



MISSISSIPPI STATE DEPARTMENT OF HEALTH

REPORT OF INSPECTION OF DRINKING WATER SUPPLY

PWS: 0180008 Class: B

An inspection of the CITY OF HATTIESBURG water supply in FORREST county was made on 06/07/2023. Present at the time of inspection was WADE J BYRD, OPERATOR; ALAN HOWE; WRITER. Official TOBY BARKER Address P O BOX 1898 HATTIESBURG MS 39403 W.W. Operator WADE J BYRD Address 70 BYRD NEST LANE RICHTON MS 39476 No. Connections 16458 No. Meters ___ Population Served 43449 Field Chemical Analysis: pH 7.7 Cl2(free) 1.46 Cl2(total) ___ H2S N/A Iron 0.0 Fluoride 0.6 Point of Sampling DISTRIBUTION Water Rates ___

COMMENTS

Technical: 5 Managerial: 5 Financial: 5
OVERALL CAPACITY RATING: 5.0 / 5.0

- 1. At the time of inspection the system appeared to be operating properly and well maintained. Systems officials should be commended for the continuous improvements made to the infrastructure and plant improvements. All required records were well organized and maintained. No Significant Deficiencies were identified during this Annual Inspection. The inspection was started on May 17th and concluded on June 7th.
2. The following water quality parameters were analyzed during the inspection:
Plant 1: Cl2 Free = 2.2 mg/L, Fe = 0.0 mg/L, pH = 7.8,
Plant 2: Cl2 Free =1.46 mg/L, Fe = 0.0 mg/L, pH = 7.7, Fluoride = 0.6 mg/L
Wesley Plant: Cl2 Free =1.26 mg/L, Fe = 0.6 mg/L, pH = 7.7,
Forrest General: Cl2 Free = 1.42 mg/L, Fluoride = 0.7 mg/L
4th Street: Cl2 Free = 2.2 mg/L, Fluoride = 1.2 mg/L
USM: Cl2 Free = 0.64 mg/L, Fluoride = 1.1 mg/L

3. The system target pH for Plant 1 is 7.87, the target pH for Plant 2 is 7.98, and the target pH for Wesley Plant is 7.6. These pH residuals were calculated based on the finished water physical and chemical analysis. These pH levels should be maintained as closely as possible.
4. At the time of inspection, critical need areas were discussed. System officials stated that if lines were to fail around the Industrial Park area, then a significant strain would be placed on Plant 2. System officials should consider possible sources in this area to alleviate potential strain and allow for increased capacity.
5. Fluoride offline at Plant 1 for renovation. Fluoride pump at 4th St. was replaced after it was discovered to have failed. It was recommended that once replaced the rest of the facility be rehabbed. It was reported to be rehabbed, placed back on line, and operating in range at the time of writing report.
6. The 28th Ave. pump station pumps were down and a temporary trailered pump put in place.
7. The city has maintenance contract with American Tank. All steel tanks were recently inspected.
8. The operations record was available for review and appeared to contain the required information. We remind the system officials that all water quality parameters should be checked and recorded at a minimum frequency of 5 days/week at the 3 plants. The D-Class Wells should have the water quality parameters checked and recorded at a minimum frequency of 3days/week.
9. Water loss records were available for review.
10. Pumping Test were conducted in April of 2022. These should continue to be performed once every two years to keep receiving full credit for T4 on the Capacity Assessment.
11. This system had recently completed cross connection survey to update its master list of high hazard connections. Satisfactory test results were available for review. These should continue to be tested on an annual basis.
12. It was noted this system has a maintenance contract to maintain its generators.

General Comments:

13. The Risk and Resilience Assessment and Emergency Response Plan must be updated annually. This will be checked and counted on the capacity assessment at the time of inspection each year.
14. In order to continue to receive full credit for T4 in the future, pump tests must be conducted on the wells at least once every two years to determine changes in pumping capacity and to assess the overall mechanical condition of the well and pump.
15. All dead-end water lines should be flushed on a routine schedule to clear the lines of sediment and stagnant water. Full scale flushing should be carefully planned and carried out, beginning at the well or water plant and going to the outer edges of the distribution system. This flushing should be done during periods of low usage. The system should have a routine flushing schedule with documentation showing the schedule is being followed.

16. Whenever system pressure is lost, even for brief periods of time, contaminants may be introduced to the system through back-siphonage and back flow. When this occurs, system officials should notify all customers in the affected area to boil their drinking water until clear bacteriological samples have been obtained.

17. During the next inspection, we will need to check the records that you maintain in accordance with the requirements of the Safe Drinking Water Act. These records should include the following:
 - Bacteriological sample results - 5 yrs.
 - Other water quality analysis - 10 yrs.
(nitrates, inorganics, P-Chems, fluoride, radiological, VOC's)
 - Lead and Copper results - 12 yrs.
 - Inspection Reports - 10 yrs.
 - Annual Report - 3 yrs.
 - Operations Record - 5 yrs.
 - Actions taken by the system to correct violations - 3 yrs.
 - Records concerning a variance or exemption - 5 yrs.
 - All other MSDH correspondence - 3 yrs.

Completed by Taylor Burklow, E.I. on 06/22/2023.

Reviewed by Greg Caraway, P.E. on 06/28/2023.

If you have any questions, please call (601)576-7518.

pc:

TOBY BARKER, OFFICIAL
WADE J BYRD, OPERATOR

**Mississippi State Department of Health
Bureau of Public Water Supply**

FY 2023 Public Water System Capacity Assessment Form

NOTE: This form must be completed whenever a routine sanitary survey of a public water system is conducted by a regional engineer of the Bureau of Public Water Supply

PWS ID#: 0180008 Class: B Survey Date: 06-07-2023 County: FORREST
 Public Water System: CITY OF HATTIESBURG Conn: 16458
 Certified Waterworks Operator: WADE J BYRD Pop: 43449

CAPACITY RATING DETERMINATION

Technical (T) Capacity Rating: [5] Managerial (M) Capacity Rating [5] Financial (F) Capacity Rating [5]

Capacity Rating = $\frac{T+M+F}{3} = \frac{15}{3} = 5$

Overall Capacity Rating = 5.0

Completed by Taylor Burklow, E.I. on 06/21/2023

Reviewed by Greg Caraway, P.E. on 06/28/2023

Comments: _____

Technical Capacity Assessment		Point Scale	Point Award
[T1] Does the water system have any significant deficiencies? [<u>Y</u> <u>N</u>]		N - 1pt. Y - 0pt.	1
[T2] 1) Was the water treatment process functioning properly? [<u>Y</u> <u>N</u>] (i.e. Is pH, iron, chlorine, fluoride, etc. within acceptable range?) 2) Was needed water system equipment in place and functioning properly at the time of survey? [<u>Y</u> <u>N</u>] (NOTE: Equipment deficiencies must be identified in survey report.) 3) Were records available to the regional engineer clearly showing that all water storage tanks have been inspected and cleaned or painted (if needed) within the past 5 years? [<u>Y</u> <u>N</u> <u>NA</u>] (NOTE: All YESs required to receive point)		All Y - 1 pt. Else - 0 pt.	1
[T3] 1) Was the certified waterworks operator or his/her authorized representative present for the survey? [<u>Y</u> <u>N</u>] 2) Was PWS Operations record up to date and properly maintained? [<u>Y</u> <u>N</u>] (Are minimum days being met based on system classification) 3) Was the water system properly maintained at the time of survey? [<u>Y</u> <u>N</u>] 4) Did operator/system personnel satisfactorily demonstrate to the regional engineer that he/she could fully perform all water quality tests required to properly operate this water system? [<u>Y</u> <u>N</u>] (NOTE: All YESs required to receive point)		All Y - 1 pt. Else - 0 pt.	1
[T4] 1) Does water system routinely track water loss and were acceptable record available for review? [<u>Y</u> <u>N</u>] 2) Is water system overloaded? (i.e. serving customers in excess of MSDH approved design capacity)? [<u>Y</u> <u>N</u>] 3) Was there any indication that the water system is/has been experiencing pressure problems in any part(s) of the distribution system? [<u>Y</u> <u>N</u>] (based on operator information, customer complaints, MSDH records, other information) 4) Are well pumping tests performed routinely? [<u>Y</u> <u>N</u> <u>NA</u>] (NOTE: YES FOR #1 & YES OR N/A FOR #4 AND NOs FOR #2 & #3 required to receive point)		1)Y - pt. 2)N - pt. 3)N - pt. 4)Y - pt.	1
[T5] 1) Does the water system have the ability to provide water during power outages? (i.e. generator, emergency tie-ins, etc.) [<u>Y</u> <u>N</u>] 2) Does the water system have a usable backup source of water? [<u>Y</u> <u>N</u>] (NOTE: Must be documented on survey report)		All Y - 1 pt. Else - 0 pt.	1
TECHNICAL CAPACITY RATING = [<u>5</u>] (Total Points)			

Managerial Capacity Assessment	Point Scale	Point Award
[M1] Were all SDWA required records maintained in a logical and orderly manner and available for review by the regional engineer during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M2] 1) Have acceptable written policies and procedures for operating this water system been formally adopted and were these policies available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Have all board members (in office more than 12 months) completed Board Member Training? <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA 3) Does the Board of Directors meet monthly and were minutes of Board meetings available for review during the survey? (NOTE: Quarterly meetings allowed if system has an officially designated full time manager) <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA (NOTE: ALL YESs or NAs required to receive point. NA - Not Applicable)	All Y - 1 pt. Else - 0 pt.	1
[M3] Has the water system had any SDWA violations since the last Capacity Assessment? <input type="radio"/> Y <input checked="" type="radio"/> N	N - 1pt. Y - 0pt.	1
[M4] Has the water system developed a long range improvements plan and was this plan available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[M5] 1) Does the water system have an effective cross connection control program in compliance with MSDH regulations? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Was a copy of the MSDH approved bacti site plan and lead/copper site plan available for review during the survey and do the bacti results clearly show that this approved plan is being followed? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
MANAGERIAL CAPACITY RATING = [<u>5</u>] (Total Points)		

Financial Capacity Assessment	Point Scale	Point Award
[F1] Has the water system raised water rates in the past 5 years? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: Point may be awarded if the water system provides acceptable financial documentation clearly showing that a rate increase is not needed, i.e. revenue has consistently exceeded expenditures by at least 10%, etc.)	Y - 1pt. N - 0pt.	1
[F2] Does the water system have an officially adopted policy requiring that water rates be routinely reviewed and adjusted as appropriate and was this policy available for review during the survey? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F3] Does the water system have an officially adopted cut-off policy for customers who do not pay their water bills, was a copy of this policy available for review by the regional engineer, and do system records (cut-off lists, etc.) clearly show that the water system effectively implements this cut-off policy? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F4] Was a copy of the water system's officially adopted annual budget available for review by the regional engineer and does the water system's financial accounting system clearly and accurately track the expenditure and receipt of funds? <input checked="" type="radio"/> Y <input type="radio"/> N	Y - 1pt. N - 0pt.	1
[F5 - Municipal Systems] 1) Was a copy of the latest audit report available for review at the time of the survey? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: Yes answer to all questions required to receive point.)	All Y - 1 pt. Else - 0 pt.	1
[F5 - Rural Systems] 1) Was the latest financial report / audit report available for review? <input type="radio"/> Y <input checked="" type="radio"/> N 2) Does the latest financial report show that receipts exceeded expenditures? <input type="radio"/> Y <input checked="" type="radio"/> N (NOTE: Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	1
FINANCIAL CAPACITY RATING = [<u>5</u>] (Total Points)		



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**MISSISSIPPI DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
DESIGN CAPACITY SHEET**

System: **CITY OF HATTIESBURG**
ID: **0180008** Class: **B** County: **FORREST**

Date Completed: **06/21/2023**
Connections - Actual: **16458** Equivalent: **23894**
Design Capacity: **47898** Percent Design Capacity: **23894/47898 = 49.9%**

Plant 1:
Well Capacity:
Well 14 (P1W4)- 1370 gpm
Well 15 (P1W5)- 1404 gpm
Well 18 (P1W3)- 1336 gpm
Well 24 (P1W1)- 1529 gpm
Total Well Capacity = 5,639 gpm

Plant 1 Treatment Capacity:
Aerators = 5500 gpm
Filters = 5 MGD = 3470 gpm
Service Pump Capacity = 4000 + 4000 + 2000 + 2000 = 12,000 gpm
Plant 1 Limiting Factor = 3470 gpm (filters)
Useable Clear Well Capacity = 3470 * 6 * 60 = 1,249,920 gallons
Useable Service Pump Capacity = 3470 + 1,249,920/200 = 9,722 gpm
Design Capacity Plant 1 = 9,722 gpm

Plant 2:
Well Capacity:
Well 13 (P2W5)- 1104 gpm
Well 19 (P2W4)- 1181 gpm
Well 21 (P2W1)- 1266 gpm
Well 22 (P2W2)- 1251 gpm
Well 23 (P2W3)- 820 gpm
Total Well Capacity = 5,622 gpm

Plant 2 Treatment Capacity:
Aerators = ?
Filters = 5 MGD = 3470 gpm
Service Pump Capacity = 1000 + 2000 + 2000 + 2100 = 7100 gpm
Plant 2 Limiting Factor = 3470 gpm (filters)
Useable Clear Well Capacity = 3470 * 6 * 60 = 1,249,920 gallons
Useable Service Pump Capacity = 3470 + 1,249,920/200 = 9,722 gpm > 7100 gpm
Design Capacity Plant 2 = 7100 gpm

Weathersby Plant:
Well Capacity:
Well 16 - 1669 gpm
Well 25 - 1753 gpm
Total Well Capacity = 3422 gpm

Aerator Capacity = 1500 gpm
Filter Capacity= 1416 (limiting factor)
Clear Well Capacity = 42,850 gallons
Service Pump Capacity = 1500 gpm
Design Capacity Weathersby Plant = 1500 gpm

D Class Plants:
Well 11 - 1196 gpm
Well 12 - 895 gpm
Well 20 - 1235 gpm
Total Well Capacity = 3,326 gpm

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DESIGN CAPACITY SHEET**

CITY OF HATTIESBURG 06/21/2023

Total Capacity:

Plants: $9,722 + 7,100 + 1,500 + 3,326 = 21,648$ gpm

Total Elevated Tank Capacity = 5,250,000 gallons

NOTE:

Credit was given for The tanks at USM, Weathersby, Lincoln Rd Extension, Forrest General, and Industrial park. The other storage for the system is part of booster stations and are not calculated in this design. Excess elevated storage is allowed due to large distribution mains and the existing booster stations located throughout the system.

Design Capacity = $21,648 + 5,250,000/200 = 47,898$ Connections

Equivalent Connections:

Apartments = $6,696 * 2/3 = 4,464$ (# meters serving the apartments unknown)

CIU Calculation: $16458 + (16458 * .5 * [863,388,000/3,323,566,048]) = 18595$ Connections

Schools = $8343 * 40\text{gpcd}/400 \text{ gpd} = 835$ connections

Equivalent Connections = $18595 + 4464 + 835 = 23,894$ Connections

% Design Capacity = $23,894/47898 * 100 = 49.9\%$

The calculations above were made using MSDH guidelines.

**MISSISSIPPI STATE DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
PUBLIC WATER SUPPLY - MASTER DATA SHEET**

PWS 180008 Class B County Forrest
 Name of Supply City of Hattiesburg Owner City
 Source: Purchase Surface Ground X Number of Wells 15
 Connections: 16,458 Equivalent Connections: 23,894 Design Capacity: 47,898

Well #	Location	Year Cons.	Capacity via Pump Test	Pres. (psi)	Casing (in)	Screen (in)	Pump Depth (ft)	Controls
11	USM Tank	1988	1196	62	20		715	AUTO
12	4th Street	1988	895	60	20		804	AUTO
13	Plant 2, Well 5	1990	1104	20	20		592	AUTO
14	Plant 1, Well 4	1990	1370	50	20		355	AUTO
15	Plant 1, Well 5	1990	1404	30	20		600	AUTO
16	Wesley on Weathersby Rd	1990	1669	20	20		794	AUTO
17	Lakeview Rd. (plant 1)	2000	796	45	24	18	465	OFFL
18	Plant 1, Well 3	2005	1336	50	16	10		AUTO
19	Plant 2, Well 4	2006	1181	20	16	10	690	AUTO
20	Forrest General	2007	1235	60	16	10	827	AUTO
21	Plant 2, Well 1	2010	1266	20				AUTO
22	Plant 2, Well 2	2010	1251	20				AUTO
23	Plant 2, Well 3	2013	820	20	16	10	660	AUTO
24	Plant 1, Well 1	2016	1529	50	16	12	640	AUTO
25	Wesley on Weathersby Rd	2017	1753	20	16	12	820	AUTO

Notes:

Pump Test Date: April 2022

Generators: @ Plant 1, @ Plant 2, @ Wesley Plant, @ Well 11, @ Well 12, @ Well 20

Storage:

Type	Location	Material	Capacity (gal)	Remarks
Backwash	Plant 1 over Filters	Concrete	50,000	Backwash Capacity for Plant 1
Ground	Plant 1 Clearwell	Concrete	5,000,000	
Ground	Plant 2 Clearwell	Concrete	2,500,000	
Ground	Richburg Hill Booster St.	Pre-Stress	2,500,000	Pumps to Elevated Tank
Elevated	Richburg Hill Booster St.	Steel	150,000	125' to O.F.
Elevated	USM	Steel	1,000,000	110' to O.F.
Elevated	Wethersby Rd.	Steel	1,000,000	170.5' to O.F.
Elevated	Industrial Park	Steel	1,000,000	119' 2" to O.F. - Coll. Tank for B.S. # 2
Elevated	Industrial Park	Steel	500,000	132.5' to O.F. - Storage Tank for B.S. # 2
Elevated	Lincoln Rd. Extension	Steel	500,000	
Elevated	Forrest General Hospital	Steel	750,000	
Elevated	Hwy 98 E Behind McDs	Steel	500,000	

American Tank Maintenance Contract

**MISSISSIPPI STATE DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY
PUBLIC WATER SUPPLY - MASTER DATA SHEET**

PWS 180008 Class B County Forrest
 Name of Supply City of Hattiesburg Owner City
 Source: Purchase Surface Ground X Number of Wells 15
 Connections: 16,458 Equivalent Connections: 23,894 Design Capacity: 47,898

Treatment:	Iron <u>X</u> No.	Softening <u> </u> Location	Corrosion <u>X</u> Type	Chlorine <u>X</u> Capacity	Fluoride <u>X</u> Capacity	Remarks
Aerator	3	Plant 1	Induced Draft	5500 gpm		
Aerator	3	Plant 2	Coke Tray			
Aerator	1	Wesley Plant	Induced Draft	1620 gpm		9'x9'
Flash Mix	1	Plant 1	Infilco			
Flash Mix	1	Plant 2	Infilco			
Gravity Filter	6	Plant 1	Gravity	5 MGD Total		Media: Anthrasite Sand
Gravity Filter	6	Plant 2	Gravity	2 gpm/sq. ft.		Media: Anthrasite Sand
Pressure Filter	6	Wesley Plant				
Chlorinator	2	Plant 1	De Nora	500 @ 260 ppd		Auto S/O
Chlorinator	2	Plant 2	Hydro	500 @ 200 ppd		Auto S/O
Chlorinator	2	Wesley Plant	Regal	100 @ 80 ppd		Auto S/O w/ Scales
Chlorinator	2	Well 11	De Nora	100 @ 65 ppd		Auto S/O w/ Scales
Chlorinator	2	Well 12	De Nora	100 @ 88 ppd		Auto S/O w/ Scales
Chlorinator	2	Well 20	De Nora	100 @ 80 ppd		Auto S/O w/ Scales
Fluoridator	1	Plant 1	W&T			Sodium Fluorosilicate
Fluoridator	1	Plant 2	W&T			Sodium Fluorosilicate
Fluoridator	1	Wesley Plant				
Fluoridator	1	Well 11	LMI	2.5 GPH @ 80/85		NaF
Fluoridator	1	Well 12	Pulstatron	120 GPD @ 80/80		NaF
Fluoridator	1	Well 20	Pulstatron	120 GPD @ 74/60		NaF
Chemical Feeder	1	Plant 1	W&T			Lime Feeder
Chemical Feeder	1	Plant 2	W&T			Lime Feeder
Chemical Feeder	1	Wesley Plant	Acrison			Lime Feeder

Service Pumps:

Location	Quantity	Capacity (gpm)	Head	Remarks
Plant 1	2	4,000	120	
	2	2,000	120	
Plant 2	1	1,000	Variable	
	1	2,000	Variable	
	1	2,000	Variable	Runs continually to hold 75-80 psi
	1	2,100	Variable	
	1	5,000		Backwash Pump
Wesley Plant	2	750?		Info Not Received Yet

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Booster Stations:

Location	Collector Tank	Pumps	Storage Tanks	Remarks
Richburg Hill	2,500,00	2x 600 gpm	150,000 gal	Collector tank serves some customers
Industrial Park	1,000,000	2x 1000 gpm	500,000 gal	Collector tank serves some customers

Pumping Stations:

Location	Pumps	Head	Remarks
28th Avenue	2x 1500 gpm	94'	Inline booster pumps that pump to Richburg Hill Ground Tank
Lincoln Rd. Extension	2x		Pumps to Elv. Tank @ Lincoln Rd. Extension
Hwy 98			Fills 500k Elv. Tank on Hwy 98 E