



INSPECTION REPORT

For

Harvest Gold Subdivision NM3511524

*Este informe contiene información importante acerca de su agua potable.
Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.*

Prepared by:

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10 June 2016

**State of New Mexico
Environment Department
Water Protection Division
Drinking Water Bureau**



RECORD OF INSPECTION

This report fulfills the requirements of NMAC 20.7.10.100 incorporating 40 C.F.R. 141.723 for conducting a State approved inspection. The report was prepared by Joseph C. Savage, Surface Water Treatment Rule Administrator

NMED APPROVING AUTHORITY: _____

A handwritten signature in black ink, appearing to read 'JCS', is written over a horizontal line.

Date: 10 June 2016

Joseph C. Savage, Surface Water Treatment Rule Administrator

Introduction

The New Mexico Environment Department Drinking Water Bureau (DWB) conducted a site inspection of the Harvest Gold Subdivision water system treatment plant. The inspection was conducted by Environmental Scientist Specialist Tanya Trujillo, Surface Water Treatment Rule Administrator Joseph C. Savage, Northern Region Supervisor Chris Cudia, PWSS Program Manager Joe Martinez, and Harvest Gold Subdivision water system operator Thomas Barrow.

System Description

The Harvest Gold Subdivision water system has approximately 522 residents and is classified as a Community water system according to the New Mexico Drinking Water Regulations 20.7.10 NMAC. The water system consists of 149 listed metered connections. The system's source of water is the San Juan River. Raw water from an irrigation ditch receiving water from the San Juan River diversion is gravity fed to a holding reservoir and pumped into the filter plant consisting of two pressure filters. Chemical addition occurs a few feet before filtration. Disinfection occurs after filtration through the use of aqueous sodium hypochlorite. Treated water from the plant is detained in a 8,000 gallon contact tank before entering distribution.

Survey Findings

Compliance inspections serve as a proactive public health measure and can provide important information on a water system's design and operations, can identify minor and significant deficiency(s) for correction before they become major problems, and can improve overall system compliance.

Significant Deficiencies:

A significant deficiency is defined as any deficiency that is causing, or has the potential to cause a threat to public health. NMAC 20.7.10.100 Incorporating 40 C.F.R. § 141.723(c)(d). Water systems must consult with the DWB within 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the inspection report.

A total of 21 significant deficiencies were identified at the Harvest Gold Subdivision water system during the inspection on Thursday 2 June 2016:

1. SW03 - Deficiency: Chemical Tanks Inadequately Labeled

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Inadequate labeling of chemical tanks could result in improper chemical injections or treatment of the drinking water. No tanks or chemicals in use were labeled. Furthermore, the operator was unable to identify the chemical additive in one of the tanks.

Corrective Action: Please submit documentation verifying that all chemicals are clearly and accurately labeled.

2. SW05 - Deficiency: Lack of, or improper containment for liquid chemicals

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Improper chemical storage containment could result in large quantity spills and/or mixing of incompatible chemicals during a spill event. No secondary containment was in use.

Corrective Action: Please submit documentation verifying that secondary containment is provided for all chemicals in use or stored in the treatment plant.

3. SW06 - Deficiency: Lack of standby chemical feeders for each chemical

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Lack of standby feeders/pumps could result in improper treatment if the main chemical feeders malfunction. Spare chemical/disinfectant feed pumps were not identified during the inspection.

Corrective Action: Please submit documentation verifying that spare chemical feed pumps are readily available in the treatment plant.

4. 006F - Deficiency: Inadequate or lack of an operations and maintenance plan or necessary operational policies.

Regulatory Citation: NMAC 20.7.10.400.E

Concern/Description: Delivery; Operation/Management. An Operation and Maintenance (O&M) Plan is an essential part of any water supply system. The manual should summarize the actions necessary to identify those steps required for cost effective, efficient, safe, and reliable project start-up and continued successful operation. A proper plan should result in a flawless transition from one operator to the next. Lack of a proper O&M plan could result in insufficient operation of the water system as well as prolonged water outages during emergency situations. Lack of an adequate O&M plan can result in poor treatment decisions, water outages; failure to monitor; equipment failures; inability to obtain needed services or parts, and improper operation of facilities.

Corrective Action: Please submit documentation verifying that an accurate and updated Operations and Maintenance (O&M) plan, standard operating procedures, and a set of operational policies are in place at the Harvest Gold Subdivision water system. Implement the plan by training all operators and ensuring that proper procedures are consistently followed.

5. SW10 - Deficiency: Lack of or improper pipe labeling within the treatment plant

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Improper pipe labeling could result in potential cross connections within treatment plant. None of the piping in the plant was labeled for type of water or direction of flow. Furthermore, the operator was unable to describe the piping flow during the inspection.

Corrective Action: Please submit documentation verifying that all pipes and lines within the treatment plant have been properly labeled to clearly display type of water and direction of flow.

6. SW12 - Deficiency: Lack of, or improper calibration and record keeping of calibrations for meters or lab equipment

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Improper calibration of meters or lab equipment could result in improper dosing of chemicals, inadequate treatment, or improper compliance reporting to NMED-DWB. No calibration records were identified during the inspection. It was unclear when or under what circumstances the turbidimeter and chlorine meter were calibrated.

Corrective Action: Please submit documentation verifying that the turbidimeter and chlorine analyzer have been properly calibrated according to a set procedure and at specific intervals or operating conditions. Also please submit formal documentation set forth in the O&M manual or a formal procedural document verifying that proper calibrations will be conducted and documented at required intervals or operating conditions in the future.

7. SW13 & SW33 - Deficiency: Improper treatment of drinking water, including not meeting proper inactivation of pathogens; lack of CT calculations during periods of fluctuating chlorine residuals, increased flows, or following changes in plant design or piping

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Delivery. Improper treatment of drinking water or not meeting proper inactivation of pathogens could result in improperly treated water.

CT remains unchanged for a given facility only if there are no changes in flow, piping, water temperature, pH, and chlorine residual. If any of these parameters change, the CT will also change and water systems must ensure that the CT values are within the compliant range.

CT values have not been calculated by system operators. Based on the observations at the time of the inspection, it is suspected that the Harvest Gold Subdivision water system is not meeting the required CT prior to the first customer as required by regulations. Furthermore, there is a high chlorine demand, reducing residuals to a trace after a very short period of time and water volume, and prior to distribution.

Corrective Action: Please submit documentation verifying that CT is continually being calculated by operators and being met by the treatment process. CT must be calculated daily at the time of lowest free chlorine residual and peak flow. A compliant inactivation ratio must be maintained at all times water is being produced. If it is determined that the inactivation ratio is out of compliance, modifications must be made immediately to ensure proper inactivation of pathogens. The modifications can include reducing the produced water flow and increasing the concentration of disinfectant, however, if these modifications are not sufficient to ensure inactivation of pathogens, then physical modifications to the water system must be undertaken.

8. 005P - Deficiency: Inadequate treatment plant failure alarm or auto shut down

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Delivery; Operation/Management. Inadequate treatment plant alarm or auto shut down could result in inadequate treatment of the drinking water and possible adverse health effects for consumers of that drinking water. The entire plant is operated manually and this poses a risk of improper treatment due to the operators only being on site a few times each week.

Corrective Action: Please submit documentation verifying that a shutdown procedure has been implemented for times when turbidity or disinfectants are out of compliant range.

9. 004G - Deficiency: Disinfectant residuals not measured and recorded at entry point or in distribution

Regulatory Citation: 40 CFR 141.72 & 40 CFR 141.74(c)(2)

Concern/Description: Operation/Management. Verification of disinfectant residuals is essential in determining if potential contamination is occurring within the distribution system. An increased disinfectant demand is an indicator of microbial growth within the system. A functioning chlorine analyzer was absent during the time of the inspection.

Corrective Action: Please submit documentation verifying that the online chlorine analyzer has been properly calibrated and maintained. Also please submit verification that it is measuring water known to be at the entry point to distribution. Measurements taken from this analyzer at the lowest daily concentration must be reported on the monthly operating report.

10. SW09 - Deficiency: Lack of, or improper filter backwashing criteria

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Direct Contamination; Treatment; Lack of, or improper filter backwashing criteria could result in improper filtration of treated water, breakthrough of pathogens, or possibly shorter filter runs. There was no logical or proper criteria for when to backwash. Operator on site only a few times each week.

Corrective Action: Please submit documentation verifying that proper and consistent criteria for backwashing both pressure filters is has been initiated and is based on well-defined parameters. The backwash procedures need to be part of the O&M plan.

11. SW15 - Deficiency: Inadequate process control monitoring or record keeping

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Operation/Management. Inadequate monitoring or recordkeeping could lead to contamination. If the chemical addition and filtration processes are not adequately monitored, recorded, and tracked, then the operators are less likely to adjust to changing water quality which could result in improperly treated water. There was no functioning turbidimeter present at the time of the inspection. There appears to be no compliant monitoring, recordkeeping, or reporting.

Corrective Action: Please submit documentation verifying that process control monitoring and recording for chemical addition, finished water turbidity, disinfectant addition, and CT are provided. This must all be part of the O&M plan and implementation.

12. SW18 - Deficiency: No flow pacing of key chemical

Regulatory Citation: 40 CFR 141.723(b)

Concern/Description: Operation/Management. Fluctuating or irregular chemical flow could result in inadequate removal of contaminants and sediment. The manual plant operation without constant determination of water flows does not allow for proper chemical pacing. Furthermore, with operators on site only a few times each week, flow pacing is not possible in a totally manual water treatment system.

Corrective Action: Please submit documentation verifying that an automated process has been implemented to allow for pacing of chemical additives. If this is not feasible then flows need to be measured, recorded, and the amount of chemicals fed into the system need to be calculated and manually adjusted based on the calculations.

13. SW20 - Deficiency: Inadequate sample locations; inadequate turbidity measurements

Regulatory Citation: 40 CFR 141.560

Concern/Description: Operation/Management. Without properly placed turbidity sampling locations on each filter, the operators cannot adequately determine treatment procedures to minimize contamination. There was no functioning turbidimeter present at the time of the inspection.

Corrective Action: Please submit documentation verifying that continuous read turbidimeters are installed at all required regulatory locations. Additionally, please submit documentation that procedures for monitoring turbidity and calibrating turbidimeters are in an O&M plan and that all operators are trained in proper use, calibration, and maintenance of turbidimeters.

14. SW22 - Deficiency: Leak at fixtures and ports on pressure filters and in piping within treatment plant

Regulatory Citation: NMAC 20.7.10.400B

Concern/Description: Direct Contamination; Delivery. Leaks can result in direct contamination of the water delivered to distribution. Water was observed leaking from many of the pressure filter ports and plumbing connections. A depression in the floor containing pipes and lines was filled with water.

Corrective Action: Please submit documentation verifying that all leaking ports and connections on the pressure filters have been repaired. Please send documentation verifying that the cause of water leaks in floor depression has been identified and that repairs have been made.

15. SW22 - Deficiency: Cross connections present

Regulatory Citation: NMAC 20.7.10.400B

Concern/Description: Direct Contamination; Delivery. Cross connections could result in direct contamination of the water delivered to distribution. A swivel-port sink fixture is plumbed to the raw water on the "cold" side and finished water on the "hot" side. This constitutes a cross connection. A check valve on the west filter was making noise indicating a loose seal; such a condition indicates a possible malfunction.

Corrective Action: Please submit documentation verifying that a separate line and spigot are installed for the raw and finished water at the sink. Please send documentation verifying that all check valves were inspected for proper function and that the noisy check valve has been replaced.

16. SW29 - Deficiency: Chlorine residual must be kept at least 0.2 mg/l at the entry point to distribution

Regulatory Citation: 141.74(c)(2)

Concern/Description: Operation/Management. The regulations specify a minimum chlorine residual being greater or equal to that required to maintain minimum CT, or at least 0.2 ppm entering distribution. A lower residual chlorine concentration could result

in inadequately disinfected water entering distribution thus potentially increasing the risk of microbial contamination. Free chlorine residuals measured in the plant and in distribution during the inspection indicate values below 0.2 ppm.

Corrective Action: Please submit documentation verifying that chlorine residuals entering distribution are being maintained at a minimum of 0.2 ppm or higher at all times water is being produced. The cause of inadequate residual must be determined and corrected.

17. SW30 - Deficiency: Required monitoring equipment not present (e.g., bench top turbidimeter)

Regulatory Citation: 141.74(a)(1); 141.560(b); 141.74(a)(2)

Concern/Description: Operation/Management. If a water system has continuous turbidity measurement, each turbidimeter must be calibrated and the accuracy validated on a routine basis with a bench top unit or other accepted instrument. If grab samples are needed during times of in-line turbidimeter malfunction, then a bench top turbidimeter is required. If a benchtop chlorine residual meter is not present, then the water system has no way to track residuals in the event the on-line meter malfunctions. No bench turbidimeter or chlorine monitors are available to the operators.

Corrective Action: Please submit documentation verifying that a benchtop turbidimeter and chlorine analyzer have been purchased and are in use as well as train all operators in their proper calibration and use. This must also be included in the O&M plan.

18. SW32 - Deficiency: Lack of temperature and pH data

Regulatory Citation: 141.74(a)(1)

Concern/Description: Operation/Management. CT remains unchanged for a given facility only if there are no changes in flow, piping, chlorine residual, temperature, or pH. If any of these parameters change, the CT will also change and water systems must ensure that the CT values are within the compliant range.

Corrective Action: Please submit documentation verifying that temperature and pH are being monitored and recorded daily. This procedure must be included in the O&M plan.

19. 0050 - Deficiency: Operations staff lacks understanding of treatment method & objectives, process control, and key chemical interactions

Regulatory Citation: 40 CFR 141.723(b) & 40 CFR 141.70(c)

Concern/Description: Direct Contamination; Delivery. The DWB has determined that this is currently causing, or has the potential for causing, the introduction of contamination into the water delivered to consumers. Operator appeared to be unfamiliar with the plant plumbing, the regulations and the requirements for treating and ensuring compliant finished water. Plant lacks jar testing apparatus and other basic process control equipment.

Corrective Action: Please submit documentation verifying that additional training has been provided to all water operators to address treatment methods, process controls and all aspects of treating surface water.

20. 003Q - Deficiency: Required records not kept on site.

Regulatory Citation: 40 CFR 141.33

Concern/Description: Confirmation/Monitoring. Failure to maintain records on site will affect the operator's ability to make process control decisions for treatment, operational decisions for system maintenance and system monitoring requirements. Calibration and process control records, if they exist, were not present during inspection.

Corrective Action: Please submit documentation verifying that all required records are being properly maintained and are available for operators on site.

21. 001Q - Deficiency: Storage facilities are not accessible

Regulatory Citation: NMAC 20.7.10.400.B

Concern/Description: Direct Contamination. Properly protected storage facilities prevent contaminated water, insects, vermin, or other potential contaminants from entering the facility. Accessibility is required to inspect, clean, and maintain the storage tanks. The contact tank is inaccessible to inspection, cleaning, and maintenance.

Corrective Action: Please submit documentation verifying that access to contact tank for inspection, cleaning, and maintenance is available. It appears likely that the contact tank is contributing to the extremely high chlorine demand. This tank may require inspection and cleaning.

CONCLUSION

An inspection of the Harvest Gold Subdivision water system treatment plant was completed on 2 June 2016. Based upon the onsite inspection, 21 significant deficiencies were identified. **Harvest Gold Subdivision water system must consult with the DWB within 45 days of receipt of this report, indicating how and on what schedule the system will address all significant deficiencies noted in this inspection report.**

If you have any questions or need additional clarification concerning this report please call 575-437-7115 or send e-mail to joe.savage@state.nm.us.