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Kenneth G. Sexton
Rt. 2 Box 75
Morrisville, NC 27560
August 4, 1986

Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

PETITION RULE PRM 50-45
(51 FR 35518)

Attention: Chief, Docketing and Service Branch.

Dear Sir,

This is a petition to amend the regulation 10 CFR 50.47(c) (2) which specifies the size of the plume exposure pathway EPZ for nuclear power plants. The regulation follows:

"Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The size of the EPZs also may be determined on a case-by-case basis for gas-cooled nuclear reactors and for reactors with an authorized power level less than 250 MW thermal. The plans for the ingestion pathway shall focus on such actions as are appropriate to protect the food ingestion pathway."

My grounds for, and interest in, the action requested are stated in section II.

The third section of this petition is a statement in support of the petition which shall set forth the specific issues involved; my views and arguments with respect to these issues; relevant technical, scientific and other data involved; and such other pertinent information necessary to support the action sought.

I submit the following text as a suggestion for a solution to the problem and for the amended regulation:

"The plume exposure pathway EPZ for all nuclear power plants shall consist of an area to be determined by the NRC on a site-specific basis, after allowing for review of the determination report by any interested parties. The report shall list, describe, and reference all input data and

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methodologies used and all other factors considered. The NRC shall use methodologies and procedures which are generally accepted as reasonably current and appropriate by recognized professional groups in each supporting field (including the American Meteorology Society (AMS) and Environmental Protection Agency (EPA)). Likewise, best available estimates for model input (such as source terms) shall be used. This distance shall be reevaluated at least every five years, using latest techniques and information, unless petitioned earlier by the NRC, another professional group (such as the EPA or AMS), or the general public. Generally, the models shall be at least as complex and realistic as described in NUREG-0654 for Class B models. Meteorological submodels shall consider all factors which can have an effect on the impact of the release of radioactive materials to the environment. The exact size and configuration of the EPZ surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as power plant specifics (type, power output, age, etc.), local meteorology (including data from both the power plant site and local national weather service), demography, topography, land characteristics, access routes, jurisdictional boundaries, and proximity of seats of local government."

Section II

I am an atmospheric chemist and modeler. I am aware of the limitations of the techniques used for the modeling done for the 1978 report (NUREG-0396), and of the advances that have occured and the new information obtained in the last 10 years. Techniques and data now exist to do better than a generic calculation-and-estimate for a reasonable size of the EPZ. I am aware that this is an active field of research, and better estimates of the EPZ can and will be possible as research continues. I believe that there is overwhelming justification to ask that the size of the EPZ be reevaluated using more current methodologies and information.

I also own 8 acres of land within the 10-mile EPZ of the Shearon Harris Nuclear Power Plant, which is located 15 miles southwest of Raleigh, North Carolina. My wife and I plan to build a house and establish our permanent residence there next year. I am concerned that emergency planning is not adequate based as it is on the current 10-mile EPZ which was determined with methodologies and input data now considered not-the-best. I am concerned that emergency planning is not adequate for areas both within and beyond the 10-mile distance, especially since the emergency actions for areas beyond will be determined and carried out "ad hoc" (NUREG-0396).

I think that the people of this area are at even greater risk because of the nearness of the power plant to Raleigh, the state capital. There are special situations in which particularly important areas are just a few miles beyond the 10-mile EPZ, suggesting that the size of the EPZ should be increased to include these critical areas.

Section III

Comment on
Outdated Federal Guidance for
Size of the Emergency Planning Zone

Kenneth G. Sexton, Ph.D.
Research Associate
Dept. Environmental Sciences and Engineering
School of Public Health
University of North Carolina
July 8, 1986

Q. "IS A 10-MILE EVACUATION AREA ADEQUATE?"

A. NO ONE REALLY KNOWS.

Why not? There are many uncertainties in predictions of nuclear-power-plant-accident consequences. These result from uncertainties in the prediction techniques and in input data. The NRC is currently attempting to resolve major uncertainties for risk assessment. Generic rather than site-specific calculations were performed (using some outdated techniques and over-simplifying assumptions) to help determine the distance. The 10-mile evacuation plan is supposedly adequate to use as a base for evacuating additional areas outside the 10 miles as needed on a "ad hoc" basis when an accident does occur. No one knows if it will work until an accident happens because there are no required formal, predetermined, evacuation plans in place outside the 10-mile area to evaluate. **No one claims that deaths and injuries will not occur outside the 10-mile EPZ in the case of a more severe accident.**

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There are several important points that should be made very clear to all officials concerned about protecting the safety and health of the people in the counties surrounding any nuclear power plant. These facts come from reports and regulations from the Nuclear Regulatory Commission and the North Carolina Emergency Response Plan (NCERP). The immediate concern is with the Shearon Harris Nuclear Power Plant (SHNPP). However, **the following discussion applies to any nuclear power plant of comparable size because the 10-mile EPZ is a generic distance which applies to all U.S. nuclear plants of comparable size.**

The 10-mile emergency planning zone (or EPZ) is based on findings of a joint NRC-Environmental Protection Agency (EPA) Task Force which were published in 1978 (NUREG-0396). They concluded that the 10-mile EPZ was more than adequate to protect the public. However, it is also made clear that:

1) Although most early fatalities and injuries will occur inside the 10-mile EPZ, the NRC (NUREG-0396, pg 17; NUREG/CR-2239, pp 1-3 to 1-6) and the NC Emergency Response Plan (NCERP, Part 1, pg 1) acknowledge that **some of the early severe health effects (injuries or deaths) which would result from the more severe accidents will occur beyond the 10-mile EPZ.**

> "In addition, the EPZ is of sufficient size to provide for **substantial reduction** in early severe health effects (injuries or deaths) in the event of the more severe Class 9 accidents." (NUREG-0396, p 17)

2) **The size of the EPZ and the emergency plan are not restricted to, nor designed specifically for protecting only the people in, the 10-mile EPZ.** They are designed for the protection of **all areas and all people** that could be affected by an accident. **The NRC assumes that any emergency plan deemed adequate for a 10-mile radius is sufficiently detailed to be adequate to cover emergency needs in areas beyond the 10-mile EPZ** (NUREG-0396, pp 15-16). The NRC, CP&L, and NCERP acknowledge that emergency response outside the 10-mile EPZ may be needed. "The size of the EPZ represents a judgment on the extent of detailed planning needed to assure an adequate response base" (NCERP, Part 1, pg 1). The concept in the NCERP and NRC guidance is to **use the EPZ planning as a "base for expansion of response efforts if necessary"** (NCERP, Part 1, pg 1) and to respond on an "ad hoc" basis (NRC, NUREG-0396, pg 16).

3) The size of the 10-mile EPZ is "tempered" by probability (NUREG-0396, pg 15). **Some amount of risk was determined by the NRC to be acceptable.** Their decision was affected by low-probability estimates of the occurence and nature of severe accidents (NUREG-75/014). More recent NRC reports indicate that many of these earlier accident estimates may be too low (NUREG/CR-0400 cited in NUREG/CR-4199, pp 1; and NUREG/CR-4199, pp 8-9). There is much uncertainty in risk and probability estimates, as well as disagreement among experts on this matter (as indicated in different

NRC reports). The inclusion of a greater accident probability could result in the establishment of a larger EPZ upon reevaluation. Also, it should not be implied that the term "low-probability accident" indicates that a long time will pass before such an event occurs. **It is therefore reasonable to expect that consideration of emergency plans be "tempered" by these uncertainties. Local officials should plan accordingly, especially when highly-populated areas are very near but beyond the presently-accepted 10-mile EPZ.**

4) The latest NRC regulations published January 1, 1986 cite only this 1978 Task Force report as a basis for determining the EPZ (10 CFR 50.47 and its Appendix E). **No report is cited which discusses or suggests a smaller EPZ for nuclear plants the size of the SHNPP.** Simple techniques and information now known to be inappropriate, or at least not the best, were used for generic calculations used in determining the 10-mile EPZ. Furthermore, seemingly inconsistent NRC regulations do require "state-of-the-art" (current) computations be performed **after an accident using site-specific information (eg. information specific to SHNPP)** (NUREG-0654, Appendix 2, pp 2-2 and 2-3). "State-of-the-art" models (NRC-sponsored) have been used in recent years to estimate radiation doses to the public under a variety of accident and normal operation conditions, but evidently **have not been used for reevaluation of the EPZ** (NUREG/CR-2239, NUREG/CR-4199, NUREG/CR-3344, NUREG/CR-4000). Uncertainty is a major problem in accident predictions (NUREG/CR-2239, pp 2-7 to 2-10). There is, in fact, an on-going program for reevaluation of nuclear accident risk at the NRC, but **work to date has been "greeted with skepticism...** There is a disagreement over the credibility of some computer modeling codes that are the basis for all the predictions that will come out of NUREG-0956" (Science, April 1986, pp 153-154, attached). Therefore, there is justification in requesting the NRC to review and update the 1978 Task Force Report, and consequently the justification for the size of the EPZ. **Current thinking would suggest that the NRC should require the SHNPP and all other plants to reevaluate the 10-mile EPZ using on-site and national weather service weather data specific to the area.**

Local officals are responsible for deciding if this type and size of emergency planning is acceptable and adequate. There should be demonstrable assurance of ad hoc capability being adequate. For example and specifically related to the SHNPP, consideration should be given to the effect on local emergency response efforts if it were determined that Raleigh (and the state government) needed to be evacuated. Local officials must decide if they accept the very low NRC accident-risk and probability estimates which were determined before the Three Mile Island accident -- a serious accident which occurred despite its "low probability" of occurence.

Those responsible for assuring the health and safety of the public should be aware that current techniques have not been used in establishing the EPZ and that there are serious questions in regard to some of the assumptions under which it was established. The obvious implication is that these calculations and the resulting 10-mile recommendation are therefore suspect and uncertain for purposes of protecting public health.

ADDITIONAL DISCUSSION

The 10-mile Emergency Planning Zone (EPZ) is recommended by the Nuclear Regulatory Commission (NRC) as follows:

> "Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius, and the ingestion pathway EPZ shall consist of an area about 50 miles (80km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries." (10 CFR Part 50.47 "Emergency Plans")

This regulation recognizes that approximately a 10-mile radius is appropriate, but also implies that alternate sizes and configurations may be very significantly more appropriate. Although the regulation requires consideration be given to several area-specific factors, no mention is made of local meteorology. This is in contradiction to regulations for siting and post-accident calculations (10 CFR 100.10 and 10 CFR 50.47, respectively), and the findings of more recent accident-consequence estimates (NUREG/CR-2239, p 1-3), all of which consider local meteorology. Local officials must carefully determine local emergency response needs and the adequacy of emergency capabilities in approving a plan specific to a given nuclear power plant.

The 10-mile EPZ is based on the report of a joint NRC-Environmental Protection Agency (EPA) Task Force which was published in 1978. The report's principal meteorological references are dated **1968** and **1970** (USAEC, 1968; Turner, 1970). The report concluded that the 10-mile EPZ was more than adequate to protect the public. However, they used 1) meteorological techniques that are **now outdated**, and 2) nuclear-reactor-accident estimates developed **before** the Three Mile Island accident experience and **before** subsequent additional experiences with nuclear reactor problems. These early calculations and EPZ estimates depend on the estimates of the amount of radioactivity that would be released during accidents and the probabilities of different types of accidents occurring. **Assumptions were made which now may be incorrect or inappropriate**. Very simple assumptions were made concerning the behavior of the radiation plume that might be released in an accident. The atmosphere and its weather systems are very complex, and **a wide range of plume behavior is possible**. "**The weather conditions at the time of a large release will have a substantial impact on the health effects caused by that release**" (NUREG/CR-2239, pg 1-3). Given a plume released during an accident that would result in injury within the 10-mile EPZ, there are meteorological conditions which could result in significant exposure at distances beyond the 10-mile EPZ and even hundreds of miles "downwind". The plume can meander rather than travel in a straight line, making predictions of exposure difficult and allowing for multiple exposures to the population. Also, **important considerations such as the effect of rain were mentioned but not included in calculations used in the final distance determination** in the 1978 report (NUREG-0396, pp I-25 and I-26). **The importance of the effects of rain on downwind radiation doses to the public are now documented by the NRC** (NUREG/CR-2239; NUREG/CR-1244). **Significantly-larger doses to the public can occur further downwind if the radiation release is "washed-out" of the air by rain** (rain can clean the air of radioactive particulate as it falls, creating "hot spots" on the ground). On the official average, North Carolina receives rain on one of every three days. As another example, it was assumed in the report that the major dose exposure would occur within **2 hours** after the accident. This assumption is debatable and has several implications. The evacuation time estimate for the NC Emergency Management Plan for the SHNPP is almost **4 hours**. Sheltering in place until the released radiation passes **may** be the best strategy under some adverse conditions, but some meteorological conditions could result in **long and uncertain sheltering times (waiting)** while some lower-level exposure continues. Therefore, careful dose estimates and monitoring, accurate evacuation-time estimates, and **good management by emergency personel** are needed to minimize personal injury not only within the

10-mile EPZ but also at distances beyond the 10-mile EPZ. **Unfortunately, beyond 10 miles these types of decisions and management will be performed ad hoc after an accident occurs.** With a mean wind speed of approximately 7.5 mph in this area, there will not be much time (1-2 hours) before there could be a problem beyond 10 miles. It is prudent to be able to respond to problems beyond this distance for this reason, if for no other.

All nuclear units operating in this country are subject to the same type of plan. The calculations used for determining the 10-mile EPZ were performed for hypothetical accidents and meteorological systems. **The generic 10-mile-distance calculations obviously do not use meteorological parameters or other factors specific for the Shearon Harris site and power plant.** There are now better methods for modeling a specific site which result in more appropriate calculations. The NRC now uses more up-to-date (more correct) techniques and computer models to estimate site-specific radiation releases and doses to the public. Several of these models were developed by the NRC itself but evidently **have not been used for reevaluation of the 10-mile EPZ.** Even with these improved techniques, it is recognized and documented by the NRC that the **reliability of the risk and dose estimates is still limited by the uncertainty of the amounts of radiation that will be released during accidents** (NUREG/CR-4199, p 8). These uncertainties are further increased by the uncertainties of the meteorological estimates (NUREG/CR-4199, p 9; NUREG/CR-2239, p 1-3).

The obvious implication is that these calculations and the resulting 10-mile recommendation are therefore suspect and uncertain for purposes of protecting public health. Reevaluation with more current methodologies and recent experience could result in a larger EPZ distance which would require modification of the emergency plan and required participation outside a 10-mile radius before licensing of a plant. Part of demonstrating that an emergency plan is adequate is to show that the size of the area affected by the plan is appropriate. The problems and limitations of the older methodologies are now well documented. Those responsible for assuring the health and safety of the public should be aware that current techniques have not been used in establishing the EPZ and that there are serious questions in regard to some of the assumptions under which it was established. Consequently, the emergency plan may not be adequate to protect the health of the public in general. This is especially serious in the case of the SHNPP because heavily-populated areas including the state government systems exist so close to the presently-accepted 10 mile EPZ.

Additional references which document the widely accepted criticisms of the older and simpler assumptions, dispersion parameters, and methodologies are included in the following pages. These criticisms are found in 1) reports from the NRC, EPA, AMS (American Meteorology Society), a joint AMS-EPA workshop, and a Department of Energy (DOE) -sponsored DOE-AMS workshop; and 2) a statement from Herschel Slater, formerly of the Monitoring and Data Analysis Division, Office of Air Quality Planning and Standards, EPA, a meteorologist who co-authored the guidance document for EPA Air Quality Models in 1978 (**This statement is attached**).

Statement by the author:

I am a research associate in the Department of Environmental Sciences and Engineering at the School of Public Health, University of North Carolina, Chapel Hill, where I received my Ph.D. My research field is atmospheric chemistry and computer modeling of photochemical smog. This report represents an independent study not done in connection with my work at UNC.

My personal interest in the emergency plan for the Shearon Harris Nuclear Power Plant (SHNPP) is in regard to the techniques used to establish the size of the emergency planning zone. My reason for preparing this report is a sincere concern that the present plan and zone may be less than adequate to protect the general public in the event of an accident at the SHNPP. I am neither an anti-nuclear activist nor a member of the Coalition for Alternatives to Shearon Harris Steering Committee.

Kenneth G. Sexton, Ph.D

References Cited In This Summary

NUREG-0396; EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," December 1978.

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NUREG-75/014, "Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants, WASH-1400, U.S. Nuclear Regulatory Commission, 1975.

NUREG/CR-0400, "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission," NRC, 1978.

NUREG/CR-4199, "A Demonstration Uncertainty/ Sensitivity Analysis Using the Health and Economic Consequence Model CRAC2," May 1985.

Title 10 CFR, Chapter 1, Nuclear Regulatory Commision, Part 50.47, "Emergency Plans", 1-1-86.

Title 10 CFR, Chapter 1, Nuclear Regulatory Commision, Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities", 1-1-86.

NUREG-0654/REV-1, Appendix 2, including ANNEX I, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

NUREG/CR-3344

NUREG/CR-4000

Science, April 1986, Vol. 232, pp 153-154, "Nuclear Meltdown: A Calculated (and Recalculated) Risk".

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Turner, D. Bruce, Workbook of Atmospheric Dispersion Estimates. Ap-26. USEPA Office of Air Programs, Research Triangle Park, NC 27711. 1970 Revision.

NUREG/CR-1244, "Impact of Rainstorm and Runoff Modeling on Predicted Consequences of Atmospheric Releases From Nuclear Reactor Accidents, U.S. Nuclear Regulatory Commission, February 1980.

"Guideline on Air Quality Models", J. Tikvart and H. Slater, EPA-450/2-78-027, OAQPS No. 1.2-080, Research Triangle Park, NC, April 1978.

Some Additional References Referred To In Last Paragraph

EPA/600/S3-85/072, "Research on Diffusion in Atmospheric Boundary Layers: A Position Paper on Status and Needs," Project Summary, G. A. Briggs and F. S. Binkowski, December 1985.

EPA/600/S3-85/056, "Atmospheric Diffusion Modeling Based on Boundary Layer Parameterization," Project Summary, J.S. Irwin, S.E. Gryning, A.A.M. Holtstag, and B. Sivertsen, December 1985.

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Weil, J. C., "Updating Applied Diffusion Models*", J. of Climate and Applied Meteorology, Vol. 24, No. 11, pp 1111-1130, November 1985. *June 1985-- This paper is an overview of the review and recommendations arising from the AMS/EPA Workshop on Updating Applied Diffusion Models held in Clearwater, Florida, January 24-27, 1984.

"Proceedings of the DOE/AMS Air Pollution Model Evaluation Workshop", Kiawah, South Carolina October 23-26, 1984, Volume 3, Summary, Conclusions, and Recommendations, DP-1701-3, Robert J. Kurzeja, and Allen H. Weber, Approved by A.L. Boni, Research Manager, Environmental Technology Division, Sponsored by the Office of Health and Environmental Research, U.S. Department of Energy, Publication Date: December 1985, E.I. du Pond de Nemours & Co., Savannah River Laboratory, Aiken, SC, 29808, Prepared for the U.S. Dept. of Energy under contract DE-AC09-76SR00001.

Statement Concerning the Procedures for Selecting the Size and Configuration of an Emergency Planning Zone (EPZ)

Herschel H. Slater, Consultant
Air Pollution and Meteorology
Chapel Hill,NC 27514
June 28, 1986

(I am a meteorologist, specializing in air pollution matters with experience and training that spans four decades. My experience includes service with the US Weather Bureau; US Air Force, as a career officer; Environmental Protection Agency; Adjunct Associate Professor, School of Public Health, UNC-CH; and Logistics Manager for Project GALE for NCSU and the Natonal Center for Atmospheric Sciences.)

Abstract

I am concerned about the size and configuration of the emergency planning zone (EPZ) as it applies to the Shearon Harris Nuclear Power Plant. CPL and the State of North Carolina apparently have accepted the Nuclear Regulatory Commission's suggested plume exposure pathway EPZ. NRC suggests an essentially circular area having a radius of about 10 miles.

Fortunately, meteorological data and analytical techniques have been developed over the past decade that enable more definitive configurations of EPZ's. CPL has the data and the competence to apply more sophisticated methodologies to this problem than the generic approaches suggested in NRC-promulgated regulations. CPL should be required to re-evaluate the proposed boundaries of the EPZ. I expect the result would be a more realistic and effective emergency response plan.

Discussion

Since the NRC regulations that pertain to the size of an EPZ were issued, most nuclear power facilities collect meteorological data on site. Not only are the date site-specific, but they are designed to be applied directly to the problem of estimating the transport and dispersion of a cloud or plume of radioactive material.

Until such weather data began to be collected by commercial nuclear facilities, the weather data used to assist in choosing the boundaries of an EPZ usually came from the nearest official National Weather Service station. In the case of SHNPP, this is the station at the Raleigh-Durham Airport.

Data collected at RDU is of highest quality. The equipment is well-designed, excellently maintained and the observers are well-trained and dedicated civil servants. The problem is two-fold: 1) The data are not observed where, in the event

of an accident, the radioactive plume will generate and 2) The equipment is not designed to sense the meteorological phenomena that determine the rate that a plume of nuclear material will disperse. The equipment and observation procedures used at RDU are designed to meet the needs of aircraft operations and safety and to meet the needs of forcasters in preparing forecasts for the general public. The scales (or size) of atmospheric motion sensed for these purposes are much larger than those which control the dispersion of a plume.

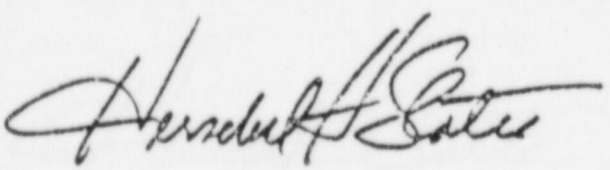
The wind equipment at the airport is designed to be insensitive to the small gusts that are significant in determining the dispersion process. Observations are generally made at hourly intervals. This is much less frequent than needed to characterize the power of the atmosphere to disperse pollutants and to sense the rapid changes of gustiness during periods of the day when this phenomena changes rapidly. Also, the wind observations are made at 10 meters, about 32 feet, above the ground, far below the height that a plume likely may travel.

CPL has a body of meteorological data gathered by sensing equipment specifically designed to study and estimate the dispersion and transport of clouds or plumes of pollutants. Unlike the equipment at RDU it is sensitive to the important small-scale motions of the atmosphere. Also, some data are sensed at heights where a plume is most likely to occur.

The rate a cloud disperses is often determined by the character of the surrouding topography. The character of the gustiness is influenced markedly by the roughness and the thermal response of the surrounding surface. Is it farmed or forested? Plowed or covered with vegetation? Is a body of water nearby? The nearby SHNPP lake must have a significant affect on the way the atmosphere would disperse pollutants in the event of an accident. The lake's effect varies with season, time of day and cloud cover. With these considerations, good judgment dictates the use of available on-site data rather than data from a distant point when developing the optimum EPZ.

NRC documents stress the importance of rainfall on peak concentrations. A shower may immediately create a surface "hot spot". If a plume is emitted into a rain situation, little of the radioactive material may leave the site itself. With rain occurring on the average of about one day in three in central North Carolina (except in 1986!), careful analysis of rainfall statistics may dictate EPZ boundaries different than a circle.

Notwithstanding current NRC regulations, CPL and the State can take the initiative to fine tune the configuration of the SHNPP EPZ. CPL has the data and the professional competency to do so. In light of the concerns of so many, it is prudent for CPL so to do.



HERSCHEL H. SLATER
CONSULTANT

AIR QUALITY
METEOROLOGY

June 30, 1986

A Statement to the Commissioners, Wake County, North Carolina

As an air pollution meteorologist, I am concerned about the size and configuration of the emergency planning zone (EPZ) as it applies to the Shearon Harris Nuclear Power Plant. CPL and the State of North Carolina apparently have accepted the Nuclear Regulatory Commission's suggested plume exposure pathway EPZ. NRC suggests an essentially circular area having a radius of about 10 miles.

Fortunately, meteorological data and analytical techniques have been developed over the past decade that enable more definitive configurations of EPZ's. CPL has the data and the competence to apply more sophisticated methodologies to this problem than the generic approaches suggested in NRC-promulgated regulations. CPL should be required to re-evaluate the proposed boundaries of the EPZ. I expect the result would be a more realistic and effective emergency response plan.

Respectfully,

Herschel H. Slater

Herschel H. Slater

[Personal Background: I am a meteorologist, specializing in air pollution matters, with experience and training that exceeds four decades. My experience includes service with the US Weather Bureau; US Air Force (as a career officer); Environmental Protection Agency; Adjunct Associate Professor, School of Public Health, UNC-CH; and Logistics Manager, Project GALE for NCSU and the National Center for Atmospheric Science.

I have no connection or direct association with CASH. I do not subcribe to their stated final objective.]

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