

6 July 2023

Mr. Scott Sokolowski Remedial Project Manager Naval Facilities Engineering Systems Command, Mid-Atlantic 9324 Virginia Avenue, Building Z-144 Norfolk, VA 23511-3095

Subject: June 2023 Monthly Operating Report

Full Scale Liquid-Phase Granular Activated Carbon Treatment System

Liberty New York Water, Seamans Neck Road Water Plant

NWIRP Bethpage, New York

Contract No. N40085-16-D-2288, Task Order N4008518F5125

Dear Mr. Sokolowski,

The Full Scale Liquid-Phase Granulated Activated Carbon (GAC) Treatment System is located at the Liberty New York Water (LNYW) Seamans Neck Road Water Plant in Levittown, NY. The GAC System was installed at the effluent of the potable water plant and consists of six GAC vessels operating in parallel to remove low levels of trichloroethene (TCE) from Well No. 3S and Well No. 4S. After processing through the GAC units, the water is treated with sodium hypochlorite and sodium tripolyphosphate before distribution. Startup of the GAC Treatment System occurred on 8 January 2015 by CH2MHill. KOMAN Government Solutions, LLC (KGS) began operation and maintenance (O&M) activities in March 2015.

In May 2018, production Well No. 3S was decommissioned and has been replaced with a new production well designated as Well No. 3A. Well No. 4S is normally in operation during the entire month, while well No. 3A is operated infrequently, typically during the periods of higher water demand.

On 30 January 2023, the plant was taken off-line by Liberty Utilities to support rehabilitation of the iron filtration plant. The plant remained off-line until 4 May 2023, at which time the plant resumed normal operation.

This report documents the routine operation and maintenance of the GAC System performed during the month of June 2023. **Attachment 1** presents the field logs detailing system operating data as recorded during the month. These readings include flow rate and total flows of the overall GAC System and each GAC unit, pressures across the GAC System, effluent chlorine residual and pH values, chemical usage levels of sodium hypochlorite and sodium tripolyphosphate for each chemical tank, and chemical metering pump settings and pressures.

A summary of the system operating data recorded in June 2023 is presented below in **Table 1**.

Table 1 - System Operating Data for June 2023

Date	Total Flow	Flow Rate	Influent Pressure	Effluent Pressure	Differential Pressure	Effluent Chlorine Residual	Effluent pH
	(Gallons)	(GPM)	(PSI)	(PSI)	(PSI)	(mg/L) ⁽¹⁾	(SU) ⁽¹⁾
6/1/2023	8,582,605,000	1,700	50	47	2.2	1.81 read 1.81 manual	6.29 read
6/2/2023	8,585,756,000	1,700	40	38	2.1	2.21 read 2.20 manual	6.54 read
6/5/2023	8,594,897,000	3,200	79	69	8.3	1.85 read 1.83 manual	6.73 read
6/6/2023	8,600,439,000	3,400	80	62	8.5	1.91 read 1.90 manual	6.69 read
6/7/2023	8,603,559,000	1,606	46	43	3.0	1.93 read 1.92 manual	6.61 read
6/8/2023	8,604,057,000	1,650	60	57	2.8	1.61 read 1.60 manual	6.55 read
6/9/2023	8,607,152,000	1,700	57	55	2.5	1.86 read 1.85 manual	6.57 read
6/12/2023	8,615,738,000	1,650	55	52	2.9	1.65 read 1.64 manual	6.63 read
6/13/2023	8,618,463,000	1,650	61	58	2.7	1.59 read 1.60 manual	6.59 read
6/14/2023	8,621,379,000	1,600	46	45	2.9	1.57 read 1.56 manual	6.55 read
6/15/2023	8,624,069,000	3,300	98	87	8.8	1.82 read 1.80 manual	6.54 read
6/16/2023	8,626,714,000	3,550	81	71	9.8	1.68 read 1.70 manual	6.65 read
6/19/2023	8,636,243,000	3,150	88	79	8.6	1.87 read 1.86 manual	6.49 read
6/22/2023	8,645,687,000	2,850	94	85	9.1	1.63 read 1.65 manual	6.60 read
6/23/2023	8,648,434,000	3,275	82	73	9.2	1.71 read 1.73 manual	6.63 read
6/26/2023	8,657,179,000	1,575	57	54	3.0	1.83 read 1.80 manual	6.71 read
6/27/2023	8,660,050,000	1,750	75	72	3.0	1.47 read 1.50 manual	6.61 read
6/28/2023	8,663,912,000	1,850	79	76	3.3	1.68 read 1.71 manual	6.59 read
6/29/2023	8,665,432,000	3,350	80	71	9.9	1.71 read 1.70 manual	6.88 read
6/30/2023	8,668,238,000	3,400	78	68	10.0	1.74 read 1.72 manual	7.31 read

Effluent pH and chlorine residual readings are recorded by the in-line pH meter and chlorine analyzer. Chlorine is also checked with a manual chlorine residual meter for comparison, while manual pH is only checked occasionally. Both in-line and manual readings are presented, if collected, as noted above.

Figure 1 illustrates the volume of water treated by the GAC System since system startup, with the increment for the month of June 2023. Over 85.6 million gallons of water were treated in June 2023, bringing the total cumulative volume of water treated since startup to over 8.66 billion gallons.

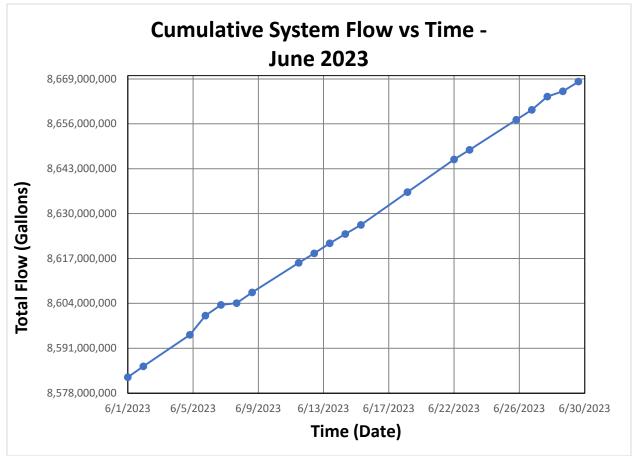


Figure 1 - Volume of Water Treated through Full Scale GAC System (June 2023)

In general, differential pressure increases as the system continues to operate, and decreases after a backwashing event. The increasing trend then continues until the next backwashing event is performed. Also, lower differential pressures are observed during times of low water demand (e.g., typically over the winter months). **Figure 2**, below, depicts the pressure loss across the GAC System and subsequent backwashing dates, from July 2022 through the current reporting period.

Backwashing events during the summer and fall are performed more often because of the higher demand during that time of year. The exchange of carbon in each of the six GAC vessels with virgin coconut shell carbon was most recently completed in August 2020 and the Seamans Neck Road facility is able to operate at full capacity. In support of the 2020 Fourth Quarter microbiological (MIC) sampling conducted in December 2020, it was identified that each vessel required additional backwashing and/or flushing prior to returning to service to address a colored

water issue attributable to the remobilization of iron-impacted materials released when flow through the vessels was stopped for a mandatory 12-hour period prior to bacteria sampling, per Nassau County Department of Health (NCDH) requirements. The additional backwashing and flushing events were incorporated into the standard process for bacteria sampling. However, with the recently completed rehabilitation of the Liberty Utilities iron filtration plant, it is anticipated that additional backwashing will be limited or no longer required.

The facility is operating at full design capacity and pressure loss across the overall GAC System is monitored regularly, and it is expected that backwashing events will occur on a periodic basis as needed. In addition, it is expected that backwashing of each vessel will be conducted following each quarterly bacteria sampling event to address potential colored water issues and to ensure the timely return to service for each vessel.

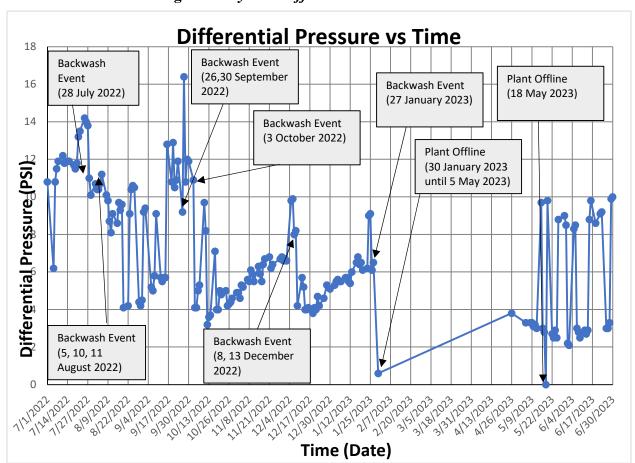


Figure 2 - System Differential Pressure vs. Time

System Maintenance

Routine maintenance of the GAC System during this reporting period consisted of:

• General monitoring of the system flow rates, totalized flows, influent and effluent pressures, differential pressure, chlorine residual, and pH readings.

- Changing paper for the chlorine/pH chart recorder and flow/differential pressure chart recorder on a weekly basis.
- Calibration of the pH meter on a weekly basis.
- Periodic operation of Well 3A in place of or concurrently with Well 4S occurs on an irregular schedule; Well 3A operated concurrently with Well 4S on 5-6 June, 15-23 June, and 29-30 June.

No non-routine activities or operation issues occurred during the June 2023 reporting period.

Please contact me at 610-400-0636 or <u>rgregory@komangs.com</u> with any questions or concerns regarding this report.

Sincerely,

KOMAN Government Solutions, LLC

Robert G. Gregory Project Manager

Cc: C. Shukis - NAVFAC

V. Varricchio - NWIRP Bethpage Facilities Management

R. Kern - LNYW

N. Niola – LNYW

J. Palmer - LNYW

P. Schauble - KGS

R. Hoffmaster - KGS

D. Brayack - Tetra Tech

R. Moore - Tetra Tech

J. Pelton – NYSDEC

K. Granzen – NYSDEC

M. Travis – NYSDEC

ATTACHMENT 1 O&M LOGS – JUNE 2023

Video and the second		Granuk		eadings bon Treatment	System		
Description	Date	5.31.2023	6.1.2023	6-22023	6.5.2023	6.62022	6.7 2023
System Flow Rate	GPM	3350	1700	1706	3200	3400	1606
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Tank 200 Flow Rate	GPM	500	225	200	SOO	550	250
Tank 300 Flow Rate	GFM	650	250	250	550	556	250
Tank 400 Plow Rate	GPW	500	250	250	500	606	250
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Tank 300 Total Flow	Gallens	35070,00	35 625 000 0	, ,	37 708,000	38.197.00	38714,000
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System Influent Pressure	POI	77	50	40	79	80	46
System Elikuant Preseuro	Pal	69	47	38	69	62:	43
System Differential Pressure	Pal	85	2,2	Z.1 ·	8.3.	8.5	.3.0
Chierino Analyzor: Free Chierino Recidual - Inline	PPM	1.82	1-81	2.21	1.85	191	1.93
(217huent Winter pH - Inline	Units	1.26	629	654	6.73	6.69	661
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Tank 300 Flow Rate	Grus	250	350	250	250	250	500
Tank 460 Flow Rute	GP00	250	150	250	250	250	550
Tenk 669 Flow Rato	een l		250	250	250	250	-500
Tank 600 Flow Rate	eres -	250	825	. 250	. 250	250	500
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for: Heels 109 Manual pH elseck (to: Hernel)	Unite	1.60	185	1.64	260	1.56	1.80

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Tank 200 Flow Rate	GFM	600	450	400	500	250	250
Tank 300 Flow Rate	QP91	550	550	500	350	250	250
Tank 400 Flow Rate	@PM	550	450	400	450	250	250
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Tank 600 Flow Rate	GPM	500	450	400 .	500	250	300 225
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Chiorino Analyzor: Free Chiorino Realdual - Inline	PPM	1.68	1.87	1.63	1.71		-30
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