

Wellhead Protection

By Jason Moudry, Wellhead Protection Coordinator

The City of Chadron has three options for supplying its residents with clean drinking water. The city utilizes ground water, surface water from Chadron Creek, and water originating from an infiltration gallery. The city is fortunate that the ground water is clean with low nitrates, but has the challenge of moving this water roughly 18 miles from their well field to town. Since their public supply wells are located outside city jurisdiction, city officials questioned what authority they had to protect their system and drinking water.

This concern led to a collaboration between the City of Chadron and the Upper Niobrara White Natural Resources District (UNWNRD) to develop a Wellhead Protection Plan (WHP) to protect the city's water. Wellhead protection begins with identifying where ground water originates. A time of travel map for Chadron's well field was created by Nebraska Rural Water Association and the Nebraska Department of Environmental Quality (NDEQ). This map creates a boundary that encompasses the wells and defines where water originates for a 20 year period (see attached map). An inventory of the wellhead protection area (WHPA) is taken to identify possible hazards or any sources that could potentially contaminate the aquifer. Then steps are taken to manage any problem areas such as protecting the wells from nitrate contamination and preventing accidental fuel or petroleum spills.

Because the wells fall outside of the city limits and because there was no WHP plan in place Chadron City officials could only encourage Best Management Practices to landowners. The next step was to include all involved agencies, and after a meeting of the city, NRD, Dawes County Commissioners and Zoning Board, a draft ordinance was created. The ordinance would give the city and county greater authority to limit certain activities within the WHPA. The landowners that have property in and around the WHPA were informed of the city's concerns and why action to develop an ordinance was necessary. The ordinance defined the activities that are prohibited from occurring within the WHPA. One example is the construction, installation, or operation of a feedlot or animal waste treatment lagoon, cesspools, dumps and/or sanitary landfills. The ordinance

also limited the amount of bulk chemical or petroleum storage an individual could have on site.

A WHP was written and adopted by the Chadron City Council. The plan includes the time of travel map, contaminant source inventory, strategies for contaminant source management, emergency and contingency planning, and ideas for public education. Steven Boeselager, Chadron Utilities Superintendent and the City of Chadron worked with the UNWNRD for more than two years to complete this project, and in October the plan was approved by NDEQ. The Dawes County Commissioners also approved the ordinance for the City of Chadron. “Chadron is very fortunate for its clean supply of ground water. We needed to ultimately protect the source and begin to educate the public on how important our water resource is to the city and its future,” said Boeselager.