CENTER TOWNSHIP SANITARY AUTHORITY
Beaver County, Pennsylvania

ANNUAL REPORT
Municipal Wasteload Management
(Chapter 94 Report)

OPERATING YEAR 2021

Elkhorn Run Sewage Treatment Plant

NPDES Permit Nos. PA0037940

MARCH 2022

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CENTER TOWNSHIP SANITARY AUTHORITY
MUNICIPAL WASTELOAD MANAGEMENT REPORT
OPERATING YEAR 2021

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PURPOSE AND SCOPE

This report is submitted to satisfy the requirements of Chapter 94 - Municipal Wasteload Management, of the Pennsylvania Code for National Pollutant Discharge Elimination System (NPDES) Permit No. PA0037940. This report presents the following:

1. Hydraulic loading graph.
2. Organic loading graph.
3. A discussion of the hydraulic and organic loadings and projections methodology.
4. A description of all sewer extensions approved and all sewer extensions constructed in the year reported.
5. A description of the operation and maintenance program for the sewer system including monitoring.
6. A discussion of the condition of the sewer system.
7. A discussion of the condition and capacity of the sewage lift stations within the collection system.
8. A description of industrial waste dischargers.
9. A sludge management inventory report.

Center Township Sanitary Authority (CTSA) owns, operates, and maintains one Sewage Treatment Plant (Elkhorn Run), eleven wastewater pumping stations, and the wastewater collection and conveyance system.

SECTION 1: HYDRAULIC LOADING GRAPH (§ 94.12.(a)(1))

Figure 1 contained in Appendix A presents the hydraulic loading graph illustrating flows as recorded at the Elkhorn Run Sewage Treatment Plant (STP) for the period of time between 2017 and 2021. Figure 1 also presents flow projections for the coming five-year period (2022 through 2026). The data is presented in tabular form appended as Table 1. Section 3 of this report provides discussion of the past and projected future hydraulic loadings. Also shown on Figure 1 is the permitted hydraulic capacity (2.0 mgd).

SECTION 2: ORGANIC LOADING GRAPH (§ 94.12.(a)(2))

Figure 2 contained in Appendix A presents the organic loading tributary to the Elkhorn Run STP for the most recent five-year period (2017 through 2021) and projects organic loading for the coming five-year period (2022 through 2026). Historic loading data is provided in tabular form appended as Table 2. Section 3 of this report discusses past and projected future organic loading. Figure 2 also presents the design influent BOD_5 loading (3,400 lbs/day).

SECTION 3: DISCUSSION OF HISTORIC HYDRAULIC AND ORGANIC LOADINGS AND PROJECTIONS (§ 94.12.(a)(3))

Historic Hydraulic Loading

The annual average flow to the STP during 2021 was 1.043 mgd as shown on Table 1 and Figure 1. The five-year average of the annual average flow (2017 through 2021 period of record) is 1.128 mgd.

The 90-day sustained flow recorded at the STP is computed at 1.310 mgd in 2021, occurring during the months of January, February, and March. The five-year average of the annual 90-day sustained flow rate computed is 1.481 mgd, and the five-year average of the 90-day sustained hydraulic loading / annual average hydraulic loading is 1.31.

During the most recent five-year period of record, the 90-day sustained recorded flow rates did not exceed the hydraulic design flow capacity of 2.0 mgd. There were no three consecutive months where the monthly average flow exceeded the hydraulic design capacity of the plant. Therefore, based upon reporting criteria as defined by Title 25, Chapter 94.1 of the Pennsylvania Code, the Sewage Treatment Plant was not hydraulically overloaded in 2021.

As required by Chapter 94 regulations, the calibration certificate for the sewage treatment plant flow meter is provided in Appendix B.

Historic Organic Loadings

The annual average loading to the treatment plant in 2021 was computed to be 962 lbs BOD_5/day as shown on Table 2 and Figure 2. The 2021 maximum month loading (January) was found to be 1,356 lbs BOD_5/day. The maximum month organic loading was below the capacity of 3,400 lbs. BOD_5/day. Therefore, based upon reporting criteria as defined by Title 25, Chapter 94.1 of the Pennsylvania Code, the STP was not organically overloaded in 2021.

Projected Future Hydraulic Loadings

The base datum for hydraulic loading projections is the five-year annual average flow of 1.128 mgd. Per PaDEP regulations, 100 gpcd was utilized. Projections of yearly increases are based upon additional EDUs as detailed in Section 4 of this report. The 5-year 90-day sustained hydraulic loading / annual average hydraulic loading (1.31) was used to project maximum flow rates. Table 3 presents a summary of the projected hydraulic loading. As shown on Figure 1, the projected 90-day sustained flow does not exceed the hydraulic design capacity in years 2022 through 2026. No hydraulic overload is projected.

Projected Future Organic Loadings

Projected future organic loadings were computed similarly to the projected hydraulic loadings using a "base datum". The base datum for the organic loading projections is the 5-year annual average organic loading of 962 lbs BOD_5 per day. Projections of yearly increases are based upon additional EDUs as detailed in Section 4 of this report. Per PaDEP regulations, 0.17 lbs BOD_5 per day per person was utilized. Table 4 presents a summary of the projected organic load. Maximum monthly loads were projected based upon a historic ratio of maximum month to annual average of 1.56 derived as shown on Table 2. As shown on Figure 2, the maximum month loading is not projected to exceed the design BOD_5 Load (3,400 lbs/day) in the coming 5-year period. Therefore, an organic overload is not projected.

SECTION 4: SEWER EXTENSIONS (§ 94.12.(a)(4))

In 2021, 51 taps/EDUs were made according to CTSA records. Appendix C contains a detailed listing of these taps and also a summary of anticipated taps for 2022-2029. The table below summarizes the current status of known developments in the CTSA service area.

Development	Type	Estimated EDUs/Flow	Status / Phase
Heritage Valley	Commercial	22 EDU	Completed 2018
Hilton Garden Inn	Commercial	52 EDU	Completed 2018
Allegheny Health Network Cancer Center	Commercial	32 EDU	Completed 2018
Eagles Landing at Mateer Farms	Residential	125 EDU	Completed 2018
CTWA Temporary Water Plant Sludge Discharge	Commercial	15 EDU	Completed 2018
NVR/Ryan Homes	Residential	79 EDU 6 EDU	Completed 2018-2021 Future Construction
Beaver Valley Mall Outparcel	Commercial	6 EDU	Completed 2019
Western PA Surgery Center	Commercial	20 EDU	Completed 2019
Primanti's Restaurant	Commercial	7 EDU	Completed 2019
Shell – Main Plant	Commercial	21,000 gpd	Under Construction

Development	Type	Estimated EDUs/Flow	Status / Phase
Shell – Support Buildings	Commercial	7,375 gpd	Under Construction
Highland Meadows Phase 1	Residential	14 EDU 11 EDU	Completed 2019-2021 Future Construction
Highland Meadows Phase 2	Residential	26 EDU	Future Construction
Highland Meadows Phase 3	Residential	25 EDU	Future Construction
Lakeview Farms Phase 5	Residential	3 EDU 80 EDU	Completed in 2021 Future Construction
Industrial Drive Daycare	Commercial	1 EDU	Completed in 2020
BASF Corporation Pump Station	Commercial	7 EDU	Completed in 2020
Brodhead Road Apartments	Residential	35 EDU	Planning
Glade Bluffs Apartments	Residential	182 EDU	Planning
Glade Bluffs Phase III	Commercial	50 EDU	Planning
Lincoln Learning Center	Commercial	10 EDU	Planning
Old Glass Dump Property	Commercial	10 EDU	Planning
Vacant 3-Acre Parcel	Commercial	5 EDU	Planning

As indicated above, Shell is constructing an ethane cracker plant in the service area. Development has been spurred by the Shell plant and growth is expected to continue. It is not possible to make accurate predictions of the amount and location of development. For purposes of Chapter 94 reporting, the table below provides estimates for the coming five-year period based upon known information and historic data.

Year	Number of EDUs	Notes/Explanation
2016 (Actual)	141	Taps Purchased
2017 (Actual)	284	Taps Purchased (includes Shell)
2018 (Actual)	258	Taps Purchased
2019 (Actual)	76	Taps Purchased
2020 (Actual)	39	Taps Purchased
2021 (Actual)	51	Taps Purchased
2022 (Estimated)	61	Refer to Sewer Tap Summary Table (Appendix C)
2023 (Estimated)	323	Refer to Sewer Tap Summary Table (Appendix C)
2024 (Estimated)	76	Refer to Sewer Tap Summary Table (Appendix C)
2025 (Estimated)	45	Refer to Sewer Tap Summary Table (Appendix C)
2026 (Estimated)	30	Refer to Sewer Tap Summary Table (Appendix C)

No sanitary sewer line extensions were constructed in 2021.

SECTION 5: SEWER SYSTEM MONITORING, MAINTENANCE, REPAIR AND REHABILITATION (§ 94.12.(a)(5))

The Center Township Sanitary Authority (CTSA) owns, operates and maintains the sewage collection, conveyance, pumping and treatment facilities within its service area. The CTSA system includes separate sanitary sewers, eleven lift stations, and one sewage treatment plant. Responsibilities include the administration, operation, maintenance, and monitoring of the plant, pump stations, and sewer system.

CTSA maintains a staff of employees to perform maintenance and operate the sewers, pumping stations and wastewater treatment facility. Part-time and seasonal personnel are hired as needed. The Operations Supervisor, under the direction of the Authority Board of Directors, is responsible for the operation and administration of the sewer system, pumping stations and wastewater treatment facility. Two full-time employees are responsible for the administrative duties. The operations crew includes:

- Robert J. Martini, Operations Supervisor, Certification Number: S16819
- Lance Elias, Lab Supervisor/Lab Technician, Certification Number: S16821
- Kirk Johns, Chief Operator/Laborer, Certification Number: S18605
- Walt Reynolds, Laborer
- Richard Nicastro, Laborer, Certification Number: S20891

Sampling is conducted by CTSA personnel. The 2021 Lab Equipment Calibration Report is provided in Appendix B. As of July 2018, all samples are analyzed at the CTSA Certified Laboratory onsite (Lab ID # 04-03013). Required monitoring parameters per the NPDES Permit are presented in the table below.

PARAMETER	FREQUENCY	LOCATION	SAMPLE TYPE
Total Flow	Continuous	Effluent	Recorded
BOD_5 / $CBOD_5$	Twice per week	Influent and Effluent	8 hour composite

PARAMETER	FREQUENCY	LOCATION	SAMPLE TYPE
Suspended Solids	Twice per week	Influent and Effluent	8 hour composite
Fecal Coliform	Twice per week	Effluent	Grab
pH	Once per day	Effluent	Grab
Dissolved Oxygen	Once per day	Effluent	Grab
Total Residual Chlorine	Once per day	Effluent	Grab
Total Kjeldahl Nitrogen	Quarterly	Effluent	8 hour composite
Ammonia (as Nitrogen)	Twice per week	Effluent	8 hour composite
Total Phosphorus	Quarterly	Effluent	8 hour composite

The current NPDES Permit became effective on April 1, 2017 and will expire on March 31, 2022.

CTSA submitted the NPDES Permit renewal application on September 30, 2021. The following provides a summary of repair and maintenance performed on the collection and conveyance system in the past five years. Appendix D contains a more detailed listing of repairs and maintenance performed in 2021. Appendix D also includes a listing of preventative maintenance performed at each lift station.

CTSA utilized outside contractors for heavy / specialty maintenance and repair of the gravity sewers, force mains and lift stations, including:

- Optimum Controls Corporation
- State Pipe Services, Inc.
- Sudak Construction
- Tri State Maintenance
- Stefanik's Next Generation Contracting Company, Inc.
- Special Electric
- Halama Brothers Electric, Inc.
- Total Equipment Co.
- 1st Choice Building Co.
- Premier Safety
- W.C. Weil
- Multi-Metals Co., Inc.

Equipment owned by CTSA for operation and maintenance of the system includes a skid loader, dump truck, tractor, two utility trucks, two pick-up trucks, two mowers, tow trailer, safety equipment, push camera, and various hand tools and equipment.

In 2014, approximately 1,180 feet of sewer main was inspected and 8,000 feet of sewer main was cleaned. The Authority made an emergency repair of an 8-inch sewer line located off of Woods Avenue and 18-inch sewer line located along Elkhorn Run. During the repair of the sewer off of Woods Avenue, the Authority televised sewer runs upstream of the repair and confirmed the pipes need replaced. The construction project consisted of the replacement (by pipe bursting method) of two 8-inch sewer runs totaling approximately 520 LF. 58 manhole inspections were completed and 5 repairs were made.

In 2015, approximately 2,265 feet of sewer main was inspected and 14,400 feet of sewer main was cleaned. 404 feet of service lateral was inspected and 6,400 feet of sewer was smoke tested. The Authority replaced approximately 570 feet of 8-inch sewer main. Three manholes and reestablished service connection along Woods Avenue. Forty-two (42) manhole inspections were completed and five repairs were made.

In 2016, approximately 4,000 feet of sewer was televised and approximately 12,000 feet of sewer was cleaned in 2016. Construction was completed on the Moon Run Trunk Sewer Replacement project in 2016. The project involved replacement of approximately 1,100 LF of 8-inch and 15-inch sewer. Approximately 960 LF of sewer main was lined on Bainbridge Drive and 120 LF of sewer main was lined on Shadyside Drive. Approximately 215 LF of 10-inch sewer was replaced in the vicinity of the Community College of Beaver County during the summer of 2016. A program was initiated in 2016 to prepare a Geographic Information System (GIS) for mapping and management of the sewer system over a three-year period. This resulted in approximately 50 manholes being located that were previously unable to be located. Three manholes were rehabilitated on Chapel Road. The pumps, controls and generator were replaced at the New College Lift Station. Increasing its capacity to 2,000 gpm for the Shell Project.

In 2017, approximately 13,000 feet of sewer was televised and approximately 8,100 feet of sewer was cleaned. Approximately 75 LF of sewer was replaced and approximately 1,875 of sewer was CIPP lined. Additionally, 14 manholes were rehabilitated. Approximately 1,900 LF of sewer was rehabilitated via pipe bursting on Woods Avenue and Wilhelm Drive.

In 2018, approximately 15,250 feet of sewer was televised and approximately 16,975 feet of sewer was cleaned. Additionally, one lamp hole was replaced. A nighttime flow isolation study was performed on the Sylvan Crest area tributary to the Markey's Run Lift Station.

In 2019, approximately 2,500 feet of sewer line was televised and approximately 14,450 feet of sewer line was cleaned. Approximately 225 feet of 6-inch sewer line was replaced; 40 feet of 8-inch sewer line was replaced by conventional excavation and 193 feet of 8-inch sewer line was replaced by pipe bursting method; and 807 feet of 8-inch sewer line was lined with a cured-in-place liner.

In 2020, approximately 12,200 feet of sewer line was televised and approximately 3,100 feet of sewer line was cleaned. Approximately 1,300 feet of 12-inch sewer line and 70 feet of 10-inch sewer line were replaced by conventional excavation. Additionally, a forcemain was repaired at Gardenview Estates; 4,556 linear feet of 8-inch diameter sanitary sewer line and 31 sanitary manholes were installed within the Lakeview Farms Phase 5 development; 424 linear feet of 8-inch diameter sanitary sewer line and one sanitary manhole were installed to serve Children's Choice Daycare; and a private wastewater pumping station and 953 linear feet of sanitary forcemain were constructed to serve BASF Corporation.

In 2021, approximately 4,865 feet of sewer line was televised and approximately 10,400 feet of sewer line was cleaned. Approximately 3,826 feet of 10-inch sewer line was replaced with 15-inch PVC and/or 16-inch HDPE by conventional excavation and pipe

burst along Upper Moon Run Interceptor. Two clarifiers at the sanitary sewer plant were replaced and the remaining two clarifiers were rehabilitated.

Flow monitoring and sewer system modeling were conducted in 2017 in response to potential development interest, particularly in the vicinity of the Beaver Valley Mall. As a result of the information provided by this study, the below listed capital improvements have been proposed to address potential hydraulic capacity needs resulting from proposed future development. The capital improvement projects are in various stages of the planning and permitting phases.

- Upgrade Markey's Run Interceptor Sewer (Completed 2019)
- Upgrade Markey's Run Lift Station (Completed 2019)
- Upgrade a portion of the Upper Moon Run Interceptor Sewer Line (Completed in 2021)
- Perform a rerating study at the Elkhorn Run Sewage Treatment Plant to pursue additional available hydraulic capacity. (2021)
- Upgrade a portion of the Moon Run Interceptor Sewer Line
- Upgrade a portion of the Chapel Road Interceptor Sewer Line (Construction to start in 2022)

SECTION 6: CONDITION OF THE SEWER SYSTEM (§ 94.13.(a)(6))

Center Township is divided into four drainage areas: Elkhorn Run, Moon Run, Markey's Run and Raccoon Creek. Construction of the sewer system began in January 1961 and additions to the sewer system were constructed in 1972-1973. Later, sewer extensions were constructed in the Todd Lane and Stobo areas. Most of the development has occurred in the Elkhorn Run and Moon Run drainage areas. The Elkhorn Run area is served by approximately 43 miles of sanitary sewers and six sewage pumping stations. The Moon Run area is served by approximately 45 miles of sanitary sewers and three

sewage pumping stations. The Markey's Run area is served by approximately 7.5 miles of sanitary sewers and two sewage pumping stations.

SECTION 7: LIFT STATIONS (§ 94.12.(a)(7))

Eleven sewage lift stations receive and convey wastewater flow within the CTSA system to the Elkhorn Run Sewage Treatment Plant. A summary of the lift station operating data is provided on Table 5 included in Appendix A.

SECTION 8: INDUSTRIAL WASTE DISCHARGES (§ 94.12.(a)(8))

Presently, there are no industrial dischargers to the sewage system. The Authority does not have ordinances or regulations controlling industrial discharge to the system as they are currently not necessary.

During 2019, the Center Township Sanitary Authority accepted wastewater used for hydrostatic testing of water storage tanks at the Shell ethane cracker plant. A summary of the volume of hydrostatic testing wastewater is detailed below:

Month	Volume (Gallons)
May, 2019	150,000
June, 2019	500,000
July, 2019	900,000
August, 2019	2,000,000
September, 2019	1,450,000
October, 2019	500,000
November, 2019	710,000
Total	**6,210,000**

During 2021, the Center Township Sanitary Authority accepted wastewater used for hydrostatic testing of water storage tanks at the Shell ethane cracker plant. A summary of the volume of hydrostatic testing wastewater is detailed below:

Month	Volume (Gallons)
January, 2021	161,121
February, 2021	150,644
March, 2021	243,145
April, 2021	199,231
May, 2021	401,826
June, 2021	204,978
July, 2021	59,864
Total	**1,420,809**

Acceptance of hydrostatic testing wastewater from Shell was considered to be a one-time discharge of clean water.

SECTION 9: SLUDGE MANAGEMENT INVENTORY

Aerobically digested sewage sludge is dewatered on site using a belt filter press. Dewatered sludge is disposed at the Joseph J. Brunner Landfill. According to Discharge Monitoring Reports completed by CTSA in 2021, approximately 127 dry tons of dewatered sludge was disposed. Appended to the report is a copy of the sludge management inventory sludge generation calculation for the 2021 calendar year and a summary table. The calculation represents the mass balance of influent vs. effluent solids. It is noted that the actual dry tons of sludge leaving the plant for calendar year 2021 exceeds 15% (actual = 35.0%) of the projected amount of sludge calculated by the sludge generation calculator.

SECTION 10: SIGNATURES

To comply with the requirements of the Chapter 94 Municipal Wasteload Management Program, the following signatures are provided.

Preparer:
I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Marie S. Hartman, P.E. — Date
Lennon, Smith, Souleret Engineering, Inc.

Permittee:
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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Robert Martini, Operations Supervisor — 03/03/2022 — Date
Center Township Sanitary Authority

APPENDIX A

TABLES AND FIGURES

TABLE 1

CENTER TOWNSHIP SANITARY AUTHORITY

ELKHORN RUN SEWAGE TREATMENT PLANT

HYDRAULIC LOADING DATA SUMMARY

JANUARY 2017 THROUGH DECEMBER 2021

DATE	2017		2018		2019		2020		2021	
January	1.720	*	1.460		1.350	*	1.620	*	1.190	*
February	1.150	*	2.200	*	1.870	*	1.700	*	1.320	*
March	1.530	*	1.040	*	1.080	*	1.880	*	1.420	*
April	1.350		1.760	*	1.120		1.380		0.900	
May	1.080		0.860		1.170		1.080		1.100	
June	0.860		0.790		1.630		0.960		0.940	
July	0.910		0.820		1.110		0.700		1.010	
August	0.580		0.650		0.670		0.790		1.000	
September	0.570		1.640		0.740		0.830		0.900	
October	0.640		0.820		0.880		0.770		0.960	
November	1.050		1.610		0.930		0.840		0.740	
December	0.860		1.620		1.150		1.330		1.030	
Annual Average (mgd)	**1.025**		**1.273**		**1.142**		**1.157**		**1.043**	
90 Day Sustained Flow Rate (mgd)	**1.343**		**1.667**		**1.433**		**1.653**		**1.310**	
Ratio (90-Day Sustained to Annual Average)	**1.31**		**1.31**		**1.26**		**1.43**		**1.26**	
5-Year 90-Day Sustained/Annual Average Ratio	**1.31**									
5-Year Annual Average Hydraulic Loading (mgd)	**1.128**									
5-Year 90-Day Sustained Hydraulic Loading (mgd)	**1.481**									

*Maximum 3-month flow period.

TABLE 2

CENTER TOWNSHIP SANITARY AUTHORITY

ELKHORN RUN SEWAGE TREATMENT PLANT

ORGANIC LOADING DATA SUMMARY

JANUARY 2017 THROUGH DECEMBER 2021

DATE	2017	2018	2019	2020	2021
January	1,689	1,150	1,149	1,482	1,356
February	1,561	1,608	1,849	1,631	1,163
March	1,646	687	862	1,124	1,262
April	1,199	1,516	848	1,379	815
May	828	936	1,129	763	938
June	606	764	1,509	637	839
July	866	1,119	1,415	677	1,200
August	809	696	1,080	746	1,024
September	792	1,279	1,047	767	750
October	671	744	845	711	797
November	1,091	1,228	764	758	614
December	692	1,086	1,502	1,258	784
Annual Average (LBS BOD_5/Day)	**1,038**	**1,068**	**1,166**	**994**	**962**
Maximum Month (LBS BOD_5/Day)	**1,689**	**1,608**	**1,849**	**1,631**	**1,356**
Ratio (Maximum Month to Annual Average)	**1.63**	**1.51**	**1.59**	**1.64**	**1.41**
5-Year Maximum Month/Annual Ratio Average	**1.55**				
5-Year Annual Average Organic Loading (LBS BOD5/Day)	**1,046**				

TABLE 3
CENTER TOWNSHIP SANITARY AUTHORITY
5 YEAR HYDRAULIC LOADING PROJECTION

PROJECTED HYDRAULIC LOAD						
	ANNUAL AVERAGE FLOW (mgd)			90 DAY SUSTAINED FLOW (mgd)		
YEAR	BASE FLOW	ADDITIONAL FLOW [2]	TOTAL	AVERAGE	RATIO [3]	FLOW
2022 [1]	1.128	0.0151	1.143	1.143	1.31	1.497
2023	1.143	0.0798	1.223	1.223	1.31	1.601
2024	1.223	0.0188	1.241	1.241	1.31	1.626
2025	1.241	0.0111	1.252	1.252	1.31	1.641
2026	1.252	0.0074	1.260	1.260	1.31	1.650

[1] 2021 Base Flow utilizes the 5-year Annual Average Hydraulic Loading (2017 to 2021).

[2] Additional flow assumes 2.47 pph (2010 Census data for Center Township), 100 gpcd, and the annual additional EDUs discussed in the report (Appendix C).

[3] 5-Year 90-Day Sustained /Annual Average Ratio.

TABLE 4
CENTER TOWNSHIP SANITARY AUTHORITY
5 YEAR ORGANIC LOADING PROJECTION

YEAR	PROJECTED ORGANIC LOAD					
	ANNUAL AVERAGE LOAD (#/day)			MAXIMUM MONTH LOAD (#/day)		
	BASE LOADING	ADDITIONAL LOADING [2]	TOTAL	ANNUAL AVERAGE	RATIO [3]	TOTAL
2022 [1]	1,046	26	1,071	1,071	1.56	1,671
2023	1,071	136	1,207	1,207	1.56	1,883
2024	1,207	32	1,239	1,239	1.56	1,932
2025	1,239	19	1,258	1,258	1.56	1,962
2026	1,258	13	1,270	1,270	1.56	1,982

[1] 2021 Base Organic Loading utilizes the 5-year Annual Average Organic Loading (2016 t

[2] Additional flow assumes 2.47 pph (2010 Census data for Center Township), 0.17 lb/cap/day, and the annual additional EDUs discussed in the report (Appendix C).

[3] 5-Year Maximum Month / Annual Ratio Average.

TABLE 5
Center Township Sanitary Authority
2021 Chapter 94 Report

Lift Station Data [1]

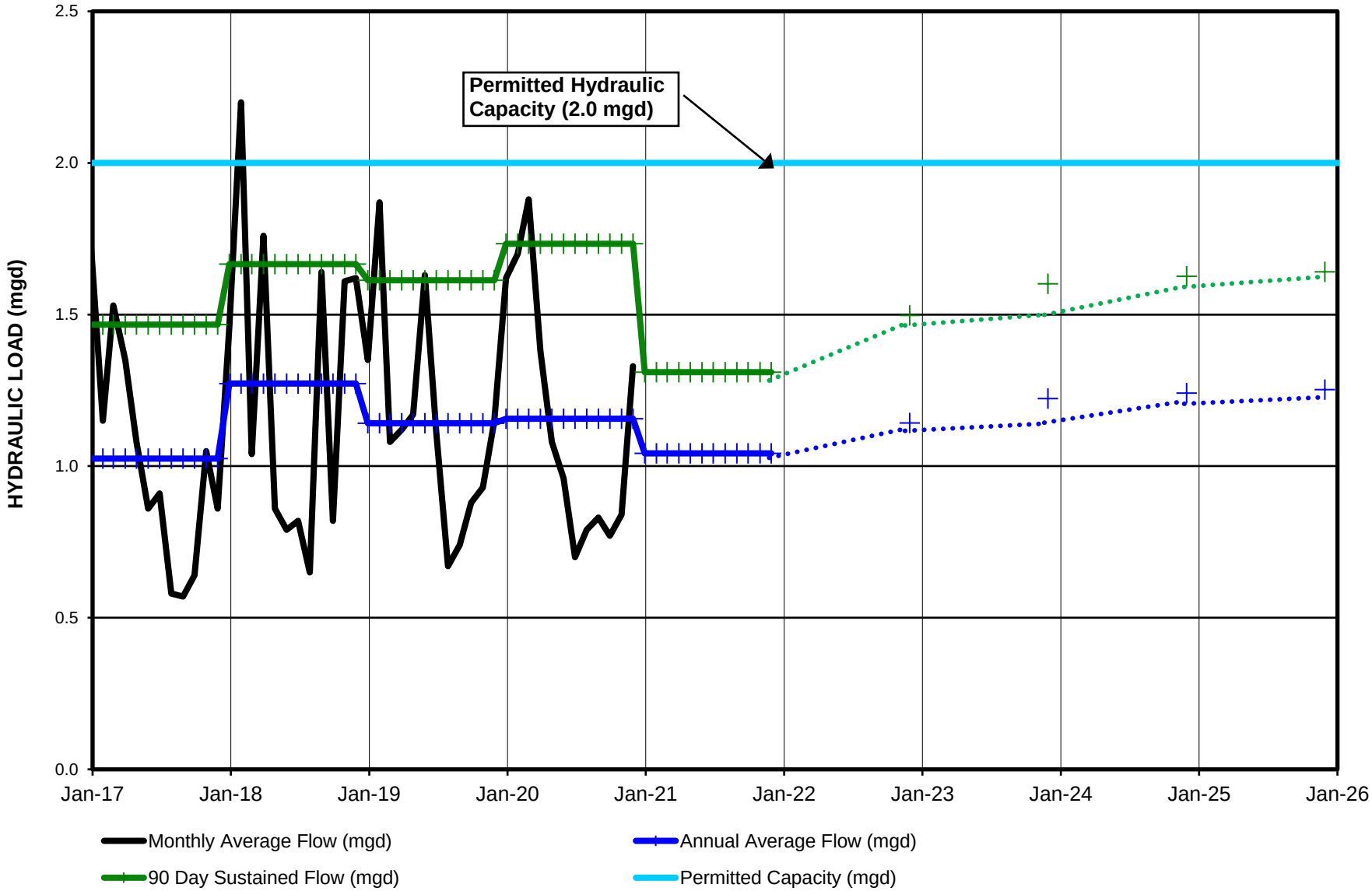
	New College [3]	Logstown Run	Stobo	Markey's Run	Shirley Drive	Cherrywood (Walnut Grove)	Spruce Drive	Bunker Hill (Biggins)	Krisana Woods	Franklin (SR18)	Stoney Ridge
Pumping Capacity (gpm)	**2,000**	**300**	**80**	**400**	**80**	**80**	**100**	**80**	**80**	**312**	**80**
Pumping Capacity (gpd)	**2,880,000**	**432,000**	**115,200**	**576,000**	**115,200**	**115,200**	**144,000**	**115,200**	**115,200**	**449,280**	**115,200**
January	697,065	106,665	5,481	51,097	914	19,061	20,826	4,289	3,453	35,085	10,421
February	873,321	77,529	5,743	55,371	874	21,120	15,857	4,046	4,526	37,373	13,149
March	1,286,419	202,935	6,627	63,097	975	24,139	22,452	4,490	4,521	47,042	15,375
April	650,700	64,800	8,624	55,040	864	18,896	24,180	3,600	2,976	39,874	21,024
May	871,548	125,826	12,155	63,561	821	22,018	26,245	4,738	3,097	40,097	15,112
June	624,900	67,140	8,240	53,920	736	19,472	26,280	3,776	3,488	46,675	14,832
July	510,968	79,665	16,537	55,045	852	19,061	38,226	4,320	3,685	44,264	15,097
August	573,097	60,968	14,973	53,729	805	18,921	21,445	3,809	3,345	35,628	15,205
September	626,700	73,980	5,296	51,040	880	20,784	23,560	3,824	3,088	28,891	13,856
October	497,903	69,445	4,320	56,748	852	18,457	20,845	3,778	2,803	27,718	13,688
November	458,700	58,020	4,512	50,880	864	23,792	19,460	3,168	3,072	24,586	12,560
December	331,548	94,123	6,317	61,471	836	25,626	20,439	11,551	3,871	41,124	11,458
Annual Average	666,906	90,091	8,235	55,917	856	20,946	23,318	4,616	3,494	37,363	14,315
Maximum Month	1,286,419	202,935	16,537	63,561	975	25,626	38,226	11,551	4,526	47,042	21,024
2-Year Projected Monthly Max [2]	1,323,963	206,994	16,868	64,833	995	26,138	38,990	11,782	4,616	47,982	21,444

[1] Flow (gpd) calcualted from total hours pumped as reported by operations staff and pumping capacity of each pump.

[2] Flow projections based on "Added Flow" from Table 3 for New College Lift Station and the addition of 1% o the maximum month flow base flow per year for each of the remaining 9 lift stations.

[3] New College Pump Station flow (gpd) calculated from total hours pumped as reported by operations staff and typical pump operation point of 1500 gpm.

Sewage Treatment Plant Hydraulic Loading Graph
Center Township Sanitary Authority, Beaver County, PA
Figure 1



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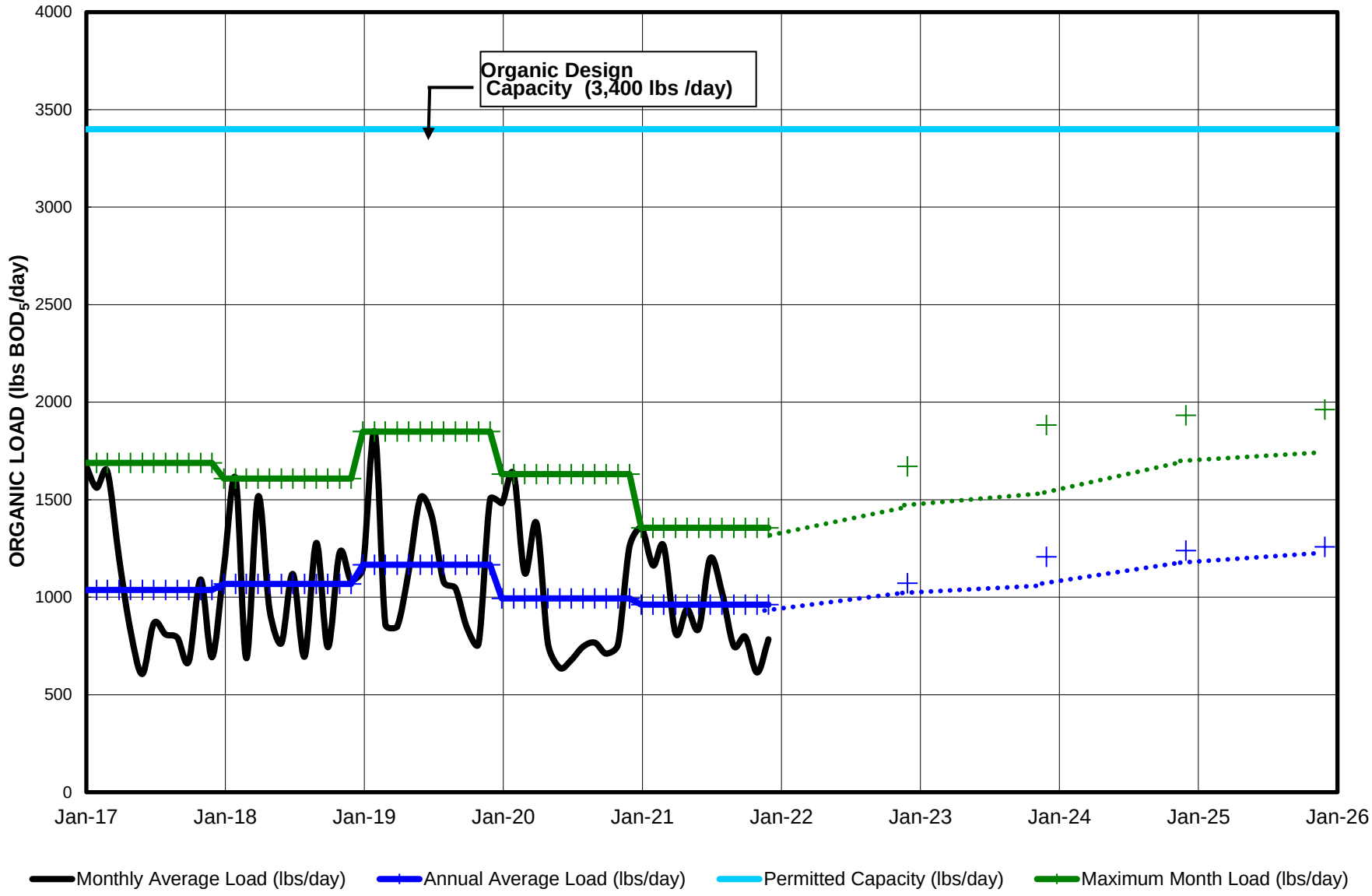
Sewage Treatment Plant Organic Loading Graph
Center Township Sanitary Authority, Beaver County, PA
Figure 2



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APPENDIX B

CALIBRATION CERTIFICATE

Customer Service Report

Total Instrument Maintenance

423 Stoneybrook Drive • Elizabeth, PA 15037
412-384-3818

TIM

INVOICE # T.I.M.-2767

BILL TO ADDRESS	SITE ADDRESS
C.T.I.S.A. 224 Ctr. Grange Rd. Aliquippa, Pa. 15001	W.W.T.P. PHONE # _____ / _____

REQUESTED SERVICE: Annual flow meter calibrations.

PO # / SO # _____
MODEL # 801XM1000
SERIAL # 0SW000WD02243

OTHER _____

DESCRIPTION / CAUSE OF PROBLEM: See above.	QTY	PART/PRODUCT NUMBER	AMOUNT
CORRECTIVE ACTION / WORK PERFORMED: Cleaned, checked & calibrated the Plant Inf. Ultrasonic flow xmtr & the Bar Screen lvl. xmtrs. The Return Sludge #1 & #2 flow Converters. The Waste & By-Pass & Recirculation, Waste & Return flow Converters & recorders. Checked outputs & indications at 0-25-50-75 & 100 %. No adjustments needed.			
		[A] PARTS TOTAL ➤	
		LABOR (REG) HRS @ /HR	
		LABOR (O.T.) HRS @ /HR	
		TRAVEL HRS @ /HR	
		[B] LABOR TOTAL ➤	$ 680 00
		EXPENSES (TOLLS,ROOMS,MEALS)	
		MILEAGE MILES @ /MILE	
		AIR AND/OR CAR RENTAL	
		[C] EXPENSE TOTAL ➤	
		[D] SHIPPING CHARGES ➤	
		TOTAL [A] + [B] + [C] + [D] ➤	680 00
FUTURE ACTION/WORK REQUIRED: YES ☐ NO ☒ % COMP 100		C. A. CODE [ ]	
		SALES TAX OR TAX ID # [ ]	
INVOICE		COUNTY TAX OR TAX ID # [ ]	
TERMS: NET 30 DAYS		FINAL AMOUNT DUE ➤	$ 680 00

I HEREBY ACCEPT AND APPROVE ALL WORK AS DEFINED ABOVE.

Pryzbylski	Tim Pryzbylski	2/10/22	Kirk Johns		2/10/22
TECH (PRINT)	TECH (SIGNATURE)	DATE	CUSTOMER (PRINT)	CUSTOMER (SIGNATURE)	DATE

10/04

Total SP LLC
Laboratory & Pharmacy Balances & Scales
Service, Sales, Calibration & Repair
22 Crest Drive Monongahela PA 15063-1081
Phone (724) 825-6872 or email: totalsp22@gmail.com

CALIBRATION REPORT

DATE OF SERVICE: October 20, 2021

NEXT CALIBRATION DUE DATE: October 31, 2022

CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

Procedures:
A.) Toploading balances > one kilogram capacity use procedure A5A.
B.) Toploading balances <= one kilogram capacity use procedure A4A.
C.) Analytical balances use calibration procedure A1A.
D.) Micro balances use procedure A2A.

Nr.	Manuf.	Model	Serial Nr.	Location	Cal. Weight/ Procedure	Readability ±mg	Pre-Service Reading	Post-Service Reading	Repeatability ±mg	Condition or Not / Serviced
1	METTLER	HB43	119513375	LAB	20 g / B	1	1.000 / 5.000 19.999 / 39.998	1.000 / 5.000 20.000 / 40.000	1	GOOD SC EXT
2	METTLER	AE100	K17105	LAB	100 g / C	0.1	0.1000 / 1.0000 10.0001 / 50.0005 100.0008	0.1000 / 1.0000 10.0000 / 50.0000 100.0000	0.1	GOOD SC INT

Notes: Condition "good" means that the unit meets Total SP's and manufacturer's tolerances for repeatability and readability in the environment found unless otherwise noted. "INT" means internal weight is used for calibration, "EXT" means external weight is used for calibration; "SC" means unit is self calibrating, and "SET" means unit is calibrated by means of manually setting the calibration potentiometer. Balance calibrations and balance internal weights, if any, are checked against technician's test weights of TOTAL SP LLC. Test weights are calibrated annually against the primary standards of TOTAL SP LLC Set No. 4000011832, which have been certified by Henry Troemner, LLC, through Certificate No. 01142715 dated 14-JULY 2020 and expires 14-JULY 2021. This Certification is directly traceable to the National Standards of the National Institute of Standards and Technology through NIST Test No. 822-275872-11. Traceability documents are on file in the offices of TOTAL SP LLC and are available upon request. Calibrations comply with ANSI-NCSL Z 540-1-1994, MIL-STD-45662A and ISO 10012-1 specifications regarding calibration service and procedures.

Marian E Brna, Pres.

October 21, 2021
Date

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NEXT CALIBRATION DUE DATE: October 31, 2022

CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 23.9 °C

RELATIVE HUMIDITY: 57.9 %

Nr.	ID	Model Nr	Serial Nr.	Location	Cal. Procedure	Service Reading	Total SP Reading	Correction Factor	In Tolerance or Not / Serviced
1	THERMO INCUBATOR THERMOMETER	ERTCO 2020	26839	LAB	TO-02	20.5 °C	20.5 °C	- 0.4 °C	IN TOLERANCE
2	HEATING BLOCK THERMOMETER	DRB200	11060C0159	LAB	TO-02	LEFT 100 °C	99.9 °C	- 0.1 °C	IN TOLERANCE
						RIGHT 100 °C	101.0 °C	+ 1.0 °C	
						LEFT 150 °C	155.9 °C	+ 5.9 °C	IN TOLERANCE
						RIGHT 150 °C	153.7 °C	+ 3.7 °C	
3	HEATING BLOCK THERMOMETER	DR104115	4133	LAB	TO-02	56 °C	56.2 °C	+ 0.2 °C	IN TOLERANCE
4	MILLIPORE INCUBATOR THERMOMETER	XX6310000 XX63200045	8130 1921	LAB	TO-02	44.2 °C	44.2 °C	± 0.0 °C	IN TOLERANCE
5	KENMORE REFRIGERATOR THERMOMETER	ERTCO	23195	LAB	TO-02	3.5 °C	3.4 °C	- 0.1 °C	IN TOLERANCE
6	PRECISION OVEN THERMOMETER	ERTCO ECONOMY	68N010556 8221	LAB	TO-02	101 °C	101.2 °C	+ 0.2 °C	IN TOLERANCE
7	FISHER FURNACE THERMOMETER	126	96N10003	LAB	TO-02	550 °C	563.1 °C	+ 13.1 °C	IN TOLERANCE
8	VWR THERMOMETER		201824	LAB	TO-02	25 °C	25.2 °C	+ 0.2 °C	IN TOLERANCE

CALIBRATION INSTRUMENT(S): FLUKE ASSET #78510063, TT-003, SOP #TO-02. CALIBRATION INFORMATION: CALIBRATED 29 DECEMBER 2020, EXPIRES 29 DECEMBER 2021, CERTIFICATES #716721 AND 716725. CALIBRATION PERFORMED IS TO THE MANUFACTURERS SPECIFICATIONS FOLLOWING DOCUMENTED PROCEDURE, USING N.I.S.T. TRACEABLE EQUIPMENT IN ACCORDANCE WITH ANSI-NCSL Z 540-1-1994, MIL STANDARDS 45662A AND ISO 10012-1. COLLECTIVE UNCERTAINTY OF THE CALIBRATION PROCEDURES ARE DECLARED AT A 95% CONFIDENCE LEVEL. UNCERTAINTY RATIO IS NOMINALLY FOUR TO ONE UNLESS OTHERWISE NOTED. TOTAL SP LLC WILL NOT BE HELD RESPONSIBLE FOR DAMAGES RESULTING FROM THE USE OF THIS INSTRUMENT.

Marian E Brna, Pres.

October 21, 2021
Date

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Laboratory & Pharmacy Balances & Scales
Service, Sales, Calibration & Repair
22 Crest Drive Monongahela PA 15063-1081
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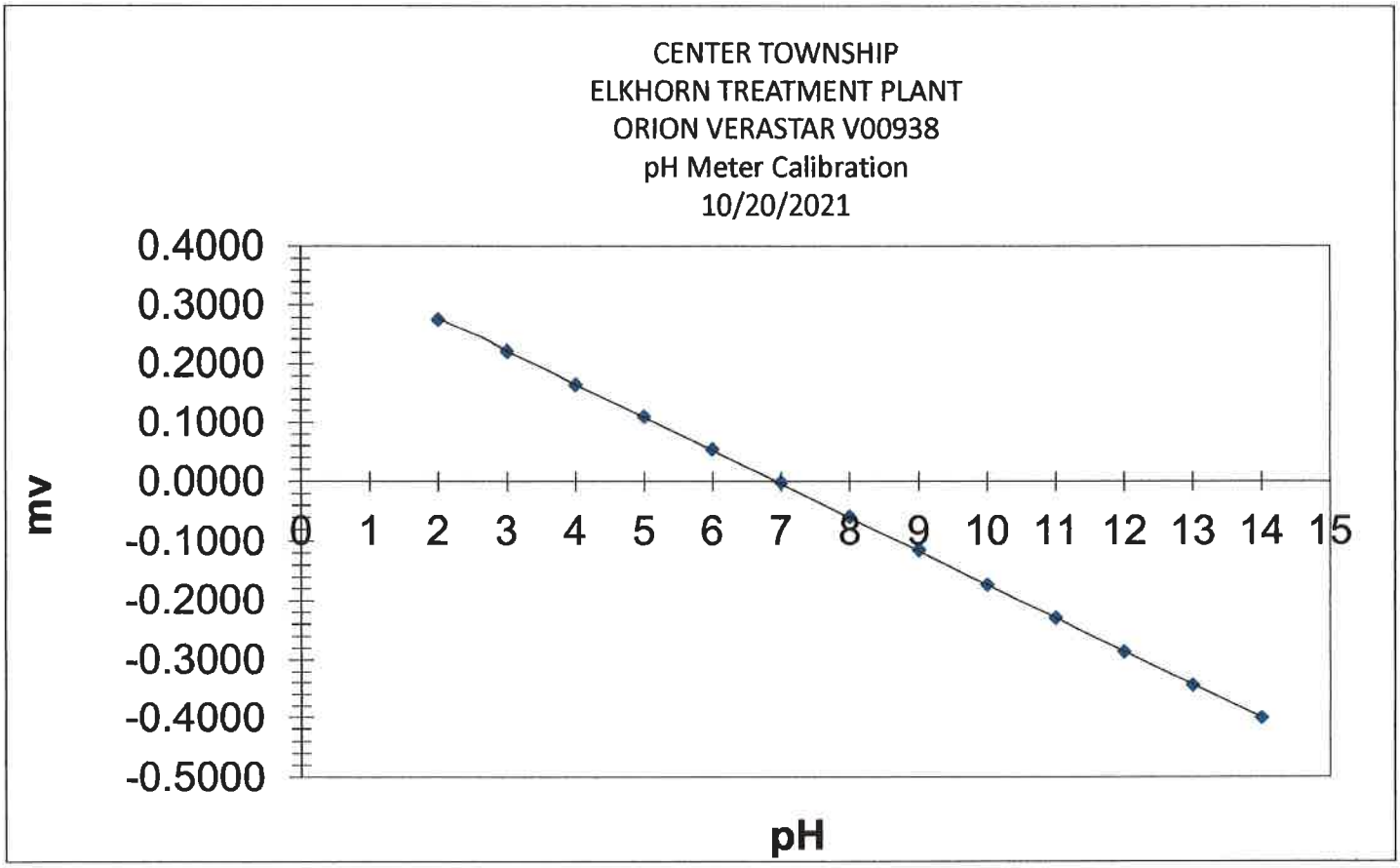
totalsp22@gmail.com

CALIBRATION REPORT

DATE OF SERVICE: October 20, 2021

NEXT CALIBRATION DUE DATE: October 31, 2022

CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061



ZERO CROSSING = 6.92

CALIBRATION INSTRUMENT(S): CALIBRATORS, INC ASSET #701901, SOP #PH-01, CALIBRATION INFORMATION: CALIBRATED 29 DECEMBER 2020, EXPIRES 29 DECEMBER 2021, CERTIFICATE #716726.
CALIBRATION PERFORMED IS TO THE MANUFACTURERS SPECIFICATIONS FOLLOWING DOCUMENTED PROCEDURE, USING N.I.S.T. TRACEABLE EQUIPMENT IN ACCORDANCE WITH ANSI-NCSL Z 540-1-1994, MIL STANDARDS 45662A AND ISO 10012-1. COLLECTIVE UNCERTAINTY OF THE CALIBRATION PROCEDURES ARE DECLARED AT A 95% CONFIDENCE LEVEL. UNCERTAINTY RATIO IS NOMINALLY FOUR TO ONE UNLESS OTHERWISE NOTED. TOTAL SP LLC WILL NOT BE HELD RESPONDISIBLE FOR DAMAGES RESULTING FROM THE USE OF THIS INSTRUMENT.

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NEXT CALIBRATION DUE DATE: October 31, 2022

CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 23.9 °C

RELATIVE HUMIDITY: 57.9 %

Nr.	ID	Model	Serial Nr	Set Point	Total SP Reading	Standard Deviation	% Standard Deviation	In Tolerance or Not / Serviced
1	HACH SPECTROPHOTOMETER	DR3900	1720127					
	Absorbance Check			546 nm	1.045 abs	0.003	0.28 %	IN TOLERANCE
	Stray Light Check			340 nm	0.962 abs	0.017	1.75 %	IN TOLERANCE
	Wavelength Check			807 nm	807.3 nm	0.212	0.03 %	IN TOLERANCE

CALIBRATION INSTRUMENT(S): NEWPORT FILTER SET CS-255, CALIBRATION INFORMATION: CALIBRATED 31 OCTOBER 2017 CERTIFICATE #1907320.
CALIBRATION PERFORMED IS TO THE MANUFATURERS SPECIFICATIONS FOLLOWING DOCUMENTED PROCEDURE, USING N.I.S.T. TRACEABLE EQUIPMENT IN ACCORDANCE WITH ANSI-NCSL Z 540-1-1994, MIL STANDARDS 45662A AND ISO 10012-1. COLLECTIVE UNCERTAINTY OF THE CALIBRATION PROCEDURES ARE DECLARED AT A 95% CONFIDENCE LEVEL. UNCERTAINTY RATIO IS NOMINALLY FOUR TO ONE UNLESS OTHERWISE NOTED. TOTAL SP LLC WILL NOT BE HELD RESPONSIBLE FOR DAMAGES RESULTING FROM THE USE OF THIS INSTRUMENT.

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NEXT CALIBRATION DUE DATE: October 31, 2022

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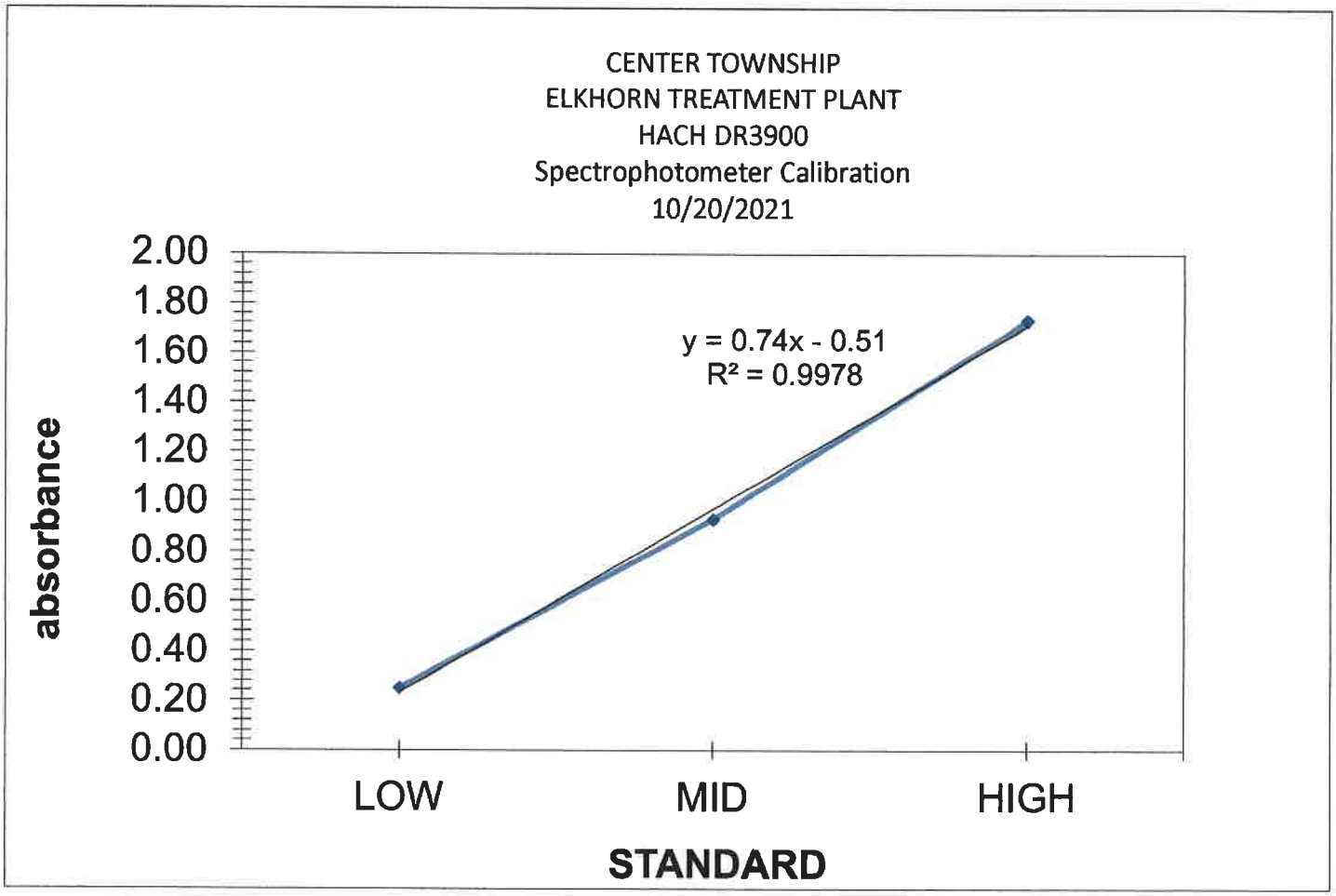
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 23.9 °C

RELATIVE HUMIDITY: 57.9 %



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CALIBRATION INSTRUMENT(S): HACH STANDARDS KIT #2635300, CALIBRATION INFORMATION: CALIBRATED MARCH 2020, EXPIRES MARCH 2022. CALIBRATION PERFORMED IS TO THE MANUFATURERS SPECIFICATIONS FOLLOWING DOCUMENTED PROCEDURE, USING N.I.S.T. TRACEABLE EQUIPMENT IN ACCORDANCE WITH ANSI-NCSL Z 540-1-1994, MIL STANDARDS 45662A AND ISO 10012-1. COLLECTIVE UNCERTAINTY OF THE CALIBRATION PROCEDURES ARE DECLARED AT A 95% CONFIDENCE LEVEL. UNCERTAINTY RATIO IS NOMINALLY FOUR TO ONE UNLESS OTHERWISE NOTED. TOTAL SP LLC WILL NOT BE HELD RESPONSIBLE FOR DAMAGES RESULTING FROM THE USE OF THIS INSTRUMENT.

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October 21, 2021
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CALIBRATION REPORT

DATE OF SERVICE: October 20, 2021

NEXT CALIBRATION DUE DATE: October 31, 2022

CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 23.9 °C

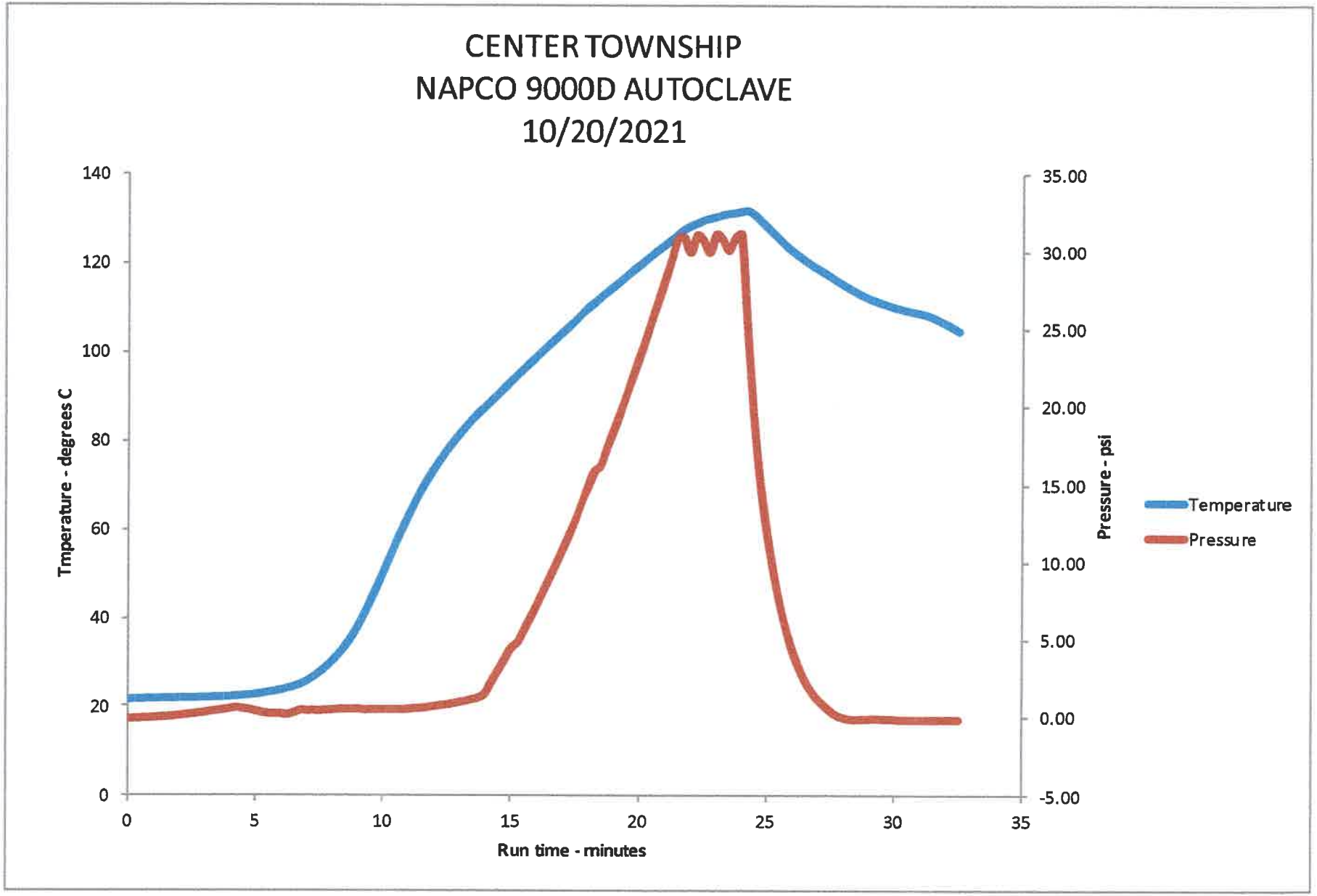
RELATIVE HUMIDITY: 57.9 %

Nr.	ID	Serial Nr.	Department	Calibration Procedure	Service Reading	Total SP Reading	Correction Factor	In Tolerance or Not / Serviced
1	NAPCO AUTOCLAVE	9000-D	LAB	TO-02	134 °C	131.77 °C	- 2.23 °C	IN TOLERANCE
					32 PSI	31.30 PSI	- 0.7 PSI	
2	THERMOMETER		LAB	TO-02	133 °C	131.8 °C	- 1.2 °C	IN TOLERANCE

CALIBRATION INSTRUMENT(S): FLUKE ASSET #78510063, TT-003, SOP #TO-02. CALIBRATION INFORMATION: CALIBRATED 20 DECEMBER 2020, EXPIRES 29 DECEMBER 2021, CERTIFICATES #716721 AND 716725 AND PRTEMP140, CALIBRATED 29 DECEMBER 2020, EXPIRES 29 DECEMBER 2021, CERTIFICATE #716722. CALIBRATION PERFORMED IS TO THE MANUFACTURERS SPECIFICATIONS FOLLOWING DOCUMENTED PROCEDURE, USING N.I.S.T. TRACEABLE EQUIPMENT IN ACCORDANCE WITH ANSI-NCSL Z 540-1-1994, MIL STANDARDS 45662A AND ISO 10012-1. COLLECTIVE UNCERTAINTY OF THE CALIBRATION PROCEDURES ARE DECLARED AT A 95% CONFIDENCE LEVEL. UNCERTAINTY RATIO IS NOMINALLY FOUR TO ONE UNLESS OTHERWISE NOTED. TOTAL SP LLC WILL NOT BE HELD RESPONSIBLE FOR DAMAGES RESULTING FROM THE USE OF THIS INSTRUMENT.

Marian E Brna, Pres.

October 21, 2021
Date


CENTER TOWNSHIP
NAPCO 9000D AUTOCLAVE
10/20/2021
Tmperature - degrees C
Pressure - psi
Run time - minutes
Temperature
Pressure
140
120
100
80
60
40
20
0
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
0
5
10
15
20
25
30
35

APPENDIX C

TAP SUMMARY

Center Township Sanitary Authority
Sewer Tap Summary

Development	Actual 2018	Actual 2019	Actual 2020	Actual 2021	Estimated 2022	2023	2024	2025	2026	2027	2028	2029	Total Remaining	Total Estimated
Heritage Valley - Glade Bluffs	22	0	0	0	0	0	0	0	0	0	0	0	0	22
NVR/Ryan Homes	5	29	21	24	6	0	0	0	0	0	0	0	6	85
Allegheny Health Network Cancer Center	32	0	0	0	0	0	0	0	0	0	0	0	0	32
Beaver Valley Mall Outparcels	0	6	0	0	0	0	0	0	0	0	0	0	0	6
Brodhead Road Apartments	0	0	0	0	0	35	0	0	0	0	0	0	35	35
Western PA Surgery Center	0	20	0	0	0	0	0	0	0	0	0	0	0	20
Eagles Landing at Mateer Farms	125	0	0	0	0	0	0	0	0	0	0	0	0	125
Hilton Garden Inn	52	0	0	0	0	0	0	0	0	0	0	0	0	52
Glade Bluffs Apartments	0	0	0	0	0	182	0	0	0	0	0	0	182	182
Glade Bluffs Phase III	0	0	0	0	0	25	25	0	0	0	0	0	50	50
Lincoln Learning Center	0	0	0	0	0	10	0	0	0	0	0	0	10	10
Old Glass Dump Property	0	0	0	0	0	10	0	0	0	0	0	0	10	10
Vacant 3 Acre Parcel	0	0	0	0	0	5	0	0	0	0	0	0	5	5
Highland Meadows Phase 1	0	3	6	5	5	6	0	0	0	0	0	0	11	25
Highland Meadows Phase 2	0	0	0	0	0	0	11	15	0	0	0	0	26	26
Highland Meadows Phase 3	0	0	0	0	0	0	0	10	10	5	0	0	25	25
Lakeview Farms Phase 5	0	0	0	3	30	30	20	0	0	0	0	0	80	83
CTWA Temporary Water Treatment Facility Sludge Discharge	15	0	0	0	0	0	0	0	0	0	0	0	0	15
Primanti's Restaurant	0	7	0	0	0	0	0	0	0	0	0	0	0	7
BASF Corporation	0	0	0	7	0	0	0	0	0	0	0	0	0	7
Get Go #3016	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Miscellaneous	7	11	12	9	20	20	20	20	20	20	20	20	160	179
Total	**258**	**76**	**39**	**51**	**61**	**323**	**76**	**45**	**30**	**25**	**20**	**20**	**600**	**1004**

APPENDIX D

MAINTENANCE SUMMARY

Center Township Sanitary Authority

2021 CSTA Maintenance & Camera Report

- Replaced rear brakes on tool truck.
- Replaced Water hose on dump truck.
- Replace starter and battery on dump truck.
- Replace tires on tool truck.
- Replace tire on skid loader.

Collections System

COMPANY	DATE	ITEM	NOTE
Kappe	2/26/2021	Replaced motor on Duperon Screen.	Warranty - $0
W.C. Weil	3/3/2021	Transduced Inop at Franklin Lift Station	Repair - $897
W.C. Weil	3/16/2021	Rebuild pump at Walnut Grove L/S	Repair - $5,979
Penn Power / CTSA	4/1/2021	Replace block heater on Shirley Drive Generator. Repair vent elbow at Spruce Drive.	Relace - $312
CTSA	4/1/2021	Replaced water filter and motor limit switch at Logstown LS.	Replace - $112
W.C. Weil	11/30/2021	Rebuild #3 Sultzer pump with new bearings, rotor, shaft seals. Rewind motor.	Repair - $44,863
CTSA	4/4/2021	Replaced exhaust elbow on generator at Spruce Dr. L/S.	Repair - $326
CTSA	4/8/2021	Replaced carbon filter on Booster Pump at Gardenview Estates.	Replace - $80
CTSA	4/10/2021	Repaired forced main and manhole cover at Gardenview Estates.	Repair - $410
Halama Brothers	5/31/2021	Replace two soft starts at Logstown Lift Station. Rewire pumps to run together with high flow.	Replace - $4,489
W.C. Weil	9/22/2021	Rebuild Sultzer Pump and shaft at Franklin Lift Station.	Repair - $6,335

W.C. Weil	12/1/2021	Replace with new Sultzer wet well pump at Franklin Lift Station.	Repair - $20,535
Pete Sudak	6/19/2021	Repaired broken lateral under Warren Cliff Dr.	Repair - $4,200
Pete Sudak	8/17/2021	Repaired invert on manhole on Shads Hollow Road.	Repair - $550
Pete Sudak	7/17/2021	Repaired relief valve and lateral connection across Patton Drive.	Repair - $7,600
W.C Weil	8/16/2021	On site troubleshooting on pump at Spruce Drive L/S	Repair - $1,822
OCC	8/31/2021	Updated firmware on SCADA at lift stations.	Repair - $1,842
W.C. Weil	9/9/2021	Replace seal on pump at Walnut Grove L/S	Repair - $1,200
Evoqua	9/14/2021	Replaced valve and feed lines on chemical feed pump at Markey's Run.	Repair - $5,565
Penn Power	10/26/2021	Replace unit control on generator panel. Lightning Strike.	Repair - $3,482.21

Manhole Repairs / Replacements

MANHOLE #	ISSUE	SOLUTION
MR 1007	Not flowing right	Jack hammered correct flow line.
MR 998	Leaking	Replaced manhole
MR 996	Leaking	Replaced manhole
MR 995	Leaking	Replaced manhole
MR 994	Leaking	Replaced manhole
MR 993	Leaking	Replaced manhole
MR 992	Leaking	Replaced manhole
MR 991	Leaking	Replaced manhole
MR 990	Leaking	Replaced manhole
MR 581	Leaking	Replaced manhole
MR 1106	Leaking	Spray lined
MR 1105	Leaking	Replaced manhole
MR 1104	Leaking	Replaced manhole
MR 471	Leaking	Replaced manhole
MR 472	Leaking	Replaced manhole
MR 1075	Leaking	Replaced

Plant & Associated Equipment

COMPANY	DATE	ITEM	NOTE
CTSA	1/27/2021	Installed new effluent pump in blower room #1	New - $9,908
CTSA	2/3/2021	Replaced motor on louvers in generator room.	New - $475
CTSA	3/4/2021	Replaced gasket on plant generator turbo charger.	Replace - $75
CTSA	4/30/2021	Replaced gate valve on floor in blower room #1	Replace - $1,088
CTSA	7/12/2021	Replaced piston unit on belt press	Replace - $181
Total Equipment	12/20/2021	Repaired blower #1. Drum, gaskets and bearings.	Repair - $14,534
Halama Brothers	12/2/2021	Repair motor on blower #2	Repair - $3,255
Total Equipment	10/13/2021	Replace two 10” check valves on blower units plant #1.	Replace - $5,420
J.P. Environmental	12/3/2021	Replace two (2) 8” plug valves in recirculation pit at blower room #1. These valves isolate the clarifiers from pit.	CTSA bought valves - $2,300 / Labor $5,000
J.P. Environmental	12/17/21	Replace one (1) 6” plug valve in blower room #1. This valve feeds building from reactors.	CTSA bought valves - $810 / Labor $3,000
CTSA	12/21/21	Mud valve for chlorine tank.	Replace - $2,451

Sanitary Sewer Lines High Pressure Cleaned

COMPANY	DATE	LOCATION	LENGTH
Tri – State	1/25/21	Shads Hollow Road	700’
Tri – State	3/30/2021	Pleasant Drive	500’
Tri – State	4/9/2021	163 Warrencliff Drive	400’
Tri – State	5/28/2021	Linda Lane	300’
Tri – State	6/1/2021	East Drive	500’
Tri – State	10/29/2021	Biggins/Brodhead/Wagner/Pleasant	3,000’
Tri – State	11/10/2021	Shads Hollow Road (lower)	300’
Tri – State	12/1/2021	Shads Hollow Road (Upper)	800’
Tri – State	12/10/2021	Old Brodhead Rd / Rt 18 - MR	500’
Robinson Pipe	12/21/2021	Columbia Drive (Rear)	400’
Tri - State	12/20/2021	Shads Hollow Road (Plant)	400’
Tri – State	12/21/2021	Shads Hollow Road (Upper)	600’
Tri - State	12/27/2021	Shads Hollow Road	800’
Tri – State	12/29/2021	Shads Hollow Road	700’
Tri – State	12/30/2021	Shads Hollow Road	500’

Sanitary Wet Wells / Tanks Vacuumed Cleaned / Manholes Flushed

COMPANY	DATE	LOCATION	ITEM
Tri – State	06/21/2021	Plant	Digestor #1
Tri – State	07/14/2021	Plant	Digestor #2
Tri - State	07/29/2021	Markey's Run Lift station	Wet well
Tri – State	10/14/2021	Spruce Drive	Wet Well
Tri - State	12/29/2021	Manholes – Shads Hollow Road	Manholes
Tri – State	12/30/2021	Manholes – Shads Hollow Road	Manholes

Residential Plunge of Trap & Sewer Line Inspections

COMPANY	DATE	LOCATION	ITEM
CTSA	1/7/2021	258 Pleasant Drive	Inspection
CTSA	1/21/2021	281 Sherwood Drive	Plunge
CTSA	2/25/2021	3139 Locust Avenue	Inspection
CTSA	3/1/2021	Cornell Drive	Plunge
CTSA	4/17/2021	102 Highland Ave	Inspection
CTSA	5/21/2021	1070 Chapel Road	Inspection
CTSA	5/24/2021	128 Hillside Street	Plunge
CTSA	5/28/2021	173 Sherwood Drive	Inspection
CTSA	7/14/2021	Gateway Rehab	Inspection
CTSA	7/15/2021	108 Kings Drive	Inspection
CTSA	7/15/2021	130 York Way	Inspection
CTSA	9/9/2021	208 University Dr	Inspection
CTSA	9/14/2021	111 Sunset Lane	Inspection
CTSA	11/15/2021	1399 Center Road	Inspection
CTSA	11/29/2021	162 Grandview Ave.	Inspection
CTSA	12/7/2021	115 Hope Drive	Inspection
CTSA	12/16/2021	167 University Drive	Inspection
CTSA	12/21/2021	109 Swansea Drive	Inspection
CTSA	12/27/2021	281 Sherwood Drive	Plunge
CTSA	12/28/2021	184 Shirley Drive	Plunge

Camera Inspection on Sanitary Sewer Lines

COMPANY	DATE	LOCATION	LENGTH
CTSA	5/25/2021	1075 Chapel Rd	120'
CTSA	6/1/2021	519 East Drive	100'
CTSA	6/1/2021	119 Sunset Lane	120'
CTSA	7/2/2021	3072 Brodhead Rd.	150'
J.P. Environmental	9/1/2021	Upper Moon Run	3,900'
Tri – State	11/11/2021	Shads Hollow Road (lower)	300'
CTSA	12/23/2021	Columbia Drive (Rear)	175'

CENTER TOWNSHIP CTSA SANITARY AUTHORITY

Center Township Sanitary Authority

224 Center Grange Road Aliquippa, Pennsylvania 15001 / Office: (724)774-0326 Fax: (724)774-4984
www.ctsapa.us

2021 CTSA EQUIPMENT OWNED

EQUIPMENT	YEAR
Skid loader	2002
Dump Truck – F550	2007
Utility Truck – F250	2015
Utility Truck – F250	2019
Pick – up Truck – F150	2017
Lawn Tractor	2013
Tow Trailer	2002
Safety Equipment	2017
200’ Push Camera	2020

APPENDIX E

SLUDGE MANAGEMENT
INVENTORY REPORT

Table 6

Center Township Sanitary Authority

Elkhorn Run Sewage Treatment Plant

2021 Solids Management Inventory [1]

January 2021 Through December 2021

	Average Flow (mgd)	Average Influent BOD (mg/L)	Average Effluent CBOD (mg/L)	Total Volume of Sludge Hauled [2]		
				Tons Dewatered	% Solids	Dry tons
Jan-21	1.190	126.8	6.6	133.4	16.7	22.2
Feb-21	1.320	105.8	5.3	76.7	17.7	13.6
Mar-21	1.420	106.6	6.3	37.0	17.0	6.3
Apr-21	0.900	116.2	9.7	100.4	17.2	17.3
May-21	1.100	101.6	7.1	68.7	17.5	12.0
Jun-21	0.940	109.1	7.9	111.4	17.0	19.0
Jul-21	1.010	105.5	6.4	18.0	18.0	3.3
Aug-21	1.000	106.1	8.3	36.7	17.5	6.4
Sep-21	0.900	91.0	7.4	88.1	17.4	15.4
Oct-21	0.960	102.0	9.3	3.0	17.0	3.0
Nov-21	0.740	100.0	6.0	7.5	18.0	1.4
Dec-21	1.030	96.1	6.0	38.9	18.0	7.0
Average	**1.043**	**105.6**	**7.2**			
			TOTAL	**720**	**17.41**	**127**

(1) Per Values Recorded in Discharge Monitoring Reports

(2) Sludge is hauled regularly from the dewatered sludge storage bin at the sewage treatment plant by Joseph J. Brunner Inc.

SLUDGE GENERATION CALCULATION

Facility Name: Elkhorn Run Sewage Treatment Plant
Permit Number: PA0037940
Date of Calculation: 1/18/2022

Required Information For Calculation

Average Daily Flow (mgd):	1.043	Digester Capacity (gal):	577043
Influent BOD (mg/l):	105.57	%Solids of Outgoing Sludge:	17.41
Effluent BOD (mg/l):	7.19	Monitoring Period (days):	365

Wastewater Treatment Processes

Place an "X" in the box beside the corresponding treatment process. Select a maximum of Primary Clarification and one other treatment process.

Primary Clarification		Contact Stabilization	x	RBC	
Conventional Activated Sludge		SBR		ABF	
Extended Aeration		Trickling Filter		Small Plant with low SOR (<500 gpd/sq ft)	

Operational Information

BOD Removed (lbs/day):	856	TSS Removed (lbs/day):	856

Digester Information

Type of Digester

Place an "X" in the box beside the corresponding treatment process.

Aerobic Digestion	x	Anaerobic Digestion		None	

Sludge Feed Rate to Digesters (gpd):	12826.2925
Digester Hydraulic Detention Time (days):	45
Estimated Total Solids Reduction (%):	0.4

Sludge Generation

dry lbs/day	513	wet lbs/day	2949
dry tons/monitoring period	94	wet tons/monitoring period	538
gal/day	354	gal/monitoring period	129073

Amount of Sludge Reported as Being Generated by the Facility

wet tons/monitoring period: 0

OR

dry tons/monitoring period: 127

Enter only one of the above values. The remaining value should be "0".

Is the amount reported by the generator within 15% of the calculated value? **NO**

NO explanation: **GREATER THAN 15% RANGE**

Actual Sludge Produced Exceeds Theoretical Calculated Sludge Produced

What type of information was used to calculate the above information: Discharge Monitoring Reports

Dates used: 1/1/2021 TO 12/31/2021

Name of person performing the calculation: Dominic N. Mandarino E.I.T.