CENTER TOWNSHIP SANITARY AUTHORITY
Beaver County, Pennsylvania

ANNUAL REPORT
Municipal Wasteload Management
(Chapter 94 Report)

OPERATING YEAR 2022

Elkhorn Run Sewage Treatment Plant

NPDES Permit No. PA0037940

MARCH 2023

LSSE
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CENTER TOWNSHIP SANITARY AUTHORITY
MUNICIPAL WASTELOAD MANAGEMENT REPORT
OPERATING YEAR 2022

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 2018 and 2022. Figure 1 also presents flow projections for the coming five-year period (2023 through 2027). 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 (2018 through 2022) and projects organic loading for the coming five-year period (2023 through 2027). 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 2022 was 1.190 mgd as shown on Table 1 and Figure 1. The five-year average of the annual average flow (2018 through 2022 period of record) is 1.161 mgd.

The 90-day sustained flow recorded at the STP is computed at 1.733 mgd in 2022, occurring during the months of February, March, and April. The five-year average of the annual 90-day sustained flow rate computed is 1.559 mgd, and the five-year average of the 90-day sustained hydraulic loading / annual average hydraulic loading is 1.34.

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 2022.

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 2022 was computed to be 990 lbs BOD_5/day as shown on Table 2 and Figure 2. The 2022 maximum month loading (February) was found to be 1,450 lbs BOD_5/day. The maximum month organic loading was below the design 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 2022.

Projected Future Hydraulic Loadings

The base datum for hydraulic loading projections is the five-year annual average flow of 1.161 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 (1.34) 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 2023 through 2027. 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 1,036 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 1.52 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 2022, 26 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 2023-2029. 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
Village at Riverside NVR/Ryan Homes	Residential	79 EDU	Completed 2018-2021
Beaver Valley Mall Outparcels	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	Completed 2018-2022

Development	Type	Estimated EDUs/Flow	Status / Phase
Shell – Support Buildings	Commercial	7,375 gpd	Completed 2018-2022
Highland Meadows Phase 1	Residential	18 EDU 7 EDU	Completed 2019-2022 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	7 EDU 76 EDU	Completed 2021-2022 Future Construction
BASF Corporation Pump Station	Commercial	7 EDU	Completed 2020
GetGo	Commercial	3 EDU	Completed in 2021
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 constructed 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 (Actual)	26	Taps Purchased
2023 (Estimated)	35	Refer to Sewer Tap Summary Table (Appendix C)
2024 (Estimated)	52	Refer to Sewer Tap Summary Table (Appendix C)
2025 (Estimated)	282	Refer to Sewer Tap Summary Table (Appendix C)
2026 (Estimated)	75	Refer to Sewer Tap Summary Table (Appendix C)
2027 (Estimated)	53	Refer to Sewer Tap Summary Table (Appendix C)

No sanitary sewer line extensions were constructed in 2022.

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, Operator, Certification Number: S20891

Sampling is conducted by CTSA personnel. The 2022 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
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 expired on March 31, 2022. The Draft NPDES Permit was received on February 9, 2023. CTSA submitted comments to PaDEP regarding the Draft NPDES Permit on March 22, 2023.

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 2022. 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 Corp.
- 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.

In 2022, approximately 1,750 feet of sewer line was televised and approximately 11,450 feet of sewer line was cleaned. Construction was completed on the Upper Moon Run Interceptor Upgrade including 3,826 feet of 15" PVC. Design of the Chapel Road Interceptor Upgrade was completed; the expected construction start date is April 2023. This project includes approximately 4,000 linear feet of 10-inch sewer line to be upsized to 15-inch PVC and/or 16-inch DIP. Planning and permitting for upgrades to the Elkhorn Run STP is underway.

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. (Completed in 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 2023)

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**

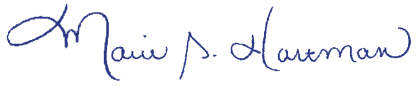
SECTION 9: SLUDGE MANAGEMENT INVENTORY

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 2022, approximately 84 dry tons of dewatered sludge was disposed. Appended to the report is a copy of the sludge management inventory sludge generation calculation for the 2022 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 2022 is less than 15% of the projected amount of sludge calculated by the sludge generation calculator. However, dewatered sludge hauled in 2021 significantly exceeded the theoretical calculated sludge production amount. Actual sludge produced in 2021-2022 was 211 dry tons; theoretical sludge production for 2021-2022 is 208 dry tons.

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.
Lennon, Smith, Souleret Engineering, Inc.

March 30, 2023
Date

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).

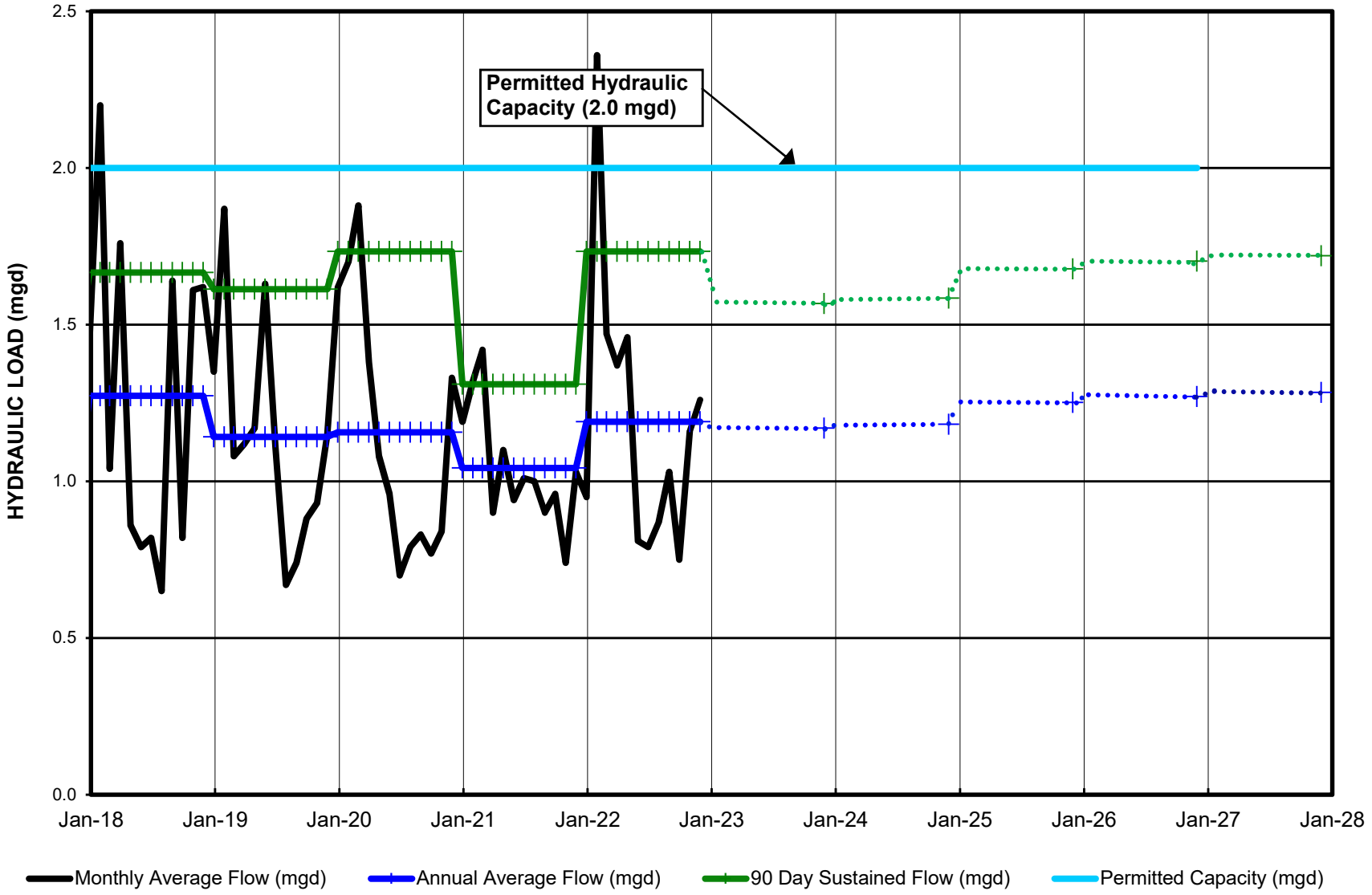
Robert Martini, Operations Supervisor
Center Township Sanitary Authority

March 29, 2023
Date

APPENDIX A

TABLES AND FIGURES

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

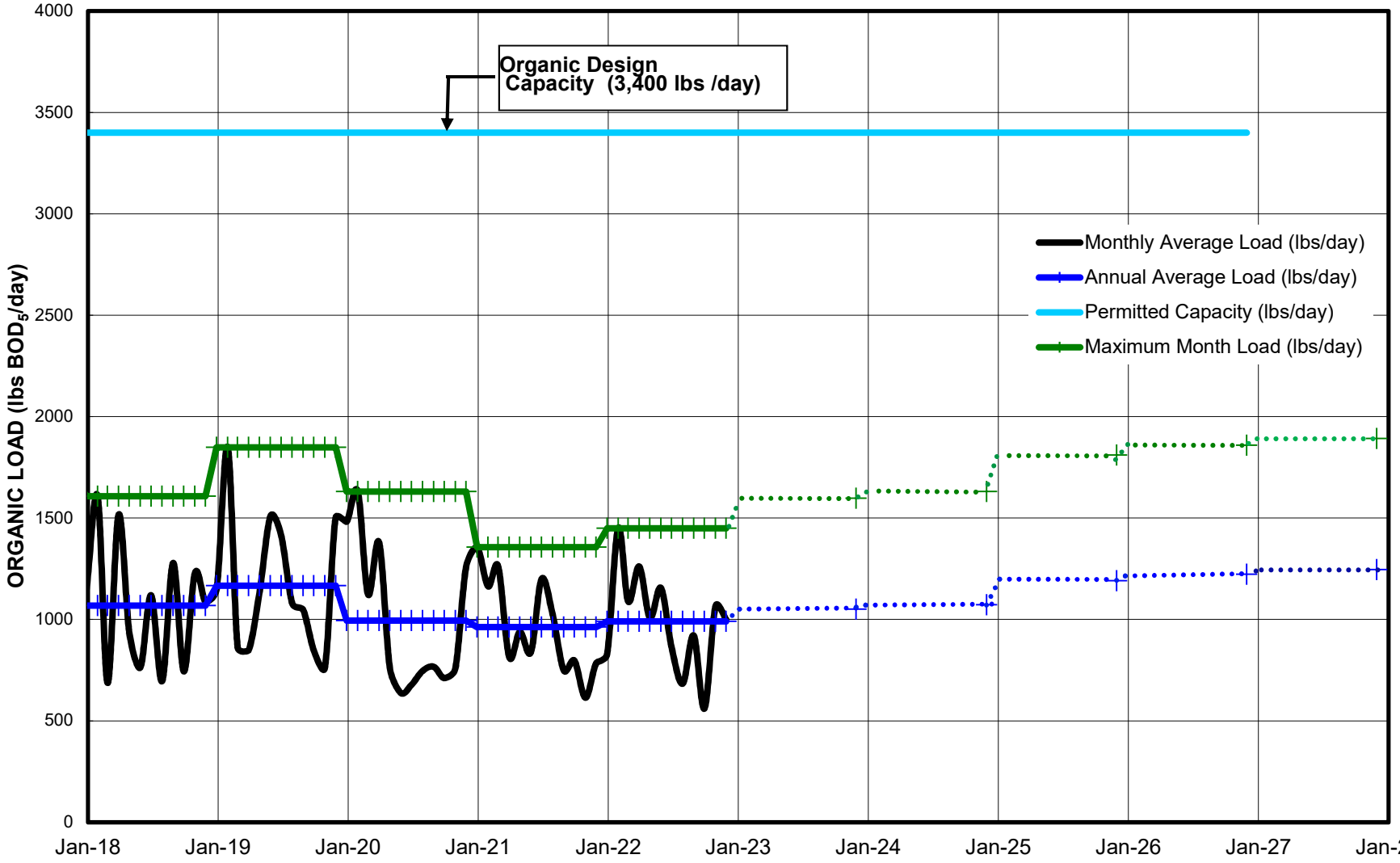

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TABLE 1
CENTER TOWNSHIP SANITARY AUTHORITY
ELKHORN RUN SEWAGE TREATMENT PLANT
HYDRAULIC LOADING DATA SUMMARY
JANUARY 2018 THROUGH DECEMBER 2022

DATE	2018		2019		2020		2021		2022	
January	1.460		1.350	*	1.620	*	1.190	*	0.950	
February	2.200	*	1.870	*	1.700	*	1.320	*	2.360	*
March	1.040	*	1.080	*	1.880	*	1.420	*	1.470	*
April	1.760	*	1.120		1.380		0.900		1.370	*
May	0.860		1.170		1.080		1.100		1.460	
June	0.790		1.630		0.960		0.940		0.810	
July	0.820		1.110		0.700		1.010		0.790	
August	0.650		0.670		0.790		1.000		0.870	
September	1.640		0.740		0.830		0.900		1.030	
October	0.820		0.880		0.770		0.960		0.750	
November	1.610		0.930		0.840		0.740		1.160	
December	1.620		1.150		1.330		1.030		1.260	
Annual Average (mgd)	**1.273**		**1.142**		**1.157**		**1.043**		**1.190**	
90 Day Sustained Flow Rate (mgd)	**1.667**		**1.433**		**1.653**		**1.310**		**1.733**	
Ratio (90-Day Sustained to Annual Average)	**1.31**		**1.26**		**1.43**		**1.26**		**1.46**	
5-Year 90-Day Sustained/Annual Average Ratio	**1.34**									
5-Year Annual Average Hydraulic Loading (mgd)	**1.161**									
5-Year 90-Day Sustained Hydraulic Loading (mgd)	**1.559**									

*Maximum 3-month flow period.

TABLE 2
CENTER TOWNSHIP SANITARY AUTHORITY
ELKHORN RUN SEWAGE TREATMENT PLANT
ORGANIC LOADING DATA SUMMARY
JANUARY 2018 THROUGH DECEMBER 2022

DATE	2018	2019	2020	2021	2022
January	1,150	1,149	1,482	1,356	830
February	1,608	1,849	1,631	1,163	1,450
March	687	862	1,124	1,262	1,089
April	1,516	848	1,379	815	1,261
May	936	1,129	763	938	1,008
June	764	1,509	637	839	1,155
July	1,119	1,415	677	1,200	861
August	696	1,080	746	1,024	683
September	1,279	1,047	767	750	921
October	744	845	711	797	560
November	1,228	764	758	614	1,064
December	1,086	1,502	1,258	784	999
Annual Average (LBS BOD_5/Day)	**1,068**	**1,166**	**994**	**962**	**990**
Maximum Month (LBS BOD_5/Day)	**1,608**	**1,849**	**1,631**	**1,356**	**1,450**
Ratio (Maximum Month to Annual Average)	**1.51**	**1.59**	**1.64**	**1.41**	**1.46**
5-Year Maximum Month/Annual Ratio Average	**1.52**				
5-Year Annual Average Organic Loading (LBS BOD5/Day)	**1,036**				

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
2023 [1]	1.161	0.0086	1.169	1.169	1.34	1.567
2024	1.169	0.0128	1.182	1.182	1.34	1.584
2025	1.182	0.0697	1.252	1.252	1.34	1.677
2026	1.252	0.0185	1.270	1.270	1.34	1.702
2027	1.270	0.0131	1.283	1.283	1.34	1.720

[1] 2023 Base Flow utilizes the 5-year Annual Average Hydraulic Loading (2018 to 2022).

[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
2023 [1]	1,036	15	1,051	1,051	1.52	1,597
2024	1,051	22	1,073	1,073	1.52	1,630
2025	1,073	118	1,191	1,191	1.52	1,810
2026	1,191	31	1,223	1,223	1.52	1,858
2027	1,223	22	1,245	1,245	1.52	1,892

[1] 2023 Base Organic Loading utilizes the 5-year Annual Average Organic Loading (2018 to 2

[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
2022 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	702,000	86,226	6,054	54,348	975	25,641	17,052	6,240	3,422	30,073	9,027
February	1,231,071	226,414	21,017	92,914	1,389	38,520	21,707	7,560	6,000	32,025	12,189
March	865,742	123,794	5,806	64,181	960	24,526	21,503	4,150	3,561	30,133	11,086
April	725,100	129,720	5,456	65,120	672	24,032	18,120	4,640	3,584	27,144	11,216
May	917,419	158,632	8,702	71,226	666	31,386	20,090	6,008	4,274	21,739	13,192
June	512,100	73,260	5,088	57,520	576	28,976	21,920	3,680	3,440	18,595	13,904
July	495,290	62,768	5,667	56,594	666	20,423	27,658	3,701	3,035	19,384	11,845
August	506,032	75,832	5,079	64,800	604	22,188	37,452	4,305	2,957	18,358	14,834
September	590,700	84,480	5,280	63,600	576	22,496	34,040	3,616	2,672	17,222	11,424
October	477,871	63,581	8,857	36,077	526	19,665	18,097	2,803	2,137	12,561	11,117
November	675,600	134,580	7,040	70,640	640	30,016	18,600	3,760	2,704	12,480	18,240
December	733,645	103,703	5,884	73,703	1,006	23,969	20,535	4,119	2,803	12,440	9,352
Annual Average	702,714	110,249	7,494	64,227	771	25,987	23,065	4,548	3,382	21,013	12,286
Maximum Month	1,231,071	226,414	21,017	92,914	1,389	38,520	37,452	7,560	6,000	32,025	18,240
[2]	1,252,560	230,943	21,437	94,773	1,416	39,290	38,201	7,711	6,120	32,665	18,605

[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.

APPENDIX B

CALIBRATION CERTIFICATE

Customer Service Report

Total Instrument Maintenance

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

TIM

INVOICE # T.I.M.-2938

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

REQUESTED SERVICE: Yearly flow meter calibration.

PO # / SO # ____
MODEL # 50XM1000
SERIAL # 05W00M00243

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 Flow converter. The Waste Recirculation & Return flow recorders. Checked outputs & indications at 0-25-50-75 & 100%. Re-zeroed Waste #1 Flow Converter. No other issues found.			
		[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 # [ ]	
		COUNTY TAX OR TAX ID # [ ]	
TERMS: NET 30 DAYS		FINAL AMOUNT DUE ➤	$ 680 00

I HEREBY ACCEPT AND APPROVE ALL WORK AS DEFINED ABOVE.

TECH (PRINT)	TECH (SIGNATURE)	DATE	CUSTOMER (PRINT)	CUSTOMER (SIGNATURE)	DATE
Ryzbyski	Tim Pryzbyski	2/9/22	Kirk Johns		2/9/22

WHITE - INVOICE YELLOW - TIM PINK - CUSTOMER RECEIPT 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 17, 2022

NEXT CALIBRATION DUE DATE: October 31, 2023

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 / 4.999 19.997 / 39.996	1.000 / 5.000 20.000 / 40.000	1	GOOD SC EXT
2	METTLER	AE100	K17105	LAB	100 g / C	0.1	0.1028 / 1.0274 10.2741 / 51.3702 102.7400	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. 01213501 dated 28-JULY 2021 and expires 28-JULY 2022. 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 18, 2022
Date

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

TEMPERATURE: 22.6 °C

RELATIVE HUMIDITY: 42.5 %

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	268394	LAB	TO-02	20.0 °C	20.1 °C	+ 0.1 °C	IN TOLERANCE
2	HEATING BLOCK THERMOMETER	DRB200	11060C0159	LAB	TO-02	LEFT 120 °C	120.6 °C	+ 0.6 °C	IN TOLERANCE
						RIGHT 120 °C	120.4 °C	+ 0.4 °C	
						LEFT 150 °C	149.6 °C	- 0.4 °C	
						RIGHT 150 °C	149.9 °C	- 0.1 °C	
3	HEATING BLOCK THERMOMETER	DR104115	4133	LAB	TO-02	NOT SERVICED			
4	MILLIPORE INCUBATOR THERMOMETER	XX6310000 XX63200045	8130 1921	LAB	TO-02	NOT SERVICED			
5	KENMORE REFRIGERATOR THERMOMETER	ERTCO	23195	LAB	TO-02	3.0 °C	3.1 °C	+ 0.1 °C	IN TOLERANCE
6	PRECISION OVEN THERMOMETER	ERTCO ECONOMY	68N010556 8221	LAB	TO-02	103 °C	103.6 °C	+ 0.6 °C	IN TOLERANCE
7	FISHER FURNACE THERMOMETER	126	96N10003	LAB	TO-02	551 °C	572.5 °C	+ 21.5 °C	IN TOLERANCE
8	VWR THERMOMETER		201824	LAB	TO-02	24 °C	23.8 °C	- 0.2 °C	IN TOLERANCE

CALIBRATION INSTRUMENT(S): FLUKE ASSET #53760403MV, SOP #TO-02. CALIBRATION INFORMATION: CALIBRATED 19 JANUARY 2022, EXPIRES 19 JANUARY 2023, CERTIFICATES #773874 AND #769992. 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 18, 2022
Date

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CALIBRATION REPORT

DATE OF SERVICE: October 17, 2022

NEXT CALIBRATION DUE DATE: October 31, 2023

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

TEMPERATURE: 22.6 °C

RELATIVE HUMIDITY: 42.5 %

Nr.	ID	Model Nr	Serial Nr.	Location	Cal. Procedure	Service Reading	Total SP Reading	Correction Factor	In Tolerance or Not / Serviced
9	WATER BATH	TSCOL19	300524393	LAB	TO-02	35.0 °C	35.0 °C	± 0.0 °C	IN TOLERANCE
10	THERMOMETER		4610	LAB	TO-02	44.5 °C	44.5 °C	± 0.0 °C	IN TOLERANCE

CALIBRATION INSTRUMENT(S): FLUKE ASSET #53760403MV, SOP #TO-02. CALIBRATION INFORMATION: CALIBRATED 19 JANUARY 2022, EXPIRES 19 JANUARY 2023, CERTIFICATES #773874 AND #769992. 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.

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996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 22.6 °C

RELATIVE HUMIDITY: 42.5 %

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	1.044 abs	0.008	0.76 %	IN TOLERANCE
	Stray Light Check			340 nm	0.960 abs	0.018	1.89 %	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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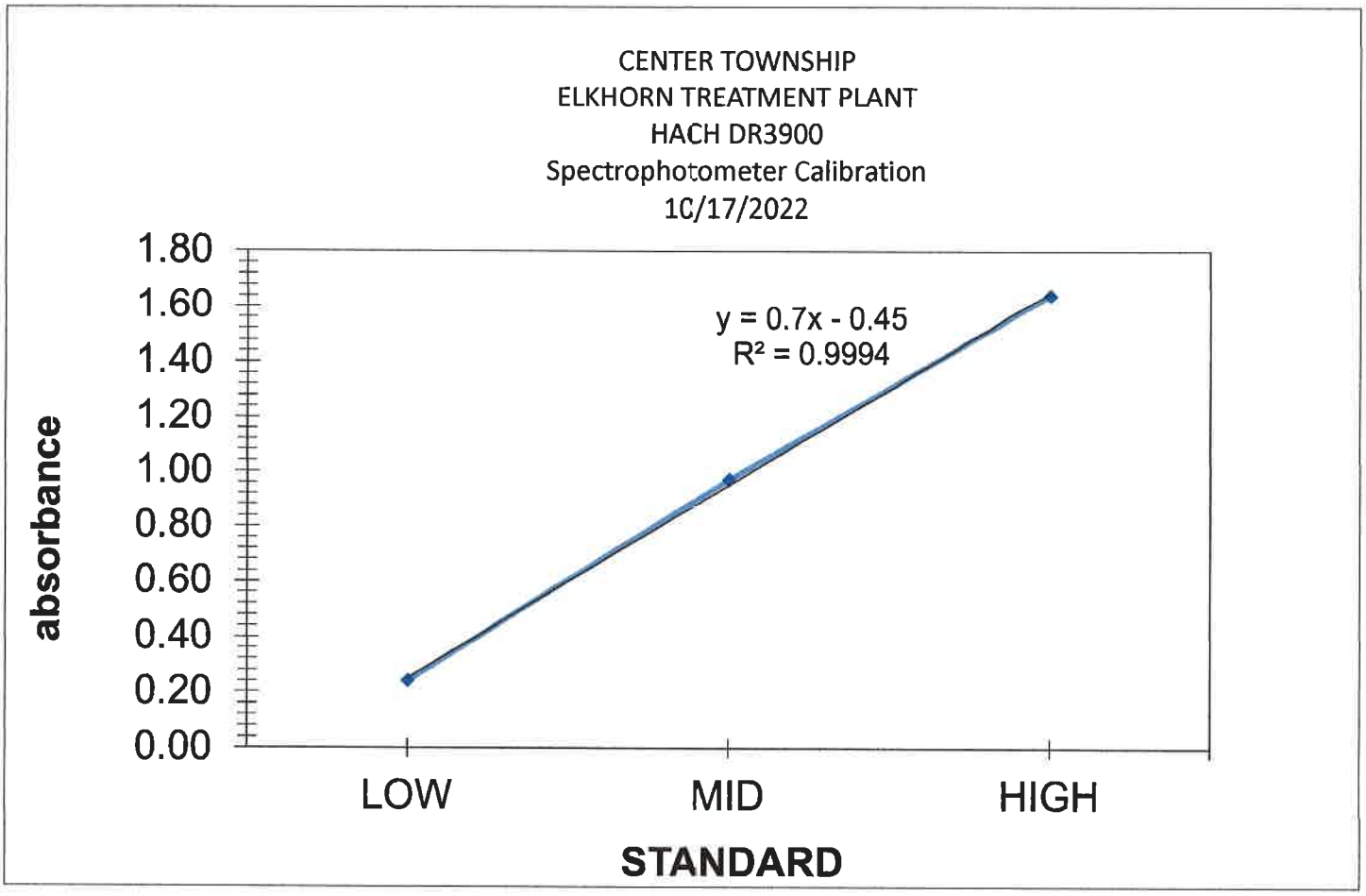
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061

TEMPERATURE: 22.6 °C

RELATIVE HUMIDITY: 42.5 %



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CALIBRATION INSTRUMENT(S): HACH STANDARDS KIT #2635300, CALIBRATION INFORMATION: CALIBRATED FEBRUARY 2022, EXPIRES FEBRUARY 2024. 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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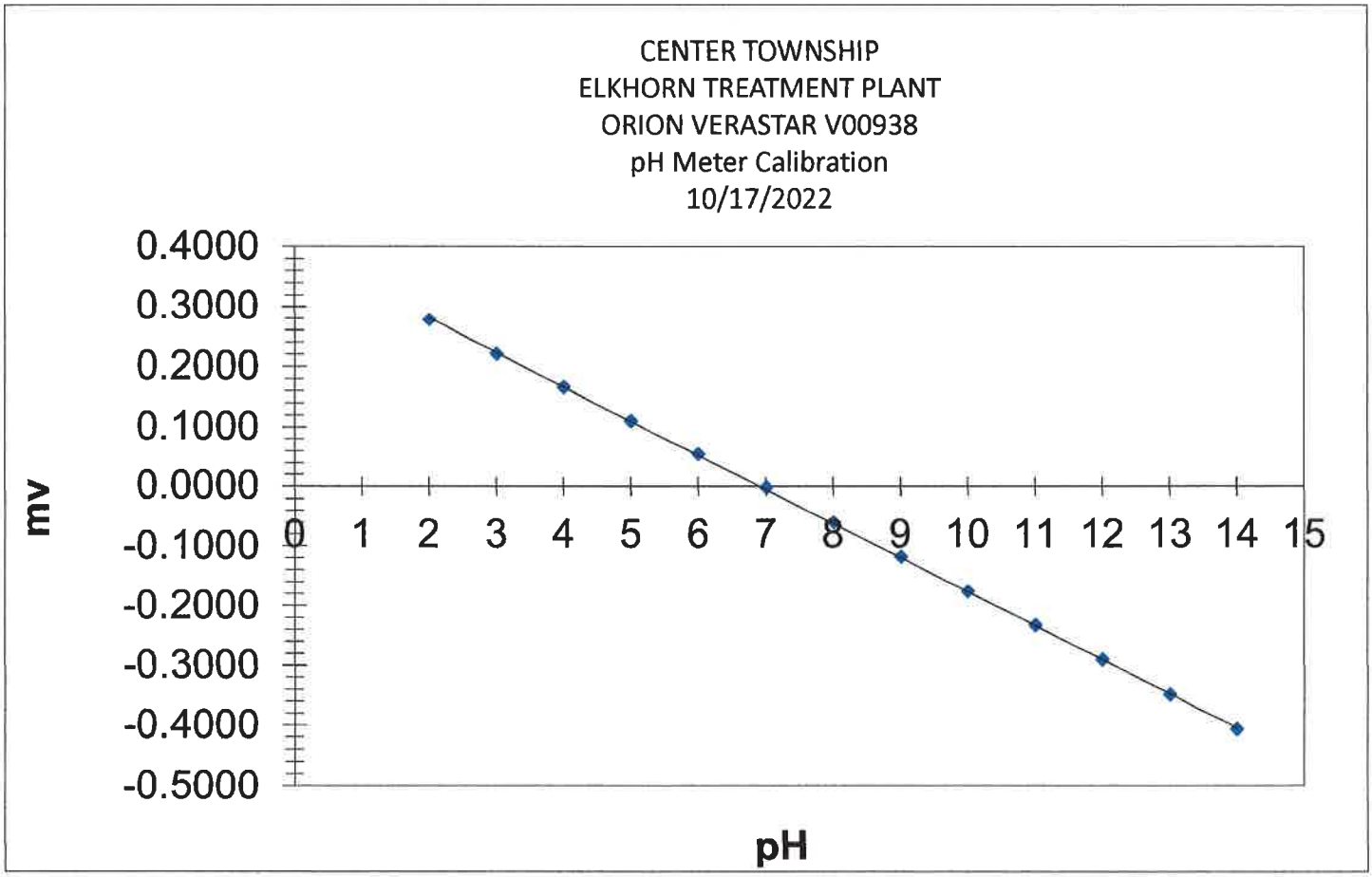
CENTER TOWNSHIP
ELKHORN TREATMENT PLANT
ATTN: LANCE ELIAS
996 BISKUP LANE
MONACA PA 15061



ZERO CROSSING = 6.91

CALIBRATION INSTRUMENT(S): CALIBRATORS, INC ASSET #701901, SOP #PH-01, CALIBRATION INFORMATION: CALIBRATED 22 DECEMBER 2021, EXPIRES 22 DECEMBER 2022, CERTIFICATE #769995.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.

Marian E Brna, Pres.

October 18, 2022
Date

APPENDIX C

TAP SUMMARY

Center Township Sanitary Authority
Sewer Tap Summary

Development	Actual 2018	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Estimated 2023	2024	2025	2026	2027	2028	2029	Remaining	Total Estimated
Heritage Valley - Glade Bluffs	22	0	0	0	0	0	0	0	0	0	0	0	0	22
Village at Riverside - NVR/Ryan Homes	5	29	21	24	0	0	0	0	0	0	0	0	0	79
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
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	0	0	182	0	0	0	0	182	182
Glade Bluffs Phase III	0	0	0	0	0	0	0	25	25	0	0	0	50	50
Lincoln Learning Center	0	0	0	0	0	0	0	10	0	0	0	0	10	10
Old Glass Dump Property	0	0	0	0	0	0	0	10	0	0	0	0	10	10
Vacant 3 Acre Parcel	0	0	0	0	0	0	0	5	0	0	0	0	5	5
Highland Meadows Phase 1	0	3	6	5	4	5	2	0	0	0	0	0	7	25
Highland Meadows Phase 2	0	0	0	0	0	0	5	5	5	5	6	0	26	26
Highland Meadows Phase 3	0	0	0	0	0	0	0	0	0	0	13	12	25	25
Lakeview Farms Phase 5	0	0	0	3	4	15	15	15	15	16	0	0	76	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	4	0	0	0	0	0	0	0	0	11
Get Go #3016	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Joe Hall Apartments	0	0	0	0	0	0	10	10	10	12	0	0	42	42
Miscellaneous	7	11	12	9	14	15	20	20	20	20	20	20	135	188
Total	**258**	**76**	**39**	**51**	**26**	**35**	**52**	**282**	**75**	**53**	**39**	**32**	**568**	**1018**

APPENDIX D

MAINTENANCE SUMMARY

Center Township Sanitary Authority

2022 CSTA Maintenance & Camera Report

- Inspections completed on all authority vehicles.

Collections System

COMPANY	DATE	ITEM	NOTE
Tepco	2/7/2022	#1 pump in alarm. Reversed the pump rotation to clear obstruction.	Repair - $360
W.C. Weil	2/25/2022	Field Services for Shirley Drive & Stobo Lift stations	Repair - $2,377
W.C. Weil	3/10/2022	Replaced both wet well vacuum piping and new vacuum pump at Stobo L/S.	Repair - $4,557
W.C. Weil	3/30/2022	Replace right and left 4" check valves. Installed 4" gate valves at Shirley Drive L/S.	Repair - $6,863
W.C. Weil	4/13/2022	Floats bad on wet well at Franklin Lift Station. Transducer not responding to turn on pumps.	Repair - $1,140
W.C. Weil	4/22/2022	Replaced floats on wet well at Franklin LS	Replace - $1,330
W.C. Weil	5/13/2022	Repaired transducer at Franklin Lift Station.	Repair - $2,405
Tepco	6/7/2022	Replace pump at Gardenview with CTSA spare, repair alarm. Rebuild broken pump.	Repair - $413 Repair - $1,555
Lone Pine	6/15/2022	Logstown L/S - Repaired forced main piping inside of wet well.	Repaired - $7,133
W.C. Weil	6/20/2022	Logstown L/S – Replaced seal on pump #3. Replaced seal filter and fittings on pump #4. Replaced pump #1 with spare pump. Brought #1 pump back to shop for inspection.	Repair - $2,465
W.C. Weil	6/30/2022	Walnut Grove L/S – Replaced solenoid Valve on pump	Repair - $1,459
W.C. Weil	7/4/2022	Stobo L/S – Replaced dome on pump. Confirmed timers working	Repair - $601

W.C. Weil	8/14/2022	Logstown L/S – rebuild pump SN:020453. Seals, bearings, gaskets and machine shaft.	Repair - $6,587
Pete Sudak	8/23/2022	Relocate lateral for house on 1294 Chapel Road.	Repair - $8,500
Lanco Electric	8/23/2022	Repaired winn911 issues on the scada system.	Repair - $1,814
Halama Brothers Electric	8/31/2022	Replace soft start at Logstown Lift Station.	Replace - $3,344
Pete Sudak	11/23/2022	Repairs to broken forced main 1000' from the Logstown Lift Station. Emergency repair.	Repair - $21,275
W.C. Weil	9/1/2022	Rebuild spare pump for Logstown Lift Station.	Repair - $2,029
LB Water	11/3/2022	Supplies (valves, pipe, etc.) for repair of broken forced main at the Logstown Lift Station.	Repair - $8,923
A & A Concrete	11/15/2022	Manhole with flat top for valve vault at Logstown Lift Station.	Add - $3,383
W.C. Weil	11/23/2022	Issue with pump at Walnut Grove Lift Station. Pump pulled for service.	Repair - $1,242
W.C. Weil	12/27/2022	Rebuilt spare L/S pump.	Repair - $2,233
Lanco Electric	12/28/2022	Upgrade/replace routers for scada system at Lift Stations and Plant.	Replace - $3,414

Manhole Repairs / Replacements

MANHOLE #	ISSUE	SOLUTION
ER263	Buried in pavement	Exposed and inspected.
ER157	Cannot open.	Exposed and inspected.
ER218	Cannot open.	Exposed and inspected.
ER266	Cannot open.	Exposed and inspected.
MR153	Cannot open.	Exposed and inspected.
MR155	Cannot open.	Exposed and inspected.
MR159	Cannot open.	Exposed and inspected.
MR169	Cannot open.	Exposed and inspected.
MR195	Cannot open.	Exposed and inspected.
MR204	Cannot open.	Exposed and inspected.
MR226	Cannot open.	Exposed and inspected.
MR276	Cannot open.	Exposed and inspected.
MR356	Cannot open.	Exposed and inspected.
MR358	Cannot open.	Exposed and inspected.
MR448	Cannot open.	Exposed and inspected.

MR454	Cannot open.	Exposed and inspected.
MR459	Cannot open.	Exposed and inspected.
MR470	Cannot open.	Exposed and inspected.
MR513	Cannot open.	Exposed and inspected.
MR527	Cannot open.	Exposed and inspected.
MR536	Cannot open.	Exposed and inspected.
MR548	Cannot open.	Exposed and inspected.
MR550	Cannot open.	Exposed and inspected.
MR551	Cannot open.	Exposed and inspected.
MR552	Cannot open.	Exposed and inspected.
MR553	Cannot open.	Exposed and inspected.
MR554	Cannot open.	Exposed and inspected.
MR555	Cannot open.	Exposed and inspected.
MR556	Cannot open.	Exposed and inspected.
MR557	Cannot open.	Exposed and inspected.

Plant & Associated Equipment

COMPANY	DATE	ITEM	NOTE
Halama Brothers Electric	1/4/2022	Trouble shoot and repair 150 hp motor.	Repair - $3,255
Total Equipment	1/19/2022	Repair blower #2.	Repair - $14,534
Total Equipment	2/4/2022	Replace 6’ plug valve in blower room #1.	Replace - $3,585
Kappe	5/16/2022	Replace heating cable and chute on washer compactor.	Repair - $1,610
Total Equipment	2/15/2022	Replace valve in blower Room #1.	Replace - $3,585
Halama Brothers Electric	11/7/2022	Emergency repairs of Underground power conduits damaged to blower room #1.	Replace - $21,370

Sanitary Sewer Lines High Pressure Cleaned

COMPANY	DATE	LOCATION	LENGTH
Tri - State	1/25/2022	Brodhead Road	850’
Tri – State	2/3/2022	2993 Brodhead Road	300’
Tri – State	4/6/2022	Shads Hollow Road	2,400’
Tri – State	4/6/2022	Golfview Road	1400’
Tri – State	4/28/2022	Shads Hollow Road	4,800
Tri – State	5/9/2022	Shads Hollow Road	500’
Tri – State	9/19/2022	Old Brodhead Road	1,200’

Sanitary Wet Wells / Tanks Vacuumed Cleaned / Manholes Flushed

COMPANY	DATE	LOCATION	ITEM
Tri – State	2/21/2022	Shirley Drive	Wet Well
CTSA	2/22/2022	M.H. Trinity Drive	Flushed
Tri – State	2/23/2022	Spruce Drive	Wet Well
Tri – State	4/20/2022	Franklin Lift Station	Wet Well
Tri – State	4/20/2022	Plant #2	Contact Tanks
Tri - State	4/14/2022	Clean Lines	Drain lines
CTSA	4/22/2022	M.H. Ridgeview	Flushed
CTSA	6/4/2022	M.H. Todd Lane	Flushed
Tri – State	8/10/2022	Logstown / Biggins / Walnut	Wet Wells
CTSA	9/6/2022	M.H. Louise Street	Flushed
CTSA	11/4/2022	M.H. Mengel Drive	Flushed

Residential Plunge of Trap & Sewer Line Inspections

COMPANY	DATE	LOCATION	ITEM
CTSA	1/4/2022	108 Trinity Drive	Inspection
CTSA	1/6/2022	200 Princeton Drive	Inspection
CTSA	1/10/2022	117 Poplar Drive	Inspection
CTSA	1/11/2022	3123 Locust Drive	Inspection
CTSA	2/10/2022	181 Geneva Drive	Inspection
CTSA	2/18/2022	1400 Center Road	Inspection
CTSA	3/1/2022	281 Sherwood Drive	Plunge
CTSA	3/10/2022	1379 Lincoln Drive	Inspection
CTSA	3/10/2022	246 Princeton Drive	Inspection
CTSA	3/11/2022	111 Sunset Lane	Inspection
CTSA	4/1/2022	886 Chapel Road	Inspection
CTSA	4/7/2022	107 Shadyside Drive	Plunge
CTSA	6/7/2022	130 Dartmouth Way	Inspection
CTSA	7/7/2022	455 Center Grange Road	Inspection
CTSA	8/1/2022	243 Columbia Drive	Inspection
CTSA	8/8/2022	1294 Chapel Drive	Plunge
CTSA	9/13/2022	132 Gross Drive	Inspection
CTSA	9/30/2022	132 Kings Drive	Inspection
CTSA	9/30/2022	119 Bainbridge Drive	Inspection
CTSA	10/6/2022	1399 Center Street	Inspection
CTSA	10/17/2022	415 Temple Road	Inspection
CTSA	11/1/2022	137 Wait Avenue	Inspection
CTSA	11/14/2022	163 Edgewater Drive	Inspection
CTSA	11/29/2022	3563 Brodhead Road	Inspection
CTSA	12/7/2022	570 Chapel Road	Plunge
CTSA	12/14/2022	128 Bainbridge Drive	Plunge

Camera Inspection on Sanitary Sewer Lines

COMPANY	DATE	LOCATION	LENGTH
Tri - State	1/24/2022	Brodhead Road	400’
Tri – State	1/25/2022	Brodhead Road	650’
Tri – State	2/3/2022	2993 Brodhead Road	300’
CTSA	4/7/2022	137 Mengel Avenue	100’
CTSA	9/17/2022	112 Church Drive	150’
CTSA	11/16/2022	1083 Chapel Road	150’

APPENDIX E

SLUDGE MANAGEMENT
INVENTORY REPORT

SLUDGE GENERATION CALCULATION

Facility Name: Elkhorn Run Sewage Treatment Plant
Permit Number: PA0037940
Date of Calculation: 3/7/2023

Required Information For Calculation

Average Daily Flow (mgd):	1.19	Digester Capacity (gal):	577043
Influent BOD (mg/l):	112.8	%Solids of Outgoing Sludge:	16.01
Effluent BOD (mg/l):	7.5	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):	1045	TSS Removed (lbs/day):	1045

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):	15663.375
Digester Hydraulic Detention Time (days):	37
Estimated Total Solids Reduction (%):	0.4

Sludge Generation

dry lbs/day	627	wet lbs/day	3917
dry tons/monitoring period	114	wet tons/monitoring period	715
gal/day	470	gal/monitoring period	171407

Amount of Sludge Reported as Being Generated by the Facility

wet tons/monitoring period: 0

OR

dry tons/monitoring period: 84

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: LESS THAN 15% RANGE

Actual Sludge Produced is Less Than Theoretical Calculated Sludge Produced

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

Dates used: 1/1/2022 TO 12/31/2022

Name of person performing the calculation: Marie S. Hartman, P.E.

Table 6

Center Township Sanitary Authority

Elkhorn Run Sewage Treatment Plant

2022 Solids Management Inventory [1]

January 2022 Through December 2022

	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-22	0.950	97.0	5.4	21.6	17.0	3.7
Feb-22	2.360	114.3	6.0	52.3	17.3	9.1
Mar-22	1.470	88.8	5.9	33.5	17.3	5.8
Apr-22	1.370	107.3	10.6	0.0	0.0	0.0
May-22	1.460	98.8	7.1	28.6	17.0	4.9
Jun-22	0.810	169.0	11.0	61.8	17.0	10.6
Jul-22	0.790	127.3	7.8	48.9	17.5	8.6
Aug-22	0.870	95.4	4.3	42.9	17.7	7.6
Sep-22	1.030	110.5	8.0	14.7	18.0	2.6
Oct-22	0.750	96.6	6.4	82.3	17.6	14.5
Nov-22	1.160	136.0	7.9	39.5	18.0	7.1
Dec-22	1.260	112.1	10.0	53.8	17.7	9.5
Average	**1.190**	**112.8**	**7.5**			
			TOTAL	**480**	**16.01**	**84**

(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.