

**SOURCE WATER ASSESSMENT  
EXECUTIVE SUMMARY  
FOR  
Vista West Homeowners Assn.**

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**June 30, 2004**

**PROJECT: 424-001**

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**ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION**

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## **SOURCE WATER ASSESSMENT SUMMARY FOR Vista West Homeowners Assn.**

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

The Vista West Homeowner's Association is a community public water system located in Crooke County. The system serves 260 people through 53 service connections. The system is supplied by two wells that draw water from intrusive and extrusive igneous rocks. The facility includes a pump house at the well field, a chlorinator house, water storage tank and the interconnecting transmission system. Vista West #2 was the only well that scored high with respect to the combined integrity and source sensitivity ratings. The association scored high with respect to land use susceptibility and low for point source susceptibility.

### **Delineation Methods**

This water system is a community system that draws water from fractured igneous formations. Hydrogeologic mapping methods were implemented to estimate the 2-year and 5-year time of travel capture zones.

Hydrogeologic mapping techniques use surface observations in combination with subsurface geologic and hydrogeologic data to identify aquifer boundaries and areas that contribute water to the aquifer. These techniques were used when a PWS's source was derived from a spring, fractured bedrock, or from a limestone or dolomite aquifer. Conduit flow aquifers have extremely variable flow patterns and rates, making the calculation of time of travel difficult. In some instances, only one contaminant inventory zone was identified beyond Zone 1 due to the inherent difficulty in attempting to assign a particular time of travel to a given area. Because of this issue, aquifer vulnerability mapping techniques were also used as part of the hydrogeologic mapping effort to identify and delineate vulnerable areas. These areas (faults, fractures, exposed bedrock, etc.) are anticipated to be more susceptible to the rapid infiltration of contaminants released at the ground surface.

### **Groundwater Sources**

The Vista West Homeowners Association draws water from outcrops of intrusive and extrusive igneous rocks. Recharge reaches the wells under artesian conditions from southeast to northwest, through conduit flow. Additional information on these wells is included on the attached Well Information Sheets. As shown on the attached source water area delineation map, contaminant inventory zones 2 and 3 were delineated using hydrogeologic mapping methods. Zone 2 encompasses the immediate surface water drainage into the wells. Zone 3 includes various unnamed faults and formations that contribute to the wells.

## **Integrity Summary**

Vista West Homeowner's Association uses two wells that are approximately 400 feet and 1,140 feet deep to supply water. The wells were constructed between 1983 and 1993 when moderately strict construction standards were required by the State of Wyoming. Records show that Vista West #1 well was properly sealed. However, Vista West #2 well was not properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. Records also indicate that neither wells have an annular seal and both have long conveyance structure length. As shown on the Integrity Summary Table, Vista West #1 well received a score of 4. Vista West #2 well received a score of 10 due to its lack of a surface seal, lack of surrounding flood protection, lack of annular seal, long conveyance structure length, and well completion date.

## **Water Source Sensitivity Summary**

As shown on the Source Sensitivity Summary Table, the wells received a sensitivity score of 10. The wells received this score for two reasons. The first reason is that the wells are completed in an aquifer that is known to be vulnerable to contamination because of the high velocities associated with conduit flow. The second reason is that there is documented chemical detections in the groundwater.

## **Water System Susceptibility Rating**

Susceptibility is defined as the potential for a public water supply to draw contaminated water at concentrations that would pose a threat or concern to human health. In general, the Vista West Homeowners Association scores high for land use susceptibility because much of the land surrounding the water sources is forested. Forested areas were included to evaluate the potential risks of increased runoff and water quality problems following forest fires. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones.

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 Vista West Homeowners Assn.  
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