

Montana Department of Justice - Law Enforcement Academy Upgrade Water Supply System

BACKGROUND

In 1997, the Montana Department of Justice took over operation of the facility from the Montana Department of Corrections and began operation of the MLEA. The facility had previously served as the Mountain View School for Girls, a correctional facility for minor-age girls.

The MLEA is located approximately five miles northeast of the Helena City Limits at 2260 Sierra Road East. The water system serves approximately 15 employees and up to 180 students that attend the academy to receive law enforcement training. The students are not normally present during weekends. The system serves four dormitories, the Karl Ohs Training Center, a cafeteria/kitchen, an administration building, a clinic and a shop. According to a May 2008 *Wastewater Treatment Upgrade Analysis* by Morrison-Maierle, Inc. of Helena, the average number of students present during a typical week is 78. MLEA staff confirmed that this number is still accurate and is appropriate for short-term estimates. Future growth projections are contained in Chapter II. Prickly Pear Creek runs north-northwest through the MLEA campus. Approximately one-half of the campus is in the 100-year floodplain of the creek.

The water system obtains water from a groundwater well located on the west bank of Prickly Pear Creek. Storage is provided by a 60,000-gallon elevated steel water tank located near the well. The distribution system consists of asbestos-cement water mains that extend generally southeast and southwest from the well and storage tank. The mains terminate in dead ends although hydrants are provided for flushing and fire protection. The system is operated on a year-round basis.

The well is 346 feet deep and was constructed in 1946. The pumphouse was expanded at that time to enclose the new well. The pump produces water at a rate of approximately 200 gallons per minute (gpm) with little or no water level drawdown. The elevated tank was constructed in 1960. In approximately 1998, piping, valve and control improvements were made in and near the pumphouse. At about this same time, the elevated tank was cleaned and painted. A water meter was added to the pumphouse piping in 2008 to document water production, use and leakage.

Irrigation of landscaping (lawn, trees and ornamental shrubs) is conducted from May through September. Approximately two and one-half acres are irrigated by manually-moved sprinklers and hoses. Approximately one-half acre near the Karl Ohs Training Center is irrigated by an automatic sprinkler and drip-irrigation system.

CONCLUSIONS

This PER contains an engineering analysis of the existing water system which concludes in recommendations for future improvements for the MLEA. The following is a summary of major conclusions obtained from the preparation of this PER.

1. The existing well is 66 years old and should be replaced to ensure the availability of a long-term water supply. The well is less than 50 feet from the flow channel of Prickly Pear Creek, is in the designated 100-year flood fringe and the top of the casing terminates below the flood elevation. The new well should be located at least 100 feet from the creek and outside of the flood fringe if possible. The existing well could remain in service as a fire flow well.
2. The existing pumphouse is an historic structure and is in the 100-year flood fringe of Prickly Pear Creek. The building is larger than needed to serve as a well pumphouse and would have to be extensively modified in order to meet current code requirements. The building should be abandoned from its current use but could be renovated and retained for its historic value. A new structure should be built to serve as the pumphouse for the new well. The new structure should be located near the existing water storage tank and will have to meet state and local requirements for new construction in flood fringe areas.
3. The standby power system for the well is very old and is no longer working. The system should be replaced with a generator designed for exterior installation.
4. The existing elevated steel storage tank is in good condition and needs relatively minor improvements to remain in service. Improvements include recoating of small areas of rust inside the wet riser and on the roof and replacement of the existing aeration system that is used for ice control. No lead paint was found during the inspection.
5. Based upon on-site discussions with a contractor installing connections for interior sprinkler systems, the existing distribution system appears to be in good condition. Modeling of the distribution system indicates that the 6-inch asbestos cement mains have adequate capacity to furnish necessary flows for domestic demands, irrigation and interior fire sprinklers.