

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Cathedral Home For Children**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

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SOURCE WATER ASSESSMENT SUMMARY FOR Cathedral Home For Children

PWS Source Water Assessment Summary

The Cathedral Home for Children is a community public water system located in Albany County. The system serves 55 people through six service connections year-round. Facilities include one well, one steel 25,000 gallon water storage tower, and the interconnecting transmission system. Produced water is pumped to a 75 foot water storage tower, where an automatic chlorinator provides disinfection treatment. The water source scored medium for combined integrity and aquifer sensitivity. The home scored low with respect to land use and point source susceptibility.

Delineation Methods

This water system is a community system that draws water from a fractured sedimentary formation. Hydrogeologic mapping methods were implemented to estimate the 2-year and 5-year time of travel zones for the groundwater flow system.

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 Cathedral Home for Children draws water from the Casper Formation. Recharge for the well originates from an outcrop of the Casper east of the well and flows westward toward the well through conduit flow. Additional information on this well is included on the attached Well Information Sheet. As shown on the enclosed source water area delineation map, contaminant inventory zones 2 and 3 were delineated using hydrogeologic mapping methods. Zone 2 encompasses the near section of the Casper, Satanka and Forelle formation outcrops, terminating on the north and east at The Spur ridge, on the south at an unnamed group of faults, and on the west at a geologic contact between the Chugwater and Satanka and Forelle formations. Zone 3 encompasses the outcrops of the Casper, Satanka and Forelle formations, terminating on the north at an unnamed fault, on the east at a geologic contact between the Casper and igneous/metamorphic formations, the south boundary was terminated at an unnamed group of faults, and on the west at the geologic contact between the Satanka/Forelle and the Chugwater.

Integrity Summary

The Cathedral Home for Children uses a well that is approximately 1,010 feet deep to supply water to the municipal system. The well was constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming. However, records show that the well was properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. As shown on the Integrity Summary Table, the Cathedral Home #1 well received a score of 3 due primarily to the well completion date.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10. The well received this score for two reasons. First, the well is completed in an aquifer that is known to be vulnerable to contamination because of the high velocities associated with conduit flow. Second, the well scored 5 for chemical sensitivity due to documented detections in 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 Cathedral Home for Children scores low for land use susceptibility. Due to the lack of contamination sources being present within the delineated zones, the overall point source contaminant susceptibility rating is low.

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. 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 Cathedral Home For Children
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