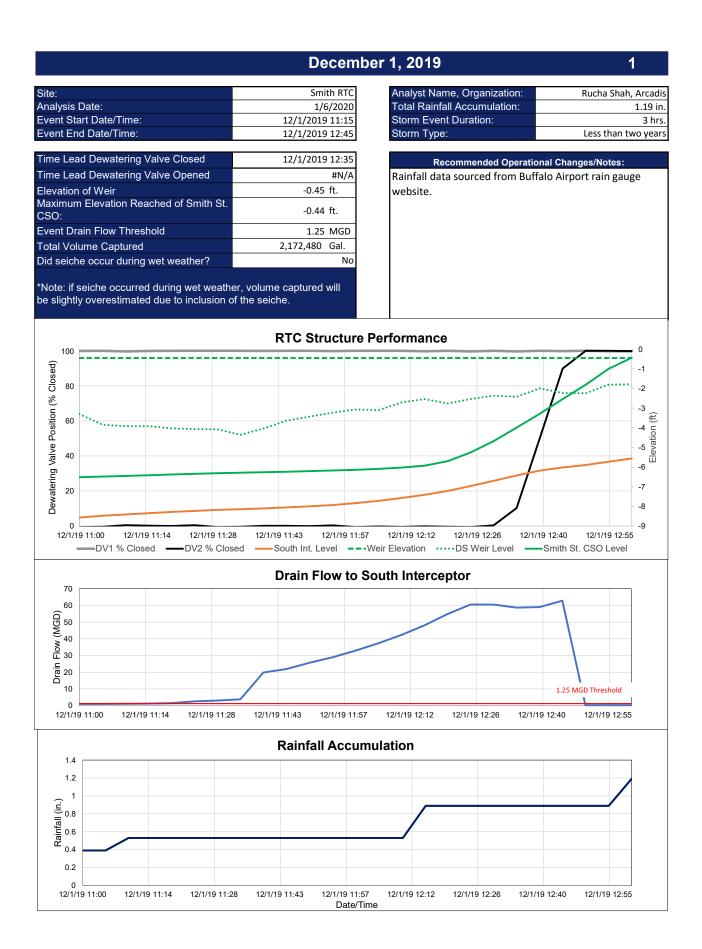


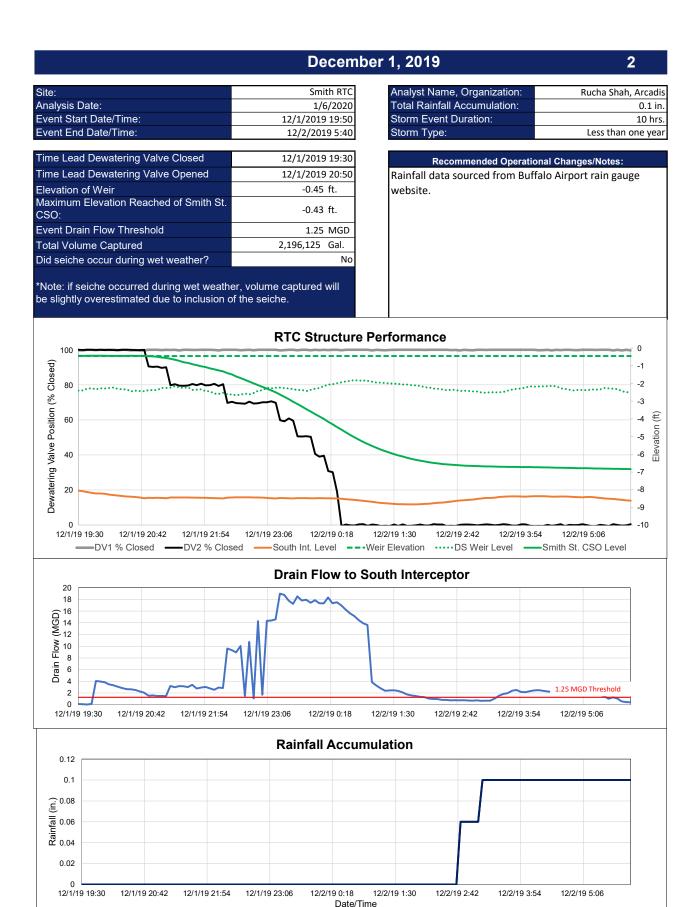
December 2019 Smith St. RTC KPI Report

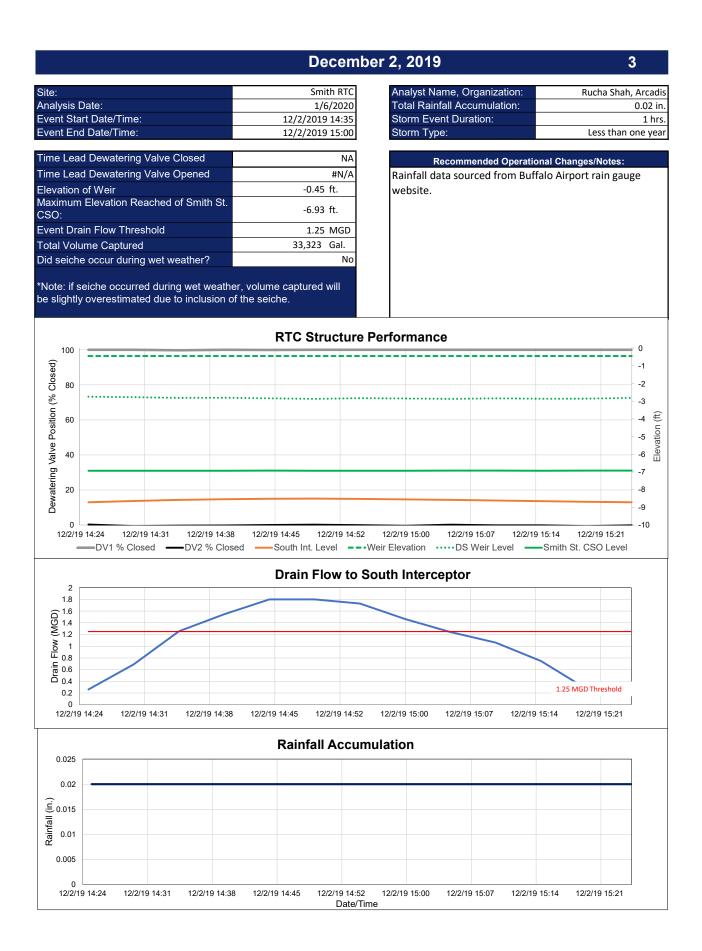


December 2019

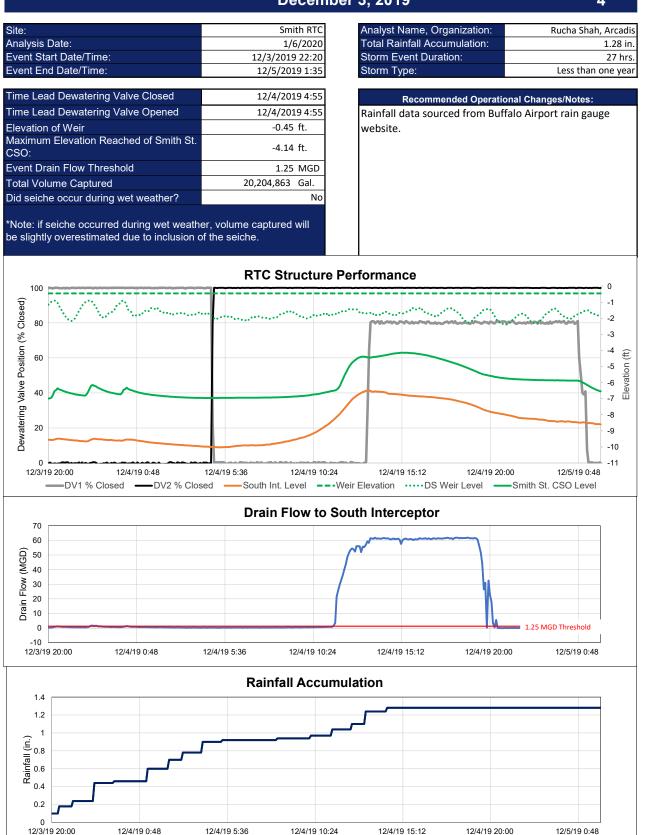
Event Date	Volume Captured (gal)	Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche)	Event drain flow threshold (MGD)
12/1/2019	2,172,480	No	1.25
12/1/2019	2,196,125	No	1.25
12/2/2019	33,323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



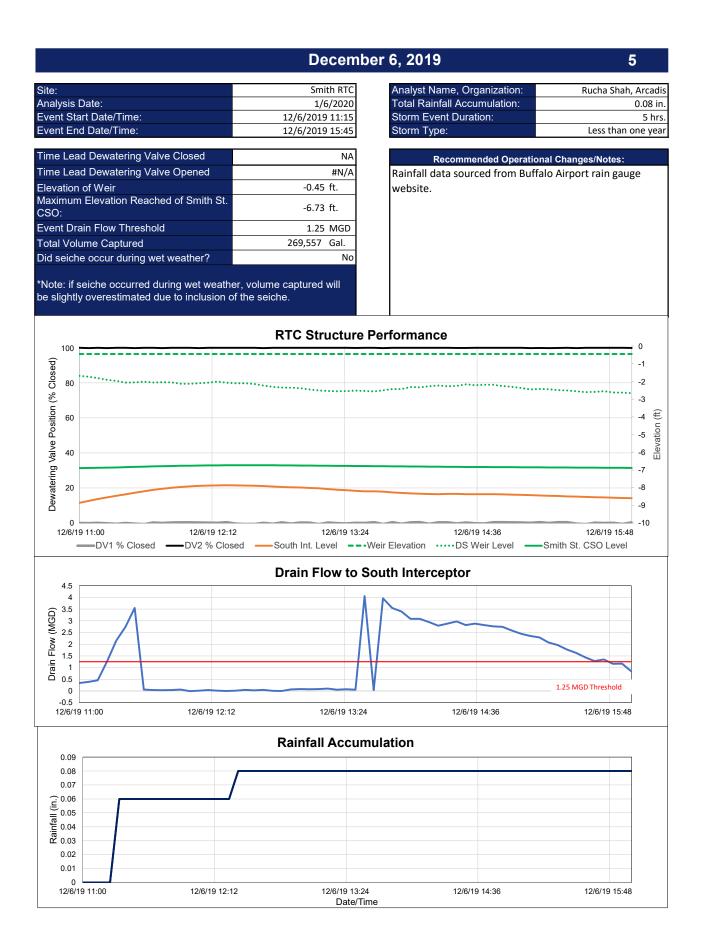


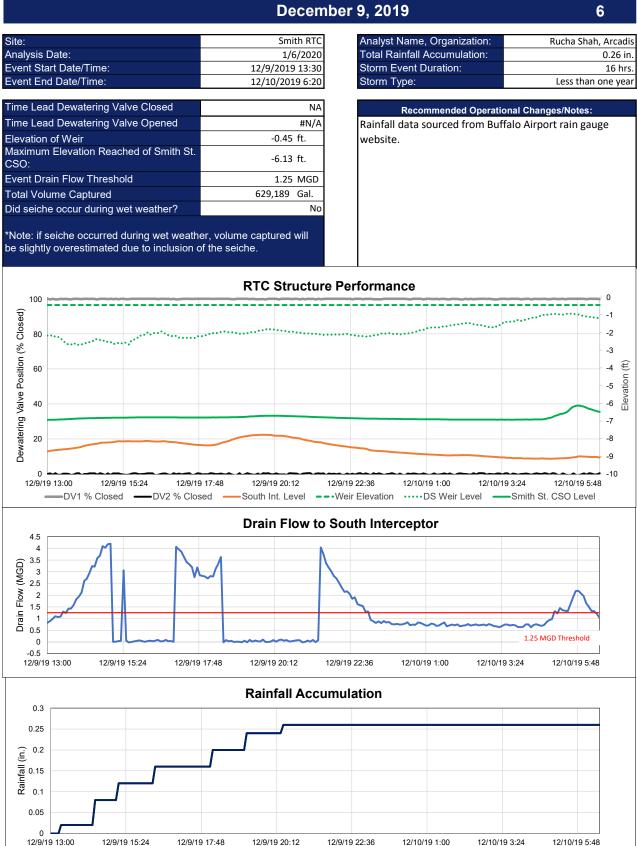


December 3, 2019



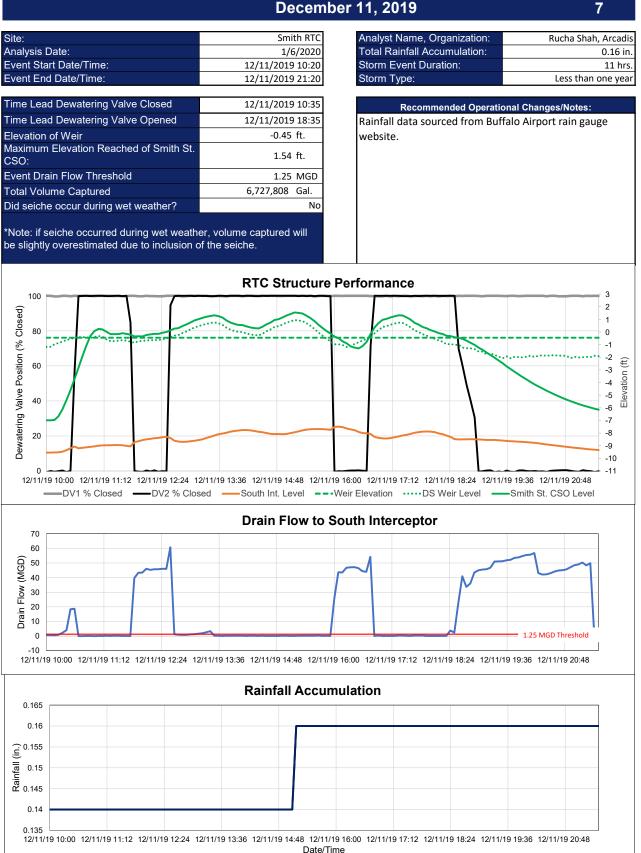
Date/Time

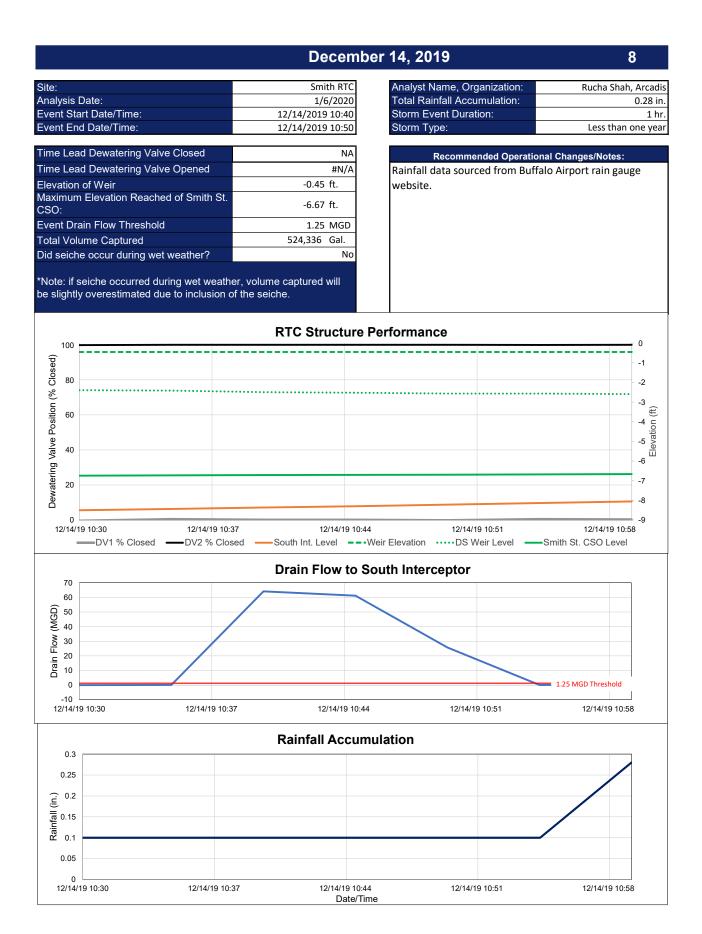


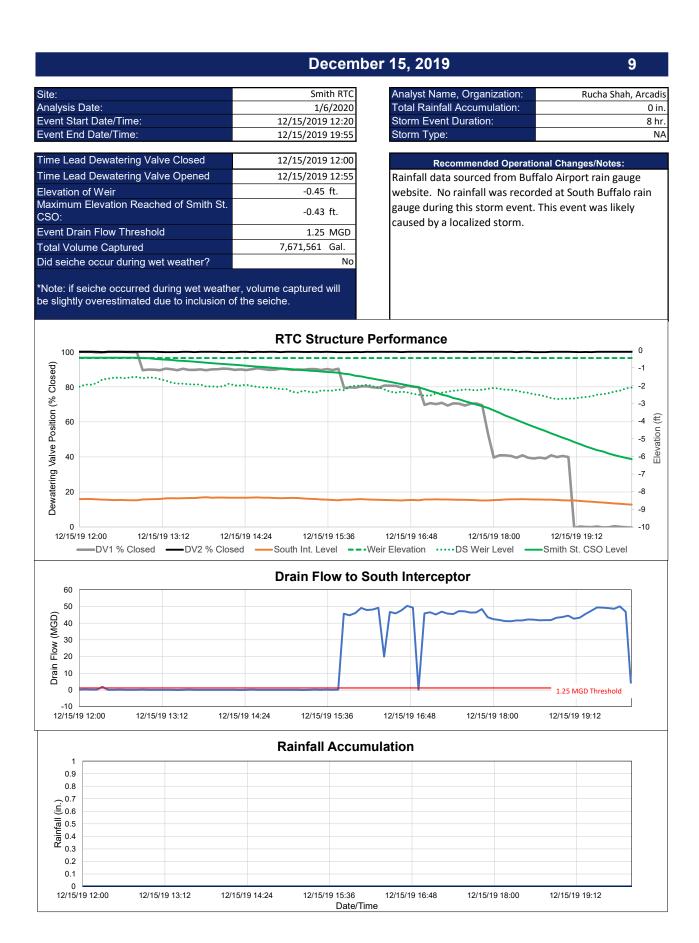


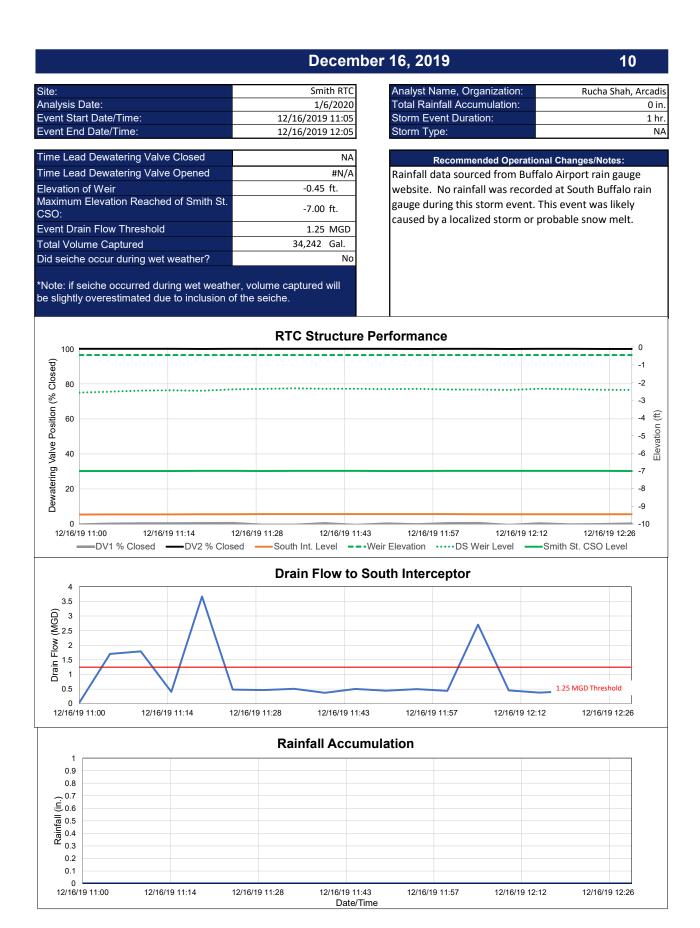
Date/Time

December 11, 2019

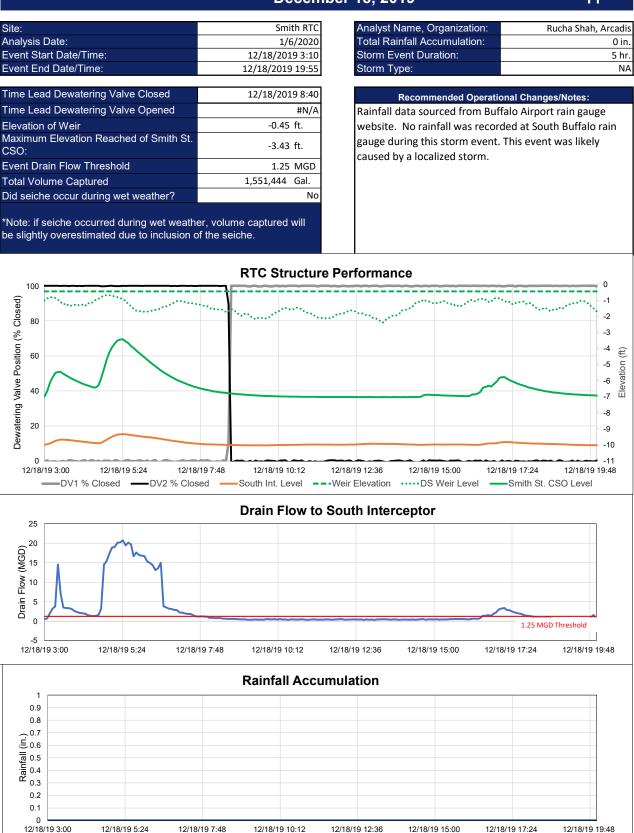




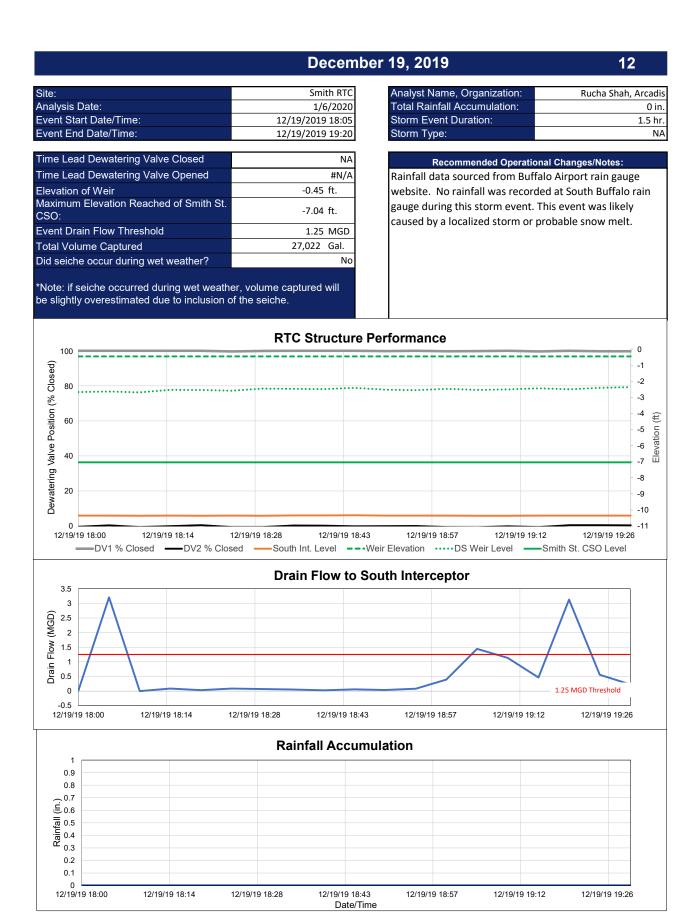


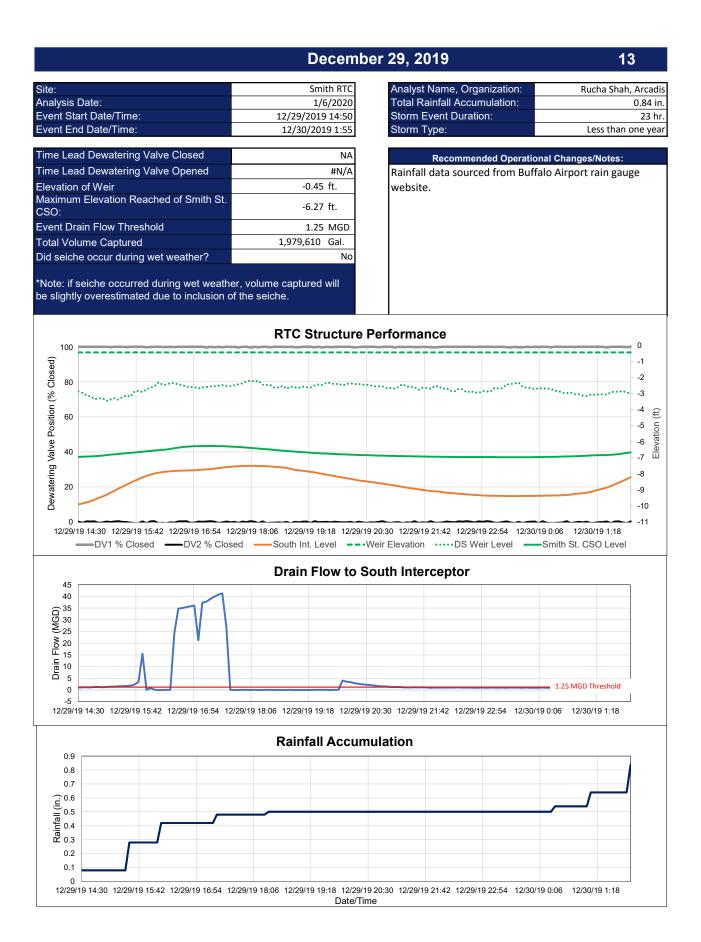


December 18, 2019



Date/Time





December 30, 2019

1	Λ

2:	Smith RTC	Analyst Name, Organization:	Rucha Shah, Arca
alysis Date:	1/6/2020	Total Rainfall Accumulation:	0.04
ent Start Date/Time:	12/30/2019 17:20	Storm Event Duration:	30
ent End Date/Time:	12/31/2019 23:30	Storm Type:	Less than one ye
e Lead Dewatering Valve Closed	12/30/2019 17:00	Recommended Operationa	al Changes/Notes:
e Lead Dewatering Valve Opened	12/31/2019 19:10	Rainfall data sourced from Buffal	
vation of Weir	-0.45 ft.	website.	
kimum Elevation Reached of Smith St.	1.75 ft.		
O: ent Drain Flow Threshold	1.25 MGD		
al Volume Captured	7,348,967 Gal.		
seiche occur during wet weather?	Yes		
te: if seiche occurred during wet weath slightly overestimated due to inclusion			
100	RTC Structure	Performance	3
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			- 1
			0
	and the second secon	e Name and a second	-1
	Λ		-2 -3 -4 -5
ž V			-4
g 40			
			6
20 20			-6 -7 -8
60 40 20			-7
0	12/31/10 2:36 12/31/10 7:24	12/31/19.12:12 12/31/19.17:00	-7 -8 -9 -10
0	12/31/19 2:36 12/31/19 7:24 Desed South Int. Level	12/31/19 12:12 12/31/19 17:00 Neir Elevation ·····DS Weir Level — S	-7 -8 -9
0 12/30/19 17:00 12/30/19 21:48	osedSouth Int. Level\		-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ······DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ······DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ······DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ······DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Clo 60 50 60 50 20 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ••••••DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 60 50 50 50 50 12/30/19 21:48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	osedSouth Int. Level\	Neir Elevation ••••••DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Clo 60 50 50 50 50 50 50 50 50 50 5	osedSouth Int. Level\	Neir Elevation ••••••DS Weir LevelS	-7 -8 -9 12/31/19 21:48
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 60 50 50 50 10 0 -10	osedSouth Int. Level\	Neir Elevation ••••••DS Weir LevelS	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 60 50 50 50 10 0 -10	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Clo 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level
0 12/30/19 17:00 12/30/19 21:48 DV1 % Closed DV2 % Closed 0 0 0 0 0 0 0 0 0 0 0 0 0	Drain Flow to S	Neir Elevation DS Weir Level S outh Interceptor	-7 -8 -9 -10 12/31/19 21:48 Smith St. CSO Level

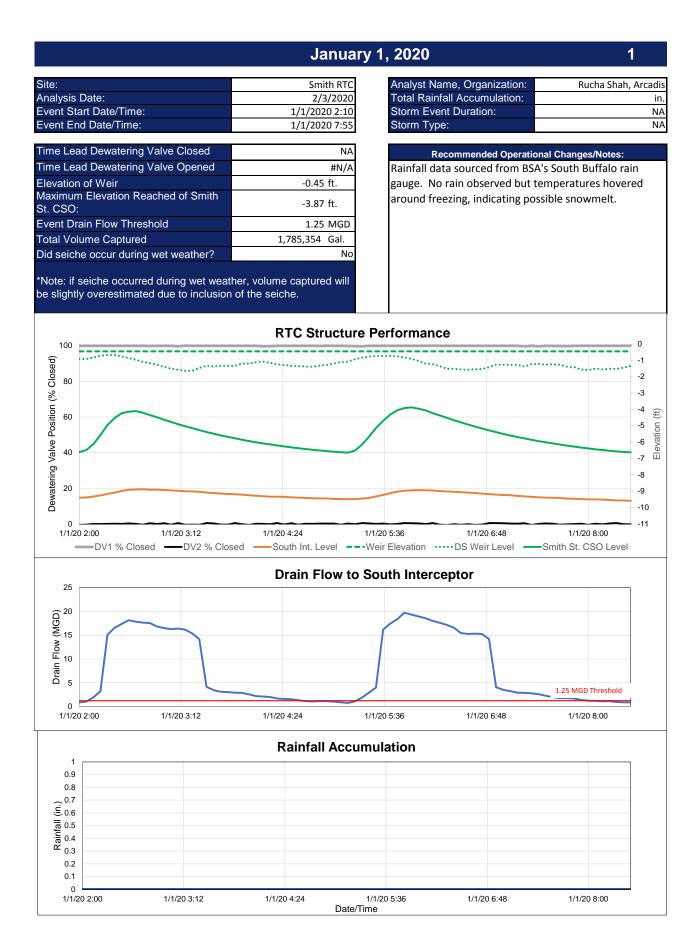
January 2020 Smith St. RTC KPI Report

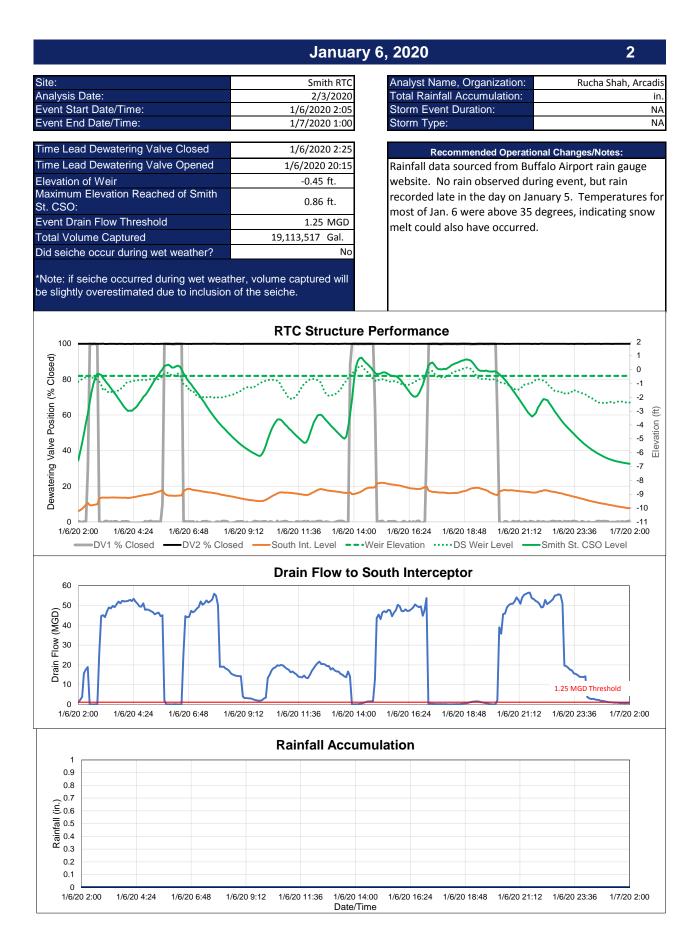


Smith St. RTC Monthly Performance Report

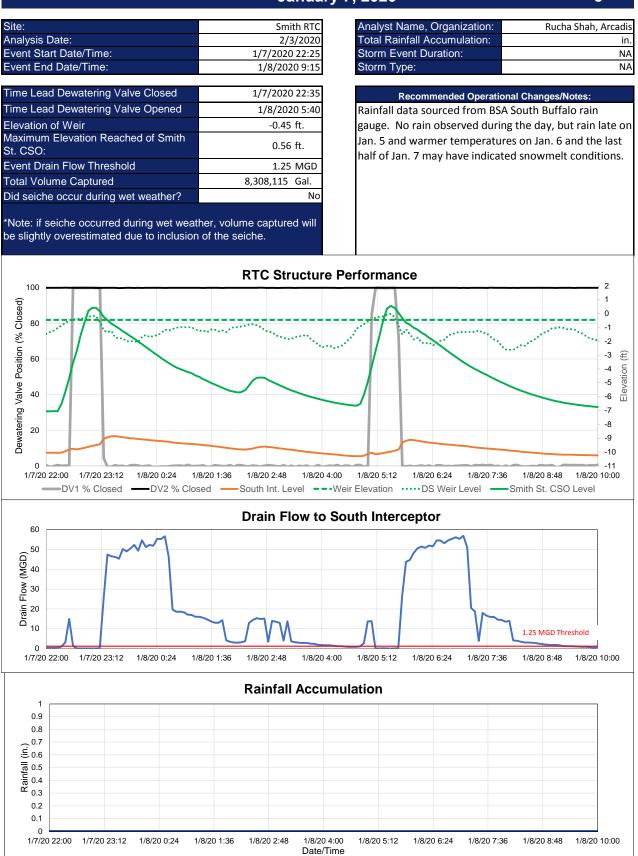
January 2020

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

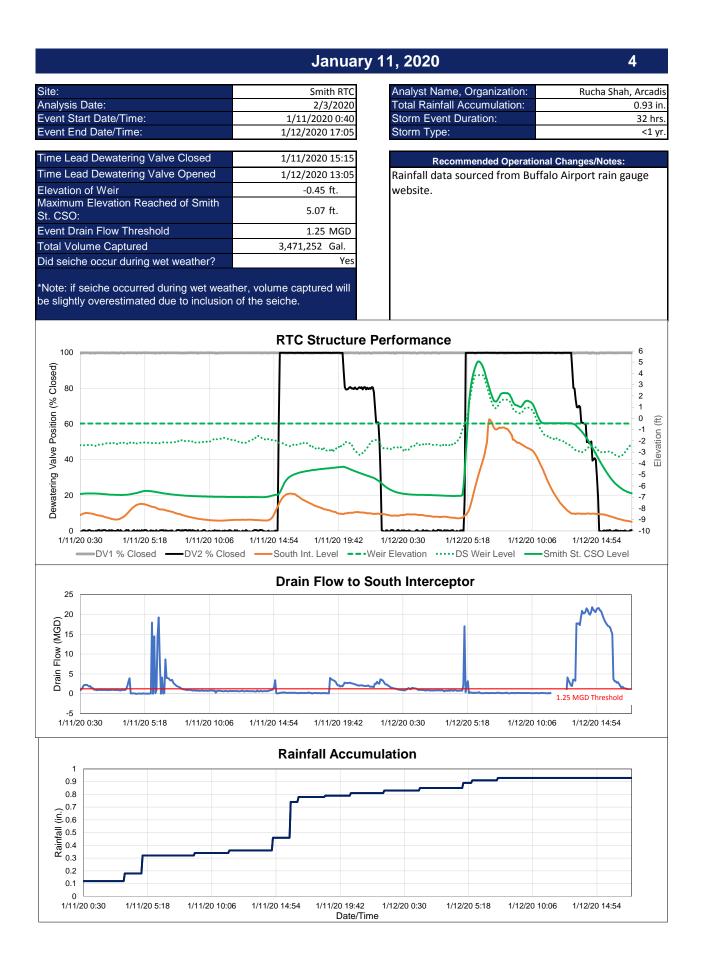


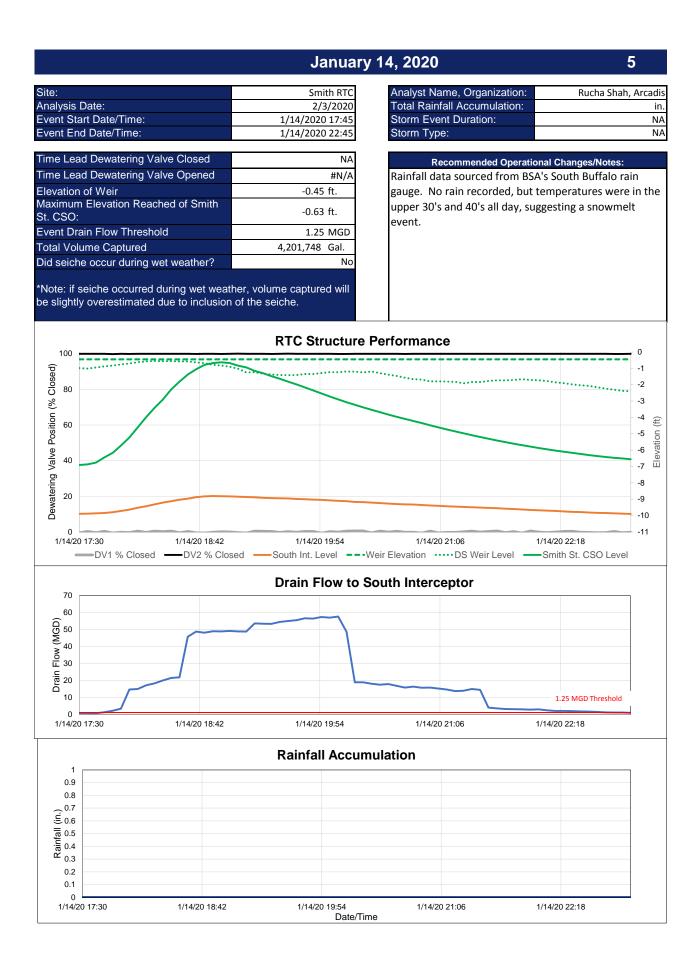


January 7, 2020



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January 16, 2020

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Site:	Smith RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
Analysis Date:	2/3/2020	Total Rainfall Accumulation:	0.04 in.
Event Start Date/Time:	1/16/2020 3:40	Storm Event Duration:	5 hrs.
Event End Date/Time:	1/16/2020 21:25	Storm Type:	<1 yr.
	4/46/2020 4 45		
Time Lead Dewatering Valve Closed	1/16/2020 4:15	Recommended Operationa	
Time Lead Dewatering Valve Opened	1/16/2020 7:40	Rainfall data sourced from BSA's	South Buffalo rain
Elevation of Weir	-0.45 ft.	gauge.	
Maximum Elevation Reached of Smith	0.34 ft.		
St. CSO:			
Event Drain Flow Threshold	1.25 MGD		
Total Volume Captured	9,188,855 Gal.		
Did seiche occur during wet weather?	No		
*Note: if seiche occurred during wet weat be slightly overestimated due to inclusior			
100	RTC Structure P	Performance	- 1
80 80	· · · · · · · · · · · · · · · · · · ·	······································	-1
08 Obevatering Valve Position (% Closed)	\sim \sim \sim		
E 60			
		\sim (-4 -4 -4 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6
e E			vatic
AR 40			-6 <u>é</u>
DE C			7
			8
			9
			-10
0 1/16/20 3:30 1/16/20 5:54 1/16/20	8:18 1/16/20 10:42 1/16/20 1;	3:06 1/16/20 15:30 1/16/20 17:54	-11
1/16/20 3:30 1/16/20 5:54 1/16/20 - 		3:06 1/16/20 15:30 1/16/20 17:54 eir Elevation ••••••DS Weir LevelS	
60	Drain Flow to So	buth Interceptor	
-			
	~ ~		
50	m		
50	m		
50	m		
(D) 40 80 10 10 10 10 10 10 10 10 10 10 10 10 10	m		
(D) 40 80 10 10 10 10 10 10 10 10 10 10 10 10 10	m		
(DSW) 40 Mo 30	m	\sim	1.25 MGD Threshold
CD 40 W21 20 H W W21 20	m		1.25 MGD Threshold
G G M M M M M M M M M M M M M	8:18 1/16/20 10:42 1/16/20 13	3:06 1/16/20 15:30 1/16/20 17:54	1.25 MGD Threshold 1/16/20 20:18
GG W W S S S S S S S S S S S S S S S S S	8:18 1/16/20 10:42 1/16/20 13 Rainfall Accum		
0.045			
0.045 0.04			
0.045 0.045 0.035			
0.045 0.04 0.025 0.025 0.025 0.015			
0.045 0.045 0.025 0.015 0.01			
0.045 0.045 0.04 0.025 0.015 0.01 0.005			
0.045 0.045 0.025 0.015 0.01	Rainfall Accumu	ulation	

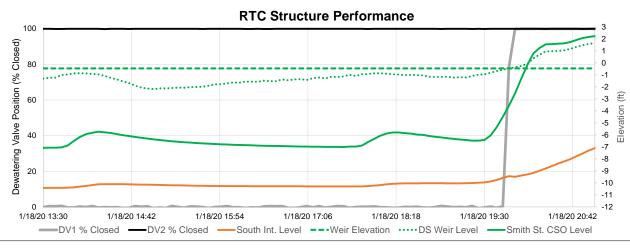
January 18, 2020

Site:	Smith RTC
Analysis Date:	2/3/2020
Event Start Date/Time:	1/18/2020 14:00
Event End Date/Time:	1/18/2020 20:35
Time Lead Dewatering Valve Closed	1/18/2020 19:50
Time Lead Dewatering Valve Opened	#N/A
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	2.23 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	268,324 Gal.
Did seiche occur during wet weather?	Yes

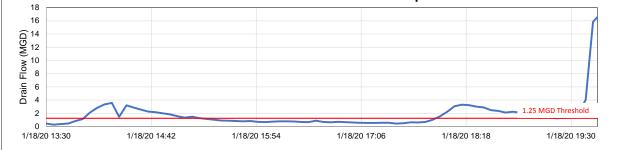
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.54 in.
Storm Event Duration:	6 hrs.
Storm Type:	<1 yr.

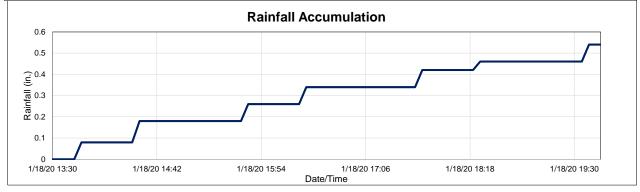
Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.

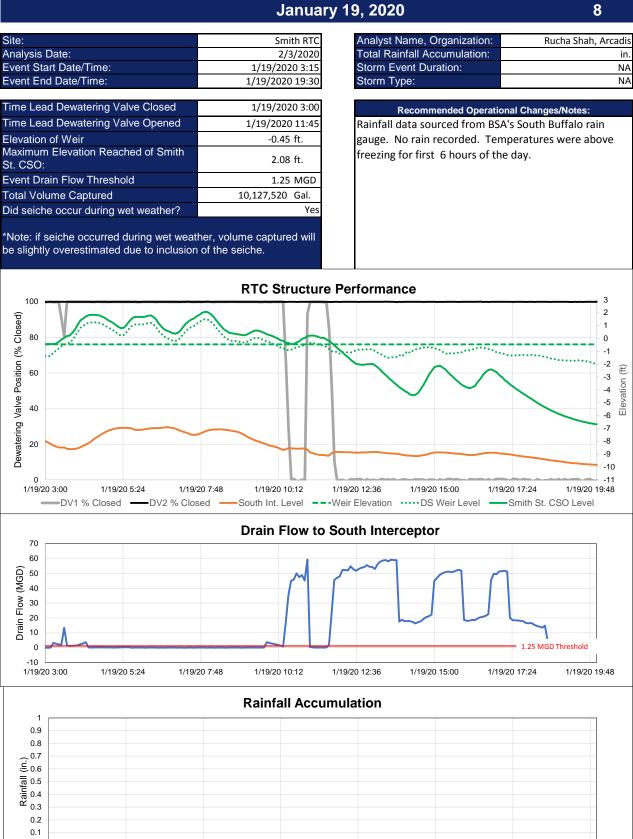
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.



Drain Flow to South Interceptor







0 1/19/20 3:00

1/19/20 5:24

1/19/20 7:48

1/19/20 10:12

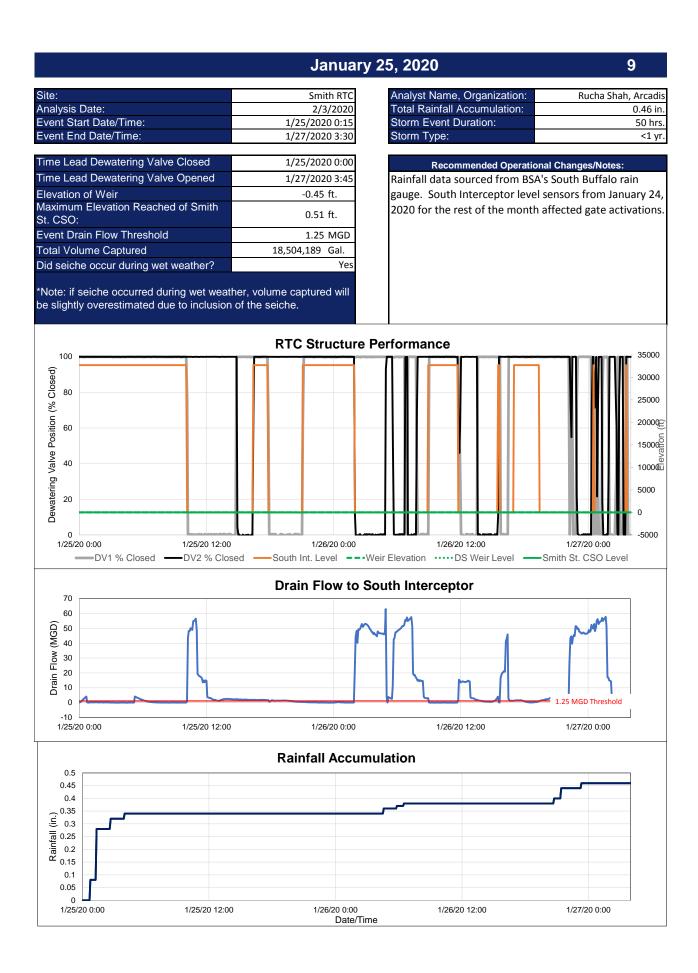
1/19/20 12:36

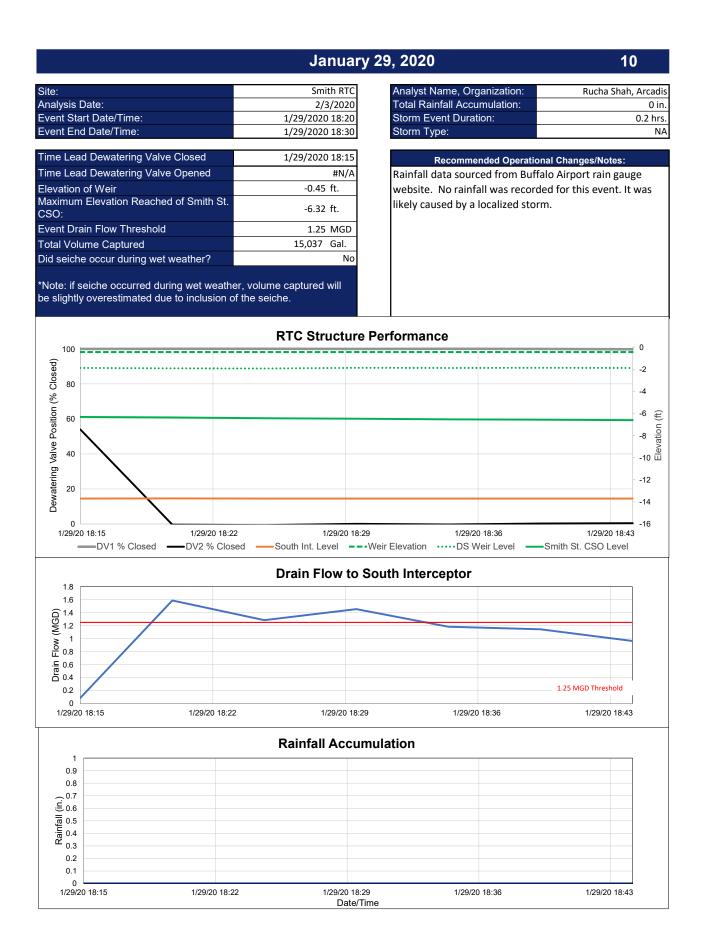
Date/Time

1/19/20 15:00

1/19/20 17:24

1/19/20 19:48





February 2020 Smith St. RTC KPI Report



Smith St. RTC Monthly Performance Report

ebruary 2020

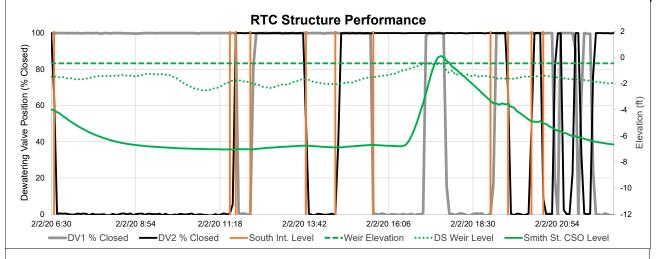
Event Date	Volume Captured (gal)	Did a seiche occur during wet weather? (Note: if a seiche occurs during wet weather, volume captured will be slightly overestimated due to the inclusion of the seiche)	Event drain flow threshold (MGD)
2/2/2020	4,523,246	No	1.25
2/8/2020	19,394	No	1.25
2/10/2020	3,774,818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

February 2, 2020

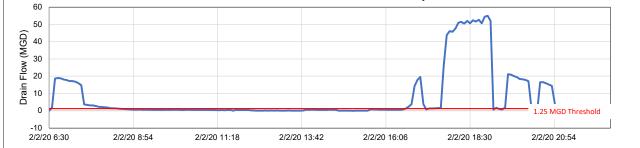
Site:	Smith RTC	Ana
Analysis Date:	3/10/2020	Tota
Event Start Date/Time:	2/2/2020 6:35	Stor
Event End Date/Time:	2/2/2020 22:10	Stor
Time Lead Dewatering Valve Closed	2/2/2020 6:30	
Time Lead Dewatering Valve Opened	2/2/2020 21:55	Rair
Elevation of Weir	-0.45 ft.	gau
Maximum Elevation Reached of Smith St. CSO:	0.11 ft.	
Event Drain Flow Threshold	1.25 MGD	
Total Volume Captured	4,523,246 Gal.	
Did seiche occur during wet weather?	No	

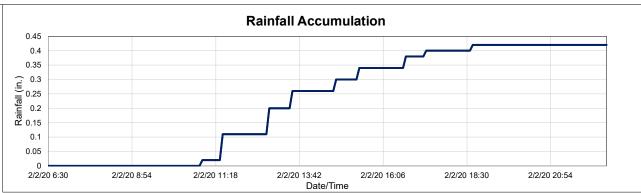
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche. Analyst Name, Organization:Rucha Shah, ArcadisTotal Rainfall Accumulation:0.42 in.Storm Event Duration:16 hrs.Storm Type:Less than one year

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



Drain Flow to South Interceptor

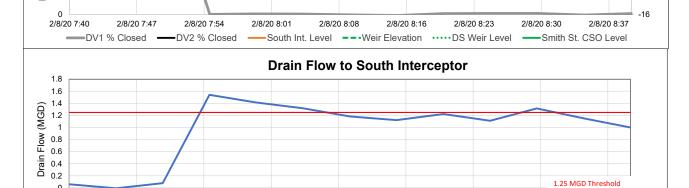




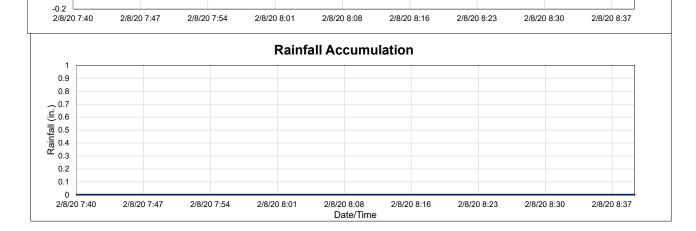
1

February 8, 2020

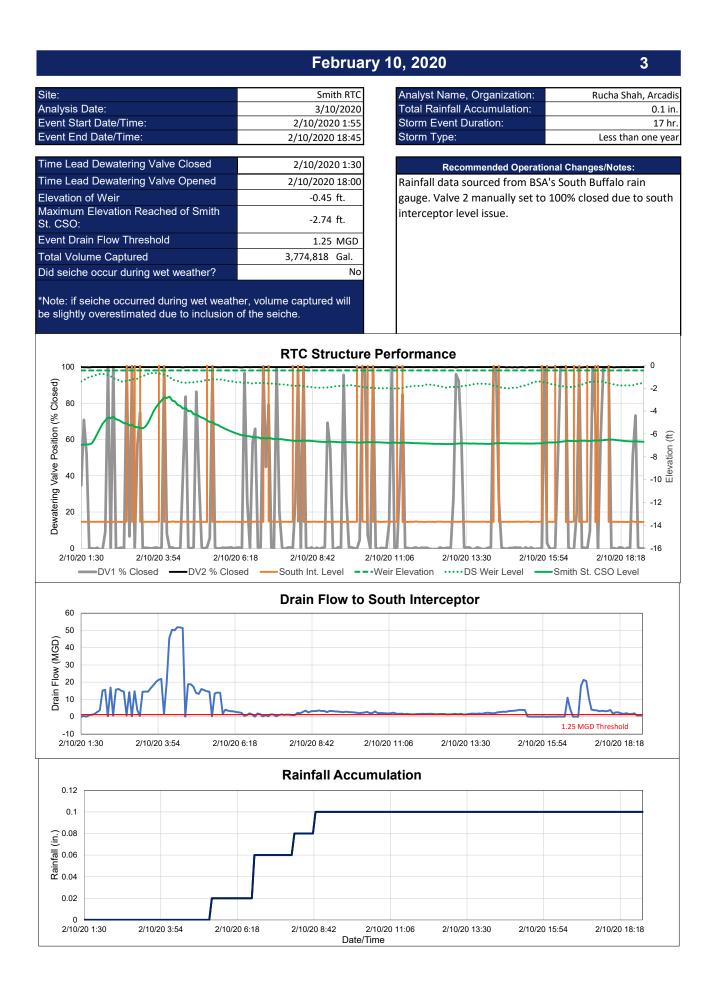
ite:	Smith RTC	Analyst Name, Organization:	Rucha Shah, Arcadi
nalysis Date:	3/10/2020	Total Rainfall Accumulation:	0 in
vent Start Date/Time:	2/8/2020 7:55	Storm Event Duration:	1 hr
vent End Date/Time:	2/8/2020 8:30	Storm Type:	N
ime Lead Dewatering Valve Closed	2/8/2020 7.40		
· · · · · · · · · · · · · · · · · · ·	2/8/2020 7:40	Recommended Operatio	
ime Lead Dewatering Valve Opened	2/8/2020 7:50	Rainfall data sourced from BSA	
levation of Weir	-0.45 ft.	gauge. No rainfall recorded at S	South Buffalo rain gauge
laximum Elevation Reached of Smith t. CSO:	-6.63 ft.	during this storm event. Valve 2 100% closed due to south inter	•
vent Drain Flow Threshold	1.25 MGD		
otal Volume Captured	19,394 Gal.		
	No		
vid seiche occur during wet weather? Note: if seiche occurred during wet weather e slightly overestimated due to inclusion o	of the seiche.		
Note: if seiche occurred during wet weath		Performance	0
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion o	of the seiche.	Performance	-2
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion o	of the seiche.	Performance	
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion o	of the seiche.	Performance	0 -2 -4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion o	of the seiche.	Performance	4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion of 80 80 60	of the seiche.	Performance	4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion of 100 80 80 60	of the seiche.	Performance	-4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion of 100 80 80 60	of the seiche.	Performance	-4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion of 100 80 80 60	of the seiche.	Performance	4
Note: if seiche occurred during wet weath e slightly overestimated due to inclusion of 80 60 60 60	of the seiche.	Performance	4 6 (1) 8 (1) 8 (1) 8 (1) 10 (1) 10 (1)

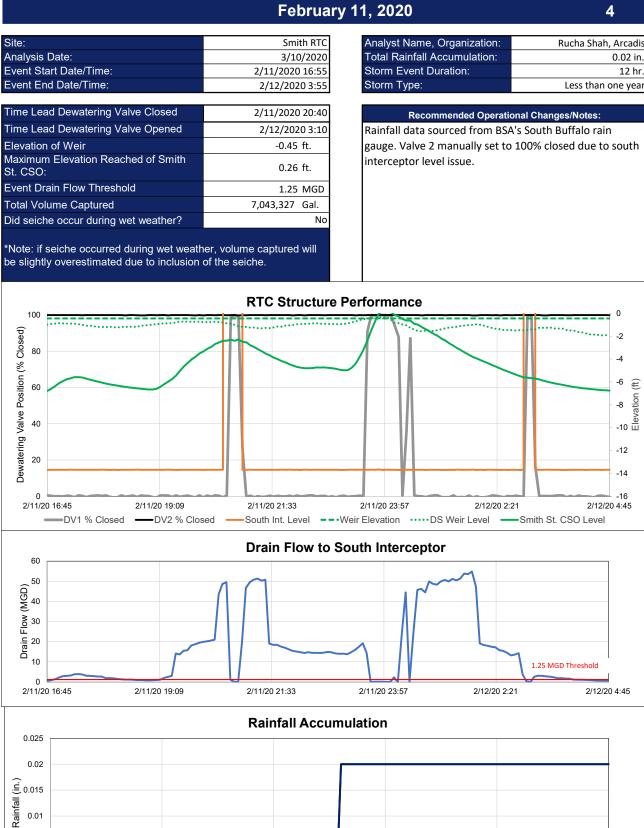


0



2





0.01 0.005

0 2/11/20 16:45

2/11/20 19:09

2/11/20 21:33

Date/Time

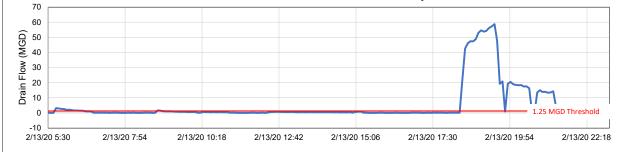
2/11/20 23:57

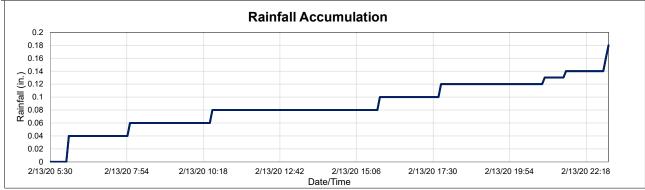
2/12/20 2.21

2/12/20 4.45

	February	/ 13, 2020	5
Site:	Smith RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
Analysis Date:	3/10/2020	Total Rainfall Accumulation:	0.18 in.
Event Start Date/Time:	2/13/2020 5:45	Storm Event Duration:	18 hr.
Event End Date/Time:	2/13/2020 22:20	Storm Type:	Less than one year
Time Lead Dewatering Valve Closed	2/13/2020 5:30	Recommended Operation	onal Changes/Notes
Time Lead Dewatering Valve Opened	2/13/2020 21:40	Rainfall data sourced from BSA	
Elevation of Weir	-0.45 ft.	gauge. Gates were manually se	et to 25%/100% closed due
Maximum Elevation Reached of Smith St. CSO:	-0.01 ft.	to south interceptor level issue	2.
Event Drain Flow Threshold	1.25 MGD		
Total Volume Captured	91,413 Gal.		
Did seiche occur during wet weather?	Yes		
	of the seiche.		
100	RTC Structure I	Performance	

Drain Flow to South Interceptor





February 15, 2020

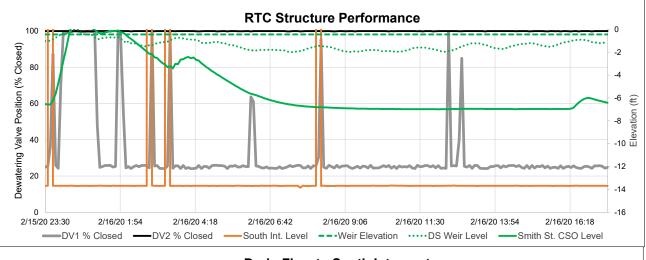
Site:	Smith RTC
Analysis Date:	3/10/2020
Event Start Date/Time:	2/15/2020 23:50
Event End Date/Time:	2/16/2020 17:20
Time Lead Dewatering Valve Closed	2/15/2020 23:30
Time Lead Dewatering Valve Opened	2/16/2020 12:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.65 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	5,504,963 Gal.
Did seiche occur during wet weather?	No

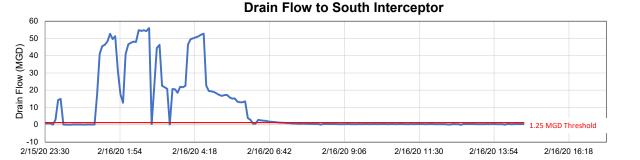
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

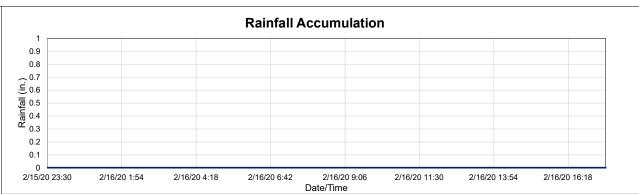
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	18 hr.
Storm Type:	NA

6

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







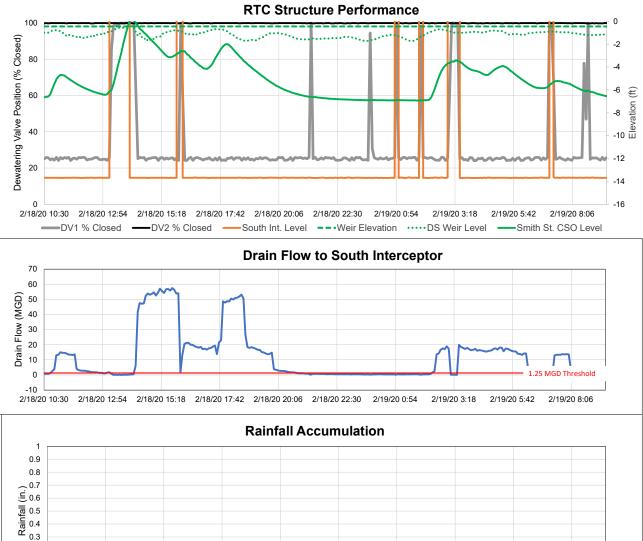
February 18, 2020

Site:	Smith RTC	Analyst
Analysis Date:	3/10/2020	Total R
Event Start Date/Time:	2/18/2020 10:50	Storm E
Event End Date/Time:	2/19/2020 9:10	Storm ⁻
Time Lead Dewatering Valve Closed	2/18/2020 10:30	
Time Lead Dewatering Valve Opened	2/19/2020 8:50	Rainfal
Elevation of Weir	-0.45 ft.	gauge.
Maximum Elevation Reached of Smith St. CSO:	0.16 ft.	during than th
Event Drain Flow Threshold	1.25 MGD	Gates v
Total Volume Captured	10,841,235 Gal.	south i
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.

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

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



2/18/20 10:30 2/18/20 12:54 2/18/20 15:18 2/18/20 17:42 2/18/20 20:06 2/18/20 22:30 2/19/20 0:54 2/19/20 3:18 2/19/20 5:42 2/19/20 8:06

Date/Time

7

	Februar	y 21, 2020	8
	Smith RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
s Date:	3/10/2020	Total Rainfall Accumulation:	0 in.
tart Date/Time:	2/21/2020 13:15	Storm Event Duration:	27 hr.
nd Date/Time:	2/22/2020 16:05	Storm Type:	NA
ad Dewatering Valve Closed	2/21/2020 13:00	Recommended Operation	onal Changes/Notes:
ead Dewatering Valve Opened	2/22/2020 14:15	Rainfall data sourced from BSA	A's South Buffalo rain
n of Weir	-0.45 ft.	gauge. No rainfall recorded at	South Buffalo rain gauge
m Elevation Reached of Smith):	0.48 ft.	during this storm event. But te around freezing, indicating pos	•
rain Flow Threshold	1.25 MGD	were manually set to 25%/100	
olume Captured	14,252,048 Gal.	interceptor level issue.	
he occur during wet weather?	Yes		
seiche occurred during wet weath tly overestimated due to inclusion			

Site:

Analysis

Event St

Event Er

Time Lea Time Lea

Elevation

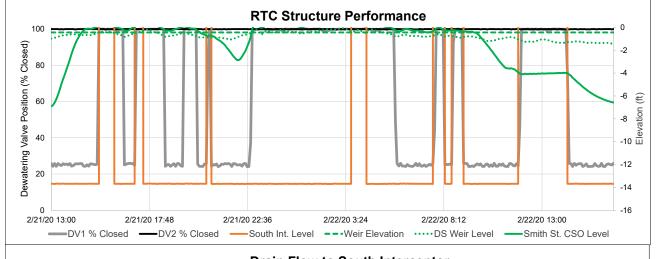
Maximun

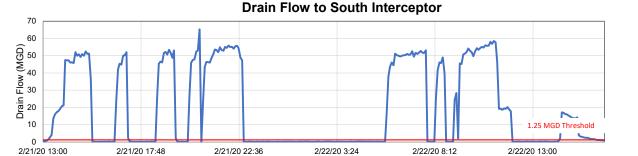
St. CSO

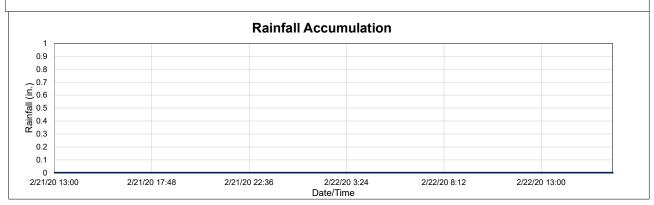
Event Dr

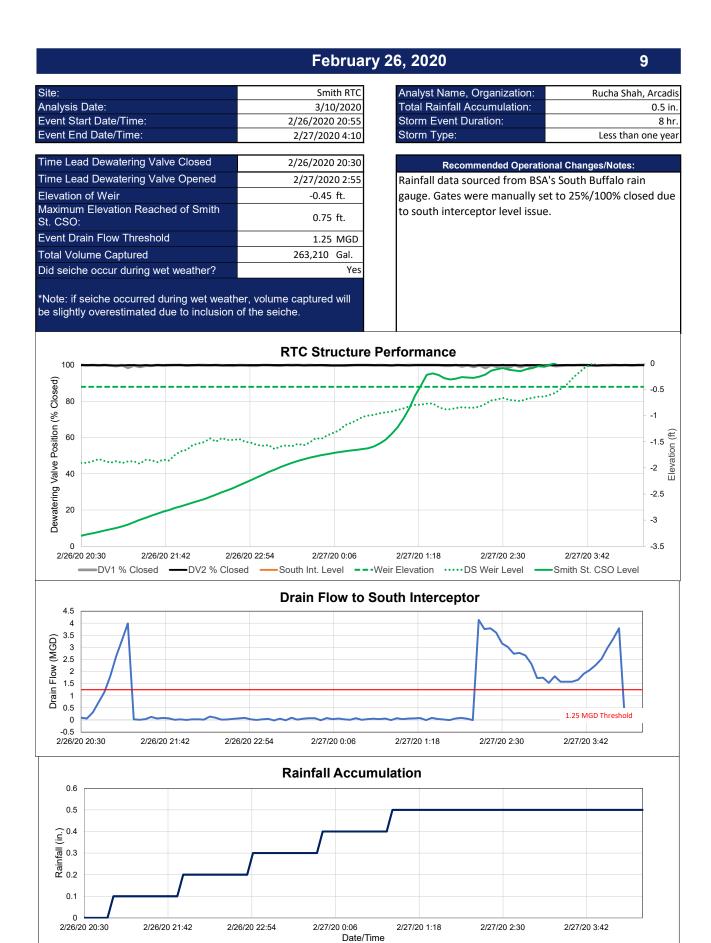
Total Vol Did seich

*Note: if be slight









February 28, 2020

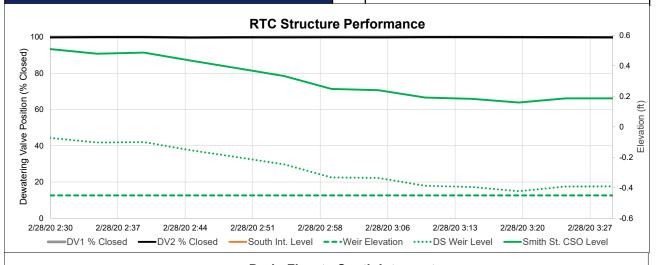
Site:	Smith RTC
Analysis Date:	3/10/2020
Event Start Date/Time:	2/28/2020 2:35
Event End Date/Time:	2/28/2020 3:00
Time Load Dowatering Valve Closed	2/20/2020 2.20

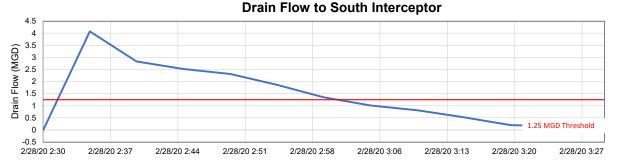
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	1 hr.
Storm Type:	NA

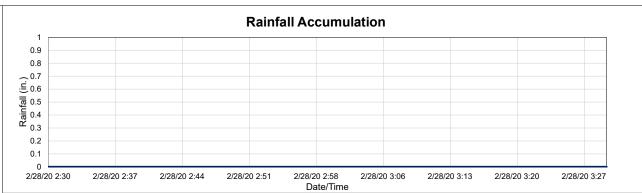
Time Lead Dewatering Valve Closed	2/28/2020 2:30
Time Lead Dewatering Valve Opened	#N/A
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.51 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	51,892 Gal.
Did seiche occur during wet weather?	Yes

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

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







10

March 2020 Smith St. RTC KPI Report



Smith St. RTC Monthly Performance Report

March 2020

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

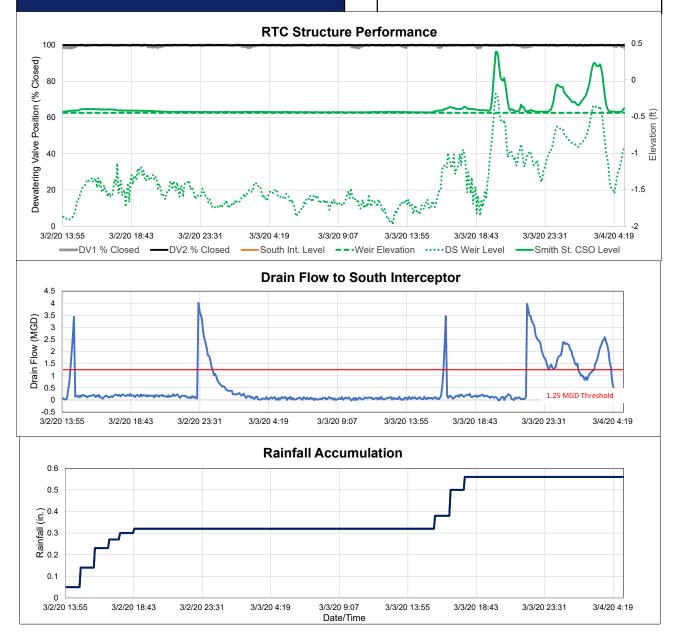
March 2, 2020			-	-	-		
	1	1.51			roh	N/D	
		474	~	<u> </u>		Ma	

Site:	Smith RTC	Analyst Name, Organiza
Analysis Date:	4/7/2020	Total Rainfall Accumulat
Event Start Date/Time:	3/2/2020 14:30	Storm Event Duration:
Event End Date/Time:	3/4/2020 4:10	Storm Type:
Time Lead Dewatering Valve Closed	3/2/2020 14:00	Recommended
Time Lead Dewatering Valve Opened	3/4/2020 5:00	Rainfall data sourced fro
Elevation of Weir	-0.45 ft.	gauge.
Maximum Elevation Reached of Smith St. CSO:	0.38 ft.	Smith St RTC was in em entire month because t
Event Drain Flow Threshold	1.25 MGD	was out of range. The se
Total Volume Captured	576,829 Gal.	elevation reading of 32
Did seiche occur during wet weather?	Yes	5

*Note: if seiche occurred during wet weather, volume captured wil be slightly overestimated due to inclusion of the seiche. Analyst Name, Organization:Rucha Shah, ArcadisTotal Rainfall Accumulation:0.56 in.Storm Event Duration:39 hrs.Storm Type:Less than one year

1

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



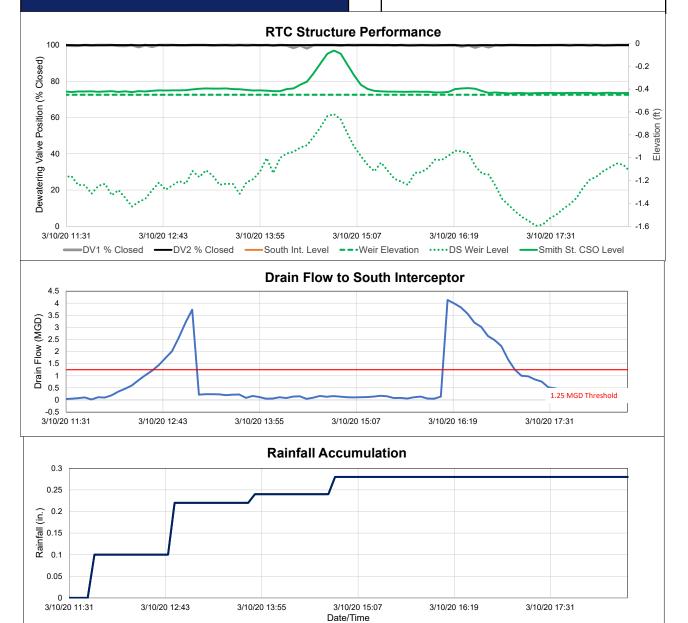
March 10, 2020

Site:	Smith RTC
Analysis Date:	4/7/2020
Event Start Date/Time:	3/10/2020 12:40
Event End Date/Time:	3/10/2020 17:05
Time Lead Dewatering Valve Closed	3/10/2020 11:30
Time Lead Dewatering Valve Opened	3/10/2020 16:45
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.06 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	162,075 Gal.
Did seiche occur during wet weather?	Yes

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

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

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



arch 13, 2020

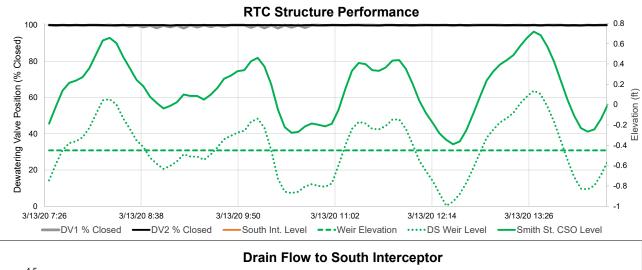
Smith RTC
Smith KIC
4/7/2020
3/13/2020 7:45
3/13/2020 10:05
3/13/2020 7:30
3/13/2020 10:40
-0.45 ft.
0.72 ft.
1.25 MGD
135,991 Gal.
Yes

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

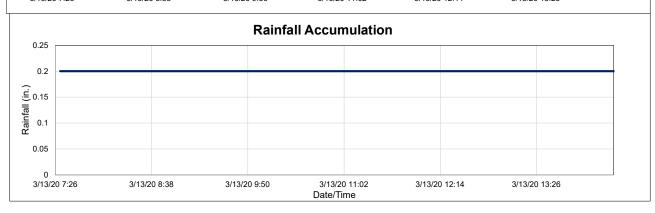
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.2 in.
Storm Event Duration:	5 hrs.
Storm Type:	Less than one year

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



4.5 4 3.5 Drain Flow (MGD) 3 2.5 2 1.5 1 0.5 1.25 MGD Threshold 0 -0.5 3/13/20 7:26 3/13/20 9:50 3/13/20 11:02 3/13/20 12:14 3/13/20 13:26 3/13/20 8:38



3

March 20, 2020

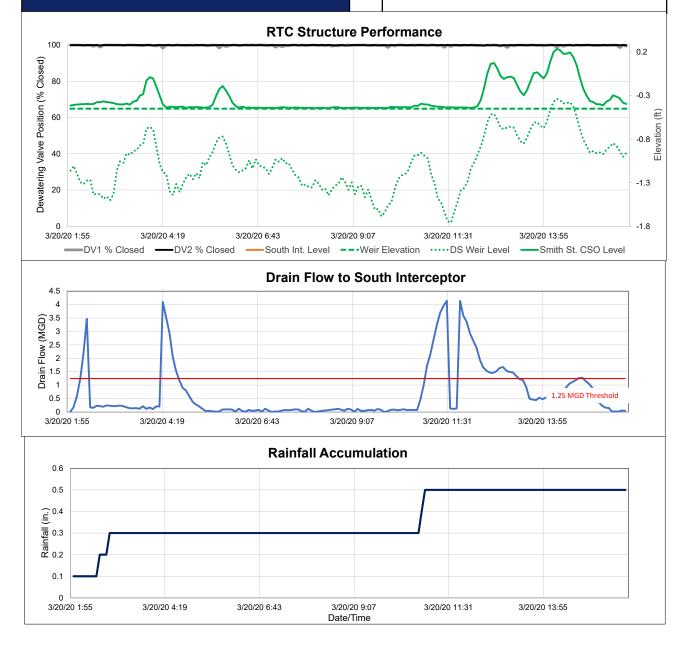
Site:	Smith RTC	
Analysis Date:	4/7/2020	
Event Start Date/Time:	3/20/2020 2:20	
Event End Date/Time:	3/20/2020 14:55	
Time Lead Dewatering Valve Closed	3/20/2020 2:00	
Time Lead Dewatering Valve Opened	3/20/2020 15:50	
Elevation of Weir	-0.45 ft.	
Maximum Elevation Reached of Smith St. CSO:	0.24 ft.	
Event Drain Flow Threshold	1.25 MGD	
Total Volume Captured	284,031 Gal.	
Did seiche occur during wet weather?	Yes	

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

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

4

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



March 28, 2020

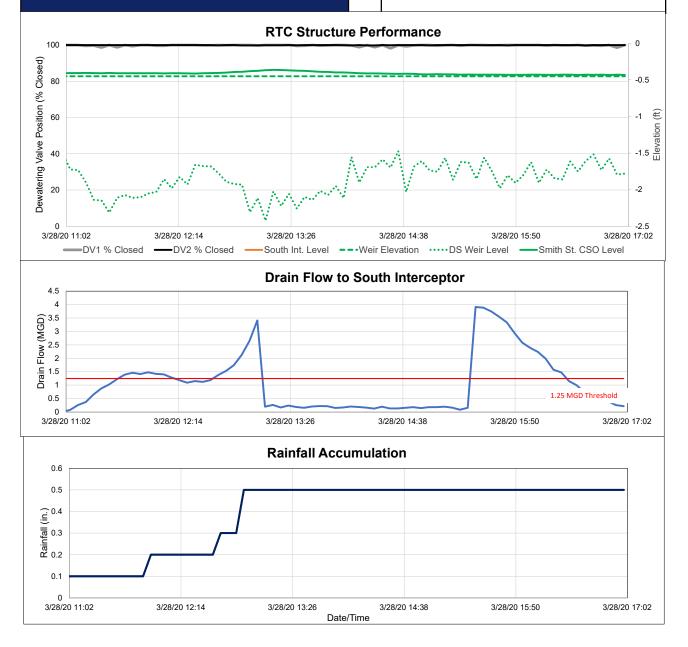
Smith RTC	
4/7/2020	
3/28/2020 11:40	
3/28/2020 16:20	
3/28/2020 11:00	
3/28/2020 16:55	
-0.45 ft.	
-0.36 ft.	
1.25 MGD	
195,440 Gal.	
No	

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

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

5

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



March 29, 2020

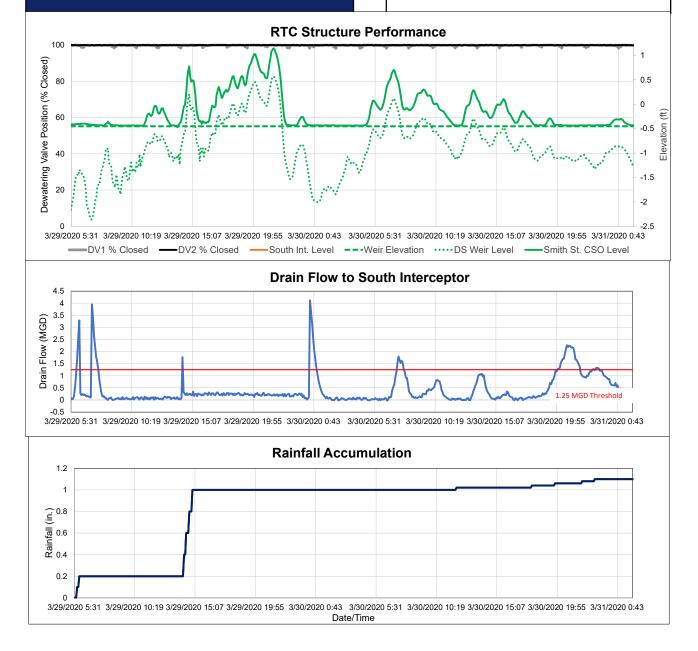
Site:	Smith RTC	Ana
Analysis Date:	4/7/2020	Tota
Event Start Date/Time:	3/29/2020 6:00	Sto
Event End Date/Time:	3/30/2020 23:15	Sto
Time Lead Dewatering Valve Closed	3/29/2020 5:30	
Time Lead Dewatering Valve Opened	3/31/2020 0:45	Rai
Elevation of Weir	-0.45 ft.	gau
Maximum Elevation Reached of Smith St. CSO:	1.15 ft.	Smi
Event Drain Flow Threshold	1.25 MGD	was
Total Volume Captured	352,978 Gal.	elev
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.

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

6

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



April 2020 Smith St. RTC KPI Report



Smith St. RTC Monthly Performance Report

April 2020

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

April 9, 2020

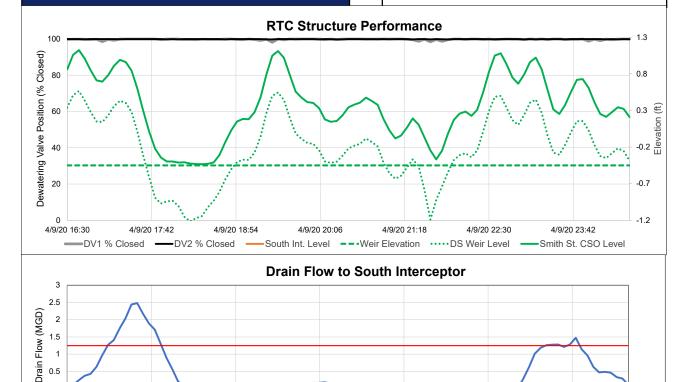
Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/9/2020 17:05
Event End Date/Time:	4/9/2020 23:45
Time Lead Dewatering Valve Closed	4/9/2020 16:30
Time Lead Dewatering Valve Opened	4/9/2020 23:55
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.12 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	86,891 Gal.
Did seiche occur during wet weather?	Yes

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

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



0 1.25 MGD Threshold -0.5 4/9/20 16:30 4/9/20 21:18 4/9/20 17:42 4/9/20 18:54 4/9/20 20:06 4/9/20 22:30 4/9/20 23:42 **Rainfall Accumulation** 0.025 0.02 Rainfall (in.) 0.01 0.005 0 4/9/20 16:30 4/9/20 17:42 4/9/20 18:54 4/9/20 20:06 4/9/20 21:18 4/9/20 22:30 4/9/20 23:42 Date/Time

April 13, 2020

in Data:	Smith RTC	Analyst Name, Organization:	Rucha Shah, Ar
sis Date: Start Date/Time:	5/7/2020 4/13/2020 3:55	Total Rainfall Accumulation: Storm Event Duration:	0.1
End Date/Time:	4/13/2020 3:55	Storm Type:	Less than one
	-7/ 13/ 2020 23. 1 3		
Lead Dewatering Valve Closed	4/13/2020 3:30	Recommended Operation	
Lead Dewatering Valve Opened	4/13/2020 22:50	Rainfall data sourced from BSA	's South Buffalo rain
tion of Weir	-0.45 ft.	gauge.	
num Elevation Reached of Smith	3.82 ft.	Smith St RTC was in emergency	
Drain Flow Threshold	1.25 MGD	entire month because the sout was out of range. The south int	•
Volume Captured	444,924 Gal.	elevation reading of 32753.1 ft	
eiche occur during wet weather?	Yes		for this time period.
: if seiche occurred during wet we ghtly overestimated due to inclusi			
00	RTC Structure F	Performance	4
80			- 3
			- 2
60			<u>.</u>
			- 0
40		•••	
		· ``````	······································
20			
· · · · · · · · · · · · · · · · · · ·		<u>, , , , , , , , , , , , , , , , , , , </u>	····
20			
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020		4/13/2020 15:30 4/13/2020 17:54 4/13/2020 /eir ElevationDS Weir Level	20:18 4/13/2020 22:42
20	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45		/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 30 25 20 15 10	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 30 25 20 15 10 5 0 10 10 10 10 10 10 10 10 10	Closed —South Int. LevelV	/eir Elevation ·····DS Weir Level -	-2 0 20:18 4/13/2020 22:42 -Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 5 4 5 6 5 6 5 6 5 6 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	Closed —South Int. LevelV Drain Flow to Se	/eir Elevation ·····DS Weir Level -	-2 0 20:18 4/13/2020 22:42 -Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 15 10 5 0	Closed —South Int. LevelV Drain Flow to Se	/eir Elevation ·····DS Weir Level -	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 50 50 50 50 50 50 50 50 50 5	Closed —South Int. LevelV Drain Flow to Se	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 50 50 50 50 50 50 50 50 50 5	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 46 47 40 35 30 25 20 15 10 5 0 -5 3/2020 3:30 4/13/2020 5:54 4/13/2020 -5 3/2020 3:30 4/13/2020 5:54 4/13/2020	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 0 5 0 5 0 5 0 5 0 15 0 5 0 15 0 15 15 15 15 15 15 15 15 15 15	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 0 5 0 5 0 5 0 5 0 15 0 5 0 15 0 15 15 15 15 15 15 15 15 15 15	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 0 5 0 5 0 5 0 5 0 15 0 5 0 15 0 15 15 15 15 15 15 15 15 15 15	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 10 5 0 -5 3/2020 3:30 4/13/2020 5:54 4/13/2020 0.6	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level
20 0 3/2020 3:30 4/13/2020 5:54 4/13/2020 DV1 % Closed DV2 % (45 40 35 30 25 20 15 0 5 0 5 0 5 0 5 0 15 0 5 0 15 0 15 15 15 15 15 15 15 15 15 15	Closed — South Int. LevelV Drain Flow to Se 8:18 4/13/2020 10:42 4/13/2020 13:06	Veir Elevation ······DS Weir Level	20:18 4/13/2020 22:42 Smith St. CSO Level

Date/Time

April 14, 2020

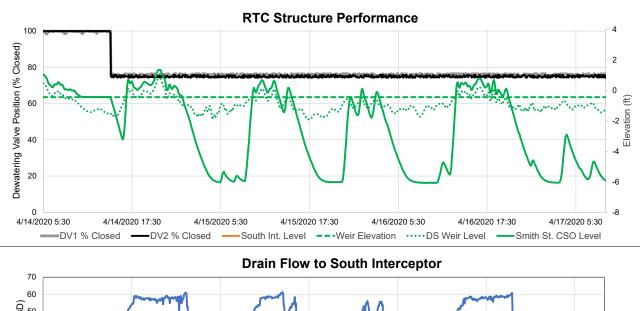
Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/14/2020 5:45
Event End Date/Time:	4/17/2020 9:10
Time Lead Dewatering Valve Closed	4/14/2020 5:30
Time Lead Dewatering Valve Opened	4/14/2020 14:40
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.35 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	71,350,389 Gal.
Did seiche occur during wet weather?	Yes

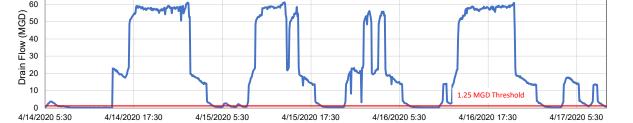
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

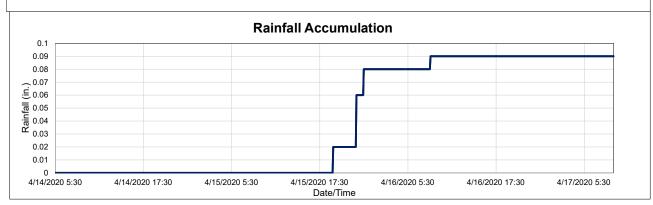
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.09 in.
Storm Event Duration:	76 hrs.
Storm Type:	Less than one year

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

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







April 18, 2020

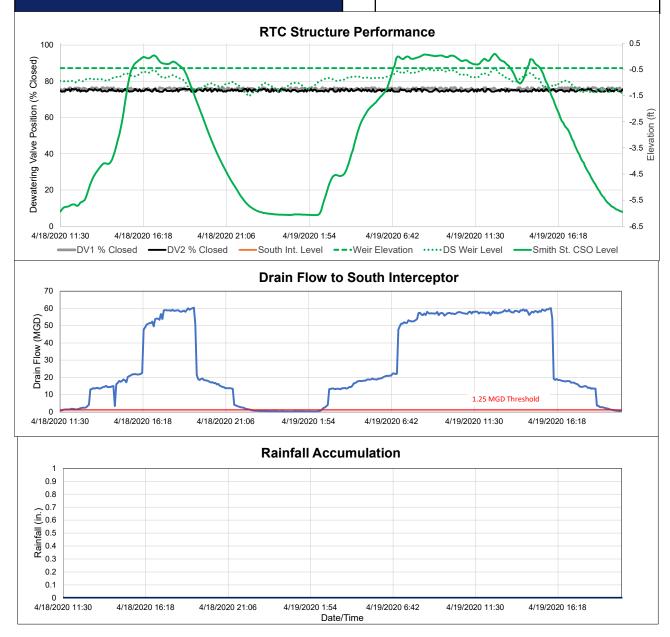
Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/18/2020 11:45
Event End Date/Time:	4/19/2020 19:25
Time Lead Dewatering Valve Closed	4/18/2020 11:30
Time Lead Dewatering Valve Opened	4/18/2020 11:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	0.09 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	37,181,474 Gal.
Did seiche occur during wet weather?	Yes

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

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

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

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



April 20, 2020

Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/20/2020 0:55
Event End Date/Time:	4/22/2020 23:05
Time Lead Dewatering Valve Closed	4/20/2020 0:30
Time Lead Dewatering Valve Opened	4/20/2020 0:30
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.55 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	69,510,751 Gal.
Did seiche occur during wet weather?	Yes

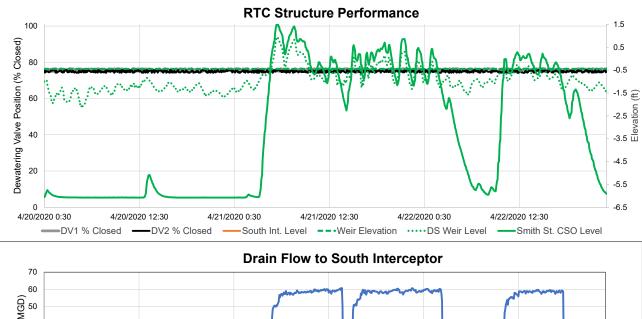
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

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

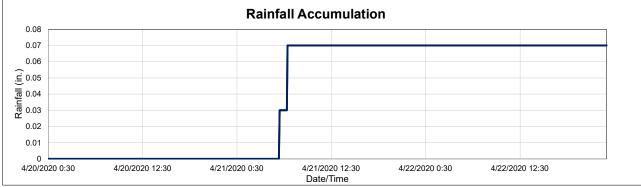
5

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.







April 26, 2020

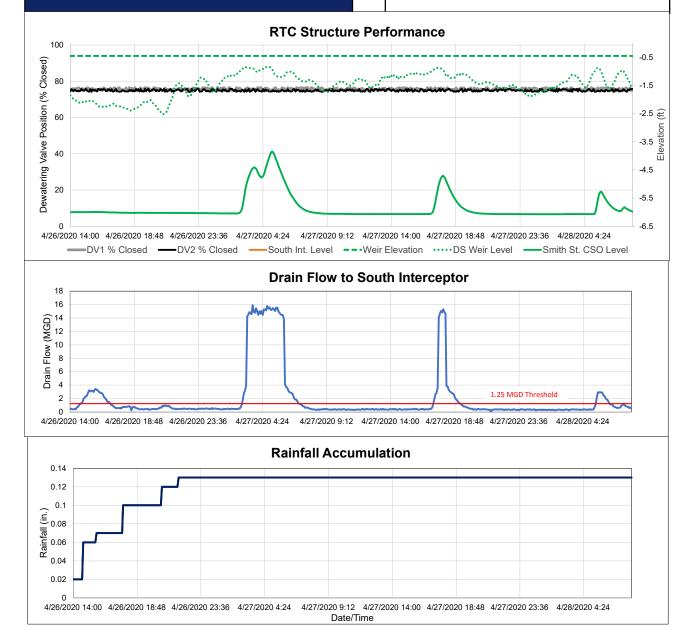
Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/26/2020 14:50
Event End Date/Time:	4/28/2020 6:20
Time Lead Dewatering Valve Closed	4/26/2020 14:00
Time Lead Dewatering Valve Opened	4/26/2020 14:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-3.85 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	2,772,741 Gal.
Did seiche occur during wet weather?	No

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

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



6

April 29, 2020

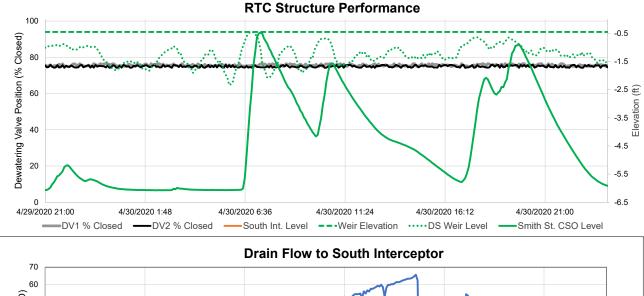
Site:	Smith RTC
Analysis Date:	5/7/2020
Event Start Date/Time:	4/29/2020 21:25
Event End Date/Time:	4/30/2020 23:35
Time Lead Dewatering Valve Closed	4/29/2020 21:00
Time Lead Dewatering Valve Opened	4/29/2020 21:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	-0.48 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	19,173,611 Gal.
Did seiche occur during wet weather?	Yes

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

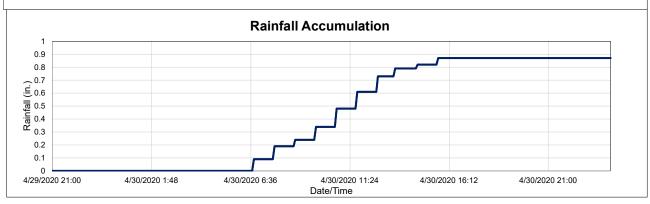
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.87 in.
Storm Event Duration:	27 hrs.
Storm Type:	Less than one year

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.







June 2020 Smith St. RTC KPI Report



Smith St. RTC Monthly Performance Report

June 2020

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

June 2, 2020

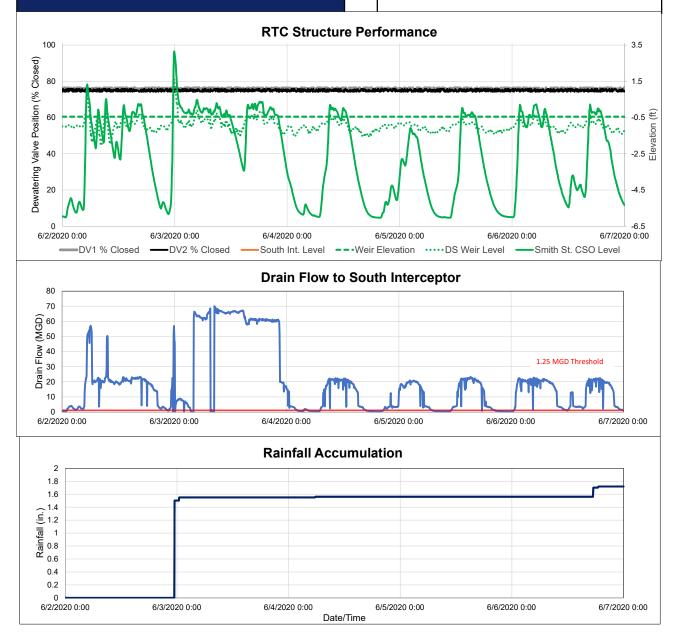
Site:	Smith RTC
Analysis Date:	7/3/2020
Event Start Date/Time:	6/2/2020 1:05
Event End Date/Time:	6/6/2020 23:50
Time Lead Dewatering Valve Closed	6/2/2020 0:00
Time Lead Dewatering Valve Opened	6/2/2020 0:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	3.15 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	94,053,020 Gal.
Did seiche occur during wet weather?	Yes

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

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



June 7, 2020

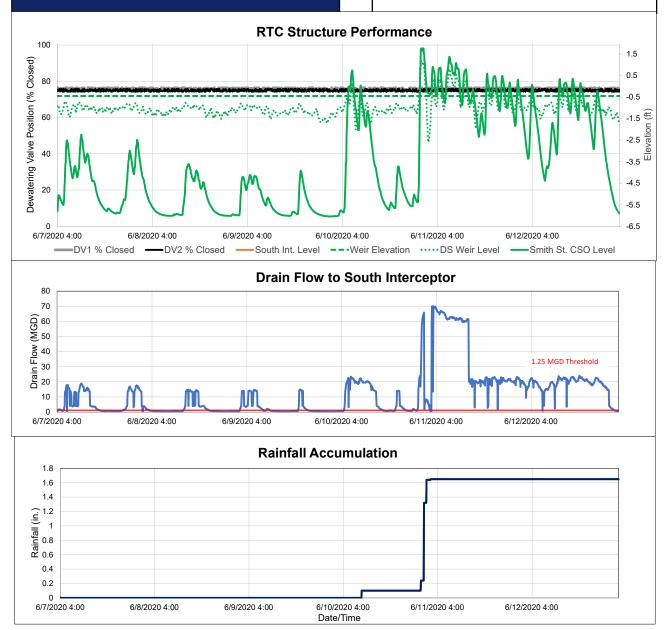
Smith RTC
7/3/2020
6/7/2020 4:20
6/13/2020 0:55
6/7/2020 4:00
6/7/2020 4:00
-0.45 ft.
1.77 ft.
1.25 MGD
69,787,826 Gal.
Yes

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

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

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

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



June 21, 2020

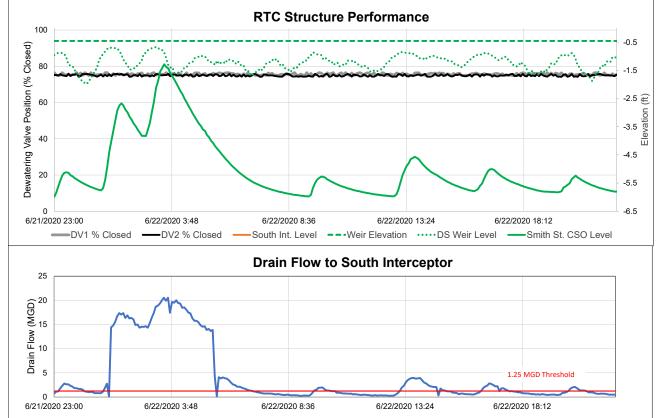
Smith RTC
7/3/2020
6/21/2020 23:15
6/22/2020 20:45
6/21/2020 23:00
6/21/2020 23:00
-0.45 ft.
-1.28 ft.
1.25 MGD
3,634,433 Gal.
Yes

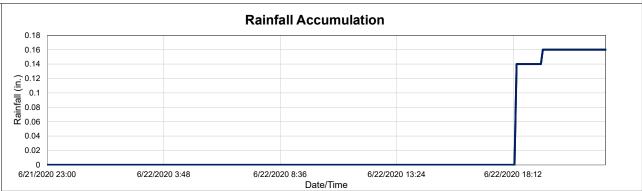
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.





June 23, 2020

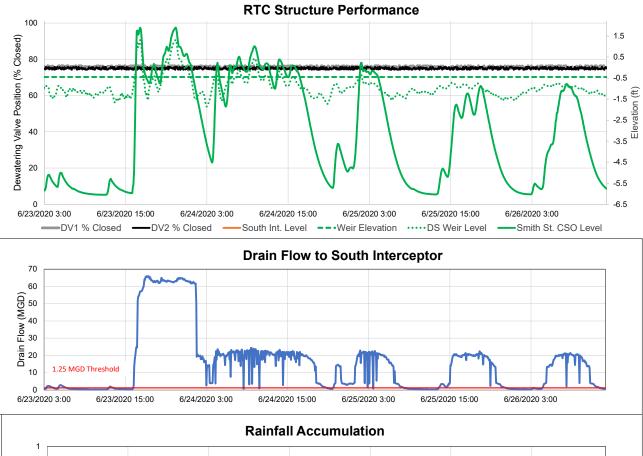
Smith RTC 7/3/2020 6/23/2020 3:20 6/26/2020 13:05 6/23/2020 3:00
6/23/2020 3:20 6/26/2020 13:05
6/26/2020 13:05
6/23/2020 3:00
6/23/2020 3:00
,
6/23/2020 3:00
-0.45 ft.
1.90 ft.
1.25 MGD
53,519,100 Gal.
Yes
-

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

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.



Rainfall Accumulation

June 26, 2020

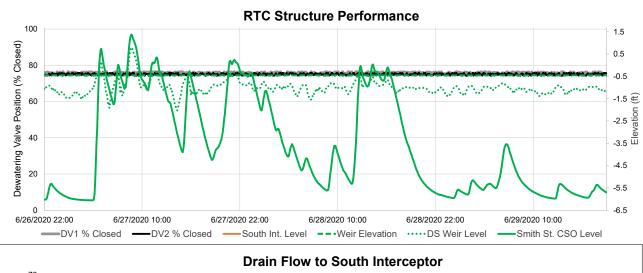
Site:	Smith RTC
Analysis Date:	7/3/2020
Event Start Date/Time:	6/26/2020 22:40
Event End Date/Time:	6/29/2020 17:50
Time Lead Dewatering Valve Closed	6/26/2020 22:00
Time Lead Dewatering Valve Opened	6/26/2020 22:00
Elevation of Weir	-0.45 ft.
Maximum Elevation Reached of Smith St. CSO:	1.37 ft.
Event Drain Flow Threshold	1.25 MGD
Total Volume Captured	33,014,645 Gal.
Did seiche occur during wet weather?	Yes

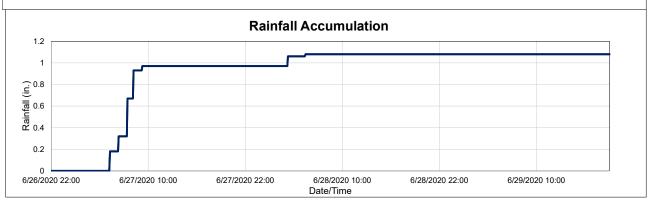
*Note: if seiche occurred during wet weather, volume captured will be slightly overestimated due to inclusion of the seiche.

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

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

Smith St RTC was in emergency manual mode for the entire month because the south interceptor level sensor was out of range. The south interceptor level reflects an elevation reading of 32753.1 ft for this time period.

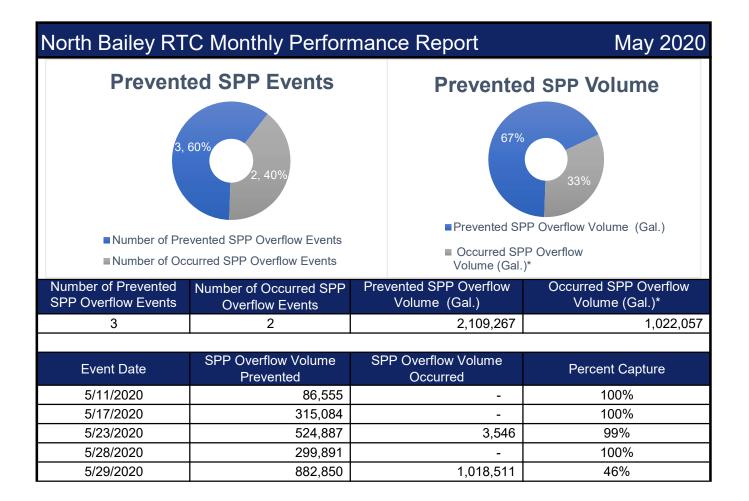




May 2020 North Bailey RTC KPI Report





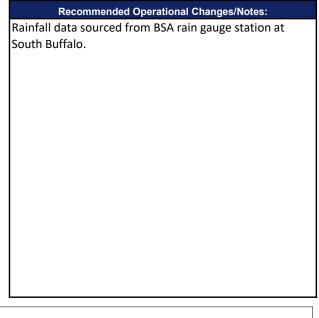


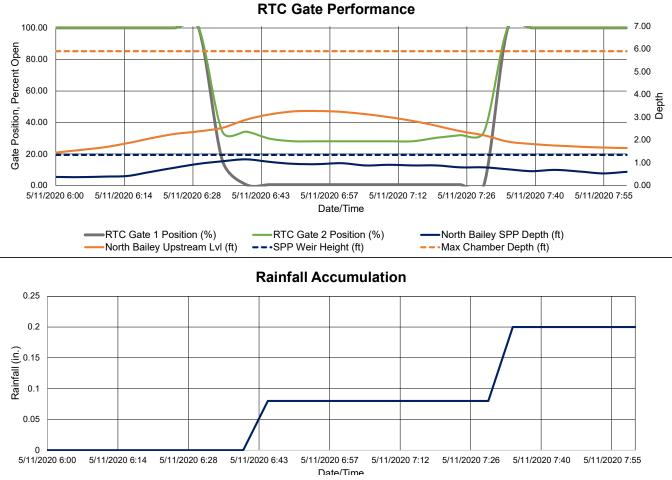
May 11, 2020

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

2.38 ft.
2.21 ft.
5/11/2020 6:30
5/11/2020 6:30
5/11/2020 7:35
5/11/2020 7:30
100%
5.91 ft.
3.28 ft.
86,555 Gal.
311,979 Gal.
0 Gal.
86,555 Gal.
Yes
N/A
N/A

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





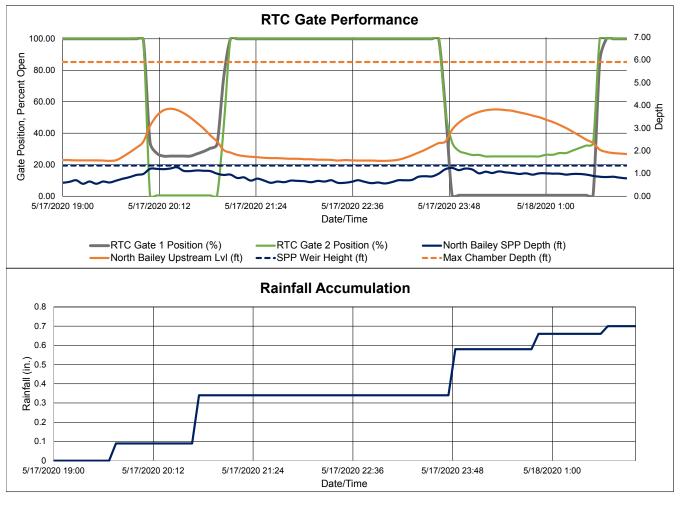
May 17, 2020

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

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

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

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

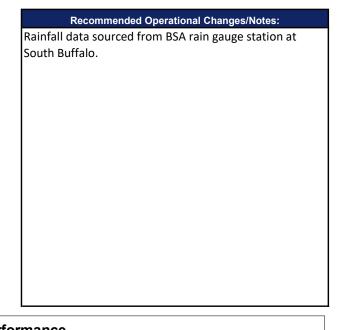


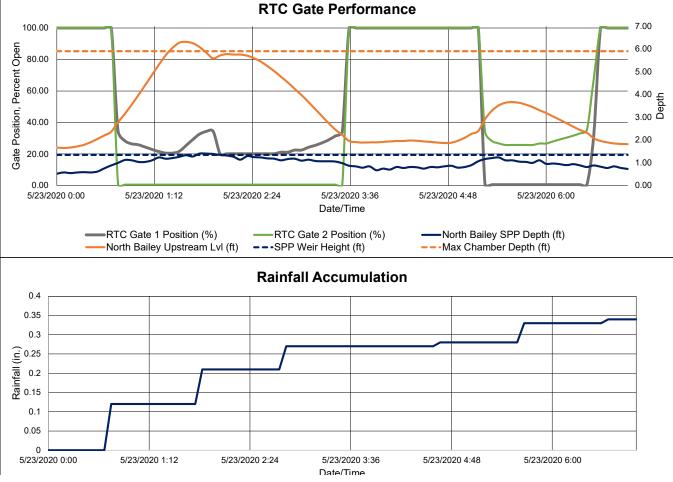
May 23, 2020

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

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

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



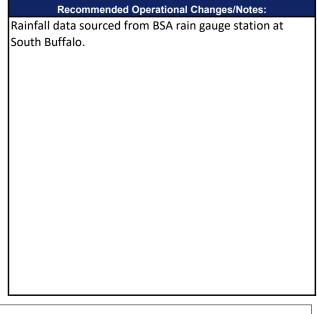


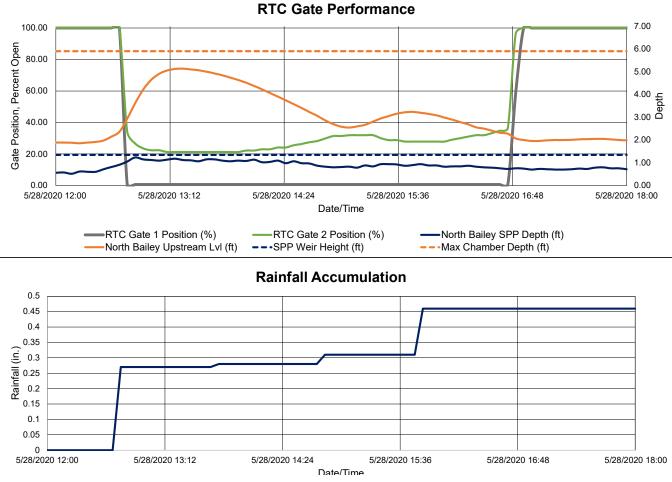
May 28, 2020

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

2.36 ft.
2.07 ft.
5/28/2020 12:40
5/28/2020 12:40
5/28/2020 16:55
1/0/1900 0:00
100%
5.91 ft.
5.14 ft.
299,891 Gal.
100,449 Gal.
0 Gal.
299,891 Gal.
Yes
N/A
N/A

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





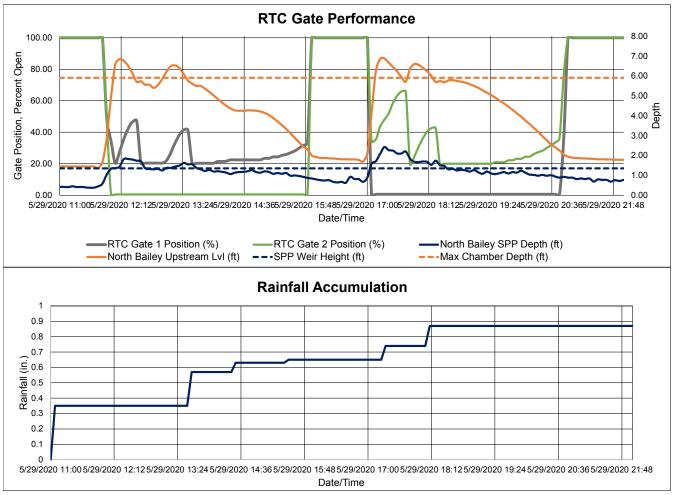
May 29, 2020

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

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

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

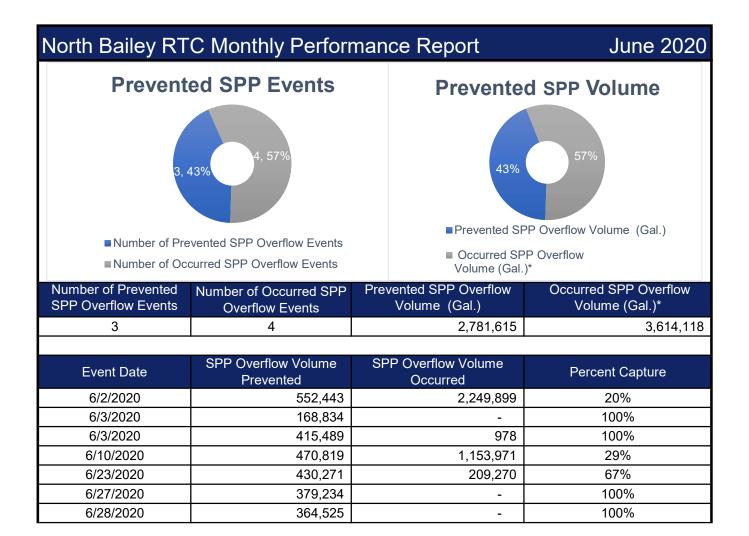
Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo.



June 2020 North Bailey RTC KPI Report



BUFFALO SEWER AUTHORITY

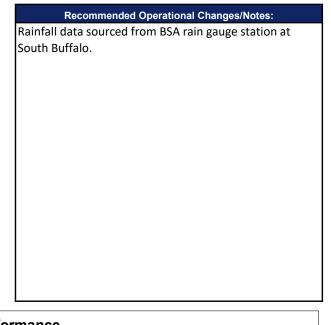


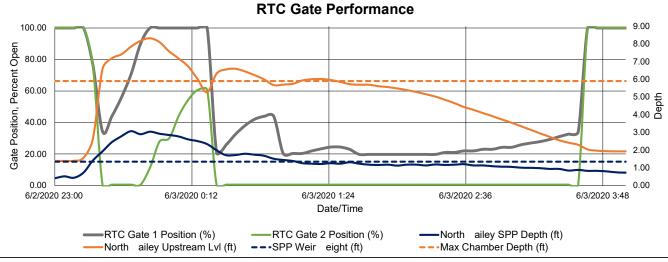
June 2, 2020

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

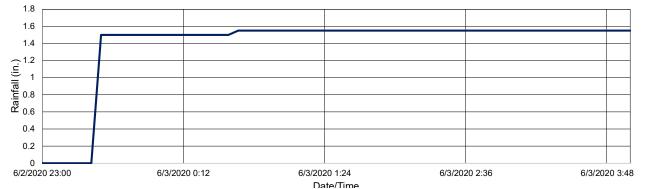
1.56 ft.
8.19 ft.
6/2/2020 23:15
6/2/2020 23:15
6/3/2020 3:40
6/3/2020 3:35
20%
5.91 ft.
5.91 ft.
552,443 Gal.
0 Gal.
2,249,899 Gal.
552,443 Gal.
No
NA
No

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





Rainfall Accumulation



June	3,	2	02	0
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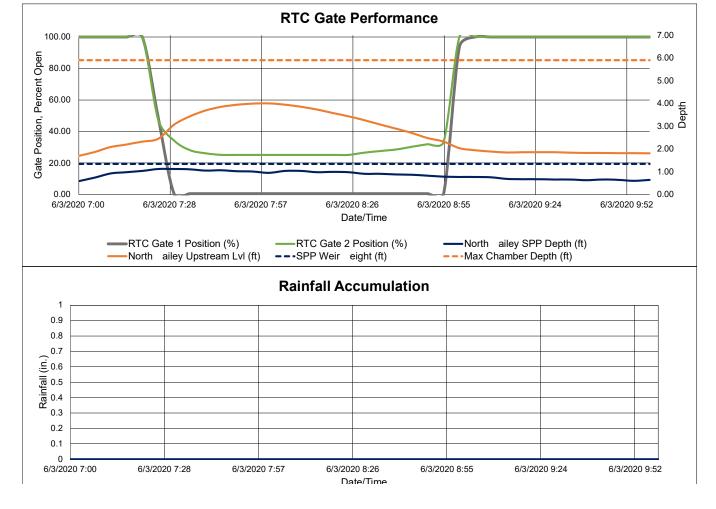
Site:	North Bailey RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/3/2020 7:20
Event End Date/Time:	6/3/2020 9:05

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

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

Recommended Operational Changes/Notes:

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



June	3,	202	0
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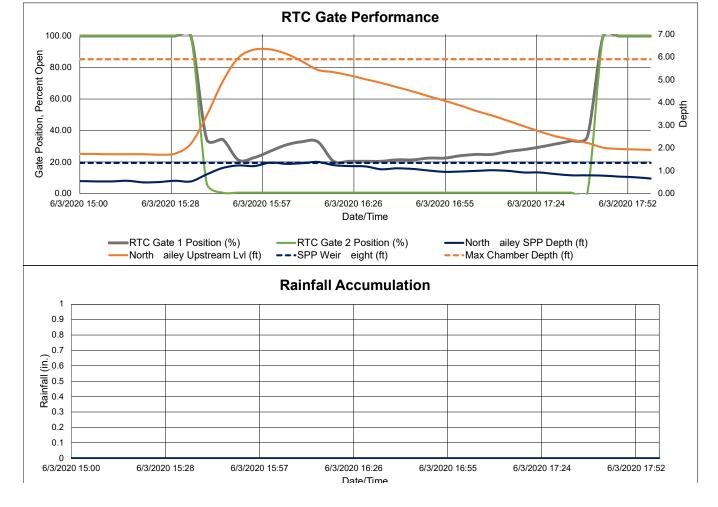
Site:	North Bailey RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/3/2020 15:35
Event End Date/Time:	6/3/2020 17:45

2.19 ft.
2.22 ft.
6/3/2020 15:35
6/3/2020 15:35
6/3/2020 17:45
6/3/2020 17:40
100%
5.91 ft.
5.91 ft.
415,489 Gal.
0 Gal.
978 Gal.
415,489 Gal.
No
NA
No

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

Recommended Operational Changes/Notes:

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

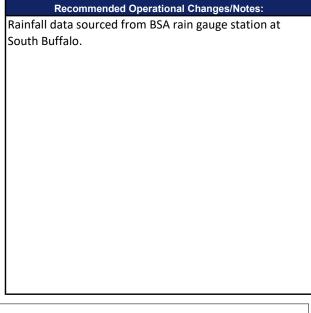


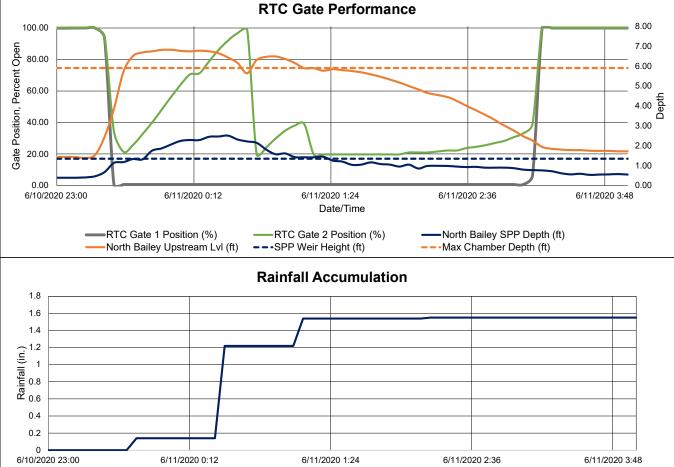
June 10, 2020

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

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

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





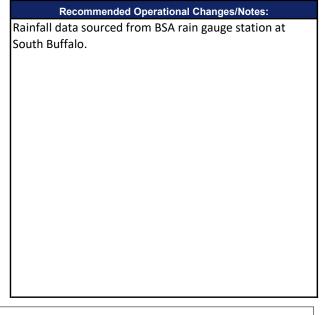
Date/Time

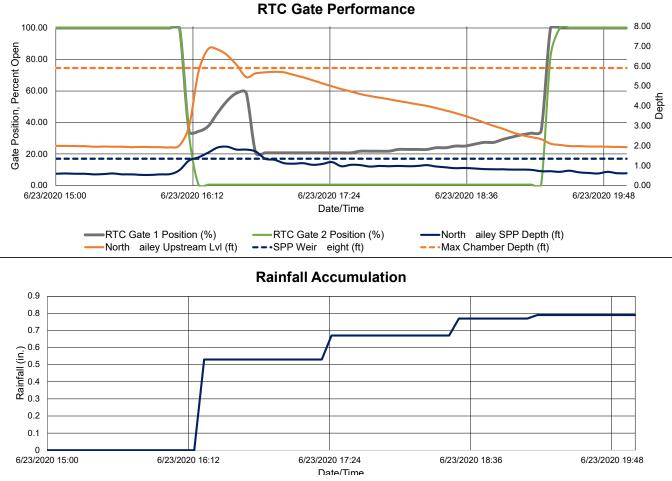
June 23, 2020

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

2.02 ft.
2.33 ft.
6/23/2020 16:05
6/23/2020 16:05
6/23/2020 19:20
6/23/2020 19:20
67%
5.91 ft.
5.91 ft.
430,271 Gal.
0 Gal.
209,270 Gal.
430,271 Gal.
No
NA
No

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



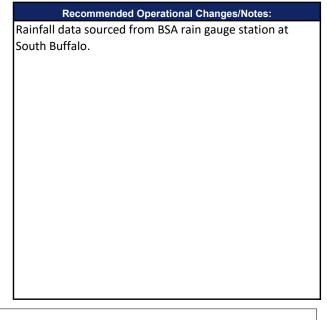


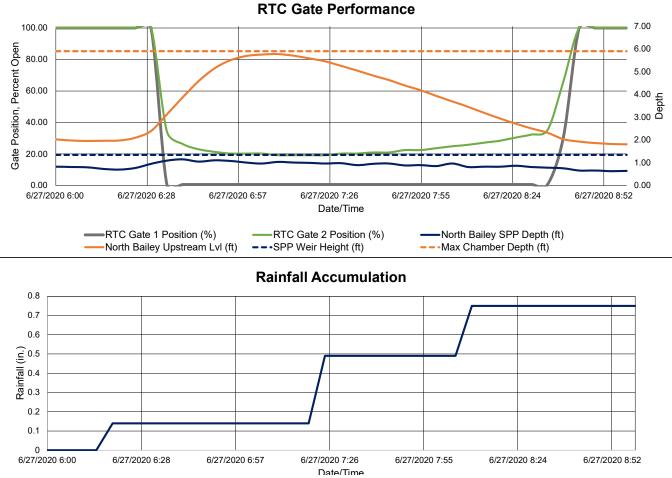
June 27, 2020

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

2.40 ft.
2.04 ft.
6/27/2020 6:30
6/27/2020 6:30
6/27/2020 8:45
6/27/2020 8:40
100%
5.91 ft.
5.78 ft.
379,234 Gal.
17,488 Gal.
0 Gal.
379,234 Gal.
Yes
N/A
N/A

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



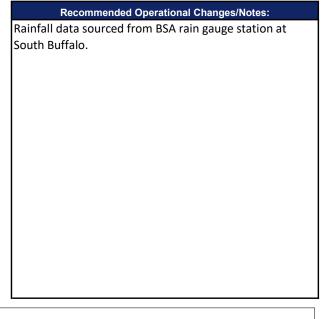


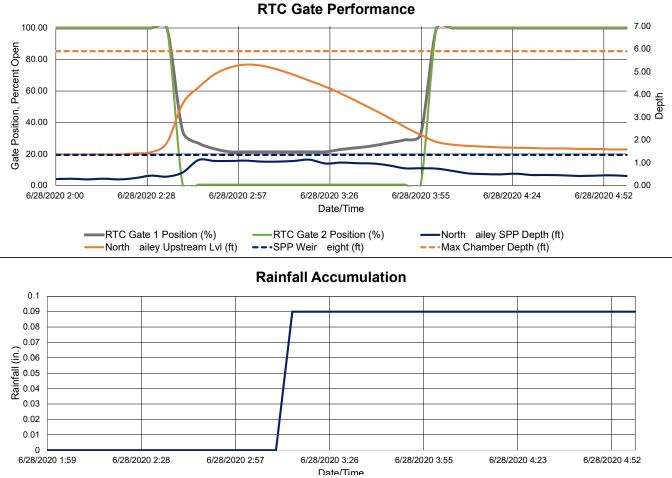
June 28, 2020

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

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

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

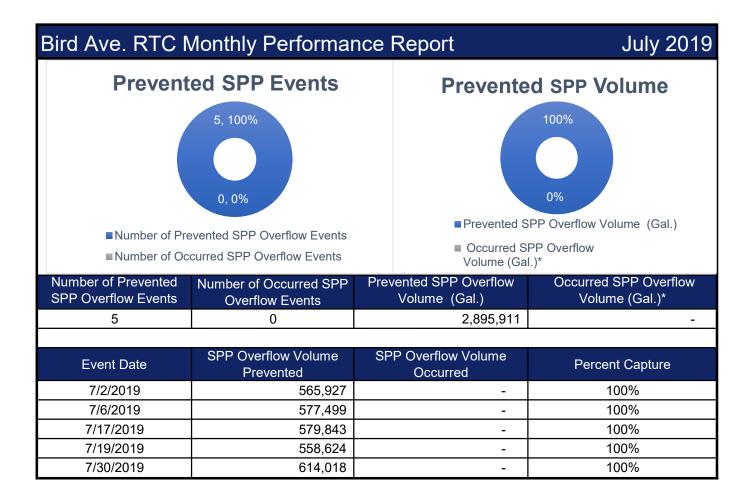




July 2019 Bird Ave. RTC **KPI** Report







July 2, 2019

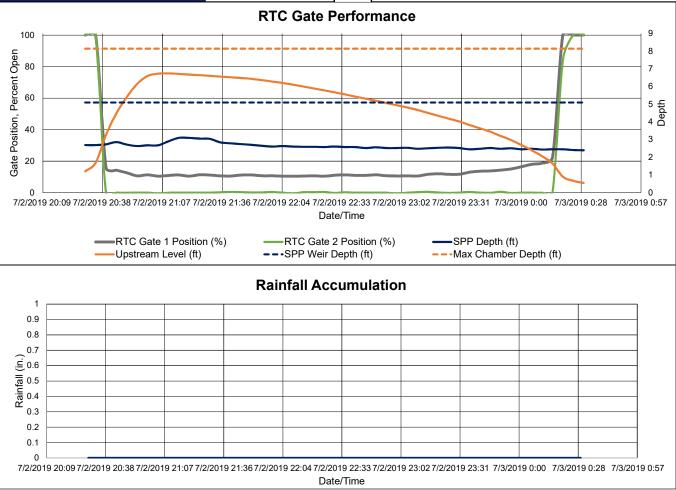
Site:	Bird RTC
Analysis Date:	8/5/2019
Event Start Date/Time:	7/2/2019 20:35
Event End Date/Time:	7/3/2019 0:20

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

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

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.

No rainfall was recorded during the event. However, two 0.01-inch of rainfall events were observed during the day. The event was likely caused by a localized storm.



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July	/ 6,	201	9

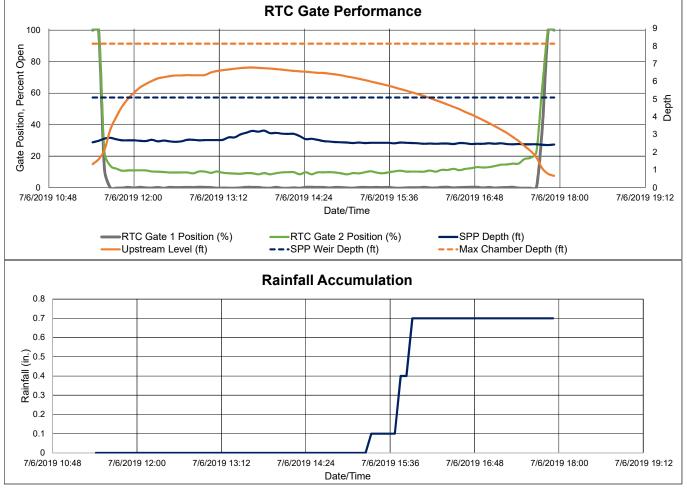
Site:	Bird RTC
Analysis Date:	8/5/2019
Event Start Date/Time:	7/6/2019 11:30
Event End Date/Time:	7/6/2019 17:50

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

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

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.

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



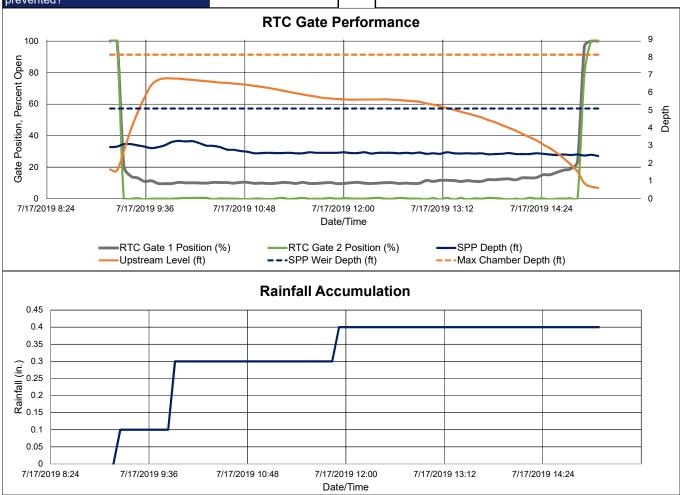
	Ju	ly	17,	2019
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Site:	Bird RTC
Analysis Date:	8/5/2019
Event Start Date/Time:	7/17/2019 9:15
Event End Date/Time:	7/17/2019 15:00

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

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

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.



July 19, 2019

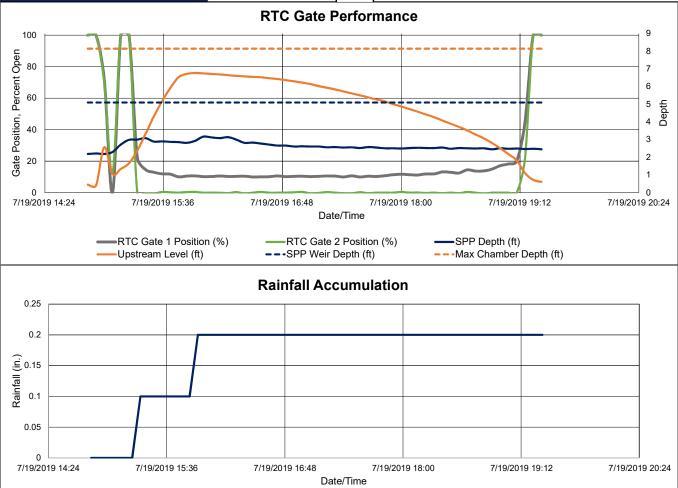
Site:	Bird RTC
Analysis Date:	8/5/2019
Event Start Date/Time:	7/19/2019 14:55
Event End Date/Time:	7/19/2019 19:20

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

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

Recommended Operational Changes/Notes: Rainfall data sourced from Buffalo Airport rain gauge website.

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



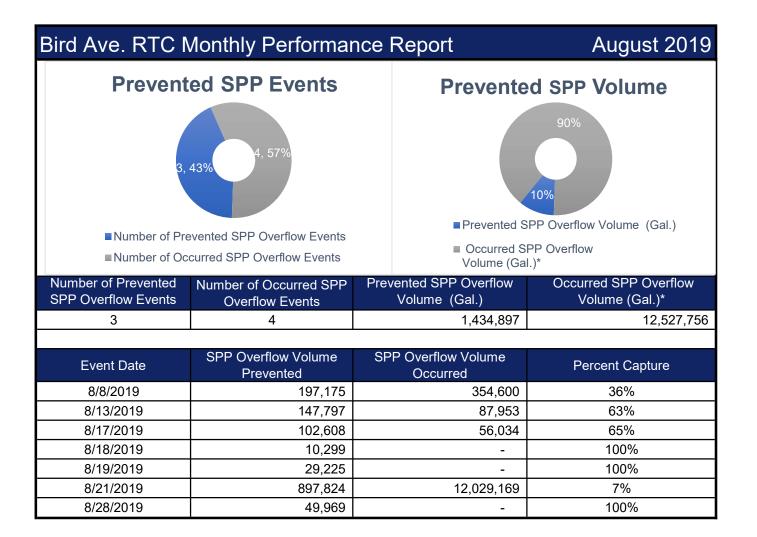
Site:		, 2019	5
Site: Analysis Date: Event Start Date/Time: Event End Date/Time:	Bird RTC 8/5/2019 7/29/2019 23:35 7/30/2019 17:40	Analyst Name, Organization: Total Rainfall Accumulation: Storm Event Duration: Storm Type:	Nick Pasquini, Arcadis 0.6 in. 1 hrs. Less than one year
Gate Activation Trigger Depth: Return to Normal Depth: Time Gate 1 Activated: Time Gate 2 Activated: Time Gate 2 Activated to Normal: Time Gate 2 Returned to Normal: Percent Capture Depth of Weir Maximum Depth Reached: Volume Stored: Unused Storage Volume: Overflow Volume: Overflow Volume Prevented: SPP Activation Prevented: If No, what is the overflow volume when storage was available? Could SPP activation have been	1.59 ft. 0.98 ft. 7/29/2019 23:35 7/29/2019 23:35 7/30/2019 17:40 7/30/2019 17:40 100% 8.15 ft. 6.97 ft. 614,018 Gal. 282,174 Gal. 0 Gal. 614,018 Gal. Yes NA	Recommended Operation Rainfall data sourced from Buf website.	
prevented?	Date/Tir	30/2019 9:36 7/30/2019 12:00 7/30/2019 14:24 ne sition (%)SPP Depth (ft)	
0.7 0.6	Rainfall Accur	nulation	
0.5 <u>(u)</u> 0.4 <u>Internet of the second seco</u>			

Date/Time

August 2019 Bird Ave. RTC **KPI** Report







August 8, 2019

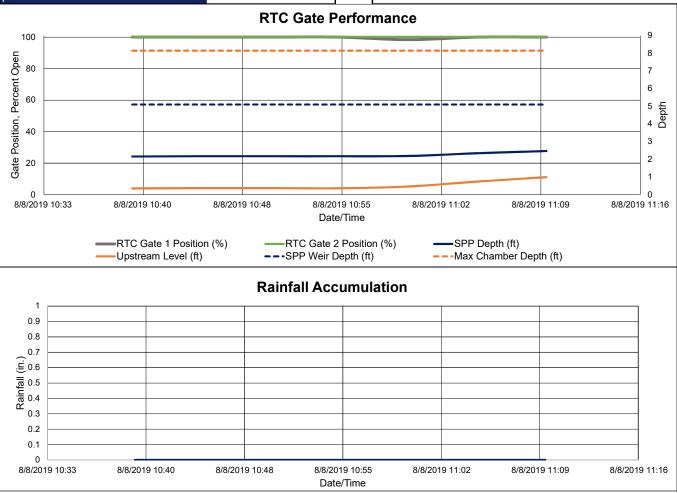
Site:	Bird RTC
Analysis Date:	9/11/2019
Event Start Date/Time:	8/8/2019 10:40
Event End Date/Time:	8/8/2019 11:10

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

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

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

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



Site:	Bird RTC	Analyst Name-Ownerstation	Duraha Chaile A.C. H	
Site: Analysis Date:	9/11/2019			
Event Start Date/Time:	8/8/2019 16:30			
Event End Date/Time:	8/8/2019 18:40	Storm Event Duration: 22 Storm Type: Less than one		
Event End Date, nine.	0/0/2019 10:40	Storm Type.	Less than one year	
Gate Activation Trigger Depth:	1.95 ft.	Recommended Operation	onal Changes/Notes:	
Return to Normal Depth:	1.54 ft.	Rainfall data sourced from BSA rain gauge station at		
Time Gate 1 Activated:	3/18/2139 11:15	South Buffalo.	5 5	
Time Gate 2 Activated:	8/8/2019 18:40			
Time Gate 1 Returned to Normal:	N/A	Gate 2 was at 100% open for th	ne entire month of August.	
Time Gate 2 Returned to Normal:	N/A		Ũ	
Percent Capture	36%			
Depth of Weir	8.15 ft.			
Maximum Depth Reached:	4.57 ft.			
Volume Stored:	197,175 Gal.			
Unused Storage Volume:	692,367 Gal.			
Overflow Volume:	354,600 Gal.			
Overflow Volume Prevented:	197,175 Gal.			
SPP Activation Prevented:	No			
If No, what is the overflow volume	354,600			
when storage was available? Could SPP activation have been				
prevented?	Yes			
	RTC Gate Perfe	ormance		
100			9	
			8	
		1	7	
1 50 60			6	
			 5 th 6 bt t	
40 tion			4 Õ	
Gate Position, Percent Open 09 09 09 09 09 09 09 09 00 00 00 00 00 0			3	
			2	
Ca			1	
0			0	
8/8/2019 16:198/8/2019 16:338/8/2019 16:488/8/201			18:28/8/2019 18:438/8/2019 18:57	
	Date/Tim	le		
	n (%)	sition (%)		
——Upstream Level (ft)	SPP Weir Depth		oth (ft)	
	Rainfall Accum	ulation		
1.2				
1				
(i.i.) 				
ũ 0.4				
0.2				
0				
8/8/2019 16:1 9 /8/2019 16:3 8 /8/2019 16:4 8 /8/201	19 17:0 2 /8/2019 17:1 6 /8/2019 17:3 8 /8/2 Date/Tim		18:2 8 /8/2019 18:4 8 /8/2019 18:57	

Date/Time

August 8, 2019

August 13, 2019

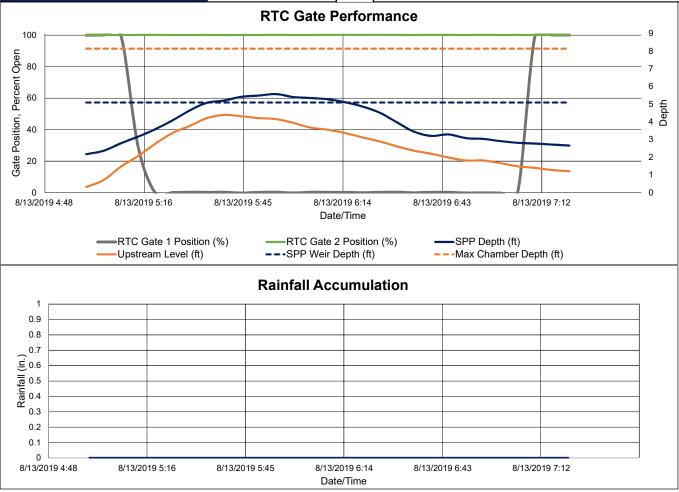
Site:	Bird RTC
Analysis Date:	9/11/2019
Event Start Date/Time:	8/13/2019 5:00
Event End Date/Time:	8/13/2019 7:20

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

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

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

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



Site:	Bird RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
Analysis Date:	9/11/2019	Total Rainfall Accumulation:	1.22 in
Event Start Date/Time:	8/17/2019 9:50	Storm Event Duration:	3 hrs.
Event End Date/Time:	8/17/2019 12:45	Storm Type:	Less than 2 years
Gate Activation Trigger Depth:	2.28 ft.	Recommended Operatio	nal Changes/Notes:
Return to Normal Depth:	1.44 ft.	Rainfall data sourced from BSA	
Time Gate 1 Activated:	4/4/2139 22:40	South Buffalo.	0 0
Time Gate 2 Activated:	8/17/2019 12:45		
Time Gate 1 Returned to Normal:	N/A	Gate 2 was at 100% open for th	e entire month of August.
Time Gate 2 Returned to Normal:	N/A		
Percent Capture	65%		
Depth of Weir	8.15 ft.		
Maximum Depth Reached:	3.81 ft.		
Volume Stored:	102,608 Gal.		
Unused Storage Volume:	776,499 Gal.		
Overflow Volume:	56,034 Gal.		
Overflow Volume Prevented:	102,608 Gal.		
SPP Activation Prevented:	No		
If No, what is the overflow volume	56,034		
when storage was available?			
Could SPP activation have been prevented?	Yes		
]
100	RTC Gate Per	formance	9
B/17/2019 9:36 B/17/2019 10:04 B/17/2 RTC Gate 1 Positio Upstream Level (ft)	Date/Tin	ne sition (%)SPP Depth (ft)	8 7 6 5 ft 4 0 3 3 2 1 0 0 7/2019 12:28 8/17/2019 12:57
	Rainfall Accun	nulation	
1.4			
1.2			
1		/	
۲ 0.4			
0.2			
0			
8/17/2019 9:36 8/17/2019 10:04 8/17/			7/2019 12:28 8/17/2019 12:57
Date/Time			

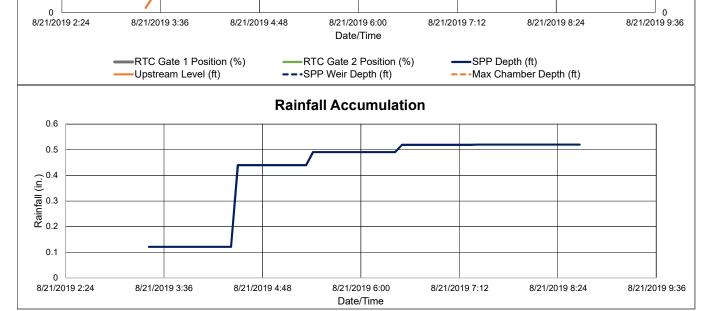
August 17, 2019

Site:	Bird RTC	Analyst Name, Organization:	Rucha Shah, Arcadi
Analysis Date:	9/11/2019	Total Rainfall Accumulation:	0.03 ir
Event Start Date/Time:	8/18/2019 7:00	Storm Event Duration:	2 hrs
Event End Date/Time:	8/18/2019 9:05	Storm Type:	Less than 1 yea
Gate Activation Trigger Depth:	2.79 ft.	Recommended Operationa	al Changes/Notes
Return to Normal Depth:	1.46 ft.	Rainfall data sourced from BSA ra	
Time Gate 1 Activated:	4/6/2139 16:10	South Buffalo.	and Brage station at
Time Gate 2 Activated:	8/18/2019 9:05		
Fime Gate 1 Returned to Normal:	N/A	Gate 2 was at 100% open for the	entire month of August
Fime Gate 2 Returned to Normal:	N/A		chare month of August
Percent Capture	100%		
Depth of Weir	8.15 ft.		
Maximum Depth Reached:	2.96 ft.		
Volume Stored:	10,299 Gal.		
Jnused Storage Volume:	844,517 Gal.		
Overflow Volume:	0 Gal.		
Overflow Volume Prevented:	10,299 Gal.		
SPP Activation Prevented:	10,299 Gal. Yes		
f No, what is the overflow volume			
when storage was available?	NA		
Could SPP activation have been	NA		
prevented?	NA		
	RTC Gate Perf	ormance	
100			9
Б		-++-	8
80			7
en e			6
			2 Pepth 2
0 40			
00 Bate Position, Percent Open 07 09 09 09 00 00 00 00 00 00 00 00 00 00			3
te 20			2
0			1
0 8/18/2019 6:4 3 /18/2019 6:5 7 /18/2019 7:1 2 /18/20	19 7·2@/18/2019 7·4@/18/2019 7·5@/19	x/2019 8-0%/18/2019 8-2#/18/2019 8-3%/18/2019 8	0 3:5 % /18/2019 9:0 % /18/2019 9:21
CITCLE TO C.TWI TOLE TO C. DDI TOLE UTO T. TE/ 10/20	Date/Tim		
RTC Gate 1 Position			(#)
Upstream Level (ft)	SPP Weir Depth		
	Rainfall Accum	nulation	
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0.03			
0.03			
0.025			
0.02 0.015			
.Eg 0.015			
0.01			
0.005			
0.000			
8/18/2010 6:48/18/2010 6:58/18/2010 7:18/18/20	10 7·28/18/2010 7·40/19/2010 7·50/40		
8/18/2019 6:4 8 /18/2019 6:58/18/2019 7:1 2 /18/20	Date/Tin		J.JD/ 10/2019 9.00/ 18/2019 9:21
	Dato/ Illi		

Site:	Bird RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
Analysis Date:	9/11/2019	Total Rainfall Accumulation:	0.48 in
Event Start Date/Time:	8/19/2019 2:50	Storm Event Duration:	2 hrs.
Event End Date/Time:	8/19/2019 4:45	Storm Type:	Less than 1 year
Gate Activation Trigger Depth:	2.88 ft.	Recommended One with	onal Changes/Netes
Return to Normal Depth:	1.54 ft.	Recommended Operation Rainfall data sourced from BSA	
Time Gate 1 Activated:	4/8/2139 7:40	South Buffalo.	A rain gauge station at
Time Gate 2 Activated:	8/19/2019 4:45		
Time Gate 1 Returned to Normal:	N/A	Cata 2 was at 100% apar far t	he entire menth of August
Time Gate 2 Returned to Normal:	N/A N/A	Gate 2 was at 100% open for t	ne entire month of August.
Percent Capture	100%		
Depth of Weir	8.15 ft.		
Maximum Depth Reached:	2.29 ft.		
Volume Stored:			
	. , ,		
Unused Storage Volume:	878,726 Gal.		
Overflow Volume: Overflow Volume Prevented:	0 Gal.		
	(29,225) Gal.		
SPP Activation Prevented: If No, what is the overflow volume	Yes		
when storage was available?	NA		
Could SPP activation have been			
prevented?	NA		
	RTC Gate Per	formance	
100		lonnance	9
			8
			7
			6
	++		5 Depth 2
40 40			4 🛱
osit			3
Bate Position, Percent Open 00 08 00 00			2
G G G			1
0			0
8/19/2019 2:38 8/19/2019 2:52 8/19/2019 3:07 8/1			4:33 8/19/2019 4:48 8/19/2019 5:02
	Date/Tir	ne	
RTC Gate 1 Position	n (%)	sition (%) —SPP Depth (ft)	
Upstream Level (ft)	SPP Weir Deptl		pth (ft)
	Rainfall Accun	nulation	
0.6			
0.5			
○ 0.4			
, i,			
(i) ii) iii) iiii) iiiii iiiiiiiiii			
- 0.2			
0.1			
0 8/19/2019 2:38 8/19/2019 2:52 8/19/2019 3:07 8/ ⁻	I9/2019 3:21 8/19/2019 3:36 8/19/2019	3:50 8/19/2019 4:04 8/19/2019 4:19 8/19/2019	4:33 8/19/2019 4:48 8/19/2019 5·02
	Date/Tir		

August 19, 2019

Site:	Bird RTC	Analyst Name, Organization:	Rucha Shah, Arcadis
Analysis Date:	9/11/2019	Total Rainfall Accumulation:	0.52 in
Event Start Date/Time:	8/21/2019 3:30	Storm Event Duration:	5 hrs.
Event End Date/Time:	8/21/2019 8:40	Storm Type:	Less than 1 year
Gate Activation Trigger Depth:	1.20 ft.	De commune de d'Ou constitue	
Return to Normal Depth:	- ft.	Recommended Operation	
Time Gate 1 Activated:	8/21/2019 3:30	Rainfall data sourced from BSA South Buffalo.	rain gauge station at
Time Gate 2 Activated:	1/0/1900 0:00		
Time Gate 1 Returned to Normal:	1/0/1500 0.00 N/A	Cate 2 was at 100% open for th	a antira manth of August
Time Gate 2 Returned to Normal:	N/A	Gate 2 was at 100% open for th	le entire month of August.
Percent Capture	7%		
Depth of Weir	8.15 ft.		
Maximum Depth Reached:	8.15 ft.		
Volume Stored:	897,824 Gal.		
Unused Storage Volume:	0 Gal.		
Overflow Volume:	12,029,169 Gal.		
Overflow Volume Prevented:	897,824 Gal.		
SPP Activation Prevented:	No		
If No, what is the overflow volume	0		
when storage was available?	0		
Could SPP activation have been prevented?	No		
	RTC Gate Perf	ormance	
100			12
E .			
80	\sim		10
eit eit	- <u>A</u> -		8
2 60		_	<u>ج</u>
Position, Percent Open 09 09 09			0 Depth
40 to 10 to			4
02 gate			2



August 21, 2019

7

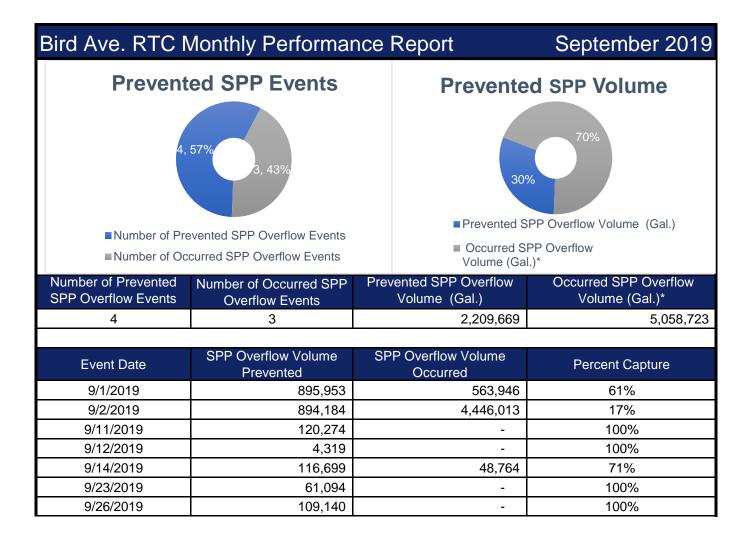
		,	
Site:	Bird RTC	Analyst Name, Organization:	Rucha Shah, Arcad
nalysis Date:	9/11/2019	Total Rainfall Accumulation:	0.24
vent Start Date/Time:	8/28/2019 0:00	Storm Event Duration:	1 hi
vent End Date/Time:	8/28/2019 0:50	Storm Type:	Less than 1 ye
ate Activation Trigger Depth:	2.97 ft.	Recommended Operati	anal Changes/Natasy
eturn to Normal Depth:	1.43 ft.	Rainfall data sourced from BS	
me Gate 1 Activated:	4/26/2139 1:00	South Buffalo.	A faill gauge station at
ime Gate 2 Activated:	8/28/2019 0:50	South Bullaio.	
ime Gate 1 Returned to Normal:	8/28/2019 0.30 N/A		he entine menth of Augus
ime Gate 2 Returned to Normal:	N/A N/A	Gate 2 was at 100% open for t	ne entire month of Augus
ercent Capture	100% 8.15 ft.		
epth of Weir			
aximum Depth Reached:	1.75 ft.		
olume Stored:	(49,969) Gal.		
nused Storage Volume:	893,846 Gal.		
verflow Volume:	0 Gal.		
verflow Volume Prevented:	(49,969) Gal.		
PP Activation Prevented:	Yes		
No, what is the overflow volume	NA		
hen storage was available? ould SPP activation have been			
evented?	No		
100	RTC Gate Per	formance	9
Bo B			7 6 5 4 2
0	7 8/28/2019 0:14 8/28/2019 0:21 8/ Date/Tir	28/2019 0:28 8/28/2019 0:36 8/28/2019 0:4	1 0 3 8/28/2019 0:50 8/28/2019 0:5
	on (%)	sition (%) SPP Depth (ft)	epth (ft)
	Rainfall Accur	nulation	
0.3			
0.25	/		
<u><u> </u></u>			
۳۵.1	/		
0.05			
0.00			
0			
8/27/2019 23:52 8/28/2019 0:00 8/28/2019 0:0	/7 8/28/2019 0:14 8/28/2019 0:21 8/ Date/Tii		5 0/20/20 19 0:50 8/28/2019 0:5
	_ 200, 11		

August 28, 2019

September 2019 Bird Ave. RTC **KPI** Report







September 1, 2019

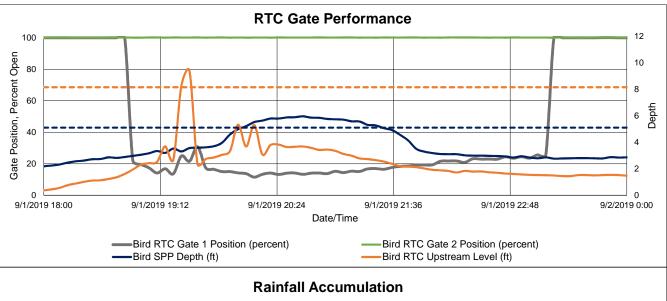
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/1/2019 18:50
Event End Date/Time:	9/1/2019 23:15

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

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

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

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





September 2, 2019

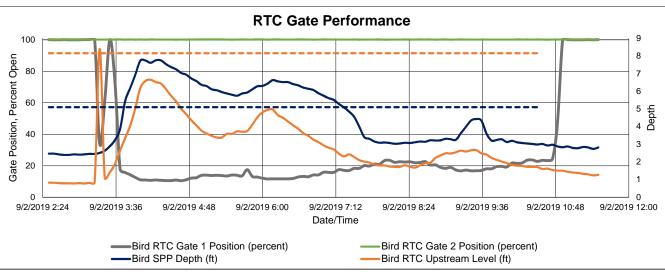
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/2/2019 3:15
Event End Date/Time:	9/2/2019 10:55

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

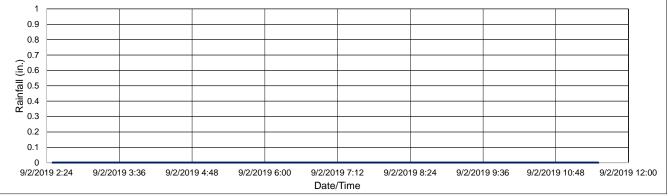
Analyst Name, Organization:	Angela Hintz, Arcadis
Total Rainfall Accumulation:	NA
Storm Event Duration:	9
Storm Type:	Less than 1 yr storm

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

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







September 11, 2019

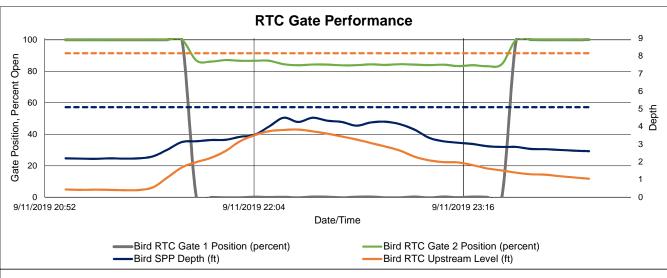
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/11/2019 21:40
Event End Date/Time:	9/11/2019 23:35

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

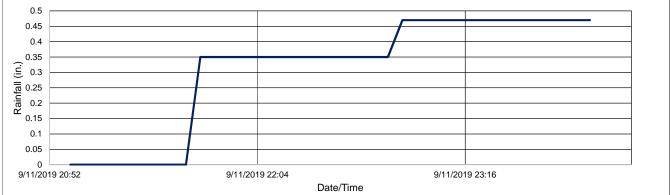
Analyst Name, Organization:	Angela Hintz, Arcadis
Total Rainfall Accumulation:	0.47 in.
Storm Event Duration:	2 hr
Storm Type:	Less than 1 yr storm

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

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



Rainfall Accumulation



September 12, 2019

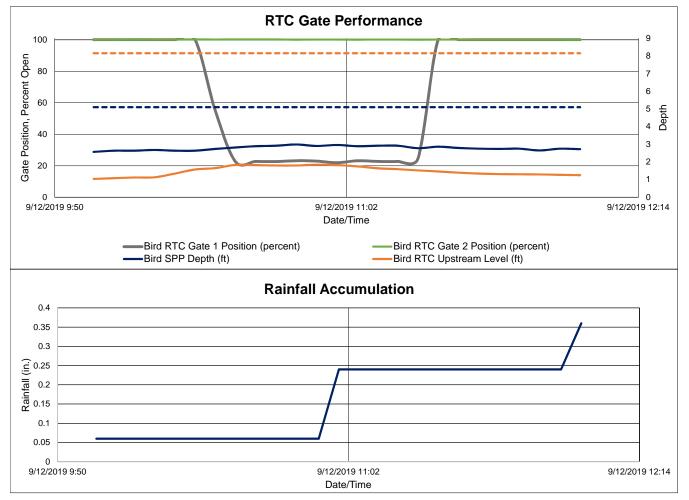
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/12/2019 10:25
Event End Date/Time:	9/12/2019 11:25

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

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

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

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



September 14, 2019

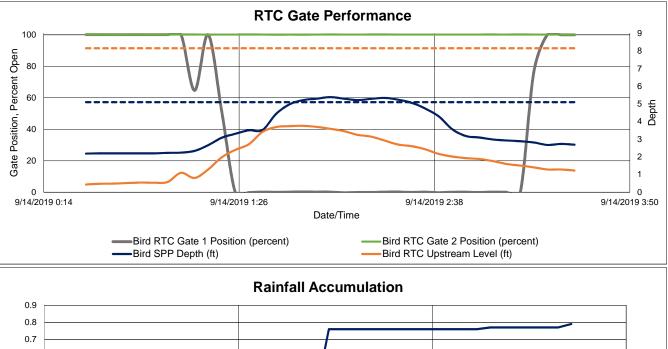
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/14/2019 1:15
Event End Date/Time:	9/14/2019 3:20

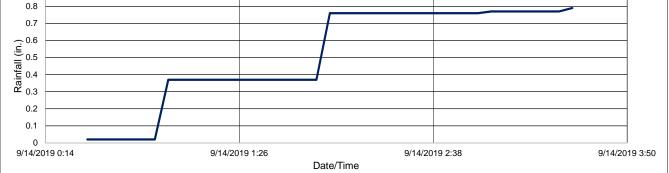
Gate Activation Trigger Depth:	1.29 ft.
Return to Normal Depth:	1.41 ft.
Time Gate 1 Activated:	9/14/2019 1:15
Time Gate 2 Activated:	N/A
Time Gate 1 Returned to Normal:	9/14/2019 3:20
Time Gate 2 Returned to Normal:	N/A
Percent Capture	71%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	3.76 ft.
Volume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

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

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

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





September 23, 2019

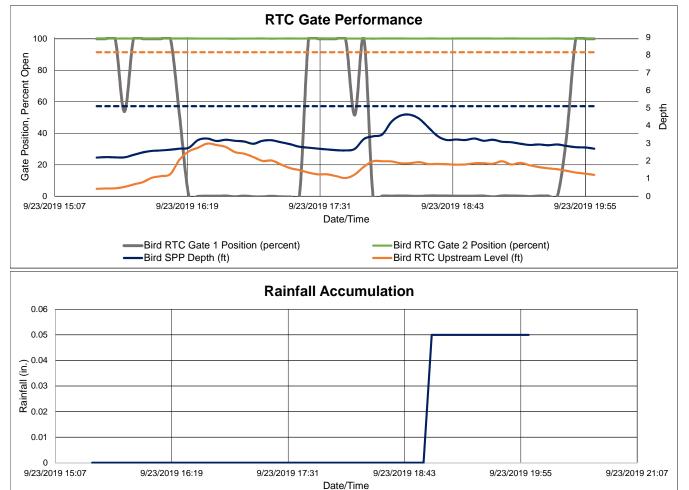
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/23/2019 16:10
Event End Date/Time:	9/23/2019 19:50

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

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

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

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



September 26, 2019

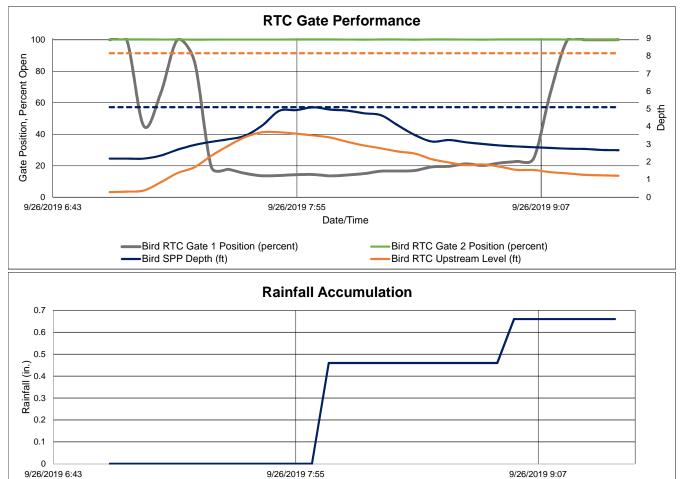
Site:	Bird RTC
Analysis Date:	11/18/2019
Event Start Date/Time:	9/26/2019 7:05
Event End Date/Time:	9/26/2019 9:15

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

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

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

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

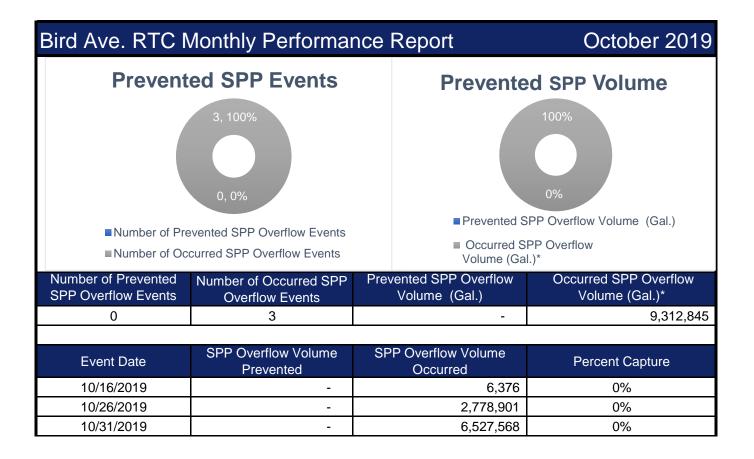


Date/Time

October 2019 **Bird Ave. RTC KPI** Report







October 16, 2019

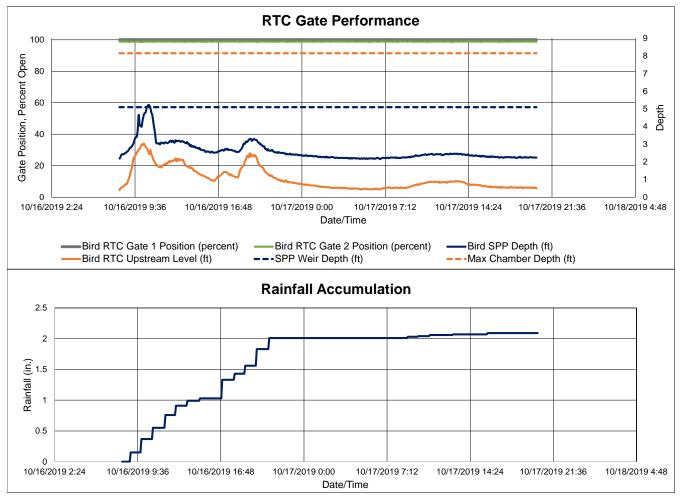
Site:	Bird RTC
Analysis Date:	11/13/2019
Event Start Date/Time:	10/16/2019 10:35
Event End Date/Time:	10/16/2019 10:55

Gate Activation Trigger Depth:	N/A ft.
Return to Normal Depth:	- ft.
Time Gate 1 Activated:	N/A
Time Gate 2 Activated:	N/A
Time Gate 1 Returned to Normal:	N/A
Time Gate 2 Returned to Normal:	N/A
Percent Capture	N/A
Depth of Weir	8.15 ft.
Maximum Depth Reached:	2.79 ft.
Volume Stored:	N/A Gal.
Unused Storage Volume:	1,015,032 Gal.
Overflow Volume:	6,376 Gal.
Overflow Volume Prevented:	N/A Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume	6,376
when storage was available?	0,570
Could SPP activation have been prevented?	Yes
preventeu?	

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

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

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



October 26, 2019

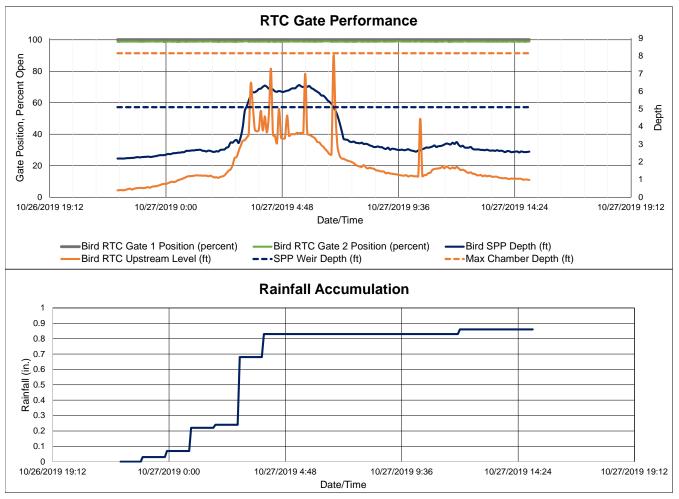
Site:	Bird RTC
Analysis Date:	11/13/2019
Event Start Date/Time:	10/27/2019 3:20
Event End Date/Time:	10/27/2019 7:00

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

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

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

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



October 31, 2019

Site:	Bird RTC
	5
Analysis Date:	11/13/2019
Event Start Date/Time:	10/31/2019 13:40
Event End Date/Time:	10/31/2019 20:35

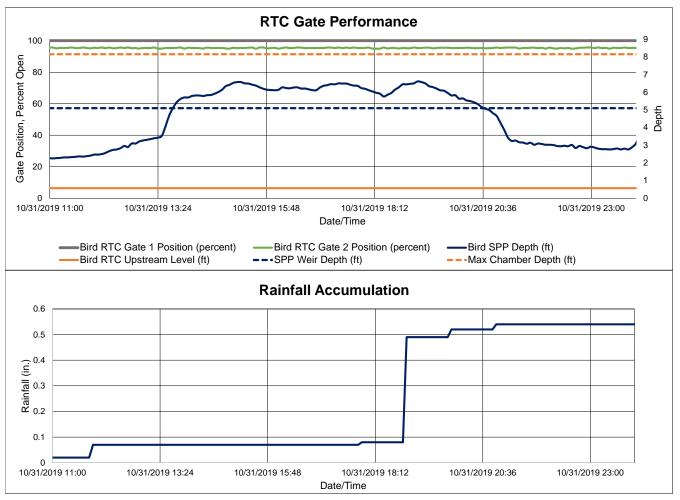
Gate Activation Trigger Depth:	N/A	ft.
Return to Normal Depth:	-	ft.
Time Gate 1 Activated:		N/A
Time Gate 2 Activated:		N/A
Time Gate 1 Returned to Normal:		N/A
Time Gate 2 Returned to Normal:		N/A
Percent Capture		0%
Depth of Weir	8.1	5 ft.
Maximum Depth Reached:	6.5	7 ft.
Volume Stored:	() Gal.
Unused Storage Volume:	1,116,122	2 Gal.
Overflow Volume:	6,527,568	3 Gal.
Overflow Volume Prevented:	() Gal.
SPP Activation Prevented:		No
If No, what is the overflow volume when storage was available?	6,52	7,568
Could SPP activation have been prevented?		Yes

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

3

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

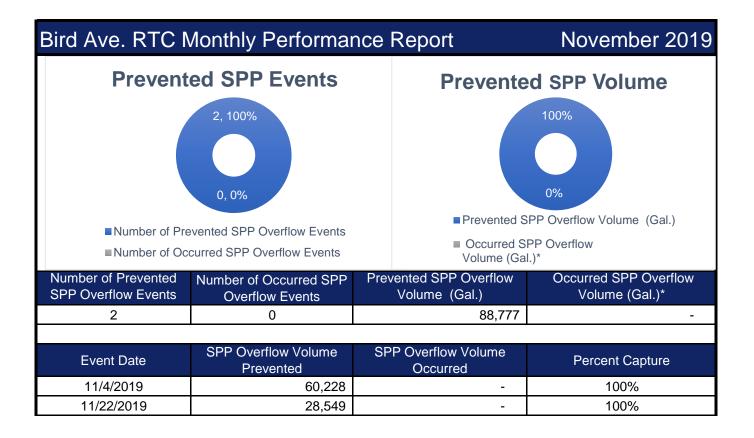
Gate 1 and 2 were stuck open for the whole month of October, resulting in a significant amount of unused storage volume. There was an upstream level flatline since October 28.



November 2019 **Bird Ave. RTC KPI** Report







November 4, 2019

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

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

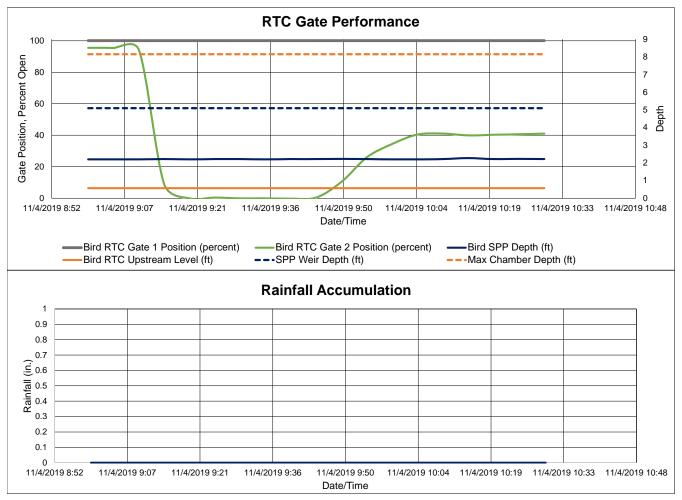
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0 in.
Storm Event Duration:	1.5 hr.
Storm Type:	N/A

1

Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall recorded at South Buffalo rain gauge during this event.

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

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



November 22, 2019

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

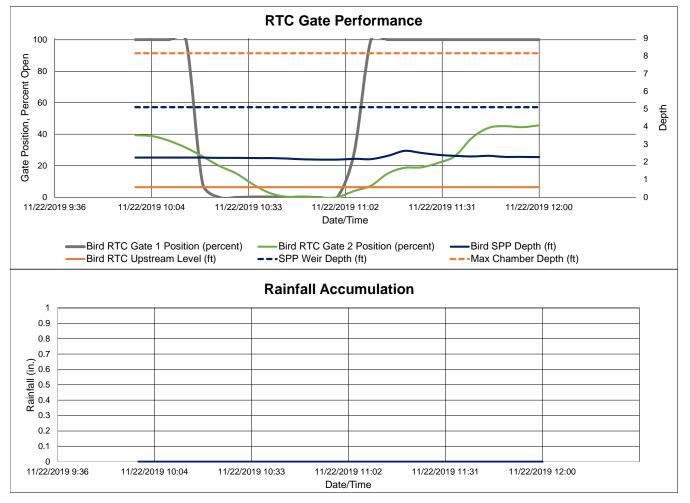
Gate Activation Trigger Depth:	N/A ft.
Return to Normal Depth:	2.17 ft.
Time Gate 1 Activated:	N/A
Time Gate 2 Activated:	N/A
Time Gate 1 Returned to Normal:	N/A
Time Gate 2 Returned to Normal:	N/A
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	2.62 ft.
Volume Stored:	28,549 Gal
Unused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

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

Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo. No rainfall was recorded at South Buffalo rain gauge during this storm event.

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

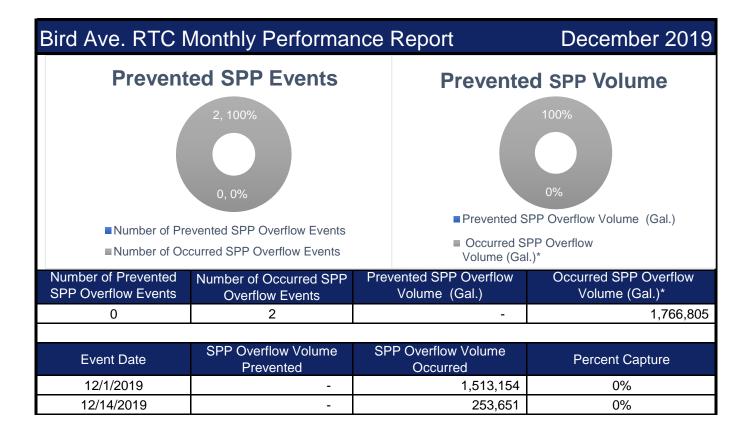
Gate 1 modulated during this event and Gate 2 only modulated between approximately 0% and 45% open.



December 2019 **Bird Ave. RTC KPI** Report







December 1, 2019

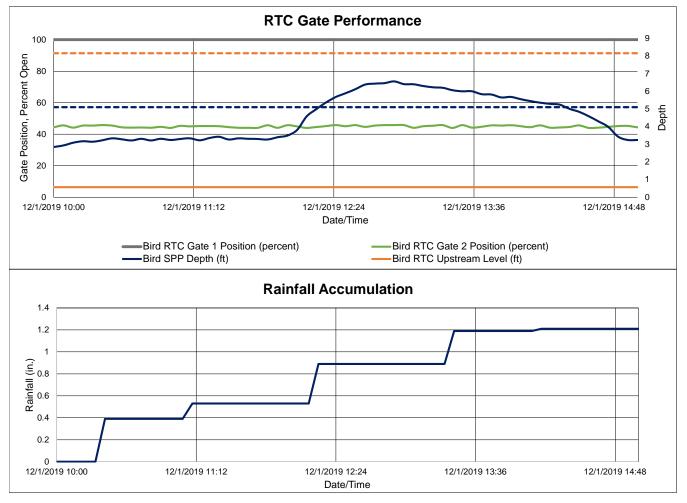
Site:	Bird RTC
Analysis Date:	1/7/2020
Event Start Date/Time:	12/1/2019 12:15
Event End Date/Time:	12/1/2019 14:25

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

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

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

South Buffalo. Upstream and downstream level sensors were flatlined, and Gate 2 was stuck open at approximately 44% for the entire month of December.



December 14, 2019

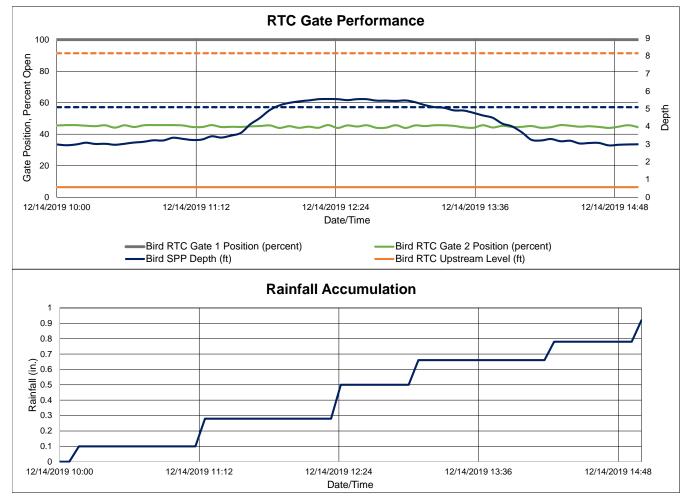
Site:	Bird RTC
Analysis Date:	1/7/2020
Event Start Date/Time:	12/14/2019 11:50
Event End Date/Time:	12/14/2019 13:20

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

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

Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo. Upstream and downstream level sensors

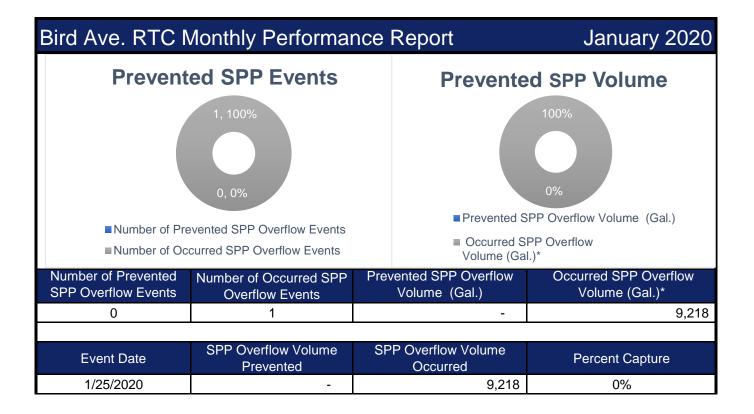
were flatlined, and Gate 2 was stuck open at approximately 44% for the entire month of December.



January 2020 **Bird Ave. RTC KPI** Report







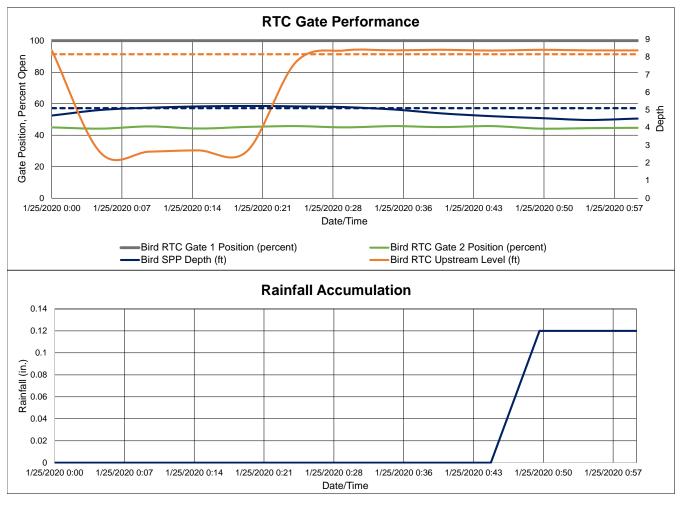
January 25, 2020

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

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

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

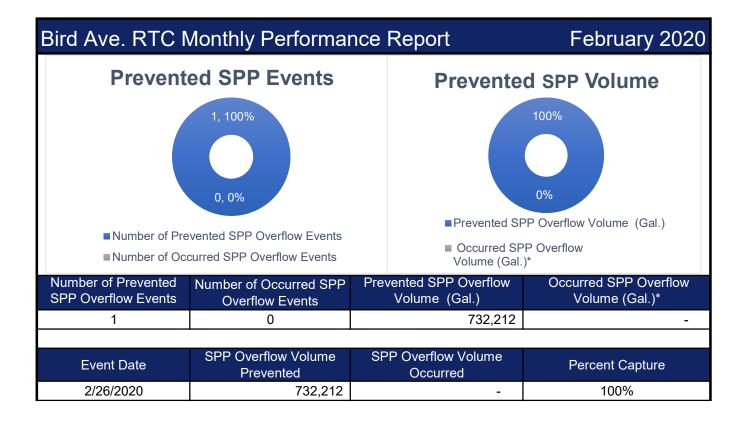
Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge at Quarry. Gate 1 was manually open at 100% and Gate 2 was stuck open at approximately 45% for the entire month of January.



February 2020 Bird Ave. RTC KPI Report







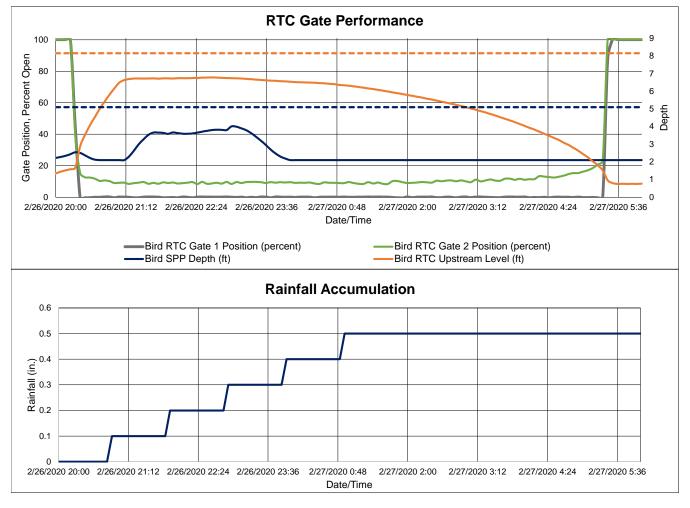
February 26, 2020

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

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

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

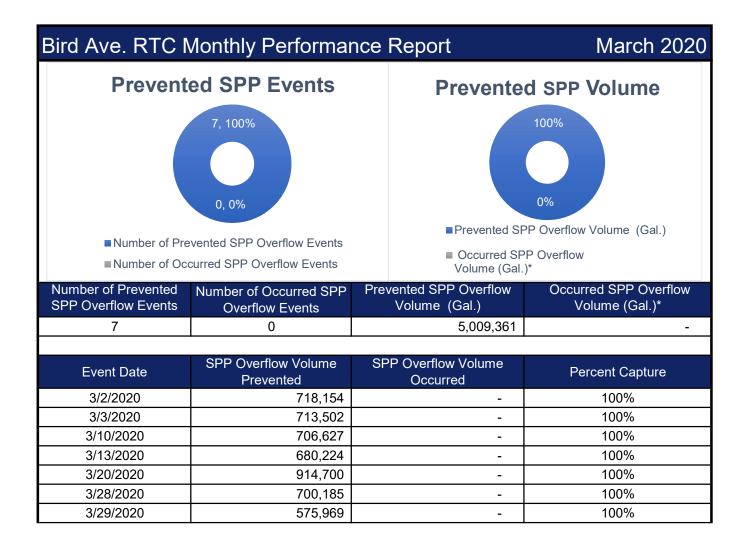
Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo.



March 2020 **Bird Ave. RTC KPI** Report



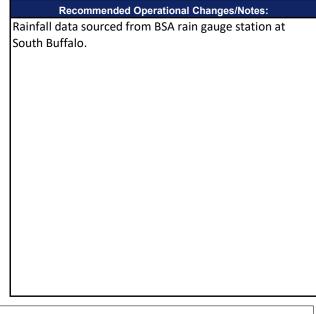


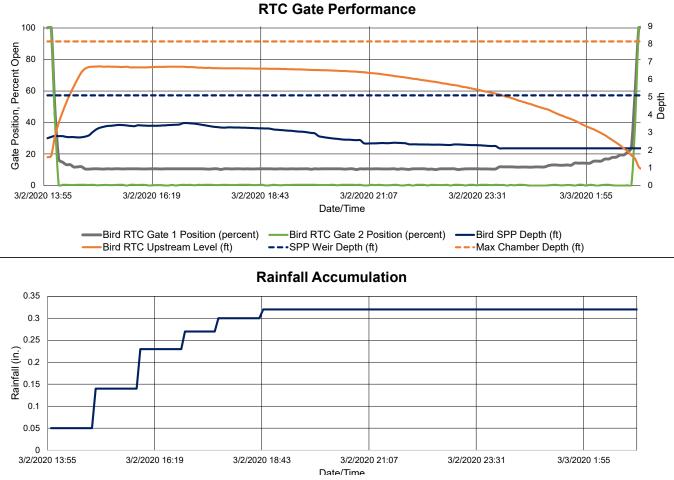


Site:	Bird RTC
Analysis Date:	4/8/2020
Event Start Date/Time:	3/2/2020 14:05
Event End Date/Time:	3/3/2020 3:05

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

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



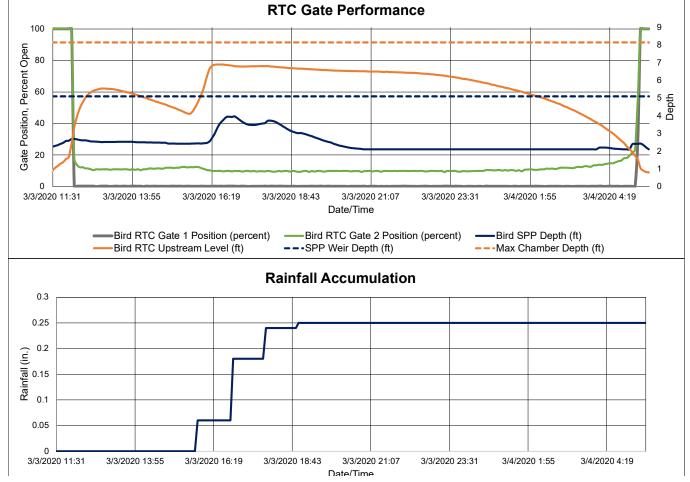


Site:	Bird RTC
Analysis Date:	4/8/2020
Event Start Date/Time:	3/3/2020 12:05
Event End Date/Time:	3/4/2020 5:15

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

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

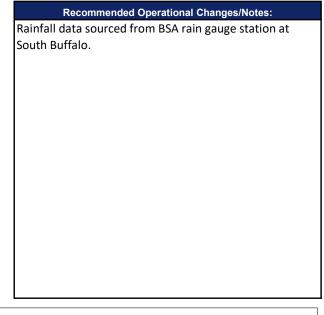
Recommended Operational Changes/Notes: Rainfall data sourced from BSA rain gauge station at South Buffalo.

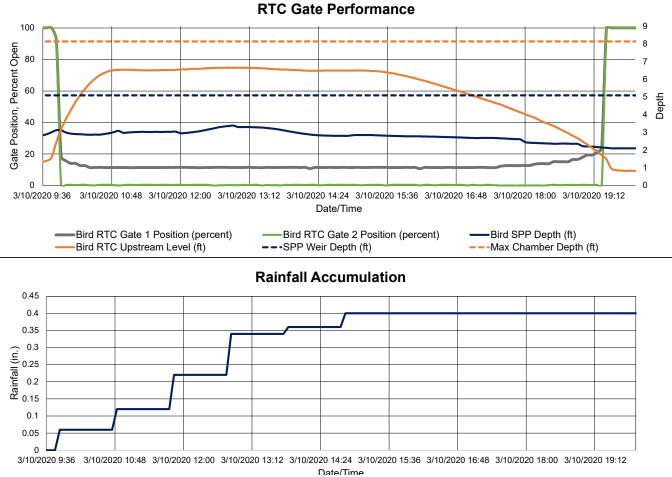


Site:	Bird RTC
Analysis Date:	4/8/2020
Event Start Date/Time:	3/10/2020 9:45
Event End Date/Time:	3/10/2020 19:25

1.58 ft.
1.71 ft.
3/10/2020 9:45
3/10/2020 9:45
3/10/2020 19:25
3/10/2020 19:20
100%
8.15 ft.
6.67 ft.
706,627 Gal.
388,170 Gal.
0 Gal.
706,627 Gal.
Yes
N/A
N/A

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





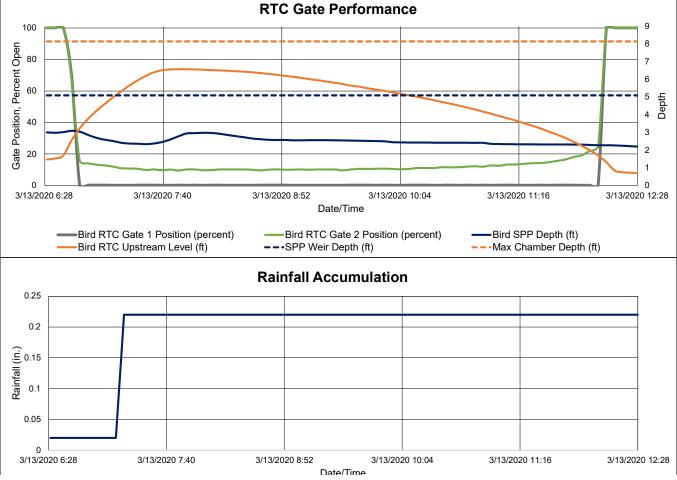
March 13, 2020

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

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

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

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

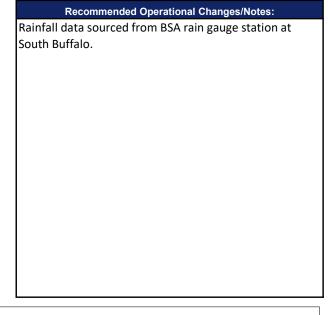


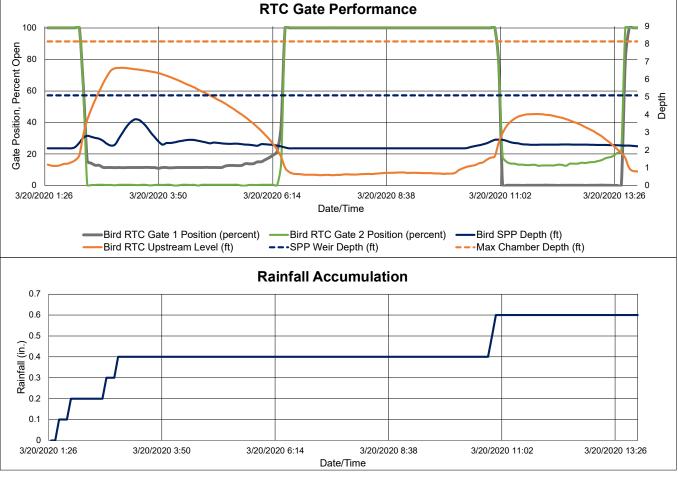
Marc	h 20,	2020
	,	

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

1.72 ft.
1.62 ft.
3/20/2020 2:10
3/20/2020 2:10
3/20/2020 13:45
3/20/2020 13:35
100%
8.15 ft.
6.66 ft.
914,700 Gal.
201,422 Gal.
0 Gal.
914,700 Gal.
Yes
N/A
N/A

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



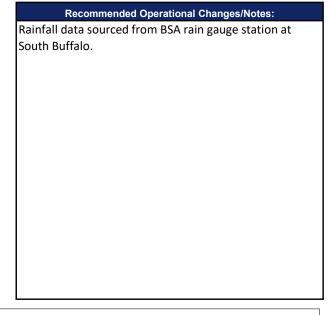


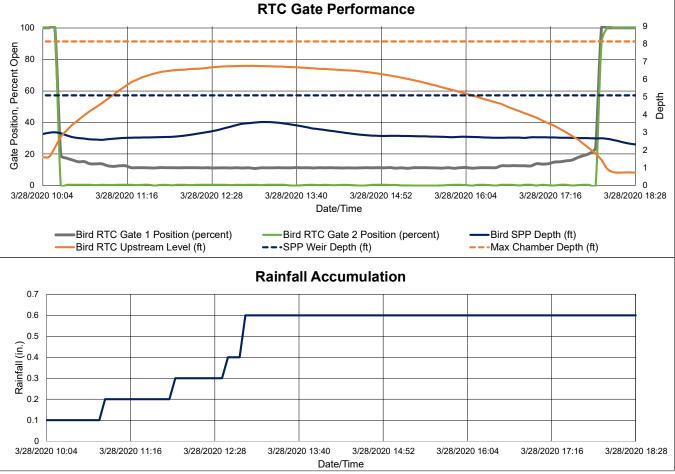
March 28, 2020

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

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

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



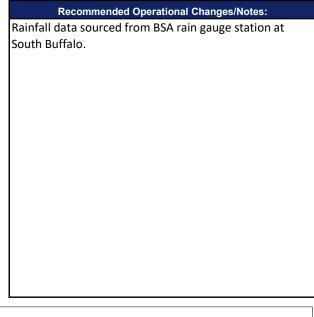


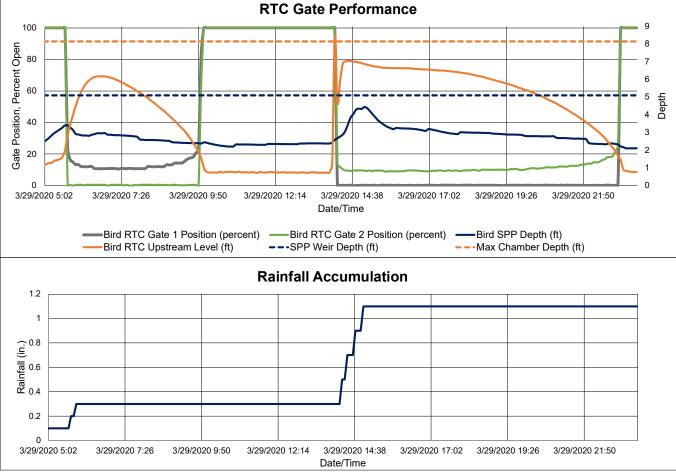
March 29, 2020

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

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

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

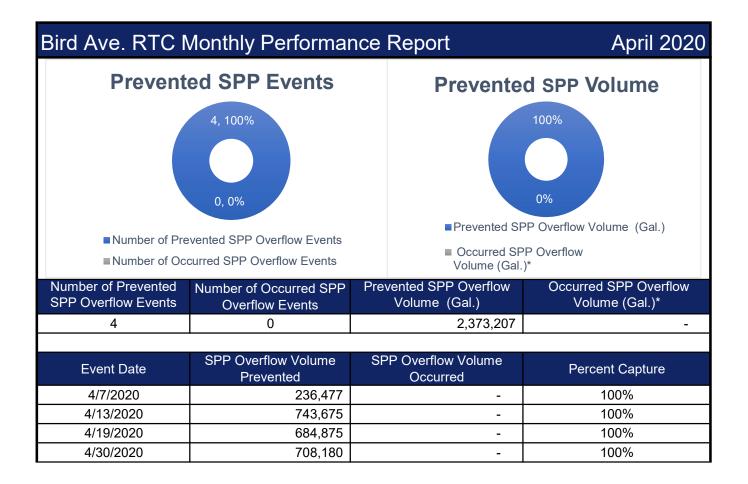




April 2020 Bird Ave. RTC KPI Report





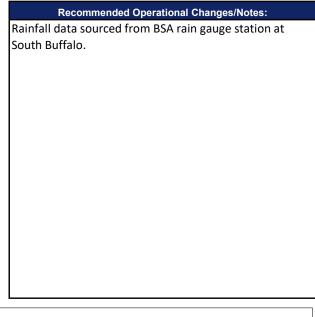


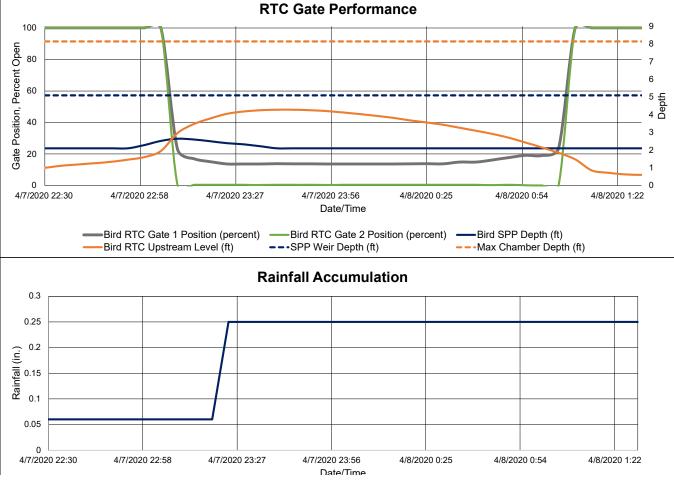
April 7, 2020

Site:	Bird RTC
Analysis Date:	5/8/2020
Event Start Date/Time:	4/7/2020 23:05
Event End Date/Time:	4/8/2020 1:10

Gate Activation Trigger Depth:	1.95 ft.
Return to Normal Depth:	1.85 ft.
Time Gate 1 Activated:	4/7/2020 23:05
Time Gate 2 Activated:	4/7/2020 23:05
Time Gate 1 Returned to Normal:	4/8/2020 1:10
Time Gate 2 Returned to Normal:	4/8/2020 1:05
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.29 ft.
Volume Stored:	236,477 Gal.
Unused Storage Volume:	839,768 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	236,477 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A
prevented:	

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.25 in.
Storm Event Duration:	3 hr.
Storm Type:	<1 yr.



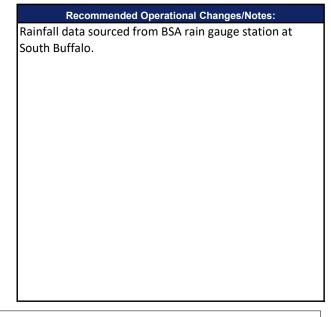


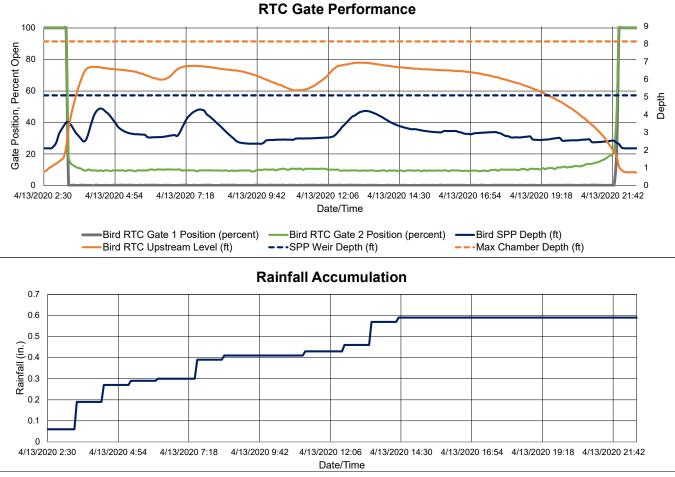
April 13, 2020

Site:	Bird RTC
Analysis Date:	5/8/2020
Event Start Date/Time:	4/13/2020 3:15
Event End Date/Time:	4/13/2020 21:55

Gate Activation Trigger Depth:	2.14 ft.
Return to Normal Depth:	1.63 ft.
Time Gate 1 Activated:	4/13/2020 3:15
Time Gate 2 Activated:	4/13/2020 3:15
Time Gate 1 Returned to Normal:	4/13/2020 21:55
Time Gate 2 Returned to Normal:	4/13/2020 21:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.95 ft.
Volume Stored:	743,675 Gal.
Unused Storage Volume:	321,046 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	743,675 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A
prevented:	

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.59 in.
Storm Event Duration:	8 hr.
Storm Type:	<1 yr.





April	19, 2020
Bird RTC	,
5/8/2020	

4/19/2020 14:05

4/19/2020 20:25

Cata Activation Trigger Depth:	1.65 \$
Gate Activation Trigger Depth:	1.65 ft.
Return to Normal Depth:	1.74 ft.
Time Gate 1 Activated:	4/19/2020 14:05
Time Gate 2 Activated:	4/19/2020 14:05
Time Gate 1 Returned to Normal:	4/19/2020 20:25
Time Gate 2 Returned to Normal:	4/19/2020 20:20
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.59 ft.
Volume Stored:	684,875 Gal.
Unused Storage Volume:	406,807 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	684,875 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	,
Could SPP activation have been prevented?	N/A

Site:

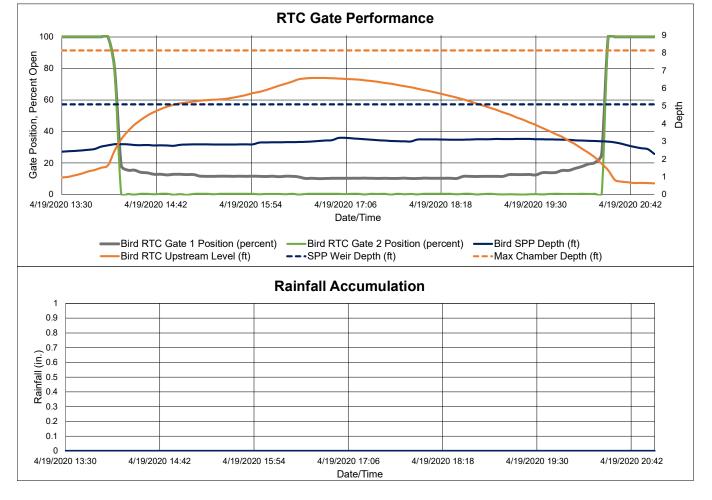
Analysis Date: Event Start Date/Time:

Event End Date/Time:

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

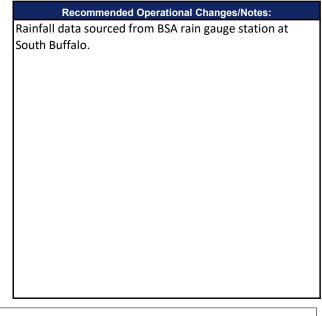


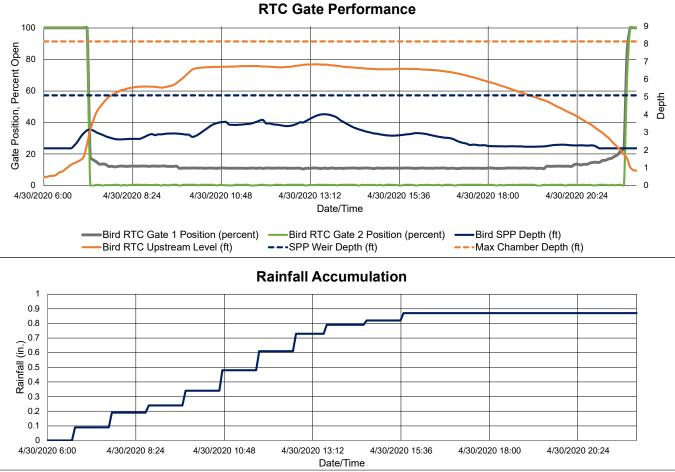
April 30, 2020

Site:	Bird RTC
Analysis Date:	5/8/2020
Event Start Date/Time:	4/30/2020 7:10
Event End Date/Time:	4/30/2020 21:50

Gate Activation Trigger Depth:	2.34 ft.
Return to Normal Depth:	1.53 ft.
Time Gate 1 Activated:	4/30/2020 7:10
Time Gate 2 Activated:	4/30/2020 7:10
Time Gate 1 Returned to Normal:	4/30/2020 21:50
Time Gate 2 Returned to Normal:	4/30/2020 21:45
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.86 ft.
Volume Stored:	708,180 Gal.
Unused Storage Volume:	407,942 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	708,180 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.87 in.
Storm Event Duration:	16 hr.
Storm Type:	< 1 yr.

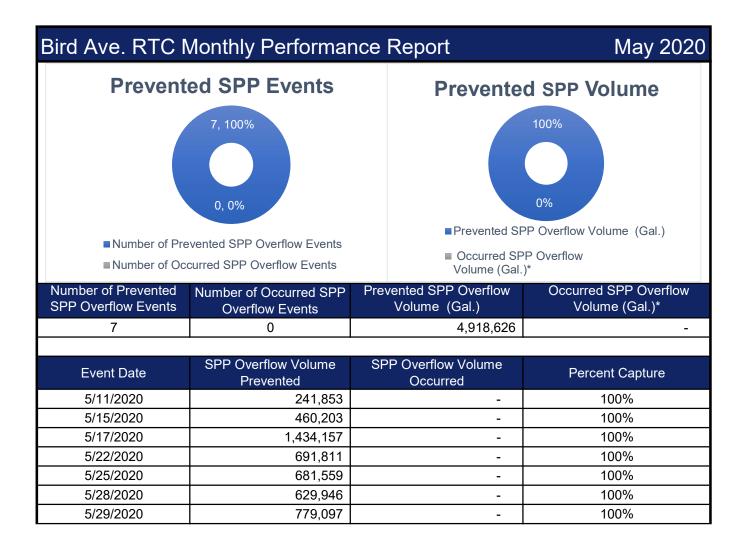




May 2020 Bird Ave. RTC **KPI** Report





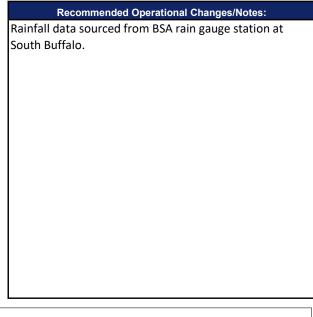


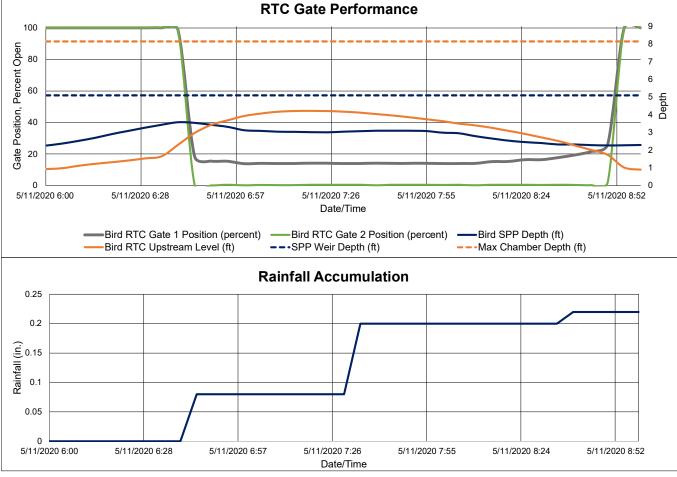
May 11, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/11/2020 6:35
Event End Date/Time:	5/11/2020 8:55

Gate Activation Trigger Depth:	1.65 ft.
Return to Normal Depth:	1.73 ft.
Time Gate 1 Activated:	5/11/2020 6:35
Time Gate 2 Activated:	5/11/2020 6:35
Time Gate 1 Returned to Normal:	5/11/2020 8:55
Time Gate 2 Returned to Normal:	5/11/2020 8:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	4.22 ft.
Volume Stored:	241,853 Gal.
Unused Storage Volume:	849,828 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	241,853 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available? Could SPP activation have been	
prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.22 in.
Storm Event Duration:	3 hr.
Storm Type:	<1 yr.



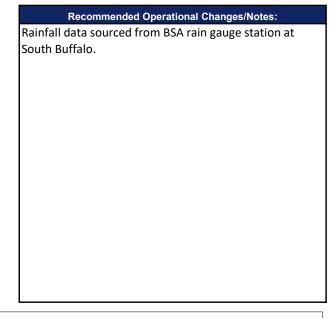


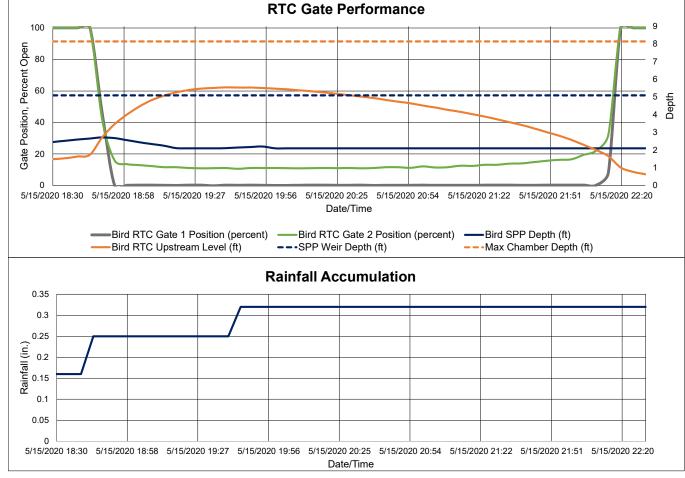
May 15, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/15/2020 18:45
Event End Date/Time:	5/15/2020 22:20

Gate Activation Trigger Depth:	1.74 ft.
Return to Normal Depth:	1.66 ft.
Time Gate 1 Activated:	5/15/2020 18:45
Time Gate 2 Activated:	5/15/2020 18:45
Time Gate 1 Returned to Normal:	5/15/2020 22:20
Time Gate 2 Returned to Normal:	5/15/2020 22:15
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	5.55 ft.
Volume Stored:	460,203 Gal.
Unused Storage Volume:	627,203 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	460,203 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.32 in.
Storm Event Duration:	4 hr.
Storm Type:	<1 yr.





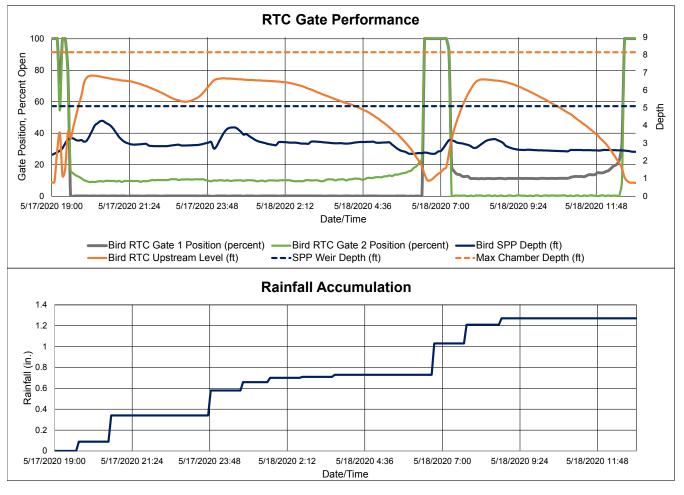
May 17, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/17/2020 19:25
Event End Date/Time:	5/18/2020 12:40

Gate Activation Trigger Depth:	1.59 ft.
Return to Normal Depth:	1.69 ft.
Time Gate 1 Activated:	5/17/2020 19:25
Time Gate 2 Activated:	5/17/2020 19:25
Time Gate 1 Returned to Normal:	5/18/2020 12:40
Time Gate 2 Returned to Normal:	5/18/2020 12:35
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.83 ft.
Volume Stored:	1,434,157 Gal.
Unused Storage Volume:	350,174 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	1,434,157 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.27 in.
Storm Event Duration:	17 hr.
Storm Type:	< 1 yr.

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

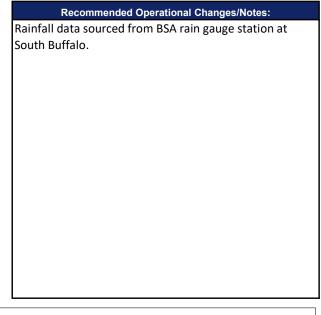


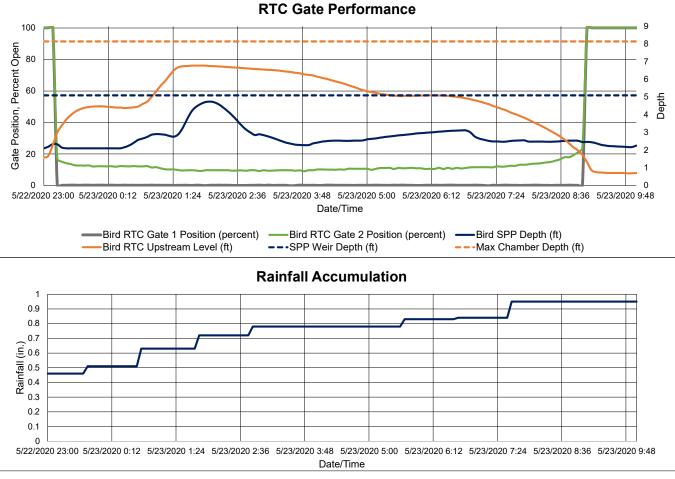
May 22, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/22/2020 23:10
Event End Date/Time:	5/23/2020 9:05

Gate Activation Trigger Depth:	2.30 ft.
Return to Normal Depth:	1.73 ft.
Time Gate 1 Activated:	5/22/2020 23:10
Time Gate 2 Activated:	5/22/2020 23:10
Time Gate 1 Returned to Normal:	5/23/2020 9:05
Time Gate 2 Returned to Normal:	5/23/2020 9:00
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.78 ft.
Volume Stored:	691,811 Gal.
Unused Storage Volume:	362,151 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	691,811 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A
preventeu	

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.95 in.
Storm Event Duration:	11 hr.
Storm Type:	<1 yr.





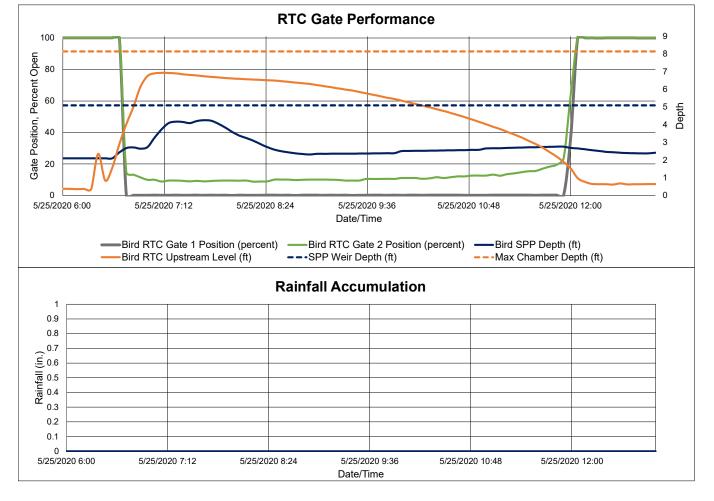
Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/25/2020 6:40
Event End Date/Time:	5/25/2020 12:05

Gate Activation Trigger Depth:	2.90 ft.
Return to Normal Depth:	1.53 ft.
Time Gate 1 Activated:	5/25/2020 6:40
Time Gate 2 Activated:	5/25/2020 6:40
Time Gate 1 Returned to Normal:	5/25/2020 12:05
Time Gate 2 Returned to Normal:	5/25/2020 12:00
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.94 ft.
Volume Stored:	681,559 Gal.
Unused Storage Volume:	323,494 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	681,559 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A
provented:	

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

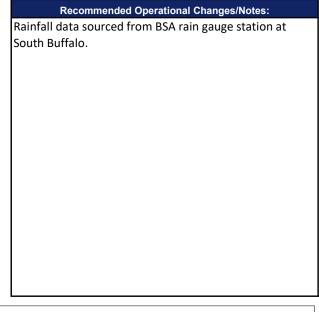


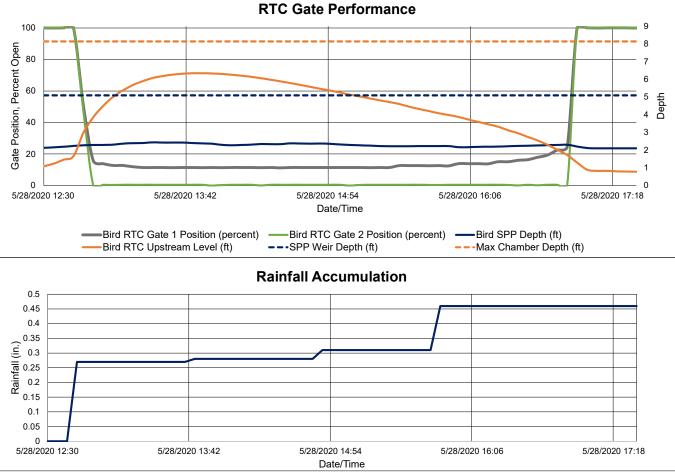
May 28, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/28/2020 12:45
Event End Date/Time:	5/28/2020 17:00

Gate Activation Trigger Depth:	1.66 ft.
Return to Normal Depth:	1.72 ft.
Time Gate 1 Activated:	5/28/2020 12:45
Time Gate 2 Activated:	5/28/2020 12:45
Time Gate 1 Returned to Normal:	5/28/2020 17:00
Time Gate 2 Returned to Normal:	5/28/2020 16:55
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.35 ft.
Volume Stored:	629,946 Gal.
Unused Storage Volume:	461,275 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	629,946 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.46 in.
Storm Event Duration:	5 hr.
Storm Type:	<1 yr.





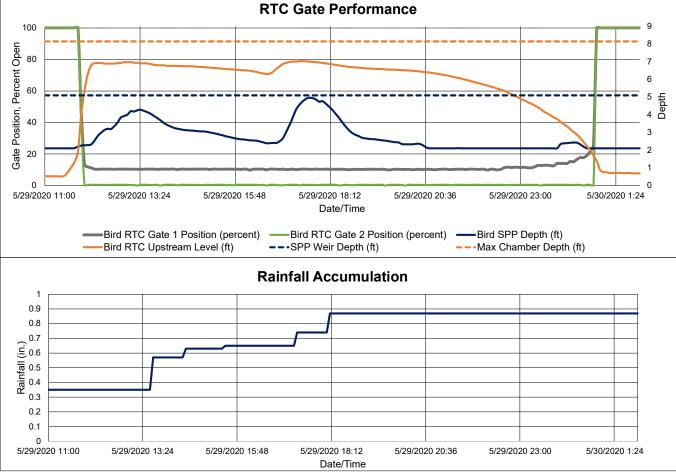
May 29, 2020

Site:	Bird RTC
Analysis Date:	6/9/2020
Event Start Date/Time:	5/29/2020 11:50
Event End Date/Time:	5/30/2020 0:55

Gate Activation Trigger Depth:	1.92 ft.
Return to Normal Depth:	1.69 ft.
Time Gate 1 Activated:	5/29/2020 11:50
Time Gate 2 Activated:	5/29/2020 11:50
Time Gate 1 Returned to Normal:	5/30/2020 0:55
Time Gate 2 Returned to Normal:	5/30/2020 0:50
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.04 ft.
Volume Stored:	779,097 Gal.
Unused Storage Volume:	298,844 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	779,097 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A

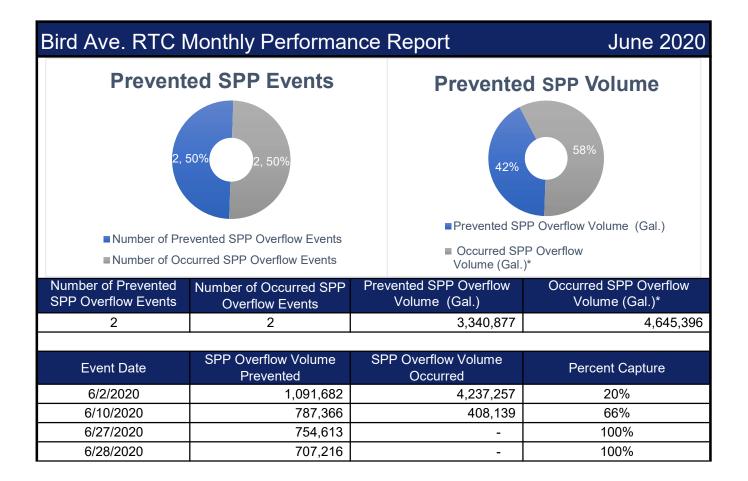
Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.87 in.
Storm Event Duration:	15 hr.
Storm Type:	<1 yr.

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



June 2020 **Bird Ave. RTC KPI** Report



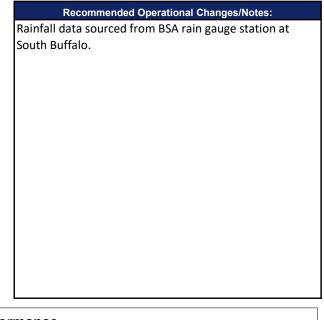


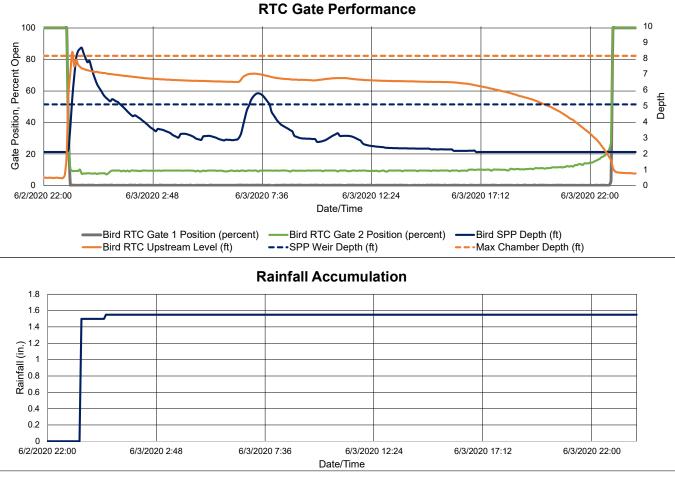
June 2, 2020

Site:	Bird RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/2/2020 23:00
Event End Date/Time:	6/3/2020 23:00

Gate Activation Trigger Depth:	1.94 ft.
Return to Normal Depth:	1.58 ft.
Time Gate 1 Activated:	6/2/2020 23:00
Time Gate 2 Activated:	6/2/2020 23:00
Time Gate 1 Returned to Normal:	6/3/2020 23:00
Time Gate 2 Returned to Normal:	6/3/2020 22:55
Percent Capture	20%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	8.15 ft.
Volume Stored:	1,076,815 Gal.
Unused Storage Volume:	0 Gal.
Overflow Volume:	4,237,257 Gal.
Overflow Volume Prevented:	1,076,815 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	-
Could SPP activation have been prevented?	No

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.55 in.
Storm Event Duration:	26 hr.
Storm Type:	<1 yr.



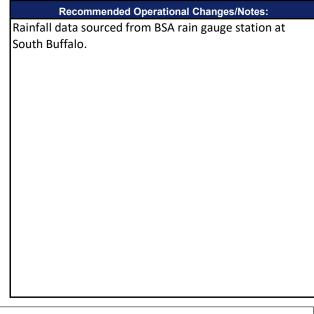


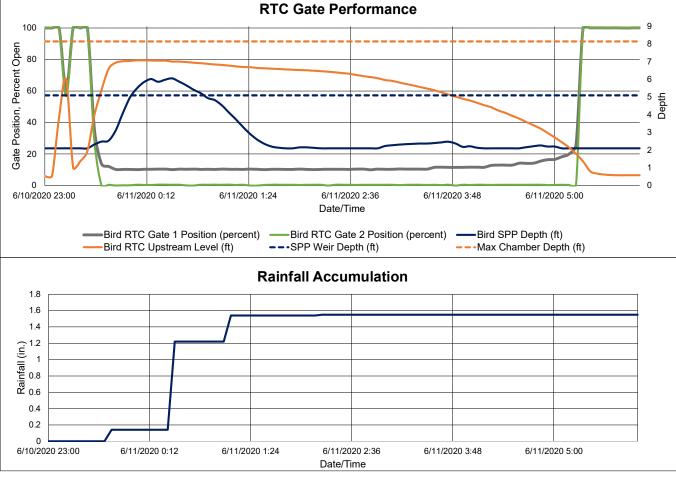
June	10,	2020
	- ,	

Site:	Bird RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/10/2020 23:30
Event End Date/Time:	6/11/2020 5:20

Gate Activation Trigger Depth:	1.95 ft.
Return to Normal Depth:	1.79 ft.
Time Gate 1 Activated:	6/10/2020 23:30
Time Gate 2 Activated:	6/10/2020 23:30
Time Gate 1 Returned to Normal:	6/11/2020 5:20
Time Gate 2 Returned to Normal:	6/11/2020 5:15
Percent Capture	66%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	7.08 ft.
Volume Stored:	787,366 Gal.
Unused Storage Volume:	288,879 Gal.
Overflow Volume:	408,139 Gal.
Overflow Volume Prevented:	787,366 Gal.
SPP Activation Prevented:	No
If No, what is the overflow volume when storage was available?	408,139
Could SPP activation have been prevented?	No

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	1.55 in.
Storm Event Duration:	6 hr.
Storm Type:	<2 yrs.



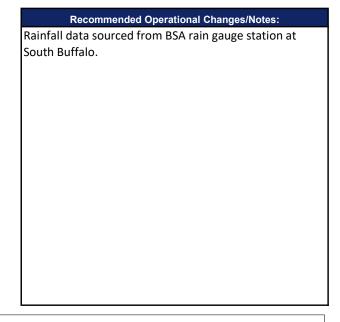


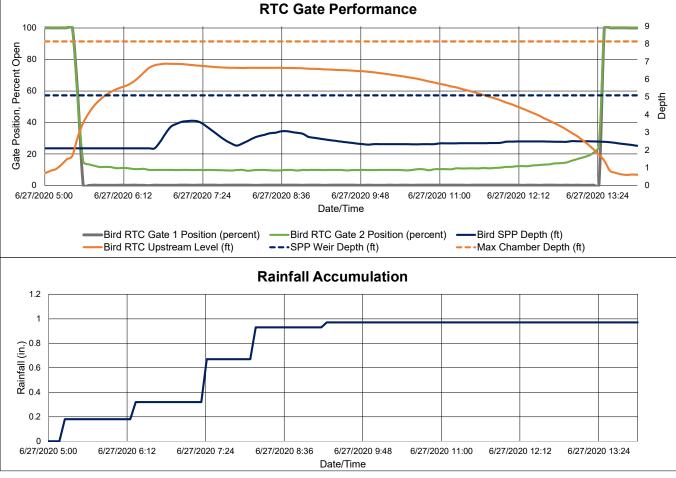
June 27, 20)20
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Site:	Bird RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/27/2020 5:25
Event End Date/Time:	6/27/2020 13:30

Gate Activation Trigger Depth:	1.68 ft.
Return to Normal Depth:	1.74 ft.
Time Gate 1 Activated:	6/27/2020 5:25
Time Gate 2 Activated:	6/27/2020 5:25
Time Gate 1 Returned to Normal:	6/27/2020 13:30
Time Gate 2 Returned to Normal:	6/27/2020 13:25
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.89 ft.
Volume Stored:	754,613 Gal.
Unused Storage Volume:	335,677 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	754,613 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume when storage was available?	N/A
Could SPP activation have been prevented?	N/A

Analyst Name, Organization:	Rucha Shah, Arcadis
Total Rainfall Accumulation:	0.97 in.
Storm Event Duration:	9 hr.
Storm Type:	<1 yr.



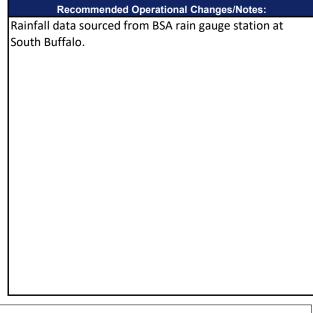


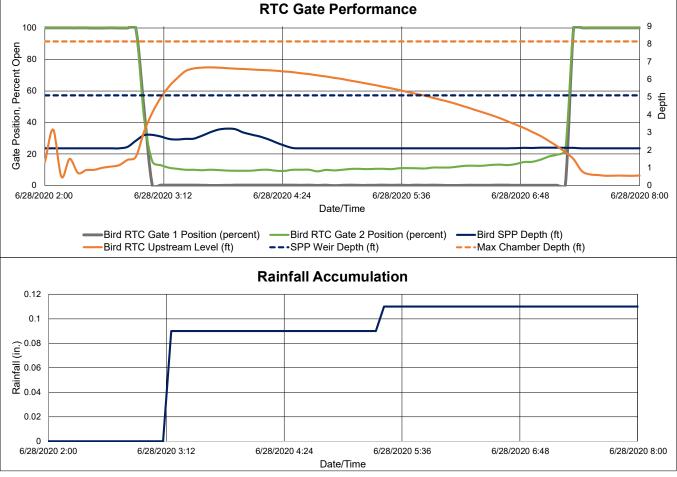
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JUILE	Z 0.	2020
	,	

Site:	Bird RTC
Analysis Date:	7/6/2020
Event Start Date/Time:	6/28/2020 2:55
Event End Date/Time:	6/28/2020 7:20

Gate Activation Trigger Depth:	1.62 ft.
Return to Normal Depth:	1.88 ft.
Time Gate 1 Activated:	6/28/2020 2:55
Time Gate 2 Activated:	6/28/2020 2:55
Time Gate 1 Returned to Normal:	6/28/2020 7:20
Time Gate 2 Returned to Normal:	6/28/2020 7:15
Percent Capture	100%
Depth of Weir	8.15 ft.
Maximum Depth Reached:	6.68 ft.
Volume Stored:	707,216 Gal.
Unused Storage Volume:	385,823 Gal.
Overflow Volume:	0 Gal.
Overflow Volume Prevented:	707,216 Gal.
SPP Activation Prevented:	Yes
If No, what is the overflow volume	N/A
when storage was available?	
Could SPP activation have been prevented?	N/A
provemed:	

Analyst Name, Organization:	Rucha Shah, Arcadis	
Total Rainfall Accumulation:	fall Accumulation: 0.11 in.	
Storm Event Duration:	6 hr.	
Storm Type:	<1 yr.	





Taylor Brown

From:	Catherine Knab <cknab@buffalosewer.org></cknab@buffalosewer.org>
Sent:	Tuesday, October 30, 2018 12:02 PM
То:	j.robert.smythe@dec.ny.gov; Jeff Konsella; robert.locey@dec.ny.gov; Katherine Mann
Cc:	Oluwole McFoy
Subject:	RE: RTC performance measurements

Rob,

In response to your red comment below, you are correct. We double checked and this calculation is actually completed when computing the Reduced Overflow Volume. This step was just omitted from the explanation below. The initial starting volume (what is in the pipe when the gates close) is subtracted from the total volume stored. The volume when the gates close is small (about 2% of the total volume), but it is still accounted for.

Catherine H. Knab, P.E., PMP Principal Sanitary Engineer Buffalo Sewer Authority 1038 City Hall, 65 Niagara Square Buffalo, NY 14202 (716) 851-4664 Ext. 4203

>>> "Locey, Robert (DEC)" <robert.locey@dec.ny.gov> 10/26/2018 2:20 PM >>> Cati – I have one comment below in red.

Also, regarding the Hazelwood project, I checked my emails and didn't see anything from Mark Jarmuz at CHA, so please send me a copy of the engineering report and plans. Thanks.

From: Catherine Knab [mailto:cknab@buffalosewer.org]
Sent: Thursday, October 25, 2018 2:59 PM
To: Smythe, J. Robert (DEC) <j.robert.smythe@dec.ny.gov>; Konsella, Jeffrey A (DEC) <jeffrey.konsella@dec.ny.gov>; Locey, Robert (DEC) <robert.locey@dec.ny.gov>; Katherine Mann <Mann.Katherine@epa.gov>

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Hello all,

As just discussed, I'm forwarding the email below with a detailed explanation on how we measure the performance of the RTCs.

Catherine H. Knab, P.E., PMP Principal Sanitary Engineer Buffalo Sewer Authority 1038 City Hall, 65 Niagara Square Buffalo, NY 14202 (716) 851-4664 Ext. 4203

>>> Tim Ruggaber <<u>truggaber@emnet.net</u>> 10/24/2018 1:22 PM >>> Hi Cati,

Please see my response below.

The KPIs for the Bird, Lang, and Smith RTC locations are determined based on the performance of the actual system (using the monitoring data from each site) and does not use the SWMM model.

The process is as follows for the Bird and Lang sites:

- During the post construction monitoring period, a real time level monitor was deployed at the respective downstream SPP for a one year period. It was removed at the end of the one year period.
- A neural network was created to create a correlation between the conditions at the RTC structure and at the SPP based on the data from the one year PCM period. This neural network is now used to calculate the conditions at the SPP based on putting the data from the RTC structure into the neural network. With this approach, the depths upstream and downstream of the RTC structure (which are currently available) are used to determine the depth at the SPP (which is not currently available) based on the relationships established during the PCM period.

- With the neural network SPP data, we can determine if the SPP overflowed during the storm event or not. If it did overflow, we determine the overflow volume by the head over the weir.
- We calculate the volume stored in at the RTC location by looked at the maximum depth recorded at the structure (This should be the maximum depth minus the depth that the pipe could contain at the RTC structure without overflowing at the SPP. The entire maximum depth wouldn't be available for storage unless the pipe at the RTC structure was empty when the SPP first starts to overflow.) for the storm event and relating that depth to a corresponding volume stored in the upstream pipes. It is assumed that this volume would have overflowed if it was not captured at the RTC structure.
- If the neural network SPP data shows that an event did not happen and the data from RTC structure showed that volume was stored, it was determined that the SPP would have overflowed if the RTC structure was not in place. Hence, an SPP activation was prevented, and the volume of overflow prevented was equal to the volume stored.
- If the neural network SPP data shows that an event did happen, then the RTC structure did not prevent an activation, and the volume stored is equal to the amount of overflow reduction for that storm.

For Smith, we monitor the flow that goes from the storage area into the South Interceptor. By summing this flow, we determine the volume of flow that enters the South Interceptor, all of which would have otherwise overflowed.