EXHIBIT B

Personally appearing before me John H. Parker who after being duly sworn deposes and says that the attached pre-filed testimony is given under oath.

John H Parker
May 12, 1981

Emma E. Olson
Fla. International Univ.

Notary Public, State of Florida
My Commission Expires Dec. 11, 1984
Bonded Thru Troy Fain - Insurance, Inc.

8105290394

Q. Dr. Parker, please state your full name, address and occupation.

A. My name is John H. Parker and my business address is Physical Science Department, Florida International University, Miami, Florida. I am an associate professor of Chemistry and Environmental Science.

Q. Briefly state your educational and experience background.

A. I received a B.S degree in Chemistry from Emory University in 1963 and a Ph.D. in Physical Chemistry from the University of California at Berkeley in 1969. Since 1969, I have done teaching and research in physical chemistry, air pollution and energy conservation at three universities.

Q. Please describe some cost effective ways in which conservation can be used to replace the energy and power supplied by Turkey Point Nuclear Generating Unit Nos. 3 and 4.

A. Florida, and particularly the Florida Power and Light (FPL) service area, is fairly unique in its energy consumption patterns primarily due to a short heating season and a very long cooling season. Also, about 50% of FPL's electrical consumption is by residental customers. For the average FPL residence, about 50% of the total consumption and close to 60% of the summer peak period consumption is due to air conditioning. Consequently, the primary focus of reductions in the power demand and energy consumption should be on techniques which reduce energy used for air conditioning.

A conservation strategy for reducing the energy consumed

in air conditioning a building is energy conservation landscaping. Florida is an optimal area for using landscaping because of climatic conditions which are conducive to very rapid growth of the vegetation. Recent scientific experiments[1,2] have documented that landscaping can be an extremely effective tool in reducing the energy used in air conditioning during hot summer months. It has been shown that a combination of trees and shrubs on the west side of a house can reduce the temperature on the wall behind the shrubs from about 115^{o}F to 85^{o}F during the late afternoon when peak electrical demands occur. This combination of shading and cooling by evapotranspiration can more than double the effective insulating value of the walls and dramatically decrease the heat gain through the windows.

The effect of landscaping on air conditioning has also been documented by an experiment in which the childcare center at Florida International University was landscaped with trees and shrubs. After a two year growth period, it was found that the electrical energy consumed in air conditioning the double-wide mobile home was reduced by about 60% during very warm summer days. Moreover, the peak power demand during very hot afternoon periods was about five kilowatts less than it was without the presence of landscaping.

For this particular experiment, about $1500 was spent for the purchase and installation of the vegetation. This cost could have been much less except that fairly large plant materials were utilized to insure quick results. Nevertheless, this yields a cost for demand reduction of about $300 per kilowatt.

When reserve margins and transmission losses are taken into account, this is equivalent to a power plant cost of $230 per kilowatt.

These quantitative results suggest that a homeowner (or FPL) could spend about $700 landscaping the south and west areas of a house resulting in a reduction in peak demand of about 2 kilowatts. This corresponds to $350 per kilowatt on site or $270 per kilowatt at the power plant. Due to the energy savings associated with the landscaping, the simple payback time for the homeowner would be about 3 years. It should be noted that this calculation does not include the increased value of the property due to the landscaping. If this landscaping technique were promoted and applied to 100,000 houses in Florida, the reduction in utility system requirements would be about 260 megawatts.

For those homes with unshaded air conditioners on the west and south sides (and there are many in Florida) an even more cost effective application of this concept is to plant a single tree so as to shade the air conditioner as well as the adjacent walls and windows during summer afternoons. After a two to three year growth period, the $50 installation cost can be offset by an increase in air conditioner efficiency of <u>at least</u> 5% which corresponds to an average reduction in peak demand of about 0.3 kilowatts. This corresponds to a cost of $150 per kilowatt at the plant. This is a conservative figure since the effect of shading the walls and windows were not included.

Another extremely effective method of reducing the energy consumed in air conditioning a residence is the use of high efficiency air conditioners. Our statistical analysis has revealed that the cost of increasing the efficiency of a one ton room air conditioner from an SEER of 5 to a SEER of 10 is about $270. The simple payback period for this increased cost is about one cooling season. The reduction in demand during summer peak periods due to the doubling of the efficiency is about 0.84 kilowatts. An effective method of implementing this strategy would be state legislation which phases in increasingly higher minimum SEER standards for air conditioners. Alternatively, FPL could give customers a $100 rebate for purchasing air conditioners with SEER's greater than 10. If 300,000 residences received such a rebate, the reduction in system demand could approach 220 megawatts at an FPL costof about $150 per kilowatt.

Although the costs determined for the above two conservation techniques involve an experimental uncertainty of perhaps 20%, it should be remembered that conservation techniques which reduce demand and energy consumption do not require nuclear or fossil fuels after their implementation and do not result in environmental degradation through air or water pollution or toxic waste disposal.

A very effective means of reducing electrical demand during peak periods is the appropriate use of a timer on a hot water heater. For example, Florida Power and Light currently is offering a Time Of Use (TOU) rate to its residential customers which has significantly higher costs for energy

consumption between 12 noon and 9 p.m. If FPL were to install a timer for each TOU customer which shuts off the hot water heater during that period, an average demand reduction of about 0.7 kilowatts would result from an expenditure of about $35 ($25 for the timer, $10 for wiring). This corresponds to a cost for a reduction in peak demand of $50 per kilowatt on site or $38 per kilowatt at the power plant. For every 100,000 TOU customers who received the preset timer, there would be a system demand reduction of 90 megawatts. In addition, the TOU homeowner would save about $6 per month by diverting hot water heating to off peak hours.

I believe the conservation strategies outlined above can be implemented through an agressive residential conservation program and offer a cost effective alternative to the repair of Turkey Point Nuclear Generating Units Nos. 3 and 4.

[1] J.H. Parker, "Precision Landscaping for Energy Conservation." Proceedings of the 1979 National Conderence on Technology for Energy Conservation, Tucson, Arizona.

[2] D.E. Parker and J.H. Parker, "Energy Conservation Landscaping as a Passive Solar System." Proceedings of the Fourth National Passive Solar Conference, Kansas City, Missouri, Oct. 3-5, 1979.

VITA

JOHN HILLIARD PARKER

Personal

Birthdate: September 30, 1941
Marital Status: Married
Children: Two daughters
Current Address: Department of Physical Sciences
Florida International University
Tamiami Trail, Miami, Florida 33199
305/552-2605

Education

Ph.D., Physical Chemistry, University of California, Berkeley, 1969
(thesis supervisor, Professor George C. Pimentel)
B.S., Chemistry, Emory University, 1963

Honors and Professional Societies

Phi Beta Kappa, 1962
Pi Alpha Honorary Chemical Society, 1961-63
National Science Foundation Summer Research Award, 1961
Achievement Award (Highest grade in Freshman Chemistry, 1960)
Martin Marietta Corporation Tuition Scholarship, 1959-1963
Emory University Scholarship, 1959-63
Education and World Affairs Faculty Award, 1969-1971
American Chemical Society, 1970-present
Outstanding Educators of America, 1975
American Men and Women of Science, 1976

Professional Experience

Current Positions

Associate Professor of Environmental Science and Chemistry, Florida International University, 1973-present
Assistant Director, FAU-FIU Joint Center for Environmental and Urban Problems, 1976-~~present~~ 1980

Previous Positions

Associate Dean, College of Arts and Sciences, Florida International University, 1975, 1976
Research Chemist, Environmental Protection Agency, National Environmental Research Center, Research Triangle Park, Summer 1974
Assistant Professor, Florida International University, 1972-1973
Assistant Professor, Kansas State University, 1971-72
Assistant Professor, University College of Cape Coast, Ghana, 1969-1971
Acting Instructor, Univeristy of California, Berkeley, 1966-1967
Research Assistant, University of California, Berkeley, 1965-1969
Teaching Assistant, University of California, Berkeley, 1964-1966
Research Engineer, Martin Marietta Corporation, Orlando, 1963-1964

Teaching Experience

Environmental Science and Environmental Chemistry
Introductory Chemistry and Physical Chemistry
Atmospheric Chemistry
Kinetics, Spectroscopy, and Quantum Mechanics

Research Interests

Reaction Kinetics of Photochemical Smog
Analysis of Indoor Air Pollutants
Energy Conservation
Chemical Lasers
Gas-phase Reaction Kinetics
Emission Spectroscopy
Beverage Container Legislation

Community Activities

Florida Regional Energy Action Committee
(advisory to the Energy Office of the State of Florida)
Southeast Florida Air Quality Council
(technical advisory committee)
Dade County Bikeways Advisory Committee
Dade County Committee for Sane Growth
Sierra Club
Audubon Society
University Representative--National Universities Water Resources Council
Participant--series of workshops on "Public Involvement in Growth Management"
Environmental Advisory Committee--FPL Turkey Point Power Plants No. 3 and No. 4

Professional References

Professor George C. Pimentel, Department of Chemistry, University of California, Berkeley; Berkeley, California
Professor William D. Gwinn, Department of Chemistry, University of California, Berkeley; Berkeley, California
Professor R. A. Day, Department of chemistry, Emory University Atlanta, Georgia
Dean Adrian H. Daane, College of Arts and Sciences, University of Missouri, Rolla, Missouri