

MANAGEMENT OF ONSITE WASTEWATER SYSTEMS (OWS)

Maintenance of OWS is often ignored or neglected, yet proper maintenance and use of OWS can prevent premature system failure, and routine inspections can identify problems before complete system failure. If OWS problems are detected early, nuisance conditions and disease transmission can be avoided, and problems can be corrected less expensively than replacement of an absorption area.

To prevent negative health impacts and unnecessary costs to homeowners related to OWS, the developer will designate the management entity (i.e., the Special District or Homeowner Association) for the program. The management program shall include elements that address OWS maintenance, inspection and pumping; program financing; program enforcement; homeowner education; and annual reporting to Tri-County Health Department. Requirements for each program element follow.

Draft OWS management plans shall be submitted to Tri-County Health Department's public health engineer, 7000 East Belleview Avenue, Suite 301, Greenwood Village, CO 80111, at (303) 846-6225, for review and comment.

OWS Maintenance, Inspection and Pumping

The following outline describes what needs to occur to ensure proper maintenance, inspection and pumping of OWS, as well as the management entity's role in implementing each program element. A management entity may adopt an alternative implementation approach, subject to Tri-County Health Department's determination that the proposed alternative will achieve the maintenance, inspection and pumping objectives listed below.

Maintenance

1. Protection of absorption area
 - a) Construction prohibited over absorption area – Construction of improvements (e.g., accessory buildings, fences, driveways or walkways) or landscaping that requires irrigation is prohibited over the absorption area. If the management entity notes construction over the area, the homeowner shall be notified and advised of potential impacts to the OWS.
 - b) Heavy equipment or vehicles (e.g., travel trailers, recreational vehicles, boats, etc.) should not be parked, nor horses pastured, over the absorption area, as they can damage the area.
 - c) Proper vegetative cover is essential to protect the absorption area from erosion and to promote transpiration of effluent. The absorption area shall be seeded with native grasses and the grasses should be periodically mowed. The use of tractor-type mowers other than small garden tractors should be discouraged, as these may damage the absorption area.
 - d) Proper drainage is essential to prevent erosion damage to the absorption area and to prevent infiltration of water into the absorption area. The management

entity should inspect and approve "builder finished" grading, prior to occupancy of the home, to verify that runoff is adequately diverted away from the absorption area(s). Special attention should be paid to the proper diversion of concentrated runoff from roof downspouts, driveways, streets and culverts. Ditches, swales, and berms should be utilized, as necessary, to convey runoff away from the absorption area(s). The surface of conventional (non-engineered) or engineered evapotranspiration (ET) beds should be "crowned" or otherwise sloped to deflect runoff.

The management entity should review and approve plans for additions to homes, changes to landscaping involving filling or cutting of existing grades, new driveways, or any other subsequent improvements that may significantly alter the original drainage and adversely impact the absorption area. Property improvements that may adversely impact drainage and the absorption area should not be allowed. The management entity should make or require a final inspection of these improvements to verify proper drainage.

2. Mechanical components

- a) Systems with alternating absorption areas shall be checked for proper flow diversion and flow shall be alternated annually, by actuation of the diverter valve.
- b) Some types of engineered systems, most notably drip irrigation systems, require a pump, pump and alarm floats and switches, and electrical controls. The pump, float switches and control panel shall be inspected annually to determine if the pump system components are operating as designed.
- c) Drip irrigation, low-pressure pipe or "Bell-Patt" systems include multiple zones with an individual valve for each zone. These systems are typically designed such that one zone or section is closed for a period of six months to allow this section to "rest". The management entity shall either require the homeowner or shall assume responsibility to "rotate the zones" on these systems, such that one zone is closed for a period of six months, then re-opened and the adjacent zone closed for another period of six months, until each zone has been rested. This process shall be repeated for the life of the system.

Inspections and Pumping

1. Septic Tanks - Tri-County Health Department's Regulation I-02 stipulates that septic tanks be inspected and pumped by a licensed systems cleaner at least once every four years. The management entity shall require that each septic tank be checked annually, to determine when the tank should be pumped. Depending on use, some tanks may require pumping more frequently than every four years, and some less frequently. Regular inspections of sludge and scum layers can determine the most appropriate pumping interval.
2. Absorption fields (leach fields) - Regulation I-02 requires observation pipes in each absorption area, which allow for inspections of effluent levels in the absorption area. The observation pipes in the absorption area shall be inspected at least every six months. The presence of standing effluent in an absorption area is an indication that the absorption capacity of the area is exceeded. This may be due to hydraulic

overloading from excessive water consumption, and/or leaking plumbing fixture(s), disposing of inappropriate wastes into the system, or solids carryover due to lack of septic tank maintenance.

If standing water is discovered in the absorption area, the managing entity will notify the homeowner to reduce water consumption and consider installing water-conserving fixtures. The homeowner shall also have his/her septic tank inspected and/or pumped. If this does not eliminate the standing water, the management entity shall contact Tri-County Health Department. The Department will determine if the homeowner should install an alternate absorption area, to prevent the surface discharge of effluent.

Program Financing

The designated management entity shall establish a mechanism for financing the OWS management program. Tri-County Health Department has three models for assuring that the necessary program elements are carried out.

- Special Districts shall specify the financing mechanism in their service plans.
- Homeowners Associations shall authorize the OWS management program in the Association's initial by-laws and specify the financing mechanism in the section of either the by-laws or covenants that discusses fees for services provided by the Association.
- If a minor subdivision does not have a designated Special District or Homeowner Association, the party or parties responsible for managing OWS shall specify an alternative financing mechanism that is acceptable to the County.

Program Enforcement

The OWS management program shall establish enforcement provisions, to be utilized in the event that problems are identified with an OWS and the owner does not take action to correct the problems in a timely manner.

Homeowner Education

Each homeowner needs to have basic knowledge about the location, operation, proper use and maintenance of the OWS in order to prevent premature failure of the system. The management entity will maintain copies of the OWS "as built" drawings for each OWS system and will provide each homeowner a copy of his or her "as built" system drawing. The management entity will also provide each homeowner a copy of Tri-County Health Department's document titled "Your Septic System Guidelines and Records". If a property transfer occurs, the management entity will provide these two documents to each successive property owner.

The management entity shall coordinate with Tri-County Health Department to obtain copies of "as built" system drawings.

The management entity is encouraged to develop an ongoing educational program. Education can be in the form of periodic articles in utility bills or homeowner association (HOA) newsletters, or presentations and/or discussions at HOA meetings or other

community gatherings. The managing entity can contact Tri-County Health Department's Commerce City Office, Environmental Health Division, at (303) 288-6816 or the public health engineer in the Belleview Office at (303) 220-9200 for assistance in developing and delivering the educational program.

Annual Reporting to Tri-County Health Department

By December 31st of each year, designated management entities for subdivisions that are subject to these requirements for management of OWS systems shall submit a report to Tri-County Health Department. (Subdivisions that have not had any certificates of occupancy issued before September 1st of the calendar year may defer submitting an annual report until December 31st of the following year.) At a minimum, the report shall contain the following information:

1. Addresses of homes in the subdivision that received a certificate of occupancy during the calendar year and the date of issuance of each certificate of occupancy.
2. The current year's inspection report for each OWS.
3. A notation either that no problems were found at the time the system was inspected or pumped, or a description of the problem(s) identified when the system was inspected or pumped, actions taken to correct the problem, and the outcome.
4. The name, address, phone/fax numbers and e-mail address (if applicable) of the managing entity's contact person for the OWS management program.

Electronic annual reports are encouraged. However, Tri-County Health Department will accept either electronic or hard copy reports. In preparing the draft OWS management plan, the management entity is encouraged to contact Tri-County Health Department to establish an acceptable report format and procedure. The annual reporting procedure shall be outlined in the draft OWS management plan that the managing entity or its representative submits to Tri-County Health Department for review and comment.

MODELS FOR MAINTENANCE AND INSPECTION OF ONSITE WASTEWATER SYSTEMS (OWS)

Tri-County Health Department proposes for consideration three separate model programs for maintenance and inspection of the Onsite Wastewater Systems (OWS). The same essential program elements are included in all three models; however, the methods by which these elements are assured vary with each model.

OWS Program: Model 1

1. The Homeowner's Association (HOA) CCRs require that OWS be inspected and maintained and specify the program elements.
2. The HOA collects all necessary fees to carry out the OWS Maintenance and Inspection Program. For example, the fee could cover one inspection per year, plus pumping the septic tank every four years. The HOA contracts with a qualified inspector to conduct an annual inspection of the OWS. The inspector provides a written report to the HOA, the homeowner, and Tri-County Health Department (TCHD). TCHD can work with the HOA to develop an inspection form.
3. If the inspector determines that there are deficiencies with the OWS, the HOA will notify the homeowner that these need to be addressed. Correction of the deficiencies will be the responsibility of the individual homeowner. Examples of deficiencies include needing to pump the tank more than once every four years, correction of drainage problems, or replacement of a pump. The homeowner shall notify the HOA that the deficiencies have been corrected.
4. The HOA contracts with a licensed systems cleaner ("pumper") to pump the septic tank(s) every four years. The HOA then provides a receipt indicating that the tank(s) have been pumped to the homeowner and TCHD.
5. If the pumper determines that there are deficiencies with the OWS, the HOA will notify the homeowner that these need to be addressed. Correction of the deficiencies will be the responsibility of the individual homeowner. Examples of septic tank deficiencies are broken tees, risers not to grade, etc. The homeowner shall notify the HOA that the deficiencies have been corrected.
6. The HOA assures that each homeowner is provided a copy of Tri-County Health Department's "Your Septic System Guidelines and Records". This will help assure that the homeowner is informed about their OWS.
7. The HOA provides TCHD an annual report summarizing the current year's OWS inspections and outcomes by address.

An annual inspection will cost around \$50.00 and pumping of one 1000 gallon tank every four years will cost about \$200.00. Larger tanks and multiple tanks will cost more.

OWS Program: Model 2

1. The Homeowner's Association (HOA) CCRs require that OWS be inspected and maintained, and specify the program elements.
2. The HOA collects fees to carry out the OWS Inspection Program. The HOA contracts with a qualified inspector to conduct an annual inspection of the OWS. The inspector provides a written report to the HOA, the homeowner, and TCHD. TCHD can work with the HOA to develop an inspection form.
3. If the inspector determines that there are deficiencies with the OWS, the HOA will notify the homeowner that these need to be addressed. Correction of the deficiencies will be the responsibility of the individual homeowner. Examples of deficiencies include needing to

4. pump the tank more than once every four years, correction of drainage problems, or replacement of a pump. The homeowner will notify the HOA that the deficiencies have been corrected.
5. The homeowner contracts with a licensed systems cleaner ("pumper") to pump the septic tank(s) as needed based on the annual inspection. The homeowner then submits a receipt to the HOA and TCHD indicating that the tank(s) have been pumped and inspected. TCHD will provide a list of licensed pumpers, upon request.
6. If the pumper determines that there are deficiencies with the OWS, correction of the deficiencies will be the responsibility of the individual homeowner. Examples of septic tank deficiencies are broken tees, risers not to grade, etc. The homeowner shall notify the HOA when the deficiencies have been corrected.
7. The HOA assures that each homeowner is provided a copy of Tri-County Health Department's "Your Septic System Guidelines and Records". This will help assure that the homeowner is informed about their OWS.
8. The HOA provides TCHD an annual report summarizing the current year's OWS inspections and outcomes by address.

OWS Program: Model 3

1. The Homeowner's Association (HOA) CCRs require that OWS be inspected and maintained and specify the program elements.
2. The homeowner contracts with a qualified inspector to conduct an annual inspection of the OWS. The inspector provides a written report to the HOA, the homeowner, and TCHD. TCHD can work with the HOA to develop an inspection form.
3. If the inspector determines that there are deficiencies with the OWS, correction of the deficiencies will be the responsibility of the individual homeowner. Examples of deficiencies include needing to pump the tank more than once every four years, correction of drainage problems, or replacement of a pump. The homeowner will then notify the HOA that the deficiencies have been corrected.
4. The homeowner contracts with a licensed systems cleaner ("pumper") to pump the septic tank(s) as determined from the annual inspection. The homeowner then submits a receipt to the HOA and TCHD indicating that the tank(s) have been pumped and inspected. TCHD will provide a list of licensed pumpers upon request.
5. If the pumper determines that there are deficiencies with the OWS, correction of the deficiencies will be the responsibility of the individual homeowner. Examples of septic tank deficiencies are broken tees, risers not to grade, etc. The homeowner shall notify the HOA when the deficiencies have been corrected.
6. The HOA assures that each homeowner is provided a copy of Tri-County Health Department's "Your Septic System Guidelines and Records". This will help assure that the homeowner is informed about their OWS.
7. The HOA provides TCHD an annual report summarizing the current year's OWS inspections and outcomes by address.

With Model 3, the HOA would not collect any fees for maintenance and inspections of the OWS.

The following table summarizes the various aspects of the three models.

COMPARISON OF OWS MODEL PROGRAMS							
OWS Model Program	CCRs Specify Program Elements?	Responsibility for Inspections	Responsibility for Septic Tank Pumping	Responsibility for Correction of Deficiencies	Fee Collection	Homeowner Education	Submit Annual Report to TCHD
1	Yes	HOA (through contractor)	HOA (through contractor), once every four years. Homeowner if pumping is required more often.	Homeowner w/ HOA Verification	HOA	HOA	HOA
2	Yes	HOA (through contractor)	Homeowner	Homeowner w/ HOA Verification	HOA (inspections only)	HOA	HOA
3	Yes	Homeowner	Homeowner	Homeowner w/ HOA Verification	No fees collected	HOA	HOA