Wastewater Training – A Critical Public Health Need

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Stroud, Oklahoma
October 21, 2009

Brought to you by EPA Region 6 with Cherokee Nation, Chickasaw Nation, Choctaw Nation, Eastern Shawnee Tribe, and OSU Cooperative Extension
Untreated Sewage poses a major risk to human health.

- It contains human waste with:
  - Pathogens that can cause serious human illness.
  - Pollutants that destroy aquatic ecosystems and deplete oxygen in the water to levels too low to sustain life.
- It smells bad.
- The World Health Organization (WHO) estimates that 2.6 billion people lacked access to improved sanitation facilities in 2008.
Diseases spread through untreated sewage

- Hepatitis
- Shigellosis
- Poliomyelitis
- Cholera, dysentery
- Round worms, flat worms
Types of System Failure

• Overloaded system – sewage rises to the surface or backs up in the plumbing.
• Saturated soils – sewage on the surface
• Subsurface discharge – short path to ground water or to nearby stream or lake.
• System poorly designed
• System not maintained
Surfacing Sewage is a clear, and common sign of septic tank failure
Sewage Surfacing

Danger! Danger! Danger!

- Kids love to play in water.
- Pets carry it home.
- Mosquitoes breed in standing water.
A short path from septic tank to drinking water well

Do Not Drink
The Water
Per Oklahoma DEQ
“sample does not meet
the Safe Drinking Water Act
Standard for coliforms”
Sources of Failure

• Poor system design – failure is likely and repair or replacement can be expensive!
• Poor installation
• Poor maintenance
• Abuse by the owner (overloading)

The only effective treatment is education
Alternative Systems

Many systems available:

- Aerobic Treatment Unit (ATU)
- Spray Irrigation
- Drip Irrigation
- Mound System
- Sand Filter System
- Other Proprietary Systems

But the water must be treated and released for many years.
All systems require maintenance

- Septic tanks must be pumped every 3 to 7 years
- Advanced systems require even more maintenance
  - Pumps and electronic controls
  - Aerators checked and parts replaced
  - Disinfection requires chemicals
  - Spray nozzles or drip emitters need service
- There is no additive that replaces maintenance
Some systems are not acceptable

- Many systems are available – some work well, some do not.
- The DEQ has a list they will certify.
- If land passes from tribal jurisdiction to state jurisdiction, owner of system may have problems if DEQ’s list is ignored.
Training Needs

• Basics of wastewater treatment system
• Design of traditional systems
• Installation of traditional systems
• Inspection of systems
• Maintenance of systems
• Advanced systems – design, installation, maintenance
On-site Wastewater Training
For Tribal Environmental Programs

Acknowledgements

Planning Team – LaDonna McCowan-Ferrier, Mike Kizer, Jason Warren, Dewayne Laxton, Roxanne Weldon, Billy Hix, Jamie Blankenship, Bruce Chandler, Mike Smolen

Educational Materials provided by CIDWT (Consortium of Institutes for Decentralized Wastewater Treatment)

Support provided by EPA Region 6 and OSU Cooperative Extension