

# WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



## SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:  
Sun Ridge Estates

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## **SOURCE WATER ASSESSMENT SUMMARY FOR Sun Ridge Estates**

### **PWS Source Water Assessment Summary**

The Sunridge Estates water system is classified as a community groundwater supply. The facility is located within Riverton's northeastern city limit between Webwood Road and Honor Farm Road. The system serves a resident population of about 220. Source water for this facility is obtained from a well that is completed in the Wind River Formation. Water pumped from the well is delivered to an elevated storage tank. From storage the water flows by gravity to the distribution system on demand. Water from the well is injected with hypochlorite solution before storage.

The Sunridge Estates scores high for land use susceptibility because much of the land surrounding the water source is urban. The Sunridge Estates should also be aware of a railroad inside the source water area of the well.

### **Delineation Methods**

Sunridge Estates maintains a community water system that obtains its source water from a porous sandstone formation. WhAEM methods were used to delineate the source water area for the well based on information obtained from the Wyoming State Engineers Office, the sanitary survey, and a Wyoming Water Development Commission report for the City of Riverton.

EPA's Wellhead Analytic Element Model or WhAEM method was used for community water systems that derive their sources from alluvial or shallow bedrock aquifers. The WhAEM model uses well and limited hydrogeologic data to estimate time-of-travel capture zones in relatively simple hydrogeologic settings for either confined or unconfined aquifers. For the source water assessment, the WhAEM model was used to develop two year and five year groundwater capture zones. Due to this methodology, the delineated source water areas may be larger than the true capture zones for each well. However, use of this method typically results in source water protection areas that can be used to more reliably protect the water supply.

### **Groundwater Sources**

Sunridge Estates obtains groundwater for its community supply from one well that is completed to a depth of 446 feet. This well obtains water from saturated sandstone beds of the Wind River Formation. Recharge to the Wind River Formation occurs through the direct infiltration of precipitation on outcrops. Groundwater flows through these sandstone beds to the well under confined artesian conditions through porous media. Additional information on this well is available on the enclosed Well Information Sheet.

As shown on the attached source water area map, contaminant inventory zones for the well encompass an area immediately adjacent to the well. Zones 2 and 3 are generally centered on the well and extend westward across the railroad tracks. The shape and size of the source water area is a reflection of the well's pumping rate, aquifer transmissivity, and the local groundwater flow direction.

## **Integrity Summary**

The Sunridge Estates water system is classified as a community groundwater supply. The well was constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming. However, records indicate that the well was properly sealed to protect against surface infiltration of potential contaminants but is missing an annular seal. As shown on the Integrity Summary Table, Andrews #2 received a score of 4 due primarily to the well completion date and no annular seal present.

## **Water Source Sensitivity Summary**

The Sunridge Estates water system obtains its source water for this facility from a well that is completed in the Wind River Formation which is a confined aquifer. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 6. The well had the lowest score of 1 for aquifer sensitivity due to flow through porous media in a confined aquifer. The well received the highest score of 5 for chemical sensitivity due to documented chemical detections in the groundwater. Laboratory analysis of water samples from the Sunridge Estates within the last five years detected a few contaminants that are listed on EPA's primary and secondary drinking water standards, nitrate, fluoride, sodium, sulfate, gross alpha and gross beta. Despite detection, these contaminants were detected at concentrations below the EPA's maximum contaminant levels.

## **Water System Susceptibility Rating**

Susceptibility is defined as the potential for a public water supply to draw water contaminated at concentrations that would pose a threat or concern to human health. In general, Sunridge Estates scores high for land use susceptibility because much of the land surrounding the water sources is urban. Because of a railroad that crosses through Zones 2 and 3, the well was assigned a high transportation corridor susceptibility rating. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

A review of your PWS's routine water analysis results revealed that one or more chemicals that are considered contaminants in drinking water were detected at some time within the last five years. Chemical detections have a large impact on your PWS's sensitivity score because it may indicate that there is a pathway for contaminants to reach the water supply. However, it is likely that these chemicals are present only in small amounts and are not a danger to your health. Some of these chemicals may also occur naturally in water.

For more information about which chemicals were detected, please contact the PWS for a copy of the most recent Consumer Confidence Report or water analysis results. Chemical detections at levels that are a concern to human health are reported on the EPA's website: [http://www.epa.gov/enviro/html/sdwis/sdwis\\_query.html](http://www.epa.gov/enviro/html/sdwis/sdwis_query.html). To see if your PWS has exceeded the federal primary or secondary drinking water standards, just click on the State of Wyoming and then type in the name of your PWS. Consumer Confidence Reports are prepared by the PWS on a yearly basis. The reports should include information about any chemicals found in the water, even those found at very low levels. Please contact Kim Parker at DEQ, 307-777-7781, or

WARWS for assistance. You may also contact EPA to find out what contaminants were detected. You may have to fill out a Freedom of Information Act request to obtain the water test results for your PWS. Please call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

**POINT SUSCEPTIBILITY SUMMARY TABLE  
FOR Sun Ridge Estates  
Point Source Susceptibility Summary**

It may appear from the results of this point source susceptibility summary table that your system has too many PSOCs influencing the final ratings. In some cases, a specific PSOC falls within a specific contaminant inventory zone shared by multiple wells or intakes. When this is the case, that PSOC will be scored for each intake. For example, an underground storage tank may appear within a contaminant inventory zone shared by four different wells. This would cause that single storage tank to be entered into the table four times, or once for each well or intake.

Point Source Type	Low	Medium	High
None Identified	N/A	N/A	N/A

- \* Illustrates the number of PSOCs in a particular rating class for all water sources
- \* N/A - Not Applicable