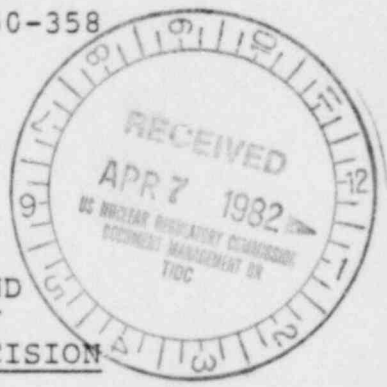


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UNITED STATES OF AMERICA :46
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board
BRANCH

In the Matter of)
)
The Cincinnati Gas & Electric) Docket No. 50-358
Company, et al.)
)
(Wm. H. Zimmer Nuclear Power)
Station))



APPLICANTS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW RELATING TO EMERGENCY PLANNING ISSUES IN THE FORM OF AN INITIAL DECISION

The Cincinnati Gas & Electric Company, et al., Applicants in the captioned proceeding, in accordance with 10 C.F.R. §2.754, hereby submit the attached proposed findings of fact and conclusions of law with respect to emergency planning issues. This document supplements the Applicants' Proposed Findings of Fact and Conclusions of Law in the Form of an Initial Decision dated April 24, 1981, which dealt with those issues for which the hearing had been completed at that time.

The instant pleading sets forth the procedural history of this proceeding since that time and continues the paragraph and footnote enumeration in the original proposed findings. The format utilized for these proposed findings

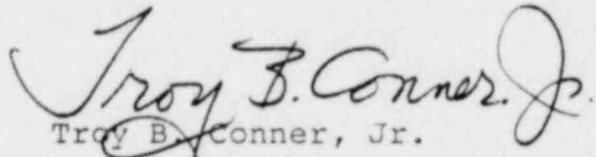
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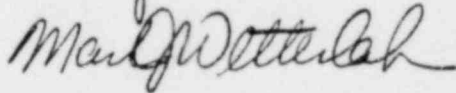
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of fact and conclusions of law is based upon our understanding of the form to be utilized by the Atomic Safety and Licensing Board for its initial decision (Tr. 7929-32). For the sake of completeness, all conclusions of law have been restated and an updated list of exhibits appended hereto.

Respectfully submitted,

CONNER & WETTERHAHN


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April 2, 1982

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John H. Frye, III, Chairman
Dr. M. Stanley Livingston, Member
Dr. Frank F. Hooper, Member

In the Matter of)
)
The Cincinnati Gas & Electric) Docket No. 50-358
Company, et al.)
)
(Wm. H. Zimmer Nuclear Power)
Station))

_____, 1982

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TABLE OF CONTENTS

	<u>Page</u>
Introduction	3
Findings of Fact	14
Contested Issues	
Extension of the Plume EPZ to Brown County	14
Decontamination Monitoring	21
Hospitals	24
Use of Potassium Iodide (KI)	27
State of Indiana Plans for the Ingestion Pathway	31
State of Ohio and Commonwealth of Kentucky Plans for the Ingestion Pathway	33
Public Information	41
Evacuation Time Estimates	47
Communications and Notification	73
Evacuation Routes and Access Control Points	83
Evacuation of Handicapped and Those in the General Population Without Transportation	96
Fire and Life Squads	104
Police and Sheriff Functions	117
Training	125
Schools	129
Implementation of an Emergency Plan by Standard Operating Procedures	147

	<u>Page</u>
Prompt Notification System	151
Other Matters	153
Conclusions of Law	154
Order	156
Appendix A - Exhibits	
Appendix B - Citation Key	
Appendix C - Revised Contentions - Emergency Planning and Monitoring (Approved November 25, 1981)	*

* Not included

INITIAL DECISION
(EMERGENCY PLANNING ISSUES AND
AUTHORIZING ISSUANCE OF AN OPERATING LICENSE)

I. INTRODUCTION

162. In this Initial Decision we decide all emergency planning issues and authorize the issuance of an operating license for the Wm. H. Zimmer Nuclear Power Station ("Zimmer Station"). For clarity, Section V, Conclusions of Law, covers all issues before the Atomic Safety and Licensing Board. Also, appended hereto as Appendix A is a complete list of Exhibits.

163. On September 10, 1981, this Board was again reconstituted with the substitution of Administrative Judge John H. Frye, III as Chairman for Charles Bechhoefer (46 Fed. Reg. 46031 (September 16, 1981)).

164. A prehearing conference was held on October 29 and 30, 1981 in Cincinnati to discuss the status of the operating license proceeding and the specification of remaining contentions relating to emergency planning and monitoring. The City of Mentor, Kentucky and Clermont County, Ohio, which had previously been admitted pursuant to 10 C.F.R. §2.715(c) as interested governmental entities, moved the Board to admit contentions relating to emergency planning issues. On October 20, 1981, the City of Cincinnati, a party to this proceeding, and the Applicants jointly moved the Board to approve a settlement agreement between the two, approve the withdrawal of the City and

dismiss its contentions with prejudice. We did so on October 30, 1981.

165. As a result of the prehearing conference, the Board ordered that emergency planning contentions be revised to provide additional specificity and permitted further discovery relating to emergency planning issues. The Federal Emergency Management Agency ("FEMA") voluntarily agreed to respond to interrogatories relating to its role in the review of emergency planning for the Zimmer Station.

166. On December 3, 1981 in a Prehearing Conference Order, the Board admitted certain of the revised contentions which had been filed pursuant to its November 5, 1981 Prehearing Conference Order and which had been addressed in submittals by Applicants and Staff. A statement of the admitted contentions was set forth in the Board's memorandum entitled Revised Contentions - Emergency Planning and Monitoring dated December 11, 1981. In view of negotiations between Applicants and Clermont County, the Board did not rule on the County's proffered contentions and directed the parties to continue their ongoing negotiations. On the last day of the evidentiary hearing, Clermont County and Applicants represented that they had reached agreement and Clermont County did not need to assert contentions (Tr. 7909-10). The Board ordered a consolidation of the intervenors' cases and appointed Zimmer Area Citizens-Zimmer Area Citizens of Kentucky ("ZAC-ZACK") lead intervenor for consolidated contentions.

167. Discovery was vigorously pursued by the parties by way of interrogatories, requests for admissions and depositions. On December 23, 1981, the Board ordered the Applicants to contact the State of Ohio and the Kentucky counties within the plume exposure Emergency Planning Zone ("plume EPZ") to provide the necessary witnesses to sponsor the emergency plans. A number of conference calls were held to discuss procedural matters regarding the evidentiary hearing.

168. On November 24, 1981, Applicants served upon the parties a motion seeking summary disposition pursuant to 10 C.F.R. §2.749 of those portions of Dr. David B. Fankhauser's Contention 2 which had not been withdrawn during the October 29-30, 1981 prehearing conference. A similar motion was filed by the Staff on December 21, 1981. On February 4, 1982, the Board granted both motions which were unopposed.

169. Evidentiary hearings were held on January 25-29, 1982, February 2-5, 1982, and March 1-4, 1982, in Cincinnati. An additional opportunity to present limited appearance statements was given on January 25, 1982. At the conclusion of the presentation of the cases in chief and rebuttal, the Applicants' unopposed motion to close the record was granted by the Board (Tr. 7979).

170. The decisional record in this proceeding consists of the following:

- a. The material pleadings filed herein, including the petitions and other pleadings filed by the parties, and

the orders issued by the Board during the course of this proceeding;

- b. The transcripts of the prehearing conferences on January 23, 1976 (Tr. 1-120) and May 21-23, 1979 (Tr. 121-532), October 29-30, 1981 (Tr. 4643-4865), and the transcript of testimony of the evidentiary hearings with pagination from 532 to 4642 and 4872-7979; 19/
- c. All of the exhibits received into evidence which are identified in Appendix (A) to this Initial Decision.

171. In making the findings of fact and conclusions of law which follow, the Board considered the entire record of the proceeding and all of the proposed findings of fact and conclusions of law submitted by the parties. Each of the proposed findings of fact and conclusions of law which is not incorporated directly or inferentially in this Initial Decision is rejected as being unsupported in law or fact or as being unnecessary to the rendering of this decision.

172. In the discussion of the contested issues which follow, for the sake of brevity, the Board has not set forth each contention in its entirety in the text. As previously noted, the contentions as admitted by the Licensing Board relating to emergency planning are found in the Board's issuance dated December 11, 1981, which is appended hereto

19/ Interspersed in these transcripts are limited appearance statements which, of course, do not constitute a part of the decisional record. 10 C.F.R. §2.713(a); Iowa Electric Light & Power Company (Duane Arnold Energy Center), ALAB-108, 6 AEC 195, 196 n.4 (1973). Pages 3600-3900 were skipped by the reporter in preparing the transcript.

as Appendix C [not attached]. For convenience, the Board has grouped the contentions together by category for decision. For each category, the Board has set forth a number of detailed proposed findings followed by record citations. Following these individual findings is a discussion by the Licensing Board of the considerations which led to these specific findings and to its ultimate conclusions with regard to issues presented.

Preliminary Statement

173. Pursuant to a Presidential Order of December 7, 1979, the Federal Emergency Management Agency ("FEMA") is to assume lead responsibility for all offsite nuclear emergency planning and response for fixed nuclear facilities. In accordance with the Memorandum of Understanding between the NRC and FEMA Relating to Radiological Emergency Planning and Preparedness published in the Federal Register on December 16, 1980 (45 Fed. Reg. 82713), FEMA made witnesses available before this Licensing Board.

174. The NRC's emergency planning rule provides that "[t]he NRC will base its finding[s] on a review of the . . . FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and capable of being implemented." 10 C.F.R. §50.47(a)(2). The NRC's regulations further provide that "[n]o operating license for

a nuclear power reactor will be issued unless a finding is made by NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 C.F.R. §50.47(a)(1).

175. The standards for judging the onsite and offsite emergency response plans are contained in NUREG-0654, FEMA-REP-1 (Rev. 1) (November 1980), entitled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." This document is referenced in 10 C.F.R. §50.47(b) as the appropriate guidance for use.

176. We are limited in our consideration of emergency planning by the Commission's regulations which limit a licensing board in an operating license proceeding to deciding only the issues in controversy among the parties. 10 C.F.R. §2.760a and Section VIII to Appendix A to 10 C.F.R. Part 2. It is the responsibility of the NRC Staff, taking due regard of the FEMA findings relating to the offsite plan and the Board's specific findings on contested issues set forth below, to make the ultimate finding as to emergency planning for this facility.

177. The Board therefore sees its role as deciding the contested issues related to emergency planning, considering the entire record as it relates to those issues, which includes the testimony of State and local planners,

and emergency plans of the two states and four affected counties within the plume exposure Emergency Planning Zone in their present form. With regard to the contested issues before it, the Board must be assured that the State and local emergency plans are adequate and capable of being implemented. The Board notes that there are no admitted contentions related to the Applicants' onsite emergency plan (Appl. Exh. 13).

178. Certain of the contentions submitted by intervenors are specific to either the State of Ohio or the Commonwealth of Kentucky or to one or more of the four counties located within the plume exposure Emergency Planning Zone in these two states. Therefore, in accordance with its role only to decide contested issues, the Board's findings and analysis relate only to the elements of the specific plan which have been challenged.

179. While none of the offsite emergency plans is in final form or has received formal FEMA approval, the Board is nevertheless able to determine that the emergency plans are adequate and are capable of being implemented. There are several considerations which are generally relevant to the Board's affirmative finding in this regard in addition to the specific evidence adduced in the context of individual contentions.

180. The Board has relied on the professional planners who have been entrusted under State law with the development

of emergency plans and the public officials and emergency response experts who will be called upon to implement them should the need arise. The State of Ohio planners stated they were satisfied with the process of developing the plans in Ohio, including the one for Clermont County (Tr. 5112). The emergency planning experts from Ohio had examined the contentions of ZAC/ZACK in this proceeding and had concluded on the basis of their review that nothing in these contentions or the accompanying testimony proffered by ZAC/ZACK led them to conclude that there is any basis whatsoever to question the viability of the State of Ohio or Clermont County radiological emergency plans (Tr. 5193-94). Furthermore, these planners stated there would be no basic and fundamental changes to the Clermont County plan as the result of FEMA's ongoing review (Tr. 5005-06).

181. General Buntin, the Executive Director of the Division of Disaster and Emergency Services for the Commonwealth of Kentucky, stated that he was confident that the Kentucky plan as it now stood would be adequate to protect the health and safety of the public (Tr. 6141). With regard to the Campbell County plan, the witness called by the intervenors, Mr. Monroe, the Director of Campbell County Disaster and Emergency Services, who has had extensive experience in emergency planning and who is presently President of the Kentucky State Disaster and Emergency Services Association, testified that the Campbell County plan in its present state is adequate in the event of

a radiological emergency at the Zimmer Station (Tr. 7943, 7966-67) subject to the completion of standard operating procedures.

182. A second consideration relevant to this Board's ability to make a finding of reasonable assurance is the followup actions of FEMA and the NRC Staff with regard to the contested issues. Mr. Grimes, the Director of the Division of Emergency Preparedness for the Nuclear Regulatory Commission, testified as to the Staff's role with regard to the review of emergency plans both in uncontested and contested cases. Mr. Grimes noted that the focus of the Board's review is the emergency plans of the Applicant and the affected jurisdictions in the areas contested by the intervenors (Tr. 7394). In these areas, we have assured that any present deficiencies identified in the various plans have a clear course of action identified which will remedy those deficiencies. Where necessary, the courses of action set by the Board, e.g., completion of standard operating procedures, are straightforward in nature and likely to result in any deficiencies being corrected. Identifying the deficiencies for followup by the NRC Staff allows the Licensing Board to make the requisite finding of reasonable assurance on the state of emergency preparedness regarding those areas in contention, with the Board's ultimate finding premised on the condition that deficiencies are corrected before operation or before full power operation, as appropriate, is permitted by the NRC Staff.

183. In this respect, Mr. Grimes discussed the role of FEMA and the Staff subsequent to a Board finding, as described above. Mr. Grimes stated that he would recommend against the granting of any authorization to operate at significant power levels for this facility until FEMA provided the Nuclear Regulatory Commission with a finding that the course directed by the Board had been carried out, e.g., the procedures for schools have been completed and in place or equivalent assurance has been provided (Tr. 7396). The Board has found this approach to be satisfactory and in conformance with all NRC regulations.

184. The Board thinks it is necessary to comment, as a preliminary matter, on the weight it has accorded to witnesses who appeared before it in this proceeding. As indicated above, the Board has placed heavy reliance upon the testimony of the State and local planners and officials. These individuals have been involved in the entire planning process, are knowledgeable in the local conditions and are ultimately responsible for the preparation and implementation of their plans. The Board has accorded significant weight to the testimony of the Applicants and their consultant, Stone & Webster, which assisted the State and local planners in formulating and integrating their plans. The Board found the Applicants' witnesses to be knowledgeable and, of course, while they could not speak directly for the planners, their testimony added to the

Board's understanding of the emergency plans and their implementation. The Board also relied upon the NRC Staff witnesses in their areas of expertise.

185. The weight to be accorded the witnesses who appeared for intervenors varied, and their testimony is discussed, as necessary, in conjunction with the individual areas, infra. Some of these witnesses testified as to their observations and understandings; they were not experts and their testimony was treated accordingly. As discussed, infra, much of the intervenors' testimony regarding whether volunteers would show up was hearsay and was also treated accordingly. The Board further discusses the weight to be accorded intervenors' witnesses in each specific section.

186. The Board gave significant weight, for example, to the testimony of Mr. Monroe, Director of Disaster Emergency Services for Campbell County, who was called by the intervenors, because of his relevant training, experience, and intimate involvement in recent emergency planning efforts. An example of the intervenors' testimony which the Board discounted was that of Dr. Hendricks Gideonse. Dr. Gideonse, a witness for ZAC/ZACK, testified regarding a number of different contentions. The Board observes that while he holds himself out as an expert in many facets of emergency planning, his testimony is conclusory, lacks factual basis and, in the Board's opinion, is not underpinned with sufficient qualifications for him to

give expert opinion in the areas in which he testified. The Board observes that his planning efforts were related to urban unrest and were almost entirely unrelated to the specific subject of emergency planning or the technical subjects which underlie such planning. The Board finds his education and experience are largely irrelevant to his proffered testimony. Moreover, his review of the emergency plans was admittedly cursory.

II. FINDINGS OF FACT

Extension of the Plume EPZ to Brown County

Contention 20(X)

187. The boundaries of the Zimmer Station plume exposure pathway Emergency Planning Zone ("plume EPZ") were chosen by the State of Ohio and local planners to be in accordance with the requirements of 10 C.F.R. §50.47(c)(2) and the NUREG-0654 planning guidance (Appl. Exh. 15 at 1; Tr. 4973, 5823-24).

188. The demography, topography, land characteristics and access routes of Brown County do not require an extension of the planning boundary beyond a 10 mile radius in the direction towards Brown County (Appl. Exh. 15 at 1-2; Tr. 5824).

189. The closest approach of the plume EPZ in the easterly direction is slightly greater than 10 miles, which coincides with the Brown County border at that point (Appl. Exh. 15 at 2; Tr. 4972, 4980).

190. For the areas of Clermont County adjacent to Brown County and near the actual 10-mile circle, the planners' review of the jurisdictional boundaries resulted in the extension of the plume EPZ to include Bethel, Ohio, and areas of Clermont County south of route 125 and east of Bethel, and made the actual Brown County boundary the edge of the plume EPZ although it is greater than 10 miles from the Zimmer Station (Appl. Exh. 15 at 2; Tr. 4982-83).

191. In Brown County, 3587 people live within 15 miles of the Zimmer Station (Appl. Exh. 15 at 2; Tr. 5831).

192. The Brown County population within 15 miles of the Zimmer Station is largely in two small rural communities, with few others in the intervening countryside (Appl. Exh. 15 at 2; Tr. 6873).

193. The population is generally less dense in Brown County within 15 miles of the Zimmer Station than is the case within 10 miles in southeastern Clermont County (Appl. Exh. 15 at 2).

194. There are only two incorporated villages in Brown County within 15 miles of the Zimmer Station: Hammersville, Ohio (population 688) at about 13 miles, and Higginsport Ohio (population 343) at about 15 miles; (Appl. Exh. 15 at 2; Tr. 6873).

195. There are no demographic features which would cause extension of the plume EPZ into Brown County (Appl. Exh. 15 at 2).

196. The topography of Brown County in areas adjacent to Clermont County is very similar to that of Clermont County (Appl. Exh. 15 at 3).

197. Plant grade at the Zimmer Station site is 520 ft. MSL (Appl. Exh. 15 at 3).

198. On the Ohio side of the river, the terrain rises to an elevation of 800 to 900 ft. MSL within 1 to 3 miles of the river, and remains relatively level at greater distances (Appl. Exh. 15 at 3; Tr. 5833, 6874).

199. The terrain near the river is punctuated by a number of valleys containing creeks which flow into the Ohio River (Appl. Exh. 15 at 3).

200. On the Kentucky side of the river, the terrain also rises to 800 to 900 ft. MSL within 1 to 3 miles of the river (Appl. Exh. 15 at 3).

201. The terrain within 15 miles of the Zimmer Station may be characterized as hilly, with elevations fluctuating irregularly between approximately 550 and 950 ft. MSL (Appl. Exh. 15 at 3).

202. In Brown County, within 15 miles of the Zimmer Station, the terrain is very similar to that of southeastern Clermont County (Appl. Exh. 15 at 3).

203. Inasmuch as there are no distinguishing features of the topography in Brown County as compared to southeastern Clermont County, there are no specific topographic features of Brown County which would cause any

extension of the plume EPZ beyond ten miles from the Zimmer Station (Appl. Exh. 15 at 2-3; Tr. 6874).

204. There is no topographic feature at or beyond a 10 mile radius of Zimmer in the direction of Brown County which would significantly change the continuing dispersion of a release such as to require an extension of the plume EPZ beyond a 10 mile radius from the Zimmer Station (Appl. Exh. 15 at 3).

205. Access routes leaving a 10 mile radius from the Zimmer Station in Clermont County are numerous and do not in themselves require the public to travel through Brown County (Appl. Exh. 15 at 3).

206. Unusual geographic or road features are absent; there is no peninsula protruding into the area, there are no rivers to obstruct travel away from Zimmer in a generally radial direction, nor are there any other unusual geographic conditions restricting access routes (Appl. Exh. 15 at 3; Tr. 6875).

207. There is no condition of access routes which would call for a plume EPZ other than already selected (Appl. Exh. 15 at 3-4).

208. The boundary between Clermont and Brown Counties is appropriate for the edge of the plume EPZ (Appl. Exh. 15 at 1-4).

Discussion

209. Contention 20X asserts that Brown County, which is adjacent on the east to Clermont County, the county in

which the Zimmer Station is situated, must be included within the plume EPZ because of conditions of topography and land characteristics, and because certain of the potential evacuation routes from Clermont County lead to Brown County.

210. The basis for establishment of the plume EPZ is 10 C.F.R. §50.47(c)(2) which states:

Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) 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.

See also 10 C.F.R. §50.33(g).

211. This regulation was based upon the planning guidance of NUREG-0396. That report concluded that emergency plans could be based upon a generic distance out to which predetermined actions would provide dose savings for accidents. Beyond this generic distance, the report concluded that actions could be taken on a ad hoc basis using the same considerations that went into the initial action determinations. The generic distance specified was approximately 10 miles. It is the responsibility of State and local emergency planners to determine the exact size and shape of the plume EPZ based upon their local planning needs. Having considered the location of the boundaries of the plume EPZ and the factors set forth in 10 C.F.R.

§50.42(c)(2), the NRC Staff, as well as the local planners, concluded that the criteria contained in the Commission's regulations did not require that any part of Brown County be included in the plume EPZ or that Brown County have a radiological emergency response plan (McKenna Testimony at 6-8).

212. The factors considered in §50.47(c)(2) were addressed in testimony by the Applicants and NRC Staff, as discussed above. Intervenors ZAC/ZACK produced no testimony regarding the topography and land characteristics which would require the inclusion of Brown County as part of the plume EPZ.

213. With regard to access routes, the intervenors would require Brown County to be included within the plume EPZ merely because roads into Brown County could be used during an evacuation of those residing within the designated plume EPZ. The Commission's regulations do not require that, merely because evacuating citizens might travel through a given area, that such jurisdiction be included within the plume EPZ (Tr. 6876). There has been no showing that the access routes surrounding the Zimmer Station are substantially different than those of other nuclear power plants so as to require inclusion of Brown County within the plume EPZ.

214. It is clear to the Board that the reference to access routes in 10 C.F.R. §50.47(c)(2) refers to

limitations in access routes which might require additional planning (Tr. 6875). The example given in the record is a peninsula or island in which emergency planning would have to be increased to compensate for a limited number of access routes (Tr. 6878).

215. The evidence of record clearly indicates that there are numerous routes connecting Clermont and Brown Counties as well as routes which feed directly into the northern parts of Clermont County where relocation/decontamination centers are located such that there is no limitation in access routes. In this respect, the State of Ohio has concluded that Clermont County could adequately provide for its citizens using decontamination/relocation centers in the northern part of the county (Tr. 4974).

216. The question of cooperation between Brown County officials and Clermont County and State of Ohio emergency planning officials regarding evacuation routing through Brown County is discussed, infra, in the section "Evacuation Routes and Access Control Points." However, there was no evidence presented to the Board which would require that Brown County, Ohio be included within the plume EPZ such as to require the preparation of a full emergency plan for that jurisdiction or any part of it meeting all requirements of NUREG-0654 or in any way require preplanned response by Brown County citizens.

217. During the course of the proceeding, Brown County officials testified as to their intention to begin a

comprehensive emergency planning effort for potential emergency situations which would include, as a part, radiological emergency planning (Tr. 7899-01). The Board, of course, encourages such activities as did the State of Ohio officials who testified during the course of the proceeding. However, in the context of the requirements of the NRC regulations, and in particular 10 C.F.R. §50.47(c)(2), the Board finds no reason to expand the plume EPZ beyond that already designated.

218. The Licensing Board finds that Contention 20(X) has no merit. The Board therefore concludes that the other contentions relating to requirements for planning within Brown County which were denied without prejudice to later submittal if 20(X) were determined favorably to ZAC/ZACK in the Board's December 11, 1981 Order, are denied with prejudice and need not be further addressed.

Decontamination Monitoring

Contentions 24(7) and 24(9)

219. Methods have been developed to adequately screen, separate, and isolate potentially contaminated individuals from uncontaminated individuals at decontamination centers (Appl. Exh. 15 at 116; Board Exh. 2 at II-J; Board Exh. 3 at F-7-1; Board Exh. 4 at L-1-1; Board Exhs. 5 and 6 at L-1-2).

220. Specific training for the performance of decontamination tasks will be provided for all involved fire departments and other involved groups prior to operation

of the Zimmer Station (Appl. Exh. 15 at 116; Board Exh. 2 at II-N).

221. Decontamination training is performed at the actual relocation/decontamination center designated for the specific fire department or other group assigned this task (Appl. Exh. 15 at 116).

222. Site specific information developed at the time of the training is incorporated into the procedures to assure successful operation of the facility as a relocation/decontamination center (Appl. Exh. 15 at 116).

223. All evacuees will be monitored on arrival at a decontamination center and are not permitted to proceed to the relocation center until they have been screened and determined to be uncontaminated or have been decontaminated (Appl. Exh. 15 at 116; Board Exh. 2 at II-J-2, 3; Board Exh. 3 at F-7-1; Board Exh. 4 at L-1-1; Board Exhs. 5 and 6 at L-1-2).

224. A 12 hour time limit for monitoring all evacuees is set by NUREG-0654 at 65 (Appl. Exh. 15 at 116).

225. Evacuees will be monitored as soon as possible, upon their arrival at a decontamination center (Appl. Exh. 15 at 116; Board Exh. 2 at II-J-2, 3; Board Exh. 3 at F-7-1; Board Exh. 4 at L-1-1; Board Exhs. 5 and 6 at L-1-2).

226. Provisions have been made and are outlined in the Campbell County Plan to monitor and decontaminate all evacuees and emergency workers and their equipment (Appl. Exh. 15 at 117; Board Exh. 5 at E-2, 3).

227. Campbell County evacuees not planning to stay at the host county relocation centers will be monitored and decontaminated, if necessary, at Northern Kentucky University (Appl. Exh. 15 at 116; Board Exh. 5 at F-9-1).

228. In Kentucky, evacuees proceeding to the host county reception centers will be monitored there and decontaminated, if necessary, at decontamination centers (Appl. Exh. 15 at 116-17; Board Exh. 3 at F-7-1; Board Exh. 4 at L-1-1; Board Exhs. 5 and 6 at L-1-2).

229. The decontamination center in Grant County is located in the Grant County High School in Dry Ridge, Kentucky and the Boone County decontamination center is located in Conner High in Hebron, Kentucky (Appl. Exh. 15 at 117; Board Exh. 5 at E-2 and L-1-2 and L-2-2).

230. Emergency workers in Campbell County and their equipment will be monitored and decontaminated at Northern Kentucky University (Appl. Exh. 15 at 117; Board Exh. 5 at E-2).

Discussion

231. The testimony of the Applicants regarding these contentions was uncontroverted. Specific plans regarding decontamination have been formulated and training is proceeding. Evacuees arriving at a decontamination facility will be segregated from those already processed until they have been determined to not have been contaminated or they

have been decontaminated. Thus, there is no need to again monitor individuals when they leave relocation centers. The 12 hour time limit for monitoring is set by NUREG-0654 (Rev. 1). ZAC-ZACK's own witness testified to his training for work at a decontamination center (Tr. 5472).

232. The Board finds these contentions have no merit.

Hospitals

Contentions 24(1), 24(2), 24(3), 24(4)

233. The Clermont County Hospital (now Clermont Mercy Hospital) Radiological Assistance Plan was last updated in December, 1981, and a copy of the current revision to the Clermont County Hospital Radiological Assistance Plan is part of the record (Appl. Exh. 15, ff. 109).

234. The Clermont County Hospital is prepared to receive injured and potentially contaminated persons and has designated a section of the hospital building to serve as a separate, segregated emergency facility (Appl. Exh. 15 at 109, ff. 109; Board Exh. 2 at II-K-1 and IV).

235. Potentially contaminated (but otherwise uninjured) evacuees are to be received, monitored and decontaminated at the relocation/ decontamination centers (Appl. Exh. 15 at 109, 112 ; Board Exh. 2 at II-J-213 and II-I-4, 5).

236. Medical facilities in Ohio available for the treatment of individuals involved in radiological accidents are identified in the State of Ohio Nuclear Power Plant

Emergency Response Plan (Appl. Exh. 15 at 110; Board Exh. 1 at Figure II-K-3; Tr. 5514).

237. Only injured or the few individuals referred from decontamination centers will be treated at the Clermont County Hospital (Appl. Exh. 15 at 109).

238. Clermont County evacuees who cannot be treated at the Clermont County Hospital will be transferred to Cincinnati General Hospital or to other health care facilities identified in the State of Ohio Nuclear Power Plant Emergency Response Plan (Exh. 13 at 109, Ref. 1; Board Exh. 1 at Figure II-K-3; Board Exh. 2 at II-K-1 and IV, letter of January 21, 1981).

239. There is no requirement that only health care facilities within 50 miles be utilized to respond to a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 109; NUREG-0654 at 69).

240. Cincinnati General Hospital is one of the medical facilities listed in the State of Ohio Emergency Plan, and is capable of handling radioactively contaminated patients (Appl. Exh. 15 at 110; Board Exh. 1 at Figure II-K-3; Board Exh. 2 at II-K-1).

241. Cincinnati General Hospital is the coordinating hospital for the Greater Cincinnati Hospital Council, which provides general emergency management and radio communications among the area hospitals during disasters (Appl. Exh. 15 at 110).

242. St. Luke Hospital's provisions for handling radiologically injured patients, including the establishment of adequate bed space in a separate, segregated portion of the hospital, are included in the hospital's disaster plan (Appl. Exh. 15 at 11; Tr. 6829).

243. A letter of agreement from the University of Kentucky Medical Center, as well as from other area facilities, describing its ability to receive radiologically injured patients, is currently being acquired (Appl. Exh. 15 at 112).

244. Out of state facilities, as well as hospitals within the state, can be utilized to receive patients from Kentucky (Board Exh. 3 at H-2).

Discussion

245. Intervenors presented no evidence regarding these contentions. There is no evidence of record to contradict the evidence that, in both Ohio and Kentucky, plans which are capable of being implemented regarding utilization of hospitals to treat persons sustaining a radiological injury have been established. While some letters of agreement have yet to be formalized, no obstacle to their consummation has been shown. Both the State of Ohio and the Commonwealth of Kentucky may draw upon all state resources; there is no requirement that only facilities within 50 miles of the Zimmer Station may be utilized. In fact, specialized out of state resources such as facilities at Oak Ridge, Tennessee could

be utilized (Board Exh. 3 at H-2; Board Exhs. 4, 5 and 6 at H-3).

246. The Board concludes that these contentions have no merit.

Use of Potassium Iodide (KI)

Contentions 21(b)(2), 24(5), 24(8), 36(f)

247. Neither the Nuclear Regulatory Commission regulations nor NUREG-0654 require state or local agencies to administer potassium iodide (Appl. Exh. 15 at 83).

248. NUREG-0654 only requires that state or local agencies identify their plans or intentions regarding potassium iodide administration (NUREG-0654 at 63; Appl. Exh. 15 at 83).

249. The emergency plans for the states and counties which fall within the plume EPZ identify their plans or intentions with respect to potassium iodide administration (Appl. Exh. 15 at 83; Board Exh. 1 at II-I-4; Board Exh. 2 at II-I-3; Board Exh. 3 at F-14, 15; Board Exh. 4 and 6 at F-4, 6; Board Exh. 5 at F-4, 7).

250. The Ohio Director of Health has stated that, as a result of consultation with numerous experts and after consideration of the many adverse factors at risk, the Ohio Department of Health will not provide potassium iodide for emergency workers or residents at this time (Appl. Exh. 15 at 83; Board Exh. 1 at Section III, Letter 14 in Letters of Agreement).

251. Clermont County has decided to follow the advice of the State of Ohio and will not administer potassium iodide (Board Exh. 2 at II-I-3, Tr. 5169-70).

252. Under the Campbell County Radiological Emergency Plan, potassium iodide (KI) would be administered as early as possible subsequent to the release of radioiodine when such a protective action would result in a significant dose savings (Board Exh. 5 at F-7).

253. The Campbell County Plan (Board Exh. 5) states in Appendix F-11, page F-11-1 that:

"[p]otassium iodide for use by the general public will, in accordance with State policy, be stored at a convenient medical facility within Campbell County as well as in Bracken and Pendleton Counties. From here, KI will be distributed as necessary.

Detailed KI distribution plans are currently being prepared by [Kentucky Disaster and Emergency Services] and the county [Disaster and Emergency Services] organizations and will be complete prior to commercial operation of the ZPS-1. The [Radiation Control Branch] and the [Bureau for Health Services] will be responsible for maintaining and coordinating the periodic replacement of KI supplies intended for use by emergency workers and the general public."

254. The Campbell County Radiological Emergency Plan provides for timely administration of potassium iodide (Appl. Exh. 15 at 83; Tr. 6179-80).

255. The Campbell County Director of Disaster and Emergency Services testified that the Commonwealth of Kentucky was considering a recommendation for the

predistribution of potassium iodide to residences within five miles of the Zimmer Station, and that a Standard Operating Procedure will be prepared if the recommendation is adopted (Tr. 7948).

256. Even were the recommendation to distribute potassium iodide within five miles of the facility to be adopted, the plans for stockpiling potassium iodide for residences beyond five miles would be unchanged (Tr. 7948).

257. Thyroid uptake is a condition in which the thyroid gland holds radioactive iodine (Appl. Exh. 15 at 84).

258. The use of potassium iodide reduces radiation dose to the thyroid gland by blocking (saturating) the gland with non-radioactive iodine, so that when the radioactive iodine arrives at the gland it is not absorbed (Appl. Exh. 15 at 84).

259. The use of potassium iodide does not significantly reduce whole body exposure (Appl. Exh. 15 at 84).

260. The assertion in Contention 21(b)(2) that a maximum period of 12 hours before monitoring is too long of a period for the administration of potassium iodide to be effective is an incorrect interpretation of NUREG-0654 provisions concerning monitoring of evacuees (Appl. Exh. 15 at 84).

261. NUREG-0654 at 65 states that "personnel and equipment available should be capable of monitoring within

about a 12 hour period all residents and transients in the plume exposure EPZ," which provision is not intended as an evaluation criteria for the use of potassium iodide (Appl. Exh. 15 at 84).

262. The administration of potassium iodide is not dependent on the results of evacuee monitoring (Appl. Exh. 15 at 84).

263. Contamination itself is not expected to result in a significant radiation dose (Appl. Exh. 15 at 84).

264. While the time between contamination and decontamination is not critical, the emergency plans provide for monitoring and, if necessary, decontamination as soon as possible after arrival at the decontamination stations (Appl. Exh. 15 at 84).

Discussion

265. Neither the Nuclear Regulatory Commission nor FEMA has taken the position that the use of potassium iodide is required within the plume EPZ. That a difference among experts exists as to whether the advantages outweigh the disadvantages is exemplified by the fact that Ohio and Kentucky have come to different conclusions regarding the advisability of its use. The intervenors' own witness also testified that the pros and cons required careful consideration and that the issue is not an easy one, and did not give a recommendation as to whether potassium iodide should be used (Gandola Testimony, ff. Tr. 5438 at 2-4). In view of this, the Board does not find that the State of Ohio or

Clermont County plans are inadequate or fail to meet any NRC or FEMA requirement because they have concluded that potassium iodide should not be administered.

266. With regard to Campbell County, generally, and the City of Mentor, specifically, the Board is convinced, based upon its review of the evidence of record, that adequate provisions are being made which will permit prompt distribution of potassium iodide, either utilizing the method presently described in the plans or the one which is under consideration (Tr. 6166, 6179-80, 7948). It is noted that if it is decided to distribute potassium iodide to households within five miles of the Zimmer Station, residents of the City of Mentor will be included.

267. The Board finds the various jurisdictions' plans with regard to potassium iodide to be acceptable and further finds these contentions to be without merit.

State of Indiana Plans for the Ingestion Pathway

Contention 35

268. The State of Indiana has a radiological emergency plan (Tr. 4976, 5150-55, 5159, 6174-75).

269. The Indiana Radiological Emergency Response Plan for Fixed Nuclear Facilities, prepared by the Indiana Department of Civil Defense & Emergency Management, provides ingestion exposure pathway planning for nuclear power plants adjacent to the State of Indiana, including the Wm. H. Zimmer Nuclear Power Station (Appl. Exh. 15 at 124; Tr. 4977).

270. Such planning by the State of Indiana includes the use of agents of the Indiana State Board of Health to obtain samples of foodstuffs and consumed items, for their analysis, the interdiction and, if necessary, disposal of contaminated items, and the provision of uncontaminated supplies of drinking water and foodstuffs (Appl. Exh. 15 at 124).

271. With regard to the protection of the citizens of the City of Mentor, the provisions of the Commonwealth of Kentucky plan for interdicting, sampling, treating, quarantining or, if necessary, destroying foodstuffs, provide adequate additional assurance (Board Exh. 3 at F-6 to 14).

Discussion

272. The uncontradicted evidence of record is that the State of Indiana has a radiological emergency plan which incorporates provisions for ingestion pathway planning for the Zimmer Station. The representative of the State of Ohio stated that the Indiana plan was completed and was based upon the Ohio plan (Tr. 5150-55). The Indiana State Board of Health is the responsible agency under the Indiana plan for ingestion pathway planning. Sample foodstuffs and other items would be obtained for analysis, interdiction and, if necessary, disposal. That Board would also be responsible for providing uncontaminated supplies of drinking water and foodstuffs.

273. Planning in the State of Indiana is in accordance with NUREG-0654 at p. 22, which states that this function should be handled on the state level because involved areas could be quite large, crossing many jurisdictional boundaries and involving the use of relatively sophisticated radiological analysis equipment. The Board also bases its finding of adequacy on the fact that the time available to implement protective measures associated with the ingestion pathway is generally greater than the time available to implement protective measures associated with the plume exposure pathway (NUREG-0654 at 22).

274. The Board finds that the State of Indiana does have an emergency plan which includes ingestion pathway planning and that adequate provisions have been made to prevent contaminated food from Indiana from reaching the citizens of the City of Mentor.

State of Ohio and Commonwealth of Kentucky
Plans for the Ingestion Pathway

Contentions 25(3), 25(4), 36(K)

275. Food, Water, Milk and Livestock Feed Control is the responsibility of the State of Ohio and is described fully in the State of Ohio Nuclear Power Plant Emergency Response Plan (Board Exh. 1 at Section IV; Tr. 4976, 5560, 6832).

276. The Clermont County Board of Health and the Clermont Cooperative Extension Service are only support agencies in this function and, as such, have no separate

operating procedure (Appl. Exh. 15 at 118; Board Exh. 2 at II-I-6 and III-A-3, 10; , Tr. 5561, 5138, 5561-62).

277. Provisions exist at the State level in Ohio to monitor and take appropriate actions for all farm products, including those from livestock and dairy cattle (Appl. Exh. 15 at 118-20; Board Exh. 1 at IV-1 to 8 and V-3 to 5).

278. Monitoring will be performed on products intended for human consumption at various stages of production up to and including just prior to being made available to the public (Appl. Exh. 15 at 118-20).

279. The State of Ohio has helicopters and laboratory facilities available to assure the timely sampling of milk (Tr. 5562-63, 6836-38).

280. Although all attempts will be made to provide stored feed for farm animals, failure to do so does not imply an inability to protect the health and safety of the population of Clermont County (Appl. Exh. 15 at 119; Tr. 5147-48).

281. Any foodstuffs unfit for human consumption, if necessary, would be kept from consumers or be destroyed (Board Exh. 1 at IV-8 and V-5; Tr. 5566, 6851).

282. The Ohio Department of Health ("ODH") is the responsible agency for milk and dairy animal control in Ohio (Board Exh. 1 at IV-2, V-3, 4; Tr. 5559).

283. ODH maintains a list of all Grade A milk producers in Clermont County and a list identifying shipping locations for each producer (Appl. Exh. 15 at 120).

284. ODH maintains contact with milk producers through local extension services and local health departments (Appl. Exh. 15 at 120; Board Exh. 2 at III-A-10).

285. ODH maintains contact with processors through the Ohio Dairy Products Association, which can advise ODH of any changes in location of standard shipments of milk at the time of an emergency, and develops systems to sample and monitor milk supplies (Appl. Exh. 15 at 120).

286. Locations of all milk producers are plotted on a map enabling ODH to identify which farms would most likely be affected by a release from the Zimmer Station (Appl. Exh. 15 at 120; Tr. 6833).

287. Contact with milk producers and processors may also be made through Milk Management, Inc., which represents both the producers and processors (Appl. Exh. 15 at 120).

288. The ODH may quarantine milk and forbid the sale of milk (Board Exh. 1 at IV-2, 4; Tr. 5560).

289. Provisions for monitoring, control, and regulation of public water supplies are adequate to protect the health and safety of the people of Mentor and the population of Kentucky within the 50 mile ingestion pathway EPZ (Appl. Exh. 15 at 127).

290. Two-way radio communications will exist between the Zimmer Station and the three nearest water intake and treatment facilities located downstream from the Zimmer Station on the Ohio River, the City of Cincinnati, Kenton

County and Newport Water Works (Appl. Exh. 13 at 5.4.9 and Appendix D, Letter of February 9, 1981; Appl. Exh. 15 at 127).

291. Continuous monitoring for radioactive isotopes at these water works is neither required nor necessary (Appl. Exh. 15 at 127).

292. Based on the average speed of the Ohio River, there would be a period of about ten hours from the time of any liquid release from Zimmer Station to the time it reached the nearest water works intake on the Ohio River (Appl. Exh. 15 at 127-28).

293. Potentially radioactive discharges from the Station into the Ohio River are monitored (Appl. Exh. 15 at 128).

294. Adequate time exists for notification of the appropriate water works to take any required protective action (Appl. Exh. 15 at 128; Tr. 6170).

295. The Kentucky Department of Natural Resources and Environmental Protection ("DNREP") - Division of Water Resources is capable of sampling water supplies (Appl. Exh. 15 at 128).

296. Water analysis may also be performed by a private testing facility or by Federal contractor laboratories through the Department of Energy (Appl. Exh. 15 at 128).

297. The Commonwealth of Kentucky maintains files and data on the sources of all area water supplies which are

readily available during an emergency (Appl. Exh. 15 at 128).

298. Immediate supplies of "uncontaminated" water are not necessary when water intakes on the Ohio River are closed since water works have reserve storage capacity and can continue to supply water (Appl. Exh. 15 at 128; Tr. 6170-72).

299. During periods of severe drought and in situations when flooding renders ground water sources unusable, Kentucky organizations have gained extensive experience in supplying water from alternate sources (Appl. Exh. 15 at 128; Tr. 6169-70).

300. People of the City of Mentor may receive their water from the Newport Water Works and do not have a separate facility to treat water from the Ohio River (Appl. Exh. 15 at 128).

301. If a chance for contamination of water supplies existed, the Emergency Broadcast System could be used to instruct individuals not to utilize water supplies until tests had demonstrated them to be safe (Tr. 6173-74).

302. The State of Kentucky would supply uncontaminated water, if necessary (Tr. 6173).

Discussion

303. These contentions relate to the control of foodstuffs, milk, and water following a postulated accident at the Zimmer Station. Inherently, such controls need not be implemented in the same time frame as actions in the

plume EPZ relating to protective actions of individuals residing therein inasmuch as time exists to interdict such foodstuffs or water supplies prior to their reaching the consumer. Were immediate controls on milk, foodstuffs and water necessary, it is likely that the affected population would have already been evacuated.

304. In the State of Ohio, responsibility for food, water, milk and livestock control lies with the Ohio Department of Health. The witness presented by the intervenor, ZAC/ZACK, was the Clermont County Extension Agent, who only has a supporting role under the emergency plan. That witness admitted that he had never read the State of Ohio Emergency Plan and therefore could make no assessment of its adequacy, nor was he aware of its provisions (Tr. 5558). In this regard, the State of Ohio planners stated that additional training would be provided for county extension agents (Tr. 5139-40). While his testimony generally describes correctly the actions to be taken following an accident at the Zimmer Station, the Board believes that this witness has entirely misinterpreted the Commission's requirements regarding emergency planning. It is beyond question that the purpose of emergency planning is to protect the health and safety of the people surrounding a nuclear power plant and only secondarily to protect farm animals. While the provisions described in the plans should be sufficient in most cases to assure both the health and safety of the public and the safety of the animals, it goes

without saying that should these farm animals somehow become contaminated or their products become unsafe for human consumption, the animals would be kept from the marketplace, and their products would be kept from consumers and, if necessary, destroyed (Tr. 5148). As the Extension Agent pointed out, the large milkherds have additional resources to enable them to be fed off pasture and sheltered. Thus, commercial distribution of such milk products would not appear to be a problem. The monitoring of all animals would continue to the extent the situation warrants. The Board finds that sufficient facilities exist for such monitoring.

305. The same considerations apply to the monitoring of goats' milk. This would not seem to the Board to be a problem affecting any significant section of the population. Of course, individuals who might consume such goats' milk could be notified over the EBS to avoid such consumption until the milk from particular animals has been checked out.

306. With regard to the monitoring, control and regulation of water supplies, the Board is convinced that the actions which are planned are sufficient to protect the health and safety of the population, including those in the City of Mentor (Tr. 6170-71). As discussed above, the Emergency Broadcast System could notify individuals not to drink water unless it were tested. If the concern for radioactivity in water supplies were the result of contamination from a release into the air, the Board notes that levels sufficient enough to cause problems with the

water supply would have previously required evacuation of the public. Therefore, since the individual water supplies would not be needed until recovery operations began, this is a long term problem. With regard to possible discharge of radioactive liquids into the Ohio River, the only potential source of such radioactivity is the discharge of service water into the Ohio River. This discharge is monitored and remote readouts are available at, inter alia, the Kentucky EOC and the Ohio and Clermont County EOC if an emergency action level were to be reached (Tr. 6194, 6198-200). In addition, radio communications exist with the closest water intakes downstream on the Ohio River, which are some ten hours away from the plant considering the average speed of the Ohio River (Appl. Exh. 15 at 127-28). Adequate time exists for notification in order to close the water intakes and to begin sampling on the river and at the intakes.

307. The witnesses from the State of Kentucky testified as to their experience and success in the past in supplying water for large populations due to natural disasters and their ability to supply the water needs of the communities surrounding the Zimmer Station on the Kentucky side in the event of an accident (Tr. 6169-70). This testimony is uncontradicted and the Board is convinced that adequate measures can be taken in the event of an accident at the Zimmer Station affecting water supplies to protect the public health and safety.

Public Information

Contentions 4(12), 23(1), 23(3), 23(4)
and 23(5)

308. As part of the Zimmer Station emergency planning effort, information will be made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency situation (Appl. Exh. 15 at 101; Circle of Safety).

309. The program for dissemination of public information will be in accordance with the requirements of Section II.G, "Public Education and Information," of NUREG-0654 (Rev. 1) (Appl. Exh. 15 at 101).

310. The primary means for dissemination of information to members of the public living within the plume EPZ is a document entitled "Circle of Safety" (Appl. Exh. 15 at 101; Appl. Exh. 15 ff. 106).

311. "Circle of Safety" will be approved by involved governmental agencies having jurisdiction within the plume EPZ (Appl. Exh. 15 at 101-02).

312. "Circle of Safety" (or a pamphlet or mailing similar to it) will be delivered at least annually to all residences and businesses within the plume EPZ (Appl. Exh. 15 at 102; Board Exh. 2 at II-F-1; Tr. 6262).

313. Along with "Circle of Safety," a copy of the pamphlet "Radiation: Measure for Measure" will be sent to the same recipients (Appl. Exh. 15 at 102).

314. "Circle of Safety" covers the topics required by NUREG-0654, namely: educational information on radiation;

points of contact for additional information; a description of protective measures and consideration of special needs of the handicapped (Appl. Exh. 15 at 102; Appl. Exh. 15 ff. 106).

315. Specific information in a condensed and simplified form as to what to do in an emergency situation will be included in the five telephone books which are distributed within the plume EPZ (Appl. Exh. 15 at 102).

316. A typical layout of the instructions to be contained in the telephone books is contained in the record (Appl. Exh. 15 at 102; Appl. Exh. 15 ff. 106).

317. Emergency instructions will be posted in public areas (Appl. Exh. 15 at 102; Board Exh. 2 at II-F-1).

318. While nothing will prevent some residents from calling local authorities contrary to the specific instructions given in "Circle of Safety" and the telephone book instructions, this should not unduly delay evacuation (Appl. Exh. 15 at 102-03).

319. If lines to police are busy, residents are likely to turn to the radio or TV to gain further information (Appl. Exh. 15 at 103; Tr. 5786).

320. The Emergency Broadcast System stations would broadcast instructions sufficient for those who had not read "Circle of Safety" or did not consult the telephone book (Appl. Exh. 15 at 103; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3 and Attachment D-4; Board Exh. 3 at C-2 and

J-2-1 to 6; Board Exh. 4 at C-4 and C-6-1 to 5; Board Exhs. 5 and 6 at C-3, 4 and C-6-1 to 5).

321. Those individuals failing to take any action would be located during the door-to-door confirmation of notification performed by emergency workers (Appl. Exh. 15 at 103; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3; Board Exh. 3 at F-7-1; Board Exhs. 4, 5 and 6 at F-9-1; Tr. 5429, 5479-80).

322. Individuals located as the result of the door-to-door confirmation of notification would be given instructions personally (Appl. Exh. 15 at 103; Board Exh. 1 at II-D-3; Board Exh. 2, at II-D-2, 3; Board Exh. 3 at F-7-1; Board Exhs. 4, 5 and 6 at F-9-1; Tr. 5429, 5479-80).

323. The possibility that residents refuse to leave an area does not represent any deficiency in the planning effort or the reasonableness of its implementation (Appl. Exh. 15 at 103).

324. "Circle of Safety" has a level of seventh grade readability on the Fry Readability Graph (Appl. Exh. 15 at 105).

325. It is not appropriate or necessary to attempt to reduce the "Circle of Safety" readability level further as determined by the Fry Readability Graph inasmuch as the message content of the material might be affected (Appl. Exh. 15 at 105).

326. The text of "Circle of Safety" will be readable by a large segment of the population (Appl. Exh. 15 at 105).

327. Information to be included in the telephone books used in the vicinity of the Zimmer Station contains the essential instructions should an emergency occur (Appl. Exh. 15 at 106).

328. This telephone book material is at the fifth grade readability level using the Fry Readability Graph (Appl. Exh. 15 at 106).

Discussion

329. These contentions deal generally with information to be provided to the general public prior to an emergency to assure that they will be knowledgeable of steps which they may be required to take in the event of an emergency. Subsequent to the filing of these contentions, Applicants engaged an expert, who is extremely well qualified, to review the public information document and other information to be included in the telephone books utilized by persons within the plume EPZ in order to simplify the information and enhance its readability (George R. Klare, Personal and Professional Information; Appl. Exh. 15 ff. 106). Inasmuch as the document entitled "Circle of Safety" was reduced to a readability level of approximately seventh grade on the Fry Readability Graph, and the telephone book information was similarly reduced to a fifth grade reading level, these contentions were not pursued by ZAC-ZACK (Tr. 4897, 5817, 5820). The content of "Circle of Safety" is in accordance with the requirements of NUREG-0654, and it is suitable with regard to conveying the message which is intended. The

Licensing Board notes that "Circle of Safety" recommends that its contents be explained to persons who would not otherwise be able to read or understand it (Circle of Safety at 1).

330. One witness appeared for Dr. Fankhauser with regard to the informational content of "Circle of Safety." He was an instructor of English from Clermont College. His testimony concerned several subjects which he, as an individual, would want to see included or expanded within "Circle of Safety" (Tr. 5719, 5734). The witness was not qualified as an expert to express the views as to the content of the document and was uninformed as to the requirements for the contents of the document (Tr. 5726-28). He did not live within the plume EPZ and could not state that his views were applicable to any let alone the majority of individuals who did live within the plume EPZ (Tr. 5731, 5748-51). The Board has discounted his testimony. The Board notes that increasing the size of the public information booklet would tend to discourage people from reading it at all (Tr. 5730).

331. Intervenor ZAC/ZACK presented a witness who was a social worker in Clermont County. She stated that some of her low-income clients would not, as a group, be able to understand "Circle of Safety" or the telephone information booklet inasmuch as they were incapable of following any but the most simple of directions. The witness for ZAC/ZACK stated that if any questions were to come to her from her

clients she would attempt to answer them. While she wished all instructions could be reduced to a post card size in extremely simple language, the Board recognizes this is an impossibility (Tr. 5430-31).

332. Even if individuals were unable to read "Circle of Safety" and did not listen to instructions broadcast over the NOAA weather radio or EBS stations, such individuals would be identified during the door-to-door confirmation of notification conducted by emergency workers. The witness for ZAC/ZACK acknowledged this fact (Tr. 5428-29).

333. The same considerations hold true for individuals discussed in the testimony of Chief Kennedy of the New Richmond Police Department. While the Board believes that the additional efforts to educate the public with regard to the Zimmer Station will cause individuals to take actions to protect themselves, the provisions of the emergency plan are sufficient to compensate for failure to follow directions. With regard to the assertion that individuals are informed with regard to the need to leave the vicinity or take other protective actions and their refusal to do so constitutes a defect in the plan, the Board cannot agree. As stated during the course of the proceeding, there is no way in which governmental officials can require persons to protect their own health and safety. We do not view this as a deficiency in the plan (Tr. 5758).

334. The Board thus concludes that, in the challenged areas, the public information program is adequate and the contentions stated above have no merit.

Evacuation Time Estimates

Contentions 20(c)(6), 20(c)(10), 20(c)(12),
20(c)(14), 23(2), and 36(B)

335. Evacuation time estimates are provided to public officials as an aid in making decisions regarding protective actions for the plume Emergency Planning Zone (Appl. Exh. 15 at 30).

336. During a radiological emergency, public officials may be required to determine whether protective actions are required and, if so, to recommend the implementation of the protective actions of sheltering or evacuation to minimize the radiation exposure of the potentially affected population (Appl. Exh. 15 at 30; Board Exh. 1 at Guide II-I-6; Board Exh. 2 at II-I-2 to 5; Board Exh. 3 at F-2 to 5 and Appendix F-4; Board Exhs. 4, 5 and 6 at F-2 to 5; Tr. 5894-95, 6298-99).

337. Evacuation time estimates are used in the decision-making process for recommending either sheltering or evacuation (Appl. Exh. 15 at 30; Tr. 5996-97; 6686).

338. If a protective action is necessary, the evacuation time estimates, along with other information such as projected dose rate and exposure duration, are used by public officials to determine which protective action (sheltering or evacuation) will result in the lowest possible exposure of the population (Appl. Exh. 15 at 30;

Board Exh. 1 at II-I-6; Board Exh. 2 at II-I-2 to 5; Board Exh. 3 at F-2 to 5 and Appendix F-4; Board Exhs. 4, 5 and 6 at F-2 to 5; Tr. 5895-97, 5943).

339. It is impossible to predict in advance what factors or combination of factors, including weather conditions will exist at the time of an evacuation (Appl. Exh. 15 at 30; Tr. 5386, 5766-67).

340. Rather than trying to predict evacuation times for every conceivable condition or combination of conditions in advance, time estimates have been provided for two conditions, a best estimate and an estimate for adverse weather (Appl. Exh. 15 at 30; Board Exh. 3, Appendix F-5 at 3-1; Tr. 5011).

341. Should conditions exist at the time of a potential evacuation which, in the judgment of the public officials, would significantly increase evacuation times, actions will be taken, as provided for in the plans, to eliminate the condition that hinders the evacuation (e.g., removal of disabled cars, prompt clearing of snow, designation of alternate evacuation routes) or the evacuation time estimate can be modified as appropriate (Appl. Exh. 15 at 30-31; Tr. 5031, 5034, 6087-89, 6189, 6306; Board Exh. 2 at II-I-3, 16 and Attachment I-2 at Section 5-8).

342. Procedures exist which direct the public officials to modify the evacuation times for an evacuation

to be taken during conditions which could significantly delay travel, such as snow or fog (Appl. Exh. 15 at 32).

343. The resulting modified evacuation time estimate would then be used in the protective action decision-making process (Appl. Exh. 15 at 31, 35; Tr. 6306).

344. The evacuation times are only estimates and are not "mandatory time limits" and there are no "mandatory time limits" for the evacuation of the public (Appl. Exh. 15 at 31; Tr. 5052).

345. The Evacuation Time Study contained in the state and county plans is realistic and suitable for its intended purpose (Evacuation Time Study; Appl. Exh. 15 at 31-32; Tr. 6693; Urbanik at 3).

346. The results of the Evacuation Time Study are in close agreement to the times obtained by the dynamic analysis method for nine other nuclear power plants (Appl. Exh. 15, Table 1 at 38; Appl. Exh. 15 at 31).

347. If the Evacuation Time Study estimates were reevaluated using dynamic analysis techniques, the estimated times for evacuation would likely be comparable to or lower than those presented in the plans (Appl. Exh. 15 at 31-32).

348. The times presented in the Evacuation Time Study are adequate and appropriate for the use of emergency response officials in the decision-making process for protective actions (Appl. Exh. 15 at 32; Urbanik at 3).

349. The Evacuation Time Study considered the local road network in the development of the evacuation routing

information developed for that study (Appl. Exh. 15 at 32; Tr. 5984; Board Exh. 2 at II-I, Attachment I-2 at Section 5-4, 5; Urbanik at 1).

350. The evacuation routes considered in the Study are in close agreement with the routes selected by the local planners as major evacuation routes (Staff Exh. 11; Tr. 7163).

351. The location of residences from public roadways and the length of private lanes and road conditions along such roads do not restrict normal daily travel and, during an evacuation, no vehicular flow on these lanes is expected to exceed their capacities (Appl. Exh. 15 at 32; Tr. 5986).

352. There are provisions in the emergency plans for dealing with roadway blockage due to vehicle mishaps and the designation of alternate routes should routes become blocked during particularly severe weather (Appl. Exh. 15 at 32; Board Exh. 2 at III-A-8; Board Exhs. 3, 4, 5 and 6 at O-1; Tr. 5991).

353. The general population will be prepared for evacuation by the dissemination of public information, including a discussion of evacuation in the emergency planning booklet, "Circle of Safety," distributed to every business and residential address within the plume EPZ (Appl. Exh. 15 at 33; Board Exh. 2 at II-F-1; Board Exh. 3 at J-5; Board Exhs. 4, 5 and 6 at J-6).

354. "Circle of Safety" contains specific information regarding evacuation including: notification methods,

materials to be taken during evacuation, a procedure for identifying special transportation needs, and a map indicating suggested evacuation routes and the location of relocation/decontamination centers (Appl. Exh. 15 at 33; Circle of Safety at 6-7, 9-12, 15).

355. "Circle of Safety" also contains specific information indicating the method for initial notification of the public and the means for providing instructions to the public for the taking of the protective actions (Appl. Exh. 15 at 33; Circle of Safety at 9-10).

356. Only a minimum amount of fuel would be required to travel out of the plume EPZ, and it is expected that nearly all vehicles would have sufficient fuel to travel out of the plume EPZ (Appl. Exh. 15 at 33).

357. Should vehicles run out of fuel, transportation would be provided by other private vehicles or by county vehicles specifically designated in the plans to serve persons without transportation (Appl. Exh. 15 at 33; Board Exh. 2 at II-I-5; Board Exhs. 4, 5 and 6 at M-1).

358. Vehicles inhibiting evacuation could be bypassed, or moved to the side or off the road (Appl. Exh. 15 at 33; Tr. 5385, 5419, 5766-67, 5779-80, 5991, 7157-58, 7170-71, 7256-57).

359. Vehicular accidents were properly excluded as a factor in determining evacuation times (Tr. 7254-57).

360. Alternate routes could be recommended based upon traffic flow or other factors (Appl. Exh. 15 at 33; Tr. 5955, 6085).

361. "Circle of Safety" instructs the public not to call local law enforcement agencies (Appl. Exh. 15 at 34; Circle of Safety at 7).

362. Notification of the public and subsequent instructions will be provided by the Prompt Notification System and messages on the Emergency Broadcast System (Appl. Exh. 15 at 34; Board Exh. 1 at II-D-2, 3; Board Exh. 2 at II-D-2 and Attachment D-4; Board Exh. 3 at C-1, 2, 4 and J-5; Board Exh. 4 at C-4 and C-6-1 to 5; Board Exhs. 5 and 6 at C-3, 4 and C-6-1 to 5).

363. Emergency Broadcast System messages will clearly state whether a test is being conducted (Appl. Exh. 15 at 34; Board Exh. 2 at II-D, Attachment D-4; Board Exh. 3 at J-5; Board Exhs. 4, 5 and 6 at C-6-1 to 5).

364. Panic reaction resulting in reckless and high-speed driving is not a problem in evacuation situations (Appl. Exh. 15 at 34; Tr. 5935, 6002, 6016-18, 6186, 6224, 6238-41, 7230-34).

365. In the event of a Zimmer Station related evacuation, panic reaction and other psychological factors are expected to be minimized due to the public information program's preparation of the public to take proper protective action (Appl. Exh. 15 at 34; Tr. 6823-24).

366. The Evacuation Time Study was prepared assuming that the non-auto owning population would evacuate within the estimated times for those having an automobile (Appl. Exh. 15 at 34).

367. There is no reason to believe that a large segment of this population could not evacuate within these times (Appl. Exh. 15 at 34; Tr. 6185-86).

368. The experience of state planners is that non-auto owning persons find some means of evacuating, usually with a neighbor or nearby relative (Appl. Exh. 15 at 34-35; Tr. 6185-86).

369. "Circle of Safety" encourages non-auto owning individuals to travel with a neighbor or friend (Appl. Exh. 15 at 35; Circle of Safety at 9, 11).

370. "Circle of Safety" makes provisions for the handicapped, by providing a mail-in card which will aid in identifying these people who have transportation needs, and special provisions for transporting the people identified in this process will then be made (Appl. Exh. 15 at 35; Board Exh. 2 at II-F-1 and II-I-5; Board Exh. 3 at J-5; Board Exhs. 4, 5 and 6 at J-6; Circle of Safety at 13).

371. The evacuation time estimate in Table 5-3 of the Evacuation Time Study presents evacuation data for each special facility (Appl. Exh. 15 at 35; Tr. 6619).

372. Mobilization time was considered for each special facility (Appl. Exh. 15 at 35).

373. Information for special facility evacuation times was obtained from discussions with local planners, school officials, and special facility operators (Appl. Exh. 15 at 35; Tr. 6619).

374. The evacuation times for each special facility were calculated by combining the mobilization and evacuation travel times; the maximum total time per zone for special facilities was depicted on Figure 3-1 of the Evacuation Time Study (Appl. Exh. 15 at 35).

375. Since the evacuation times for the general public determined by the Evacuation Time Study were relatively short, no recommendations which would significantly improve such times were considered feasible (Appl. Exh. 15 at 35).

376. The road capacity of 1000 vehicles per hour for the two-lane evacuation routes and 1500 vehicles per hour for four-lane road segments utilized in the Evacuation Time Study are appropriate values (Appl. Exh. 15 at 35-36; Tr. 6584, 6628, 6693-94).

377. The evacuation times predicted by the Evacuation Time Study would increase only slightly even if significant reductions in road capacities were assumed (Appl. Exh. 15 at 36; Tr. 6752-53).

378. Evacuation times were calculated after assuming a road capacity reduction of 50% (500 vehicles per hour for a two-lane road); the evacuation times were found to be unchanged in six of the ten zones (Appl. Exh. 15 at 36).

379. In the four zones where changes occurred for the assumption of a 50% reduction in road capacity, increased evacuation time estimates of only 8, 10, 15 and 34 percent resulted (Appl. Exh. 15 at 36).

380. Evacuation times were also calculated using road capacities reduced by 25% (750 vehicles per hour for a two lane road) in which case evacuation times in nine of the ten zones were unchanged and the time in one zone increased by 24 percent (Appl. Exh. 15 at 36).

381. Evacuation time estimates depend on the assumptions and methodologies used in their preparation (Appl. Exh. 15 at 37).

382. The City of Mentor in Contention 36B has incorrectly interpreted the "edge of the evacuation zone" to mean the "edge of the 10 mile evacuation zone" rather than the "edge of the 0-2 mile zone" (Appl. Exh. 15 at 37).

383. The descriptions of the roadway segments of principal evacuation routes indicated in Staff Exh. 11, including number of lanes, width of lanes, road type and capacity as contained in Tables 1-3 of the February 12, 1982 letter, are correct (February 12, 1982 Letter at 3-10).

384. Roadways beyond 10 miles were considered in the Evacuation Time Study but no special capacity limitation problems were found (February 12, 1982 letter at 3; Tr. 6604-06).

385. Felicity area roads and population (929 by 1980 census) were also included in the Evacuation Time Study

since the entire village and nearby roads are within or near the ten mile radius of the Zimmer Station, but due to low traffic demand, no specific problems exist (February 12, 1982 letter at 3; Urbanik at 1; Tr. 7179-80).

386. The Evacuation Time Study assumption of 1.0 evacuation vehicle per household is consistent with NUREG-0654, Appendix 4, Section II-A, p. 4-3 and is supported by natural disaster evacuation experience (February 12, 1982 letter at 11).

387. Should 1.3 vehicles per household be assumed, there would be no increase in the evacuation times with the single exception of one sector that includes New Richmond, which would see an approximately 25% increase in evacuation time (February 12, 1982 letter at 12; Tr. 6666; Urbanik at 2).

388. The traffic volumes on each roadway segment during an evacuation have been calculated as part of the Evacuation Time Study (February 12, 1982 letter at 13).

389. "Bottlenecks" are roadway segments where highway capacity is exceeded by vehicle demand (February 12, 1982 letter at 13; Tr. 6595, 6709, 6711-12, 6718).

390. Road restrictions such as one-lane bridges, narrowed sections, sharp turns, or intersections are not "bottlenecks" unless the highway capacity of the segment where these conditions occur is less than the vehicle demand (February 12, 1982 letter at 13; Tr. 6620-21, 6707).

391. The roadway segment analysis of the Evacuation Time Study identified only one area within the study area in which the roadway segments are capacity limited (February 12, 1982 letter at 13; Tr. 6620-21, 6716).

392. The identified capacity limited roadway segment is that portion of Route 52 located in New Richmond, Ohio (February 12, 1982 letter at 13; Tr. 6716-17, 6719, 7177).

393. It is expected that the traffic volume resulting from evacuees traveling out of the area along Route 52 combined with the addition of the local New Richmond population will cause only a limited delay on that segment of Route 52 controlled by three traffic signals (February 12, 1982 letter at 13; Urbanik at 1; Tr. 7178).

394. The extent of the delay for the capacity limited roadway segment will be minimal (February 12, 1982 letter at 13).

395. The capacity limited roadway segment is approximately 7 to 8 miles from Zimmer Station (February 12, 1982 letter at 13).

396. After the Evacuation Time Study was completed in 1980, further analysis of roadway segments was made to check the validity of the highway capacity assumptions utilized therein (February 12, 1982 letter at 14).

397. All key roads were field checked to identify factors affecting highway capacity such as lane width, shoulder widths, sight distances, roadway type, posted speeds, and potential restrictions (i.e., one-lane bridges,

sharp turns, narrowed sections, or intersections) (February 12, 1982 letter at 14; Tr. 6740).

398. Highway capacities were then calculated and compared to the Evacuation Time Study's assumptions, but no additional roads with vehicle demand in excess of highway capacity were found (February 12, 1982 letter at 14).

399. Adequate attention has been given to the identification of "bottlenecks" (February 12, 1982 letter at 14).

400. Analysis of data from the 1980 census results in a 35% increase in population within 10 miles of Zimmer above the 1980 estimate used in the study, but this population growth does not affect the evacuation time estimates with the exception of one sector that includes New Richmond, which would see an approximately 25% increase in its evacuation time (February 12, 1982 letter at 15; Tr. 6664; Urbanik at 2; Tr. 7224).

401. Two to four hundred additional personnel could be expected onsite during refueling outages, depending upon the exact scope of work to be accomplished (February 12, 1982 letter at 18).

402. During refueling the reactor is in cold shutdown and the potential for any serious accident requiring evacuation of the general population is greatly minimized (February 12, 1982 letter at 18).

403. During cold shutdown, the core inventory of radioisotopes is lower than during operation so that the

area likely to be affected would be smaller than the full plume EPZ (February 12, 1982 letter at 18).

404. Should an accident occur, the majority of the non-essential people would be released from the plant in the early stage of an emergency, most likely prior to the need for implementation of a protective action for the general population (February 12, 1982 letter at 18).

405. During normal station operation, there are generally no on-site activities requiring a significant number of people such that this would not affect the evacuation time of the general public (February 12, 1982 letter at 18).

406. Most of the essential on-site personnel would stay on-site to man emergency response facilities or support response or recovery efforts (February 12, 1982 letter at 18).

407. During both refueling and operation, the evacuation of the general public would most likely be unaffected by the evacuation of any Zimmer Station on-site personnel (February 12, 1982 letter at 18; Urbanik at 2).

408. The infrequent nature of flooding and sliding does not necessitate their consideration as part of the adverse weather conditions scenario (February 12, 1982 letter at 19).

409. Therefore, flooding or sliding has no impact on evacuation time estimates (February 12, 1982 letter at 19).

410. Flood and slide prone areas of the Zimmer Station plume EPZ are well known by local officials (February 12, 1982 letter at 19).

411. Local officials have access to information such as flood plain studies contained in Staff Exhibits 12-16 which identify flood prone areas (February 12, 1982 letter at 19; Urbanik at 2; Tr. 7184).

412. Sections of Route 8 in Kentucky are subject to sliding or slippages due to heavy rains, freezing and thawing, or flooding (February 12, 1982 letter at 19).

413. Despite these conditions, Kentucky Route 8 is in extensive everyday use by residents (February 12, 1982 letter at 20).

414. The road capacity of Kentucky Route 8, taking these conditions into account, is well above the projected vehicle demand and the road presents no special considerations for a normal, adverse or any other evacuation scenario (February 12, 1982 letter at 20; Tr. 6695-96).

415. The Evacuation Time Study was reviewed by Kentucky and Ohio State and local officials and included in the radiological emergency plans for Kentucky and the counties of Clermont, Campbell, Pendleton and Bracken (February 12, 1982 letter at 21; Tr. 6081-82; See, e.g., Board Exh. 3, Appendix F-5).

416. State and county planners have found the study to be useful in providing the time estimates necessary in the

protective action decision-making process (February 12, 1982 letter at 21; Tr. 6687).

417. State and local planners recognize in their methods for protective action decision selection that the time estimates used for evacuation of a segment of the population during an actual emergency must take into account the specific situation at hand (February 12, 1982 letter at 21; Tr. 6082, 7186).

418. State and local officials making protective action recommendations have available to them the estimates they originally developed in response to the NRC request of December 26, 1979 (February 12, 1982 letter at 21; Tr. 6570).

419. In an emergency, it is common for evacuating people to assist others, especially those whom they know do not have transportation, and there is no reason to expect different behavior in the area of the Zimmer Station (February 12, 1982 letter at 24; Tr. 6741-43).

420. The fact that people will help each other is confirmed by the extensive experience of Kentucky state planners with extensive evacuations (February 12, 1982 letter at 24; Tr. 6112, 6185-86).

421. Since few people are expected to require publicly-provided transportation in a Zimmer-related emergency, an evacuation time estimate that included this group would not be representative of the proper estimate for the majority of the people and would not be appropriate for

its intended use, inasmuch as the purpose of State and local emergency plans is to provide for the greatest total dose savings during an emergency (February 12, 1982 letter at 24).

422. Protective action decision-making procedures have been developed for the Zimmer Station which take into account evacuation time estimates that are representative of the expected, rather than worst case, response of the population (February 12, 1982 letter at 24).

423. Since relatively few evacuees will require public transportation and estimates are needed which represent the expected, rather than worst case, response of the population, it is proper to use in protective action decision-making the existing time estimate which does not separately consider the public without transportation (February 12, 1982 letter at 24).

424. Significant planning is made for people with public transportation needs (February 12, 1982 letter at 24; Urbanik at 1; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3 and II-I-5; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1).

425. Persons without other transportation will be identified either prior to or during emergencies in the same manner as other transportation dependent persons, such as the handicapped or elderly (February 12, 1982 letter at 24; Circle of Safety at 13, 15; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3, II-I-5 and II-B-2; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1 and J-6).

426. The primary methods for identification consist of the use of a paid-reply post card distributed prior to operation of the Zimmer Station and annually thereafter, and door-to-door verification of notification at the time of an emergency (February 12, 1982 letter at 24-25; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3, II-I-5 and II-B-2; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1 and J-6; Circle of Safety at 11-13).

427. The Clermont County Disaster Services Agency ("CCDSA") evacuation time estimates were developed using assumptions which are significantly different from those used in developing the Evacuation Time Study (February 12, 1982 letter at 28; Tr. 5100-01; Urbanik at 2).

428. The public notification system assumed by CCDSA entailed door-to-door notification, a very time-consuming process requiring the mobilization of a significant number of personnel (February 12, 1982 letter at 28; Tr. 5100-01).

429. A prompt notification system was assumed to exist in the Evacuation Time Study (February 12, 1982 letter at 28).

430. The adverse weather conditions assumed by CCDSA in its study consists of heavy snowfall combined with severe flooding (February 12, 1982 letter at 28; Tr. 5998).

431. The very infrequent combination of conditions assumed by CCDSA in the adverse weather scenario, resulting in numerous impassable roads, would very likely result in relatively long evacuation time estimates such that

evacuation would generally not be the initial recommended protective action (February 12, 1982 letter at 28).

432. The Evacuation Time Study leaves severe and infrequent adverse weather conditions to be considered by officials at the time of an emergency (February 12, 1982 letter at 28).

433. The Evacuation Time Study considers the effects of adverse weather on evacuation times by reducing the roadway capacities within the study area and the vehicle speed by 50% (February 12, 1982 letter at 29; Tr. 5988, 6744-45).

434. The adverse weather time presented in the Evacuation Time Study represents the effects of the most common adverse weather conditions that can be reasonably expected in the study area (February 12, 1982 letter at 29; Tr. 6616).

435. Public officials, in the course of selecting protective actions, may adjust these time estimates to reflect existing weather conditions at the time of the emergency as well as other conditions affecting evacuation times (February 12, 1982 letter at 29; Tr. 5999, 7209).

436. Evacuation times in the Evacuation Time Study are based on the assumption that residents in the Clermont County areas generally adjacent to Brown County will use roads that lead into Brown County (February 12, 1982 letter at 30).

437. If all people in the Clermont County areas generally south and east of the Zimmer Station were to use the routes suggested in the current Clermont County plans and not utilize roads into Brown County, the time estimate for that one area (the zone consisting of Sectors I, IV, VIII in the study) out to 10 miles would increase only approximately 15% (February 12, 1982 letter at 30; Urbanik at 3).

438. Changes of 15% are not very significant when considering the use of the Evacuation Time Study (February 12, 1982 letter at 30; Urbanik at 3).

Discussion

439. The subject of evacuation times was one of the most discussed and, perhaps, least understood topics which arose during the course of the proceeding. In order to assure that the record is clear and the Board's decision is fully understood, we have set forth in some detail the considerations related to this matter leading to the specific findings of fact stated above.

440. Evacuation of the public surrounding a nuclear power plant is one of the actions which may be considered following an accident should protective actions be required. Evacuation is considered along with sheltering to determine which protective action produces the greatest total dose savings in the particular circumstances that might exist following a nuclear power plant accident (Tr. 5063, 5995). The Board will first discuss the particular methodology by

which the appropriate protective action, i.e., evacuation or sheltering, is determined. It must be borne in mind that the manner in which this question arose during the hearing tended to emphasize the worst assumptions or worst combination of conditions (Tr. 5893). The Board recognizes at the outset that the hypothetical assumptions discussed during the hearing and combination of events which were postulated are not representative of conditions which are likely to occur after an accident and has taken due account of this in its analysis (See, e.g., Tr. 6298).

441. For example, it was always postulated by counsel for the intervenors that the entire plume EPZ had to be evacuated after an accident. The Board recognizes that this hypothetical worst case is extremely low in probability, and that if evacuation were needed at all, it is likely that only a few sectors will have to be evacuated (Tr. 4987). This worst case assumption was combined with extreme hypotheses regarding the flood of record, snowfalls which rendered roads impassable for days and even weeks, together with unchanging winds (Tr. 6298, 6302). The combination of these extremely low probability events should not be considered to the exclusion of the entire spectrum of substantially more probable planning conditions for which local and state authorities must provide in their plans.

442. The decision as to whether to evacuate a segment of the population within the plume EPZ, i.e., at some radial distance from the plant in a particular sector or sectors,

as opposed to sheltering those individuals, is made on the basis of calculations which take into account dose, the time for evacuation and the dose savings provided by sheltering (Tr. 5003, 5995-96). The algorithm (or logic diagram) for such calculations is presented in the emergency plans (See, e.g., Board Exhibit 3 at F-4-1). As set forth therein and, as is intuitively obvious, if the segment of the population which may be affected by a release from the plant could be evacuated before the release either occurs or reaches the location where such individuals are present and if such projected release would cause an impact on these individuals as determined by reference to the EPA Protective Action Guides, evacuation would be ordered. Most evacuation actions would take place prior to any significant release rates (Tr. 4987).

443. If, on the other hand, roads were impassable due to severe adverse weather, such as a severe snowfall which might make the roads impassable for a significant length of time, then evacuation would be ruled out inasmuch as sheltering would provide a dose savings over having individuals in cars and unable to safely evacuate (Tr. 5018, 5959, 6299-300, 6302, 6748). In this circumstance, the risk of an ordinary accident and exposure would be significantly greater than the advantages of evacuation. While circumstances in the locality have made roads impassable due to snow for several days, the Board does not find, based upon the evidence of record, that it is reasonable to assume

that individuals would be required to take shelter indefinitely (Tr. 6305-06). In arriving at this conclusion the Board considered past experience and the fact that the major roads would first be cleared, e.g., US Route 52 and state roads in Clermont County (Tr. 5022, 5674-75; Kennedy at 4-5). In a few days the states and counties could marshal significant snow clearing equipment and other heavy equipment which could either clear the roads or evacuate individuals in spite of such snow conditions (Tr. 5020).

444. For a number of intermediate conditions, that is, various conditions of release and conditions affecting evacuation, the decision as to whether to shelter or evacuate can only be made by the appropriate official at the time based upon calculations following the methodology set forth in the algorithm discussed above (Tr. 6306). The Evacuation Time Study serves as an input into this decision-making matrix (Tr. 7242).

445. In factoring in evacuation times, the planner is seeking a realistic estimate as to what the time will be for evacuation of a significant percentage of the population. In this way, the appropriate official will be able to gauge the dose savings by sheltering as compared to evacuation to determine the correct choice (Tr. 6007, 6012). Evacuation time estimates which would significantly overestimate or underestimate the time could lead the public official to an incorrect decision (Tr. 5992-93, 7239-42).

446. The Evacuation Time Study which was prepared for the Applicants and incorporated by the planners in the various emergency plans for the plume EPZ considered two different conditions - one best estimate and one for an adverse condition which was not the most severe, but which represented commonly occurring adverse conditions (Tr. 6306). This will be discussed below. The Board carefully examined the underpinnings of the Evacuation Time Study and has found the study to be appropriate for the purpose for which it is intended (Tr. 6687, 7165, 7242).

447. One of the significant areas for consideration during the hearing was the road capacity utilized in the Evacuation Time Study. The Evacuation Time Study utilized 1000 vehicles per hour for two-lane roads and 1500 cars per hour for four-lane roads as the minimum road capacity for major evacuation routes in the study area (Evacuation Time Study at 5-10, 5-11). The Study did contain some approximation of road widths based upon the recollection of planners, but the uncontroverted testimony was that such road widths were not directly utilized to determine road capacities (Tr. 6696-98, 7246-49). The road capacities were subsequently verified by detailed studies of road segments as to width, lateral obstructions and any limitations in sight distances (Tr. 6596, 6694, 6704, 7154, 7227). These capacity estimates showed that the original estimates were conservative (Tr. 6695, 6703-06, 6737-38, 7149, 7190, 7192-93).

448. The Staff witness with regard to evacuation time estimates was Mr. Thomas Urbanik, II, of the Texas Transportation Institute. Mr. Urbanik is a coauthor of "Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones," NUREG/CR-1745, which formed the basis for NRC evacuation time estimate requirements. Moreover, Mr. Urbanik has examined many of the roads within the plume EPZ to verify road capacities. Under contract to the NRC, Mr. Urbanik has reviewed evacuation time studies for all proposed and operating nuclear plants. His education and relevant experience and his demeanor on the stand has caused the Board to give significant weight to his testimony. Mr. Urbanik reviewed the capacities of the major evacuation routes within the plume EPZ and has determined the assumptions in the Evacuation Time Study regarding vehicular capacity were appropriate.

449. There was some controversy during the course of the hearing as to whether it was appropriate to divide the capacity of a two-lane road other than on a 50/50 basis, i.e., if the total road capacity were 2000 vehicles per hour, could the lane capacity be other than 1000 vehicles per hour. The Stone & Webster witness who prepared the study testified that it was appropriate to use unequal division of the total road capacity (Tr. 6584, 6692, 6733, 6735-36). This was confirmed by the witness for the NRC Staff, Mr. Urbanik, who by his credentials has shown himself to be an expert in the field and who personally inspected

the specific roads in question (Tr. 7148-49, 7150-51, 7154-56, 7165-66). Mr. Urbanik presented the theory and bases for his conclusion regarding the capacity of one-lane of a two-lane road (Tr. 7151-53, 7157). The only evidence to the contrary was that of a witness for FEMA, who appeared to be significantly less qualified by virtue of training and experience than the individuals upon whom the Board has placed greater reliance. Mr. Bernard Williams' professional qualifications do not demonstrate that he has any experience in determining the capacity of rural roads nor in evaluating evacuation time studies such as the one before us (Bernard E. Williams, Professional Qualifications, ff. Tr. 6982).

450. In any event, for the Zimmer Station area, road capacities are not of great significance inasmuch as it is an area of relatively low population so that the loadings are far below road capacities (Tr. 6596-97, 6698, 6738). This holds true throughout the entire study area with the exception of one point approximately seven to eight miles from the facility in New Richmond which is marginal with regard to road capacity. The Applicants performed certain sensitivity studies by examining the effect of reducing the road capacities by 25 and 50 percent and found the resulting evacuation times to be quite insensitive to these large changes in the assumptions. The Board is convinced that the Evacuation Time Study is quite insensitive to changes in road capacity.

451. With regard to the estimates for people without transportation, the Evacuation Time Study does not make separate provision. In the circumstances of the planning, the Board believes that this is appropriate. First, based upon previous studies which have shown that neighbors help each other in time of emergency, the portion of the population expected to need special transportation is not expected to be significant. This assumption was confirmed by the planners from Kentucky, who stated that in actual emergencies, public transportation was not needed at all. Preplanning will take place with regard to the identification of those who may need assistance in evacuation such that this function can be performed efficiently should evacuation be ordered. Inasmuch as the purpose of the time estimate is to provide input in determining dose savings, it would not be appropriate to base decisions on evacuation of the entire population on a small percentage of such population. This would have the same effect as overestimating the evacuation time for the entire population.

452. In these circumstances and as reflected in the detailed findings of fact set forth above, the Board finds that the present evacuation time estimates are appropriate for the use to which they will be put (Urbanik at 3). The Board further finds that above listed contentions are without merit.

Communications and Notification

Contentions 20(b)(4), 20(b)(5), 20(b)(5)(i),
20(b)(5)(ii), 20(b)(5)(iii), 20(b)(5)(iv),
20(b)(5)(v), 20(b)(6), 20(b)(6)(i),
20(b)(6)(ii), 20(b)(6)(iii), 20(b)(6)(iv),
20(b)(6)(v), 20(b)(6)(vi), 20(b)(7),
20(b)(7)(i), 20(b)(7)(ii), 20(b)(7)(iii),
20(b)(7)(iv), 20(b)(7)(v), 20(b)(7)(vi),
20(b)(8)(i), 20(b)(8)(ii), 20(b)(8)(iii),
20(b)(8)(iv), 20(b)(8)(v), 23(1)

453. Applicants are furnishing three 100 Watt radio base stations and antennas at the communications facilities located on a hilltop near the Zimmer Station for Clermont County police, fire, and local government services and have also agreed to provide space for a lifesquad radio system (Appl. Exh. 15 at 5; Tr. 5874-75).

454. This system will provide adequate communications in this area for the Clermont County Sheriff's Department, Monroe Township Fire, Monroe Township Police, Felicity - Franklin Fire Department, Felicity - Franklin Police Department, and Clermont County Disaster Services Agency (Appl. Exh. 15 at 5).

455. These facilities will also improve communications for mutual aid purposes with the Moscow Lifesquad, Washington Township Fire Department and the New Richmond Fire Department (Appl. Exh. 15 at 5-6).

456. The Moscow Lifesquad and Washington Township Fire Department are now routinely dispatched by the New Richmond Police Department (Appl. Exh. 15 at 6).

457. Mobile communications facilities provided by the State of Ohio during an emergency could compensate for

any communications deficiencies which may presently exist (Tr. 5201).

458. The Clermont County Radiological Emergency Response Plan calls for use of commercial telephone lines for communications among school facilities (Appl. Exh. 15 at 8; Board Exh. 2 at II-E-5 and III-C-1, 3 and 5; Tr. 5878).

459. The Applicants have offered to provide the Superintendent of the New Richmond School District with a direct two-way radio to communicate with the Zimmer Station (Tr. 5883, 5905).

460. Advance planning and alternate methods of communications assure an adequate capability to implement protective actions for school facilities in Clermont County (Appl. Exh. 15 at 8).

461. Initial notification of the Clermont County School Superintendent and district superintendents is to take place prior to public notification, and prior to the need to implement protective actions, whenever possible (Appl. Exh. 15 at 8; Tr. 5885, 6072, 6076).

462. Incoming calls from parents, resulting in overloaded telephone lines, do not present a problem if notification of the school occurred prior to public notification (Appl. Exh. 15 at 8, 11).

463. District Superintendents have authority to implement protective actions for their schools and, therefore, are not dependent upon the Clermont County

Superintendent for notification (Appl. Exh. 15 at 8; Board Exh. 2 at III-C-1, 3 and 5).

464. All schools located within the plume EPZ will be provided with institutional quality NOAA tone-alert radios as part of the Prompt Notification System (Appl. Exh. 15 at 8, 11; Board Exh. 2 at II-D-6; Board Exhs. 4, 5 and 6 at C-4).

465. In the event that initial telephone notification is not made prior to public notification, school principals can be alerted via the NOAA tone-alert radios (Appl. Exh. 15 at 8; Board Exh. 2 at II-D-6; Board Exhs. 4, 5 and 6 at C-4; Tr. 5879, 5899).

466. The Applicants have proposed to provide a modification to the telephone system at schools and other key school system locations which would free an existing line in case of a Zimmer Station emergency for the use of school employees and permit incoming and outgoing calls despite attempts by parents to call in which would otherwise overload the trunk lines (Tr. 6526-27, 6539-40).

467. School bus drivers will be notified by telephone (Appl. Exh. 15 at 8).

468. The Prompt Notification System (sirens and NOAA radios) can be used to alert bus drivers to a situation developing at the Zimmer Station, at which time they can follow procedures to proceed directly to schools or other assembly points for further instruction or action (Appl. Exh. 13 at 8-9; Tr. 5908-11).

469. Volunteer amateur radio personnel are available to provide and operate amateur radios at schools (Appl. Exh. 15 at 9, 12; Tr. 5882-84).

470. Adequate primary and back-up communications exist for schools to provide reasonable assurance that timely and prompt implementation of protective actions, including evacuation, can be implemented in the event of a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 9, 12; Tr. 5902).

471. In Campbell County, the primary means for communicating among the School Superintendent, schools located within the plume EPZ, and the school garage is by telephone (Appl. Exh. 15 at 11).

472. Advance planning and alternate means of communications assure an adequate capability to implement protective actions for Campbell County schools (Appl. Exh. 15 at 11).

473. Initial notification of the Campbell County School Superintendent and schools located within the plume EPZ take place prior to public notification and, whenever possible, prior to the need to implement protective actions (Appl. Exh. 15 at 11).

474. Notification to the schools and the Superintendent's Office by commercial telephone is backed by monitor radios activated from the Campbell County EOC (Appl. Exh. 15 at 11; Board Exh. 5 at C-4).

475. In Campbell County, in the event that initial telephone notification is not made prior to public notification, the Superintendent and the affected schools can be alerted via the NOAA tone-alert radios or by the monitor radios (Appl. Exh. 15 at 12; Board Exh. 5 at C-4).

476. Actions taken by the schools are independent of whether notification comes from the Superintendent, by NOAA tone-alert radio or by monitor radio (Appl. Exh. 15 at 12).

477. The primary method of communications with school bus drivers will be by telephone (Appl. Exh. 15 at 12; Board Exh. 5 at C-4).

478. The Prompt Notification System (sirens and NOAA radios) can be used to alert bus drivers to an emergency situation at the Zimmer Station, at which time they can follow procedures to proceed directly to schools or other predesignated location for further instructions or action (Appl. Exh. 15 at 12; Tr. 5908-11).

479. Radio communications with schools could be established by dispatching a police car or other radio-equipped vehicle to the school (Appl. Exh. 15 at 12).

480. Adequate primary and backup communications exist to provide reasonable assurance that timely and prompt implementation of protective actions at schools in Campbell County within the plume EPZ, including evacuation, can be implemented in the event of a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 12).

481. Notification of emergency response personnel in Pendleton County is by pager, monitor radio or telephone (Appl. Exh. 15 at 14; Board Exh. 6 at C-3, C-2-1; Tr. 6547-50).

482. Notification in Pendleton County would occur prior to public notification, whenever possible (Appl. Exh. 15 at 14).

483. The notification system in Pendleton County provides reasonable assurance that communications necessary to a timely and prompt evacuation can be implemented (Appl. Exh. 15 at 14).

484. Notification by pager has been proven reliable in industry as well as in the experience of the Applicants (Appl. Exh. 15 at 14).

485. The special facilities in Pendleton County will be notified by telephone or monitor radio activated from the EOC and will also be equipped with NOAA weather radios as part of the Prompt Notification System (Appl. Exh. 15 at 14; Board Exh. 6 at C-4; Tr. 6565).

486. The Butler Nursing Home, Grants Lake Nursing Home and Kincaid Lake State Park are within range of sirens which are part of the Prompt Notification System (Appl. Exh. 15 at 14).

487. During its peak season, Kincaid Lake State Park will be equipped with a portable radio to maintain communications with the Pendleton County EOC (Appl. Exh. 15 at 14; Tr. 6566-67).

488. Communications among response agencies in Pendleton County will be maintained by radio or pager (Appl. Exh. 15 at 14; Board Exh. 6 at B-1, 2).

489. The method of communications with the fire departments in Pendleton County is adequate to perform its intended function (Appl. Exh. 15 at 14; Board Exh. 6 at B-1).

490. The Bracken County Radiological Emergency Plan provides for notification of emergency workers by pager, radio and commercial telephone; Western Hills Elementary School will be notified by telephone, monitor radio or NOAA weather radio (Appl. Exh. 15 at 15; Board Exh. 4 at C-3, C-2-1; Tr. 6568).

491. This communication system for Bracken County provides reasonable assurance that communications necessary to timely and prompt action following an incident at the Zimmer Station can be implemented (Appl. Exh. 15 at 15).

492. Notification by pager as will be employed in Bracken County has been proven reliable in industry as well as in applications by the Applicants (Appl. Exh. 15 at 15).

493. Some fire department vehicles in Bracken County are radio equipped and can communicate directly with the EOC (Appl. Exh. 15 at 15; Board Exh. 4 at B-3).

Discussion

494. These contentions must be discussed in categories in order to properly evaluate and dispose of them. The contentions regarding notification relate to alerting

individuals who must respond to the Emergency Operations Center ("EOC") in each county in order to assume their function under the emergency plans. The communication function refers to the ability to communicate with involved agencies and affected personnel once the EOC is manned and the means therein utilized (NUREG-0654 at 47-48). An important subcategory of such notification and communication is that related to the schools in Clermont and Campbell Counties, the only two counties whose school plans have been substantially challenged by ZAC/ZACK and the City of Mentor.

495. With regard to the alleged void in communication in Clermont County in the Route 52 area near the Zimmer Station, the Applicants have agreed to furnish certain communications equipment which will alleviate such deficiency and have further agreed to work with the local life squad to provide additional communications equipment which would still further improve communications in this area. The Board is of the view that this arrangement, together with mobile equipment which will be brought in by the State of Ohio during an emergency, will remedy any deficiency which might have existed in the area.

496. With regard to the general system for notification of emergency workers at the time of a Zimmer Station emergency, the Board has reviewed such communications as found in the emergency plans for Pendleton and Bracken Counties, respectively (Board Exhs. 6 and 4), and has

satisfied itself that these systems meet the requirements of NUREG-0654. It was the testimony of the communications expert for CG&E that the pager communications in use would be capable of covering the entire county such that individuals may be paged. It should be noted that the arrangements for using pagers are for periods other than normal working hours. During working hours, governmental officials would be near the county EOCs and capable of responding in even less time.

497. With regard to notification and communications with the school systems in Clermont County and Campbell County, the primary means is the telephone. The plans for both counties contemplate that notification will take place prior to public notification. In these circumstances, overloading of circuits at schools and at exchanges would not be a problem. While it is hypothetically possible in some circumstances that prior notification might not be possible, this would appear to be unlikely in most instances. Even in these circumstances, there is reasonable assurance that the communications function can be implemented by utilizing the system for assuring the availability of an incoming and outgoing telephone or through alternate channels.

498. The Applicants have proposed providing a system as part of the telephone system which would free an existing line at each school and at other key locations in the event of a Zimmer Station emergency for the use of school

employees. This will permit incoming and outgoing emergency calls despite attempts by parents to call in which would otherwise overload the circuits. While the Board recognizes that the system would still be susceptible to an overload of the telephone exchange, this system does give further assurance that communications will be possible. All schools within the plume EPZ will be equipped with institutional quality NOAA tone-alert radios as part of the Prompt Notification System. Notification via these radios could start the implementation of procedures with regard to protective actions. The schools within the plume EPZ in Campbell County will be equipped with a monitor radio which is capable of receiving voice messages from the county EOC. The Applicants have also stated they would install in the New Richmond School Superintendent's office a two-way radio capable of communicating with the Zimmer Station. In Campbell County, the two nearest schools to the Zimmer Station will also be provided with two-way radio capability to contact the EOC.

499. The primary method of communications to bus drivers will be by telephone. As a backup, the Prompt Notification System, which includes sirens and NOAA weather radios, can be used to alert those drivers within the plume EPZ of an emergency situation at Zimmer Station at which time they can proceed directly to schools or other predesignated locations for further instruction or action. The EBS stations can perform a similar function both inside

and outside of the plume EPZ. This subject is further discussed with regard to school evacuation.

500. Alternate methods of communications also exist. Volunteer radio personnel may be available to provide and operate amateur radios at schools. Radio communications could be established by dispatching a police car or other radio-equipped vehicle to a school should the need arise. Considering these factors, the Board concludes that adequate primary and backup communications exist to provide reasonable assurance that timely and prompt implementation of the various emergency plans can be achieved in the event of a radiological emergency at the Zimmer Station and that these contentions have no merit.

Evacuation Routes and Access Control Points

Contentions 20(c)(1), 20(c)(2), 20(c)(3),
20(c)(7), 20(c)(8), 20(c)(9)(a), 20(c)(11),
20(c)(13), 20(f)(1), 20(g), 20(g)(1), 36(c),
and 36(d)

501. The planning basis for the selection of evacuation routes is in accordance with NUREG-0654 in that evacuation is based on a generally radial dispersion (Appl. Exh. 15 at 39).

502. The Clermont County plan provides for the timely and prompt evacuation of the population of Clermont County (Appl. Exh. 15 at 16).

503. The public in Clermont County will evacuate based on their knowledge of the local road system and the intended destination, with the benefit of the evacuation routes

suggested in "Circle of Safety" and the telephone directory (Appl. Exh. 15 at 16-17, 20; Tr. 5928-32).

504. Roads that may be used in an evacuation are roads in daily use by the populace (Appl. Exh. 15 at 17; Tr. 5378, 6497).

505. Experience with prior evacuations gives no support to intervenors' assertion that evacuations cannot be safely or timely undertaken or that roadways become unsafe for travel (Appl. Exh. 15 at 20; Tr. 6184-86).

506. The State of Ohio has determined that a relocation/decontamination center should not be established in Brown County (Williams at 1; Tr. 7784, 7795).

507. The State of Ohio determined that evacuation routing should reflect suitable major evacuation routes such as U.S. 52, S.R. 774 and S.R. 756, which follow generally in a radial direction leading out of the designated plume EPZ and which individuals living in Clermont County near the Brown County border may select, in addition to those routes leading most directly to the established relocation/decontamination centers in Northern Clermont County (Williams at 2; Tr. 7769-71, 7778).

508. Evacuation maps in the Clermont County and State of Ohio emergency plans, the map provided in "Circle of Safety" and the one contained in the various telephone books used by individuals within the plume EPZ in Clermont County will reflect the additional routes selected by the State of Ohio leading into and then through Brown County back to the

relocation/decontamination centers in northern Clermont County (Williams at 2; Board Exh. 2 at II-I, Fig. I-3).

509. The Ohio Highway Patrol Post located in Georgetown, Brown County, Ohio will coordinate traffic control in Brown County with local officials in Brown and Clermont County and will serve as the communications link with local officials (Williams at 2; Tr. 7789-90).

510. The evacuation routes through Brown County have been selected with the assistance of the Sheriff of Brown County (Williams at 2; Tr. 7767-68, 7770-71, 7779-81).

511. In many emergency situations, people will not report to a care center, but rather go to the home of friends or to other locations (Williams at 2; Tr. 4988, 7794-95).

512. It is likely that an evacuation would occur prior to any significant releases from the Zimmer Station (Williams at 2; Tr. 4987).

513. Even if releases had begun to occur prior to an evacuation beginning, contamination of individuals would still be extremely remote (Williams at 2; Tr. 4990).

514. Should there be the possibility of contamination, this fact would be relayed via the Emergency Broadcast System and by other means of public dissemination and would motivate individuals to go to the designated decontamination centers in northern Clermont County (Williams at 2; Tr. 4989, 4991-92).

515. Evacuation would be recommended only when sufficient time is available to implement that alternative or, in the case where a release is in progress, when a significant savings in exposure can be achieved (Appl. Exh. 15 at 17).

516. The establishment of access control points designated in the plans is not intended as a prerequisite to proceed with an evacuation (Appl. Exh. 15 at 17, 48).

517. An evacuation may be ordered or underway before any access control points are established (Appl. Exh. 15 at 17, 48; Tr. 6777).

518. If established during an evacuation, access control serves to keep unauthorized persons outside of affected areas, and as a secondary benefit when possible, to direct evacuees (Appl. Exh. 15 at 17, 48; Tr. 6702, 6777-78; February 12, 1982 letter at 22).

519. State and local planners intend to initiate both access control and traffic control measures at various locations after an evacuation recommendation is given to the public (February 12, 1982 letter at 22).

520. Emergency workers may be dispatched for traffic control where conditions develop indicating a need (February 12, 1982 letter at 22; Board Exh. 1 at II-I-4, 5; Board Exh. 2 at II-I-6; Board Exh. 3 at F-6; Board Exhs. 4, 5 and 6 at F-10-1; Tr. 6702).

521. The location of traffic control points will be determined from both the current planning efforts and command decisions reached at the time of an evacuation (February 12, 1982 letter at 22).

522. While the use of traffic control measures may provide some benefit at a few intersections, such measures are not considered mandatory, nor are they expected to significantly affect evacuation times since the estimated traffic demands are generally well below roadway capacities (February 12, 1982 letter at 22; Tr. 6739).

523. The only area where traffic control is indicated is in New Richmond, Ohio along Route 52 westbound at each of the three traffic lights to ensure that the operation of the signals during an evacuation reflects the actual traffic demands (February 12, 1982 letter at 22; Tr. 6719).

524. The Clermont County Sheriff, based on information from the Zimmer Station and the Clermont County Disaster Services Agency Director concerning direction of plume travel and affected sectors, and information from the County Engineer on weather and road conditions, may alter access control points from those designated in the plans to control access at different points, or to direct the flow of traffic to routes that will eliminate or minimize plume exposure (Appl. Exh. 15 at 17-18; Board Exh. 2 at II-I-6).

525. No directions by radio are necessarily provided during an emergency, but this action may be taken if the situation requires (Appl. Exh. 15 at 20; Tr. 5955).

526. The selected evacuation routes are adequate for evacuation of the population in Campbell County (Appl. Exh. 15 at 39; Tr. 6055).

527. The roads chosen as evacuation routes out of Campbell County are those that allow for a safe and timely evacuation of the public (Appl. Exh. 15 at 40; Tr. 6054).

528. The evacuation routes shown in the Campbell County plan (Board Exh. 5 at App. F-14) are not the only routes that will necessarily be used in every circumstance (Appl. Exh. 15 at 40).

529. Temporary conditions on any road may result in county officials specifying alternate evacuation routes (Appl. Exh. 15 at 40; Tr. 6065, 6761).

530. The roads chosen as evacuation routes in the Kentucky county plans provide for a safe and timely evacuation of the public (Appl. Exh. 15 at 42; Board Exhs. 4, 5 and 6 at App. F-14).

531. The routes chosen in the Kentucky county plans are as suitable for use during an evacuation as they are for day-to-day travel (Appl. Exh. 15 at 42).

532. During an evacuation, more vehicles may travel over given routes, but other road conditions would be the same as during any other day (Appl. Exh. 15 at 42).

533. The principal evacuation roadways in Kentucky are paved (Appl. Exh. 15 at 42).

534. The majority of principal evacuation routes in Kentucky are State or U.S. numbered highways and generally have centerlines (Appl. Exh. 15 at 42).

535. Gravel roadways and other access roadways will only be required to provide access to evacuation routes, a function no different from that provided on a daily basis (Appl. Exh. 15 at 42; Tr. 6497).

536. The conditions of the particular roads such as Kentucky Route 8 will not prevent passage of the required number of vehicles because, although the road surface is irregular, the traffic can still pass over it (Appl. Exh. 15 at 42; Tr. 6497-6502, 6576).

537. The Campbell County plan provides reasonable assurance that designated access control points will fulfill their intended function in the event of an evacuation (Appl. Exh. 15 at 48).

538. The Campbell County Judge/Executive, based on information from the Zimmer Station and the County DES Director concerning direction of plume travel and affected sectors, and information from the County Engineer on weather and road conditions, may alter access control points from those designated in the plans to control access or to direct the flow of traffic to routes that will eliminate or minimize plume exposure (Appl. Exh. 15 at 48; Tr. 5385, 6094).

539. Access control points will be manned by county law enforcement and fire personnel, as supported by

additional local resources, and, if additional personnel are required, the county can call upon the Kentucky State Police and National Guard (Appl. Exh. 15 at 49; Board Exh. 5 at F-6, Appendix F-10).

540. Residents of potential flood areas are aware of alternate available routes should localized flooding occur (Appl. Exh. 15 at 75; Tr. 5378).

541. In the event of major flooding of the Ohio River, most if not all of the population in those affected areas will have been previously evacuated or will be aware of passible egress routes from their home (Appl. Exh. 15 at 75; Tr. 5379, 5484-85).

542. The Zimmer Emergency Operations Facility ("EOF") in Moscow, Ohio is a temporary location scheduled to be replaced by a permanent EOF in Batavia, Ohio by the time the Zimmer Station begins commercial energy production (Appl. Exh. 15 at 75).

543. Batavia is not subject to flooding of the Ohio River (Appl. Exh. 15 at 75).

544. Thus, implementation of emergency plans by the Applicants will not be affected by a flood on the Ohio River (Appl. Exh. 15 at 75).

545. The Zimmer Station will cease commercial power production if the Ohio floods at 75 feet or above, significantly reducing the possibility that an evacuation will be conducted under these extremely adverse conditions (Appl. Exh. 15 at 75).

area likely to be affected would be smaller than the full plume EPZ (February 12, 1982 letter at 18).

404. Should an accident occur, the majority of the non-essential people would be released from the plant in the early stage of an emergency, most likely prior to the need for implementation of a protective action for the general population (February 12, 1982 letter at 18).

405. During normal station operation, there are generally no on-site activities requiring a significant number of people such that this would not affect the evacuation time of the general public (February 12, 1982 letter at 18).

406. Most of the essential on-site personnel would stay on-site to man emergency response facilities or support response or recovery efforts (February 12, 1982 letter at 18).

407. During both refueling and operation, the evacuation of the general public would most likely be unaffected by the evacuation of any Zimmer Station on-site personnel (February 12, 1982 letter at 18; Urbanik at 2).

408. The infrequent nature of flooding and sliding does not necessitate their consideration as part of the adverse weather conditions scenario (February 12, 1982 letter at 19).

409. Therefore, flooding or sliding has no impact on evacuation time estimates (February 12, 1982 letter at 19).

410. Flood and slide prone areas of the Zimmer Station plume EPZ are well known by local officials (February 12, 1982 letter at 19).

411. Local officials have access to information such as flood plain studies contained in Staff Exhibits 12-16 which identify flood prone areas (February 12, 1982 letter at 19; Urbanik at 2; Tr. 7184).

412. Sections of Route 8 in Kentucky are subject to sliding or slippages due to heavy rains, freezing and thawing, or flooding (February 12, 1982 letter at 19).

413. Despite these conditions, Kentucky Route 8 is in extensive everyday use by residents (February 12, 1982 letter at 20).

414. The road capacity of Kentucky Route 8, taking these conditions into account, is well above the projected vehicle demand and the road presents no special considerations for a normal, adverse or any other evacuation scenario (February 12, 1982 letter at 20; Tr. 6695-96).

415. The Evacuation Time Study was reviewed by Kentucky and Ohio State and local officials and included in the radiological emergency plans for Kentucky and the counties of Clermont, Campbell, Pendleton and Bracken (February 12, 1982 letter at 21; Tr. 6081-82; See, e.g., Board Exh. 3, Appendix F-5).

416. State and county planners have found the study to be useful in providing the time estimates necessary in the

protective action decision-making process (February 12, 1982 letter at 21; Tr. 6687).

417. State and local planners recognize in their methods for protective action decision selection that the time estimates used for evacuation of a segment of the population during an actual emergency must take into account the specific situation at hand (February 12, 1982 letter at 21; Tr. 6082, 7186).

418. State and local officials making protective action recommendations have available to them the estimates they originally developed in response to the NRC request of December 26, 1979 (February 12, 1982 letter at 21; Tr. 6570).

419. In an emergency, it is common for evacuating people to assist others, especially those whom they know do not have transportation, and there is no reason to expect different behavior in the area of the Zimmer Station (February 12, 1982 letter at 24; Tr. 6741-43).

420. The fact that people will help each other is confirmed by the extensive experience of Kentucky state planners with extensive evacuations (February 12, 1982 letter at 24; Tr. 6112, 6185-86).

421. Since few people are expected to require publicly-provided transportation in a Zimmer-related emergency, an evacuation time estimate that included this group would not be representative of the proper estimate for the majority of the people and would not be appropriate for

its intended use, inasmuch as the purpose of State and local emergency plans is to provide for the greatest total dose savings during an emergency (February 12, 1982 letter at 24).

422. Protective action decision-making procedures have been developed for the Zimmer Station which take into account evacuation time estimates that are representative of the expected, rather than worst case, response of the population (February 12, 1982 letter at 24).

423. Since relatively few evacuees will require public transportation and estimates are needed which represent the expected, rather than worst case, response of the population, it is proper to use in protective action decision-making the existing time estimate which does not separately consider the public without transportation (February 12, 1982 letter at 24).

424. Significant planning is made for people with public transportation needs (February 12, 1982 letter at 24; Urbanik at 1; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3 and II-I-5; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1).

425. Persons without other transportation will be identified either prior to or during emergencies in the same manner as other transportation dependent persons, such as the handicapped or elderly (February 12, 1982 letter at 24; Circle of Safety at 13, 15; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3, II-I-5 and II-B-2; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1 and J-6).

426. The primary methods for identification consist of the use of a paid-reply post card distributed prior to operation of the Zimmer Station and annually thereafter, and door-to-door verification of notification at the time of an emergency (February 12, 1982 letter at 24-25; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2, 3, II-I-5 and II-B-2; Board Exh. 3 at F-7-1 and J-5; Board Exhs. 4, 5 and 6 at F-9-1 and J-6; Circle of Safety at 11-13).

427. The Clermont County Disaster Services Agency ("CCDSA") evacuation time estimates were developed using assumptions which are significantly different from those used in developing the Evacuation Time Study (February 12, 1982 letter at 28; Tr. 5100-01; Urbanik at 2).

428. The public notification system assumed by CCDSA entailed door-to-door notification, a very time-consuming process requiring the mobilization of a significant number of personnel (February 12, 1982 letter at 28; Tr. 5100-01).

429. A prompt notification system was assumed to exist in the Evacuation Time Study (February 12, 1982 letter at 28).

430. The adverse weather conditions assumed by CCDSA in its study consists of heavy snowfall combined with severe flooding (February 12, 1982 letter at 28; Tr. 5998).

431. The very infrequent combination of conditions assumed by CCDSA in the adverse weather scenario, resulting in numerous impassable roads, would very likely result in relatively long evacuation time estimates such that

evacuation would generally not be the initial recommended protective action (February 12, 1982 letter at 28).

432. The Evacuation Time Study leaves severe and infrequent adverse weather conditions to be considered by officials at the time of an emergency (February 12, 1982 letter at 28).

433. The Evacuation Time Study considers the effects of adverse weather on evacuation times by reducing the roadway capacities within the study area and the vehicle speed by 50% (February 12, 1982 letter at 29; Tr. 5988, 6744-45).

434. The adverse weather time presented in the Evacuation Time Study represents the effects of the most common adverse weather conditions that can be reasonably expected in the study area (February 12, 1982 letter at 29; Tr. 6616).

435. Public officials, in the course of selecting protective actions, may adjust these time estimates to reflect existing weather conditions at the time of the emergency as well as other conditions affecting evacuation times (February 12, 1982 letter at 29; Tr. 5999, 7209).

436. Evacuation times in the Evacuation Time Study are based on the assumption that residents in the Clermont County areas generally adjacent to Brown County will use roads that lead into Brown County (February 12, 1982 letter at 30).

437. If all people in the Clermont County areas generally south and east of the Zimmer Station were to use the routes suggested in the current Clermont County plans and not utilize roads into Brown County, the time estimate for that one area (the zone consisting of Sectors I, IV, VIII in the study) out to 10 miles would increase only approximately 15% (February 12, 1982 letter at 30; Urbanik at 3).

438. Changes of 15% are not very significant when considering the use of the Evacuation Time Study (February 12, 1982 letter at 30; Urbanik at 3).

Discussion

439. The subject of evacuation times was one of the most discussed and, perhaps, least understood topics which arose during the course of the proceeding. In order to assure that the record is clear and the Board's decision is fully understood, we have set forth in some detail the considerations related to this matter leading to the specific findings of fact stated above.

440. Evacuation of the public surrounding a nuclear power plant is one of the actions which may be considered following an accident should protective actions be required. Evacuation is considered along with sheltering to determine which protective action produces the greatest total dose savings in the particular circumstances that might exist following a nuclear power plant accident (Tr. 5063, 5995). The Board will first discuss the particular methodology by

which the appropriate protective action, i.e., evacuation or sheltering, is determined. It must be borne in mind that the manner in which this question arose during the hearing tended to emphasize the worst assumptions or worst combination of conditions (Tr. 5893). The Board recognizes at the outset that the hypothetical assumptions discussed during the hearing and combination of events which were postulated are not representative of conditions which are likely to occur after an accident and has taken due account of this in its analysis (See, e.g., Tr. 6298).

441. For example, it was always postulated by counsel for the intervenors that the entire plume EPZ had to be evacuated after an accident. The Board recognizes that this hypothetical worst case is extremely low in probability, and that if evacuation were needed at all, it is likely that only a few sectors will have to be evacuated (Tr. 4987). This worst case assumption was combined with extreme hypotheses regarding the flood of record, snowfalls which rendered roads impassable for days and even weeks, together with unchanging winds (Tr. 6298, 6302). The combination of these extremely low probability events should not be considered to the exclusion of the entire spectrum of substantially more probable planning conditions for which local and state authorities must provide in their plans.

442. The decision as to whether to evacuate a segment of the population within the plume EPZ, i.e., at some radial distance from the plant in a particular sector or sectors,

as opposed to sheltering those individuals, is made on the basis of calculations which take into account dose, the time for evacuation and the dose savings provided by sheltering (Tr. 5063, 5995-96). The algorithm (or logic diagram) for such calculations is presented in the emergency plans (See, e.g., Board Exhibit 3 at F-4-1). As set forth therein and, as is intuitively obvious, if the segment of the population which may be affected by a release from the plant could be evacuated before the release either occurs or reaches the location where such individuals are present and if such projected release would cause an impact on these individuals as determined by reference to the EPA Protective Action Guides, evacuation would be ordered. Most evacuation actions would take place prior to any significant release rates (Tr. 4987).

443. If, on the other hand, roads were impassable due to severe adverse weather, such as a severe snowfall which might make the roads impassable for a significant length of time, then evacuation would be ruled out inasmuch as sheltering would provide a dose savings over having individuals in cars and unable to safely evacuate (Tr. 5018, 5959, 6299-300, 6302, 6748). In this circumstance, the risk of an ordinary accident and exposure would be significantly greater than the advantages of evacuation. While circumstances in the locality have made roads impassable due to snow for several days, the Board does not find, based upon the evidence of record, that it is reasonable to assume

that individuals would be required to take shelter indefinitely (Tr. 6305-06). In arriving at this conclusion the Board considered past experience and the fact that the major roads would first be cleared, e.g., US Route 52 and state roads in Clermont County (Tr. 5022, 5674-75; Kennedy at 4-5). In a few days the states and counties could marshal significant snow clearing equipment and other heavy equipment which could either clear the roads or evacuate individuals in spite of such snow conditions (Tr. 5020).

444. For a number of intermediate conditions, that is, various conditions of release and conditions affecting evacuation, the decision as to whether to shelter or evacuate can only be made by the appropriate official at the time based upon calculations following the methodology set forth in the algorithm discussed above (Tr. 6306). The Evacuation Time Study serves as an input into this decision-making matrix (Tr. 7242).

445. In factoring in evacuation times, the planner is seeking a realistic estimate as to what the time will be for evacuation of a significant percentage of the population. In this way, the appropriate official will be able to gauge the dose savings by sheltering as compared to evacuation to determine the correct choice (Tr. 6007, 6012). Evacuation time estimates which would significantly overestimate or underestimate the time could lead the public official to an incorrect decision (Tr. 5992-93, 7239-42).

446. The Evacuation Time Study which was prepared for the Applicants and incorporated by the planners in the various emergency plans for the plume EPZ considered two different conditions - one best estimate and one for an adverse condition which was not the most severe, but which represented commonly occurring adverse conditions (Tr. 6306). This will be discussed below. The Board carefully examined the underpinnings of the Evacuation Time Study and has found the study to be appropriate for the purpose for which it is intended (Tr. 6687, 7165, 7242).

447. One of the significant areas for consideration during the hearing was the road capacity utilized in the Evacuation Time Study. The Evacuation Time Study utilized 1000 vehicles per hour for two-lane roads and 1500 cars per hour for four-lane roads as the minimum road capacity for major evacuation routes in the study area (Evacuation Time Study at 5-10, 5-11). The Study did contain some approximation of road widths based upon the recollection of planners, but the uncontroverted testimony was that such road widths were not directly utilized to determine road capacities (Tr. 6696-98, 7246-49). The road capacities were subsequently verified by detailed studies of road segments as to width, lateral obstructions and any limitations in sight distances (Tr. 6596, 6694, 6704, 7154, 7227). These capacity estimates showed that the original estimates were conservative (Tr. 6695, 6703-06, 6737-38, 7149, 7190, 7192-93).

448. The Staff witness with regard to evacuation time estimates was Mr. Thomas Urbanik, II, of the Texas Transportation Institute. Mr. Urbanik is a coauthor of "Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones," NUREG/CR-1745, which formed the basis for NRC evacuation time estimate requirements. Moreover, Mr. Urbanik has examined many of the roads within the plume EPZ to verify road capacities. Under contract to the NRC, Mr. Urbanik has reviewed evacuation time studies for all proposed and operating nuclear plants. His education and relevant experience and his demeanor on the stand has caused the Board to give significant weight to his testimony. Mr. Urbanik reviewed the capacities of the major evacuation routes within the plume EPZ and has determined the assumptions in the Evacuation Time Study regarding vehicular capacity were appropriate.

449. There was some controversy during the course of the hearing as to whether it was appropriate to divide the capacity of a two-lane road other than on a 50/50 basis, i.e., if the total road capacity were 2000 vehicles per hour, could the lane capacity be other than 1000 vehicles per hour. The Stone & Webster witness who prepared the study testified that it was appropriate to use unequal division of the total road capacity (Tr. 6584, 6692, 6733, 6735-36). This was confirmed by the witness for the NRC Staff, Mr. Urbanik, who by his credentials has shown himself to be an expert in the field and who personally inspected

the specific roads in question (Tr. 7148-49, 7150-51, 7154-56, 7165-66). Mr. Urbanik presented the theory and bases for his conclusion regarding the capacity of one-lane of a two-lane road (Tr. 7151-53, 7157). The only evidence to the contrary was that of a witness for FEMA, who appeared to be significantly less qualified by virtue of training and experience than the individuals upon whom the Board has placed greater reliance. Mr. Bernard Williams' professional qualifications do not demonstrate that he has any experience in determining the capacity of rural roads nor in evaluating evacuation time studies such as the one before us (Bernard E. Williams, Professional Qualifications, ff. Tr. 6982).

450. In any event, for the Zimmer Station area, road capacities are not of great significance inasmuch as it is an area of relatively low population so that the loadings are far below road capacities (Tr. 6596-97, 6698, 6738). This holds true throughout the entire study area with the exception of one point approximately seven to eight miles from the facility in New Richmond which is marginal with regard to road capacity. The Applicants performed certain sensitivity studies by examining the effect of reducing the road capacities by 25 and 50 percent and found the resulting evacuation times to be quite insensitive to these large changes in the assumptions. The Board is convinced that the Evacuation Time Study is quite insensitive to changes in road capacity.

451. With regard to the estimates for people without transportation, the Evacuation Time Study does not make separate provision. In the circumstances of the planning, the Board believes that this is appropriate. First, based upon previous studies which have shown that neighbors help each other in time of emergency, the portion of the population expected to need special transportation is not expected to be significant. This assumption was confirmed by the planners from Kentucky, who stated that in actual emergencies, public transportation was not needed at all. Preplanning will take place with regard to the identification of those who may need assistance in evacuation such that this function can be performed efficiently should evacuation be ordered. Inasmuch as the purpose of the time estimate is to provide input in determining dose savings, it would not be appropriate to base decisions on evacuation of the entire population on a small percentage of such population. This would have the same effect as overestimating the evacuation time for the entire population.

452. In these circumstances and as reflected in the detailed findings of fact set forth above, the Board finds that the present evacuation time estimates are appropriate for the use to which they will be put (Urbanik at 3). The Board further finds that above listed contentions are without merit.

Communications and Notification

Contentions 20(b)(4), 20(b)(5), 20(b)(5)(i),
20(b)(5)(ii), 20(b)(5)(iii), 20(b)(5)(iv),
20(b)(5)(v), 20(b)(6), 20(b)(6)(i),
20(b)(6)(ii), 20(b)(6)(iii), 20(b)(6)(iv),
20(b)(6)(v), 20(b)(6)(vi), 20(b)(7),
20(b)(7)(i), 20(b)(7)(ii), 20(b)(7)(iii),
20(b)(7)(iv), 20(b)(7)(v), 20(b)(7)(vi),
20(b)(8)(i), 20(b)(8)(ii), 20(b)(8)(iii),
20(b)(8)(iv), 20(b)(8)(v), 23(1)

453. Applicants are furnishing three 100 Watt radio base stations and antennas at the communications facilities located on a hilltop near the Zimmer Station for Clermont County police, fire, and local government services and have also agreed to provide space for a lifesquad radio system (Appl. Exh. 15 at 5; Tr. 5874-75).

454. This system will provide adequate communications in this area for the Clermont County Sheriff's Department, Monroe Township Fire, Monroe Township Police, Felicity - Franklin Fire Department, Felicity - Franklin Police Department, and Clermont County Disaster Services Agency (Appl. Exh. 15 at 5).

455. These facilities will also improve communications for mutual aid purposes with the Moscow Lifesquad, Washington Township Fire Department and the New Richmond Fire Department (Appl. Exh. 15 at 5-6).

456. The Moscow Lifesquad and Washington Township Fire Department are now routinely dispatched by the New Richmond Police Department (Appl. Exh. 15 at 6).

457. Mobile communications facilities provided by the State of Ohio during an emergency could compensate for

any communications deficiencies which may presently exist (Tr. 5201).

458. The Clermont County Radiological Emergency Response Plan calls for use of commercial telephone lines for communications among school facilities (Appl. Exh. 15 at 8; Board Exh. 2 at II-E-5 and III-C-1, 3 and 5; Tr. 5878).

459. The Applicants have offered to provide the Superintendent of the New Richmond School District with a direct two-way radio to communicate with the Zimmer Station (Tr. 5883, 5905).

460. Advance planning and alternate methods of communications assure an adequate capability to implement protective actions for school facilities in Clermont County (Appl. Exh. 15 at 8).

461. Initial notification of the Clermont County School Superintendent and district superintendents is to take place prior to public notification, and prior to the need to implement protective actions, whenever possible (Appl. Exh. 15 at 8; Tr. 5885, 6072, 6076).

462. Incoming calls from parents, resulting in overloaded telephone lines, do not present a problem if notification of the school occurred prior to public notification (Appl. Exh. 15 at 8, 11).

463. District Superintendents have authority to implement protective actions for their schools and, therefore, are not dependent upon the Clermont County

Superintendent for notification (Appl. Exh. 15 at 8; Board Exh. 2 at III-C-1, 3 and 5).

464. All schools located within the plume EPZ will be provided with institutional quality NOAA tone-alert radios as part of the Prompt Notification System (Appl. Exh. 15 at 8, 11; Board Exh. 2 at II-D-6; Board Exhs. 4, 5 and 6 at C-4).

465. In the event that initial telephone notification is not made prior to public notification, school principals can be alerted via the NOAA tone-alert radios (Appl. Exh. 15 at 8; Board Exh. 2 at II-D-6; Board Exhs. 4, 5 and 6 at C-4; Tr. 5879, 5899).

466. The Applicants have proposed to provide a modification to the telephone system at schools and other key school system locations which would free an existing line in case of a Zimmer Station emergency for the use of school employees and permit incoming and outgoing calls despite attempts by parents to call in which would otherwise overload the trunk lines (Tr. 6526-27, 6539-40).

467. School bus drivers will be notified by telephone (Appl. Exh. 15 at 8).

468. The Prompt Notification System (sirens and NOAA radios) can be used to alert bus drivers to a situation developing at the Zimmer Station, at which time they can follow procedures to proceed directly to schools or other assembly points for further instruction or action (Appl. Exh. 13 at 8-9; Tr. 5908-11).

469. Volunteer amateur radio personnel are available to provide and operate amateur radios at schools (Appl. Exh. 15 at 9, 12; Tr. 5882-84).

470. Adequate primary and back-up communications exist for schools to provide reasonable assurance that timely and prompt implementation of protective actions, including evacuation, can be implemented in the event of a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 9, 12; Tr. 5902).

471. In Campbell County, the primary means for communicating among the School Superintendent, schools located within the plume EPZ, and the school garage is by telephone (Appl. Exh. 15 at 11).

472. Advance planning and alternate means of communications assure an adequate capability to implement protective actions for Campbell County schools (Appl. Exh. 15 at 11).

473. Initial notification of the Campbell County School Superintendent and schools located within the plume EPZ take place prior to public notification and, whenever possible, prior to the need to implement protective actions (Appl. Exh. 15 at 11).

474. Notification to the schools and the Superintendent's Office by commercial telephone is backed by monitor radios activated from the Campbell County EOC (Appl. Exh. 15 at 11; Board Exh. 5 at C-4).

475. In Campbell County, in the event that initial telephone notification is not made prior to public notification, the Superintendent and the affected schools can be alerted via the NOAA tone-alert radios or by the monitor radios (Appl. Exh. 15 at 12; Board Exh. 5 at C-4).

476. Actions taken by the schools are independent of whether notification comes from the Superintendent, by NOAA tone-alert radio or by monitor radio (Appl. Exh. 15 at 12).

477. The primary method of communications with school bus drivers will be by telephone (Appl. Exh. 15 at 12; Board Exh. 5 at C-4).

478. The Prompt Notification System (sirens and NOAA radios) can be used to alert bus drivers to an emergency situation at the Zimmer Station, at which time they can follow procedures to proceed directly to schools or other predesignated location for further instructions or action (Appl. Exh. 15 at 12; Tr. 5908-11).

479. Radio communications with schools could be established by dispatching a police car or other radio-equipped vehicle to the school (Appl. Exh. 15 at 12).

480. Adequate primary and backup communications exist to provide reasonable assurance that timely and prompt implementation of protective actions at schools in Campbell County within the plume EPZ, including evacuation, can be implemented in the event of a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 12).

481. Notification of emergency response personnel in Pendleton County is by pager, monitor radio or telephone (Appl. Exh. 15 at 14; Board Exh. 6 at C-3, C-2-i; Tr. 6547-50).

482. Notification in Pendleton County would occur prior to public notification, whenever possible (Appl. Exh. 15 at 14).

483. The notification system in Pendleton County provides reasonable assurance that communications necessary to a timely and prompt evacuation can be implemented (Appl. Exh. 15 at 14).

484. Notification by pager has been proven reliable in industry as well as in the experience of the Applicants (Appl. Exh. 15 at 14).

485. The special facilities in Pendleton County will be notified by telephone or monitor radio activated from the EOC and will also be equipped with NOAA weather radios as part of the Prompt Notification System (Appl. Exh. 15 at 14; Board Exh. 6 at C-4; Tr. 6565).

486. The Butler Nursing Home, Grants Lake Nursing Home and Kincaid Lake State Park are within range of sirens which are part of the Prompt Notification System (Appl. Exh. 15 at 14).

487. During its peak season, Kincaid Lake State Park will be equipped with a portable radio to maintain communications with the Pendleton County EOC (Appl. Exh. 15 at 14; Tr. 6566-67).

488. Communications among response agencies in Pendleton County will be maintained by radio or pager (Appl. Exh. 15 at 14; Board Exh. 6 at B-1, 2).

489. The method of communications with the fire departments in Pendleton County is adequate to perform its intended function (Appl. Exh. 15 at 14; Board Exh. 6 at B-1).

490. The Bracken County Radiological Emergency Plan provides for notification of emergency workers by pager, radio and commercial telephone; Western Hills Elementary School will be notified by telephone, monitor radio or NOAA weather radio (Appl. Exh. 15 at 15; Board Exh. 4 at C-3, C-2-1; Tr. 6568).

491. This communication system for Bracken County provides reasonable assurance that communications necessary to timely and prompt action following an incident at the Zimmer Station can be implemented (Appl. Exh. 15 at 15).

492. Notification by pager as will be employed in Bracken County has been proven reliable in industry as well as in applications by the Applicants (Appl. Exh. 15 at 15).

493. Some fire department vehicles in Bracken County are radio equipped and can communicate directly with the EOC (Appl. Exh. 15 at 15; Board Exh. 4 at B-3).

Discussion

494. These contentions must be discussed in categories in order to properly evaluate and dispose of them. The contentions regarding notification relate to alerting

individuals who must respond to the Emergency Operations Center ("EOC") in each county in order to assume their function under the emergency plans. The communication function refers to the ability to communicate with involved agencies and affected personnel once the EOC is manned and the means therein utilized (NUREG-0654 at 47-48). An important subcategory of such notification and communication is that related to the schools in Clermont and Campbell Counties, the only two counties whose school plans have been substantially challenged by ZAC/ZACK and the City of Mentor.

495. With regard to the alleged void in communication in Clermont County in the Route 52 area near the Zimmer Station, the Applicants have agreed to furnish certain communications equipment which will alleviate such deficiency and have further agreed to work with the local life squad to provide additional communications equipment which would still further improve communications in this area. The Board is of the view that this arrangement, together with mobile equipment which will be brought in by the State of Ohio during an emergency, will remedy any deficiency which might have existed in the area.

496. With regard to the general system for notification of emergency workers at the time of a Zimmer Station emergency, the Board has reviewed such communications as found in the emergency plans for Pendleton and Bracken Counties, respectively (Board Exhs. 6 and 4), and has

satisfied itself that these systems meet the requirements of NUREG-0654. It was the testimony of the communications expert for CG&E that the pager communications in use would be capable of covering the entire county such that individuals may be paged. It should be noted that the arrangements for using pagers are for periods other than normal working hours. During working hours, governmental officials would be near the county EOCs and capable of responding in even less time.

497. With regard to notification and communications with the school systems in Clermont County and Campbell County, the primary means is the telephone. The plans for both counties contemplate that notification will take place prior to public notification. In these circumstances, overloading of circuits at schools and at exchanges would not be a problem. While it is hypothetically possible in some circumstances that prior notification might not be possible, this would appear to be unlikely in most instances. Even in these circumstances, there is reasonable assurance that the communications function can be implemented by utilizing the system for assuring the availability of an incoming and outgoing telephone or through alternate channels.

498. The Applicants have proposed providing a system as part of the telephone system which would free an existing line at each school and at other key locations in the event of a Zimmer Station emergency for the use of school

employees. This will permit incoming and outgoing emergency calls despite attempts by parents to call in which would otherwise overload the circuits. While the Board recognizes that the system would still be susceptible to an overload of the telephone exchange, this system does give further assurance that communications will be possible. All schools within the plume EPZ will be equipped with institutional quality NOAA tone-alert radios as part of the Prompt Notification System. Notification via these radios could start the implementation of procedures with regard to protective actions. The schools within the plume EPZ in Campbell County will be equipped with a monitor radio which is capable of receiving voice messages from the county EOC. The Applicants have also stated they would install in the New Richmond School Superintendent's office a two-way radio capable of communicating with the Zimmer Station. In Campbell County, the two nearest schools to the Zimmer Station will also be provided with two-way radio capability to contact the EOC.

499. The primary method of communications to bus drivers will be by telephone. As a backup, the Prompt Notification System, which includes sirens and NOAA weather radios, can be used to alert those drivers within the plume EPZ of an emergency situation at Zimmer Station at which time they can proceed directly to schools or other predesignated locations for further instruction or action. The EBS stations can perform a similar function both inside

and outside of the plume EPZ. This subject is further discussed with regard to school evacuation.

500. Alternate methods of communications also exist. Volunteer radio personnel may be available to provide and operate amateur radios at schools. Radio communications could be established by dispatching a police car or other radio-equipped vehicle to a school should the need arise. Considering these factors, the Board concludes that adequate primary and backup communications exist to provide reasonable assurance that timely and prompt implementation of the various emergency plans can be achieved in the event of a radiological emergency at the Zimmer Station and that these contentions have no merit.

Evacuation Routes and Access Control Points

Contentions 20(c)(1), 20(c)(2), 20(c)(3),
20(c)(7), 20(c)(8), 20(c)(9)(a), 20(c)(11),
20(c)(13), 20(f)(1), 20(g), 20(g)(1), 36(c),
and 36(d)

501. The planning basis for the selection of evacuation routes is in accordance with NUREG-0654 in that evacuation is based on a generally radial dispersion (Appl. Exh. 15 at 39).

502. The Clermont County plan provides for the timely and prompt evacuation of the population of Clermont County (Appl. Exh. 15 at 16).

503. The public in Clermont County will evacuate based on their knowledge of the local road system and the intended destination, with the benefit of the evacuation routes

suggested in "Circle of Safety" and the telephone directory (Appl. Exh. 15 at 16-17, 20; Tr. 5928-32).

504. Roads that may be used in an evacuation are roads in daily use by the populace (Appl. Exh. 15 at 17; Tr. 5378, 6497).

505. Experience with prior evacuations gives no support to intervenors' assertion that evacuations cannot be safely or timely undertaken or that roadways become unsafe for travel (Appl. Exh. 15 at 20; Tr. 6184-86).

506. The State of Ohio has determined that a relocation/decontamination center should not be established in Brown County (Williams at 1; Tr. 7784, 7795).

507. The State of Ohio determined that evacuation routing should reflect suitable major evacuation routes such as U.S. 52, S.R. 774 and S.R. 756, which follow generally in a radial direction leading out of the designated plume EPZ and which individuals living in Clermont County near the Brown County border may select, in addition to those routes leading most directly to the established relocation, decontamination centers in Northern Clermont County (Williams at 2; Tr. 7769-71, 7778).

508. Evacuation maps in the Clermont County and State of Ohio emergency plans, the map provided in "Circle of Safety" and the one contained in the various telephone books used by individuals within the plume EPZ in Clermont County will reflect the additional routes selected by the State of Ohio leading into and then through Brown County back to the

relocation/decontamination centers in northern Clermont County (Williams at 2; Board Exh. 2 at II-I, Fig. I-3).

509. The Ohio Highway Patrol Post located in Georgetown, Brown County, Ohio will coordinate traffic control in Brown County with local officials in Brown and Clermont County and will serve as the communications link with local officials (Williams at 2; Tr. 7789-90).

510. The evacuation routes through Brown County have been selected with the assistance of the Sheriff of Brown County (Williams at 2; Tr. 7767-68, 7770-71, 7779-81).

511. In many emergency situations, people will not report to a care center, but rather go to the home of friends or to other locations (Williams at 2; Tr. 4988, 7794-95).

512. It is likely that an evacuation would occur prior to any significant releases from the Zimmer Station (Williams at 2; Tr. 4987).

513. Even if releases had begun to occur prior to an evacuation beginning, contamination of individuals would still be extremely remote (Williams at 2; Tr. 4990).

514. Should there be the possibility of contamination, this fact would be relayed via the Emergency Broadcast System and by other means of public dissemination and would motivate individuals to go to the designated decontamination centers in northern Clermont County (Williams at 2; Tr. 4989, 4991-92).

515. Evacuation would be recommended only when sufficient time is available to implement that alternative or, in the case where a release is in progress, when a significant savings in exposure can be achieved (Appl. Exh. 15 at 17).

516. The establishment of access control points designated in the plans is not intended as a prerequisite to proceed with an evacuation (Appl. Exh. 15 at 17, 48).

517. An evacuation may be ordered or underway before any access control points are established (Appl. Exh. 15 at 17, 48; Tr. 6777).

518. If established during an evacuation, access control serves to keep unauthorized persons outside of affected areas, and as a secondary benefit when possible, to direct evacuees (Appl. Exh. 15 at 17, 48; Tr. 6702, 6777-78; February 12, 1982 letter at 22).

519. State and local planners intend to initiate both access control and traffic control measures at various locations after an evacuation recommendation is given to the public (February 12, 1982 letter at 22).

520. Emergency workers may be dispatched for traffic control where conditions develop indicating a need (February 12, 1982 letter at 22; Board Exh. 1 at II-I-4, 5; Board Exh. 2 at II-I-6; Board Exh. 3 at F-6; Board Exhs. 4, 5 and 6 at F-10-1; Tr. 6702).

521. The location of traffic control points will be determined from both the current planning efforts and command decisions reached at the time of an evacuation (February 12, 1982 letter at 22).

522. While the use of traffic control measures may provide some benefit at a few intersections, such measures are not considered mandatory, nor are they expected to significantly affect evacuation times since the estimated traffic demands are generally well below roadway capacities (February 12, 1982 letter at 22; Tr. 6739).

523. The only area where traffic control is indicated is in New Richmond, Ohio along Route 52 westbound at each of the three traffic lights to ensure that the operation of the signals during an evacuation reflects the actual traffic demands (February 12, 1982 letter at 22; Tr. 6719).

524. The Clermont County Sheriff, based on information from the Zimmer Station and the Clermont County Disaster Services Agency Director concerning direction of plume travel and affected sectors, and information from the County Engineer on weather and road conditions, may alter access control points from those designated in the plans to control access at different points, or to direct the flow of traffic to routes that will eliminate or minimize plume exposure (Appl. Exh. 15 at 17-18; Board Exh. 2 at II-I-6).

525. No directions by radio are necessarily provided during an emergency, but this action may be taken if the situation requires (Appl. Exh. 15 at 20; Tr. 5955).

526. The selected evacuation routes are adequate for evacuation of the population in Campbell County (Appl. Exh. 15 at 39; Tr. 6055).

527. The roads chosen as evacuation routes out of Campbell County are those that allow for a safe and timely evacuation of the public (Appl. Exh. 15 at 40; Tr. 6054).

528. The evacuation routes shown in the Campbell County plan (Board Exh. 5 at App. F-14) are not the only routes that will necessarily be used in every circumstance (Appl. Exh. 15 at 40).

529. Temporary conditions on any road may result in county officials specifying alternate evacuation routes (Appl. Exh. 15 at 40; Tr. 6065, 6761).

530. The roads chosen as evacuation routes in the Kentucky county plans provide for a safe and timely evacuation of the public (Appl. Exh. 15 at 42; Board Exhs. 4, 5 and 6 at App. F-14).

531. The routes chosen in the Kentucky county plans are as suitable for use during an evacuation as they are for day-to-day travel (Appl. Exh. 15 at 42).

532. During an evacuation, more vehicles may travel over given routes, but other road conditions would be the same as during any other day (Appl. Exh. 15 at 42).

533. The principal evacuation roadways in Kentucky are paved (Appl. Exh. 15 at 42).

534. The majority of principal evacuation routes in Kentucky are State or U.S. numbered highways and generally have centerlines (Appl. Exh. 15 at 42).

535. Gravel roadways and other access roadways will only be required to provide access to evacuation routes, a function no different from that provided on a daily basis (Appl. Exh. 15 at 42; Tr. 6497).

536. The conditions of the particular roads such as Kentucky Route 8 will not prevent passage of the required number of vehicles because, although the road surface is irregular, the traffic can still pass over it (Appl. Exh. 15 at 42; Tr. 6497-6502, 6576).

537. The Campbell County plan provides reasonable assurance that designated access control points will fulfill their intended function in the event of an evacuation (Appl. Exh. 15 at 48).

538. The Campbell County Judge/Executive, based on information from the Zimmer Station and the County DES Director concerning direction of plume travel and affected sectors, and information from the County Engineer on weather and road conditions, may alter access control points from those designated in the plans to control access or to direct the flow of traffic to routes that will eliminate or minimize plume exposure (Appl. Exh. 15 at 48; Tr. 5385, 6094).

539. Access control points will be manned by county law enforcement and fire personnel, as supported by

additional local resources, and, if additional personnel are required, the county can call upon the Kentucky State Police and National Guard (Appl. Exh. 15 at 49; Board Exh. 5 at F-6, Appendix F-10).

540. Residents of potential flood areas are aware of alternate available routes should localized flooding occur (Appl. Exh. 15 at 75; Tr. 5378).

541. In the event of major flooding of the Ohio River, most if not all of the population in those affected areas will have been previously evacuated or will be aware of passible egress routes from their home (Appl. Exh. 15 at 75; Tr. 5379, 5484-85).

542. The Zimmer Emergency Operations Facility ("EOF") in Moscow, Ohio is a temporary location scheduled to be replaced by a permanent EOF in Batavia, Ohio by the time the Zimmer Station begins commercial energy production (Appl. Exh. 15 at 75).

543. Batavia is not subject to flooding of the Ohio River (Appl. Exh. 15 at 75).

544. Thus, implementation of emergency plans by the Applicants will not be affected by a flood on the Ohio River (Appl. Exh. 15 at 75).

545. The Zimmer Station will cease commercial power production if the Ohio floods at 75 feet or above, significantly reducing the possibility that an evacuation will be conducted under these extremely adverse conditions (Appl. Exh. 15 at 75).

546. Access to the Zimmer Station during a flood is assured via the high-level access road, which does not depend on the utilization of U.S. 52 (Appl. Exh. 15 at 75; Tr. 5330).

547. Due to the possible hazards associated with relocating a portion of the population, in-place protection/sheltering may be the preferred protective action during extreme snow or ice conditions (Appl. Exh. 15 at 77).

548. All roadways in the plume EPZ are not likely to be impassable during the winter months (Appl. Exh. 15 at 77).

549. Roadway crews are available to remove snow and to sand and salt (Appl. Exh. 15 at 77).

550. If it is deemed essential to evacuate any portion of the population within the plume EPZ during inclement weather conditions, traffic controls can be established to direct the flow of traffic along the safest possible routes to the relocation centers (Appl. Exh. 15 at 77).

551. Based on information regarding weather and road conditions, Kentucky and Clermont County officials may provide traffic control points in locations that will assist the population in evacuating the affected areas (Appl. Exh. 15 at 77).

Discussion

552. The evacuation routes chosen for the plume EPZ are adequate to allow for timely and safe evacuation. One of the issues which was addressed at length at the hearing

was the use of certain evacuation routes leading from the eastern portion of Clermont County in a northerly direction towards the relocation centers in the northern part of Clermont County (Tr. 5865, 5869). The choice of these roadways was criticized for their being steep, narrow and not generally in a radial direction. While the Board believes that these routes were generally suitable for this purpose, the issue is now moot.

553. The State of Ohio planners testified during the latter stages of the hearing that, in conjunction with the Clermont County officials, they had designated alternate routes which led directly into Brown County and gave individuals the choice of avoiding the routes which were challenged. These roads are suitable for their purpose (Tr. 5380-81, 5869). Therefore, an individual residing in that section of Clermont County would have the choice of taking the most direct route to the relocation center or more expeditiously leaving the plume EPZ (Tr. 4983-86, 5825). His choice would be affected by many factors, including whether any release had taken place, i.e., whether the evacuation was a precautionary one, and the condition of the roadways at the time. Suitable agreements with the appropriate authorities in Brown County will be documented (Tr. 7772).

554. Similarly, the Board finds that the evacuation routes in the Kentucky counties are adequate for their intended purpose. While certain of these roads may have

features such as one lane bridges, and may be narrow and subject to some road surface slippage, the Board finds, based upon the testimony of experts which took into account such conditions, that these roadways are adequate to carry the vehicle loadings they would experience in the event of an evacuation

555. With regard to very severe weather, such as ice or snow conditions which would make roadways impassable, this by definition would rule out evacuation as a suitable protective action. As discussed in the detailed findings section, it is unlikely that all roads would be impassable for a significant period of time and it is also extremely unlikely that an event at the Zimmer Station severe enough to require evacuation would happen at the same time as a major storm. This conclusion is buttressed by the testimony of record regarding the frequency of occurrence in the past of severe weather in this area.

556. With regard to the highway networks and evacuation generally, Eugene Erbe, a witness for ZAC/ZACK, asserted that the evacuation roads in Clermont County would not support a heavy traffic flow (Erbe at 3). However, Mr. Erbe stated that he had no qualifications to speak as an expert and that, in particular, he had never made an analysis of traffic flow on rural roads (Tr. 5359-60). Mr. Erbe could not testify how many cars would have to move over particular evacuation routes in Clermont County in order to evacuate the plume EPZ in the event of an emergency at

Zimmer (Tr. 5394-96). With regard to flooding and other significant weather problems, the Board notes the intervenors witness' own testimony is that these are relatively infrequent and their duration limited (Tr. 5414-16).

557. Flooding is a situation with which planners and public officials in the region are well acquainted. For floods of low to moderate significance, alternate routes may be available and are known to individuals who may be affected. For more severe flooding, it is likely that individuals will have been removed such that an accident at the Zimmer Station which coincided with such a flood would not affect them.

558. The Applicants' Emergency Operations Facility which is presently in the former Moscow Elementary School will be relocated prior to the commencement of commercial energy production. Since the new location in Batavia is not subject to flooding, the implementation of emergency plans by the Applicants will not be affected by a flood on the Ohio River. The Zimmer Station will cease commercial power operation if the Ohio River floods at a level of 75 feet or greater, which would significantly reduce the possibility of the need for an evacuation under these extremely adverse conditions. Access to the Zimmer Station during a flood is assured by a special high-level access road which bridges US 52 and does not depend on the utilization of US 52 even if flooded at that time.

559. The primary purpose of access controls is to prevent entrance into an area which is being or has been evacuated. Only secondarily do these access control points serve as traffic control points to direct evacuees to certain routes or to use alternative routes. Evacuation may begin or may be even concluded prior to the manning of any or all of the access control routes. Since the vehicular loading of roads, in most cases, is significantly below the road capacities, there is no pressing need for traffic control. Traffic control would not be expected to significantly reduce the evacuation times for the plume EPZ. Traffic control points, in addition to those predesignated in the plans, would be used as a result of a command decision made at the time of an event at the Zimmer Station if alternate routes were to be utilized or traffic conditions were such that traffic should be directed to another route. Traffic control could also be used in case of adverse weather to direct individuals to the safest routing out of the affected area.

560. The Evacuation Time Study assumed no special traffic control at points within the area being evacuated. Because the road capacities are significantly greater than their loading, this appears to be valid. As a corollary, there would not appear to be a significant advantage with regard to reducing the evacuation times in requiring that traffic controls be initiated immediately.

561. The Board finds that the evacuation routes are adequate for their intended function and that the method and type of access control is also adequate. The Board finds that the above stated contentions have no merit.

Evacuation of Handicapped and Those
in the General Population Without Transportation

Concentions 20(c)(5), 20(c)(9), 24(10),
and 36(G)

562. The Clermont County Plan provides reasonable assurance that the handicapped and that portion of the population without personal means of transportation can be evacuated in case of an emergency (Appl. Exh. 15 at 21; Board Exh. 2 at II-B-1, II-I-5 and III-A-1; Tr. 5502).

563. Clermont Authority for Rural Transportation has 22 radio-equipped buses of various sizes of which some are equipped with wheelchair lifts (Appl. Exh. 15 at 21).

564. Sixteen of the available Clermont Authority for Rural Transportation buses are 12-passenger vans not much longer than a full-sized station wagon and generally capable of traveling on any Clermont County roadway (Appl. Exh. 15 at 21; Tr. 5387, 5967).

565. Of the larger Clermont Authority for Rural Transportation buses, one has 32 seats and two have 36 seats (Appl. Exh. 15 at 21).

566. Clermont Authority for Rural Transportation has 20 full-time drivers, all with first-aid training (Appl. Exh. 15 at 21).

567. In addition to Clermont Authority for Rural Transportation, there are other resources which could be utilized to evacuate the handicapped and those without other transportation (Tr. 5172-73).

568. In addition to the portion of the general population that public transportation can evacuate, it is reasonable to anticipate that many people without personal means of transportation will arrange to ride with their friends, relatives and neighbors who do have vehicles (Appl. Exh. 15 at 22; Tr. 6185).

569. There are an adequate number of school buses to evacuate the students of the nine affected Campbell County schools as well as to provide transportation resources for that segment of the population without private vehicles (Appl. Exh. 15 at 43).

570. In Campbell County, the use of school buses for the general public without their own transportation would apply both during non-school hours and when school is in session, as the buses become available after the schools have been evacuated (Appl. Exh. 15 at 44; Tr. 6099).

571. Campbell County schools within the plume EPZ will be evacuated in advance of any anticipated or potential need for recommendation of an evacuation of the general public, if possible (Appl. Exh. 15 at 44).

572. Under these circumstances, there would be sufficient time to evacuate all school children and those of

the general population who need transportation (Appl. Exh. 15 at 44).

573. In the event of a lack of transportation for the general population in Campbell County, the plans provide for additional resources to be supplied by the Transit Authority of Northern Kentucky (Board Exh. 5 at M-2), Campbell County Police (Board Exh. 5 at F-9 and M-2), Community Actions Commission (Board Exh. 5 at M-2 and Annex P, Letter of Agreement) with 10 vehicles available, Northern Kentucky University (Board Exh. 5 at Annex P, Letter of Agreement) with available resources of 2 buses, 5 vans, 4 station wagons, 1 cargo van and 3 trucks, and Kenton County Board of Education (Board Exh. 5 at Annex P, Letter of Agreement) with available resources of 120 vehicles (Appl. Exh. 15 at 44-46; Tr. 6099).

574. In Campbell and Clermont Counties, pick-up points are along the roads (Appl. Exh. 15 at 45; Tr. 5967; 6495, 6512).

575. In the event of an evacuation, those at Camp Sunshine without transportation will walk to the Eastern Campbell County Volunteer Fire Department, which is near the camp entrance, for pickup and transport by County resources, including possibly County and State police (Board Exh. 5 at F-9-3).

576. Camp Sunshine is open only during the summer months and averages fifty in attendance at any time, including staff (Appl. Exh. 15 at 45).

577. No transportation function has been assigned to the Eastern Campbell County Volunteer Fire Department except emergency transportation as requested (Appl. Exh. 15 at 45; Board Exh. 5 at F-9-1; Tr. 6774-75).

578. The Clermont and Campbell County plans adequately provide for the identification of disabled, handicapped and senior citizens, and the vehicles and personnel to transport them in the event of an evacuation (Appl. Exh. 15 at 45; Board Exh. 2 at II-B-1, II-I-5 and III-A-1; Board Exh. 5 at F-9-1 and J-6; Tr. 6247).

579. There are two means of identifying those with special needs (Appl. Exh. 15 at 45).

580. "Circle of Safety" notifies all people with special needs, including lack of transportation, to identify themselves, whether their condition is permanent or temporary, to the appropriate planning organization with a paid-reply post card provided for that purpose (Appl. Exh. 15 at 46; Circle of Safety at 13, 15; Tr. 5512, 5967).

581. Absence of the "I have been notified" card in the window of a residence will summon help (Appl. Exh. 15 at 46; Circle of Safety at 7-8; Tr. 6274).

582. Local emergency response personnel will perform door-to-door verification of notification checks, driving along all roads in the plume EPZ, stopping at all residences not displaying a notification message to see if assistance is required (Appl. Exh. 15 at 46; Board Exh. 2 at II-D-2; Board Exh. 5 at F-9-1, J-6, M-2;).

583. "Circle of Safety" will provide ample opportunity for those residents needing assistance to identify themselves for inclusion on these lists, and thereby secure transportation (Appl. Exh. 15 at 46).

584. In Campbell County, updated lists of handicapped or senior citizens will be maintained by the Judge/Executive's office (Appl. Exh. 15 at 46).

585. In Clermont County, updated lists of handicapped or senior citizens will be maintained by the County DSA, as well as the Clermont Senior Services and Clermont Association for the Physically Handicapped/Developmentally Disabled ("CAPH/DD") (Appl. Exh. 15 at 46; Board Exh. 2 at II-I-5).

586. In Clermont County, the County Welfare Department ("CWD") and the CAPH/DD will provide their most updated lists of handicapped, and therefore, transportation dependent residents of Clermont County will be identified at the time of an emergency (Appl. Exh. 15 at 46-47; Board Exh. 2 at II-I-5).

587. Both the Clermont Authority for Rural Transportation and CAPH/DD have drivers and vehicles capable of transporting handicapped persons (Appl. Exh. 15 at 47; Board Exh. 2 at II-I-5 and II-A-1; Tr. 5133-35, 5502, 5504-05, 5968-69, 5978, 6263).

588. Many of the handicapped served by CAPH/DD may be transported by car (Tr. 5513).

589. There are at most only 30 individuals presently identified in Clermont County within the plume EPZ who are nonambulatory and might need wheelchair provisions (Tr. 5509).

590. Within the plume EPZ in Clermont County, no more than five individuals have been identified who cannot be removed from their wheelchairs in an evacuation situation for transportation by means other than vehicles with wheelchair provisions (Tr. 5511).

591. The Clermont Senior Services ("CSS") will provide updated information on transportation for dependent senior citizens in Clermont County at the time of an emergency (Appl. Exh. 15 at 47; Board Exh. 2 at II-B-1, II-I-5).

592. Local life squads may support the transportation of the handicapped and senior citizens, in addition to transporting patients and residents of the Dobbins Nursing Home in New Richmond, Ohio (Appl. Exh. 15 at 47; Board Exh. 2 at II-I-5; Tr. 5969, 6264).

593. Ambulance support is also available from Ohio National Guard units (Appl. Exh. 15 at 47; Board Exh. 1 at Fig. II-I-1; Board Exh. 2 at II-I-5; Tr. 6969).

594. In Clermont County, local emergency response personnel will also perform a door-to-door verification of notification of the evacuated area and check all homes which do not display the "I have been notified" card (Appl. Exh. 15 at 47; Board Exh. 2 at II-D-2, 3).

Discussion

595. There are two main considerations with regard to evacuation of those needing assistance. One is their identification and second is the provision of transportation for such individuals. A stamped, self-addressed post card which will be found in "Circle of Safety" will allow advance identification of those who may need transportation assistance in case of an accident, including members of the public who may not have a vehicle at their disposal during certain periods of time. This would allow the identification of individuals who are temporarily handicapped or disabled as well as those who are permanently disabled. Such lists developed from the return of the post cards would be integrated with lists of organizations serving individuals within the plume EPZ in both Kentucky and in Ohio (Tr. 5131). The Board has determined that these procedures are adequate and reasonable to identify those needing transportation.

596. Experience with evacuation indicates that there is a significant spirit of cooperation which would minimize those requiring transportation provided by public agencies (Tr. 6248-49). From testimony during the hearing, it is reasonable to conclude that there are not a significant number of handicapped individuals who will need assistance in transportation. The handicapped may be transported with their family or friends. The testimony of the representative of CAPH/DD indicates that within the plume EPZ, there

are only five or fewer individuals, who could not be removed from their wheelchairs and transported in ordinary automobiles, buses or ambulances. The representatives of the State of Ohio also testified that the Ohio National Guard would respond with ambulances which could assist in evacuating handicapped individuals, if necessary (Tr. 5173-76).

597. The resources to evacuate those without transportation have been listed in the findings of fact. The Board considers that these resources are adequate to provide for such individuals. In particular, the Board finds that the resources present in Clermont County without the use of school buses (which may be questionable due to a legal technicality) is sufficient. Therefore, the Board need not decide the question of whether school buses are an absolute prerequisite to the evacuation planning for those without transportation. See also the discussion contained in Paragraph 700, infra, regarding the Board's jurisdiction to make findings as to the legality of provisions of an emergency plan under state law. In any event, the chief planner for the State of Ohio informed this Board that these buses would be utilized during an emergency under the Governor's plenary authority to protect the health and safety of the citizens of Ohio (Tr. 5094).

598. The Board finds that the plans for the evacuation of handicapped and the general public without their own vehicles available are reasonable and capable of being

implemented. The Board therefore finds that the above stated contentions are without merit.

Fire and Life Squads

Contentions 20(e)(3), 20(e)(4), 20(e)(7),
20(e)(8), 20(e)(10), 20(e)(11), 20(e)(13),
20(e)(14), 24(6)

599. The Clermont County Radiological Emergency Response Plan adequately provides for fire departments within the plume EPZ during a Zimmer Station emergency (Appl. Exh. 15 at 50; Board Exh. 2 at III-B-2, 3).

600. Tables III-B-1, III-B-3 and III-B-4 of the Clermont County Emergency Response Plan provide the correct information concerning fire and life squad resources, including personnel (Appl. Exh. 15 at 50, 53-56; Board Exh. 2).

601. In Clermont County, personnel for access control for the protective actions of shelter or evacuation are to be provided by local police departments, the Ohio State Patrol, the Ohio National Guard and the Clermont County Sheriff's Office (Appl. Exh. 15 at 50; Board Exh. 2 at III-I-6).

602. In Clermont County, fire department personnel are only assigned a supporting role for access control and will only respond when personnel availability permits (Appl. Exh. 15 at 50; Board Exh. 2 at II-I-6 and III-B-2).

603. Manpower for access control can be provided from other sources, if necessary (Appl. Exh. 15 at 50).

604. In accordance with the Clermont County plan, the public living within the plume EPZ will be notified in the

event of a Site Area Emergency or a General Emergency occurring at the Zimmer Station by means of the Prompt Notification System which will consist of sirens and NOAA weather radios (Appl. Exh. 15 at 51; Board Exh. 2 at II-D-2).

605. The Prompt Notification System is supplemented by door-to-door verification of notification and the Emergency Broadcast System ("EBS") (Appl. Exh. 15 at 51; Board Exh. 2 at II-D-2, 3).

606. The public will be instructed, via periodic public information/education programs, to signal they have received notification and are tuned to their EBS or NOAA station for further updates (Appl. Exh. 15 at 51; Board Exh. 2 at II-D-2; Tr. 5480-81).

607. Members of the public signal that they have been notified by placing a green "I have been notified" card so that it is visible from the road or by tying a towel to a door knob or mailbox visible from the road (Appl. Exh. 15 at 51; Board Exh. 2 at II-D-2; Circle of Safety at 11-12).

608. Door-to-door verification of notification of all households which have not displayed the card or towel will identify persons who require assistance (Appl. Exh. 15 at 51; Board Exh. 2 at II-D-2, 3; Circle of Safety at 12; Tr. 5480-81, 6274).

609. Pre-exercise training sessions and discussions were conducted with local fire departments involved in

door-to-door verification of notification (Appl. Exh. 15 at 51).

610. Fire department personnel, supplemented by others, will travel the roads of the sectors which are in their jurisdiction using private vehicles as well as emergency vehicles (Appl. Exh. 15 at 51; Tr. 5490, 5764-65).

611. Fire department personnel are local people, and the routes to be followed are roads with which they are familiar (Appl. Exh. 15 at 51; Tr. 5479).

612. Local road knowledge and ample fire department personnel and equipment will allow timely door-to-door verification of notification (Appl. Exh. 15 at 51).

613. There is no time limit in NUREG-0654 for completion door-to-door verification of notification.

614. Agencies composed of volunteer workers recognize that not all volunteers will always be able to respond to an emergency (Appl. Exh. 15 at 52; Kennedy at 6; Tr. 5463-64; Tr. 5772).

615. A number of fire department and life squad personnel live and work near their assigned stations (Appl. Exh. 15 at 52; Tr. 6289-90, 6294).

616. Certain fire departments and life squads which may respond to a Zimmer Station emergency are comprised of full-time personnel (Tr. 5119-23, 5125).

617. Volunteers can easily respond to an emergency when at home and many have verbal and/or written agreements

with their employers allowing them to leave when an emergency arises (Appl. Exh. 15 at 52).

618. The Clermont County Radiological Emergency Response Plan provides for the effective response of life squads within the plume EPZ to an emergency at the Zimmer Station (Appl. Exh. 15 at 57; Board Exh. 2 at III-B-4).

619. The five community life squads responding within the plume EPZ, Pachel-Tate, Felicity-Franklin, Monroe Township, Moscow, and New Richmond, will be providing normal emergency medical support as they would under all other circumstances (Appl. Exh. 15 at 57; Board Exh. 2 at III-B-4, 9).

620. In Clermont County, each life squad within the plume EPZ has one emergency vehicle equipped with a mobile radio (Appl. Exh. 15 at 57).

621. Since these life squads will be providing normal emergency medical support, their current communications capabilities are adequate for use during an emergency at the Zimmer Station (Appl. Exh. 15 at 57).

622. The three fire department life squads that will respond within the plume EPZ are BMOP, which has the responsibility of handling specific sections of Batavia, Monroe, Ohio and Pierce Townships; North Union Township; and Pierce Township, which possess 18 portable radios among them (Appl. Exh. 15 at 58; Board Exh. 2 at III-B-7, 8).

623. There is no NUREG-0654 requirement for documenting in emergency plans the number of vehicles and equipment that life squads possess (Appl. Exh. 15 at 58).

624. Table III-B-4 of the Clermont County Plan (Board Exh. 2) identifies five life squads which will respond in the plume EPZ and correctly lists the number of certified Emergency Medical Technicians available to each (Appl. Exh. 15 at 58).

625. In addition, with regard to fire department - life squads which may respond within the plume EPZ, BMOP has 14 Emergency Medical Technicians available on its staff, North Union Township has 45, and Pierce Township has 15 (Appl. Exh. 15 at 58).

626. Emergency Medical Technicians receive training for treatment of injured and/or contaminated persons (Appl. Exh. 15 at 58; Tr. 5130, 5445).

627. In addition, life squads within the plume EPZ have received additional training in monitoring and decontamination (Board Exh. 2 at II-N-4; Tr. 5130, 5464-66, 5469-72).

628. The offsite functions that life squads in Clermont County would perform during a radiological emergency in transporting injured individuals and in assisting in evacuating those with special needs without transportation are the same as performed by these groups normally (Board Exhs. 4, 5 and 6 at H-2).

629. The plan provisions for the use of volunteer fire departments in Kentucky as emergency response personnel are adequate (Appl. Exh. 15 at 62; Tr. 6108).

630. The fire departments in Kentucky will provide personnel for access control and verification of notification, which are functions that might normally be performed by fire department personnel during other types of emergencies (Appl. Exh. 15 at 62; Tr. 6108, 6472-73).

631. There is no reason to assume that the fire departments would be unable to perform their regular or additional duties during a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 62).

632. The resources for fire departments are adequate to perform their intended functions during a Zimmer Station emergency (Appl. Exh. 15 at 63-64).

633. The Northern Pendleton Fire Department in Pendleton County can be notified of an incident at the Zimmer Station by pager, telephone and two-way radio, and its personnel can be notified by siren and/or monitor receivers (Appl. Exh. 15 at 63).

634. Campbell, Pendleton and Bracken Counties have a ready resource of personnel and vehicles to assure an adequate emergency response (Appl. Exh. 15 at 64).

635. While the fire departments in the three Kentucky counties are volunteer, there is every reason to believe that a sufficient number will respond during an emergency at the Zimmer Station (Appl. Exh. 15 at 64; Tr. 6456, 6458-59).

636. The emergency plans provide for the support of local response agencies such as fire departments by other local, state and federal resources and agencies as necessary during an emergency (Appl. Exh. 15 at 64).

637. The Kentucky county emergency plans provide personnel from other than rescue squads to examine, monitor, segregate and decontaminate, if necessary, potentially contaminated individuals (Appl. Exh. 15 at 67).

638. The Kentucky county emergency plans provide for rescue squad personnel to transport those who cannot be decontaminated at decontamination centers and/or are injured to designated hospitals (Appl. Exh. 15 at 67; Tr. 6109).

639. Rescue squads usually have at least one member who is an EMT (Emergency Medical Technician) trained in procedures to handle contaminated people (Appl. Exh. 15 at 67).

640. The Kentucky county emergency plans provide for the identification of radiologically contaminated emergency workers and evacuees at designated decontamination and reception centers where trained personnel will perform decontamination as necessary (Appl. Exh. 15 at 68).

641. During an emergency in Kentucky, county fire department rescue squads are the support agencies for emergency medical services; rescue squad personnel administer first aid and prepare the injured for further treatment and have ambulances and rescue vehicles to

transport any ill or injured residents (Appl. Exh. 15 at 68; Board Exh. 4, 5 and 6 at H-2).

642. The Commonwealth of Kentucky will support county rescue squad operations by providing, on request, Military Assistance to Safety and Traffic ("MAST") and Kentucky National Guard Medevac equipment for transporting both contaminated and non-contaminated patients to medical facilities identified in the Kentucky Plan (Appl. Exh. 15 at 68; Board Exh. 3 at H-2; Board Exh. 4, 5 and 6 at H-3).

643. The Kentucky State Police will provide personnel trained in first aid and traffic control for rescue operations (Appl. Exh. 15 at 68; Board Exh. 3 at G-2; Board Exhs. 4, 5 and 6 at H-3).

644. The Clermont County Plan provides for other personnel, not life squads, to examine, monitor, segregate, and, if necessary, decontaminate potentially contaminated individuals (Appl. Exh. 15 at 114; Board Exh. 2 at II-J-2).

645. Life squad personnel in Clermont County do not staff decontamination/relocation centers for the general public, but provide standard emergency medical support during a radiological emergency as they would during other types of emergencies (Appl. Exh. 15 at 114).

646. Life squads in Clermont County routinely man vehicles during working hours and mutual aid agreements presently in force provide for backup support for each life squad when it is unable to respond (Appl. Exh. 15 at 114; Tr. 5448-50, 5479, 5769).

647. The plans provide for additional support of emergency response organizations as necessary by state and federal resources (Appl. Exh. 15 at 114-15).

648. Training for the transportation of potentially radiologically contaminated persons has been provided to two of the three Clermont County life squads designated to respond to the Zimmer Nuclear Power Station site (New Richmond and Moscow Life Squads), and the third will be trained prior to operation of the facility (Appl. Exh. 15 at 115).

649. Volunteers are by their very nature dedicated, and it is reasonable to assume that a large segment will perform the services during a radiological emergency at the Zimmer Station (Appl. Exh. 15 at 114; Tr. 5450, 5477, 5492, 5768, 6111).

650. Volunteers respond during natural and man-made disasters despite significant risks to themselves (Appl. Exh. 15 at 115; Tr. 5477-78, 5578-79, 5768, 6111, 6185, 6451).

Discussion

651. These contentions generally involve the response of fire departments and life squads in Ohio and rescue squads and ambulances in Kentucky in the event of an emergency at the Zimmer Station. These two functions are generally performed by volunteers within the area of the Zimmer Station, although there is some backup by paid firemen and life squads. The Board has heard extensive

testimony with regard to whether a sufficient number of volunteers will respond to perform their function. The Board finds, as discussed below, that a sufficient number of volunteers to fulfill the functions under the emergency plans for the Zimmer Station will respond.

652. The systematic study of previous emergencies done by the authorities in the field, Hans & Sell, clearly indicates that volunteers do respond even if there is significant peril to their own life or safety. This is confirmed by the testimony of local volunteers who testified (Tr. 5450-52, 5492, 6186). Furthermore, the emergency planners in both Ohio and Kentucky who are intimately familiar with response of volunteers due to their involvement in emergency situations in the past have stated that volunteers have in their experience always responded to emergencies (Tr. 5185-86, 5198-200, 6111-13). The planners have testified that this response was usually so overwhelming that they had more volunteers than were necessary (Tr. 5197-98, 6186, 6451).

653. Based upon their experience, the emergency planners stated that they believe that the volunteers would respond in case of a nuclear emergency (Tr. 5126-28, 5757). This was based upon their experiences during general emergencies and at least during one other emergency which involved the loss of radioactive material (Tr. 6114-15, 6182-83). The cognizant planners also testified that volunteers would perform their function during the period

when their own families were being evacuated (Tr. 5196). This was also based upon previous experience with actual emergency situations.

654. Much of the testimony that volunteers would not show up was based on hearsay. That is, most of those witnesses who testified for the intervenors stated that they would respond to a Zimmer Station emergency, but that they had heard that other people would not. The Board has discounted such testimony accordingly. Moreover, it appears that many of those who may be stating they would not respond have not yet received the training which would enable them to better decide the issue (Tr. 5475-76).

655. The Board recognizes that during certain times of the day a number of the volunteers may not be immediately available and, in certain situations, volunteers will make provisions to assure that their families are first taken care of prior to proceeding to their duties under the plan. The Board has considered this factor in its deliberations and concludes that even in this event, actions under the emergency plan will not be unduly delayed. It should be noted that assuring evacuation of one's family does not necessarily mean driving them out of the 10 mile EPZ; it may mean contacting them and assuring that they are indeed following instructions to evacuate or taking other protective actions (Tr. 5492-93).

656. While there was some testimony that there may be some difficulty in manning apparatus at certain periods of

time, particularly during working hours, the testimony revealed that this is not a significant problem and that there are agreements for mutual aid among life squads and fire departments (Tr. 5450). The Board is impressed with the esprit de corps and the dedication of the volunteer units and finds that they are capable of performing the function assigned to them (Tr. 5198, 5450, 5757).

657. With regard to the functions assigned to fire departments and life squads, it must be emphasized that they are quite similar, to a large extent, to the functions that they perform on a day-to-day basis. Excluding those fire departments and life squads which may be called to respond directly to the Zimmer Station, inasmuch as such response is beyond the scope of any contention in the proceeding, the function of life squads in the plume EPZ in Ohio and ambulances and rescue squads in Kentucky would be to transport those who may be injured or those requiring medical attention. It should be emphasized that these squads ordinarily have no function with regard to the transportation of those who may be contaminated, but otherwise uninjured to outside the plume EPZ. Such individuals would utilize their own transportation or publicly provided transportation and would be monitored and decontaminated at the designated decontamination centers. Assistance would be provided for these functions, as well as transportation of the handicapped, by life squads and ambulance squads outside of the plume EPZ which would

secondarily respond. Furthermore, the testimony is clear that the State of Ohio has National Guard ambulance units which may be called into service relatively quickly. It should be emphasized that these rescue squads or life squads do not have primary functions at decontamination centers.

658. With regard to fire departments, their primary function would be rescue operations and fire fighting associated with normal fires which may be postulated to occur after a Zimmer Station accident. Their next priority would be to verify that individuals have been notified by using their own emergency vehicles to check homes and assure that the "I Have Been Notified" sign or other signal has been given or to check those residences or other addresses where such sign has not been given. These fire departments also have responsibility to assist in access control. It should be emphasized that by virtue of their fire training and their familiarity with the roads, this task is not one that requires specialized training, and the Board has every reason to believe that this task will be adequately performed.

659. An additional function that these fire departments, life squads and rescue squads would be required to perform as a result of a Zimmer Station emergency, is related to personal dosimetry. The training necessary to provide dosimetry and self-monitoring will be given prior to the operation of the Zimmer Station (Tr. 5498). While some confusion has been shown with regard to such self-dosimetry,

the Board believes that this will be corrected by additional training prior to the operation of the Zimmer Station.

660. Thus, the Board finds that the fire and life squad functions will be performed adequately. The Board finds that the above stated contentions are without merit.

Police and Sheriff Functions

Contentions 20(e)(5), 20(e)(6), 20(e)(9),
20(e)(12), 20(e)(15)

661. The number of police officers in Clermont County is adequate to carry out their functions under the plan (Appl. Exh. 15 at 59).

662. The Clermont County plan as written allows for the establishment of additional access control points as needed and identifies the personnel to man them (Appl. Exh. 15 at 59; Board Exh. 2 at II-I-6).

663. The Clermont County Sheriff, in coordination with the CCDSA Director and the County Engineer, will determine what access control points are to be established (Appl. Exh. 15 at 60; Board Exh. 2 at III-A-12).

664. The protective action of access control, like emergency planning in general, follows the concept of a "tiered" emergency response by the county, the State and the Federal government, in that order, based upon mobilization and response times (Appl. Exh. 15 at 60, 69-70; Tr. 5772-73).

665. Since local resources and personnel are located closest to the area affected by the emergency, the most

immediate response for access control support is by the local police departments (Appl. Exh. 15 at 60; Tr. 5772, 6189).

666. In Ohio, local police departments, through mutual assistance pacts, will provide manpower for access control support on local roadways being evacuated and areas in which people are being sheltered in the County, at the direction of the Clermont County EOC (Appl. Exh. 15 at 60; Tr. 5756).

667. The Ohio State Patrol will support access control operations on State and Federal highways (Appl. Exh. 15 at 60; Board Exh. 1 at V-7).

668. The Ohio State Patrol response will supplement local resources where they are insufficient (Appl. Exh. 15 at 60; Board Exh. 1 at V-5, 6, 7).

669. In Clermont County, the local fire departments may support local police and the State Highway Patrol with access control, if their resources are needed (Appl. Exh. 15 at 60; Board Exh. 2 at II-I-6 and III-B-2).

670. The Ohio National Guard will be ready to set up road blocks where needed, at the direction of the County EOC, if local resources are lacking (Appl. Exh. 15 at 60; Tr. 5583).

671. Federal assistance in support of access control will be by the U.S. Coast Guard, which will restrict or close parts of the Ohio River to all commercial and pleasure water traffic if called for by local or State authorities

(Appl. Exh. 15 at 60; Board Exh. 2 at II-B-4 and IV, Letter of March 13, 1981).

672. There are sufficient full and part-time police officers to perform their functions under the Clermont County Plan (Appl. Exh. 15 at 61; Board Exh. 2 at III-B-1, 6).

673. The Federal government will also make available, at State request, its extensive resources and expertise through the Federal Radiological Monitoring and Assessment Plan, the Federal interagency radiological emergency response organization (Appl. Exh. 15 at 69-70; Board Exh. 2 at II-B-2 to 12).

674. State and Federal agencies have specialized resources for responding to a radiological emergency to be activated and mobilized when needed (Appl. Exh. 15 at 70; Board Exh. 1 at V; Board Exh. 2 at II-B).

675. Concurrent with the response of local agencies to an emergency situation, appropriate State and Federal agencies are notified of the situation and preparations are made for a possible response to the emergency situation so as to allow State and Federal agencies to monitor the evolving emergency situation and to respond in a minimum amount of time, if needed (Appl. Exh. 15 at 70).

676. In Kentucky, local police departments have the primary responsibility for manning access control points, but, if additional assistance is required, local fire departments or neighboring police departments can provide

support (Appl. Exh. 15 at 70; Tr. 6189; Board Exh. 4, 5 and 6 at F-10-1).

677. In Kentucky, if further assistance is needed for access control, the State police and the National Guard can be utilized (Appl. Exh. 15 at 70; Board Exhs. 4 and 5 at F-10-2; Board Exh. 6 at F-10-1).

678. The source of personnel used to maintain these points may change as the extent and nature of an emergency become apparent (Appl. Exh. 15 at 71).

679. Sufficient county and State manpower and vehicles are available to assure a safe and timely evacuation of Campbell County, Pendleton County, and Bracken County, including A.J. Jolly State Park, Camp Sunshine and Kincaid Lake State Park (Appl. Exh. 15 at 71).

680. In the event that an evacuation of a portion or all of the plume EPZ within Campbell County is required, local law enforcement agencies will begin to establish and maintain selected predetermined access and traffic control points (Appl. Exh. 15 at 71).

681. In Campbell County, local police and fire departments have the primary responsibility for implementing access control measures as assisted by other personnel (Appl. Exh. 15 at 71; Board Exh. 5 at F-10-1; Tr. 6782).

682. There are 14 Campbell County police departments that can be utilized for access control (Appl. Exh. 15 at 71; Board Exh. 5 at G-1-1).

683. If additional access and traffic control support is required, Campbell County will be assisted by State police and the Kentucky National Guard (Appl. Exh. 15 at 71-72; Board Exh. 5 at G-2; Tr. 6786).

684. The Campbell County Judge/Executive can also request support from the Kenton County law enforcement agencies to support access control (Board Exh. 5 at F-10-2).

685. Evacuation of the A.J. Jolly State Park and Camp Sunshine does not directly involve the use of state or local police (Appl. Exh. 15 at 72).

686. The siren/public address system located in the A.J. Jolly State Park will alert transients to take protective actions (Appl. Exh. 15 at 72).

687. In the event of an evacuation of Camp Sunshine, camp personnel who have private vehicles will be used for evacuation (Appl. Exh. 15 at 72; Board Exh. 5 at F-9-3).

688. If additional transportation resources are required, Camp Sunshine residents will proceed to the Eastern Campbell County Fire Department for pickup and will be transported by county resources (Appl. Exh. 15 at 72; Board Exh. 5 at F-9-3).

689. In the event of an evacuation of a portion or all of the plume EPZ within Pendleton County, local law enforcement agencies and fire departments will establish and maintain selected access and traffic control points (Appl. Exh. 15 at 72; Board Exh. 6 at F-10-1).

690. The Pendleton County Sheriff's Department, the Falmouth Police Department and the Butler Police Department have the primary responsibility for implementing access control measures (Appl. Exh. 15 at 72; Board Exh. C at G-1-1).

691. If additional access and traffic control support is required, the county will be assisted by the State police and the Kentucky National Guard (Appl. Exh. 15 at 72; Board Exh. 6 at F-10-1).

692. Evacuation of Kincaid Lake State Park near the edge of the plume EPZ does not directly involve the use of State or local police (Appl. Exh. 15 at 73).

693. The siren/public address system located in Kincaid Lake State Park will alert transients to take protective actions and few or none of the transients would be expected to need transportation assistance since the park is accessible only by private transportation (Appl. Exh. 15 at 73).

694. If needed, additional access control assistance can be provided by county and State police for Kincaid Lake State Park (Appl. Exn. 15 at 73).

695. In the event of an evacuation of a portion or all of the plume EPZ within Bracken County, local law enforcement agencies and fire departments will establish and maintain selected predetermined access control points and the Brooksville Sheriff's Office, the Brooksville Police and

Fire Departments will man these access control points (Appl. Exh. 15 at 73; Board Exh. 4 at F-10-1).

696. If additional access and traffic control support is required, Bracken County will be assisted by the State Police, the Kentucky National Guard and the Germantown Police Department (Appl. Exh. 15 at 73; Board Exh. 4 at F-10-1, 2; G-1, 2, and G-1-1).

Discussion

697. The emergency plans for the affected counties both in Ohio and Kentucky list the available resources with regard to police functions. Based upon the evidence of record, the Board finds these police officers, as backed up by additional resources which are available, are adequate to perform their function under the plan. Under the plans, the primary function of police officers, aside from their normal duties, is to man access control points during a "take shelter" or evacuation situation. It must be emphasized that the establishment of access control points is not a prerequisite to the commencement of evacuation. In fact, it is anticipated that in a number of circumstances, evacuation would take place even prior to the establishment of access control points. This function is to keep individuals out of the affected areas. There are a number of groups which can perform this function in the tiered response concept described in NUREG-0654 and utilized in the various plans. From the testimony presented to us, the Board finds that police officers as a group within the plume EPZ are

competent and dedicated and will perform their duties in an emergency (Tr. 5774). For example, Chief Carl McMillian of the Monroe Township Police Department, a witness for ZAC/ZACK who testified that he had been trained in the use of radiation detection equipment, stated that he would respond as a police officer (Tr. 5576-77).

698. The Board concludes that police forces in Ohio and Kentucky are adequate to perform their intended function under the emergency plan. In particular, the Board finds that the plans for notification of the public and evacuation of the plume EPZ are adequate and can be implemented.

699. With regard to the legal issue regarding the responsibility of the Sheriff of Clermont County, the Board has examined the evidence before it. Initially, it is noted that this Licensing Board lacks authority to decide questions of State law and that it is not within this Board's authority to decide whether a plan, as constituted, is consistent with State law. In Cleveland Electric Illuminating Company (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 748 (1977), the Atomic Safety and Licensing Board recognized that questions of Ohio law should be decided by the Ohio courts and that the NRC's "job is to decide the Federal issues before us." In Northern States Power Company (Tyrone Energy Park, Unit 1), ALAB-464, 7 NRC 372, 375 (1978), the Appeal Board stated that "[t]he requirements of State law are beyond our ken."

700. In any event, the question of the authority of the Sheriff appears to be an extremely minor question. Without judging the merits, there appears to be agreement that there are a number of ways of changing the plan in a minor manner which would acceptably remove any question as to the question of state law (Appl. Exh. 14 (for identification) at 7-10; Tr. 5178-79, 5184-85). Therefore, the Board finds no inadequacy with regard to the function of the Sheriff in Clermont County.

701. In conclusion, the Board finds that, in the areas challenged by the intervenors, the planning for police and sheriff's functions in Kentucky and Ohio is adequate and capable of being implemented. The Board further finds that the intervenors' contentions noted above have no merit.

Training

Contentions 20(e)(8), 20(e)(11), 20(e)(14),
and 36(H)

702. During an emergency, county fire departments' rescue squads in Kentucky are the support agencies for emergency medical services (Appl. Exh. 15 at 68; Board Exhs. 4, 5 and 6 at H-2).

703. Rescue squad personnel administer first aid and prepare the ill or injured person for further treatment, and they also have ambulances and rescue vehicles to transport any ill or injured residents (Appl. Exh. 15 at 68; Board Exhs. 4, 5 and 6 at H-2).

704. Kentucky will support county rescue squad operations by providing, on request, Military Assistance to

Safety and Traffic ("MAST") and Kentucky National Guard Medevac equipment for transporting both contaminated and non-contaminated patients to medical facilities identified in the Kentucky Plan (Appl. Exh. 15 at 68; Board Exh. 3 at H-2;^b Board Exhs. 4, 5 and 6 at H-3).

705. The Campbell County Radiological Emergency Plan does include the Eastern Campbell County Fire Department as a response agency, and its responsibilities during a radiological emergency are described in Annex C-4, Appendix F-9-1, 3, Annex H-2 and more generally in Annex I (Appl. Exh. 15 at 65).

706. The Eastern Campbell County Fire Department does not have its own emergency plan since its responsibilities are included in the Campbell County Radiological Emergency Plan (Appl. Exh. 15 at 65).

707. Training for the Eastern Campbell County Fire Department and all other emergency response personnel is an ongoing process which will continue after the commencement of operation of the Zimmer Station (Appl. Exh. 15 at 65).

708. Additional training for fire department functions outlined in the Campbell County Radiological Emergency Plan, which are similar to normal duties, is unnecessary (Appl. Exh. 15 at 65-66).

709. Training will be given to the Eastern Campbell County Fire Department in accordance with the training schedule outlined in Annex S of the Campbell County Plan (Board Exh. 5) for those functions that are not exercised

routinely as part of its normal operations and for functions that are not specific to its normal operations (Appl. Exh. 15 at 65).

710. The Eastern Campbell County Fire Department is not required to perform any radiological monitoring functions and therefore has not been provided with monitoring equipment (Appl. Exh. 15 at 66).

711. The Eastern Campbell County Fire Department personnel will be provided with personal dosimetry prior to entering a potential exposure area and will have been instructed on its use during training sessions (Appl. Exh. 15 at 66; Board Exh. 5 at E-3 and 5-3).

712. Special radiological protective gear is not required for the functions contemplated for the Eastern Campbell County Fire Department in the Campbell County Radiological Emergency Plan (Appl. Exh. 15 at 66).

713. While the Eastern Campbell County Fire Department does not have radio communications with the Zimmer Station and State agencies, it does have radio communications with other fire departments in Campbell County and with the Campbell County Emergency Operations Center, from which its activities will be coordinated during an emergency (Appl. Exh. 15 at 66; Board Exh. 5 at Appendix B-1).

714. Other fire departments in Campbell County will have similar training and responsibilities to that of the Eastern Campbell County Fire Department (Appl. Exh. 15 at 66).

Discussion

715. Training of organizations to perform their functions under the emergency plans involving the Zimmer Station is an ongoing function. Training has already begun in some areas and the training outlined in the various plans will be completed by the time that the Zimmer Station becomes operational (Tr. 5388, 6785). Further training will continue over the life of the Station (Tr. 6785). The full scale exercise that was conducted was used to pinpoint any weaknesses in the plans and to correct them (Tr. 5762). The level of proficiency of organizations and individuals involved in an emergency response will continue to be confirmed by the use of exercises and drills.

716. The training which is provided to each organization is related to the function that it must perform under the plan and the activities which it normally carries out on a daily basis. For example, there is no need to train policemen in the use of barricades and in setting up an access or traffic control point (Tr. 5754, 5758-59). Neither is there training required for firemen to respond to fires. For those individuals who may be called upon to enter the plume EPZ, training is given in dosimetry and instruction is given with regard to their protection in case of an accident at the Zimmer Station.

717. In particular, the training to be given to the Eastern Campbell County Fire Department is contained in the plan. This department will be trained in the use of

personal dosimetry equipment prior to the operation of the Zimmer Station. This fire department also has radio communications appropriate to the performance of its functions under the emergency plan in that it has radio communications with the Campbell County Emergency Operations Center from which its activities will be coordinated during an emergency, and which, in turn, has direct communications with the Zimmer Station.

718. The Board finds that, in the challenged areas, the training program is adequate and that the contentions listed above have no merit.

Schools

Contentions 20(c)(9), 21, 21(c)(1),
21(c)(2), 21(c)(3), 21(c)(4), 21(d)(1),
21(d)(2), 21(d)(3), 21(d)(4), 21(e)(1),
21(e)(2), 21(e)(3), 36(E)

719. Within the plume EPZ of the Zimmer Station, twenty-one schools are located in six school districts (Appl. Exh. 15 at 78).

720. The locations of these schools range from 3.5 to more than 10.5 miles from the plant: (1) A. J. Jolly Elementary (Campbell County) 3.5 miles; (2) St. Peter & Paul Elementary (Campbell County) 4.5 miles; (3) Monroe Elementary (Clermont County) 5.0 miles; (4-6) New Richmond Elementary, Junior and High Schools (Clermont County) 6.8 miles; (7-9) Felicity-Franklin Elementary, Junior and High Schools (Clermont County) 7.5 miles; (10) Northern Elementary (Pendleton County) 8.5 miles; (11) Grants Lick

Elementary (Campbell County) 9.0 miles; (12) Southern Campbell County Middle School (Campbell County) 9.0 miles; (13) Western Hills Elementary (Bracken County) 10.5 + miles; (14-15) Alexandria Elementary and High Schools (Campbell County) 10.5+ miles; (16) St. Mary Elementary (Campbell County) 10.5+ miles; (17) Bishop Brossart (Campbell County) 10.5+ miles; (18) Campbell County Vocational School (Campbell County) 10.5+ miles; (19-21) Bethel-Tate Elementary, Middle and High Schools (Clermont County) 10.6+ miles (Appl. Exh. 15 at 78-79).

721. Of the 21 schools within the plume EPZ, nine are more than ten miles from the Zimmer Station, and another two are nine or more miles away (Appl. Exh. 15 at 79).

722. The nine schools which are located more than ten miles from the Zimmer Station have been included in the plume EPZ by local officials for planning purposes (Appl. Exh. 15 at 79).

723. While the plans call for evacuation of all schools as quickly as possible, it is the intention of public officials to direct resources first towards the closer schools and the ones which may be in the sectors affected by the plume (Appl. Exh. 15 at 79; Tr. 5921, 6137, 6311, 6313, 6394).

724. It is extremely unlikely that schools more than ten miles away from the Zimmer Station would be required to evacuate in case of an emergency.

725. Each of the affected schools has or will have a set of school protective action procedures to implement the concepts contained in the various emergency plans in the event of an emergency (Appl. Exh. 15 at 79; Tr. 6387-88).

726. The Clermont, Pendleton, Bracken and Campbell County procedures are nearing completion (Appl. Exh. 15 at 79; Tr. 7956).

727. In the event of an emergency, the school superintendents may be notified by pager, tone-activated NOAA radio, monitor radio and/or telephone call from the appropriate Emergency Operations Center ("EOC") personnel (Appl. Exh. 15 at 79; Tr. 5545, 5699; Board Exhs. 4, 5 and 6 at C-4).

728. In Clermont County, the Board of Education Superintendent is a member of the EOC staff and will establish communications with the affected school districts from this post (Appl. Exh. 15 at 79; Board Exh. 2 at II-G-4 and III-A-2).

729. In Kentucky, the school superintendents will communicate with the affected schools from their offices or homes depending on the circumstances of the emergency (Appl. Exh. 15 at 79).

730. The school district superintendents direct the resources of their district and maintain communication with the schools and EOC (Appl. Exh. 15 at 79; Board Exh. 2 at III-C-1, 3 and 5).

731. The implementation of protective action at schools is directed by the principals (Appl. Exh. 15 at 79-80).

732. The primary means of communication with the schools will be by telephone (Appl. Exh. 15 at 80; Board Exh. 2 at II-E-5 and III-C-1, 3 and 5; Board Exhs. 4, 5 and 6 at Appendix B-1).

733. The use of the telephone for communication in a potential emergency has been successful in the past (Tr. 5709).

734. The Superintendent's Office of the Clermont County Schools has never had a problem getting a free telephone line to make outgoing calls and would use the telephone as the primary means of communication (Tr. 5640-41, 5693).

735. Some of the schools are located on a common site, such as those in Alexandria and New Richmond (Appl. Exh. 15 at 80; Tr. 5629).

736. Communications at these school complexes can be facilitated by the use of a messenger, if necessary, thereby easing the demands on the telephone system (Appl. Exh. 15 at 80; Tr. 5547, 5651).

737. Evacuation of the general public, including school children, may be chosen as the best protective action only after full consideration of the particular emergency situation (Appl. Exh. 15 at 80).

738. The evacuation time estimate for the geographical area under consideration, the weather conditions, the time of day and the availability of school buses and drivers all have weight in the decision process and should any of these factors render evacuation unwise, the most likely protective action is sheltering (Appl. Exh. 15 at 80).

739. The closest schools to the Zimmer Station in Campbell County may be evacuated as a precautionary measure before any other offsite response is required (Appl. Exh. 15 at 80; Tr. 6106).

740. An evacuation of school children will be accomplished using the available county school buses (Appl. Exh. 15 at 80; Board Exh. 2 at III-C-1, 2; Board Exhs. 4, 5 and 6 at F-9-2).

741. New Richmond and Bethel-Tate school districts have obtained agreements from West Clermont and Clermont Northeastern school districts for the use of additional buses (Appl. Exh. 15 at 80; Tr. 5550).

742. Campbell County has obtained an agreement for the use of TANK ("T.ansit Authority of Northern Kentucky") buses (Appl. Exh. 15 at 80; Board Exh. 5 at M-2).

743. Schools nearest to the Zimmer Station will receive the needed vehicles first, resulting in minimum evacuation times (Appl. Exh. 15 at 80).

744. Bus driver notification will be accomplished by telephone or the Prompt Notification System (Appl. Exh. 15 at 81).

745. In the unlikely event that county officials choose to initiate an evacuation while the buses are picking up or discharging children, the bus drivers will complete their routes for reasons of student safety and accountability, and, upon reaching the schools or garage, the bus drivers will receive further instructions from school officials who are in communication with the emergency response officials (Appl. Exh. 15 at 81).

746. Privately owned vehicles, as well as fire department vehicles, may supplement buses for evacuating the handicapped, if necessary (Appl. Exh. 15 at 81).

747. The Clermont County Plan provides reasonable assurance that the plume EPZ school population of the New Richmond School District can be evacuated in a safe and timely manner (Appl. Exh. 15 at 85; Board Exh. 2 at II-I-5 and III-C).

748. Pierce Elementary School, although part of the New Richmond School District, is not within the plume exposure zone (Appl. Exh. 15 at 85; Tr. 5646).

749. The New Richmond School District has only 2200 students in four schools within the plume EPZ and about 10% less, or 2000 students, are generally in attendance (Appl. Exh. 15 at 85).

750. Additional students attend Grant Joint Vocational School which is outside the plume EPZ (Appl. Exh. 15 at 85).

751. Three of the four New Richmond School District schools within the plume EPZ are at one location in the town

of New Richmond, approximately 7 miles from the Zimmer Station (Appl. Exh. 15 at 85).

752. The New Richmond School District has 20 buses in operating condition, each capable of carrying 65 students, with an additional 6 persons being accommodated, if necessary (Tr. 5641, 5645, 5688).

753. The West Clermont District has agreed to send 17 additional buses, of similar capacity to the New Richmond buses, immediately upon request from the New Richmond Superintendent, to assist in the evacuation of the New Richmond school population (Appl. Exh. 15 at 85; Tr. 5690).

754. The total bus seating capability for New Richmond schools is therefore 2340, sufficient for the approximate 2000 students to be evacuated (Appl. Exh. 15 at 86).

755. Sufficient buses will be available to assure that the entire New Richmond student population within the plume EPZ is promptly evacuated and that students in the three New Richmond schools will not have to wait to be evacuated until buses return from evacuating the Monroe Elementary School (Appl. Exh. 15 at 86).

756. There are a number of alternate evacuation routes available for the schools in the New Richmond School District (Tr. 5702-04).

757. In assuring that a sufficient number of buses will be available to evacuate school children, there has been no account taken of the number of students that can be

evacuated by school staff vehicles and student cars (Appl. Exh. 15 at 86).

758. The Clermont County Plan provides reasonable assurance that Bethel-Tate school children can be evacuated in a safe and timely manner (Appl. Exh. 15 at 87).

759. The Clermont Northeastern School District, which is located outside the plume EPZ, has agreed to supply the Bethel-Tate District with the additional buses needed to evacuate the entire Bethel-Tate school population in one trip (Appl. Exh. 15 at 87-88).

760. Clermont Northeastern buses will be dispatched to the Bethel-Tate schools upon receiving a request from the Bethel-Tate Superintendent (Appl. Exh. 15 at 87).

761. If already in use, the Clermont Northeastern buses would be dispatched upon returning to their schools (Appl. Exh. 15 at 87).

762. It is not necessary to dismiss students from reception center schools in advance of transporting evacuated students to these schools (Appl. Exh. 15 at 88).

763. Clermont Northeastern buses will be dispatched to Bethel before they are used to transport the Clermont Northeastern student population to their homes (Appl. Exh. 15 at 88).

764. The distance Clermont Northeastern buses will have to travel from the Batavia-Owensville area, where they originate, to Bethel is approximately 10-15 road miles, and

will not create a delay in getting the Bethel-Tate school evacuation underway (Appl. Exh. 15 at 88).

765. A similar procedure for use of additional buses for evacuation has been developed for the New Richmond District, with additional buses being supplied from the West Clermont District, which is approximately the same distance from the New Richmond Schools as is Clermont Northeastern from Bethel-Tate schools (Appl. Exh. 15 at 89).

766. The Campbell, Pendleton and Bracken County Plans provide for the effective evacuation of school children in a safe and timely manner (Appl. Exh. 15 at 91; Board Exh. 4 at F-9-1, 2; Board Exhs. 5 and 6 at F-9-2).

767. The schools in Pendleton and Bracken Counties in the plume EPZ can be evacuated using their existing resources of school buses (Appl. Exh. 15 at 91).

768. The schools in Campbell County within the plume EPZ will be evacuated using the county's 60 school buses (Appl. Exh. 15 at 91).

769. The Campbell County plan also provides for the supplemental use of TANK buses (Appl. Exh. 15 at 91; Tr. 6188; Board Exh. 5 at F-9-2 and M-2).

770. The four Campbell County schools within 10 miles of the Zimmer Station can be readily evacuated without any double routing (Appl. Exh. 15 at 91).

771. There are only 1136 students in these four schools (Appl. Exh. 15 at 91; Sell, et al. at 3).

772. The remaining five Campbell County schools within the plume EPZ, but outside 10 miles, will be evacuated next and, if all buses are available, no double routing would be required for evacuation of these schools (Appl. Exh. 15 at 91-92).

773. All handicapped children within Campbell County Schools who require the use of the two county lift buses do not attend school within the plume EPZ, but are transported to schools outside of the plume EPZ (Tr. 6810-11).

774. For the sake of accountability and student safety, Campbell County buses will complete their routes if an emergency should occur during morning or afternoon routing, and the drivers will then receive further instructions upon their return to the schools or garage (Appl. Exh. 15 at 92).

775. Several alternative means exist for notification of school bus drivers in addition to the normal means of a telephone call from the School District Superintendent or Transportation Supervisor (Appl. Exh. 15 at 92, 98; Tr. 6525-26).

776. School bus drivers within the plume EPZ could learn of an emergency through the Prompt Notification System, consisting of sirens and NOAA tone alert radios, and then, in accordance with procedures, they would proceed to the schools or other points and receive further instructions (Appl. Exh. 15 at 92, 98).

777. School bus drivers may receive notification over one of the EBS radio or television stations (Appl. Exh. 15 at 92, 98).

778. The decision to evacuate the schools will be made considering the availability of school buses, bus drivers and other specifics of the emergency at hand, and other protective actions are possible and may be implemented as circumstances and resource availability warrant (Appl. Exh. 15 at 93).

779. Typical bus routes in the Campbell County, New Richmond and Bethel-Tate school districts are normally completed in periods of time less than the mobilization time assumed in the Evacuation Time Study (Appl. Exh. 15 at 94-95).

780. In the unlikely event that the evacuation of school children were initiated in Clermont and Campbell Counties while school buses were in transit to the school with children, the buses would continue to board the school children and deliver them to the school, and the bus driver would then be directed by school officials to drive the students to the appropriate relocation center (Appl. Exh. 15 at 95).

781. Average route execution times for the Bethel-Tate School District and the New Richmond School District are 35-40 minutes and 55 minutes, respectively (Appl. Exh. 15 at 95).

782. The assumed mobilization time in the Evacuation Time Study for school systems is one hour (Appl. Exh. 15 at 95).

783. Should the need arise to contact buses enroute in both Campbell and Clermont Counties, a telephone call would be made to a home or other location on the portion of the route yet to be driven instructing the resident to notify the bus driver upon its arrival at that point (Appl. Exh. 15 at 95; Tr. 6158-59, 6400-01).

784. The school buses of Kenton County School District have been identified in the emergency plans as being an available resource in aiding Campbell County School District should the need for additional vehicles arise (Appl. Exh. 15 at 96; Board Exh. 5 at Annex P, letter dated July 20, 1981).

785. The availability of buses from outside the district being evacuated is considered before initiating an evacuation that would require the use of these additional buses (Appl. Exh. 15 at 96).

786. Communication with school buses in contiguous districts supplying buses to school systems within the plume EPZ is the same as communication with school buses of the three school districts in question, i.e., await the arrival of the bus at the terminus of its route or notify a residence along the route (Appl. Exh. 15 at 96).

787. If school evacuation is begun before that of the general public, the telephone can reliably be used to communicate with bus drivers (Appl. Exh. 15 at 98).

788. The Campbell and Clermont County Plans provide reasonable assurance that school buses can be summoned to school sites within the plume EPZ during an emergency and that schools can be evacuated in a safe and timely manner (Appl. Exh. 15 at 98; Tr. 6077).

789. In the New Richmond School District, five buses are already at schools or at the administration building, and the remainder are at the drivers' homes (Appl. Exh. 15 at 99; Tr. 5647).

790. In the New Richmond School District, bus drivers, for the most part, have no other employment other than working for the District and, for the most part, are home during the day (Appl. Exh. 15 at 98; Tr. 5648, 5661-62, 5694).

791. Twenty-nine of Campbell County's 54 regular bus drivers have no other employment (Appl. Exh. 15 at 98).

792. Two-thirds of Bethel-Tate's drivers have no other employment (Appl. Exh. 15 at 98).

793. Procedures have been developed whereby the Superintendent of the Clermont County Board of Education will call the Greater Cincinnati Broadcasters Association to make an announcement regarding the schools, thereby increasing the possibility that school bus drivers who are temporarily beyond reach of a telephone will be alerted to the emergency (Appl. Exh. 15 at 98).

794. Half of Bethel-Tate's, all of Felicity-Franklin's and 37 of 58 of Campbell County's buses are parked at the school garages (Appl. Exh. 15 at 99).

795. A portion of the time required to evacuate school children is taken up with getting children assembled and prepared to board buses, and while buses that are parked offsite are travelling to the schools, preparations are being made at the schools so that children will be ready to board when the buses arrive (Appl. Exh. 15 at 99).

796. The fact that all buses are not already on site when an evacuation order is received does not necessarily create delays in getting an evacuation underway (Appl. Exh. 15 at 99).

797. Letters to parents or meetings explaining school procedures are planned (Tr. 5545, 6104).

798. In the past, communications with parents have been effective in achieving their purpose (Tr. 5676-77).

Discussion

799. The matter of protective actions for schools received considerable attention during the course of the hearing. The significant issues which were raised regarded notification of schools by school district superintendents, the notification of bus drivers and the number of buses to be used for evacuation and timing of their arrival at schools in order to assure a safe and timely evacuation. The Board notes that these matters are the subject of

standard operating procedures already completed or currently being developed. A number of these are close to completion.

800. For example, during the hearing, the Superintendent of the Campbell County School System indicated his willingness to meet and to resolve all of his concerns and stated that adequate standard operating procedures could be developed (Tr. 6383-84, 6387). The Board was extremely pleased to be informed at the end of the evidentiary proceeding by the county planner with direct involvement and responsibility that the procedures for Campbell County schools which are within the plume EPZ were close to being put in final draft form and that a schedule for their completion has been arrived at. The Board takes this as indicative of the fact that the issues before the Licensing Board and the concerns of the Campbell County Superintendent, as expressed in this proceeding, have been satisfied.

801. Mr. Monroe, the witness called by the intervenors, testified that as result of meetings, subsequent to their appearances as witnesses for the intervenors, with Messrs. Sell and Voelker, standard operating procedures for schools have been developed to the point that they could be termed a "final draft" and that within the next week they would be presented to school authorities as well as State and local disaster emergency services authority for final review (Tr. 7956).

802. The general considerations relating to evacuation of schools are the same as have been previously discussed with regard to evacuation of the general public. Factors such as the time of day, availability of buses and the potential for escalation of a situation at the Zimmer Station, would all be considered by public officials in conjunction with officials of the various school districts at the time of an event. The decision to evacuate school children would be based upon all considerations as they exist at that time. One fundamental matter which did not receive much attention at the hearing, but which the Board feels is important, is the protective action of sheltering, which will be addressed in school procedures (Tr. 5921). Until sufficient buses arrive at a particular location, sheltering will reduce the dose to the school children (Tr. 5921). Thus, the combination of sheltering and evacuation, if warranted, will maximize dose savings to school children (Tr. 5551, 5921-22).

803. In its findings, the Board has set forth the locations of the schools in relation to the Zimmer Station. The Board feels that this is quite important in assessing the adequacy of plans (Tr. 5921). There are only three schools within five miles of the Zimmer Station, the next closest being approximately seven miles away. Thus, there is an increased time period for action in schools which are farther away from the Zimmer Station.

804. With regard to the three closest schools, the Board notes that the responsible school officials would direct their resources to these schools first. The two closest schools, A. J. Jolly Elementary School and St. Peter & Paul Elementary School, only require a maximum of six buses to evacuate the school children and all others at those schools (Tr. 6077, 6187). In comparison to the 60 buses available to the Campbell County school system initially, the Board believes that the resources are more than sufficient to handle this task (Tr. 6187). The same situation holds true in Clermont County in that the New Richmond School System has sufficient buses to evacuate the Monroe Elementary School.

805. In order to provide enhanced communications to the closer schools in Campbell County, two-way radios to the A. J. Jolly and St. Peter & Paul schools will be provided. In addition, a radio will be given to the Superintendent of the Campbell County schools. In this way communications between the schools, the Superintendent and the Emergency Operations Center for Campbell County can be effectuated (Tr. 6069). The fact that these radios are portable would allow them to be utilized in the school buses during the evacuation process.

806. The Board notes that the school systems requiring additional resources have contacted other governmental groups to assure the availability of additional buses to

respond to the schools to assure a timely evacuation. While the Board has accepted the fact that the planners are attempting to evacuate all school children without any double runs of buses, the Board does not believe that this is a requirement of NUREG-0654. Considering the distances involved, double runs of buses, even if required, would not detract from the ability to implement the emergency plan successfully (Tr. 6068). As a corollary, the Board finds that methods for contacting bus drivers and having them to report to their stations for dispatch, while not perfect, are adequate to fulfill the emergency planning objectives. Considering all the resources available, a staged evacuation could be conducted successfully even if all bus drivers were not available.

807. There were a number of detailed matters related to school evacuation which were raised during the hearing session. One of these is possible congestion at the entrances to some of the schools, particularly the New Richmond schools. From testimony at the hearing, these matters will be given attention by the cognizant law enforcement officials (Tr. 5638, 5756). The Board does not believe that these details cannot be successfully dealt with.

808. While procedures have yet to be finalized regarding the school system, the Board has heard nothing which will prevent such procedures from being completed in a timely manner.

809. As with all other procedures, the Board believes that this matter can be reviewed by FEMA and the NRC Staff, as previously discussed. Based upon such action, the Board finds that the emergency plans for schools within the plume EPZ are adequate and capable of being implemented. The Board therefore finds that the above stated contentions have no merit.

Implementation of an Emergency Plan
by Standard Operating Procedures

Contention 34

810. The purpose of radiological emergency plans is to identify the various groups and authorities which will be involved during an emergency, and then to organize, but not to describe in detail, the response of and the interrelationship among these different entities (Appl. Exh. 15 at 121).

811. After having set forth the specific kinds of actions that must be taken, the emergency plans assign responsibility (primary, secondary, etc.) for these actions to those groups or authorities which have been identified as playing an emergency response role (Appl. Exh. 15 at 121-22).

812. The plan assures that the many groups involved in such an operation will (1) receive a timely alert, (2) be called upon to act when and if their participation is needed, and (3) act cooperatively, without duplicating or hindering each other's effort (Appl. Exh. 15 at 122).

813. Another aspect of the plans is that they establish lines of communication which are logical and consistent with the way in which responsibilities have been delegated, this function being essential to a timely, coordinated response (Appl. Exh. 15 at 122).

814. In addition to organizing an emergency response, the plan provides for logical lines of communication to assure the flow of information needed to activate personnel and make timely decisions (Appl. Exh. 15 at 122).

815. The plan provides for information to be transmitted without delay to the authorities responsible for these decisions ensuring that emergency response groups under the jurisdiction of these authorities can be informed of decisions that will determine their course of action, as described step by step in the written procedures (Appl. Exh. 15 at 122).

816. NUREG-0654 FEMA-REP-1 states under the title "Content of Plans" that

applicable supporting and reference documents and tables may be incorporated by reference and appendices should be used whenever necessary, the plans should be kept as concise as possible. The average plan should consist of perhaps hundreds of pages, not thousands. The plans should make clear what is to be done in an emergency how it is done and by whom.

817. Procedures which are derived from the plan and are consistent therewith are used to support the planning concepts and are used to implement certain planned responses and provide the more detailed steps necessary for some

actions in sufficient detail to provide unambiguous guidance in a wide range of situations (Appl. Exh. 15 at 123; Board Exh. 5, Basic Plan at VII-8-1; Tr. 6136).

818. The concept of plans and detailed procedures for the States and counties involved in emergency planning for the Zimmer Station is entirely consistent with the Nuclear Regulatory Commission regulations (Appl. Exh. 15 at 123).

819. State and local authorities have the updated copies of various plans available for reference during an emergency if needed (Appl. Exh. 15 at 123; Tr. 6134).

Discussion

820. Standard operating procedures are developed to implement the concepts contained in the emergency plans. For example, detailed lists of phone numbers and detailed assignments of individuals are listed in standard operating procedures, rather than plans. This adds flexibility in making necessary changes and allows review of the concepts in the emergency plan without requiring plan reviewers to get bogged down in detail.

821. The Director of the NRC's Division of Emergency Preparedness, Mr. Grimes, appeared before this Licensing Board to testify as to the role of the NRC and FEMA with regard to the review of standard operating procedures. This witness was extremely knowledgeable and particularly well-qualified to testify in this regard (Tr. 7385-91). Mr. Grimes described in detail the role of standard operating

procedures which the Board has discussed in its decision, above, and assured the Licensing Board that the NRC Staff, as well as FEMA, would review in detail the standard operating procedures to assure that they were consistent with the concepts of the plan and that they could be reasonably implemented.

822. Mr. Grimes explained that the review process for emergency plans was similar to the Staff review in other safety matters in that the Staff makes a finding of reasonable assurance regarding the health and safety of the public, but would not allow operation of a facility until the facility were inspected. In the case of emergency planning in the offsite area, this review would equate to receiving assurance from FEMA that the plan was capable of implementation.

823. Mr. Grimes also explained the relationship in time between the preparation of the plan and the implementing procedures. Under NUREG-0654, a plan may be written which identifies those procedures that must be prepared, but the actual finalization of procedures must take place only prior to authorization to operate the plant (Tr. 7397, 7407).

824. It is on this basis that the Board has confidence that such standard operating procedures can be developed and, considering the level of detail required, the Board feels that this is a function which may be left to the NRC Staff and FEMA to complete. In accordance with the above

discussion, the Board finds that the plan meets all requirements of NUREG-0654 and the NRC regulations and that, with regard to standard operating procedures, it is capable of being implemented. The Board finds that contention 34 has no merit.

Prompt Notification System

Contention 36I

825. Within 5 miles of the station, the recommended alerting system includes 8 sirens covering approximately 40 percent of the population (Appl. Exh. 15 at 125).

826. In addition to the sirens, in-home NOAA weather radios will be made available to all households within five miles of the station (Appl. Exh. 15 at 125).

827. In the 5-10 mile range, the population will be covered by either sirens or in-home NOAA weather radios (Appl. Exh. 15 at 125; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2; Board Exhs. 3 and 4 at C-4; Board Exhs. 5 and 6 at C-3, 4).

828. The Prompt Notification System was designed with consideration of a wide range of weather conditions (Appl. Exh. 15 at 125).

829. The Prompt Notification System will be tested and evaluated prior to final approval of the system (Appl. Exh. 15 at 125; Tr. 6163).

830. The Prompt Notification System as designed meets the design objective of direct coverage of essentially 100 percent of the population within five miles of the site

(Appl. Exh. 15 at 125; Board Exh. 1 at II-D-3; Board Exh. 2 at II-D-2; Board Exhs. 3 and 4 at C-4; Board Exhs. 5 and 6 at C-3, 4).

831. The integrated test of the Prompt Notification System will determine the acceptability of the system as installed and corrective actions to assure meeting regulatory requirements will be taken based on the results of the integrated test (Appl. Exh. 15 at 125-26; Tr. 6855).

832. Use of the NOAA weather radios is completely voluntary (Appl. Exh. 15 at 126).

833. Special arrangements will be taken to assure that those with hearing or sight impairments will be capable of being notified by the Prompt Notification System (Appl. Exh. 15 at 126).

834. Hearing impaired persons will be provided with in-home NOAA weather radios which notify them by virtue of a flashing light as opposed to a tone (Appl. Exh. 15 at 126).

835. Although not an NRC or FEMA requirement, both the in-home NOAA weather radios and the sirens are battery equipped; hence, they are capable of functioning during electrical power outages (Appl. Exh. 15 at 126).

Discussion

836. The Prompt Notification System for the Zimmer Station is comprised of a combination of sirens and NOAA weather radios. Those areas within 10 miles which are not within siren range will be provided with NOAA weather

radios. In addition, all addresses within five miles will be equipped with in-home NOAA weather radios whether or not they are in siren range. A comprehensive test will be run to assure the proper coverage of the Prompt Notification System.

837. While there is no requirement in NUREG-0654 to do so, the Prompt Notification System will work despite a loss of power to any or all components thereof. The in-home NOAA radios are equipped with battery backup. Institutional grade NOAA weather radios will be provided to all special facilities within the plume EPZ.

838. The Board finds that, in the areas challenged, the Prompt Notification System meets all requirements of NUREG-0654 (Rev. 1) and this contention has no merit.

Other Matters

839. While not addressed by contentions raised by intervenors and thus not contested issues, the Board has also reviewed the Staff's discussion and scrutiny of unresolved safety issues applicable to the Zimmer Nuclear Station as contained in its Safety Evaluation Report (Staff Exh. 9 at C-6, et seq.). In accordance with the decisions of the Appeal Board in Gulf States Utilities Company (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 774-75 (1977) and Virginia Electric and Power Company (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248-49 n.7 (1978), we have looked to see whether these

generic safety issues have been taken into account in a manner that is at least plausible and that, if proven to be of substance, would be adequate to justify operation. We are persuaded that the Staff has provided an at least reasonable foundation for its conclusions. Northern States Power Company (Monticello Nuclear Generating Plant, Unit 1), ALAB-620, 12 NRC 574, 577 (1980).

840. The Board has thereby satisfied itself by a review of the Staff's description of these generic issues that the Zimmer Station can operate safely pending resolution of each generic safety issue. Northern States Power Company (Monticello Nuclear Generating Plant, Unit 1), ALAB-611, 12 NRC 301, 312 (1980).

III. CONCLUSIONS OF LAW

841. In an operating license proceeding, the Board is called upon to decide only issues in controversy among the parties (10 C.F.R. §2.760a and Appendix A to 10 C.F.R. Part 2, Section VIII). In this case, the contentions and evidence have placed in issue the general subjects of compliance with 10 C.F.R. Part 50, Appendix I, cable tray manufacture, control rod design and manufacture, fire protection of cable trays, financial qualifications,^{20/} and emergency planning.

^{20/} On March 24, 1982, the Commission promulgated changes in its regulations to be effective March 30, 1982, which eliminated the need to make findings with regard to the financial qualifications of electric utilities

842. Based upon the foregoing Findings of Fact which are supported by reliable, probative, and substantial evidence as required by the Administrative Procedure Act and the Commission's Rules of Practice, and upon consideration of the entire evidentiary record in this proceeding, the Board makes the following Conclusions of Law:

- (1) The requirements of 10 C.F.R. Part 51 have been met;
- (2) The requirements of Section 102(2)(A), (C) and (E) of the National Environmental Policy Act have been met;
- (3) The Board has thoroughly considered the foregoing Findings of Fact concerning the issues in controversy in this operating license proceeding and other matters which have been addressed in this Initial Decision and has concluded that the operating license should be issued as proposed;
- (4) Control rods as manufactured and installed are capable of adequately performing their intended function;
- (5) Cable trays as manufactured and installed are capable of adequately performing their intended function;
- (6) Cable trays for which additional fire protection is required have been wrapped in a material which was qualified to perform its intended function;

20/ (continued)

to construct and operate nuclear power reactors. The Commission specifically stated that this rule was applicable to pending proceedings. Thus, the Licensing Board has deleted all proposed findings of fact and conclusions of law relating to the financial qualifications of the Applicants, including those relating to decommissioning, and is hereby dismissing all contentions relating to this subject.

(7) Even were the Moscow Elementary School to be in use, the requirements of 10 C.F.R. Part 50, Appendix I would still be met;

(8) The state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency;

(9) Having considered and decided all matters in controversy among the parties related to operation, the Director of Nuclear Reactor Regulation should be authorized to make such additional findings on uncontested issues as may be necessary to determine whether or not to issue a full-term operating license for the Wm. H. Zimmer Nuclear Power Station;

(10) This decision shall be effective immediately insofar as it authorizes operation up to 5 percent of rated power but it shall not become effective insofar as it authorizes operating at greater than 5 percent power until the Commission actions outlined in 10 C.F.R. §2.764(f)(2) have taken place.

IV. ORDER

843. WHEREFORE, IT IS ORDERED that the Director, Office of Nuclear Reactor Regulation, is authorized upon making requisite findings with respect to matters not embraced in this Initial Decision in accordance with the Atomic Energy Act and the Commission's regulations, to issue to Applicants an operating license for a term of not more than forty (40) years, authorizing operation of the Wm. H. Zimmer Nuclear Power Station at steady state power levels not to exceed 2436 megawatts thermal, provided however, that operation beyond 5 percent of rated power is not permitted

until the Commission's actions outlined in 10 C.F.R. §2.764(f)(2) have taken place. Such license may be in such form and content as is appropriate in light of such findings, provided that such license is consistent with the conclusions of the Board herein.

844. In view of the Commission's Rules of Practice limiting the Board's jurisdiction in a contested operating license proceeding, the Board has made Findings of Fact and Conclusions of Law on matters actually put into controversy by the parties to the proceeding. As required by the Commission's Regulations, the NRC Staff will inspect the Zimmer facility prior to issuance of any operating license to determine whether it has been constructed in accordance with the application, as amended, and the provisions of the construction permit. In addition, the license will not be issued until the NRC Staff has made the findings reflecting its review of the application under the Atomic Energy Act, and has concluded that the issuance of the license will not be inimical to the common defense and security and to the health and safety of the public.

845. Exceptions to this Initial Decision may be filed within ten (10) days after service of this Initial Decision. A brief in support of the exceptions shall be filed within thirty (30) days thereafter [forty (40) days in the case of the NRC Staff]. Within thirty (30) days of the filing and

service of the brief of the Appellant [forty (40) days in the case of the Staff], any other party may file a brief in support of, or in opposition to, the exceptions.

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

John H. Frye, III, Chairman
Administrative Judge

Dr. Frank F. Hooper, Member
Administrative Judge

Dr. M. Stanley Livingston, Member
Administrative Judge

Dated at Bethesda, Maryland,
this _____ day of _____, 1982

APPENDIX A

Exhibits

Applicants' Exhibits

<u>No.</u>	<u>Identified</u>	<u>Received</u>	<u>Description</u>
1	597	605	Application, including FSAR, ER and FPER (with amendments)
(Supp.)	4907	4907	
2	1123	1125	Letter to R.F. Heishman from Earl Borgmann re IE Inspection Report 50-358/78-21
3A-3L	1532		Welding Procedure and Performance Qualifications Test Sheets
4	2007		Page 9-1, Husky Products, Inc., Quality Control Manual
5	2559		List of Individuals Receiving Quality Assurance Training from RCI dated June 27, 1978
6	2559		List of Individuals Receiving Quality Assurance Training from RCI dated July 26, 1978
7A*	3411	3417	Rev. 13 to Fire Protection Evaluation Report
8A*	3411	3419	Rev. 14 to Fire Protection Evaluation Report
7	3618	3652	Additional Financial Information and Page Changes to the Formal Application submitted November 14, 1981
8	3618	3652	Letter to Harold Denton from Earl Borgmann Responding to Three Staff Financial Questions

*/ Inasmuch as exhibit numbers 7 and 8 were used twice, the first exhibits so numbered have been designated 7A and 8A and have been referred to as such in this Initial Decision.

<u>No.</u>	<u>Identified</u>	<u>Received</u>	<u>Description</u>
9	4483	4483	Chapter 20 - Staff Safety Evaluation Report - Financial Qualifications
10A-10C	4498	4609	Summary of Rate Increases for Applicants
11A-11D	4570		Decommissioning Costs for Zimmer Unit 1 - Four Tables Prepared at the Request of the Licensing Board
12	4572		Decommissioning Fund Balances for Various Earned Investment Rates
13	4908	4908	Emergency Plan for the Wm. H. Zimmer Nuclear Power Station
14	5302		Deposition of Charles Jackson
15*	5796	5816	Applicants' Testimony Relating to Emergency Planning Contentions
15A*	7891		Emergency Preparedness Completion Schedule for the Wm. H. Zimmer Nuclear Power Station
<u>Staff's Exhibits</u>			
1	745	745	Professional Qualifications of Richard S. Cleveland
2	754	754	Final Environmental Statement
3	754	754	Staff Supplement to Final Environmental Statement Regarding Radon
4	754	754	NUREG-0332, Health Effects Attributable to Coal and Nuclear Fuel Cycle Alternatives

*/ Inasmuch as exhibit number 15 was used twice, the second exhibit so numbered has been designated 15A and has been referred to as such in this Initial Decision.

<u>No.</u>	<u>Identified</u>	<u>Received</u>	<u>Description</u>
5	754	754	Revised Tables, Summary and Conclusion to Draft NUREG-0332
6	754	754	Update of NUREG-0332
7	762	762	Letter to Earl Borgmann from Ronald Ballard enclosing revised draft Environmental Technical Specifications
8	4911	4913	Safety Evaluation Report - NUREG-0528
9	4912	4913	Safety Evaluation Report - NUREG-0528, Supp. No. 1
10	4912	4913	Safety Evaluation Report - NUREG-0528, Suppl No. 2
11		7146	Map - Evacuation Road Network
12		7146	Louisville, Kentucky District - Flooded Areas - Ohio River, Clermont County - Plate 5
13		7146	Louisville, Kentucky District - Flooded Areas - Ohio River, Clermont County - Plate 6
14		7146	Louisville, Kentucky District - Flooded Areas - Ohio River, Clermont County - Plate 7
15		7146	Louisville, Kentucky District - Flooded Areas - Ohio River, Clermont County - Plate 8
16		7146	Louisville, Kentucky District - Flooded Areas - Ohio River, Clermont County

Dr. Fankhauser's Exhibits

1	854	862	Enrollment Figures for Moscow Elementary School
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Miami Valley Power Project's Exhibits

<u>No.</u>	<u>Identified</u>	<u>Received</u>	<u>Description</u>
1	1057	1119	List of Certified Welders Employed by Husky Products
2	1842	1849	Welder Qualification Program
3	1947	1950	Memo to E. McClung from Randy Pratt re Welding Qualification for J. Allen and M. Brock
4	1956	1970	Field Complaint of Crater Cracks in TIG Welding
5	2043		Affidavit of Donald Blanch

ZAC/ZACK's Exhibits

1	5208		Direct Testimony of Charles Jackson addressing ZAC/ZACK Contentions 20c(5) and 20(e)(6)
2	5234	5234	Memo from Health Planning and Resource Development Association of CORVA re Material on Activities of Radiation Safety Task Force
3	5309	5324	Photographs
4-15	5334	5351	Photographs
16-18	5367	5367	Photographs

County of Mentor's Exhibits

1	6434	6438	A. J. Jolly Elementary School Radiological Emergency Protective Action Procedures (Draft)
2	6435	6438	Zimmer Evacuation Plan Meeting - September 29, 1981

Board Exhibits

<u>No.</u>	<u>Identified</u>	<u>Received</u>	<u>Description</u>
1	4935	4961	State of Ohio Nuclear Power Plant Emergency Response Plan
2	4935	4961	Clermont County Radiological Emergency Response Plan for the Wm. H. Zimmer Nuclear Power Station
3	6030	6034	Kentucky Radiological Emergency Plan
4	6030	6036	Bracken County Radiological Emergency Plan
5	6030	6038	Campbell County Radiological Emergency Plan
6	6030	6040	Pendleton County Radiological Emergency Plan