

Homestake Mine Ruby Hill Water System

Water Conservation Plan

Background / System Information

The Homestake Mine Ruby Hill (HMRH) public water system (PWS NV0000885) is a Non Transient Non Community system that serves employees and contractors employed by Ruby Hill Mine. The total service area is approximately 520,000 square feet. The average number of employees and contractors served (in 2007) is 155. The users of the system are neither metered nor billed and there are no other commercial users.

The system is located in the Diamond Valley. Water is supplied from permitted (permit # 73204) drilled wells using a submersible pump with a 3hp pump. Above-ground storage consists of a 9,100 gallon storage tank. Full-time disinfection is practiced. Wastewater collected from the area is managed through a permitted industrial septic system.

This Conservation Plan is to be reviewed at five year intervals, with modifications to meet changing system conditions.

Plan Elements

This plan describes the drinking water conservation and drought management efforts in the HMRH water supply system, along with implementation schedules. The plan components conform to Nevada regulations as outlined by the Nevada Department of Conservation and Natural Resource, Division of Water Resources. Plan elements address the following areas:

- Increase public awareness of the need to conserve water.
- Encourage reduction in lawn sizes and use of arid and semiarid plants.
- Identify specific water conservation measures.
- Propose plan to identify and reduce leakage.
- Increase reuse of effluent where applicable.
- Provide a drought contingency plan.
- Implementation schedule.
- Plan effectiveness metrics.
- Variable pricing analysis.
- Water savings in gallons/day.
- How will rate structure impact conservation.
- Incentives to encourage water conservation.
- Incentives to retrofit plumbing fixtures.
- Incentives for water conserving landscapes

Public Awareness

- The HMRH water is used only by employees and contractors of Ruby Hill Mine. Those benefiting from the system are always made aware of the need to use water conservatively and also make sure that mine activities do not impact negatively on the water quality.

Lawn sizes and use of arid and semiarid plants

There is no use of water for lawn maintenance activities and minimal use for arid/semiarid plants.

Specific water conservation measures

The HMRH water system consist of four buildings (Maintenance Shop, Process/Mill, Administration and Assay Lab) all of which are metered by one common meter. This meter is read monthly to obtain usage information, however there no fees or rate charges associated with usage, thus no specific water conservation measures are in place.

Plan to identify and reduce leakage

- *Well Head Pressure:* The pressure at the well should not exceed 200 psi. Excessive pressures may be caused by pipe or valve restrictions. The Well Head pressure is checked on a monthly basis
- *Water Quality:* Water from the PWS water supply system is sampled and analyzed at a State registered laboratory in accordance with permit and regulatory requirements. All compliance sampling are done by RHM's Certified Water Operator.
- *Cartridge Filtration Change Out:* The cartridge filtration consists of two filters operated in parallel. They use a 5-micron rate element in each housing. Pressure indication on the inlet and outlet is provided to monitor filter loading and differential pressure build-up. Manual inlet and outlet isolation valves are provided for housing shutdown and cartridge change out. The elements should be changed when the inlet pressure becomes 2-3 times the outlet pressure.
- *Chlorination System:* Chlorine tank make-up will need to be performed on a periodic basis. The required interval will be determined based on actual operating condition and required chlorine dosages. On a weekly basis, check the level of sodium hypochlorite in the solution tank. When checking the amount of chlorine solution, check all components of the chlorine injection system. Make sure the Ratio: Feeder chemical metering pump is primed and operational. Inspect the injection check valves for clogging and the build up of precipitates.

Activities carried out under the periodic/preventive maintenance program are:

- *Valve Exercise Program:* All distribution line valves associated with the potable water system are exercised at least one time a year. All stuck and/or seized valves are replaced or repaired.

- *Drain Lines:* Any drain line associated with the pressure tanks are opened and allowed to flow for at least 30 seconds annually. Any problems encountered are repaired.
- *Potable Storage Tank Inspection:* The Potable Water Storage Tank can become contaminated with bacterial if the lid is not kept closed. For this reason, the storage tank should be regularly monitored to ensure all lids and hatches remain closed. Any drain lines associated with the storage tank will be opened and allowed to flow for at least 30 seconds annually. Any problems encountered will be repaired.

Reuse of effluent

Effluent emanating from the use of water from the HMRH system is managed through 2 septic tank systems that are permitted under a Large-Capacity Septic System permit.

Drought contingency plan

Nevada is an arid state and Eureka County is continuing to grow and water requirements are increasing. The area is subject to drought cycles; therefore, it is necessary to have a drought contingency plan. The objective of our plan is to manage the available resources to insure continued supply of potable water during periods of drought. We monitor water levels at our Well Sites and record the information. We work with other local water purveyors to insure adequate supplies are available.

When the HMRH water system has found that a water scarcity condition exists or is likely to exist and has proclaimed the existence of a drought or emergency condition, it shall also declare an appropriate drought or emergency stage for its service area which may be Stage 1, or Stage 2, described as follows:

Stage 1 Drought or Emergency

1. Water from the HMRH water system allowed to pool, pond, or run-off of applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring within the HMRH water system are considered a waste of water and as such are not permitted.
3. Water from the HMRH's water system which runs down the street due to excessive watering or poorly maintained sprinklers is considered a waste of water and as such, is not permitted. If a sprinkler system is broken the water will be shut off by the Mine and not used until it is fixed.
4. During a Stage 1 Drought or Emergency, landscaping watering, will NOT be permitted between the hours of 11:00 am and 5:00 pm

Stage 2 Drought or Emergency

1. Water from the HMRH water system allowed to pool, pond, or run-off of applied areas is considered a waste of water and as such is not permitted.

2. Leaks occurring within the HMRH water system are considered a waste of water and as such are not permitted.
3. No hard surfaces including sidewalks, driveways, parking areas, or decks may be washed or hosed down with water supplied through the HMRH's potable water system unless required by health and safety requirements.
4. No washing of vehicles with hoses is permitted with the HMRH's water supplied through the HMRH's potable water system.
5. During a Stage 2 Drought or Emergency, landscape watering, will NOT be permitted between the hours of 11:00 am and 5:00 pm
6. No use of water for and decorative purpose is permitted.

Plan effectiveness metrics

Historical well production will be compared to estimated population each year to determine the gallons per capita per day (gpcpd) consumption. For 2007, the gross production less commercial sales, divided by the estimated population, is 13.3 gpcpd. With average annual consumption is significantly greater than 15 gpcpd, plan revision will be considered, to include additional conservation measures. At the present time, well production, less commercial sales, provides a gross gpcpd estimate.

When a plan element is activated, such as declaring a drought stage, production in terms of gpcpd will be compared to same month historical data to estimate effectiveness. It is estimated that metering alone will be the major driver of conservation, by raising awareness of mine site use. Metering alone, without a rate structure change, but with the user education elements, can be expected to provide a ten percent reduction in water use, or 1.5 gpcpd.

Variable pricing analysis

Since users of the HMRH water supply system are not billed for water usage, variable pricing analysis is not carried out on the system.

Water savings in gallons/person/day

The HMRH's water supply system believes that the drought contingency plan mentioned in this conservation plan will effectively conserve and save water for the system.

How will rate structure impact conservation

Users of the HMRH are not billed for their water usage so the impact of water rates on conservation is non-applicable in this plan.

Incentives to encourage water conservation

The HMRH water system serves industrial business utilizing employees/contractors and there are no water conservation incentives.

Incentives to retrofit plumbing fixtures

Maintenance of the HMRH's water supply system is the sole responsibility of Ruby Hill Mine so there are not incentives for users in retrofitting plumbing fixtures.

Incentives for water conserving landscaping

Using water from the HMRH's water supply system for landscaping is very minimal therefore there are no incentives for water conserving landscaping.