

9 August 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: July 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 July 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 July 2023 is presented below in Table 1.

Date	Total Flow	Flow Rate	Influent Pressure	Effluent Pressure	Differential Pressure	Effluent Chlorine Residual	Effluent pH
	(Gallons)	(GPM)	(PSI)	(PSI)	(PSI)	(mg/L) <sup>(1)</sup>	(SU) <sup>(1)</sup>
7/3/2023	8,676,912,000	3,150	85	77	8.8	1.79 read 1.81 manual	7.21 read
7/5/2023	8,683,299,000	3,350	82	72	10.2	1.83 read 1.81 manual	7.19 read
7/6/2023	8,686,267,000	3,350	76	66	10.2	1.51 read 1.50 manual	7.35 read
7/7/2023	8,694,132,000	3,350	65	54	10.3	1.63 read 1.62 manual	7.03 read
7/10/2023	8,697,407,000	1,650	59	56	3.3	1.70 read 1.71 manual	7.15 read
7/11/2023	8,700,553,000	1,550	50	53	2.9	1.73 read 1.71 manual	7.12 read
7/12/2023	8,703,083,000	3,400	70	60	10.1	1.63 read 1.65 manual	7.21 read
7/13/2023	8,706,117,000	3,375	75	65	10.0	1.71 read 1.70 manual	7.20 read
7/14/2023	8,708,784,000	1,500	47	45	2.7	1.79 read 1.76 manual	7.17 read
7/17/2023	8,717,336,000	1,600	58	54	3.9	1.57 read 1.59 manual	7.15 read
7/18/2023	8,720,272,000	1,600	45	42	2.9	1.63 read 1.65 manual	7.18 read
7/19/2023	8,722,306,000	1,850	64	60	3.9	1.49 read 1.47 manual	6.81 read
7/20/2023	8,724,771,000	1,900	55	51	3.9	1.57 read 1.55 manual	6.85 read
7/21/2023	8,727,347,000	1,850	42	39	3.8	1.80 read 1.78 manual	6.87 read
7/24/2023	8,735,242,000	1,900	58	54	3.9	1.51 read 1.50 manual	6.79 read
7/25/2023	8,738,377,000	1,950	52	48	3.9	1.65 read 1.66 manual	6.98 read
7/26/2023	8,741,685,000	2,050	69	65	4.0	1.41 read 1.43 manual	7.00 read
7/27/2023	8,744,483,000	3,550	68	56	11.2	1.58 read 1.55 manual	6.97 read
7/28/2023	8,748,016,000	3,100	87	78	10.0	1.55 read 1.54 manual	6.98 read
7/31/2023	8,757,683,000	3,175	85	75	10.6	1.37 read 1.36 manual	7.15 read

### Table 1 - System Operating Data for July 2023

<sup>(1)</sup> 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 July 2023. Over 86.3 million gallons of water were treated in July 2023, bringing the total cumulative volume of water treated since startup to over 8.75 billion gallons.

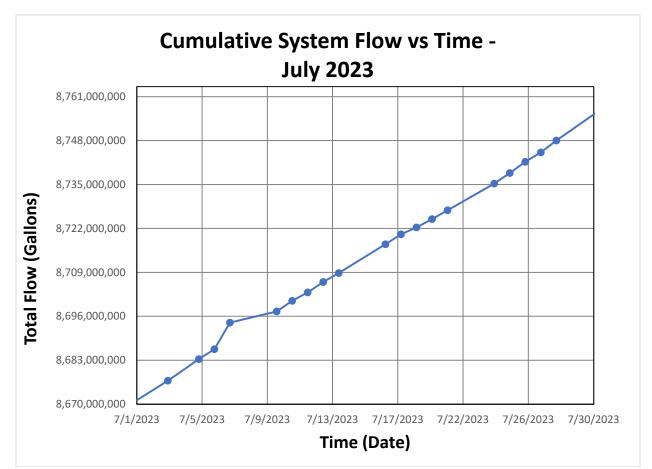


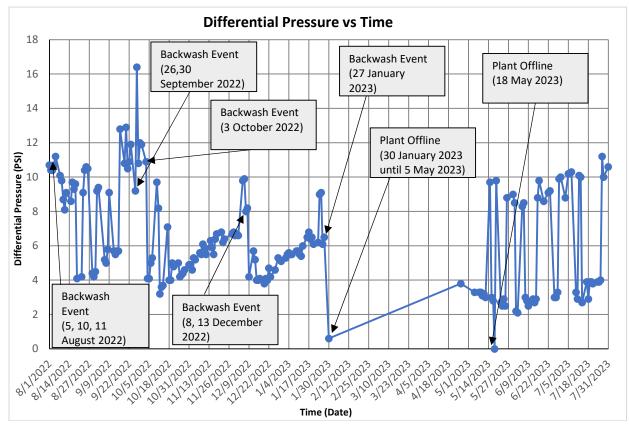
Figure 1 - Volume of Water Treated through Full Scale GAC System (July 2023)

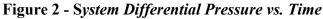
In general, differential pressure increases as the system continues to operate, and decreases after a backwashing event. The increasing trend then continues until the next backwashing event is performed. Also, lower differential pressures are observed during times of low water demand (e.g., typically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





## 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 3-7 July, 12-13 July, and 27-31 July. Well 3A ran in place of Well 4S on 14 July and 19-25 July.

In addition, the following non-routine activities or operation issues occurred during the July 2023 reporting period:

• On 19 July, the plant was offline for approximately 2.5 hours due to a power outage caused by inclement weather.

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

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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 – JULY 2023

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Tank 490 Flow Role	6910	250	500	556	550	606	600
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Daily Readings Granular Activated Carbon Trastment System										
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