FREMONT CO **ENVIRONMENTAL** HEALTH

2014 290th Ave. Sidney, IA 51652
Ph: (712) 374-3355 **Fax: (712) 3742112** **emullins@co.fremont**.ia.us

Public Health
Prevent. Promote. Protect.

Drinking Water Analysis for Private Water Wells

Private well owners can protect their drinking water supply by performing a routine maintenance check on the water system and correcting any structural defects that may allow surface or groundwater under the influence of surface water to enter. Assistance may be available from county health departments, extension services and certified well drillers. Part of the routine maintenance check should include a **yearly water test** for total coliform bacteria and nitrates.

Tests for Drinking Water Safety

Total Coliform Bacteria: Total coliform bacteria are a group of naturally occurring bacteria that are present in all surface water and groundwater under the influence of surface water. As surface water percolates through the soil, a natural filtration process takes place which normally removes coliform bacteria UNLESS a pathway exists which bypasses this filtration process. The presence of total coliform bacteria in a drinking water supply indicates that a pathway exists, allowing surface water or groundwater under the influence of surface water to enter the supply. This pathway may provide an opportunity for harmful material to enter the drinking water which represents a potential health hazard. Water which is unsafe should **NOT** be used for human consumption unless properly disinfected before use (i.e. boiled for one minute). For a more permanent solution to your water quality problems, a search for the pathway should be made which may include looking for the following: structural defects of well or system, cross-connections, contamination from repairs or new construction without proper disinfection, improper collection technique or location, etc. Assistance may be available from your local county health departments, ISU extension services, and certified well drillers.

Fecal Coliform Bacteria: Fecal coliform bacteria are a group (subset) of total coliform bacteria which are present in sewage material. The presence of fecal coliform (or *E. coli*) bacteria indicates a pathway exists from waste (fecal) sources such as animal feedlot run-off, septic tank or cesspool leakage, etc. Their presence also indicates that the water may be contaminated with organisms that can cause disease which represents a serious health concern. Fecal coliform testing is only necessary if sewage contamination is suspected or if the drinking water is suspected of causing diarrhea illness in a family member.

Nitrate: Nitrogen is an element that occurs naturally in the environment and is essential to living matter. All sources of nitrogen are sources on nitrate. There is potential health risk to infants under six months of age when drinking water containing elevated amounts of nitrate is used to mix formula or juice. The life-threatening disease called “blue-baby” syndrome or methemoglobinemia occurs when the oxygen-carrying capacity of the blood is reduced. Nitrate concentrations exceeding the infant health advisory level of **45 mg/L (as NO3) or 10 mg/L (as NO3-N)** are generally an indication of contamination from major nitrogen sources such as a sewage disposal system, animal manure, or nitrogen fertilizers. Nitrate contamination is more likely to occur in shallow wells and in wells which are poorly located, constructed, or maintained.

Iron, Hardness and Iron Bacteria: These levels in water primarily affect the aesthetic, rather than health-related, quality of water. Iron concentrations above **0.3 mg/L** and iron bacteria can cause staining of plumbing fixtures and laundry. The hardness level is significant if water softening is being considered. High levels of any of these three parameters may result in the deposition of material on the inside of pipes, thereby gradually constricting and reducing the flow of water where pipe replacement may be necessary.

The University Hygienic Laboratory offers other analyses on an individual basis. If you have need for a specific analysis not mentioned here, please contact Fremont County Environmental Health at 712-374-3355, or the University Hygienic Laboratory at 1-800-421-4692 for information.