UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

2/20/82

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DETROIT EDISON COMPANY	)	Docket No. 50-341
	)	
(Enrico Fermi Atomic Power Plant, Unit 2)	)	

TESTIMONY OF THOMAS URBANIK, II CONCERNING TIME ESTIMATE STUDY FOR EVACUATION OF THE STONY POINTE RESIDENTIAL AREA

Q.1. Please state your name and association with the NRC.

A. My name is Thomas Urbanik, II. I am a consultant on time estimates for evacuation routes for the NRC in its review of applicants' Emergency Plans. A copy of my professional qualifications is attached.

Q.2. What is the purpose of your testimony?

A. The purpose of my testimony is to provide the time estimates I have developed for evacuation of the Stony Pointe, Michigan Area in partial response to Contention 8 which reads as follows:

> CEE is concerned over whether there is a feasible escape route for the residents of the Stony Pointe Area which is adjacent to the Fermi-2 site. The only road leading to and from the area, Pointe Aux Peaux Road, lies very close to the reactor site. In case of an accident, the residents would have to travel towards the accident before they could move away from it.

Q.3. Have you personally investigated Pointe Aux Peaux Road and the Stony Pointe residential area?

A. Yes.

Q.4. What time estimates have you developed?

A. The residents of the Stony Pointe Area could leave the immediate area within 1½ to 2½ hours of being ready to evacuate, depending on weather conditions and traffic from the plant.

Q.5. Explain how you developed these estimates.

A. U.S. Geological survey data based on 1973 aerial photography was used to estimate the number of dwelling units that would have to use Pointe Aux Peaux Road during an evacuation. The number of dwelling units identified and used for this analysis was 750. According to Detroit Edison data, the actual number of dwelling units is currently less than the number existing in 1973. It was assumed that 1.5 vehicles would be used from each household to account for beach visitors and families using more than one vehicle.

For this analysis the critical point is the intersection of Pointe Aux Peaux Road and Dixie Highway. Two possible scenarios were examined. The first scenario assumed that the 1000 evacuees from the power plant (this is the estimated number of workers and other personnel that would leave during a refueling) would evacuate to the north. The second scenario assumes that the 1000 vehicles from the power plant have to evacuate to the south.

Under the first scenario with no conflicting traffic on Dixie Highway and stop control on Pointe Aux Peaux Road, the capacity for traffic turning left from Pointe Aux Peaux Road onto Dixie Highway would be approximately 900 vehicles per hour. The 1150 evacuating vehicles from Stony Pointe could be accommodated in 1¼ hours.

The more difficult situation occurs when the 1000 vehicles from the power plant would be required to evacuate to the south. Under this scenario, traffic control would be required at the intersection of Pointe Aux Peaux Road and Dixie Highway. Without traffic control, the capacity on Pointe Aux Peaux Road would be about 100 vehicles per hour during the first hour when the 1000 vehicles were evacuating from the plant on the North Dixie Highway with capacity increasing afterwards. Without traffic control, the time required for evacuation would be a little over 2 hours. With traffic control, the time required could be reduced to about 1¼ hours.

The time estimate for adverse weather, including rain or light snow, would increase about 20 percent to a little more than 2½ hours with no traffic control and plant traffic evacuating to the south. Severe weather (heavy snow) would increase times by the amount of time required to clear the roads. Table 1 is a summary of the evacuation time estimates for the various scenarios examined.

Table 1. Evacuation Time Estimates for Stony Pointe (Hours)

Scenario	Normal Weather	Adverse Weather
Stony Pointe Only; No Traffic Control.	1½	1½
Stony Pointe and Plant Traffic; No Traffic Control.	2½	2½
Stony Pointe Only; with Traffic Control.	1	1
Stony Pointe and Plant Traffic with Traffic Control.	1½	1 3/4

Note: Adverse weather is rain or light snow

Q.6. What is your conclusion regarding the use of Pointe Aux Peaux Road for evacuation of Stony Pointe residents?

A. The evacuation of Stony Pointe does not appear to cause any unusual or unmanageable traffic problems. Traffic control would be desirable under certain conditions at the intersection of Dixie Highway and Pointe Aux Peaux Road.

BIOGRAPHICAL DATA

URBANIK II, Thomas

May 1981

Assistant Research Engineer, Texas Transportation Institute

Address/Phone: Transport Operation Program (713) 845-1535
Texas Transportation Institute
Texas A&M University
College Station, Texas 77843

EDUCATION

Ph.D. Candidate in Civil Engineering (Transportation), Texas A&M University
M.S., Civil Engineering (Transportation), Purdue University, 1971
B.S., Civil Engineering, Syracuse University, 1969
B.S., Forest Engineering, State University of New York, 1968

EXPERIENCE

Assistant Research Engineer, Texas Transportation Institute, Texas A&M University, 1977 to Present.
Traffic Engineer, City of Ann Arbor, Ann Arbor, Michigan, 1972-1976.
Transportation Planning Engineer, City of Ann Arbor, Ann Arbor, Michigan 1971-1972.
Research Assistant, Joint Highway Research Project, Purdue University, 1970-1971.

PROFESSIONAL LICENSE

Registered Professional Engineer, Texas and Michigan

MEMBERSHIPS

Institute of Transportation Engineers
Transportation Research Board
Sigma Xi
Chi Epsilon

SIGNIFICANT REPORTS AND PUBLICATIONS

Evacuation Planning

Urbanik, T., et.al., Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones. U.S. Nuclear Regulatory Commission, NUREG/CR-1745, November 1980.

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