Thank you for the opportunity to provide comments on the EPA- Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington study.

At the request of NRCS Washington State leadership, NRCS National Science and Technology staff has reviewed the report and submits the following comments and observations:

1) The use of generalized recommendations contained in the NRCS Animal Waste Management Field Handbook (AWMFH) to predict the seepage loss contribution from individual farms is misleading. AWMFH recommendations and data are well supported by research and field experience throughout the US. However, they are generalized recommendations that typically get adjusted to accommodate site conditions during the planning and/or installation phases of storage facility construction. Site specific testing and on-site evaluations are usually necessary to assure adequate design for a given site. Planning for an adequate structure requires detailed information about anticipated manure volumes, manure type and consistency, climate, and production area runoff, etc.

2) The generalized AWMFH seepage rates should not be used to predict leakage losses from multiple dairies distributed randomly in a major watershed. Generalized seepage rates are used by planners/installers to anticipate the potential for loss and the need for additional conservation practices that will provide adequate protection of local water quality. Recent Mississippi River Basin and Chesapeake Bay Watershed CEAP studies have established the effectiveness of installed NRCS conservation practices at protecting water quality. Practices were most effective when they were coordinated as a suite of practices designed to deal with a site-specific water quality issue.

3) NRCS funded waste storage structures must be constructed following engineering conservation practice standards that are maintained by state-based NRCS technical experts. To receive USDA funding, producers must sign a contract that requires compliance with design, oversight/maintenance, and other criteria established by the practice standard. The contract is permanently tied to the state's official practice standard when the contract was signed by the producer, i.e., lagoons built 15-20 years ago are not associated with contracts that enforce criteria for the current official practice standard.

4) EPA's restricted access to important sites or data made it difficult to estimate the pollution contribution from individual farms. Farm specific information would have helped the researchers isolate site/management issues contributing contaminants to the environment.

5) The use of aerial photography to determine storage volumes can grossly over estimate each operation's manure storage capacity and therefore your estimate of seepage losses.

6) A storage facility is typically designed following rigid engineering standards, and local code usually requires routine monitoring for failure. EPA does not know if the structures were designed per code or if competent engineers were involved in the work. There are many factors that could lead to a leaking storage facility. Targeting all operations upgrade of a contaminated well may unfairly focus attention on well managed operations.

7) EPA does not know if the operations have storage facilities that were designed to handle the number of animals confined. If not, the lagoons may lack sufficient capacity to accommodate the manure/wastewater volumes generated, making them vulnerable to discharge. Has a nutrient management plan been followed to assure adequate facilities to handle mortality, spoiled feed, contaminated runoff, medical wastes, etc? Are animals fenced out of streams; are nutrient being applied too near unbuffered streams? These factors were not considered by the study.

8) Every AFO deals with a unique set of circumstances that define how to best manage large volumes of potentially polluting materials. Site factors, e.g., soil, topography, climate, animal type/number, period of confinement, confinement facility type, field hydrology, storage design/volume, spreadable acres available, and management styles change significantly from farm to farm. A leaking lagoon may not always be the principal problem, and oftentimes additional conservation practices, or better management of installed practices, may significantly reduce losses.

9) It appears that the high levels of nitrate found in drinking water wells in the Yakima Valley are coming from multiple sources. More information is needed to help focus attention on site/management issues contributing pollutants.

10) NRCS acknowledges the need to encourage producers to install sufficient conservation measures to minimize the movement of potential contaminants off-site. Accordingly, NRCS manages approximately 190 conservation standards that can be used to protect air, soil and water quality. Structural practices are available to help the producer keep air and water clean in the confinement (production) area, and land treatment practices (cropland, hayland, pasture) help growers minimize non-point source losses associated with erosion, leaching, volatilization, denitrification and surface flow.

11) Livestock growers enrolled in USDA programs are strongly encouraged to manage their manure handling, storage and field allocation activities following a Comprehensive Nutrient Management Plan (CNMP). The CNMP is developed based on site conditions and is designed to help farmers safely apply stored manure to their available land base.

12) The NRCS Nutrient Management Conservation Practice Standard (CPS 590) provides the minimum nutrient management planning criteria for the application of nutrients (synthetic or organic) to agricultural lands enrolled in USDA programs.

13) In January 2012, NRCS released a revised nutrient management policy and CPS 590. The new policy encourages improved nitrogen and phosphorus risk assessment tools, precision and enhanced efficiency fertilizer technologies, suites of coordinated conservation practices, and adaptive nutrient management strategies. Improved nutrient use efficiency saves the producer money and also reduces the potential for loss to the environment.

14) NRCS is committed to working with farmers to help them minimize the impact that farming operations can have on local water quality, including drinking water.