In 1998 the Utah Department of Environmental Quality, in cooperation with the twelve Utah local health departments, provided funding through a competitive process to the Utah Wastewater Treatment Training Program at Utah State University (USU) to provide training on on-site wastewater treatment to local and state staff involved in regulation of on-site wastewater systems (also called underground disposal systems in the Utah Administrative Code). The workshops were also open to others who worked in the on-site field. Several health departments requested that training be provided for site evaluators and installers within their jurisdiction, so workshops continued to be periodically offered throughout the state. In 2000, staff from the Training Program, DEQ, and local health departments started exploring means to continue funding for the training workshops.

Also in 2000, construction began on the Huntsman On-Site Wastewater Treatment Training and Demonstration Site through funding provided by the Huntsman Environmental Research Center at USU. This 2-acre field site is located near the Utah Water Research Laboratory on the campus of Utah State University in Logan. This site allows training in the correct design, siting, installation, operation, maintenance, and troubleshooting of on-site wastewater treatment systems. Users of the site include on-site system installers, designers, regulators, students, land developers, and homeowners. Additional target audiences include equipment vendors, board of health members, real estate agents, municipal authorities, elected officials, landscape architects, and septic tank manufacturers.

In the spring of 2001, the Utah State Legislature passed a bill that required that all persons who design, inspect, and maintain underground disposal systems, and who conduct percolation tests or soil evaluations for these systems, must be certified by the state. The Legislature did not include a certification requirement for the installation of systems. The statute went into effect in May of 2001, a draft of the certification rule, referred to as R317-11 of the Utah Administrative Code, was prepared in June, and three public hearings were held in July. The Utah Water Quality Board adopted the rule in August 2001, specifying that the effective date of the rule’s requirements was January 1, 2002. So to meet this deadline, four series of workshops were offered in the fall of 2001. The DEQ then extended the deadline to June 2002, so another series of 3 workshops were offered in the spring of 2002. Since that time, several series of workshops are given each fall and spring. All workshops have certification examinations associated with the training, which are given at the end of the workshops.

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The certification program applies to persons working with both small (<5,000 gallons per day) and larger (> 5,000 gallons per day but generally less than 15,000 gallons per day) on-site systems.

Persons who had attended training workshops offered by the Utah On-Site Wastewater Treatment Training Program between January 1, 1999 and August 11, 2001, were allowed to take the certification exams without having to re-take the workshops. Several review sessions were held at various locations around the state to prepare people for the exams.

Exemptions to the requirements of the on-site certification rule include:

1) an individual is not required to obtain certification to maintain, or to conduct percolation or soil tests for an on-site system if the system serves a non-commercial private residence owned by the individual or a member of the individual’s family and in which the individual or a member of the individual lives without payment of rent. To perform the percolation or soil testing, the individual must have the capability to perform the tests, as determined by the local health department, and be supervised by a certified individual when conducting the tests.

2) a licensed septic tank pumper does not have to be certified under this rule.

3) licensed plumbers and electricians, when maintaining electrical equipment or wastewater drainage lines leading to on-site systems are not required to be certified under this rule.

4) uncertified employees, subordinates, or associates of a certified individual are not required to be certified under this rule when working under the supervision of a certified individual. The certified individual must review, correct, approve and sign all work.

The rule also allows for certain individuals to become certified by rule rather than by training or testing. To become certified by rule, an individual must provide evidence that they meet the requirements for the particular group. The “certification by rule” categories are:

1) licensed environmental health scientists with at least one year of experience in on-site systems;

2) licensed professional engineers with education or experience in on-site systems; and

3) licensed contractors with five or more years of experience installing on-site systems.

Those individuals who are required to attend training and pass examinations must attend workshops provided by the Utah On-Site Wastewater Treatment Training Program at Utah State University. There are three levels of training required, and certification must be obtained stepwise, that is, an individual must be certified at Level I before Level II, and Level III certification requires prior certification at Levels I and II.
In *Level I: Soil Evaluation and Percolation Testing*, site evaluation techniques are taught in a two-day workshop that includes field sessions. This workshop is held at various locations around the state since soils vary throughout the state. We emphasize that the conventional septic tank/drain field is not suitable for all sites and locations. We cover in depth “what is a suitable soil?” and teach techniques to determine whether a soil is suitable, including how to evaluate a soil profile, conduct a percolation test, and determine if an adequate depth of suitable soil is present (i.e., adequate separation between maximum seasonal high ground water or bedrock or other limiting layer). We also discuss slope limitations and other site characteristics such as site drainage considerations and isolation (setback) requirements.

In *Level II: Design, Inspection, and Maintenance of Conventional Systems*, a two-day workshop, we cover the conventional system, which includes systems with a septic tank followed by some type of subsurface absorption system, which are defined in Utah Administrative Code as a standard trench, a shallow trench with capping fill, a chambered trench, a deep wall trench, a seepage pit, or an absorption bed.

*Level III: Design, Inspection, and Maintenance of Alternative Systems* is a three-day workshop that includes the alternative systems that are allowed in Utah code. As of June 1, only three alternative systems are allowed for use in Utah: gravity-dosed at-grade system, gravity-dosed earth fill system, and the pressurized mound system. All three systems are built above the ground surface so are used to compensate for sites with inadequate separation to ground water, bedrock, or other limiting layer. They cannot be used on sites that are unsuitable because the “perc” rates of the soils are too fast or too slow or because the slope at the site is too steep (>25%).

It is expected that within the next year or so additional alternative systems will be added to the Utah Code, so we will add discussion of those systems to the Level III class. In addition, the use of separate gray water systems has been approved, and those who design, inspect, or maintain those systems will also have to become Level III-certified.

Certification has to be renewed periodically by attending a refresher training course—every five years for Levels I and II and every two years for Level III.

We have found that it is extremely important that we stress the responsibilities that are associated with certification in order to ensure professionalism. Most of the individuals who have become certified did not even know that they were to be following regulations given in the Utah Administrative Code and so often have not been performing site evaluations or designing, inspecting, and maintaining systems according to code.

The certification rule contains provisions that certification can be suspended or revoked if a certified individual:

1) demonstrates disregard for public health and safety;

2) misrepresents or falsifies information or reports submitted to the UT Division of Water Quality;
3) cheats on a certification examination;

4) falsely obtain or alter a certificate; or

5) shows incompetence, misconduct, or gross negligence in the performance of work done with regards to the certification.

Since the certification program began in the fall of 2001, about 400 individuals have been certified at the various levels. Fig. 1 shows the number of persons certified by rule (licensed contractors, professional engineers, and licensed environmental health scientists), by testing only (for those persons who attended training before the certification program went into effect), and by testing and training for each level. Fig. 2 shows the distribution of professions and affiliations represented by certified individuals.

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**Fig. 1.** Number of Certified Individuals by Level of Training (As of 1/2004).
To provide base funding for the certification program, the Utah Legislature included a provision that beginning July 1, 2001, a one-time fee would be imposed on each new on-site wastewater treatment system permitted. These fees are collected by the local health departments during the permitting process and are forwarded quarterly to the Division of Finance for deposit into a dedicated account, the Underground Wastewater Disposal Restricted Account. The fees are used by the USU Utah On-Site Wastewater Treatment Training Program on a cost-reimbursable basis to provide the required certification training.

At the present time, the fee is $25 per system. Fees that have been collected include:

- FY 2002 [July 01 to June 02] - $39,150
- FY 2003 [July 02 to June 03] - $42,325

Additional funding for training activities, including the development of the Huntsman On-Site Wastewater Treatment Training and Demonstration Site on the campus of Utah State University, has been obtained from a variety of sources:

1) The Utah Water Research Laboratory has paid salaries of training instructors.

2) A mitigation fee of $75,000 associated with an environmental enforcement action was earmarked for training use and was used for development of the demonstration site.

3) Huntsman Environmental Research Center at USU provided $30,000 as well as staff time and use of a truck to pick up manufacturer’s donations.
4) We obtained two 319 Non-Point Source Pollution projects (for a total of about $50,000) for development of training materials and for installation of sand filters at the demonstration site.

5) The Utah DEQ provided $25,000 through a U.S. EPA/DEQ Partnership Performance Grant.

6) Various manufacturers have contributed products for classroom demonstrations and use at the Huntsman On-Site Wastewater Treatment Training and Demonstration Site.

To improve the certification program, we have lengthened the Level II workshop to provide opportunities to address more complex design issues. We have also found that the required examinations at the end of each workshop do not allow participants much “study time” and so the examinations are not as comprehensive and in-depth as we would like them to be. In the future we hope to be able to offer advanced classes that focus more on challenging sites and conditions.

We also periodically get requests whereby a person could get certified by successfully passing the examinations for the various levels without having to take the training workshops. We feel that a participant gains more knowledge from the training than can be covered in any examination – also we feel that the hands-on training, which is not addressed in the examination, is invaluable. If the rule changes to allow certification by examination, we will likely increase the difficulty and the comprehensiveness of the examinations.

As more alternative systems are approved for use in Utah, we may need to develop a new approach to the Level III certification, such as offering multiple sections of the Level III workshop that focus on different types of alternative systems.

Overall, we feel that the Utah certification program has so far been quite successful in improving the professionalism and knowledge of those who work with on-site wastewater treatment systems.