Fields of Opportunities

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
ROGER L. LANDE, DIRECTOR

OCTOBER 19, 2011

MAYOR ROGER FRITZ
CITY OF ROLAND
202 E ASH ST PO BOX 288
ROLAND IA 50236

SUBJECT: ROLAND WATER SUPPLY Water Supply Sanitary Survey
Public Water Supply ID # 8570001

Dear Mayor Fritz and Council Members:

Enclosed is the report of the recent survey of the above system conducted by Janet Gastineau of my staff.

We believe you will find the report self-explanatory. Although the system has made some of the suggested/required improvements to the system since the previous survey, there are still several items that must be addressed. Therefore, by November 28, 2011, please submit a written response addressing the deficiencies and requirements listed near the end. The written response must include a corrective action plan or compliance schedule to ensure all significant deficiencies are addressed within 120 days of receipt of this report.

You may contact Ms. Gastineau (515-250-4291; janet.gastineau@dnr.iowa.gov) or this office with any questions or comments.

Sincerely,

Ted Petersen
Supervisor, Field Office #5

c: Chris Spoelstra, IDNR Water Supply Operations Section (w/encl.)
HAROLD HOVICK, 513 W MAPLE ST, ROLAND IA 50236 (w/encl.)
Nathan Hovick, Water Superintendent (w/encl. via e-mail)

IOWA DEPARTMENT OF NATURAL RESOURCES
PUBLIC WATER SUPPLY SANITARY SURVEY

PWSID #: 8570001

PUBLIC WATER SUPPLY INFORMATION			
SYSTEM	NAME: ROLAND WATER SUPPLY	PWS CLASSIFICATION: COMMUNITY	
	ADDRESS: 202 EAST ASH STREET, PO BOX 288, ROLAND, IA 50236		PHONE: 515-388-4861
	RESPONSIBLE AUTHORITY/OWNER: CITY OF ROLAND		
	ADDRESS: ATTN CITY CLERK CITY HALL, 202 E ASH ST PO BOX 288, ROLAND IA 50236		PHONE: 515-388-4861
	TREATMENT GRADE: WT1	DISTRIBUTION GRADE: WD1	WATER USE PERMIT #: 6058-R3

SOURCE/ ENTRY POINT	SDWIS NAME: WELLS #2 OR #3 AFTR TRTMT	DESCRIPTION/PHYSICAL LOCATION: SAMPLE TAP IN KITCHENETTE IN CITY HALL

RESPONSIBLE OPERATOR(S)	NAME: HAROLD HOVICK	GRADE: WT2/WD2	CERTIFICATION #: 6240

SURVEY INFORMATION				
SURVEY	DATE THIS SURVEY: 10/13/2011	DATE LAST SURVEY: 01/07/2009	PURPOSE: SANITARY SURVEY	
PERSONS INTERVIEWED	NAME: NATHAN HOVICK		TITLE: WATER TREATMENT SUPERINTENDENT (WT1/WD1)	
CONSUMPTION	PERIOD REVIEWED: 1/2009—8/2011	AVERAGE GPD (MGD): 0.093	MAXIMUM GPD (MGD): .233	PE @ 100 GPCD: 930
POPULATION SERVED	TOTAL NUMBER OF SERVICE CONNECTIONS: 535		POPULATION OUTSIDE CORPORATE LIMITS: 5	
	CENSUS POPULATION: 1284		TOTAL POPULATION SERVED*: 1289	
	MILES OF PIPE: N/A			

*equals census pop. + population outside corp. limits (2.5 X # of service connections or actual pop.)

ASSESSMENTS	ORGANIC CHEMICAL PHYSICAL VULNERABILITY: NO
	SOURCE CLASSIFICATION: GROUND WATER

AUTHENTICATION		
INSPECTOR	NAME/TITLE: JANET GASTINEAU, ENVIRONMENTAL SPECIALIST SENIOR	DATE: 10/18/11
REVIEWER	NAME/TITLE: TED PETERSEN, SUPERVISOR	DATE: 10/19/11

GENERAL DESCRIPTION:

Source: Water is supplied from two wells located on the north side of town. Well #2 was drilled to a depth of 253 feet in 1940 but televising in 2001 put the well at 190 feet due to shale caving in the bottom from above. Well #3 was drilled in 2000 and is similar in depth. The wells alternate each call for water and operated approximately six to eight hours total each day. The system has an emergency connection to Central Iowa Water Association.

Treatment: The treatment plant is located adjacent to the City Hall and treatment consists of cascade aeration, a serpentine mixing chamber, 25,000 gallon detention tank, two gravity sand filters for iron and manganese removal, phosphate addition for corrosion control and sodium hypochlorite injection for disinfection. There is also a separate sodium hypochlorite feed at Well #2 to control iron bacteria.

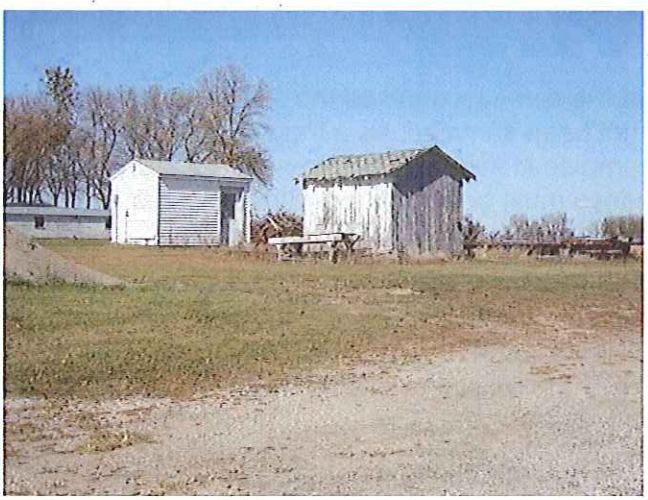
Distribution Storage: Pressure and storage is provided by a 25,000 gallon ground storage reservoir at the water treatment plant, two high service centrifugal pumps, and a 250,000 gallon elevated storage tower (EST).

1. SOURCE:

- The system prepared a Source Water Protection plan approximately seven years ago but nothing has been done since then. Implementation of source water protection plans are encouraged for all wells and may result in fewer monitoring requirements in the future. A source water protection workbook is enclosed for the system's use. Iowa Rural Water Association is also a good resource for source water protection.
- The Department recommends the supply have some means to provide auxiliary power to the wells in the event of loss of normal power.
- The sodium hypochlorite feed is currently injected at the same location as the sample on Well #2, which means this well cannot be sampled and has not been sampled, as a triggered well under the Groundwater Rule. Each well must be able to be sampled individually before any treatment. Options were discussed with the operator but a written response must be submitted within 30 days as to how you will meet this requirement.
- The owner of a well constructed after 1979 is required to have legal control of the land for a 200-foot radius around the well through purchase, lease, easement, ordinance, or other similar means. Crop ground is approximately 125' north of Well #3 and there is approximately 15' to the west of the well that is owned by the City. Please respond within 45 days of the receipt of this report as to how legal control will be obtained for the east well. [567 IAC 43.3(7)"b"(1)3]
- The west, older well is on private property, but it is still recommended that legal control, to the extent possible, is obtained.
- The top of the well seal is split but there is a gap where there appears to be some type of gasket underneath. The well should be completely sealed. A welded metal plate or a threaded cap is the preferred method for capping a well. All well caps, temporary or permanent, shall be effectively located/sealed against the entrance of water and contaminants. [Recommended Standards for Water Works 3.2.5.13]
- No analytical data for ammonia is known to exist so a sample was collected near the top of the cascade aerator for analyses. Well #2 was likely operating at the time. Results of analyses will be forwarded to the City when they are released from the State Hygienic Laboratory.
- The well pumps were replaced in February 2009 with 15 horsepower 150 gpm pumps.

- A contingency plan for water system outages was located during this survey but is in need of updating. The emergency connection to Central Iowa Water Association was used in January 2011 for a few days.
- The airline for Well #2 is broken. As an active well, static and pumping water levels must be measured and recorded once per month. This line must be replaced the next time the well pump is pulled.

Well #2 (west) on private property.



Well #3 (east) is inside the white building on the left.

Well #3.

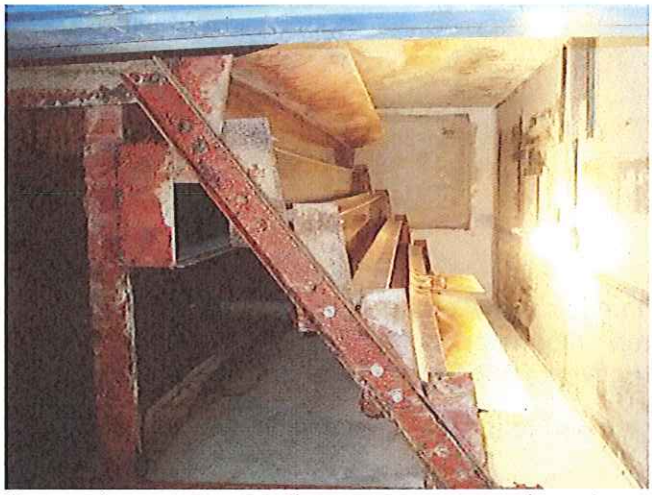
Well #2.

Sodium hypochlorite injection is at the only sample tap on Well #2.

2. TREATMENT:

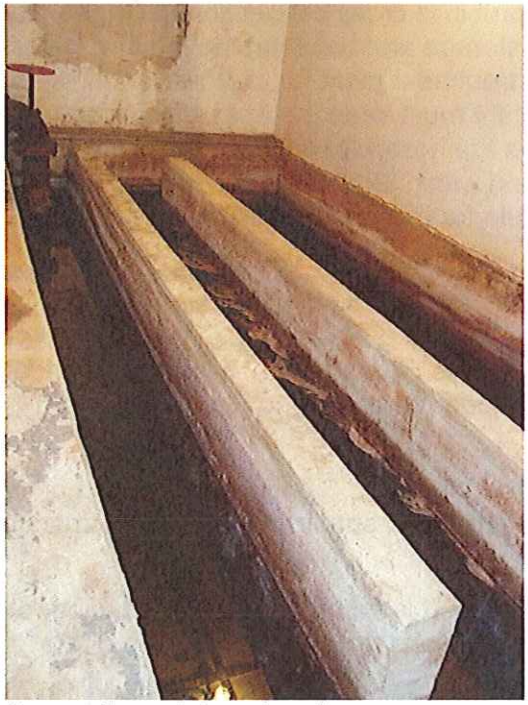
- Chemical feed pumps should be set at a feed rate that is no lower than 20% of its capacity. Mr. Hovick agreed he could adjust the polyphosphate feed pump. Operation in the middle third of the range is recommended. [Recommended Standards for Water Works 5.0.3.g]
- All chemical storage containers should be properly labeled to include chemical name, purity, and concentration.
- Recommended Standards for Water Works 5.1.11.c recommends that the day tank for the chemical solution should contain no more than a 30-hour (pump time) supply of solution.
- Subparagraph 567 of the Iowa Administrative Code 43.1(4) prohibits cross connections. On the day of this inspection a cross connection was observed at the bulk storage and between the in-plant water and line to the distribution system. There is one hose in the treatment plant for cleaning and it is kept connected. This was a previously noted deficiency. The system must keep the hose disconnected when not in use, add a backflow prevention device directly on the hose bib, or add a backflow prevention device to the in-plant water line(s). Please respond within 30 days of the receipt of this report as to the changes that will be made and a time schedule for implementation to eliminate the cross connection.
- Although two new dehumidifiers were added since the previous sanitary survey, some of the surfaces of treatment units, piping, and appurtenances are in need of painting. Paint on these surfaces gives the treatment plant a more sanitary appearance and helps protects the surfaces. It is recommended that all piping and chemical feed lines be identified and color coded according to Recommended Standards for Water Works 2.14.
- Some corrosion was noted on the cascade aeration troughs but no leaks. Significant corrosion of the aeration equipment could impact the treatment goal for this facility and should continue to be monitored regularly.
- A peristaltic pump is used at Well #2 for the sodium hypochlorite. It is recommended that tubing for peristaltic pumps be replaced according to manufacturer's instructions for proper operation of the pump.
- The filter beds should be regularly inspected for cementing, mud balls, and uniform depth of media.

- To ensure that the phosphate solution does not become contaminated, the stock solution should be covered with a tight lid and chlorine must be added to the solution to an initial concentration of 10 mg/L.
- The filter backwash discharge was plumbed to the sanitary sewer since the previous survey.
- The system has a power take-off engine/generator for the operation of the water treatment plant, but can only treat what's contained in the detention basin since there is no emergency power generation for the well field.

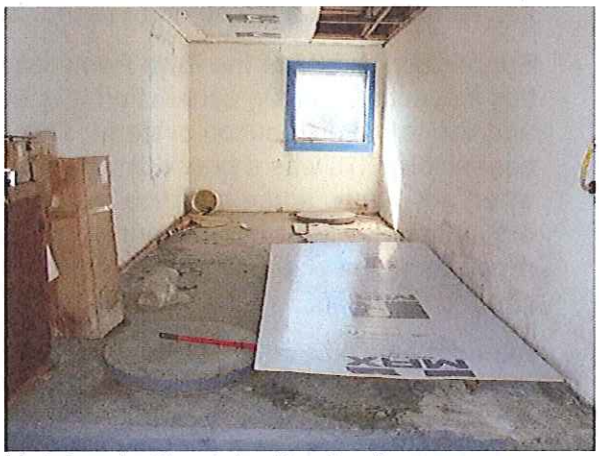


Cascade aerator—wells were not operating at the time of this survey.

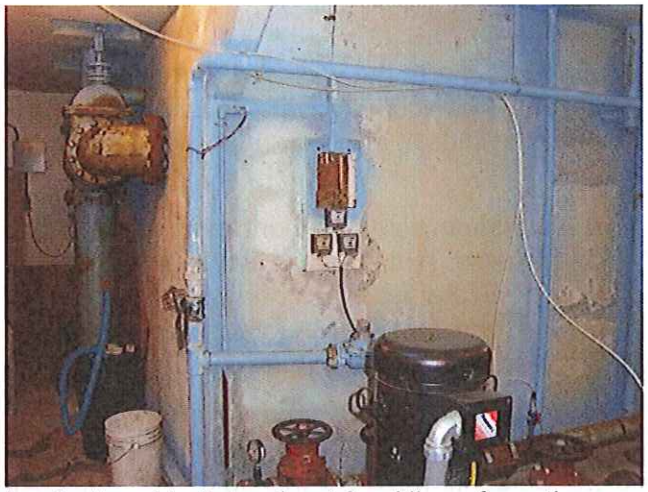
Filter.



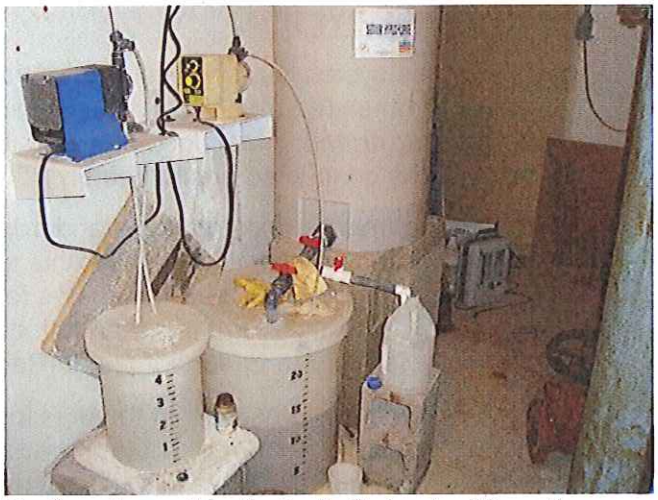
Serpentine mixing chamber.



Hatches to the detention basin.

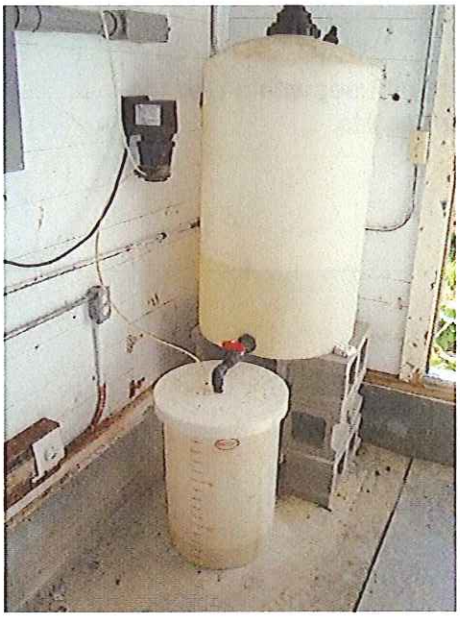


In-plant and bulk load out feed lines from the line leading to the distribution system.



Sodium hypochlorite (bulk & day tank) on the right and the smallest tank is for polyphosphate.

Chlorine injection on the right side of the picture



Sodium hypochlorite feed system at Well #2. The day tank was added since the previous survey.

3. DISTRIBUTION SYSTEM:

- One of the system's residential connections is not metered along with the wastewater treatment plant. It is recommended that all service connections be metered so that accurate water loss reconciliation can be performed. Water loss was calculated regularly by the affidavit operator and the last water loss survey was conducted approximately 10 years ago.
- This department's construction standards require that the minimum size of water mains for providing fire protection and serving fire hydrants shall be six-inch diameter. This system should not use fire hydrants connected to four-inch mains for fire flow purposes. Water for fire fighting purposes should be limited to segments of the distribution system that are served with adequate piping between the point of use and the treatment plant. [Recommended Standards for Water Works 8.2.2]
- This system must ensure that the bulk loading site adjacent to the water treatment plant provides positive separation from the potable water supply system through the use of an air gap or backflow preventer. Within 30 days this system must submit a written confirmation to this office that appropriate measures have been taken to provide a positive separation between bulk loading sites and the potable water system. [567 IAC 43.1(4)"b"]
- It is recommended that all valves be exercised annually to ensure that they are in working condition.
- Earlier this year approximately seven connections were left without water less than one hour during a line replacement project. New, cleaned and repaired water mains must be disinfected in accordance with AWWA Standard C651-99. In an emergency or unusual situation, the disinfection procedure must be discussed with IDNR. The AWWA standard referenced also has a component for conducting bacterial sampling that should be reviewed relative to water main repairs and replacements.
- A construction permit was issued in 2006 for 2,436 ft of 8 inch PVC water main along Maple St. from west of Britson's Circle to Green Street. The project ended up being done in phases and approximately 900 feet of this was just completed earlier this year. For future projects, please keep in mind that a construction permit is good for only one year from the date of issue. If a system has not started construction within that period they must apply for an extension prior to the first year anniversary date. An applicant can renew two more times for a total of three years. After that a new application must be submitted, including the construction permit fee.
- Mr. Hovick recently purchased dechlorination equipment to use when flushing. It consists of a diffuser with sodium sulfite tablets.

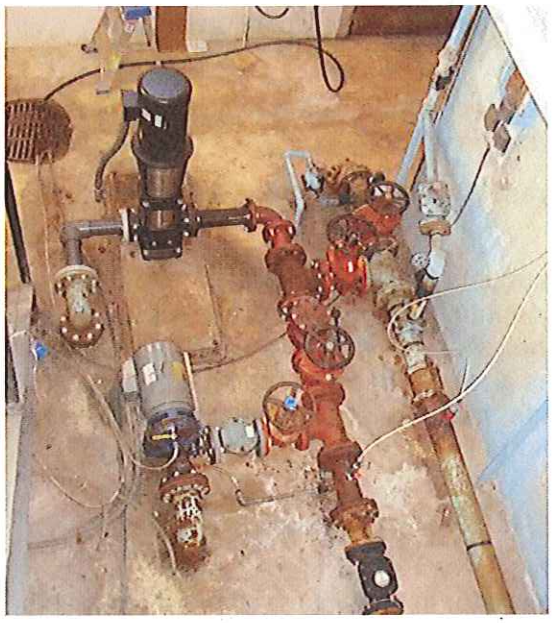
Hitch-mounted diffuser with a port for dechlorination tablets.

4. FINISHED WATER STORAGE:

There are no deficiencies or recommendations to report based on observations made at the time of this survey.

5. PUMP, PUMP FACILITIES, AND CONTROLS:

- Both high service pumps were replaced last winter. In November 2010 one pumped failed and on New Year's Eve the other pumped failed so the system switched to the emergency connection for a few days. One of the pumps is new and the other was rebuilt.
- An automatic dialer was added as a reliable failure alarm since the previous survey.



The upper pump is new and the lower pump was rebuilt. Polyphosphate is fed in the pipe on the left and sodium hypochlorite is injected on the right.

6. MONITORING/REPORTING/DATA VERIFICATION:

- The written bacterial sampling plan was available during this survey but the operator is currently only using two sites. The system is required to collect two bacteria samples each month. Adding sites and updating the plan was discussed with Mr. Hovick and a template was provided to complete the plan. Major elements of the plan shall include, but are not limited to, a map of the distribution system, notation or a list of routine sample location(s) for each sample period, resample locations for each routine sample, and a log of samples taken. [567 IAC 41.2(1)"c" & (2)2]
- The Disinfection Byproducts Rule sampling plan was available for review but the maximum residence time (MRT) location was changed in 2010 from what had been used the two previous sampling events; the plan showed the former site. A template to update the plan with the current MRT location was provided and the operator must ensure the plan includes 1) Specific locations and schedules for collecting samples for any parameters included in this rule and 2) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques
- The system is reminded that all bacteriological analyses records must be retained for a period of not less than five years. [567 IAC 42.5(1)]

- The system is reminded that all records of chemical analyses shall be retained for a period not less than ten years. [567 IAC 42.5(1)]
- The system is reminded that all records of actions taken to correct violations must be retained for a period not less than three years. [567 IAC 42.5(1)]
- The system is reminded that all Sanitary Surveys and copies of all reports, summaries or communication related to Sanitary Surveys shall be retained for a period not less than ten years. [567 IAC 42.5(1)]
- The system is reminded that copies of reports, summaries or communication related to reports concerning variances or exemptions must be retained for a period not less than five years. [567 IAC 42.5(1)]
- The system is reminded that all monthly records of operation completed as described in 567 IAC 42.4(3), Appendix B and 43.5(4) & (5) shall be maintained at the facility for inspection by the department for a period of five years. [567 IAC 42.5(1)]
- The system is reminded that all copies of reports, summaries or communication related to copies of public notices issued must be retained for a period of not less than three years. [567 IAC 42.5(1)]
- The system is reminded that all copies of lead and copper results must be retained for a period of not less than 12 years. [567 IAC 42.5(1)]
- The system has had an unsatisfactory bacterial sample in august and November of 2010. During this survey a bacterial sample was collected at the retirement community on the south side of town and submitted to the State Hygienic Laboratory in Ankeny for analysis. The results were satisfactory and are attached for your information. The chlorine residual was checked at the same time and location as the bacterial sample. Free and total residuals were adequate; free available chlorine was measured at 1.27 mg/L and total residual chlorine was measured at 1.38 mg/L.

7. WATER SYSTEM MANAGEMENT AND OPERATIONS:

Operation and maintenance records assist the system owner/operator in keeping equipment operating properly and extending its life. It is recommended that all records of routine maintenance be kept on file.

8. OPERATOR CERTIFICATION COMPLIANCE:

Historically this system has had an average usage of over 100,000 gpd, which requires a classification as a grade 2 treatment facility. Water usage was reviewed from January 2009 through August 2011 and was found to average 0.093 MGD or 93,000 gpd, which would make the system eligible as a grade 1 water treatment facility and only need to be operated by an operated certified as a grade 1 water treatment operator, which Nathan Hovick has achieved. Harold Hovick has been considered the direct responsible charge operator since he has a grade 2 water treatment and distribution certification. Provided the average usage remains under 100,000 gpd, Nathan Hovick can be considered the direct responsible charge operator.

SUMMARY OF SIGNIFICANT DEFICIENCIES

1. Eliminate all cross connections in the treatment plant and at the bulk water salesman.
2. Revise the written bacterial sampling plan to ensure more than the same two locations are sampled each month.
3. Ensure each well can be sampled individually prior to any treatment.
4. Ensure the well caps effectively seal against the entrance of contaminants.

SUMMARY OF MINOR DEFICIENCIES

1. Obtain 200 feet of legal control surrounding Well #3.
2. Update the disinfection byproduct sampling plan with the current MRT address.

SUMMARY OF REQUIREMENTS

1. Add chlorine to the polyphosphate tank to 10 mg/L.
2. Ensure all necessary records are being retained at the appropriate frequency.
3. Measure and record pumping and static source water levels.
4. Apply for an extension as appropriate for projects that have obtained a construction permit.

SUMMARY OF RECOMMENDATIONS

1. Update and implement the source water protection plan.
2. Provide emergency power for the source wells.
3. Operate chemical feed pumps in the middle third of the capacity.
4. Label chemical storage tanks and injection points.
5. Ensure day tanks hold no more than a 30 hour (pump time) supply.
6. Paint treatment units, piping, and appurtenances to ensure a more sanitary appearance.
7. Replace the tubing on the peristaltic pump according to the manufacturer's recommendations.
8. Evaluate the filter media regularly.
9. Meter all service connections.
10. Exercise valves.
11. Conduct water loss monitoring/calculation.
12. Use fire flow hydrants connected to mains equal to or greater than six inches.
13. Maintain operation and maintenance records for all equipment, including the distribution system.
14. Update the system's contingency/emergency response plan.

State Hygienic Laboratory

The University of Iowa

Date of report: 10-19-2011

JANET GASTINEAU
IDNR-FO 5
401 SOUTHWEST 7TH STREET
SUITE I
DES MOINES IA 50309-4611

Sample Number	2011040361
Date Received	10-13-2011
Project	16WSCOMP
Date Collected	10-13-2011 09:20
Collection Site	homestead community room
Collection Town	Roland
Description	water
Reference	
Collector	GASTINEAU JANET
Phone	(515) 250-4291
Purchase Order	

Comments

chlorine residual:free= 1.27,total= 1.38
Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

SDWIS Information

PWS Id: IA8570001	Facility Id: 950	Sample Point Id: 950
Sample Category: Total Coliform	Sample Type: Special (SP)	

Results of Analyses

Total Coliform & E.coli by Colilert P/A

Total coliform bacteria absent.
E.coli absent.
Bacterially safe.

Date Analyzed: 10-13-2011 15:00 Analyzed at: Ankeny Analyst: DMJ
Method: SM21 9223 Verified: JB

Description of units used within this report

No Units - No Units

The results of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City #027, Lakeside #393.

If you have any questions please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Michael D. Wichman, Ph.D.
Michael A. Pentella, Ph.D.
Associate Directors

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319/335-4500 Fax: 319/335-4555

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