GOWANUS CANAL SUPERFUND SITE RTA1 REMEDIAL CONSTRUCTION Water Quality Monitoring Weekly Data Summary

PERIOD: January 23 – January 27, 2023

Date of Report: January 31, 2023

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1. SCOPE OF MONITORING

1.1 Current Buoy Locations

The following report summarizes water quality monitoring data collected during the week of January 23, 2023. In accordance with the Water Quality Monitoring Plan for In-waterway Construction Activities (WQMP) three turbidity buoys were deployed to monitor turbidity related to dredging activities. One turbidity buoy was deployed just south of the 3rd Street Bridge outside of the air curtain and traditional turbidity curtain and is referred to as the 3rd Street Sentinel Buoy. A second turbidity buoy was deployed just south of Carroll St Bridge to monitor dredging activities north of Carroll Street Bridge and is referred to as the Carroll Street Sentinel Buoy. The third turbidity buoy was deployed in the Fourth Street Turning Basin in order to monitor background turbidity unaffected by in-water construction activities and is referred to as the Ambient Buoy.

Each turbidity buoy was equipped with a YSI EXO3 water quality meter with optical turbidity sensor. The buoys were field calibrated and programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a File Transfer Portal (FTP) site via telemetry. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4.

1.2 **Previous Buoy Locations**

- On January 22, 2021, prior to dredging north of the Union Street Bridge, a fourth turbidity buoy was deployed just south of the Union Street Bridge and was referred to as the Union Street Sentinel Buoy. This fourth turbidity buoy was removed prior to the start of pipe pile installation.
- On Wednesday, September 22, 2021, the Carroll Street Sentinel Buoy was relocated to the
 west side of the canal where Degraw Street intersects the canal to monitor cofferdam
 removal activities conducted in the vicinity of the Flushing Tunnel. This buoy was renamed
 the Degraw Street Sentinel Buoy during cofferdam removal activities.
- On October 14, 2021, the Degraw Street Sentinel Buoy was removed from the canal for servicing. On October 20, 2021, the Degraw Street Sentinel Buoy was redeployed to its position south of the Carroll Street Bridge and was renamed to the Carroll Street Sentinel Buoy.
- On November 15, 2021, the Carroll Street Sentinel Buoy was moved to the Union Street Bridge and renamed the Union Street Sentinel Buoy. On December 3, 2021, the Union Street Buoy was removed from the canal for servicing and re-deployed at 3rd Street Bridge in preparation for the resumption of ISS operations. On December 8, 2021, a sentinel buoy was re-deployed just south of the Carroll Street Bridge.
- Since December 8, 2021, the sentinel buoy deployed at the northern-most portion of the canal has alternated positioning between the Union Street Bridge and Carroll Street Bridge locations based on the in-canal construction activities being conducted at any given time.

•	On January 9, 2023, the Carroll Street Sentinel Buoy was moved to the Third Street Bridge location and renamed the Third Street Sentinel Buoy. Additionally, the former Third Street Sentinel Buoy was removed from the canal for servicing.



2. REPORT OF EXCEEDANCES

No exceedances to the quantitative trigger or action criteria were observed during the reporting period.

• **Trigger criterion** – Any of the following:

- The rolling average of the relevant sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
- o Either an oil sheen or a turbidity plume is visually observed at the relevant sentinel buoy and in-waterway construction activities are readily identified as the source.

• **Action criterion** – Any of the following:

- The rolling average of the turbidity measurements of the sentinel buoy outside of RTA1 over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements and inwaterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
- Either an oil sheen or a turbidity plume is visually observed outside of RTA1 and any deployed engineering controls and in-waterway construction activities are readily identified as the source.

An outlier is defined as a reading that is outside the range of 50 to 200 percent of the average of the three previous readings. In addition, to be considered an outlier, the subsequent reading must return to a range of 75 to 133 percent of the average of the three readings preceding the outlier.

2.1 Response to Criteria Exceedances

The trigger level criterion serves to provide early notification to the contractor of construction activities that may lead to an exceedance of the action level criterion. In the event of an exceedance to the trigger criterion, the contractor will not be stopped, and the contractor will be directed to investigate the source of the exceedance and evaluate Best Management Practices (BMPs). In the event of an exceedance to the action level criterion, in-waterway construction activities may be slowed or temporarily suspended as necessary while the contractor investigates the source of the exceedance and appropriate mitigation and corrective measures are determined. A more detailed description of responses to exceedances of the trigger and action level criteria is provided in Section 4.2 of the WQMP.

No exceedances to the quantitative trigger or action criteria were observed during the reporting period.

3. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 6 PM from January 23 – January 27, 2023. No exceedances to the quantitative trigger or action criteria were observed during the reporting period.

Elevated turbidity readings (below quantitative trigger and action criteria) were recorded at all buoys on January 26, 2023, resulting from the combination of (a) an intense and sustained rain event, and (b) the beginning of capping with clean sand at the head of the canal.

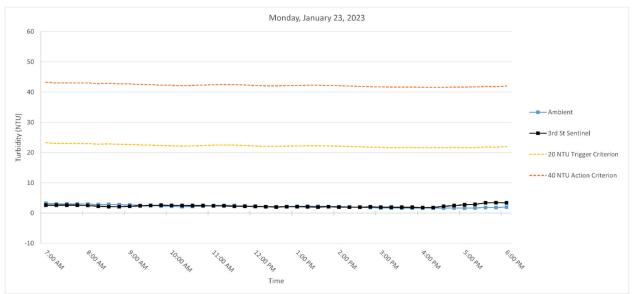
Table 1 below provides a summary of the turbidity data for the reporting period.

	Average Rolling Ave	rage Difference (NTU)	Maximum Rolling Average Difference (NTU)			
Date	3rd St - Ambient	Carroll St - Ambient	3rd St - Ambient	Carroll St - Ambient		
Monday, January 23, 2023	0.12		1.65			
Tuesday, January 24, 2023	-0.08		0.39			
Wednesday, January 25, 2023	0.01		1.50			
Thursday, January 26, 2023	0.48		4.88			
Friday, January 27, 2023	0.40		6.37			

Table 1. Daily average and maximum differences between the rolling average turbidity readings from RTA1 sentinel buoys and the ambient buoy between 7 AM and 6 PM.

3.1 **Monday, January 23, 2023**

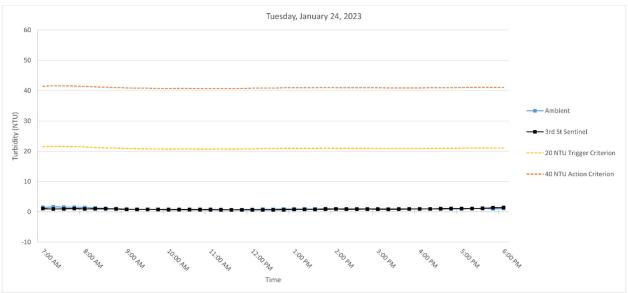
Figure 3. Hourly rolling average turbidity readings on Monday, January 23, 2023, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected.

3.2 <u>Tuesday, January 24, 2023</u>

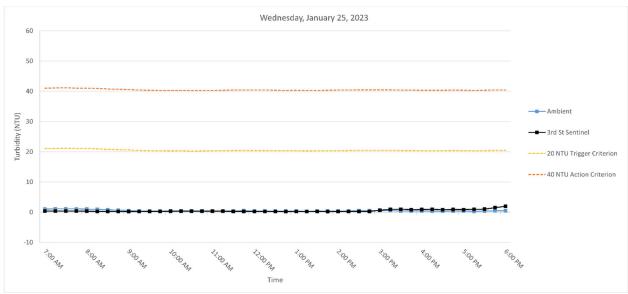
Figure 3. Hourly rolling average turbidity readings on Tuesday, January 24, 2023, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected.

3.3 Wednesday, January 25, 2023

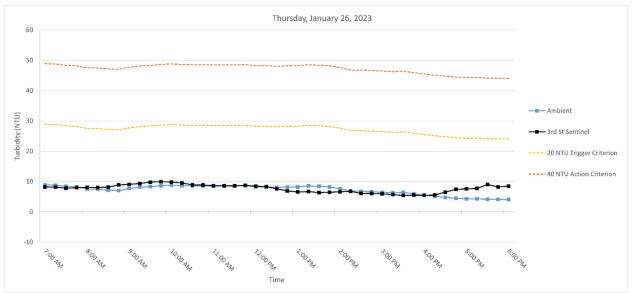
Figure 4. Hourly rolling average turbidity readings on Wednesday, January 25, 2023, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected.

3.4 **Thursday, January 26, 2023**

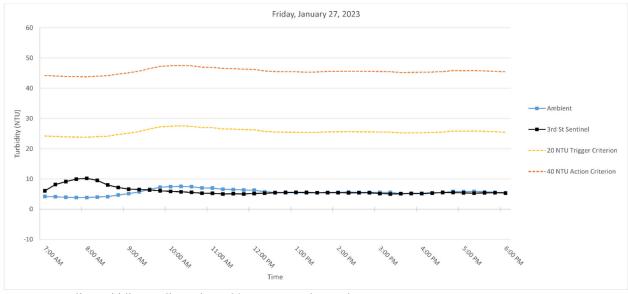
Figure 5. Hourly rolling average turbidity readings on Thursday, January 26, 2023, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected.

3.5 Friday, January 27, 2023

Figure 6. Hourly rolling average turbidity readings on Friday, January 27, 2023, from 7 AM to 6 PM.



Note: No outlier turbidity readings above 20 NTU were detected.

SUMMARY OF VISUAL OBSERVATIONS

Discharges were observed from storm water outfalls including the high level storm sewer pipe on adjacent to OH-005 on January 23, 25, and 26, 2023. An increase in sheen throughout the Canal was observed during the storm events.



Figure 8. Discharge from high level storm sewer pipe on January 25, 2023 at 4:15 PM during an intense rainfall event.

APPENDIX A Turbidity Data Tables

Monday, January 23, 2023

Time		Turbidity (NTU)		Ro	olling Average Turbidity (Difference (NTU)		
·····	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	3.46	2.81		3.26	2.62		-0.64	
7:15:00	2.34	2.83		3.03	2.63		-0.40	
7:30:00	3.31	2.91		3.05	2.63		-0.42	
7:45:00	2.91	2.26		3.02	2.62		-0.40	
8:00:00	2.97	1.73		3.00	2.51		-0.49	
8:15:00	2.45	1.55		2.80	2.26		-0.54	
8:30:00	2.9	2.36		2.91	2.16		-0.75	
8:45:00	2.5	2.64		2.75	2.11		-0.64	
9:00:00	2.72	2.83		2.71	2.22		-0.49	
9:15:00	2.23	2.52		2.56	2.38		-0.18	
9:30:00	2.04	2.16		2.48	2.50		0.02	
9:45:00	2.17	2.83		2.33	2.60		0.26	
10:00:00	2.16	2.41		2.26	2.55		0.29	
10:15:00	2.09	2.58		2.14	2.50		0.36	
10:30:00	2.6	2.36		2.21	2.47		0.26	
10:45:00	2.67	2.29		2.34	2.49		0.16	
11:00:00	2.81	2.35		2.47	2.40		-0.07	
11:15:00	2.36	2.36		2.51	2.39		-0.12	
11:30:00	1.86	1.94		2.46	2.26		-0.20	
11:45:00	2.06	2.3		2.35	2.25		-0.10	
12:00:00	1.88	2		2.19	2.19		0.00	
12:15:00	2.15	2.09		2.06	2.14		0.08	
12:30:00	2.4	1.81		2.07	2.03		-0.04	
12:45:00	2.14	2.4		2.13	2.12		-0.01	
13:00:00	2.32	2.15		2.18	2.09		-0.09	
13:15:00	2.3	1.91		2.26	2.07		-0.19	
13:30:00	2.19	1.88		2.27	2.03		-0.24	
13:45:00	1.86	2.06		2.16	2.08		-0.08	
14:00:00	1.96	2.04		2.13	2.01		-0.12	
14:15:00	1.62	1.9	-	1.99	1.96		-0.03	
14:30:00	1.85	1.85		1.90	1.95		0.05	
14:45:00	1.71	2.39	-	1.80	2.05		0.25	
15:00:00	1.37	1.69		1.70	1.97		0.27	
15:15:00	1.8	1.71		1.67	1.91		0.24	
15:30:00	1.52	2		1.65	1.93		0.28	
15:45:00	1.8	1.76		1.64	1.91		0.27	
16:00:00	1.63	1.91		1.62	1.81		0.19	
16:15:00	1.4	1.84		1.63	1.84		0.21	
16:30:00	1.8	3.73		1.63	2.25		0.62	
16:45:00	1.67	3.18		1.66	2.48		0.82	
17:00:00	1.73	3.02		1.65	2.74		1.09	
17:15:00	1.83	2.73	-	1.69	2.90		1.21	
17:30:00	2.19	4.1		1.84	3.35		1.51	
17:45:00	1.66	4.28		1.82	3.46		1.65	
18:00:00	2.62	2.61		2.01	3.35		1.34	

Tuesday, January 24, 2023

Time	Turbidity (NTU)			Ro	lling Average Turbidity (N	Difference (NTU)		
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.98	0.7		1.49	1.07		-0.42	
7:15:00	1.49	1.04		1.61	0.93		-0.68	
7:30:00	1.29	1.19		1.57	1.00		-0.57	
7:45:00	1.22	1.12		1.51	1.05		-0.46	
8:00:00	1.21	0.9		1.44	0.99		-0.45	
8:15:00	0.95	0.8		1.23	1.01		-0.22	
8:30:00	0.93	1.07		1.12	1.02		-0.10	
8:45:00	0.75	0.73		1.01	0.92		-0.09	
9:00:00	0.66	0.7		0.90	0.84		-0.06	
9:15:00	0.83	0.73		0.82	0.81		-0.02	
9:30:00	0.9	0.8		0.81	0.81		-0.01	
9:45:00	0.53	0.92		0.73	0.78		0.04	
10:00:00	0.6	0.66		0.70	0.76		0.06	
10:15:00	0.86	0.68		0.74	0.76		0.01	
10:30:00	0.73	0.61		0.72	0.73		0.01	
10:45:00	0.62	0.83		0.67	0.74		0.07	
11:00:00	0.65	0.84		0.69	0.72		0.03	
11:15:00	0.76	0.48		0.72	0.69		-0.04	
11:30:00	0.61	0.66		0.67	0.68		0.01	
11:45:00	0.94	0.71		0.72	0.70		-0.01	
12:00:00	1.02	0.83		0.80	0.70		-0.09	
12:15:00	0.98	0.7		0.86	0.68		-0.19	
12:30:00	0.72	0.62		0.85	0.70		-0.15	
12:45:00	1.12	0.72		0.96	0.72		-0.24	
13:00:00	0.99	0.96		0.97	0.77		-0.20	
13:15:00	1.01	0.96		0.96	0.79		-0.17	
13:30:00	0.97	0.79		0.96	0.81		-0.15	
13:45:00	0.92	0.95		1.00	0.88		-0.13	
14:00:00	0.98	0.87		0.97	0.91		-0.07	
14:15:00	0.97	0.93		0.97	0.90		-0.07	-
14:30:00	0.89	0.81		0.95	0.87		-0.08	
14:45:00	1.02	0.96		0.96	0.90		-0.05	
15:00:00	0.84	0.87		0.94	0.89		-0.05	
15:15:00		0.72		0.93	0.86		-0.07	
15:30:00	0.95	1.06		0.93	0.88		-0.04	
15:45:00	0.83	1.02		0.91	0.93		0.02	
16:00:00	1.01	1.13		0.91	0.96		0.05	
16:15:00	1.06	0.93		0.96	0.97		0.01	
16:30:00	1	1		0.97	1.03		0.06	-
16:45:00	0.91	1.2		0.96	1.06		0.09	
17:00:00	1.06	1.04		1.01	1.06		0.05	
17:15:00	1.29	1.22		1.06	1.08		0.01	
17:30:00	1.19	1.34		1.09	1.16		0.07	
17:45:00	0.73	1.86		1.04	1.33		0.30	
18:00:00	0.96	1.72		1.05	1.44		0.39	

Wednesday, January 25, 2023

Time		Turbidity (NTU)		Ro	olling Average Turbidity (Difference (NTU)		
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.06	0.19	**	1.03	0.35	**	-0.68	
7:15:00	1.22	0.41	**	1.08	0.37		-0.71	
7:30:00	1.04	0.43		1.13	0.38		-0.75	
7:45:00	0.67	0.26		1.04	0.35		-0.70	
8:00:00	1.19	0.23		1.04	0.30		-0.73	**
8:15:00	0.6	0.01		0.94	0.27		-0.68	
8:30:00	0.33	0.37		0.77	0.26		-0.51	
8:45:00	0.52	0.27		0.66	0.23		-0.43	
9:00:00	0.2	0.07		0.57	0.19		-0.38	
9:15:00	0.37	0.33		0.40	0.21		-0.19	
9:30:00	0.39	0.39		0.36	0.29		-0.08	
9:45:00	0.11	0.3		0.32	0.27		-0.05	
10:00:00	0.34	0.43		0.28	0.30		0.02	
10:15:00	0.24	0.49		0.29	0.39		0.10	
10:30:00	0.09	0.25		0.23	0.37		0.14	
10:45:00	0.49	0.27		0.25	0.35		0.09	
11:00:00	0.31	0.28		0.29	0.34		0.05	
11:15:00	0.66	0.26		0.36	0.31		-0.05	
11:30:00	0.48	0.26		0.41	0.26		-0.14	
11:45:00	0.25	0.18		0.44	0.25		-0.19	
12:00:00	0.39	0.18		0.42	0.23		-0.19	
12:15:00	0.34	0.16		0.42	0.21		-0.22	
12:30:00	0.28	0.3		0.35	0.22		-0.13	
12:45:00	0.33	0.12		0.32	0.19		-0.13	
13:00:00	0.44	0.3		0.36	0.21		-0.14	
13:15:00	0.01	0.31		0.28	0.24		-0.04	
13:30:00	0.48	0.24		0.31	0.25		-0.05	
13:45:00	0.51	0.04		0.35	0.20		-0.15	
14:00:00	0.44	0.2		0.38	0.22		-0.16	
14:15:00	0.65	0.37		0.42	0.23		-0.19	
14:30:00	0.34	••	**	0.48	0.21	**	-0.27	
14:45:00	0.57	0.25		0.50	0.22		-0.29	
15:00:00	0.5	1.85		0.50	0.67		0.17	
15:15:00	0.41	1.24	**	0.49	0.93	**	0.43	
15:30:00	0.12	0.54		0.39	0.97		0.58	
15:45:00	0.39	0.38		0.40	0.85		0.45	
16:00:00	0.39	0.41	**	0.36	0.88	**	0.52	
16:15:00	0.38	2.05	**	0.34	0.92	**	0.59	
16:30:00	0.38	0.74	••	0.33	0.82		0.49	
16:45:00	0.39	0.74	**	0.39	0.86	**	0.48	
17:00:00	0.2	0.35	**	0.35	0.86	**	0.51	
17:15:00	0.12	0.67		0.29	0.91		0.62	
17:30:00	0.65	2.63		0.35	1.03		0.68	
17:45:00	0.84	3.1		0.44	1.50		1.06	
18:00:00		3.02		0.45	1.95		1.50	

Thursday, January 26, 2023

Time		Turbidity (NTU)		Ro	lling Average Turbidity (Difference (NTU)		
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	7.63	7.25		8.93	8.21	**	-0.72	
7:15:00	8.4	8.28		8.76	8.20		-0.56	
7:30:00	8.35	6.94		8.41	7.82		-0.59	
7:45:00	6.44	9.29		8.16	8.00		-0.16	
8:00:00	6.8	8.76		7.52	8.10		0.58	
8:15:00	7.66	6.98		7.53	8.05		0.52	
8:30:00	6.58	8.6		7.17	8.11		0.95	
8:45:00	7.7	10.74		7.04	8.87		1.84	
9:00:00	9.87	10.21		7.72	9.06		1.34	
9:15:00	8.91	10.1		8.14	9.33		1.18	
9:30:00	8.52	9.32		8.32	9.79		1.48	
9:45:00	8.24	9.31		8.65	9.94		1.29	
10:00:00	8.56	10.08		8.82	9.80		0.98	
10:15:00	8.99	8.85		8.64	9.53		0.89	
10:30:00	8.46	6.78		8.55	8.87		0.31	
10:45:00	8.45	9.13		8.54	8.83		0.29	
11:00:00	7.96	8.47		8.48	8.66		0.18	
11:15:00	8.69	9.72		8.51	8.59		0.08	
11:30:00	9.12	8.67		8.54	8.55		0.02	
11:45:00	8.78	7.63		8.60	8.72		0.12	
12:00:00	6.65	7.98		8.24	8.49		0.25	
12:15:00	7.9	7.38		8.23	8.28		0.05	
12:30:00	7.98	6.51		8.09	7.63		-0.45	
12:45:00	9.57	5.03		8.18	6.91		-1.27	
13:00:00	9.14	5.69		8.25	6.52		-1.73	
13:15:00	8.21	8.73		8.56	6.67		-1.89	
13:30:00	7.14	5.77		8.41	6.35		-2.06	
13:45:00	7.01	7.05		8.21	6.45		-1.76	
14:00:00	6.6	5.97		7.62	6.64		-0.98	
14:15:00	5.19	6.36		6.83	6.78		-0.05	
14:30:00	8.04	5.1		6.80	6.05	••	-0.75	
14:45:00	6.31	5.91		6.63	6.08		-0.55	
15:00:00	6.17	6.24		6.46	5.92		-0.55	
15:15:00	5.6	4.96		6.26	5.71	••	-0.55	
15:30:00	5.94	4.95		6.41	5.43	**	-0.98	
15:45:00	5.67	5.46		5.94	5.50		-0.43	
16:00:00	4.13			5.50	5.40	**	-0.10	
16:15:00	4.1	6.8		5.09	5.54	**	0.45	
16:30:00	4.05	8.78		4.78	6.50		1.72	
16:45:00	4.5	8.65		4.49	7.42	**	2.93	
17:00:00	4.56	5.98		4.27	7.55		3.28	
17:15:00	4.34	8.33		4.31	7.71		3.40	
17:30:00	3.28	13.4		4.15	9.03		4.88	
17:45:00	3.79	4.75		4.09	8.22		4.13	
18:00:00	4.21	9.9		4.04	8.47		4.44	

Friday, January 27, 2023

Time		Turbidity (NTU)		Re	olling Average Turbidity (Difference (NTU)		
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	3.72	9.9		4.20	6.08		1.88	
7:15:00	3.72	14.51		4.11	8.13	**	4.03	
7:30:00	3.8	10.42		3.92	9.14		5.22	
7:45:00	3.78	9.02		3.88	9.98		6.10	
8:00:00	4.09	7.13		3.82	10.20	••	6.37	
8:15:00	4.62	6.63		4.00	9.54		5.54	
8:30:00	4.52	6.77		4.16	7.99		3.83	
8:45:00	6.42	6.47		4.69	7.20	••	2.52	
9:00:00	6.07	6.11		5.14	6.62	••	1.48	
9:15:00	6.9	6.49		5.71	6.49		0.79	
9:30:00	8.83	5.93		6.55	6.35		-0.19	
9:45:00	7.96	5.42		7.24	6.08		-1.15	
10:00:00	7.58	5.54		7.47	5.90		-1.57	
10:15:00	6.47	5.29		7.55	5.73		-1.81	
10:30:00	6.37	5.63		7.44	5.56		-1.88	
10:45:00	6.7	4.43		7.02	5.26		-1.75	
11:00:00	7.65	5.19		6.95	5.22	••	-1.74	
11:15:00	5.75	4.8		6.59	5.07		-1.52	
11:30:00	5.98	5.38		6.49	5.09		-1.40	
11:45:00	5.7	5.48		6.36	5.06		-1.30	
12:00:00	6.25	5.01		6.27	5.17		-1.09	
12:15:00	5.04	5.68		5.74	5.27		-0.47	
12:30:00	4.73	5.65		5.54	5.44		-0.10	
12:45:00	5.66	5.77		5.48	5.52		0.04	
13:00:00	5.57	5.61		5.45	5.54	••	0.09	
13:15:00	5.83	4.88		5.37	5.52		0.15	
13:30:00	5.28	5.35		5.41	5.45		0.04	
13:45:00	5.58	5.82		5.58	5.49	**	-0.10	
14:00:00	5.73	5.67		5.60	5.47	••	-0.13	
14:15:00	5.86	5.16		5.66	5.38		-0.28	
14:30:00	5.56	5.08		5.60	5.42	••	-0.19	
14:45:00	5.23	5.35		5.59	5.42		-0.18	
15:00:00	5.42	4.56		5.56	5.16	**	-0.40	
15:15:00	5.47	5.05		5.51	5.04		-0.47	
15:30:00	4.34	5.33		5.20	5.07		-0.13	
15:45:00	5.75	5.67		5.24	5.19		-0.05	
16:00:00	5.45	5.06		5.29	5.13		-0.15	
16:15:00	6.04	5.62		5.41	5.35		-0.06	
16:30:00	5.85	5.83		5.49	5.50		0.02	
16:45:00	6.21	5.46		5.86	5.53		-0.33	
17:00:00	5.55	4.99		5.82	5.39		-0.43	
17:15:00	5.8	4.76		5.89	5.33		-0.56	
17:30:00	5.32	5.83		5.75	5.37		-0.37	
17:45:00	5.25	6		5.63	5.41		-0.22	
18:00:00	5.42	5.18		5.47	5.35	**	-0.12	