

BRUNSWICK COUNTY'S new 24 mgd Malmø plant will begin pumping treated river water in February to test water distribution lines under pressure.



PLANT OPERATIONS MANAGER Gary Haas will head a crew of 13 employees when the plant begins full operation.

Rural Community Is Home For Modern Water System

BY TERRY POPE

Butler Road in northern Brunswick County is no major highway. It is a gravelled road that wanders through the woods, providing access to several homes and a \$9 million water treatment plant.

There are chicken yards and sleeping dogs within eyesight of this modern facility. From out of the tall pines the plant rises, with its giant storage tanks and white, concrete buildings that might look more at home in some major metropolitan city than in this rural community of Malmø in northwest Brunswick County.

Brunswick County Water Treatment Plant 1981 was built in this community out of necessity, for it is adjacent to an unlimited raw water supply, the Cape Fear River. Water is fed to the plant from the Lower Cape Fear Water and Sewer Authority's pipeline that takes in water 13 miles away, at Lock and Dam No. 1 at King's Bluff in Bladen County.

Brunswick County is the authority's only customer so far. The pipeline that is capable of supplying up to 45 million gallons of raw water a day comes to an abrupt halt in the woods just beside the treatment plant.

When the plant becomes fully operational in February, it will be capable of producing up to 24 million gallons of treated water a day, from Leland to Calabash, a range of 50 miles. Such

rural systems are uncommon, at least in North Carolina.

"I don't know of any others that would extend that far in a main line," said Kenneth O. Hewett, Brunswick County water plant supervisor. "Other rural systems may have more total lines than ours, but maybe not in a main line. It's really not a first for anybody, but it's a first for us."

Plant personnel are eager to begin operations. The facility was tested in September at full capacity before it was accepted by the county from the project engineers, Koenice, Noble and Associates of Lumberton. There were no flaws, Hewett said. It worked perfectly.

Treated water has actually left the plant via the main line, but only up to the Leland elevated water tank on U.S. 74-76, just a few miles away.

When the tank is painted and construction is complete, it will be filled with water and tested too, Hewett said.

The main trunk line follows U.S. 17 from Laneville Road to Stallotte, then follows N.C. 476 by Ocean Isle and Sunset beaches to Calabash. An extension also trails down N.C. 87 from Bell Swamp to Southport. All main lines will not be pressure tested until February, when water will be pumped south for the first time while technicians at the plant watch on computerized monitors in the main control room.

The computer system is capable of determining water levels and pressures in tanks and lines throughout the entire water system. For example, if a problem develops in pressure at the Holden Beach water tank, the computer should be able to spot it immediately and would then signal a warning to the technicians.

Hewett said he believes the county has just purchased the best deal it could possibly receive in its \$9.81 million water treatment facility. The county will also strive to keep costs down, he said, by operating the plant during off-peak electrical periods as much as possible.

Once pumped from the river, water flows by gravity alone to the Malmø plant.

Safeguards have been installed in Brunswick County's system in case of electrical outages. The plant itself has back-up generators while diesel powered pumping stations are placed along the trunk lines and at the King's Bluff pumping station.

A four-million-gallon grid storage tank is also being constructed at the intersection of N.C. 87 and U.S. 17, where the main trunk line will divide. One section will carry water to Southport while the other main line will carry water as far as Calabash. A diesel-powered pumping station is also located at this storage tank.

"In case of a power failure, we can still operate and maintain some pressure throughout the county," Hewett said. "We couldn't provide all of the industrial demand, but we could provide adequate pressure for drinking water."

At the plant, sludge, or solid particles from the raw water, settle on the bottom of twin 12-million-gallon treatment tanks. The "sludge blankets" are then pumped to adjacent equalization fields for filtering. Water that drains from these sludge fields is returned to the treatment tanks.

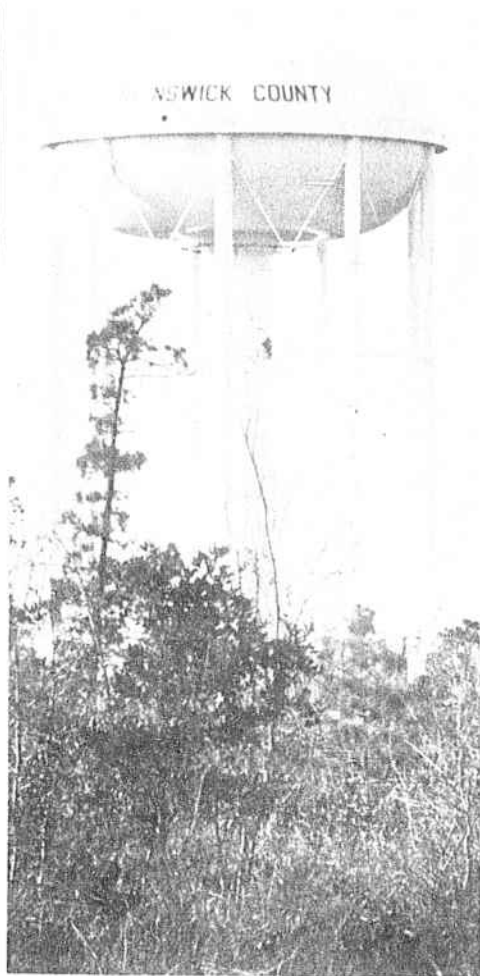
"There is a very, very minute amount of water that goes to waste in this system," Hewett said.

Chemicals are added to the water while it is in the 12-million-gallon treatment tanks. The treated water is then tested in labs at the plant for bacteria and other pollutants.

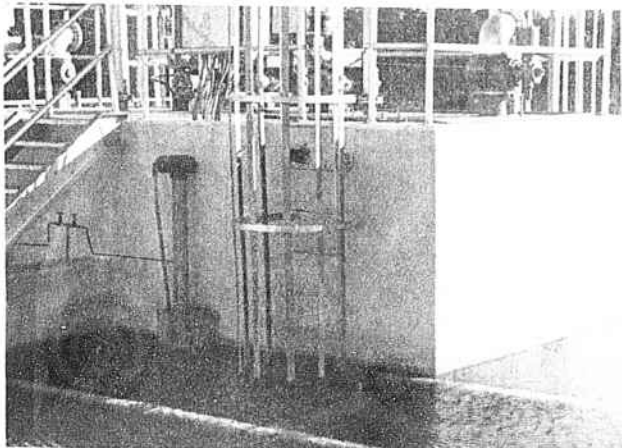
The plant is actually divided into two sides of equal capability. Each side is capable of producing up to 12 million gallons of treated water a day. County commissioners voted in 1981 to build a plant capable of producing 24 million gallons a day rather than one that could later be expanded to reach that capacity.

When in full operation, Hewett said, the plant will employ 13 persons working in shifts. The operations manager is Gary Haas, whose office window overlooks the 200-acre site and facility.

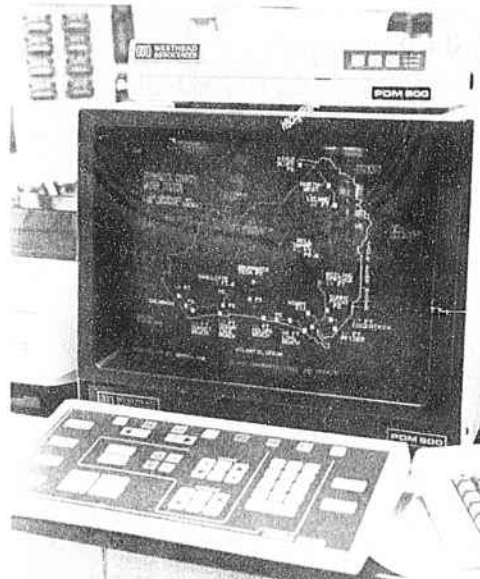
From there, his is a view of modern technology at work in a rural environment, a multi-million dollar facility set among the back yards of Malmø residents.



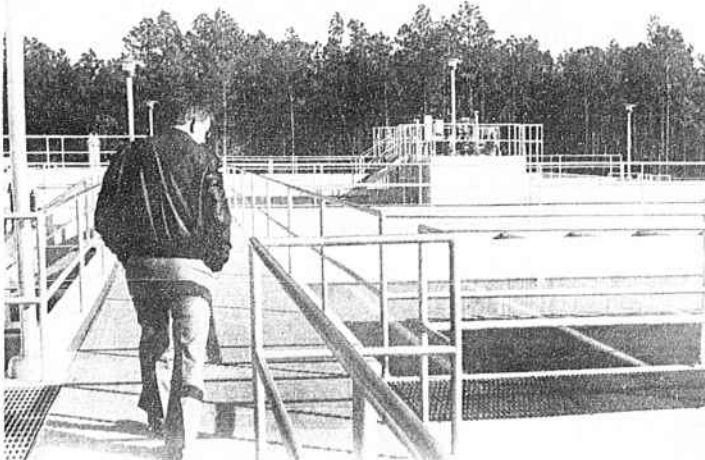
THE ELEVATED WATER TANK at Leland bears the name of this rural water system with distribution lines extending 50 miles to the south.



THE NEW PLANT is divided into two sides, each capable of producing 12 million gallons of water per day (mgd). This side's now in operation and is filled with raw surface water undergoing treatment.



A COMPUTERIZED MONITOR in the main control room displays a map of the county, pinpointing reporting stations along the water distribution system. It typifies the high level of technology involved in operating the plant.



KENNETH O. HEWETT, water plant supervisor, inspects treatment facilities at the new Malmø plant.

Groundwater wells supply the county's current water source, with treatment at an older plant on N.C. 211.



WATER PLANT TECHNICIAN David Rourke, of Stallotte, points to display panels in the main control

room where information on water lines and tank pressures are monitored.