OSWER Innovations Pilot

Tear-off Asphalt Shingles Recycling

The Office of Solid Waste and Emergency Response (OSWER) sponsors a series of innovative pilots to test new ideas and strategies for environmental and public health protection. A small amount of money is set aside to fund creative approaches to waste minimization, energy recovery, recycling, land revitalization, and homeland security that can be replicated across various sectors, industries, communities, and regions. We hope these pilots will pave the way for programmatic and policy recommendations by demonstrating the environmental and economic benefits of creative, innovative approaches to the difficult environmental challenges we face.

BACKGROUND

An estimated 11 million tons of waste shingles are generated every year in the United States. The overwhelming majority of them are post-consumer, mostly from tear-offs. Tear-off shingle asphalt scrap is generated everywhere throughout the nation during re-roof construction projects. The steady increase in cost and price of virgin asphalt is driving the interest in recycled supplements. Recycling the asphalt shingles is a growing industry that could divert millions of tons of materials from landfills while creating jobs and generating revenue.

The technology for recycling asphalt shingles as a supplement into hot-mix asphalt (HMA) for road construction and other pavement is well proven, especially when manufacturers' shingle scrap is utilized. Shingle scrap produced during the industrial manufacturing process is generally very uniform and homogeneous. It can also be more easily certified as to its content and guaranteed to be free of debris and hazardous materials. In contrast, nation-wide acceptance and commercialization of recycling tear-off asphalt shingles is much less developed. Tear-off scrap is not yet included in many state departments of transportation materials specifications. Tear-off scrap may be composed of shingles of varying asphalt and aggregate composition, may be from multiple manufacturers, and has undergone weathering and aging from exposure to ultraviolet sunlight. Other related roofing waste (e.g., rolled felt and mastic) may contain small amounts of asbestos; and tear-off shingle scrap needs more intensive inspection of loads and materials sorting / processing (e.g., to remove all nails) to provide adequate quality assurance and quality control.

Much of the manufacturers' shingle scrap is already utilized for recycling. Yet there is still a serious lack of shingle scrap supply impeding further market development.

PROJECT APPROACH/DESIGN

The Construction Materials Recycling Association in partnership with numerous state and private sector entities will address all key barriers (environmental, engineering, operations, and economic) to full-scale implementation of tear-off shingle recycling technology. Asbestos test results from tear-off shingles samples will be analyzed. If necessary, additional sampling and testing will be conducted to assure controlled,

random sampling and appropriate documentation. State asbestos testing requirements will be reviewed, summarized and a standardized method recommended as a guideline. A set of "best practices" will be published including recommendations for environmental protection, employee health and safety, and QA / QC procedures throughout the process. Two full scale demonstrations will be conducted: one in Minnesota and a second in another state. A thorough outreach and communications plan will be conducted, including updating of the ShingleRecycling.org webpage.

INNOVATION

This Project fosters both an innovative approach toward an important environmental challenge and a more innovative culture between all parties, public and private sectors, involved in asphalt shingle recycling. The private sector will work collaboratively with state regulators to develop best practices guidelines to protect worker health and the environment while addressing the viability of full commercialization of tear-off shingle recycling technology. It directly address the key regulatory barriers preventing more widespread implementation of tear-off shingles recycling.

BENEFITS

This Project will help accelerate post-consumer asphalt shingle recycling in a managed, environmentally sound manner. The key barriers will be addressed and results disseminated to interested parties with a direct stake in the outcome. The ultimate result will be a significant reduction in the amount of recyclable asphalt shingle scrap that is landfilled. If performed properly, recycling of asphalt shingles can utilize an otherwise wasted resource and create new business opportunities. Similar to other successful recycling technologies, tear-off shingles recycling has the potential to create new jobs.

CONTACTS

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For additional information, visit the EPA OSWER Innovations web site at: www.epa.gov/oswer/iwg.

Solid Waste and Emergency Response (5101T)

500-F-05-010
May 2005
www.epa.gov/oswer/iwg