



Catherine B. Templeton, Director

*Promoting and protecting the health of the public and the environment*

March 9, 2013

Town of Denmark  
Attn: Dr. Gerald Wright  
4768 Carolina Highway  
Denmark, SC 29042

RE: Sanitary Survey  
System # 0510002

Dear Dr. Wright:

On February 19, 2013, a follow-up sanitary survey was conducted on the public water system serving the Town of Denmark. The intent of the sanitary survey is to evaluate the public water system's ability to provide a continuous supply of safe drinking water to its customers.

The Town of Denmark public water system received an overall rating of **Satisfactory**. Enclosed is a copy of the survey and a report, which includes a description of the public water system, specific findings made during the sanitary survey, and recommendations for correcting any deficiencies. This survey and the report should be kept on file for no less than ten (10) years and be made available to the public or DHEC upon request. It is requested that all parties responsible for the operation and maintenance of the water system review this report promptly.

If you have any questions or if I can be of any assistance, please call me at (803) 642-1637.

Sincerely,

Travis Fuss  
Water Manager  
Midlands BEHS, Aiken

cc: Marty Chaney, Bureau of Water- Compliance  
Daniel Malonza, Bureau of Water- Enforcement

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

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SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
REGION 5 EQC

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**SANITARY SURVEY REPORT**

*Town of Denmark  
Water System # 0510002  
Bamberg County*

**Introduction**

The South Carolina Department of Health and Environmental Control recently conducted a follow-up sanitary survey of the Town of Denmark Public Water System. This survey consisted of a review of the Department files and an on-site inspection by Department personnel on February 19, 2013. The following persons participated in the on-site inspection:

Travis Fuss	SCDHEC - Midlands BEHS, Aiken
Dennis Townsend	SCDHEC- Midlands BEHS, Aiken
Cedric Hudson	Town of Denmark, Public Works Director
Travis Taylor	Town of Denmark, Operator

**System Description**

The Town of Denmark owns and operates a groundwater facility and associated potable water distribution system that serves approximately 3800 by approximately 1501 service connections. The Cox Mill Well has an iron bacteria treatment system, which consists of an injection of HaloSan tablets into the well twice daily while the well is idle. Treatment contact lasts for 60 minutes, and treated water is then available for further disinfection as it is pumped into the distribution system. Information on the system's wells is given in the table below.

**Well Information**

	Type	Horsepower	Yield (gpm)	Regulated Capacity (TGD)	Treatment
Well One Brooker Center	NOT IN SERVICE				
Well Two Voorhees	Turbine	60	330 gpm	316.80	Gaseous Chlorine
Well Three Legare Street	NOT IN SERVICE				
Well Four Cox Mill	Turbine	50	350	336.00	Gaseous Chlorine Iron Bacteria Removal (HaloSan)
Well Five Acacia Street	Submersible	40	403	386.88	Gaseous Chlorine
Well Six W. Voorhees	Submersible	40	325	312 .00	Gaseous Chlorine

Two (2) elevated storage tanks with a total volume of approximately 375,000 gallons serve the Town of Denmark public water system. The City Hall Tank was taken offline and physically disconnected from the system in late 2011. An emergency connection exists with the Town of Bamberg.

**Storage Capacity**

<b>Tank</b>	<b>Capacity (gallons)</b>
City Hall Elevated Tank (offline)	100,000
Nibco Elevated Tank	250,000
Voorhees Elevated Tank	125,000

Currently, the Town of Denmark public water system has the following operators:

<b>Operator</b>	<b>License</b>	<b>Certification #</b>	<b>Class</b>
Cedric Hudson	Treatment	5044	A
	Distribution	785	A
Tim Freeman	Treatment	6651	D
	Distribution	1830	G
Jimmie Shepherd	Treatment	7449 (lapsed)	T
	Distribution	931 (lapsed)	T
Travis Clark	Treatment	8674	T
	Distribution	3889	T
JP Robinson	Treatment	2418	D
	Distribution	1831	G

**Findings and Recommendations-** *Please note that all items requiring action are italicized.*

1. The system was upgraded to a **Satisfactory** rating for **Water Quality**. The purpose of this item is to ensure that a water system consistently produces water which complies with established water quality standards. Sampling performed within the distribution system back in December 2011 showed that the water was meeting the secondary MCLs for iron and manganese. In addition, as planned after the last sanitary survey distribution sampling for iron, manganese, and total coliform was performed in December 2012. All results were well within acceptable limits as established by the Environmental Protection Agency (EPA). *Considering the history of poor drinking water quality in Denmark, this item will be closely evaluated during each subsequent Sanitary Survey.*
2. The system maintained a **Satisfactory** rating for **Flushing Plan**. The purpose of this item is to ensure that the system's routine flushing program is adequate to help maintain a disinfectant residual throughout the system, as well as to help prevent water quality issues associated with stagnant, discolored, and sediment laden water. The system is doing a good job of routinely flushing their system and documenting flushing activities. The weekly flushing events seem to be improving water quality and preventing customer complaints. Although this flushing is important to maintaining chlorine residuals throughout the system, a rigorous yearly unidirectional flushing event will serve to more effectively scour the lines. The Department looks forward to evaluating the unidirectional flushing event at the next survey. As mentioned during the survey, it is important to continue communicating flushing events with the customers so that they will be prepared for potential discoloration. Please ensure the weekly flushing program is incorporated into the written Flushing Program and the Procedures Manual. It appears that two written

Flushing Program's are in existence. To prevent confusion and promote organization there should only be one.

3. The system was upgraded to a **Satisfactory** rating for **Fire Flow**. The purpose of this item is to ensure that the water system can provide adequate flow to protect the integrity of their water system when fire protection is provided. Hydrants must be flow tested at a minimum of once every three years with a minimum flow required for fire protection of 500 gpm. Fred Taylor with SC DHEC- BOW met with system representatives in October 2012 and explained the proper procedures for flow testing hydrants. All fire hydrants were then tested by the Town during the month of January 2013. A review of the testing results reveals that all hydrants appear to meeting minimum flows and pressure.
4. The system was upgraded to a **Satisfactory** rating for **Leak Detection and Repair** and given a **Satisfactory** rating for **Water Audits**. *Please note that in accordance with the previous Sanitary Survey program, these two survey items were evaluated as one item during the last survey.* The Town continues to do a good job of proactively identifying leaks, properly addressing the leak, and adequately documenting the repair procedures. In addition, a full water audit was available for review. The Town is not only comparing water sold versus water pumped, but it is also including tangible numbers associated with line flushing, fire fighting, leak loss/ repairs, metered facilities, and unmetered facilities. The Town has calibrated its meters on the wells to ensure more accurate production numbers and is continuing to replace water meters as time allows. Although they are not able to replace 320 per year as previously planned, progress continues to be made. It is highly recommended that the Town download and use the American Water Works Association (AWWA) free water audit software to aid in completing and interpreting water audits. The free software can be found at: <http://tinyurl.com/auditsoftware>.
5. The system received a **Satisfactory** rating for **Storage Maintenance**. The purpose of this item is to ensure the system's storage tanks are properly maintained to guarantee their good working condition. The water level gauge needs repair at the Nibco Tank. Although the Town has paid for the repair, they are still awaiting the work to be performed by the contractor. *Please inform the Department in writing when the repair is made.* To ensure that this item is not downgraded at the next survey, the deficiency needs to be addressed immediately.

### **Conclusions**

The Department appreciates the attention given to this report. The Department is committed to working with the water system to ensure that the residents of Denmark receive safe and reliable drinking water. If you have any questions regarding the report, please do not hesitate to call.