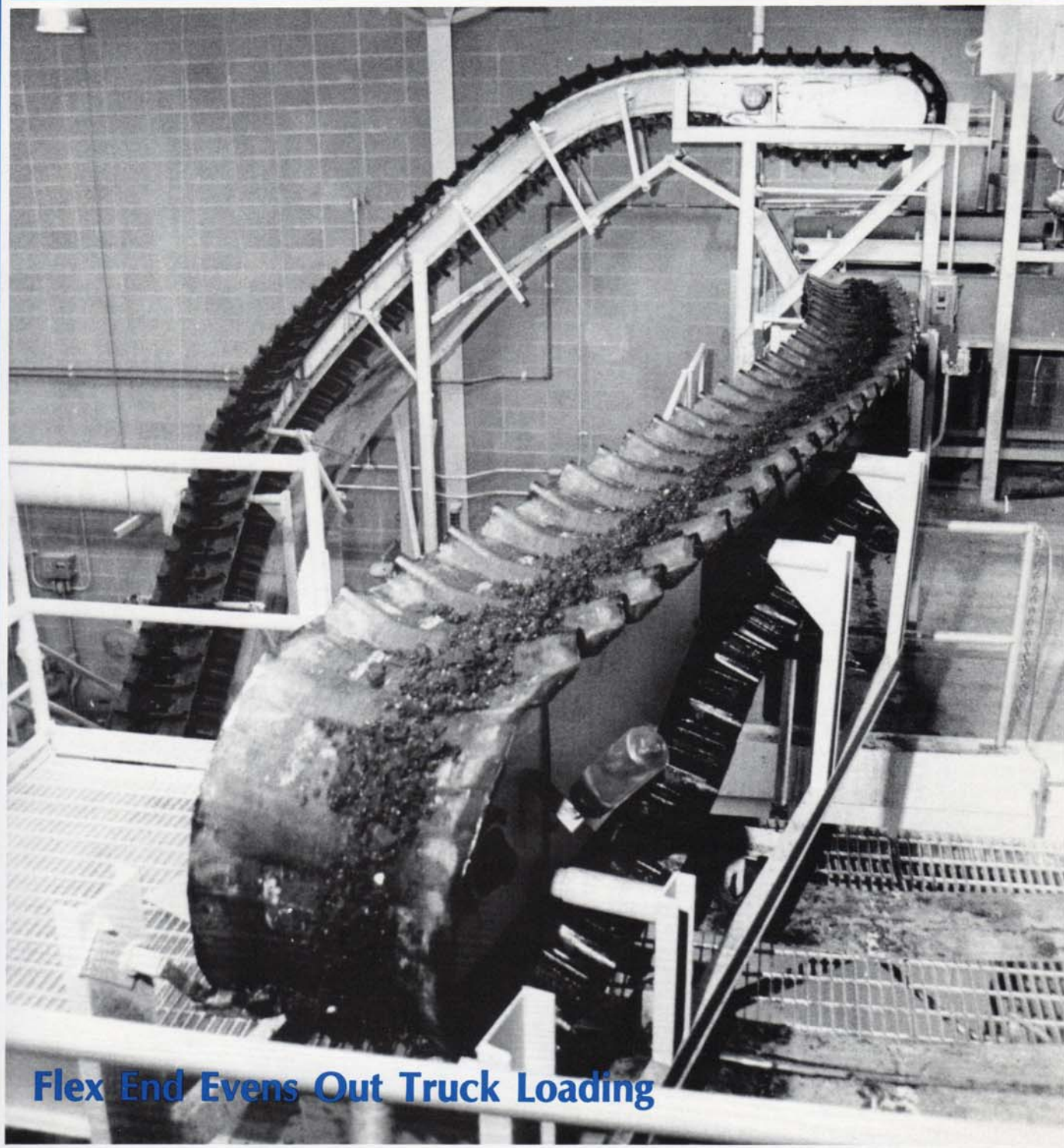


# CONTINUOUS PATH CONVEYING



**Flex End Evens Out Truck Loading**



# Four Serpentix Conveyors Play Major Role In \$510 Million Louisiana Project

July will mark completion of the first half of a \$1 billion master plan that over the past 10 years and \$510 million has moved Jefferson Parish in Louisiana light-years ahead of 1977, and given it the ability to provide the services required by a metropolitan area of 1.2 million people.

Peter J. Russo was faced with several grim problems in 1978 when he was named director of public utilities for Jefferson Parish, which includes much of metropolitan New Orleans.

The lack of master planning for

public utilities to provide for a population that grew from 50,000 in 1941 to almost 500,000 by 1977 was threatening to cripple the economic life and future growth of the New Orleans area.

The most critical problem was one created over a 40-year period, caused

***THE CONTINUOUS PATH CONVEYORS serving the belt filter presses in the Harvey WTP dewatering facility are seen climbing and turning in the background in this view looking over the belt presses. A plant operator (foreground) makes a routine press check.***

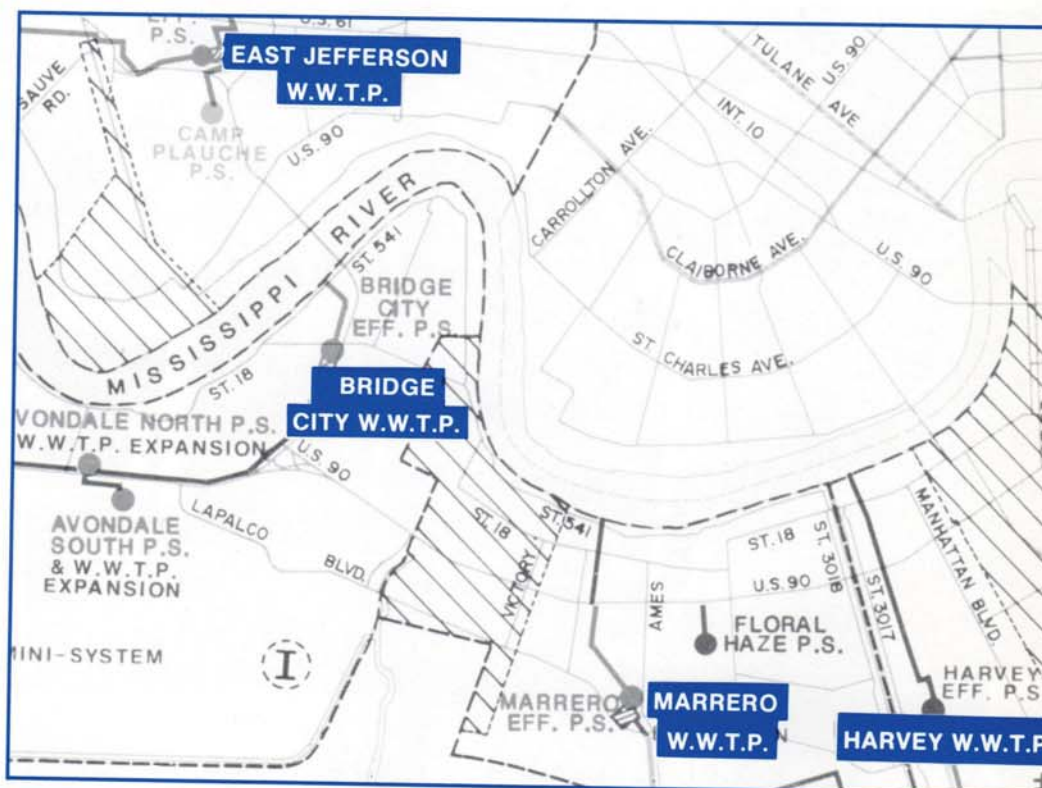
by piecemeal construction of public facilities with almost no long range master planning and/or coordination. By the mid-1970s the result was a sewerage collection and treatment system that was verging on collapse, Russo explained.

It consisted of 24 separate wastewater treatment plants having a combined treatment capacity of 30 million gallons/day (mgd), and 450 raw sewage pump stations. These facilities were tied together by a network of collection lines and force mains which -- in many cases -- were





**THE MEANDERING MISSISSIPPI RIVER** divides Jefferson Parish. That portion of the parish north of the river is referred to as the East Bank and that to the south is the West Bank. Lake Pontchartrain is at top of drawing. The West Bank wastewater treatment plants are Harvey, Marrero and Bridge City. The new East Jefferson regional plant is the only parish regional plant located in neighboring Orleans Parish, nestled on the north bank of the second giant, southward-dipping meander of the river.



improperly sized and engineered, and barely able to cope with the New Orleans of 1978.

Such a complex, Russo explained, could never deal with the growth anticipated in Jefferson Parish through 1988...much less with the residential and industrial expansion projected for the area through the end of the 20th century.

Appointed director of public utilities in 1978, Russo quickly initiated a multi-phase program to resolve the sewage collection, treatment and disposal problem. Simultaneously, he formed a four-man public utilities team to help solve the other problems under his jurisdiction which the parish faced.

The team was completed in 1981 when Dennis P. Butler was named sewerage department director to supervise the massive revamping of the sewage treatment system.

"When we started the overall program I can't think of a sewage treatment plant we had on the west bank (south of the Mississippi) that was meeting its effluent requirements at any time, under any conditions," Russo said.

"In addition, we had inherited a nightmare, the South Kenner Road sludge lagoons where all of the sludge (with some exceptions) from

the 24 parish plants was taken," he explained. "However, the lagoons were unpermitted, poorly constructed and (several years ago) were ordered closed by the Environmental Protection Agency (EPA)."

"That made us realize we had to eliminate the need for the sludge lagoons, and provided much of the impetus for our going to sludge dewatering systems, continuous path conveyors and landfilling of all sludge," Russo added.

The \$510 million program ending this July covered:

Upgrading and expanding three of the 24 old plants into facilities which will have a combined treatment capacity of 31 mgd; construction of the 33 mgd East Jefferson Consolidated Sewerage District Wastewater Treatment Plant (East Jefferson) at a cost of \$60 million; converting the other 21 plants into pumping stations; rehabilitating the entire collection system; and, discontinuing use of the sludge lagoons.

The second phase of Russo's master plan -- dealing with drainage canal work and construction of levees, primarily in the southern part of the parish -- is scheduled for completion in the year 2000. Some work

on the first phase will continue through 1988, including automation and instrumentation, site work, grading, paving, landscaping, etc., at the East Jefferson regional plant.

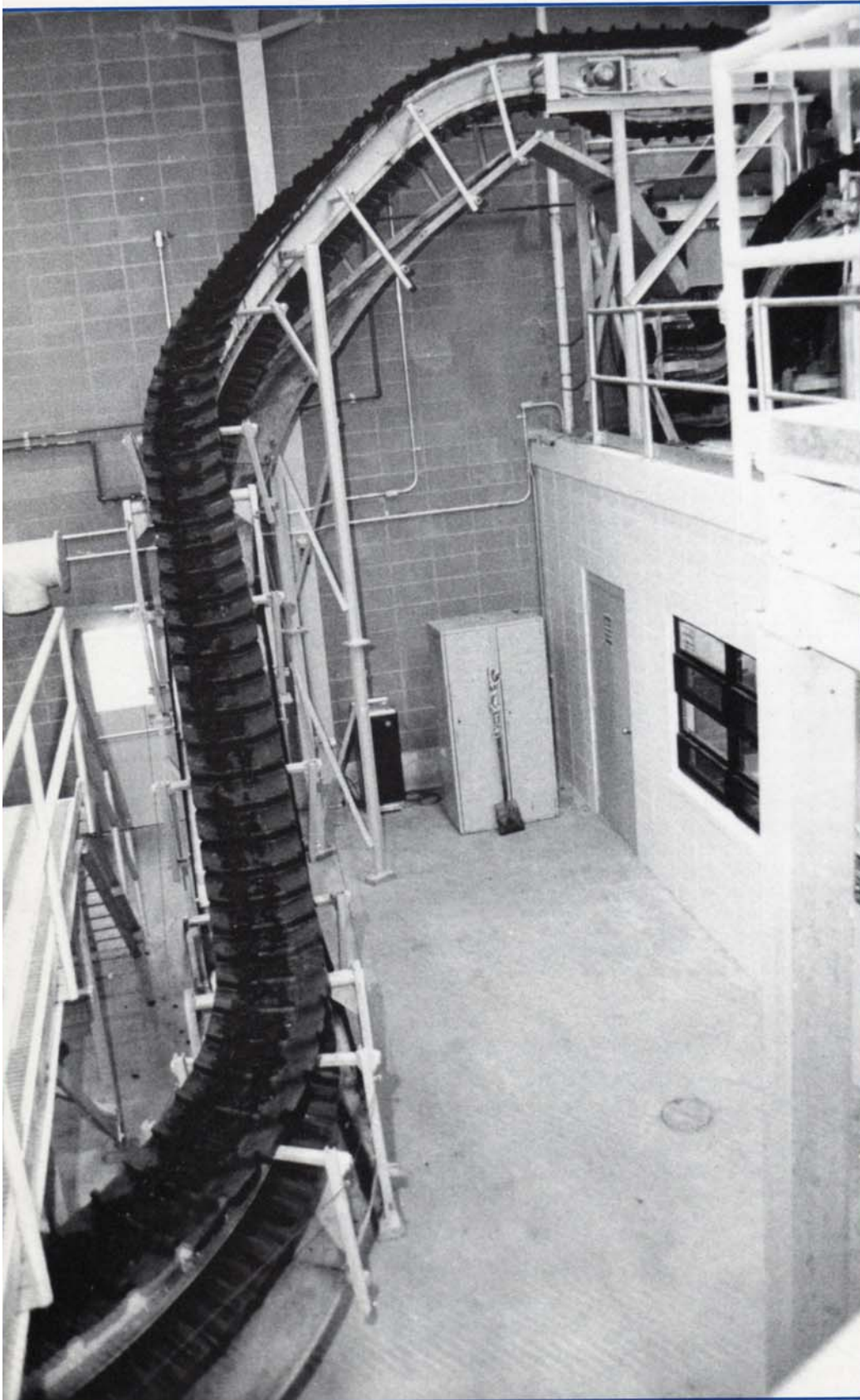
Treatment operations commenced April 1 at East Jefferson for that part of the parish north of the Mississippi River (the East Bank). The three plants south of the river (the West Bank) chosen for expansion to provide treatment for the southern part of the parish were the Harvey, Marrero and Bridge City facilities, Butler explained.

"The Harvey plant had less than 1 mgd capacity and was literally overflowing. It simply did not work," Butler explained. "The Marrero facility -- an old trickling filter system with anaerobic digesters -- was totally plugged, and a great deal of sewage was being bypassed with primary treatment only," he added.

"Things weren't quite as bad at Bridge City. Basically, it was a primary treatment and digester system," Butler explained. "But, it was the best prospect we had for expansion and upgrading in that zone," he added.

The first phase of the master plan brought the three west bank plants up to interim standards, using both older structures and expanded units. Each





**LIKE A GIANT SNAKE, THE 88 FOOT Serpentix at Harvey WTP emerges from beneath the three belt presses located on the ground level of the dewatering facility. Twisting and climbing 40 feet from floor level, it discharges into the transfer hopper feeding the Flex End Serpentix on the second level deck. The flexibility of that system is demonstrated in the TWO PHOTOS, TOP OF FACING PAGE. In the first photo, the conveyor extends straight out to the discharge port where sludge is fed to the truck on the lower level. In the far right photo, the Serpentix has been flexed all the way to the right -- approximately six feet from the centerline of the conveyor. The unit can also be flexed the same distance to the left.**

was then upgraded to full design capacity in a final phase which also provided excess capacity to allow for future growth, Butler said.

The Harvey plant was initially upgraded to just under 3.5 mgd, then to approximately 9 mgd. Work underway this year will further increase its design flow capacity to 13 mgd. At Marrero the design flow capacity is 10 mgd, with Bridge City being rated at 6 mgd. East Jefferson has a dry weather flow of 33 mgd, an average wet weather flow of 56 mgd and a peak of 156 mgd.

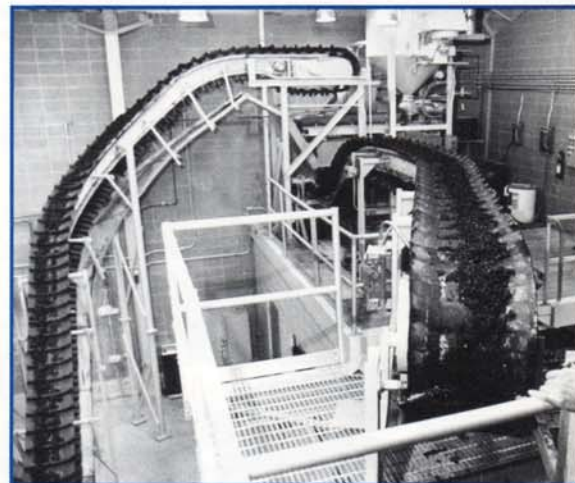
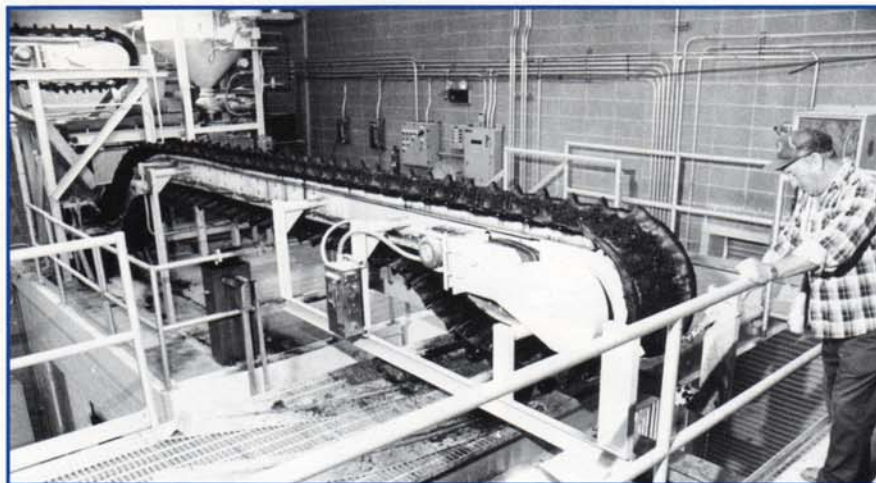
Part of the renovation plan included a basic decision to provide each of the four plants with processing and filtration capabilities to produce dewatered sludge which could then be disposed of in the new 750 acre parish landfill. Achieving this goal permitted discontinuing use of the old sludge lagoons that the EPA ordered closed several years ago.

Another major aim in the program was to construct facilities to end the discharging of treated effluent into the area's two major estuaries, Lake Pontchartrain north of New Orleans and the sprawling Barataria waterway system to the south.

All treated effluent is now pumped into the Mississippi which has much greater assimilative capacity than the estuaries, Butler explained. Drainage water still goes into the Lake Pontchartrain and Barataria estuaries, he added.

Drainage canal work programmed for the future includes enclosing canals, procuring rights of way, slope paving, bank stabilization, etc.,





Russo explained. Cost of this phase of the program just since 1980, coupled with phase one will increase capital investment expenditures to \$1 billion by the year 2000.

Prior to 1978 Russo had served, since 1951, as director of the Jefferson Parish water department. At that time, each of the major public utility departments -- water, sewerage, pumping stations, and drainage/levees -- operated autonomously with no centralized control for coordination or planning.

Russo's first move as water department director was to institute a master plan for the department, and to oversee the upgrading necessary to cope with projections that area growth could more than quadruple the 1951 population.

In the meantime, area construction and growth that had been permitted without adequate facilities being required by the public utilities department "...got us in trouble, leading to the changes which began in the late 1970s," Russo said.

The other three members of Russo's public utilities team include: Ross Ketchum and Prat Reddy, appointed in 1979; and, Dave Macaluso, a 27 year veteran in the public utilities department. He is water department director, Ketchum is director of pumping station operations, and Reddy is director of the drainage department and canals/levee maintenance. ■

## Harvey Plant Systems Make Unique Combo

The early changes in renovating the Jefferson Parish sewage complex included adding processing and filtration capabilities to produce dewatered sludge which could be landfilled, eliminating the need for parish sludge lagoons.

The three treatment plants that were upgraded and expanded (Harvey, Marrero, and Bridge City) each have three belt filter presses. The new \$60 million regional facility, East Jefferson, has four belt presses.

A second treatment facility on the East Bank, the West Napoleon plant, was also equipped with belt filter presses early in the program. It provided sufficient dewatering capability for the area until East Jefferson came on line, at which time it was converted to a pumping station (March, 1988).

Three-dimensional, continuous path conveyors by Serpentix Conveyor Corporation were specified by parish officials at three of the facilities. At the Harvey plant, two highly complex Serpentix units were required in a new dewatering facility which had space limitations imposed by cost considerations.

One conveyor and a sludge hopper are mounted on a second level deck at one end of the dewatering facility. Equipped with a flexible end section, the 30-foot Serpentix discharges sludge received from the hopper evenly over the length of the truck

bed on the first level by flexing up to six feet on either side of the conveyor's centerline.

The second conveyor is 88 feet long. It begins on the main level (at the opposite end of the dewatering building) under the three belt presses. Running approximately 50 feet in a straight line, it then makes a 90-degree left turn after receiving sludge from the last belt press then starts a 45-degree climb which turns into a climbing, 90 degree helical turn to the right.

After clearing the sludge hopper on the second level, the conveyor levels off and discharges into the hopper approximately 40 feet above floor level.

At East Jefferson a 32 foot Serpentix Continuous Path Conveyor transports sludge from four belt filter presses and elevates the load 16 feet over a 42 degree incline for end discharge into a waiting truck. The West Napoleon conveyor is similar in function except that it is 60 feet long. It delivers sludge from the belt presses to a point outside the building for discharge into trucks after making an elevation gain of 18 feet over a 32 degree incline.

With conversion of West Napoleon to a pumping station, the conveyor there will probably be used for parts for the Serpentix conveyors at the Harvey and East Jefferson plants. ■