

Metropolitan Sewerage District of Buncombe County

System Performance Annual Report



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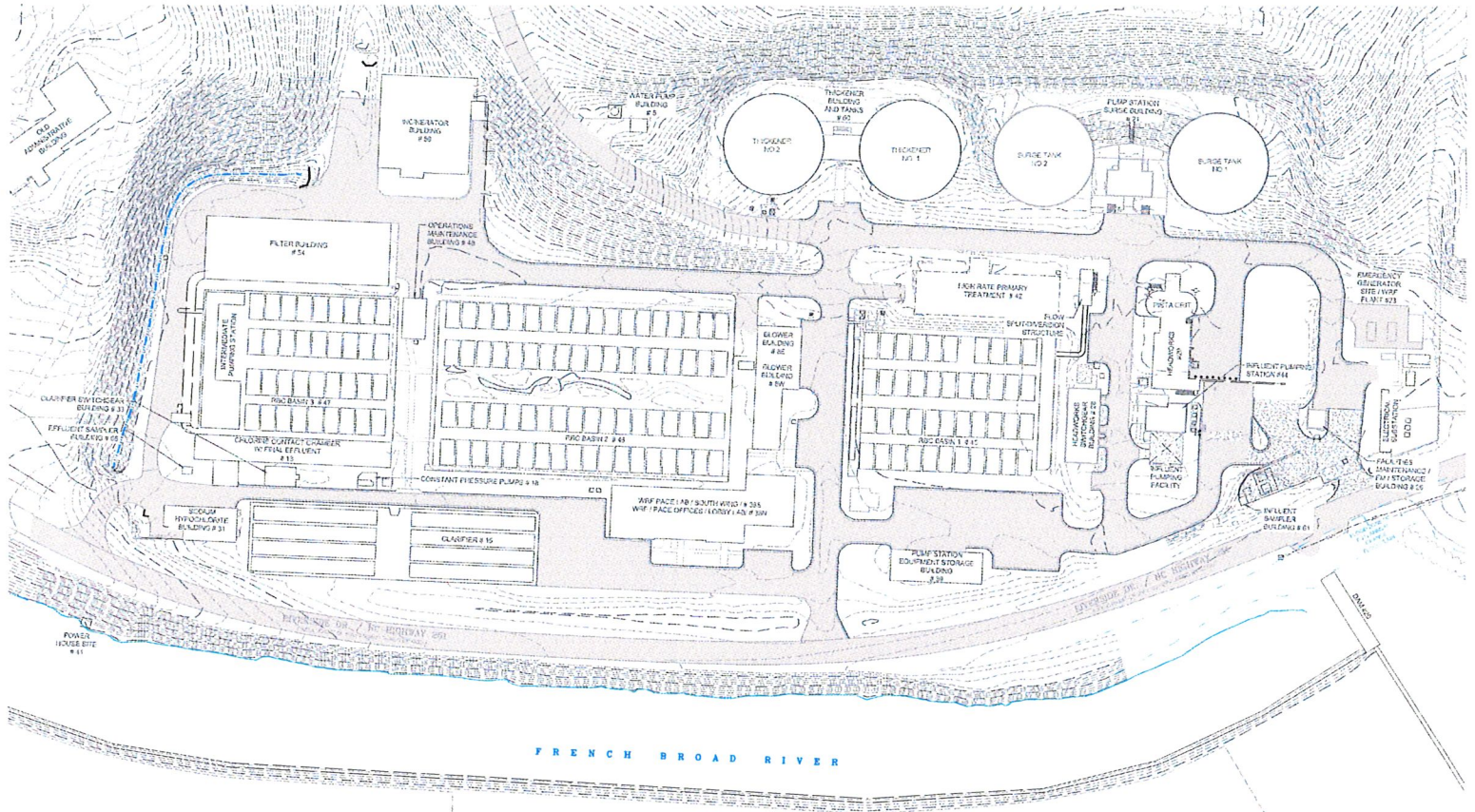
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System Performance Annual Report

Fiscal Year 2026 (July 2025 - June 2026)



I. General Information



Permit Numbers:

NPDES Permit # NC0024911

General Storm Water Permit # NCG110000 COC # NCG110158

Air Quality (ABAQA) Title V Permit # 11-772-18

Collection System # WQCS00004

II. Description of Facilities

Collection System—System Services Division



In the fiscal year of 2026 (FY26), the Metropolitan Sewerage District provided wastewater service to over 60,000 customers with an estimated population of 277,210. This large service area spans the French Broad River and Swannanoa River Valleys covering about 264 square miles of land. Pipes conveying the wastewater from homes and businesses form an extensive collection system operated and maintained by our System Services Division. With over 1,175 miles of public sanitary sewer lines, 39 pump stations and approximately 35,400 manhole access points; significant manpower and equipment is required. Pipes vary in size from 66" diameter large interceptors down to 6" serving residential communities. Most of the piping within the District is between 50 and 100 years old and requires continual upkeep and/or replacement.

Water Reclamation Facility (WRF)

The Water Reclamation Facility (WRF) is rated at 40 million gallons per day (MGD) capacity serving most of Buncombe County (Asheville, Biltmore Forest, Black Mountain, Montreat, Weaverville, Woodfin and part of northern Henderson County). In FY26 an average flow of 19.5 million gallons per day were treated with the majority coming from residences. For the year, 7.1 billion gallons were treated with approximately 27 percent coming from Infiltration & Inflow (I&I). That's the industry term for groundwater seeping in from cracks in pipes and manholes or rainwater entering through manhole lids and unauthorized Storm Water connections. The District is continually working to reduce this number.

The design of our wastewater treatment system is called "attached growth" relying heavily on 152 rotating biological contactors (RBC's) to do the bulk of treatment. These RBC's provide over 400 acres (about 2.5 acres per unit) of surface area for microorganisms to grow upon. As the backbone of treatment, these microorganisms do the heavy lifting providing the return of clean, safe water back to the French Broad River; our receiving stream. MSD's facility is believed to be the largest RBC plant in the United States.



II. Description of Facilities — WRF Treatment Components

Preliminary Treatment Components

- Influent Multi-rake Barscreens (2 units, ½ inch Bar Spacing, 40 MGD each) with screenings washer/compactor and shaftless screw conveyor
- Influent Pumps (3 units) - 35 MGD rated capacity each
- Perforated Plate Fine Screens (3 units, ¼ inch openings, 40 MGD each) with screenings washer/compactor
- Vortex Grit Removal (2 units rated at 50 MGD) - Removal Rate 95% of Grit > 140 Mesh
- Storm Surge System - Utilizes three pumps rated at 5MGD each and two storm surge tanks rated at 2.1 million-gallons each

Primary Treatment Components

- Primary Clarification - Chemically Enhanced Kruger ACTIFLO system
(Construction substantially complete in December of 2021)

Secondary Treatment Components

- 1st Stage RBC's (44 units)
- 2nd Stage RBC's (72 units)
- 3rd Stage RBC's (36 units)
- Intermediate Pumps (3 units) - pump water to clarifier from 3rd RBC stage
- Intermediate Clarifier (4 cells - total volume 2 MG)
- Microfiltration via AASI AquaDisk Units (16 units)

Disinfection Components

- Sodium Hypochlorite solution - average feed 1000 gallons/day at 6.5% solution strength

Residuals Handling Components

- Gravity Thickeners (2 units) - 100 foot-diameter each
- 2.5 Meter Belt Presses (2 units)
- Fluidized Bed Incinerator (3,317 dry pounds per hour)

Energy Management Components

- Two separate power circuits from Duke Energy for plant, with Automatic Transfer Switch if one fails
- 4-Megawatt total from three Diesel Generators (emergency backup power for WRF; will maintain full treatment processes during a power outage)
- 850 Kilowatt Hydro Turbines (3 units) - induction units (French Broad River source). These generate power using the District's dam/flume. The power is sold back to Duke Energy.

Automation Components

- SCADA (Supervisory Control and Data Acquisition) - full automated control of WRF



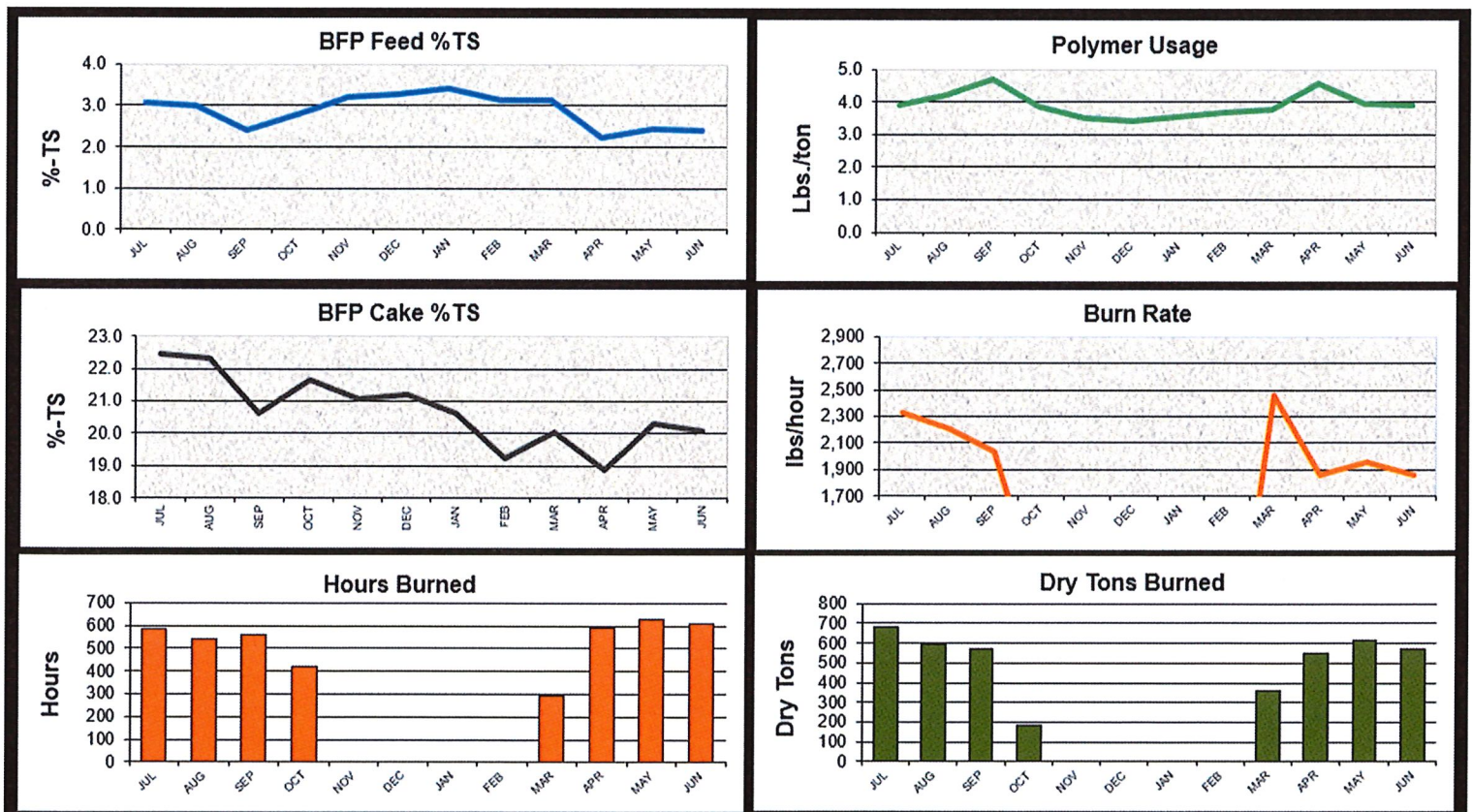
II. Description of Facilities — Sludge Management Plan

MSD utilizes its Fluidized Bed Incinerator as its primary residual management option. Presently the facility is managing 17-20 dry tons per day of residuals. The facilities are designed for 3,317 dry pounds per hour. Due to the lack of true primary clarifiers, most of the sludge generated at the facility is secondary in nature (i.e. sloughings from the RBC's).

Sludge is thickened in on-site gravity thickeners to a consistency of 2-5% solids at which time it is then pumped to the 2 1/2-meter belt presses. These units dewater the sludge to over 18% solids and then it is pumped to the incinerator. Air emissions from the incinerator are of excellent quality, and air quality is further enhanced by a new filtration system added in 2016. Incinerator ash is thickened on-site via a gravity ash thickener and then pumped to an on-site lagoon. Ground-water is monitored in accordance with NCDEQ requirements (up & down gradient).

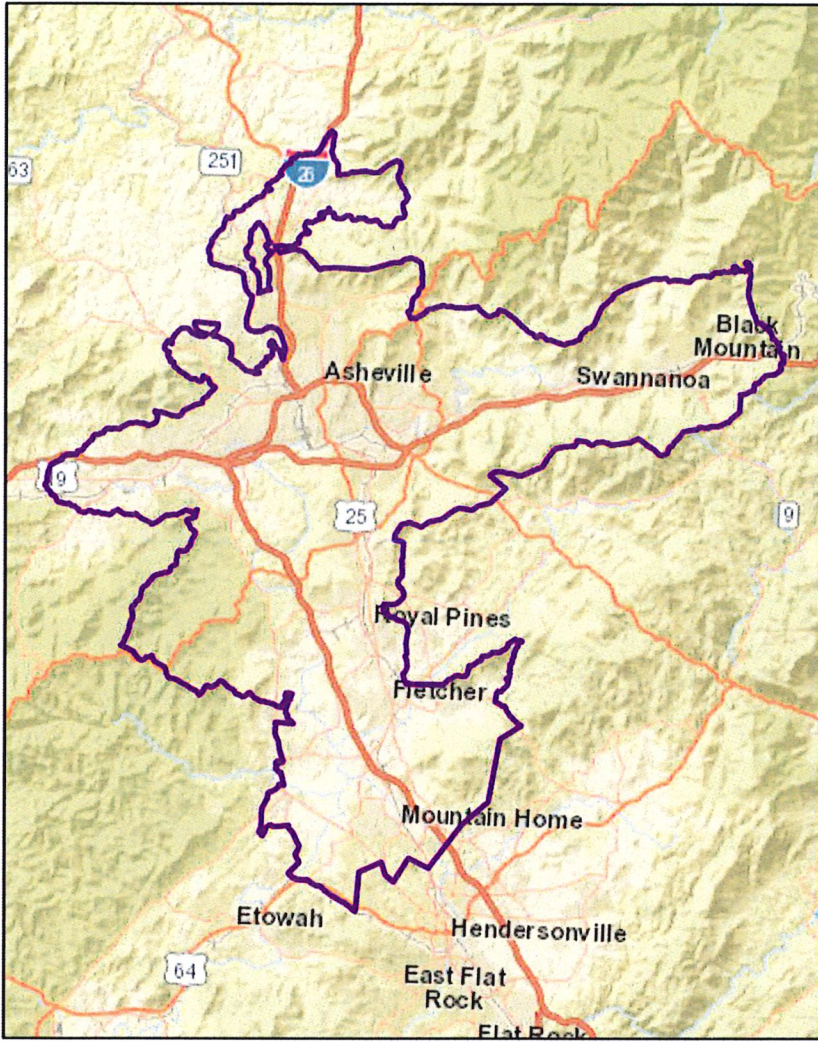
The incinerator system provides the most cost-effective method for sludge management. Supplementary fuel is sometimes required due to the 18% solids content - natural gas via Dominion Energy is utilized for this purpose.

MSD also maintains an agreement with the local county landfill (lined) to dispose of dewatered sludge during emergency and/or maintenance activities. This provides a second residuals management alternative, when or if needed.



III. Improvements to Facilities

Collection System Improvements



MSD assumed ownership and maintenance of the various local public collection systems in 1990, and since that time MSD has undertaken an aggressive program to correct existing known collection system problems. Between 1990 and 2025, over 1,459,523 linear feet (or 276 miles) of pipe have been replaced and over \$617 million has been re-invested in plant and collection system rehabilitation projects. However, due to the large size of the MSD system, there is much work still to be done. From FY 2027 to FY 2036, the District expects to rehabilitate or replace an additional 403,532 linear feet.

Approximately \$795 million will be spent for the District's Capital Improvement Program (CIP) over the next ten years. Of this, 8% will be spent on rehabilitating medium to large Interceptors, 22% on rehabilitating or replacing small collection lines, and 64% on the treatment plant and pump station projects.

MSD's Pipe Rating Program is used to objectively prioritize rehabilitation projects throughout the regional collection system. This published, award winning program utilizes the District's Geographic Information System (GIS) and database software to collect rating data for each project. The data include Sanitary Sewer Overflow (SSO) history, customer service requests, proximity to streams/waterways, structural condition, and monitoring/maintenance schedules by MSD staff. A priority rating is then generated for each project, which is used to prioritize the ten-year CIP.

MSD maintains an aggressive Preventative Maintenance Program whereby approximately 1,026,000 linear feet (or about 194 miles) of sewer lines were cleaned by high pressure water jetting equipment. In addition, over 55,650 linear feet of sewer lines were mechanically treated to remove tree roots and blockages. MSD also maintains its Rights-Of Way to ensure access to the system for cleaning and maintenance activities. During 2026 over 86,600 feet were cleared.

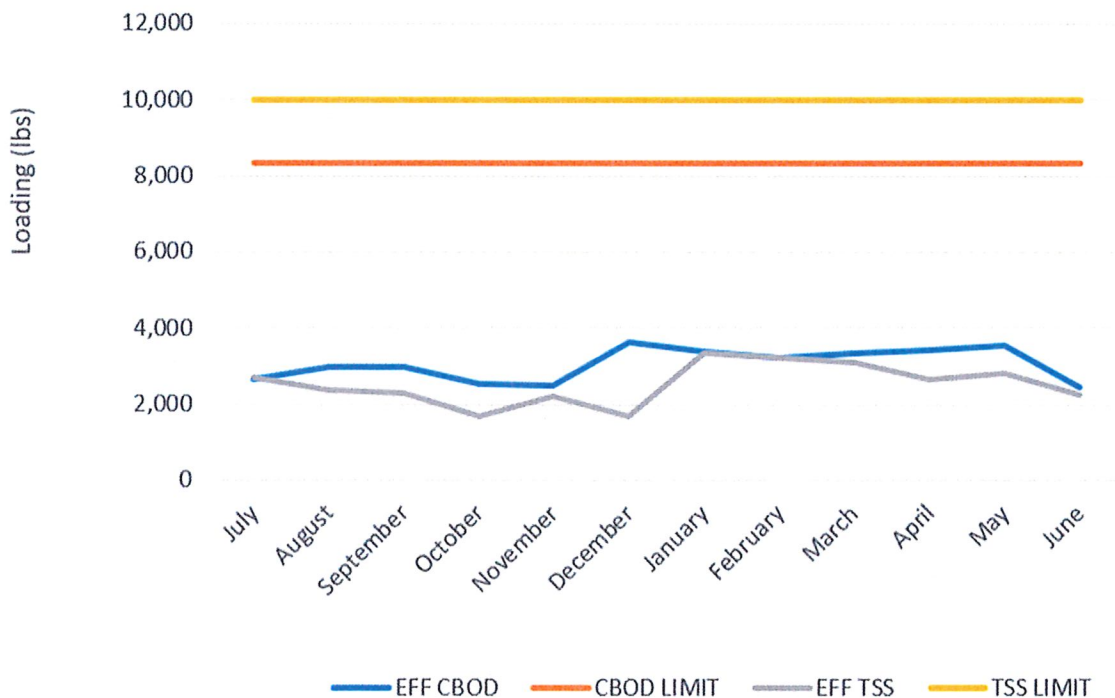
III. Improvements to Facilities

Water Reclamation Facility (WRF) Performance Measures

During the FY26 annual reporting period, high performance measures were again achieved. The WRF continues to provide effective/efficient treatment services to the community averaging wastewater CBOD & TSS removal efficiencies of 93% and 95% respectively (state permit requires a minimum of 85% removal rates for compliance). The volume of flow to the WRF continues to remain well below hydraulic capacity for the plant averaging 19.5 million gallons per day.

MSD maintains a service contract agreement with Pace Analytical, Inc. (NC certified lab). This progressive opportunity continues to yield significant long-term savings to MSD. Also, the WRF successfully participated in surveillance audits regarding ISO14001 certification, coming through with zero (0) non-conformances. This program, also referred to as an Environmental Management System, continues to provide significant benefits to MSD both in the short & long-term.

WRF Performance FY26



III. Improvements to Facilities

Water Reclamation Facility Improvements

Several projects were completed in the past year:

- Clarifier Rehabilitation
 - ⇒ The rectangular clarifier, used to remove solids from the flow prior to filtration, had many areas of metal fatigue and deterioration. A project was developed to replace the damaged components in 4 stages. Stage 1 is now complete.
- Disabled RBC Removal & Replacement
 - ⇒ A number of RBCs were disabled due to broken shafts. A project was undertaken to replace the broken RBCs in basins 1&2 with RBCs from basin 3. The first half of this project is now complete.
- Clarifier MCC Replacement
 - ⇒ The motor control center (MCC) for both the clarifier building and the RAS building were old enough that new parts were not readily available. It was determined that a new MCC could be outfitted and that both locations could be combined into the new cabinets. This project gave us a more reliable electrical solution with easily sourced replacement parts.
- FBI Lining Replacement
- AGS Pilot Study
- Solids Study
- Biological Study

III. Improvements to Facilities



CONSTRUCTION TOTALS BY DATE COMPLETED - Monthly

From 7/1/2025 to 6/30/2026

	Dig Ups	Emergency Dig Ups	Dig Up ML Ftg	Dig Up SL Ftg	Manhole Repairs	Taps Installed	Creek Crossings Cleared	ROW Ftg	Service Line Bore Ftg	Service Line Burst Ftg
July 2025	39	14	126	712	19	21	1	3,000	0	0
August 2025	25	7	143	807	20	19	0	0	0	0
September 2025	19	8	27	623	15	18	0	53,623	0	0
October 2025	30	9	68	440	12	15	1	610	0	0
November 2025	30	8	109	385	12	9	0	0	0	0
December 2025	34	11	62	655	4	19	0	0	0	0
January 2026	45	9	111	595	9	15	3	0	0	0
February 2026	39	12	114	582	23	8	0	350	0	0
March 2026	37	12	132	580	21	10	1	0	0	59
April 2026	42	15	137	1,187	17	12	0	0	0	0
May 2026	23	16	193	564	16	22	1	11,020	0	0
June 2026	36	8	150	597	9	10	0	18,050	0	0
Grand Total	399	129	1,370	7,727	177	178	7	86,653	0	59



CONSTRUCTION REHAB TOTALS BY DATE COMPLETED - Monthly

From 7/1/2025 to 6/30/2026

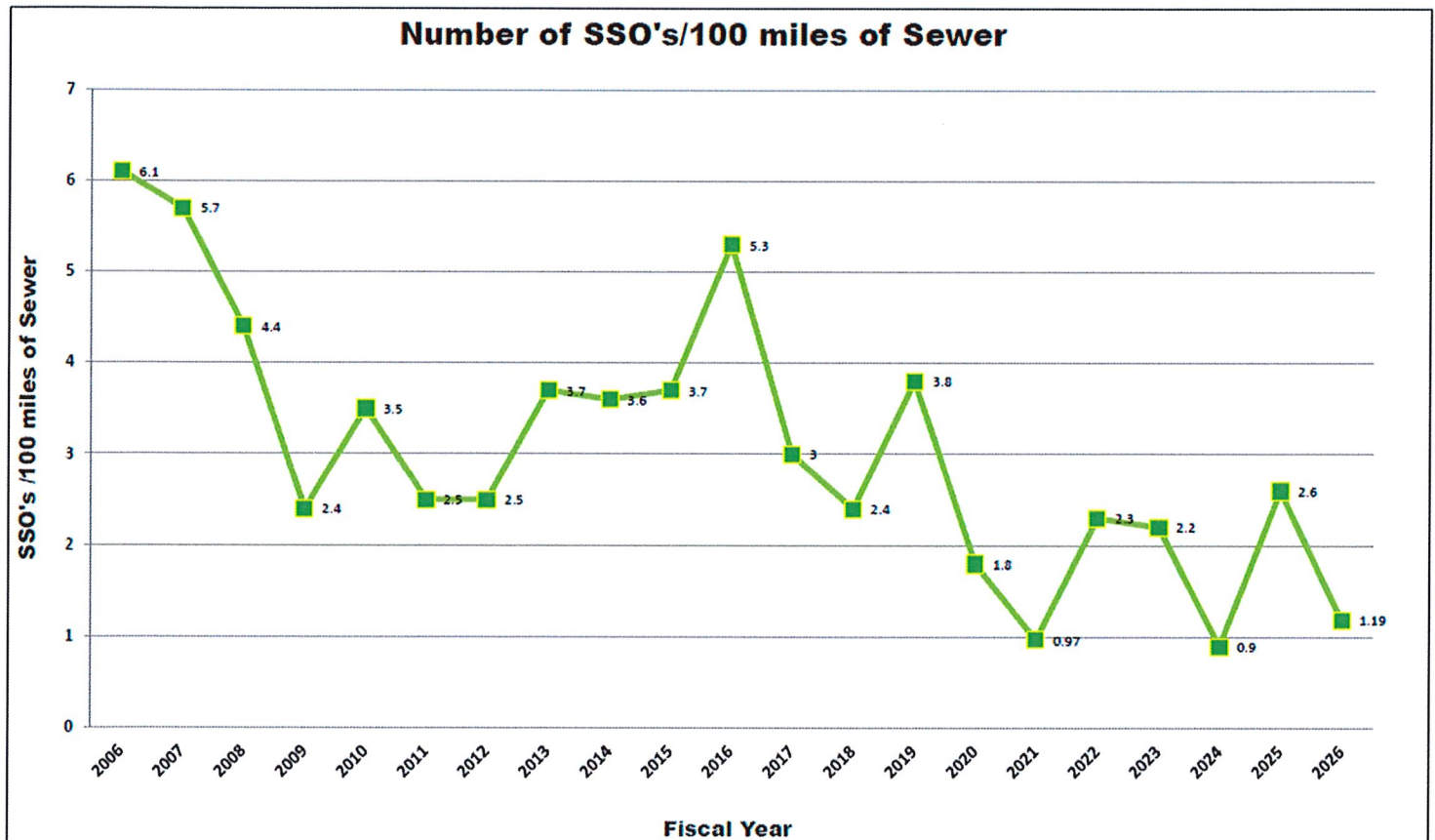
	# IRS Repairs	IRS Ftg	IRS Accept Ftg	Const Ftg	Const Accept Ftg	# D-R	D-R Ftg	#MH	Mainline PB Ftg	Mainline Bore Ftg	Total Rehab Ftg
July 2025	1	174	174	179	179	3	506	1	0	0	859
August 2025	0	0	0	0	0	2	572	6	0	0	572
September 2025	0	0	0	410	410	1	290	1	0	0	700
October 2025	0	0	0	425	425	3	591	4	0	0	1016
November 2025	1	6	300	218	410	3	120	0	0	0	830
December 2025	0	0	0	0	0	1	220	0	0	0	220
January 2026	0	0	0	250	250	0	0	0	0	0	250
February 2026	0	0	0	586	940	0	0	0	0	0	940
March 2026	1	6	0	507	1059	2	1522	14	0	0	2581
April 2026	1	50	50	419	501	1	320	2	0	0	871
May 2026	0	0	0	213	213	2	676	3	0	0	889
June 2026	0	0	0	356	356	3	960	5	0	0	1316
Grand Totals	4	236	524	3563	4743	21	5777	36	0	0	11044

IV. Performance Measures

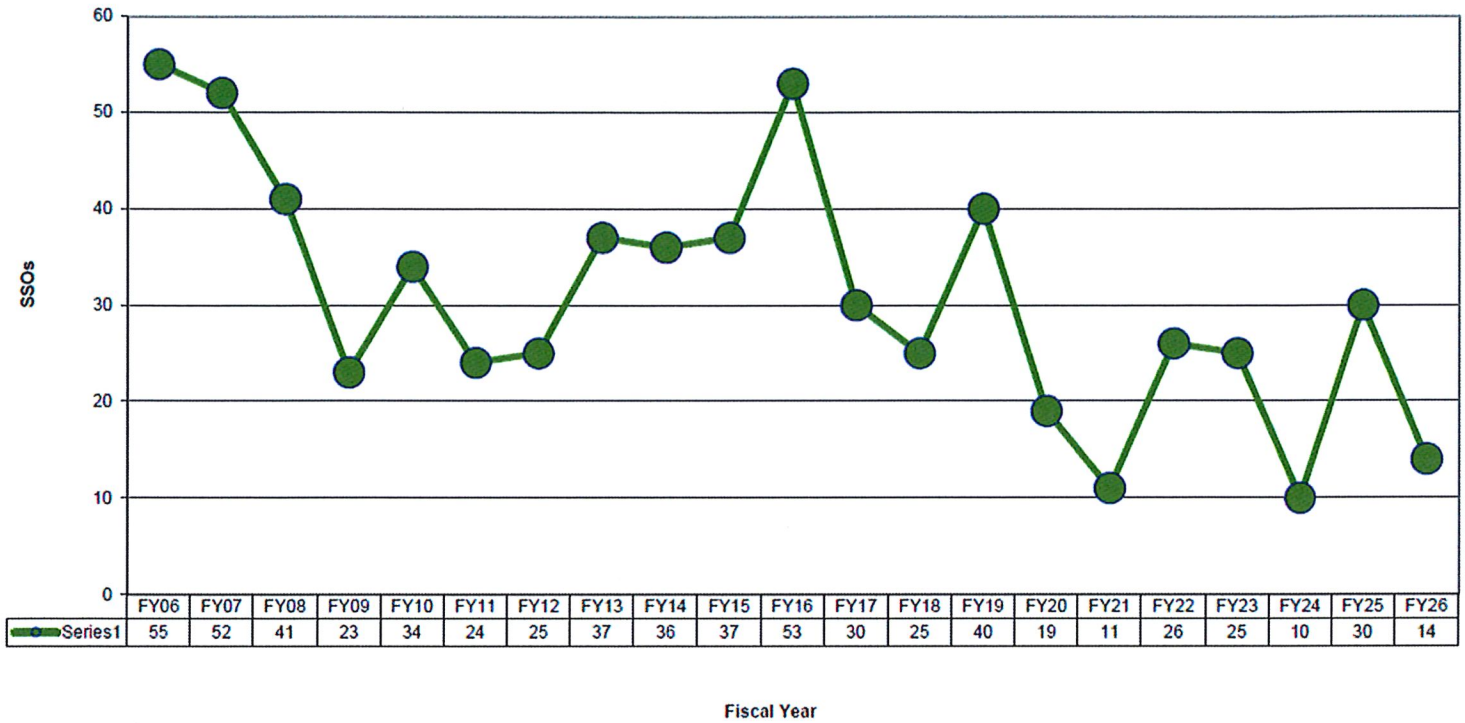
Collection System, System Services Division Performance Measures

System Services Division completed two six-month High Priority Line Inspection Reports. The High Priority Line report documents inspection of aerial lines, siphons and lines in proximity to vulnerable creeks and streams. This report is a requirement of NCDEQ-DWR for our state permit.

The collection system recorded 14 sanitary sewer overflows (SSO's) which equates to 1.19 SSO's per 100 miles of sewer. All SSO's were remediated according to the District's Standard Operating Procedure for Sanitary Sewer Overflow Cleanup and no sever environmental impact occurred.



Sanitary Sewer Overflows



SSO Report - Monthly

From 7/1/2025 to 6/30/2026

	SSO Count	AVG Response Time (min.)	AVG SSO Volume (gal.)	AVG Surface Volume (gal.)	Spills >= 1000 Gallons	Spills >= 15,000 Gallons	Total SSO Volume (gal.)	Total Surface Volume (gal.)
July, 2025	2	14	1,610	1,610	1	0	3,219	3,219
August, 2025	2	15	9,657	9,657	1	0	19,313	19,313
September, 2025	3	34	567	467	0	0	1,700	1,400
October, 2025	2	49	497	497	0	0	994	994
November, 2025	0	0	0	0	0	0	0	0
December, 2025	0	0	0	0	0	0	0	0
January, 2026	0	0	0	0	0	0	0	0
February, 2026	2	28	515	515	0	0	1,030	1,030
March, 2026	1	13	449	449	0	0	449	449
April, 2026	1	33	650	650	0	0	650	650
May, 2026	0	0	0	0	0	0	0	0
June, 2026	1	20	950	950	0	0	950	950
Grand Totals:	14	26	2,022	2,000	2	0	28,305	28,005

IV. Performance Measures



CUSTOMER SERVICE REQUESTS Monthly - All Crews

CREW	MONTH	JOBS	AVERAGE RESPONSE TIME	AVERAGE TIME SPENT
DAY 1ST RESPONDER				
	July, 2025	113	26	48
	August, 2025	99	23	34
	September, 2025	99	21	32
	October, 2025	113	22	37
	November, 2025	79	23	34
	December, 2025	104	24	38
	January, 2026	101	23	39
	February, 2026	107	21	35
	March, 2026	126	23	35
	April, 2026	105	23	34
	May, 2026	91	25	39
	June, 2026	104	25	34
		1,241	23	37
NIGHT 1ST RESPONDER				
	July, 2025	52	37	25
	August, 2025	46	38	26
	September, 2025	40	30	25
	October, 2025	36	27	26
	November, 2025	34	24	26
	December, 2025	45	32	21
	January, 2026	47	29	18
	February, 2026	55	22	21
	March, 2026	48	29	27
	April, 2026	53	26	23
	May, 2026	36	26	28
	June, 2026	41	29	17
		533	29	23
ON-CALL CREW *				
	July, 2025	32	53	40
	August, 2025	24	65	38

* On-Call Crew Hours: 11:30pm-7:30am Monday-Friday, Weekends, and Holidays

IV. Performance Measures



CUSTOMER SERVICE REQUESTS Monthly - All Crews

CREW	MONTH	JOB	AVERAGE RESPONSE TIME	AVERAGE TIME SPENT
ON-CALL CREW *				
	September, 2025	18	43	39
	October, 2025	26	62	37
	November, 2025	47	59	31
	December, 2025	41	56	26
	January, 2026	51	57	39
	February, 2026	37	46	42
	March, 2026	47	41	43
	April, 2026	30	60	51
	May, 2026	34	48	26
	June, 2026	34	63	42
		421	54	37
Grand Totals:		2,195	31	34

* On-Call Crew Hours: 11:30pm-7:30am Monday-Friday, Weekends, and Holidays

IV. Performance Measures



PIPELINE MAINTENANCE TOTALS BY DATE COMPLETED - Monthly

July 01, 2025 to June 30, 2026

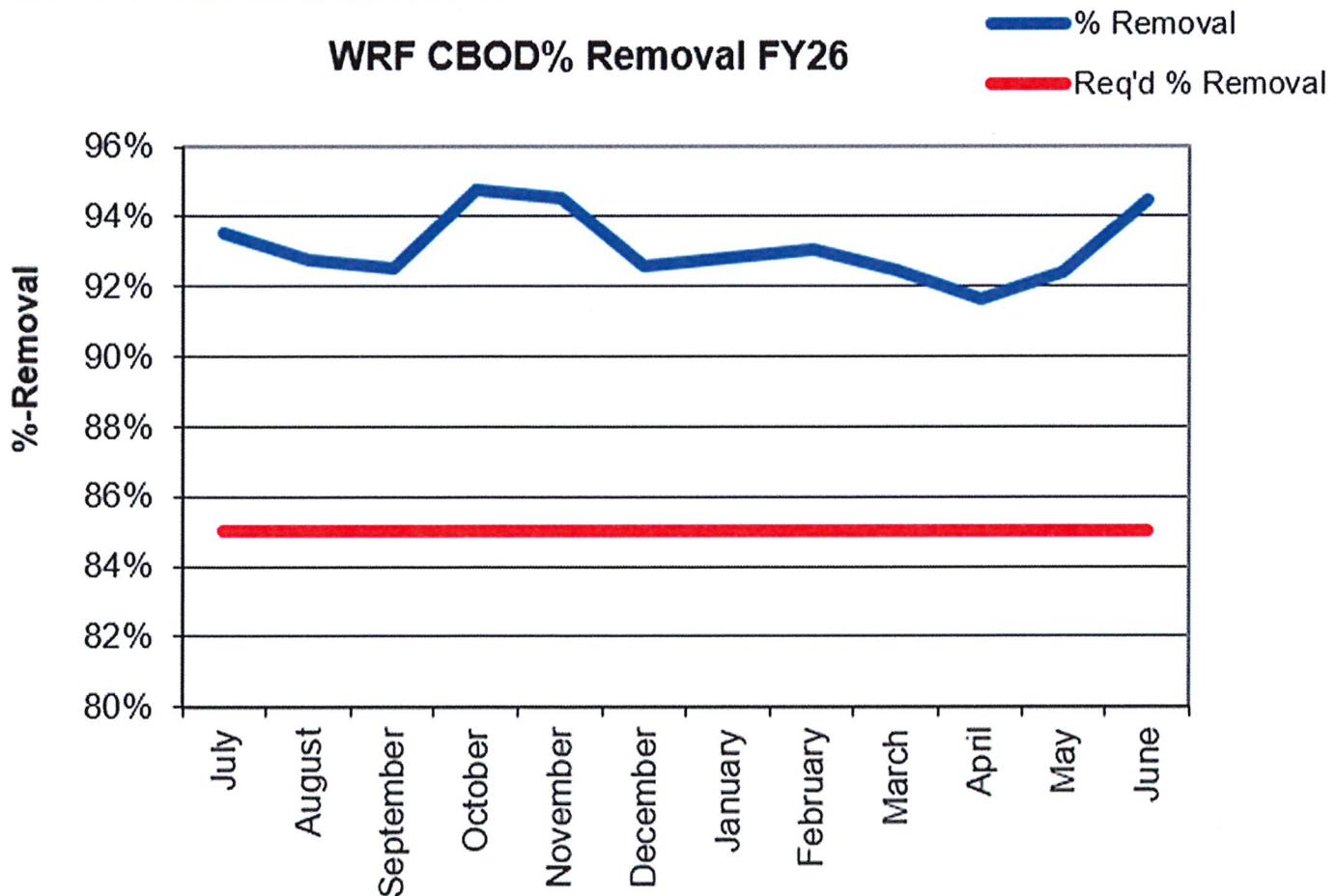
	Main Line Wash Footage	Service Line Wash Footage	Rod Line Footage	Cleaned Footage	CCTV Footage	Smoke Footage	SL-RAT Footage
2025							
July	99,965	2,860	6,145	106,110	17,790	0	0
August	101,116	2,308	2,543	103,659	13,579	0	26,587
September	116,467	2,412	380	116,847	14,502	883	12,881
October	100,878	1,663	2,096	102,973	14,730	0	21,345
November	70,599	1,550	3,309	73,908	17,487	0	6,596
December	81,240	2,812	1,819	83,059	11,154	2,147	0
2026							
January	39,806	3,306	4,607	44,413	12,753	0	1,886
February	45,568	2,206	9,725	55,293	14,205	0	10,327
March	95,089	3,971	12,660	107,749	17,774	957	21,824
April	111,450	1,981	5,018	116,468	20,295	0	14,339
May	85,572	1,814	5,314	90,886	17,767	0	25,503
June	78,586	2,319	2,080	80,666	18,094	0	15,027
Grand Total:	1,026,335	29,202	55,696	1,082,032	190,129	3,987	156,315
Avg Per Month:	85,528	2,433	4,641	90,169	15,844	332	13,026

IV. Performance Measures

Water Reclamation Facility (WRF) Performance Measures

Month	INF CBOD	EFF CBOD	% Removal	Req'd % Removal
	236.5	15.3	94%	85%
August	223.8	16.3	93%	85%
September	247.1	18.5	92%	85%
October	298.7	15.7	95%	85%
November	293.9	16.0	95%	85%
December	319.5	23.7	93%	85%
January	293.6	21.1	93%	85%
February	294.5	20.6	93%	85%
March	279.4	21.0	92%	85%
April	272.6	22.8	92%	85%
May	270.8	20.6	92%	85%
June	280.9	15.5	94%	85%
Average	275.9	18.9		
% Removal			93%	

WRF CBOD% Removal FY26

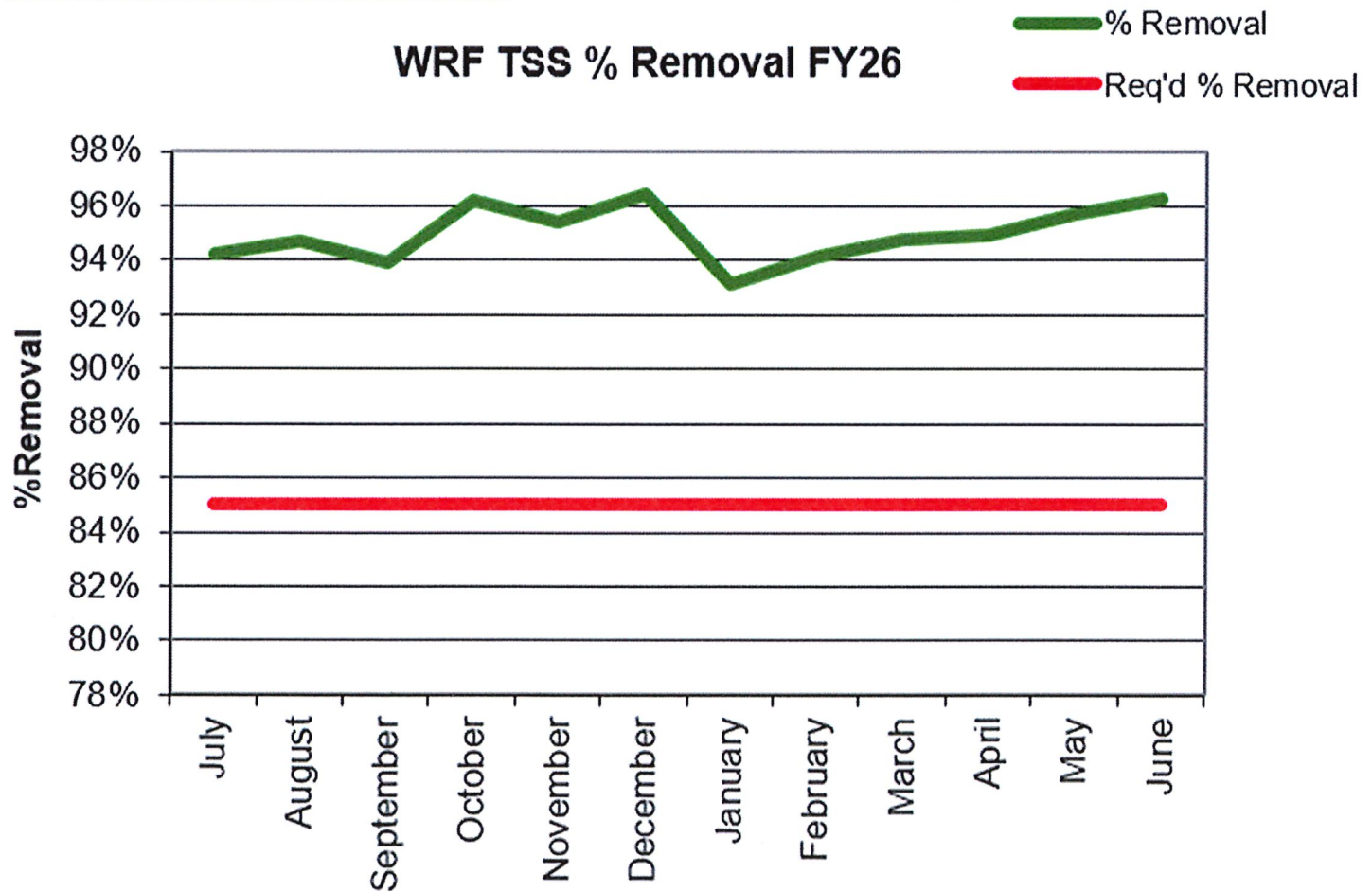


IV. Performance Measures

Water Reclamation Facility (WRF) Performance Measures

Month	INF TSS	EFF TSS	% Removal	Req'd % Removal
July	267.4	15.4	94%	85%
August	243.4	12.9	95%	85%
September	231.3	14.1	94%	85%
October	277.0	10.6	96%	85%
November	306.5	14.1	95%	85%
December	306.3	11.0	96%	85%
January	305.0	20.9	93%	85%
February	355.5	20.7	94%	85%
March	376.1	19.6	95%	85%
April	346.9	17.5	95%	85%
May	380.3	16.3	96%	85%
June	380.7	14.2	96%	85%
Average	314.7	15.6		
% Removal		95%		

WRF TSS % Removal FY26



IV. Performance Measures

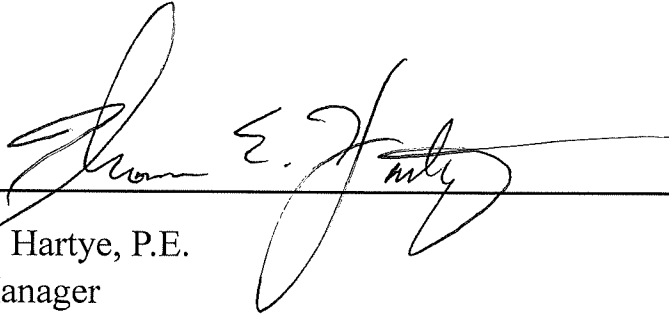
Hydroelectric Performance Measures

MSD operates a hydroelectric facility with three (3) horizontal turbines that produce electrical power. This energy is then sold back to the electrical grid to Duke Energy. These turbines benefit MSD because it offsets the cost of energy used to operate the WRF. The treatment of wastewater is an energy hungry process, but the hydroelectric facility allows MSD to save \$300,000 to \$600,000 in energy costs per year. The variation in savings is dependent on rainfall and maintenance requirements that occur during the year.

Task	FY24	FY25	FY26
Daily (average) Flow, treated MGD	20.12	21.3	19.5
Maximum daily flow treated, MGD	71.70	76.77	55.00
Dry tons of bio-solids, burned	7,524	8,581	4,132
Dry tons of bio-solids, landfill	466	0	2,902
Cost per million gallons (MG), treated	\$793	\$808	\$813
Energy cost per MG. treated	\$141	\$177	\$236
Carbonaceous biochemical oxygen demand (CBOD) removal, %	92%	91%	93%
Total suspended solids (TSS) removal efficiency, %	95%	94%	95%
Number of NPDES permit non-compliance	2	0	0
Preventative to corrective maintenance ratio	70:30	70:30	70:30

V. Certification

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users and customers of the MSD system and that those users have been notified of its availability.

A handwritten signature in black ink, appearing to read 'Thomas E. Hartye', is written over a horizontal line.

Thomas E. Hartye, P.E.
General Manager
Metropolitan Sewerage District of Buncombe County, NC

August 18, 2026