# - SECTION ONE -

## Executive Summary

On 7/19/2003, CorrView International, LLC performed a series of ultrasonic pipe wall thickness tests upon 39 different locations within the property located at Center Port Mall, 1725 Bell Harbor Highway, Centerreach, NY 11716. The survey was initiated by Mr. John Reising, Chief Engineer at Center Port Mall - this, in order to identify the rate of corrosion and remaining service life of the condenser water piping system. Prior leaks had raised concern over the condition of the piping at the roof level and at specific locations within the mall.

Our testing well identified the conditions at the condenser water pipe and both confirmed and refuted certain prior assumptions about the system. We identified the roof level piping as having deteriorated beyond acceptable limits at most points tested. The highest level of wall loss was found in the area of the pumps, where we identified wall thickness values near 0.100 inches. Remaining wall thickness increased as we moved our testing closer to the point of entrance into the mall, which we can suggest is due to less air and moisture entering this area of the pipe through the open tower during the winter drain down season.

We identified the pipe at the rooftop elbow has acceptable, and would recommend replacing all other roof level piping to this point. There is added threat of exterior corrosion to each pipe support, which has further weakened this pipe. External pitting and deterioration to 0.100 in. in depth was measured.

We identified the main condenser lines within the mall as in generally good condition, and having an average corrosion rate of approximately 1-1.5 mils per year, which is excellent. Some pitting was found at the bottom and lowest sides of the pipe, suggesting that iron oxide and particulates have settled into the long horizontal runs to produce some under deposit corrosion. Otherwise, we would raise no concern for the larger distribution lines. We are recommending the addition of some filtration equipment in order to remove such particulates and further extend the service life of the main pipe.

We identified very weakened areas of threaded pipe at the New Design and Fairfield Optical stores. Here, ultrasonic testing showed extremely low wall thickness values in many areas and the need to replace their pipe. Much higher corrosion and pitting activity was found throughout the New Design store area, which suggested some contributing factor to this condition.

Our testing consistently found good corrosion rate control at most of the piping located within the mall. Nevertheless, even such low corrosion activity will have a weakening effect against the pipe given sufficient time. We raise a general concern for any threaded pipe since it is scheduled 40 in origin, and since it has lost approximately 50 percent of its original wall thickness through threading. This initial 50 percent loss, plus an additional 1-2 mils per year loss over the past 40 years, has deteriorated much of the threaded pipe to the point where only 20 mills or 0.020 inches remains at the threads today.

For that reason, we recommend addressing the most serious threaded locations first, such as within the New Design and Fairfield Optical stores, and then plan for the gradual replacement of the remaining small diameter threaded pipe as a precautionary measure. Some additional ultrasonic testing may prove useful in identifying the most weakened areas.

Overall, we feel we have well identified the condition of this condenser water piping system. In addition to our above findings, we strongly recommend attention to the general problem of deposits which already exists within this piping system, and which are clearly the underlying cause of the higher pitting and corrosion activity found in certain areas. Without taking active steps to remove and control such deposits, the degree of pitting identified in his report will increase at an accelerated pace, and greatly reduce the service life estimates we have predicted in his report.