



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**REPORT OF INSPECTION OF DRINKING WATER SUPPLY**

PWS: 0440096 Class: C

An inspection of the PRAIRIE LAND WATER ASSOCIATION, INC water supply in LOWNDES county was made on 01/29/2016. Present at the time of inspection was DANIEL G RAYFIELD, OPERATOR; WRITER. Official DAVID K CURTIS Address 150 ARTESIA RD COLUMBUS MS 39701 W.W. Operator DANIEL G RAYFIELD Address 50011 LAKE SHORE CIRCLE ABERDEEN MS 39730 No. Connections 725 No. Meters 100% Population Served 2100 Field Chemical Analysis: pH 8.2 Cl<sub>2</sub>(free) 1.0 Cl<sub>2</sub>(total) 1.3 H<sub>2</sub>S N/A Iron 0.0 Fluoride 0.8 Point of Sampling Plant #1 Water Rates \_\_\_

**COMMENTS**

Technical: 5 Managerial: 5 Financial: 5

**OVERALL CAPACITY RATING: 5.0 / 5.0**

1. The next Sanitary Survey for compliance of the Ground Water Rule will be carried out in 2018. No significant deficiencies were identified during this inspection.
2. This supply has a customer design capacity of 2900. This supply is at 25.0% of its design capacity. This calculation was based on the amount water each well could provide in filling the elevated tank at each treatment plant within a 6 hour period.
3. This supply has the Golden Triangle Industrial Park as an emergency tie-in. The new elevated tank on this supply was placed at the same overflow level as the Industrial Park to insure that they would operate properly. The hydraulics show that this is an approved tie-in. In addition, the wells at the Industrial Park are equipped with generators.
4. Security around all sites is adequate and all interior doors are properly locked. Security cameras are installed around each treatment plant.
5. Water audits are routinely calculated and recorded.

6. Mr. Rayfield stated at the time of the inspection that system pressures were more than adequate.
7. All correspondence from our office was properly filed and the Operators Log Book up-to-date.
8. The Security Vulnerability Self-Assessment Guide for Small Drinking Water Systems and the Emergency Contact List was properly filed and up-to-date as required.
9. As a reminder, sample sites for monthly bacteriological samples should be rotated and the locations of the samples should be identified by their physical addresses. Also when collecting bacteriological samples, the Operator should measure and record free chlorine on the sample cards.
10. The Security Vulnerability Self-Assessments and Emergency Response Plans must be updated annually. Annual updates/changes to these two important security documents must be documented. This will be considered a Significant Deficiency under the Groundwater Rule if it is not carried out.
11. Pump tests are now required at least every two years on all wells that are greater than three (3) years old, and every year on wells at systems whose design capacity exceeds 80%.  
The purpose of this change is to ensure that water production and capacity, master meter accuracy, and other information pertaining to the proper functioning of your wells are gathered regularly. Pumping test are performed yearly on this supply.
12. To get credit for Policies and Procedures, your Water User's Agreement must include a statement similar to the following: The applicant agrees that they have followed the guidelines set forth by the State Department of Health regarding onsite wastewater disposal. The purpose of this change is to help water systems ensure that applicants for water service are aware of the legal requirement to comply with onsite wastewater requirements. A copy of your water user's agreement will be checked for this statement during the inspection.
13. The design capacity calculations attached to this report give the required minimum chlorine residual at the first connection. Should system officials choose to conduct 4-log the chlorine residual will have to be measured and recorded DAILY at or before the first connection and must meet the minimum residuals given in this report.
14. The minimum free chlorine residuals for 4-log inactivation of viruses was calculated and found to be 1.5 mg/l free for well 01 and 0.2 mg/l free for well 02. Keep in mind that the Ground Water Rule requires the free chlorine residual to be at least 0.2 mg/l free to the ends of the distribution.
15. The elevated tanks on this supply are up to date on tank inspections. The reports indicate them to be in good shape.
16. The finished water at Plant #1 and Plant #2 were as follows:

Plant #1		Plant #2	
pH	8.2	pH	8.3
Iron	0.0 mg/l	Iron	0.0 mg/l
Fluoride	0.8 mg/l	Fluoride	1. mg/l
Chlorine	1.0 mg/l free	Chlorine	1.1 mg/l free

Completed by Scooter Lockhart on 02/08/2016.

Reviewed by Ralph Hayes, P.E. on 02/08/2016.

If you have any questions, please call (601)573-4368.

pc:

DAVID K CURTIS, OFFICIAL  
DANIEL G RAYFIELD, OPERATOR



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

STANDARD FORM

**FY 2016 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#: 0440096 Class: C Survey Date: 01-29-2016 County: LOWNDES  
 Public Water System: PRAIRIE LAND WATER ASSOCIATION, INC Conn: 725  
 Certified Waterworks Operator: DANIEL G RAYFIELD Pop: 2100

**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 Scooter Lockhart on 02/08/2016

Reviewed by Ralph Hayes, P.E. on 02/08/2016

**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, free 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 log book up to date and properly maintained and did it show that MSDH Minimum JOB Guidelines for W. W. Operators were being met? [ <u>Y</u> ] [ <u>N</u> ] 3) Was the water system properly maintained at the time of survey? [ <u>Y</u> ] [ <u>N</u> ] 4) Did operator 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 water loss records available for review by the regional engineer? [ <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
<b>TECHNICAL CAPACITY RATING = [ <u>5</u> ] (Total Points)</b>		

<b>Managerial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[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
<b>MANAGERIAL CAPACITY RATING = [ <u>5</u> ] (Total Points)</b>		

<b>Financial Capacity Assessment</b>	<b>Point Scale</b>	<b>Point Award</b>
[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) Is the municipality current in submitting audit reports to the State Auditor's Office? <input type="radio"/> Y <input type="radio"/> N 2) Was a copy of the latest audit report available for review at the time of the survey? <input type="radio"/> Y <input type="radio"/> N 3) Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? <input type="radio"/> Y <input type="radio"/> N (NOTE: Yes answer to all questions required to receive point.)	All Y - 1 pt. Else - 0 pt.	
[F5 - Rural Systems] 1) Has the rural water system filed the required financial reports with the State Auditor's Office and were these reports available for review? <input checked="" type="radio"/> Y <input type="radio"/> N 2) Does the latest financial report show that receipts exceeded expenditures? <input checked="" type="radio"/> Y <input type="radio"/> N (NOTE: Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	1
<b>FINANCIAL CAPACITY RATING = [ <u>5</u> ] (Total Points)</b>		

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

System: PRAIRIE LAND WATER ASSOCIATION, INC  
ID: 0440096 Class: C County: LOWNDES

Date Completed: 02/08/2016

Connections - Actual: 725 Equivalent: 725

Design Capacity: 2900 Percent Design Capacity:  $725/2900 = 25\%$

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Plant #1: 500 gpm well, (4) pressure filters(150 gpm each), and 500,000 gallon Elevated Tank.

Limiting Factor = Well = 500 gpm

Plant #2: 750 gpm well, (3) pressure filters(250 gpm each), and 150,000 gallon Elevated Tank.

Limiting Factor Plant #2 = well= 750 gpm

Customer Design Capacity = Plant Capacity Plant #1 + Plant Capacity Plant #2 + Elevated Storage/200  
=  $500 + 750 + (150,000 + 500,000)/200 = 4450$

Giving credit only for the amount of elevated storage capable of being filled within 6 hours by each plant:

$$= 500 + 750 + (180,000 + 150,000)/200 = 2900$$

The chlorine residual needed at the first customer for MSDH 4-log inactivation of viruses was determined for each well as follows (CT based on well depth, line length and size provided by operator, assumed flow splits equally at junctions):

Allowing 1 log credit at each plant for filtration:

Well 01:

$$\begin{aligned} \text{Chlorine required} &= 2.0 \text{ mg/l} \left( (60 \text{ ft} \cdot 1.46 \text{ gal/ft}) / 500 \text{ gpm} + (200 \text{ ft} \cdot 1.46 \text{ gal/ft}) / 250 \text{ gpm} \right) \\ &= 1.5 \text{ mg/l free} \end{aligned}$$

Well 02:

$$\begin{aligned} \text{Chlorine required} &= 1.8 \text{ mg/l} \left( (50 \text{ ft} \cdot 4.0 \text{ gal/ft}) / 750 + (1200 \text{ ft} \cdot 2.61 \text{ gal/ft}) / 375 \right. \\ &\quad \left. + (800 \text{ ft} \cdot 2.61 \text{ gal/ft}) / 187.5 \right) \\ &= 1.8 / 19.75 \end{aligned}$$

$$= 0.09 \text{ mg/l free (Limited to 0.2 mg/l free based on Ground Water$$

Rule)

Note: No large users identified during survey.

Note: Connections 725, Population 2100

Note: No low pressure areas identified during survey.

Note: Supply has an emergency tie-in with Golden Triangle Industrial Park.

Note: Generators at Industrial Park Wells.

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

Name of Supply Prairie Land Water Association Owner Association

PWS ID# 440096 Class B

County Lowndes Date of Last Inspection 1-29-2016 Master Meter Yes

Source: Purchase \_\_\_\_\_ Surface \_\_\_\_\_ Ground X Number of Wells Two

Design Capacity 2900 Connections 725 Population 2100

% Capacity 25.0

**Well Data:**

<u>Well #</u>	<u>Location</u>	<u>Yr. Const.</u>	<u>Capacity</u>	<u>Pressure</u>	<u>Casing</u>	<u>Screen</u>	<u>Depth</u>	<u>Status</u>
01	Artesia Road	1993	450*	20 psi	10"	61'-6"	613'	Active
02	Plant #2	2007	750	65 psi	10"	60'-6"	650'	Active

- Well 01 based on last pump test 500 gpm

**Treatment Plant #1:**

Chlorine (1) Superior 50 ppd w/swithover (Plant #1)  
 Pressure Filters (4) Permutit 6.5' Dia., Anthracite and Greensand (Plant #1)  
 Chemical Feeders (1) Pulsatron solution pump for Soda Ash 500 gpd max (Plant #1)  
 Chemical Feeders (1) Pulsatron solution pump for Potassium Permanganate (Plant #1)

**Treatment Plant #2:**

Chlorine (1) Superior 100 ppd w/switchover (Plant #2)  
 Pressure Filters (3) U.S. Filter 250 gpm each (Plant #2) (Sand)  
 Chemical Feeders (1) Prominent Solution Pump for Potassium Permanganate(Plant #2)  
 Chemical Feeders (1) LMI Solution Pump for Sodium Fluoride (1 each plant)  
 Chemical Feeders (1) Prominent Solution Pump for Soda Ash (Plant #2)

<u>Storage:</u>	<u>Location</u>	<u>Material</u>	<u>Capacity</u>	<u>Comments</u>
	North Frontage Rd.	Steel	150,000 gallons	Elevated
	Plant #1	Steel	500,000 gallons	Elevated (2009)

**Service Pumps:** No. Location Capacity Head Controls

**Notes:**

No large users identified during survey.  
 No Low pressure areas identified during survey.  
 No cross connection devices installed to date that require testing.  
 Emergency tie-in with Golden Triangle Industrial Park, Hydraulics available.  
 Security adequate around all sites and interior doors properly locked.