

Duck Creek Wastewater Planning Study

Since the early 1970's, development in the Duck Creek area has resulted in an estimated 1,800 homes. Septic tanks are currently the exclusive means of wastewater treatment for both the residential and commercial lots in the area. Because of the density and number of homes in the area, there is a growing concern that improperly treated wastewater is contaminating the groundwater and/or surface water. This contamination may result from the improper installation, maintenance, or use of septic tanks. Additionally, soil conditions are unsuitable for septic tanks in some of the developed areas around Duck Creek.

With a large wastewater system, governmental control and management ensures that formal safeguards are met. With small wastewater systems such as septic systems, it is acknowledged that such protection is needed, but this protection has rarely been instituted in an effective manner because the systems are normally constructed in low densities. This has led to the perceived notion that onsite systems need little or no attention and thus require no formal management.

Two types of failure affect onsite systems:

1. Operational: The system does not remove wastewater from the home, and
2. Functional: The system continues to remove wastewater but does not properly treat the effluent prior to discharge into the environment.

An operational failure affects the homeowner and is normally corrected immediately. A functional failure, however, often does not directly impact the homeowner involved but does affect the entire community through degraded water quality and through increased public health problems. Functional failures cause the most concern for the community at large, but without some management, they are almost impossible to deal with. Individual homeowners often do not know when there has been a functional failure, and even if they do, history has shown that they are sometimes reluctant to repair the system.

The potential for contamination of ground and surface water in the Duck Creek area has long been a cause of concern to local and State health department officials. Recently, several reports have been published by regulatory agencies regarding this problem. In a 2003 report, authors from the Southwest Utah Public Health Department and University of Utah stated that, "Public springs and wells are at lower elevations than most septic systems, so as development continues to increase, concern of contamination also increases for these water sources." The same study disclosed e-coli bacteria in samples from two shallow wells down-gradient from a high concentration of septic systems in the Duck Creek area.

The Upper Sevier River TMDL, published in 2004 by the Utah Division of Water Quality, states that, "As development continues to increase, impacts to surface and groundwater from poorly designed, located and installed septic systems may be a

potential problem, particularly since the claron-limestone and volcanic substrates present from Duck Creek to Panguitch Lake are not suitable and conducive to septic system use.”

A soil suitability study performed by the NRCS in 2004 reports, “The septic system hazard associated with a slow percolation rate is that effluent will not leave the site fast enough through the ground.” This increases the likelihood that wastewater can resurface and possibly pond on the surface. Additionally, the shallow bedrock layer prevalent throughout the study area increases the likelihood that the wastewater can flow along the top of the bedrock. This is particularly dangerous if the bedrock has fractures present, which may allow the wastewater to travel quickly into the groundwater. If the site slopes, wastewater can resurface farther down the hill, without having been sufficiently cleaned. Once the wastewater comes to the surface, it could come into direct contact with humans or contaminate surface water. It could also contaminate the groundwater if the groundwater table is shallow.

Based on the results of these studies, Kane County Water Conservancy District and the Utah Division of Water Quality have teamed together to sponsor a study that will evaluate alternatives for the treatment of wastewater coming from the Duck Creek area. The objectives of the study are:

- a) Define and analyze the existing and future conditions within the study area that impact wastewater treatment and disposal.
- b) Assess the environmental conditions and constraints that are applicable to the study area.
- c) Develop and screen alternatives to meet the long-term needs of the area.
- d) Perform an in-depth assessment of principal alternatives.
- e) Identify the preferred alternative(s) for wastewater treatment and disposal and provide an implementation plan.
- f) Develop a public participation plan.

It is expected that the study will enable these agencies and the general public to manage the resources present at Duck Creek in a way that will protect human life and preserve the environment that now exists. This will benefit those who live in this area, as well as those who rely on the water downstream.

