

Best Practice: Use of Alternative Daily Cover (ADC) at landfill to save space, soil, labor and equipment operating costs

Jurisdiction: Orange County

Brief Description: In 1995, when the lined landfill opened, the County began use of a spray-on alternate daily cover called "Posi-Shell" that replaced the standard six inches of earth with about one-half inch of this cover. The Posi-Shell had consisted of shredded paper, polyester fiber, cement kiln dust. The paper has been eliminated in the new formulation saving shipping costs and packaging. Water is added and the material sprayed on the working face of the landfill three-and-a-half to four days per week, when weather conditions permit.

Background/Findings/Goal: Realizing the expense of constructing and operating a lined landfill, the County solid waste staff investigated a variety of alternatives to using six inches of daily cover dirt for the MSW. After investigating use of tarpaulins and two types of spray foam, the County decided on Posi-Shell. Over the life of the landfill, we estimate that we will have saved as much as two years of space due to use of Posi-Shell in place of earth coupled with high levels of waste compaction. The revenue per year for MSW landfilled last year was approximately \$2,144,000. Other savings accrue from use of less cover dirt and less labor and equipment to move dirt. We estimate savings of 560 cubic yards of dirt each week. At an estimated market value of three dollars per cubic yard, the gross savings over five years on dirt are \$145,600. The Posi-Shell material costs \$30,000 per year plus lease of the applicator equipment at \$56,400 annually or \$432,000 over five years. Daily use of one hour of labor and a scraper pan has been eliminated saving \$113,750 over five years. Net savings over the five year period of analysis is \$4,115,350.

Ordinance/Policy: No ordinance was needed to use the alternative daily cover. Approval through a permit modification was granted by the NC Solid Waste Section of DENR for use of Posi-Shell. The annual budget ordinance included leasing of the application equipment beginning in 1996-97.

Implementation Details: Following evaluation of various ADCs, we selected Posi-Shell because it stayed in place longer than the foam products and was less work than the tarpaulins. Following the permit modification from the state, training was received from the Landfill Services Corporation and use of the spray cover began in 1996-97. Daily we mix the Posi-Shell with water and tow the mixing container to the working face where the material is sprayed on using a hydraulic pump. Various nozzles are used depending on application needs.

Results: The single most important result is the estimated savings of as much as two years of landfill space due to using one-half inch of cover contrasted with the six inches of soil required. Net monetary savings are estimated at

\$4,115,350. The seagull population is markedly reduced since beginning use of this daily cover.

Next Steps/Future Plans/Collateral Practices: We plan no changes to this program except when the manufacturer changes the product formulation as they have done recently.

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