

CLEAN AIR, CLEAN WATER AND DIRTY DANCING -



MOUNTAIN LAKE CLEANS UP ITS ACT

By Su Clauson

A \$2 million wastewater treatment system is now in place which treats wastes, stores them, and sprays them into the deep soil of a remote part of the forest in a novel setting.

When the movie industry came calling, Mountain Lake Hotel's pristine good looks won the Giles County resort a leading role in the box office smash, "Dirty Dancing." The 1962 love story called for an uncommercialized Catskill family resort, something movie executives could no longer find in the built-up New York mountains. So Mountain Lake's old stone lodge, blue lake and hemlock forests caught the eye of a Vestron movie scout thumbing through Piedmont's in-flight magazine, and soon Patrick Swayze was gyrating with Jennifer Gray in the ballroom of the 1930s-era lodge on Giles County's Salt Pond Mountain.

H.M. Buzz Scanland, manager of the remote mountaintop resort says they have gone to great lengths to preserve Mountain Lake's photogenic beauty. "The clear, blue lake and clean streams are Giles' main attractions," he said. "The environment is number one with us. We've made a serious commitment to preservation."

After the resort's last expansion and the decision was made in 1987 to remain open all year, Mountain Lake's septic system could no longer handle all wastes. Concerned about

what effect a new waste treatment system would have upon its azure lake and virgin hemlock forest, the Mary Moody Northern Foundation, owners of the resort, hired the Blacksburg engineering firm of Anderson & Associates to review its options and come up with the best solution. One of Anderson's chief engineers, Gary Crouch, had monitored the effects of pollution on a pristine Antarctic lake and had the reputation of being sensitive to environmental issues.

The \$2 million system, now in place, treats wastes, stores them and sprays them into the deep soil of a remote part of the forest.

"I think aesthetics and concern about creating environmental problems downstream were the main considerations in the management's decision to use this system," Crouch said.

Donnie Martin, Giles County Building Inspector and former county board of supervisors member for the Mountain Lake district agrees. "This was not an inexpensive system to build," he said. "They could have done the job for less if they wanted to treat their wastewater and dump it down Little Stoney Creek."

The resort, however, dismissed the option of dumping into Little Stoney when they learned about possible repercussions, including occasional foam, warming and lowered water quality of the native trout stream. Another option, dumping into Doe Creek, was quickly rejected when the foundation discovered that the stream sinks into several limestone formations during its descent



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of the southeast side of the mountain. The health department was concerned these waters could contaminate local water supplies, Martin said.

The idea of treating the wastewater by constructing an underground system appealed to Crouch and the foundation, but there were two major drawbacks. Most of the soil on top of the mountain wasn't deep enough to adequately treat the water before it reached the ground surface. The system would also require the clearing of several strips of wooded land, an idea which met with opposition from the aesthetic-conscious foundation.

Luckily, a Richmond soil scientist named Harold Matthews discovered another option. Deep soil on a north-facing slope provided an appropriate location for a spray system Matthews had researched while working on his dissertation at Pennsylvania State University. The system could be carefully monitored so the amount of water soaking into the ground wouldn't negatively affect the natural habitat.

The spray system, which was activated last April, works like this. Wastewater - primarily sewage and kitchen wastes - is treated and all solids are removed in buried tanks and an unobtrusive concrete building a quarter of a mile from the lodge. The solid organic matter is concentrated and hauled away to a waste treatment plant.

"If generated in sufficient quantity, this waste could someday be composted and used as mulch for resort landscaping projects," Crouch said.

The liquid waste is pumped through underground pipes to a three million gallon storage tank deep in the forest. The wastewater is disinfected and treated to a degree acceptable for irrigation. In warmer weather, it is sprayed out over the forest in a computer-controlled pattern.

"The soil is the final step in the treatment process," Crouch said. "It acts as a living filter."


The treated water provides small amounts of nitrogen, which fertilizes the forest plant life. Virginia Tech biologist Bruce Parker will monitor the system so that the amount of the nutrient that is applied will never exceed the amount the trees can absorb. Parker will also monitor the quality of groundwater and the water in nearby streams. "The key to the system is balance," Crouch said.

This is also the key to Mountain Lake Resort's ability to live in harmony within its unique mountain environment. Although plans are being discussed to expand the lodging facilities, create additional recreational facilities and upgrade the golf course, the governing foundation is ever watchful to protect the habitat of several rare birds, ferns and mountain herbs.

The preservationist philosophy at

Mountain Lake started with the late owner, Mary Moody Northen, of the affluent Galveston, Texas. Moody family. During the many childhood summers she spent at the resort, Northen developed a sentimental attachment to Mountain Lake and vowed that its natural beauty would be preserved after her death. Today the resort is managed by the Galtex Corporation, while the Mary Moody Northen Foundation owns the property and looks after its namesake's preservationist interests. This spring the foundation is in the process of creating the Mountain Lake Wilderness Conservancy, a subsidiary foundation to protect the 2,600 acres of woodland habitat and set up a center for mountain nature and culture.

"Our goal is to preserve this as one of the unspoiled areas of the country," said Mary Moody Northen Foundation President Peter Mooz. "We want to show that this unique wilderness area can be enjoyed without hurting the relationship between man and nature. We want to preserve it as a source of inspiration."

The concern that the resort has shown for its community has impressed Giles citizens, particularly County Supervisor Samuel "Ted" Timberlake, who noted that the hotel "takes care of its wastes better than most municipalities. Mountain Lake provides jobs, brings people to the county and [has] spent the money to set up an excellent system for disposing of its wastes. They are real good neighbors to have." 

"We could not have afforded a conventional wastewater treatment plant."

Initial estimates for a new conventional wastewater collection and treatment system for Craig County, Virginia required a monthly user charge as high as \$50 a month - simply out of reach in such a rural area. Clearly, a conventional approach was not feasible.

Anderson & Associates turned the obstacles into beneficial design elements.

Craig County's wastewater treatment solution involved using the existing system as well as several unusual design features, not the least of which was the use of algae (to eat the waste) and fish (to eat the algae) in secondary treatment. The innovative

nature of the project brought about additional funding through the EPA's Innovative/Alternative Design Program.



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