

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

In the Matter of)
)
CAROLINA POWER AND LIGHT COMPANY AND)
NORTH CAROLINA EASTERN MUNICIPAL)
POWER AGENCY)
)
(Shearon Harris Nuclear Power Plant,)
Units 1 and 2))

Docket No. ⁸⁴ 50-401 OL 4:06
50-401 OL

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

RESPONSE TO INTERROGATORIES DATED JUNE 29, 1984
PROPOUNDED BY WELLS EDDLEMAN CONCERNING EDDLEMEN 215 AND 224

The following responses are presented on behalf of the NRC staff for which I serve as a subcontractor through the Battelle Pacific Northwest Laboratories. Battelle is responsible under contract to the Nuclear Regulatory Commission for reviewing evacuation time estimates.

GENERAL INTERROGATORIES

My name is Thomas Urbanik, II. I am an Associate Research Engineer associated with the Texas Transportation Institute of the Texas A&M University System, College Station, Texas. I serve as a subcontractor through the Battelle Pacific Northwest Laboratories. Battelle is responsible under contract to the Nuclear Regulatory Commission for reviewing evacuation time estimates for nuclear facilities. A statement of my professional qualifications is attached.

I have reviewed the October 1983 Evacuation Time Estimate Study entitled "Evacuation Time Estimates for the Plume Exposure Pathway Emergency Planning Zone, Shearon Harris Nuclear Power Plant", prepared by HMM Associates of Raleigh, North Carolina. A copy of my review is attached. The documents

assisting in my review include NUREG-0654, the Highway Capacity Manual, and the Interim Materials on Highway Capacity. The last two cited documents are available from the Transportation Research Board, National Academy of Sciences, Washington, D.C.

SPECIFIC INTERROGATORIES

In regards to Interrogatory 224-1, I have conducted no independent analysis of meteorological data and I do not have any data outside that presented in the October 1983 Evacuation Time Estimate Study.

In regards to Interrogatory 224-2, sensitivity analyses, none were performed at Shearon Harris beyond those contained in the October 1983 Evacuation Time Estimate Study.

In regards to Interrogatory 215-1, 215-2 and 215-3, no data or analyses of transient populations or their characteristics were done beyond those emanating from the October 1983 Evacuation Time Estimate Study; and none are planned.

In regards to Interrogatory 215-4 and 215-5, no such studies have been made.

In regards to Interrogatory 215-6, the Highway Statistics Division, Federal Highway Administration, U.S. Department of Transportation has published findings from the 1977 National Personal Transportation Study which contains data concerning vehicle occupancy (see for example Report 6, Vehicle Occupancy). However, no special analyses beyond those contained in the October 1983 Evacuation Time Estimate Study were made.

In regard to Interrogatories 215-7 to 215-9, I know of no analyses beyond those previously stated.

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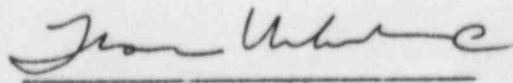
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AFFIDAVIT OF THOMAS URBANIK II

I, Thomas Urbanik II, hereby affirm as follows, subject to the penalty of perjury, that the answers are true and correct to my best knowledge and belief.

1. I am an Associate Research Engineer associated with the Texas Transportation Institute of the Texas A&M University System, College Station, Texas.
2. I hereby certify the answers given to Eddleman 215 and 224 are true to the best of my knowledge.



Thomas Urbanik II

February 1984

BIOGRAPHICAL DATA

URBANIK II, THOMAS

Program Manager, Texas Transportation Institute
Lecturer, Civil Engineering Department, Texas A&M University

Education

Ph.D., Civil Engineering, Texas A&M University, 1982.
M.S., Civil Engineering, Purdue University, 1971.
B.S., Civil Engineering, Syracuse University, 1969.
B.S., Forest Engineering, State University of New York, 1968.

Experience

Program Manager, Texas Transportation Institute, Texas A&M University System, 1983-Present.
Assistant Research Engineer, Texas Transportation Institute, Texas A&M University System, 1977-1983.
Lecturer, Civil Engineering, Texas A&M University, 1982-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 Licenses

Registered Professional Engineer, Texas and Michigan

Memberships

American Society of Civil Engineers
Institute of Transportation Engineers
Sigma Xi
Chi Epsilon

SIGNIFICANT REPORTS AND PUBLICATIONS

Traffic Engineering

Speed/Volume Relationships on Texas Highways, State Department of Highways and Public Transportation, Research Report 327-2F, Austin, Texas, October 1983.
Priority Treatment of Buses at Traffic Signals. Transportation Engineering, November 1977.
Priority Treatment of High-Occupancy Vehicles on Arterial Streets. State Department of Highways and Public Transportation, Report 205-5, 1977.
Evaluation of Alternative Concepts for Priority Use of Urban Freeways in Texas, 1977.
Driver Information Systems for Highway-Railway Grade Crossings. Highway Research Record Number 414, 1972.

Evacuation Planning

- An Independent Assessment of Evacuation Times For a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station, U.S. Nuclear Regulatory Commission, NUREG/CR-2903, 1982.
- CLEAR (Calculates Logical Evacuation And Response). A Generic Transportation Net-work Model for the Calculation of Evacuation Times Estimates, U.S. Nuclear Regulatory Commission, NUREG/CR-2504 October 1981.
- Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones, U.S. Nuclear Regulatory Commission, NUREG/CR-1745, 1980.
- Analysis of Evacuation Times Around 52 Nuclear Power Plant Sites. U.S. Nuclear Regulatory Commission, NUREG/CR-1856 Volume 1, 1980.
- Hurricane Evacuation Demand and Capacity Estimation. Florida Sea Grant College, Report Number 33, 1980.
- Texas Hurricane Evacuation Study. The Texas Coastal and Marine Council, 1978.

Public Transportation

- Analysis of Rural Public Transportation in Texas. State Department of Highways and Public Transportation, Technical Report 1069-1F, August 1982.
- Intercity Bus Riders in Texas, Transportation Research Record 887, 1982.
- The Intercity Bus Industry in the U.S. and Texas. State Department of Highways and Public Transportation, Technical Report 0965-1F, 1981.
- Bryan-College Station Energy Contingency Study. Metropolitan Planning Organization of Bryan-College Station, 1980.
- Bryan-College Station Transit Improvement Plan. Metropolitan Planning Organization, 1979.
- Ann Arbor Dial-A-Ride Project Final Report, Ann Arbor Transportation Authority, 1973.
- Ann Arbor Dial-A-Ride Operations, Highway Research Board Special Report 136, 1973.
- The Greater Lafayette Area Bus Transit Study. Joint Highway Research Project, Purdue University, 1971.

Elderly and Handicapped Transportation

- Evaluation of Selected Human Services Transportation Providers. State Department of Highways and Public Transportation, 1980.
- Cost-Effectiveness of Accessible Fixed-Route Buses in Texas. Technical Report 1061-1F, 1979.
- Transportation of the Elderly and Handicapped in Texas: A Case Study. State Department of Highways and Public Transportation, Technical Report 1056-2F, 1979.

Total Accessibility Versus Equivalent Mobility of the Handicapped. Institute of Transportation Engineers, Compendium of Technical Papers, 49th Annual Meeting, 1979.

Survey of Vehicles and Equipment for Elderly and Handicapped Transportation. State Department of Highways and Public Transportation, Technical Report 1056-1, 1978.

Corpus Christi Elderly and Handicapped Transportation Study. City of Corpus Christi, Texas, 1978.

Expert Witness

Presented expert testimony before the Atomic Safety and Licensing Board, U.S. Nuclear Regulatory Commission, concerning evacuation times at several nuclear power plant sites including Three-Mile Island, Diablo Canyon, Indian Point, Seabrook and Shoreham.

EVALUATION OF EVACUATION TIME ESTIMATE

Shearon Harris

Item	Adequate	Deficient	Poor	None
I. General				
A. Maps	<u>X</u>	---	---	---
B. Report Format	<u>X</u>	---	---	---
II. Demand Estimation				
A. Permanent Residents	<u>X</u>	---	---	---
B. Transient Populations	<u>X</u>	---	---	---
C. Special Facility Population	<u>X</u>	---	---	---
D. EPZ Sub-areas	<u>X</u>	---	---	---
III. Traffic Capacity				
A. Evacuation Roadway Network	<u>X</u>	---	---	---
B. Roadway Characteristics	<u>X</u>	---	---	---
C. Adverse Weather Considered	<u>X</u>	---	---	---
IV. Analysis				
A. Assumptions	<u>X</u>	---	---	---
B. Methodology	<u>X</u>	---	---	---
C. Carless	<u>X</u>	---	---	---
V. Other Requirements				
A. Confirmation Time	<u>X</u>	---	---	---
B. State and Local Review	<u>X</u>	---	---	---
VI. Overall				
	<u>X</u>	---	---	---

Date of Report: October 1, 1983

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF RESPONSE TO INTERROGATORIES PROPOUNDED BY WELLS EDDLEMAN ON JUNE 29, 1984 ON CONTENTIONS 215 AND 224" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system (*), this 29th day of August, 1984.

James L. Kelley, Chairman*
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Washington, DC 20555

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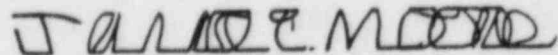
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Atomic Safety and Licensing Board
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Washington, DC 20555

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Minneapolis, MN 55455



Janice E. Moore
Counsel for NRC Staff