

Use of Residual Solids from Pulp and Paper Mills for Enhancing Strength and Durability of Ready-Mixed Concrete

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ABSTRACT

This project is proposed to provide a practical solution to disposal problems for pulp and paper mill by-products and provide an economical source of fiber reinforcement for ready-mixed concrete production. The first year's project activities are directed toward optimizing mixture proportions and production technologies under controlled laboratory conditions. Fibrous residuals generated from pulp and paper mills will be used for the first year's activities. The second year's activities (Year 2) involves study of market acceptance as well as market barriers for the use of residual solids in the ready-mixed concrete. Economic impact will be studied and additional specialized tests will be conducted. The activities proposed for the third year (Year 3) will involve pilot-scale production at ready-mixed concrete manufacturing plants and cast-concrete products (bricks, blocks, and paving stones) with concrete mixtures containing pulp and paper mill by-products. A number of cost-effective concrete products could then be manufactured using pulp and paper mill residual solids. As a result, large amounts of such by-products that are currently being landfilled can be utilized in the manufacture of concrete products.