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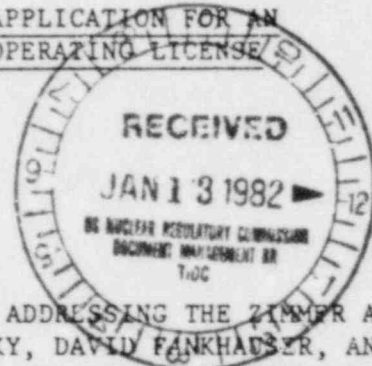
In the Matter of

Docket No. 50-358-0L

THE CINCINNATI GAS & ELECTRIC
COMPANY, et al.

APPLICATION FOR AN
OPERATING LICENSE

(Wm. H. Zimmer Nuclear Power
Station)



DIRECT TESTIMONY OF HENDRIK D. GIDEONSE ADDRESSING THE ZIMMER AREA
CITIZENS-ZIMMER AREA CITIZENS OF KENTUCKY, DAVID FANKHAUSER, AND
MENTOR CONTENTIONS, AS CONSOLIDATED AND INDIVIDUALLY PRESENTED,
CONTENTIONS 4(12), 20X, 20, 20b, 20C, 20e, 20f, 20g, 21, 21b, 21c,
21d, 21e, 23, 24, 25, 34, 36, 36B, 36C, 36D, 36E, 36F, 36G, and
36H

State of Ohio)
) SS:
County of Clermont)

I, Hendrik D. Gideonse, 3535 Holly Lane, Cincinnati, Ohio 45208, present
this testimony in connection with the licensing hearing for Zimmer Nuclear Power
Station, Unit 1. I currently serve as Vice Provost for Academic Planning at the
University of Cincinnati, a one year assignment with responsibility for develop-
ing a system of academic planning for the University. I have served as Dean of
Education for nearly ten years at U.C., also holding the tenured rank of
Professor of Education and Policy Science. Immediately prior to coming to the
University I was an Adjunct Professor of Policy Science with the State Univer-
sity of New York at Buffalo. Policy Science is the field of study which ex-
plores the application of knowledge to matters of public policy.

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I received my Bachelor of Arts at Amherst College as a political science major in 1958. In 1959 and 1963, respectively, I was awarded a master's and then a doctoral degree in education by Harvard University. The social sciences backgrounds acquired at Amherst and Harvard provided the grounding for seven and a half years of administrative experience in the Federal Government, six of which were spent as Director of Planning and Evaluation for the research programs of the United States Office of Education and one year as a professional staff member on the Executive Reorganization and Government Operations. I have published extensively in my professional field of education and have also written on the nature of behavioral and social science, long range futures, planning, generally, and the management and evaluation of governmental programs and public policy. The expertise I bring to this hearing includes public sector planning, including policy science, a knowledge of behavioral and social science, organizational development, and the management of complex enterprises.

In recent months I was invited by CORVA, the Central Ohio River Valley Health Planning Organization, to chair its Radiation Safety Task Force. Of several different tasks which we might have taken on, we chose to focus on the radiation safety measures being taken in connection with the projected opening of the Zimer Power Station and to examine provisions being made for radiation safety requirements associated with present and projected transportation of radioactive materials through the area. In that capacity I and the members of the Task Force have spent substantial amounts of time receiving testimony from a wide variety of expert and experienced witnesses on various aspects of radiation safety in connection with the potential hazards of nuclear power facilities and the transportation of radioactive materials. In addition, I have completed a single reading of the Ohio, Kentucky, Clermont County, and Campbell County

Radiological Emergency Plans and paged through the plans of Bracken and Pendleton Counties which are, as you know, very similar to that developed for Campbell County. The extent and nature of deliberations of the Task Force are important background for the comments I wish to make and I have appended to this affidavit, therefore, a copy of all materials growing out of the Task Force's work.

Based on the above expertise and experience, I bring several perspectives to the evaluation of emergency preparedness in connection with the projected licensure and operation of ZPS-1. These are:

1. Observations about the nature of the problems for which preparation is being undertaken.
2. Important limiting factors in planning, involving requirements for substantial and widespread human actions.
3. Knowledge of planning processes requisite to the eventual effective engagement of large numbers of people at widely dispersed locations.

Each of these matters is treated below. They are then related to the admitted contentions respecting emergency planning and monitoring reviewed in the December 11, 1981, "Memorandum for the Parties and Participants."

1. Nature of the Problems

On the surface, the nature of the problems being dealt with in connection with radiation emergency plans is quite clear. The primary aim is to prevent or, failing that, to reduce to the greatest possible extent, exposure of the public to any conceivable radiation hazards that might arise from an accident at

Zimmer Power Station. To that end, virtually everything addressed in the State and County plans is relevant.

It seems apparent, however, that the primary aim of protecting the public against potential hazards of radiation cannot be undertaken without recognizing the deep public apprehensions about such matters. In other words, public anxiety and fear about radiation and its dangers must be recognized explicitly as a key underlying factor in any planning undertaken because not to do so is to run serious risks of undercutting plan implementation at some later date.

If anything is to be learned about the Three Mile Island experience, and there are many things to be sure, one of them is that there are and will be serious and insistent emotional factors that will emerge and that must be addressed in the planning and in plan implementation.

Addressing such needs must be accomplished in two ways, first, by conducting the planning and the identification of response requirements so as to reduce to the greatest extent possible the emergence of problematical emotional factors and, second, building into the plans suitable and appropriate means of coping with those factors, that willy-nilly, do emerge despite advance preparation.

The importance of such considerations was underscored in the testimony we heard in connection with our Radiation Safety Task Force deliberations. Making this point, however, requires an observation about differing perspectives about planning. In the present case (preparing for the possibilities of an accident involving a stationary nuclear power generating facility) several different forms of rationality could be identified from the testimony the Task Force heard

and the discussion we engaged in. Physicians were prepared to say that they knew what was or was not reasonable by way of preparation and emergency responses, and all that was necessary was to ask them and follow their advice. Engineers made a different kind of claim: give them the specifications and a period of time to examine the matter (usually that also seemed to mean off somewhere else), and they would come up with an optimal solution. Political leaders recognized a different kind of rationality altogether, that having to do with "what would sell" "peoria," meaning some recognition that negotiation and dealing with the realities of public awareness would almost assuredly be part of the "rational" solution from their perspectives. Governmental planning types of the civil service rather than elected variety tend to focus on the realities of undertaking the inter-agency and multi-jurisdictional interactions necessary for such a complex and geographically dispersed activity. To this must be added a fifth type of rationality, that possessed by individual citizens at precise points of time when their actions may be necessary to accomplish the intended aim of the preparedness plans as applied to them.

The task of preparedness planning must be viewed, then, as orchestrating a variety of different kinds of rationality, some of which may be or appear to be mutually contradictory and some of which will almost certainly be off-putting to proponents of others.

A specific example of this principle applied to Zimmer would be the extent to which the emergency preparedness plans systematically undertake to address the establishment and maintenance of public trust in the authorities. Public trust is an important precursor to acceptance of emergency preparedness plans and vital to the continuing expectation that the public will take those steps

the authorities direct them to in the event of an actual emergency. Public trust is generated by truthfulness, sensibleness, absence of confusion in performance of responsibilities, clear messages, and the provision of explanations that hold water to justify recommendations that appear to be against one's own direct intuition. A good illustration of a plan element that does not appear to engender public trust is the delineation of evacuation routes which are far longer than necessary and actually appear to require travel within or across the plume when alternate routes are plainly available.

2. Important Limiting Factors in Planning Human Action

Some of these have already been mentioned. Different conceptions of rationality are abroad. Affective considerations, emotions and anxiety must be anticipated and accommodated. Large numbers of people will be expected, indeed, required, to undertake actions for which they will have had little practice and probably quite limited and infrequent awareness.

There are others, however. In any operation involving human action, Murphy's Law -- if something can go wrong, it will -- is almost certain to find expression. What this means is that effort must be undertaken to imagine how things might go wrong and to develop contingency plans to deal with those circumstances should they develop. Such thinking is fully evident in the engineering of the plant itself. Backup systems exist in the event of the failure of primary systems. Defensive measures are primary, secondary, and tertiary. Analogues of such thinking for the requisite human actions in the event of an emergency also need to be developed and scheduled for implementation as required.

A specific example of this principle would be preparing for the possibility that parents will disobey instructions to stay off the phones and not to come to schools to retrieve their children. What will school and civil authorities do in such a circumstance? How can the busing plans be guaranteed if the roads and walk-ways are clogged with vehicles and adults?

3. Planning Processes Involving People

It is widely known in planning that genuine involvement in planning processes is the most certain way of assuring effective implementation. Involvement does not mean simply receiving a copy of a document and finding where one is listed in it with instructions what to do under what circumstances. That is a plan, but probably only an imperfectly implementable one. Involvement is the only way of guaranteeing that the variables known by all the different kinds of participants can be identified and factored into the plan. In other words, involvement is not merely a cosmetic feature, but a vital instrument of eventual effectiveness by tapping into what people know.

Effective and efficient involvement, however, in an activity as complex and far-reaching as preparing for a radiological emergency will entail a variety of compromises. Not everyone can be involved in the same way. For certain classes of stakeholders in preparedness planning, all must be engaged. Examples would be hospitals, fire departments, life squads, police departments and so on. For other classes of stakeholders, like the general public, involvement must be on a representative basis. The important consideration, however, is guaranteeing the availability of the various perspectives to the planning processes and assuring they have been fully accommodated.

Involvement is one prerequisite of effective planning. A second is

thinking through the requirements of proposed actions to assure that enabling conditions have been met. We have all seen plans that look fine on paper that turn out not to work, not because of any failure of logic in the plan, but because important precursors to effective implementation have been insufficiently considered.

A specific example would be assuring the availability of important classes of volunteers. Preparing them for their roles is one thing. Assuring that they present themselves at the needed time requires a prior step, that each volunteer has made sufficient preparations as an individual to provide for his or her immediate family without his or her direct involvement so that conflicting loyalty does not get decided, as it otherwise must, for family rather than volunteer function.

The three perspectives or conditions described above support a number of the contentions raised. These include the following contentions listed in the left column. In the following right column opposite the contentions are some, but not all, illustrations of deficiencies I have observed.

4(12) "Circle of Safety" Education of Public	Reading level inappropriately high; implicit message that reading it is waste of time; mode of delivery suggests unavailability at time of need; compromises prospective implementation of plan.
20X Include portions of Brown into County In Plume Exposure Pathway EPZ	Public route of travel will be Brown County despite plan which requires longer distances of travel that may intersect plan unimplementable.
36C Alternate Evacuation Routes	
20(b)(5)-(8) Communications with schools	Almost certain likelihood, based on past emergency experience, that parents will clog phone lines

20(c)(i)-(3) Adequacy of Roads
20(c)(5)-(14) Adequacy of Roads
20(g)(1) Inclement Weather
36B Ten Defects in Stone and
Webster Evacuation Plan

20(e)(5)-(15) Police and Fire Personnel
20(e)(1)-(3) Availability of School Bus
Drivers
24(1)-(10) Medical Facilities and
Treatment

21(c)(1)-(4) School Buses
21(d)(1)-(4) Evacuation of Schools during
Busing Periods
21(3)(1)-(3) Availability of School Bus
Drivers

21(b)(2) Potassium Iodide for
Children
24(1)-(10) Medical Facilities and
Treatment
36F Storage and Distribution
of Potassium Iodide

34 Use of Standard Operating
Procedures
36 Defects in Kentucky and
Campbell County Plans
36G Evacuation of Those in
Need of Assistance
23(1)-(5) Education of Public
20X Inclusion of Brown County

compromising implementation of
plans for evacuation or take
shelter.

There are serious unresolved doubts
about discrepancies in evacuation
time estimates of different
agencies. That lack of resolution
raises doubts about the adequacy
of the planning and the implementa-
tion of those plans.

Emergency preparedness plans depend
on availability of many different
kinds of volunteer personnel.
Training them is not sufficient;
precursor planning to assure uncon-
flicted emergency responses because
of prior planning for their
families is crucial. Plan as
presented incomplete; likely im-
plementation thus compromised.

Insufficient precursor planning
regarding important volunteers plus
insufficient contingency planning
for parents not following their re-
quested roles (i.e., no phone calls
and no appearance at schools) con-
stitute inadequate planning and com-
promise implementation of plans,
especially in light of insufficient
buses to accomplish evacuation in
time. Awareness of insufficient
buses will stimulate parental be-
havior.

Some of public will know of blockage
agent and its distribution in
Tennessee. Non provision in EPZ in
Ohio is a gap in planning on its
face as well as an apparent flaw
which will undercut public trust
and confidence in all other
emergency preparedness procedures.
All these contentions if left un-
will raise doubt in the minds of
the public about adequacy, complete-
ness, appropriateness, or wisdom of
the planning undertaken to date.
Some plans are not yet available,
some have implicit conflicts, some
are little better than "propaganda"

36C Alternate Evacuation Routes
20(e)(3)-(15) Police and Fire Personnel

exercises. All this undercuts public confidence in authorities, increasing likelihood of substitution of individual judgment over planned responses. Result is compromised implementation of plans because of inadequacy, confusion, therefore, jeopardizing of public health and safety.

For these reasons regarding the above listed contentions it is my judgment, as an expert, that the emergency plans, as drafted, are inadequate and, furthermore, they would prove to be unimplementable given the conditions that obtain in the EPZ's and the adequacy of the preparation undertaken to date.

Hendrick Gideonse

Subscribed by in my presence and sworn to me this _____ day of January, 1982.

Notary Public