MISSISSIPPI STATE DEPARTMENT OF HEALTH

REPORT OF INSPECTION OF DRINKING WATER SUPPLY

PWS: 0440096 **Class:** B

An inspection of the PRAIRIE LAND WATER ASSOCIATION, INC water supply in LOWNDES county was made on 12/28/2011. 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 150 ARTESIA ROAD COLUMBUS MS 39701 No. Connections 718 No. Meters 100% Population Served 1898 Field Chemical Analysis: pH 8.2 Cl2(free) 1.1 Cl2(total) 1.5 H2S N/A Iron 0.0 Fluoride 1.1 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 with the Ground Water Rule will be carried out in 2013. All significant deficiencies identified (if any) should be corrected as soon as possible.

2. This supply has a customer design capacity of 3360. This supply is now at 21.4% of its design capacity. This calculation was based on the amount water each well could provide for filling the elevated tanks 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 work properly. The hydraulics show that this is an approved tie-in. This supply also has an emergency generator on-site to be used in the event of power outage. In addition, the wells at the Industrial Park are equipped with generators.

4. Security around all sites is more than adequate and all interior doors are properly locked. Security cameras are installed around each treatment plant.

5. Water audits are routinely calculated and recorded. Average water loss on this supply is around 12%.

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.

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 0.37 mg/l free for well 01 and 0.14 mg/l free for well 02. This will be no problem given that the current chlorine residuals are maintained well above the calculated required residuals. 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 tank located at plant #2 was inspected within the last three years and found to be in great shape both interior and exterior. The new elevated tank is now going on two years of age.

16. The finished water at Plant #2 was checked and was as follows:

pH	8.3
Iron	0.0 mg/l
Fluoride	0.9 mg/l
Chlorine	1.2 mg/ free

Completed by Scooter Lockhart on 01/19/2012.

Reviewed by Keith Allen on 01/23/2012.

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 2012 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: B Survey Date: 12-28-2011 County: LOWNDES
Public Water System: PRAIRIE LAND WATER ASSOCIATION, INC Conn: 718
Certified Waterworks Operator: DANIEL G RAYFIELD Pop: 1898

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 Scooter Lockhart on 01/19/2012
Reviewed by Keith Allen on 01/23/2012

Comments: _____

Technical Capacity Assessment	Point Scale	Point Award
[T1] Does the water system have any significant deficiencies? [Y (N)]	N - 1pt. Y - 0pt.	1
[T2] 1) Was the water treatment process functioning properly? [(Y) N] (i.e. Is pH, iron, free chlorine, etc. within acceptable range?) **2)** Was needed water system equipment in place and functioning properly at the time of survey? [(Y) N] **(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? [(Y) N NA] **(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? [(Y) N] **2)** Was log book up to date and properly maintained and did it show that MDH Minimum JOB Guidelines for W. W. Operators were being met? [(Y) N] **3)** Was the water system properly maintained at the time of survey? [(Y) N] **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? [(Y) N] **(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? [(Y) N] **2)** Is water system overloaded? (i.e. serving customers in excess of MSDH approved design capacity)? [Y (N)] **3)** Was there any indication that the water system is/has been experiencing pressure problems in any part(s) of the distribution system? [Y (N)] (based on operator information, customer complaints, MSDH records, other information) **4)** Are well pumping tests performed routinely? [(Y) N NA] **(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.) [(Y) N] **2)** Does the water system have a usable backup source of water? [(Y) N] **(NOTE:** Must be documented on survey report)	All Y - 1 pt. Else - 0 pt.	1
TECHNICAL CAPACITY RATING = [5] (Total Points)		

Public Water System: PRAIRIE LAND WATER ASSOCIATION, INC PWS ID #: 0440096

FY 2012 Public Water System Capacity Assessment Form Survey Date: 12-28-2011

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? [(Y)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? [(Y)N] **2)** Have all board members (in office more than 12 months) completed Board Member Training? [(Y)N 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) [(Y)N 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? [Y(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? [(Y)N]	Y - 1pt. N - 0pt.	1
[M5] **1)** Does the water system have an effective cross connection control program in compliance with MDH regulations? [(Y)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? [(Y)N] (**NOTE:** All YESs required to receive point)	All Y - 1 pt. Else - 0 pt.	1
MANAGERIAL CAPACITY RATING = [5] (Total Points)		

Financial Capacity Assessment	Point Scale	Point Award
[F1] Has the water system raised water rates in the past 5 years? [(Y)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? [(Y)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? [(Y)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? [(Y)N]	Y - 1pt. N - 0pt.	1
[F5 - Municipal Systems] **1)** Is the municipality current in submitting audit reports to the State Auditor's Office? [Y N] **2)** Was a copy of the latest audit report available for review at the time of the survey? [Y N] **3)** Does this audit report clearly show that water and sewer fund account(s) are maintained separately from all other municipal accounts? [Y 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? [(Y)N] **2)** Does the latest financial report show that receipts exceeded expenditures? [(Y)N] (**NOTE:** Yes answer to both questions required to receive point)	All Y - 1 pt. Else - 0 pt.	1
FINANCIAL CAPACITY RATING = [5] (Total Points)		

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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: **01/19/2012**
Connections - Actual: **718** Equivalent: **718**
Design Capacity: **3360** Percent Design Capacity: **718/3360 = 21.4%**

Plant #1: consists of a 450 gpm well, pressure filters(150 gpm each), and 150,000 gallon Elevated Tank.

Limiting Factor = Well = 450 gpm

Plant #2: 750 gpm well, (3) pressure filters(250 gpm each), and 500,000 gallon Elevated Tank.

Limiting Factor Plant #2 = well= 750 gpm

Customer Design Capacity = Plant Capacity Plant #1 + Plant Capacity Plant #2 + Elevated Storage/200 = 450 + 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:
= 450 + 750 + (162,000 + 270,000)/200 = 3360

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):

Well 01:
Chlorine required=3.0 mg/l((30 ft*1.46 gal/ft)/450 gpm + (3000 gal/450 gpm)+ (30ft*1.46 gal/ft)/500 gpm) + (200 ft*1.46 gal/ft)/250 gpm))
= 3.0/8.02
= 0.37 mg/l free

Well 02:
Chlorine reguired=2.8 mg/((50 ft*4.0 gal/ft)/750 + (1200 ft*2.61 gal.ft)/375 + (800 ft*2.61 gal/ft/187.5))
= 2.8/19.75
= 0.14 mg/l free

Note: Although service pumps alternate at plant #1, they may be run together.

Note: No large users identified during survey.

Note: Connections 718, Population 1898

Note: No low pressure areas identified during survey.

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

Note: Emergency generator on site for backup source of power supply as well as 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** 12-28-2011 **Master Meter** Yes

Source: Purchase_____ **Surface** _____ **Ground** X **Number of Wells** Two

Design Capacity 3360 **Connections** 718 **Population** 1898

% Capacity 21.4

Well Data:

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

Treatment:

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

Storage:	Location	Material	Capacity	Comments
	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.