



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 05/24/2021. Present at the time of inspection was WADE J BYRD, OPERATOR; 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 Cl2(free) Cl2(total) H2S N/A Iron Fluoride 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. This system is now performing triggered monitoring. Systems officials should be commended for the continuous improvements made to the infrastructure and plant improvements. All required records were well organized and maintained.

The pH, chlorine, and Fe readings were as follows:

Plant #1:pH-8.0,Chlorine-1.8 mg/L free,Fe-0.4, Fluoride-0.7
Plant #2:pH-7.7,Chlorine-2.2 mg/L free, Fe-0.0mg/l,Fluoride-0.7 mg/L
Wesley Tank - pH- 7.4, Chlorine-1.1 mg/L free, Fe- 0.1, Fluoride-0.7
Forrest General- Chlorine - 1.6 mg/L free, Fluoride- 0.7 mg/L
4th Street - Chlorine - 1.4 mg/L free; Fluoride - 1.1 mg/L
USM - Chlorine - 1.4 mg/L free; Fluoride - 0.7 mg/L

The system target pH for plant #1(180008-81) is 7.87, the target pH for plant #2(180008-80) is 7.98, and the target pH for Weathersby Rd (0180008-82) 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.

2. Since the last inspection, all wells have been repaired and placed back in service.

3. As a reminder, chlorine, ph, iron, and fluoride levels should be recorded a minimum of 5 times a week at each of the iron removal plants as per the minimum operator regulations.
4. We recommend that all steel tanks be inspected for paint coating failure, corrosion, rust, and structural integrity five years after being painted. After five years, the tank should be inspected annually. Please note this also includes pressure tanks and tanks located at booster stations. These inspections should always be documented.
5. The average water loss has significantly decreased since the last inspection. System officials should be commended for these efforts and continue to make the improvements to maintain these levels.
6. Chlorine vent tubes should be screened to prevent insects and debris from clogging them.
7. The Security Vulnerability Self-Assessment and Emergency Response Plan must be updated annually. This will be checked and counted on the capacity assessment at the time of inspection next year.
8. Before any improvements are made on the water system, plans and specifications by a Registered Engineer MUST be approved by the Mississippi State Department of Health prior to construction.
9. When repairs are made on the water distribution system, all lines affected should be properly chlorinated and flushed before they are placed back in service.
10. 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.
11. 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.
12. 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 be organized in an orderly fashion and include the following:
 - Bacteriological sample results - 5 yrs.
 - Other water quality analysis (nitrates, inorganics, P-Chems, fluoride, radiological, VOC's) - 10 yrs.
 - Lead and Copper results - 12 yrs.
 - Inspection Reports - 10 yrs.
 - Annual Reports - 3 yrs.
 - Operator's Logbook - 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 Melissa Caldwell on 05/26/2021.

Reviewed by Ralph Hayes, P.E. on 05/26/2021.

If you have any questions, please call (601)606-4817.

pc:

TOBY BARKER, OFFICIAL

WADE J BYRD, OPERATOR


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

STANDARD FORM

FY 2021 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: 05-24-2021 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]

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

Overall Capacity Rating = 5.0

Completed by Melissa Caldwell on 05/26/2021

Reviewed by Ralph Hayes, P.E. on 05/26/2021

Comments: _____

Technical Capacity Assessment	Point Scale	Point Award
[T1] Does the water system have any significant deficiencies? [<u>Y</u> <u>N</u>]	N - 1 pt. Y - 0 pt.	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? <u>(Y) N</u>	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? <u>(Y) N</u> 2) Have all board members (in office more than 12 months) completed Board Member Training? <u>(Y) N NA</u> 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) <u>(Y) N NA</u> (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? <u>[Y] (N)</u>	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? <u>(Y) N</u>	Y - 1pt. N - 0pt.	1
[M5] 1) Does the water system have an effective cross connection control program in compliance with MSDH regulations? <u>(Y) N</u> 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? <u>(Y) N</u> (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? <u>(Y) N</u> (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? <u>(Y) N</u>	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? <u>(Y) N</u>	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? <u>(Y) N</u>	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? <u>(Y) N</u> 2) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <u>(Y) N</u> (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? <u>[Y] N</u> 2) Does the latest financial report show that receipts exceeded expenditures? <u>[Y] N</u> (NOTE: Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	
FINANCIAL CAPACITY RATING = [<u>5</u>] (Total Points)		

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

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

Date Completed: **05/26/2021**
Connections - Actual: **16450** Equivalent: **24465**
Design Capacity: **45984** Percent Design Capacity: **24465/45984 = 53.2%**

Plant # 1: well capacity = 1167 + 1167 + 796 + 1278 + 1167 = 5,575 gpm (updated via pump test)
treatment capacity: aerator = 5500 gpm
filter = 5 MGD = 3470 gpm
service pump capacity = 4000 + 4000 + 2000 + 2000 = 12,000 gpm
Plant # 1 limiting factor = 3470 gpm (filters) $3470 \times 6 \times 60 = 1,249,920$ gallons (useable clear well capacity)
 $3470 + 1,249,920/200 = 9,722$ (useable service pump capacity)
Design Capacity Plant 1 = 9,722 gpm

Plant # 2: well capacity = 1005 + 1114 + 1142 + 1230 + 820 = 5,311 gpm (updated via pump test)
treatment capacity: aerator = (?)
filter = 5 MGD = 3470 gpm
service pump capacity = 1000 + 2000 + 2000 + 2100 = 7100 gpm
Plant # 2 limiting factor = 3470 gpm (filters) $3470 \times 6 \times 60 = 1,249,920$ gallons (useable clear well capacity)
 $3470 + 1,249,920/200 = 9,722$ (useable service pump capacity) > 7100
Design Capacity Plant 2 = 7100 gpm

Weathersby Plant
Well capacity = 3272 gpm (updated via pump test)
aerator capacity = 1500 gpm
filter capacity = 1416 (limiting factor)
clear well capacity = 42,850 gallons
service pump capacity = 1500 gpm
Design capacity for the plant = 1500 gpm

Wells #11, #12, & #20 pump directly into the system a total of 3,107 gpm (updated via pump test)
Total capacity (wells & plants) = 9,722 + 7,100 + 1,500 + 3,107 = 20,984 gpm
Total elevated tank capacity = 5,000,000 gallons
(credit given for The tanks at USM, Weathersby, Lincoln Rd Extension, Forrest General, and Industrial park) NOTE: 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 = $20,984 + 5,000,000/200 = 45,984$

Equivalent Connections (apartments) = $6,696 \times 2/3 = 4,464$ (the number of meters serving the apartments were not available)
Equivalent Connections = $\{863,388,000/3,323,566,048\} \times 20,911 \times 0.5 = 2,716$ connections
Equivalent connections (schools) = $8343 \times 40 \text{ gpcd}/400 \text{ gpd} = 835$ connections
of Connections adjusted for non residential high use and non metered units = 8,015
% Capacity = (Connections / Design Capacity) * 100
= $(24,465 / 45,984) \times 100$
= 53%

MISSISSIPPI STATE DEPARTMENT OF HEALTH
DIVISION OF WATER SUPPLY
PUBLIC WATER SUPPLY - MASTER DATA SHEET
PWS 180008 Class B

Name of Supply City of Hattiesburg Owner City
 County Forrest Master Meter Some wells and pumps
 Source: Purchase Surface Ground X Number of Wells 13

Well Data:								Pump
Well #	Location	Yr Const.	Cap.	Pres.	Casing	Screen	Depth	Test
180008-01	Old Plant 1, Well 2	1931	*****	Abandoned	*****			
-02	Old Plant 1, Well 5	1931	*****	Abandoned	*****			
-03	Pistol Range	1931	*****	Abandoned	*****			
-04	Old Plant 1, Well 1	1952	*****	Abandoned	*****			
-05	Plant 1, Well 3	1964	*****	Abandoned	*****			
-06	Old Plant 1, Well 4	1966	*****	Abandoned	*****			
-07	Plant 2, Well 1 (Out of Service)	1960	*****	Abandoned	*****			
-08	Plant 2, Well 2	1960	*****	Abandoned	*****			
-09	Plant 2, Well 3 (Out of Service)	1960	*****	Abandoned	*****			
-10	Plant 2, Well 4	1960	*****	Abandoned	*****			
* -11	USM Tank	1988	1250		20		715'	1196@62
* -12	4 th street	1988	750		20		804'	807@60
-13	Plant 2, Well 5	1990	1000		20		592'	1005@20
-14	Plant 1, Well 4	1990	1500		20		355'	1167@50
-15	Plant 1, Well 5	1990	1500		20		600'	1167@24
* -16	Weathersby Rd.	1990	1500		20		794'	1622@15
-17	Lakeview Rd. (plant 1)	2000	2150		24	18	465'	796@45
-18	Plant 1	2005	1500		16	10		1278@50
-19	Plant 2	2006	1200		16	10	690'	1114@20
-20	Forrest General	2007	1000		16	10	827	1104@60
-21	Plant 2 (back of plant)	2010	1200					1142@15
-22	Plant 2 (front of plant)	2010	1200					1230@20
-23	Plant 2	2013	1250		16	10	660	820 @20
-24	Plant 1	2016	1500		16	12	640	1167@50
-25	Weathersby Rd.	2017	1500		16	12	820	1650@20

(Several wells were acquired from other systems and have been inactivated but have NOT been abandoned.)

These wells are NOT IN SERVICE. The four systems were: Central - 180004; Hattiesburg Country Club - 180015; Hattiesburg North - 180019; Palmer's Crossing - 180010)

* Indicates that well pumps directly into distribution system (does NOT go through either plant)

Treatment:	Iron <u>X</u>	Softening <u> </u>	Corrosion <u>X</u>	Chlorine <u>X</u>	Fluoride <u>X</u>	
	Location	No. of units	Type	Capacity	Remarks	
Aerator	Plant 1	3	Induced draft	5500 gpm total		
	Plant 2	3	Coke tray			
	Well 16	1	Induced draft	1620 gpm		9'X9'
Flash Mix	Plant 1	1	Infilco			
	Plant 2	1	Infilco			
Gravity Filter	Plant 1	6	Gravity	5 MGD total		Media: anthrasite sand
	Plant 2	6	Gravity	2 gpm/ft ²		Media: anthrasite sand
Pressure Filter	Well 16	6	Info not yet received			
Chlorinator	Plant 1	1	Hydro	500 @ 200ppd		
	Plant 2	1	Hydro	500 @ 200 ppd		
	Booster station # 1	1	Ecometrics Seriew 4000	10 ppd		@5 with S/O (not in use)
	Booster station # 2	1	Ecometrics Series 2000	100 ppd		@10 with S/O (not in use)
	Well # 11	1	Hydro 480 w/switchover	100 ppd		@ 80 ppd
	Well # 12	1	Ecometrics w/switchover	100 ppd		@ 80 ppd
	Well # 16	1	Superior w/switchover	100 ppd		@ 80 ppd
	Well #20	1		100 ppd		@ 80 ppd
	In-Line booster #2	1	Hydro S/O	100 ppd		(not in use)
Fluoridator	Plant 1:	1	W&T dry feeder for sodium silicoflouride			
	Plant 2:	1	W&T dry feeder for sodium silicoflouride			
	Well # 11	1	W&T			
	Well # 12	1	W&T			
Chemical Feeders	Well # 16	1	W&T			
	Plant 1:	1	W&T dry feeder for lime			
	Plant 2:	1	W&T dry feeder for lime			
	Well #16	1	Acrison dry lime feeder & 1 LMI B121-955 For Sequest			

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

PWS 180008 Class B

Name of Supply City of Hattiesburg Owner City
County Forrest Master Meter Some wells and pumps
Source: Purchase Surface Ground X Number of Wells 17

Storage:

Type	Location	Material	Capacity	Remarks
Backwash (2)	Plant 1 over filters	Concrete	50,000	Total backwash capacity for plant # 1
Ground	Plant 1	Concrete	5,000,000	Clear well for plant 1
Ground	Plant 2	Concrete	2,500,000	Clear well for plant 2
Ground	Richburg Hill booster st.	Pre-stress	2,500,000	Pumps from ground tank 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. (Is also 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 Mcdonalds)	Steel	500,000	

Note: All tanks are under contract for yearly inspections

Service Pumps:

Location	No. of pumps	Capacity (gpm)	Head (ft)	Controls
Plant 1	2	4,000 each	120	
Plant 1	2	2,000 each	120	
Plant 2	1	1,000	Variable	
Plant 2	1	2,000	Variable	
Plant 2	1	2,000	(runs continually to hold pressure at 75 to 80 psi)	Variable
Plant 2	1	2,100	Variable	
Plant 2	1	5,000	(backwash pump)	
Well 16	2	Info not received		

yet

Booster Stations:

No.	Location	Coll. Tank	Pumps	Storage Tank
1	Richburg Hill	2,500,000	2-600 each	150,000
(Collector and storage tanks are the same ones listed above as ground and elevated tanks at Richburg Hill. The collector tank serves some customers as well as being used for a collector tank.)				
2	Tatum Blvd.	1,000,000	2 @ 1000 gpm each	500,000
(Collector and storage tanks are the same ones listed above as elevated storage tanks at Tatum Blvd. The collector tank serves some customers as well as being used for a collector tank.)				

Pumping Stations:

No.	Location	Pumps	Head	Remarks
1	28 th Avenue	2 @ 1500 gpm each	94'	Inline booster pumps that pump to ground tank on Richburg Hill.
(Pump starts by a timer signal, stops by a water level signal from the ground tank.)				
2	Lincoln Rd Extension	2		(Pumps to elevated tank on Lincoln Rd. Extension)
3	Ralston Road	250 gpm		pumps off 10 in. water (NOT IN USE) 10,000 gallon pressure tank relocated to Classic Drive
5	Hwy 98	N/A		fills 500,000 gallon elevated tank on Hwy 98 E

Generators @ Plant 1, @Plant 2, @ Well # 20, #11, #12, #16