



Convoluted Belts Prevent Explosive Propagation At Lone Star Ammunition Plant In Texas

Three-Dimensional Capability Eliminates Need For Thirteen Conventional Conveyors

Three Serpentix continuous path conveyors, totaling almost 1,000 feet in length, have been installed and are "production ready" at the Lone Star Army Ammunition Plant in Texarkana, Texas.

The conveyors, manufactured by Serpentix Conveyor Corporation of Colorado, were selected primarily because the system's convoluted belt provides an effective safeguard against a domino reaction ignition of flake explosives being conveyed in the production of 105mm artillery projectiles.

Extensive testing conducted by the U.S. Army and Day & Zimmerman, Inc., operating contractors at Lone Star, proved that the convolutions in the Serpentix belt eliminated the



LONE STAR'S COMPUTER CONTROL Center monitors each phase of manufacturing to assure high quality control standards. A Lone Star technician double checks shell tip bore specifications and relays the information to an on-line checkpoint.



THE FIRST MANUFACTURING STAGE for incoming 105mm artillery shells at Lone Star is this depalletizing station. Once protective cardboard liners are removed, the shells are regrouped into pallets of 16 and sent along conveyor tracks to the loading stations.

danger of explosive propagation from belt pan to belt pan along the 24" wide Serpentix belt.

In addition to this enhanced safety factor over conventional conveyor belts, the ability of the Serpentix belt to climb steeply and to make both horizontal and helical turns provided substantial savings in construction.

Officials with Day & Zimmerman, Inc. said at least 13 conventional conveyors would have been required to accomplish what the three Serpentix units were installed to do.

The subsequent savings in energy (eliminating additional drive stations) and prevention of material degradation and spillage (by eliminating intermediate transfer points) were also key factors in selection of the Serpentix systems. Production utilizing the Serpentix conveyors is scheduled in August of 1983.

Lone Star began production in 1942 with the onset of World War II. The plant produced ammunition, including 8-inch projectiles, detonators, grenades and fuses, until 1945 when its operation was merged with the Red River Ordnance Depot six miles west of Lone Star.

In early 1950, as the international situation became more critical, reactivation of certain World War II government-owned industrial installations — including Lone Star — was ordered. Day & Zimmerman, a national contracting operator primarily involved in the construction industry, was selected by the Tulsa Corps of Engineers on May 1, 1951, to operate the Texas facility. Rehabilitation of the plant was in progress and production of supplementary explosive charges began in June.

Plant production and ammunition delivery at the facility is governed by the fluctuations of international affairs. During the Vietnam conflict, for example, Lone Star was producing and shipping over 158 different items. Employment at the facility has ranged from a low of under 500 in 1958 to a high in excess of 11,000 in 1968.

Lone Star selected Serpentix conveyors because they are the world's only belt conveyor that can carry bulk material in a continuous, 3-dimensional path. It is used throughout the United States for conveying sludge, grit, screenings and bulk material in both municipal and industrial applications.