

# Northeast Water Purification Plant Revisited



Eleven months had passed since the NHCRWA board members had visited the water purification plant that will supply the Authority's surface water, and returning to see it completed and ready to begin operations renewed the visitors' sense of partnership in the massive project. And, once again, the generous hospitality extended by NEWPS Project Manager **Todd Larson**, P.E., vice president MWH Constructors; **Dominic G'Benoba**, General Manager for Houston Area Water Corporation (HAWC); and **Jeff Taylor**, Deputy Director, Public Utilities Division, City of Houston, contributed significantly to the success of the visit.

With construction of Phase I at virtually 100 percent complete, the status of the plant, according to Larson, is "Ready." After pressure testing the lines, there is now water in the 84" and 42" segments of the transmission pipeline and the disinfection system is undergoing final testing. The final step before assuming full scale operation will be to run a 14-day reliability test in full auto mode.



*Lake Houston water enters the plant through the giant raw water mixing station pipes.*

The Authority's board members, General Manager Jimmie Schindewolf, and Engineering Manager Tom Rolan "followed" the water from Lake Houston as it entered the plant through the raw water mixing station to the initial compartments of the Flocculation Sedimentation basins -- the initial step in the purification process.



*Dominic G'Benoba points out the raw lake water intake basin as it moves into the Floc/Sed area.*

The water "falls" over a concrete barrier and into the Floc/Sed basins where it gets progressively cleaner as the solids in the water are coagulated to grow into larger particles that will easily settle out in the long basins with floating sludge collectors that travel the distance of the lanes and back again. From the initial compartments -- where the water looked quite muddy and opaque -- to the final outflow -- where the water just sparkles -- the Floc/Sed process takes approximately four hours.

From the Floc/Sed area, the water is piped



into the disinfectant process, where chloramines are added during several points in the process. The water undergoes an additional filtration step before being “zapped” again as it flows past the powerful Ultra Violet lamps where it is instantly irradiated against microscopic organisms (e.g., cryptosporidium).

The treated water is then stored in the 10 million gallon ground storage tank before being pumped into the system for delivery to area “users” -- local MUDs and the City’s water customers. At the beginning, the plant will be producing approximately 40 million gallons a day.

The HAWC gave the go-ahead last October to begin work on Phase II. This expansion -- which will add four new Floc/Sed basins, new filters, an additional UV building, and another ground storage tank -- will increase the NEWPS capacity to a total of 80 million gallons a day. Phase II design is complete, construction has started, and the expansion will be complete by December 1, 2005.



*Looking past the end of the filter complex to the UV building and the 10 million gallon ground storage tank.*

Near the end of the tour, we were able to watch as the filter complex went through a “backwash” process. At first, all we could see were the long empty filter channels crisscrossed by turquoise-colored metal “troughs”. Then a low rumbling sound signaled that the process had begun. Black air bubbles -- ascending through the sand and anthracite media -- were forced to the surface, spreading until the floor of the entire channel seemed to be bubbling. The water continued to rise, and spilled over into the troughs, skimming off impurities (see photos next page) and washing the filters in the process.



For GM **Jimmie Schindewolf** and board members **Jim Pulliam, Ron Graham, Al Rendl, Kelly Fessler** and **Len Sigler**, there was a tremendous sense of accomplishment as they toured the NEWPS plant. Its completion is yet another impressive milestone on the path to achieving the initial conversion to surface water goal, and is a natural follow up to the innovative water supply agreement reached with the City of Houston. For Jimmie Schindewolf -- who, as the Director of Public Works for the City, actually purchased the site where the plant now stands -- the cycle is complete.

“We have come a long way in achieving this partnership with Houston,” the General Manager said. “The Authority’s team has been fortunate indeed in being able to work with some outstanding leaders in the City’s Public Works department, HAWC, and MWH Constructors along the way, and we congratulate them on the completion of Phase I of this impressive facility. Our visit here today has given us a high level of confidence in this important link to our future water supply and renewed our spirit of cooperation. We look forward to additional opportunities to work together toward making our conversion to surface water as seamless and cost-effective as possible.” 💧