



UNTIRING EFFORT

Washington State's Response to Recent Recycling Snag

In January 1996 Washington State DOT personnel noticed unusual cracks forming on a shredded-tire embankment that had been completed two months earlier. Within days steam was observed escaping from the cracks, and WSDOT personnel measured temperatures inside the gravel shoulder as high as 74 degrees Celsius (165 degrees Fahrenheit). WSDOT implemented a monitoring program to measure settlement and surface temperature and to sample groundwater, soil, and air quality at the site. Conditions continued to worsen.

When an oily substance was found leaking from the drainage blanket in mid-March, a spill-response team was summoned and plans to excavate the shredded tires were implemented. Temperatures within the embankment may be as high as 816 degrees Celsius (1,500 degrees Fahrenheit); flames, smoke, and steam surface continually. These conditions make the removal and cooling process time-consuming. Fortunately excavation has proceeded smoothly and the highest-temperature tire material has been removed.

Suspected causes of shredded-tire fires are not well understood. Exothermic reactions that may produce heat leading to such consequences include oxidation of steel belts and microbial action on tire rubber.

—Nancy Boyd

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FLY ASH

Laboratory research and field studies have led WSDOT to allow fly ash in all portland cement concrete pavements and in most structural concrete for many years. When used in the construction of pavements, fly ash enhances the workability of fresh mix. Several factors have led to the rapid adoption of fly ash in Washington State: the availability of high-grade fly ash in the Northwest, the incentive paid by the Federal Highway Administration for the use of fly ash, quick development of specifications by the American Society for Testing and Materials and the American Association of State Highway and Transportation Officials, and favorable response to the product by contractors who used it.

COMPOST

Until just a few years ago, WSDOT's standard product for increasing the organic composition of soils used for landscaping was a mixture of sawdust and bark. With the advent of yard-waste recycling programs in many of the urban areas of the state, compost became a viable alternative to the sawdust-and-bark mixture. The department's landscape architects were reluctant to begin using compost until they gained the assurance of suppliers that certain quality standards could be met by this new product. Once these questions were answered, compost was used whenever a soil amendment product was specified.

Compost is a highly effective product from a horticultural standpoint. Original supplies of compost used by WSDOT were derived exclusively from yard waste. As the department becomes more familiar with the quality of the product and how it works in promoting plant growth, its guidelines for use of the product are changing. Currently up to 35 percent sewage sludge is permitted. This allowance is raising concerns from DOE when compost is used near wetlands. DOE is concerned about minerals or liquid wastes from sewage sludge polluting the wetlands or changing the balance of nutrients in the water. The only problem encountered so far is uneven supply. Some areas of the state have not been as aggressive in pursuing recycling and therefore do not generate sufficient yard waste supplies to support a composting operation.

RECLAIMED PORTLAND CEMENT CONCRETE

One of the newest recycling products to be used in highway construction is reclaimed portland cement concrete pavement (PCCP). Reclaimed PCCP is processed in the Seattle metropolitan area

