

Why is nitrate in ground water a concern?

When many homeowners use individual sewage disposal systems (ISDS) in a relatively small area, a large amount of nitrate can eventually build up in the water table. This may pollute drinking water wells, which is dangerous to public health.

What is nitrate?

Nitrate is a compound of nitrogen and oxygen, which are commonly found in foods and fertilizers. It is tasteless, odorless and colorless. It comes from various sources, such as plants and other organic matter, and returns to the soil as they decompose.

Septic sewer systems, waste from animal feedlots and the use of nitrogen-based fertilizers also release nitrates into the environment.

How is nitrate in ground water regulated?

The U.S Environmental Protection Agency has established a federal drinking water standard of 10 milligrams per liter (mg/L) or 10 parts per million (ppm) for nitrate. The Nevada ground water quality standard is also 10 mg/L. Public water systems are required to test samples for contaminants, such as nitrate, on a regular basis.

Sampling of domestic wells is not required; however, the Southern Nevada

Health District (SNHD) recommends that owners test their wells for nitrate on a regular basis. Local certified private laboratories include:

- Effex Analytical Services, (702) 367-1187
- Great Basin Col-Tech Environmental Laboratories, (775) 323-4822



Can nitrate affect my family's health?

People may be exposed to nitrate in food and water. If healthy adults and older children ingest nitrate, it is rapidly passed in urine. Exposure to fairly large amounts of nitrate does not usually cause short-term illness.

However, newborns (birth to 28 days) and infants younger than 6 months are sensitive to nitrate poisoning, which may result in serious illness or death. The illness occurs when nitrate (NO_3^-) is converted to nitrite (NO_2^-) in a child's body.

Nitrite reduces oxygen in the child's blood, causing shortness of breath and blueness of the skin. Because of this, the illness is commonly referred to as "blue baby syndrome." (The technical term is methemoglobinemia.) This illness can cause a child's health to deteriorate rapidly over a period of days.

Effects from a lifetime exposure at the maximum contaminant level may cause diuresis (increased amount of urine, starchy deposits from kidney malfunction and hemorrhaging of the spleen).

Why do I need a nitrate removal septic system?

A nitrate removal septic system is required to protect groundwater in areas where there are many ISDS. The density levels are checked in subdivision review and parcel map review at the SNHD. The health district coordinates with the Nevada Division of Environmental Protection to determine acceptable density levels in each community.

There are two types of nitrate removal septic systems: passive and active.

Passive vs. Active Nitrate Removal Septic System

Passive— The passive nitrate removal system uses air, which reacts with a biological culture, to purify the water.

Active— The active nitrate removal system uses filters and air to distill the outflow.

The Nitrate Removal Surveillance Program was approved by the Clark County District Board of Health and initiated on Jan. 1, 2005.

An annual fee for nitrate removal surveillance for residential systems is required.

Nitrate Removal Septic Systems Approved for Clark County

A passive aerobic system with concrete septic tank:

- American Environmental Resources, Inc., (775) 323-8504

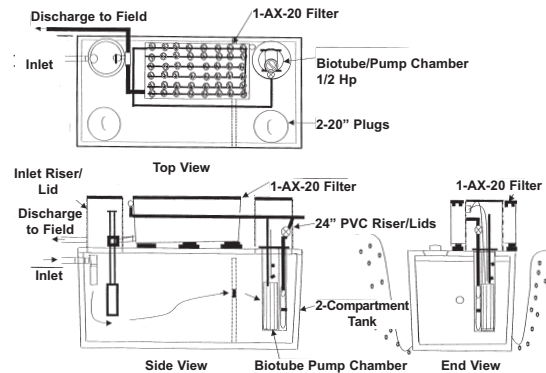
An active aeration and filtration system with concrete septic tank:

- Jenson Precast (local distributor), (800) 431-9308
www.jensoprecast.com
- Orenco Systems, Inc. (manufacturer), (800) 348-9843
www.orencosystems.com/ots/ots_adv_residential.asp

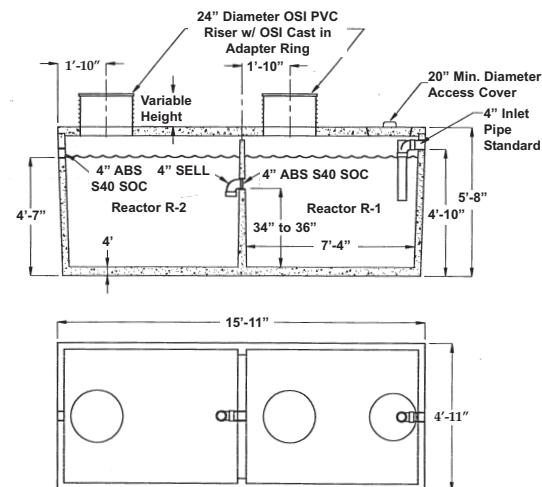
Approved Septic Tank Sizes for Nitrate Removal in Clark County

- American Environmental Resources, Inc. – 1,500 and 2,000 gallons
- Jenson/Orenco – 1,500; 2,000 and 2,500 gallons

Tank Detail Jenson Precast/Orenco Systems



Tank Detail American Environmental Resources, Inc.



Southern Nevada Health District
 ENVIRONMENTAL HEALTH DIVISION
 Individual Sewage Disposal Systems
 625 Shadow Lane • P.O. Box 3902
 Las Vegas, NV 89127
 (702) 759-0660 • fax (702) 383-1445
 www.SouthernNevadaHealthDistrict.org/
 environmental_health/sewage_disposal.htm



Nitrate Removal Guide

for Individual Sewage Disposal Systems