

**creative
Urethanes** Inc.

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Solid Urethane Piping Displays Capabilities in Limestone Slurry System

"Limestone slurry is so abrasive that it can quickly eat through steel, fiberglass, and other conventional slurry pipe - sometimes in only 3 months. We installed **Durothane AR Pipe** in a section of our limestone mill slurry system more than 2 years ago. Since then, the pipe has shown very little sign of wear. Other sections of pipe in the system have since been replaced with equal success."

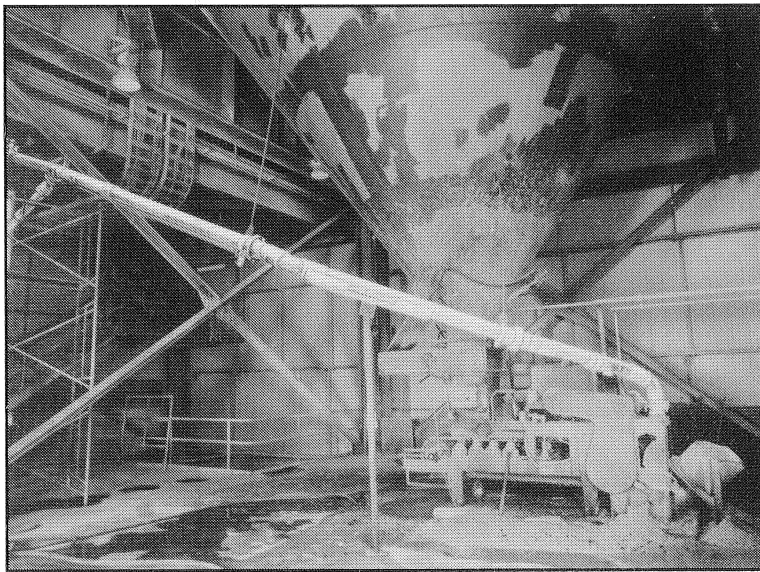
In those comments, Jerry Grubisich, scrubber supervisor at Central Illinois Light Co.'s Canton, Ill., power plant noted his experience with the **Durothane AR** solid urethane piping manufactured by Creative Urethanes, Inc., in Purcellville, Virginia. He adds that "Maintenance costs on our limestone mill slurry system have been reduced drastically in the areas where the polyurethane pipe is installed." This is ascribed to the material's inherent resistance to abrasion and corrosion.

The Central Illinois Light Col. (CILCO) facility burns high sulfur coal in power generation and employs an SO₂ scrubbing system to remove the sulfur pollutant from combustion gasses before their entry to the stack.

Elements of the scrubbing system include a limestone grinding mill, classifier, slurry storage tank, and the cast polyurethane pipe in the gravity feed system connecting them.

The limestone slurry system handles approximately 340 tons of limestone daily which, following milling and mixing with water, is used to scrub flue gas produced in the burning of 3,000 to 3,500 tons of high sulfur coal each day. The stone is ground in a wet ball mill, to which water is added until the ratio of water to limestone is 85:15 (in percent).

Some 95% of the slurry passes through a 200-mesh screen and is then pumped to a classifier. Here, oversized limestone particles are removed and returned through a 40-ft. long section of piping to the ball mill for further grinding. Acceptable slurry flows from the classifier through a 50-ft. section of piping to a storage tank.



LIMESTONE SLURRY TRANSPORT PIPING

Before the installation of the urethane piping, CILCO found it necessary to replace worn steel piping at intervals as frequent as 3 months. Grubisich notes that, "Handling the heavy steel pipe requires several workmen as well as special handling equipment. The SO₂ scrubber could be down for 8 hours or more."

"The urethane pipe installation eliminates time-consuming welding of steel pipe, as each of the sections was welded individually. When using fiberglass pipe we had to lay-up fiberglass joints and allow them to dry, which also took about 8 hours."

Grubisich notes that the urethane pipe is significantly lighter, weighing only 22 lbs. for a 10-ft. section as compared to 150 lbs. for a 10-ft. length of steel pipe. Consequently, the pipe easily can be lifted and field-fabricated by one man with installation requiring one quarter of the amount of time previously needed.

Strong and durable, the cast urethane pipe exhibits a 92 Shore A durometer but is flexible enough to accommodate slight bending. It has an elongation of 420% and a 5,800 PSI tensile strength. **Durothane AR** is designed to interface with existing American Standard Association (ASA) pipe systems. The outer diameters, wall thicknesses, and flange bolt patterns for **Durothane AR** are identical to those specified for Schedule 80 steel pipe.

CILCO uses both 6-in. and 8-in. nominal O.D. pipe having inner diameters of 5.76 and 7.63 in., respectively; and wall thicknesses of 0.43 and 0.5 in., also respectively. Maximum working pressure is 50 PSI.

