

58-358

DOCKETED  
USNRC

STATE OF OHIO )  
 )  
COUNTY OF HAMILTON ) SS.

OR  
'81 DEC -2 A11:37

AFFIDAVIT OF GREG C. FICKE

Greg C. Ficke being first duly sworn according to law comes forward and states:

1. My name is Greg C. Ficke. I am an engineer for The Cincinnati Gas & Electric Company. In that capacity, I am responsible for the review and coordination of the pre-operational and operational Radiological Environmental Monitoring Programs and am coordinator of emergency planning for the Wm. H. Zimmer Nuclear Power Station. I have reviewed the interim and final reports relating to preoperational environmental monitoring. A copy of my professional qualifications is attached and incorporated by reference herein. I have reviewed each of the subparts of Dr. Fankhauser's Contention 2 which have not been withdrawn. The contention states in introductory language that "the Applicant's plans for monitoring radiological releases from the plant are inadequate . . . ." I have the following responses which demonstrate that this contention has no merit. The points developed under each subpart heading apply equally to the other subsections of the contention.

2(b) No provision has been made for directly involving the citizenry in the vicinity of the site in the monitoring of the plant's activities.

2. Plans for monitoring radioactive releases from the Wm. H. Zimmer Nuclear Power Station ("Zimmer Station") are described in the Environmental Report §6.2 and Final Safety Analysis Report §11.6.\* Monitoring requirements will be a part of the operating license for the Station in the form of Technical Specifications. The preoperational and operational Environmental Radiological Monitoring Program conform to the NRC's Regulatory Guides 4.1 and 4.8 regarding the measuring, evaluating and reporting of environmental radiation levels. The operational Environmental Radiological Monitoring Program is based upon the experience gained during the conduct of the preoperational Environmental Radiological Monitoring Program which is summarized in Preoperational Environmental Radiological Monitoring Program, Wm. H. Zimmer Nuclear Power Station, Unit 1, Moscow, Ohio, Final Report, dated August 28, 1978, and sent to the Licensing Board and parties on September 19, 1978, which is incorporated by reference herein. The successful conduct of the preoperational program gives assurance that the operational monitoring program which is almost identical can be successfully implemented. The details of the implementation of the Environmental Radiological Monitoring Program, including sampling locations and techniques, counting procedures and accuracy of results are set forth therein.

\* Copy of FSAR §11.6 attached.

3. The release of radioactive materials from the Zimmer Station are governed by the Technical Specifications which are, in turn, based upon the requirements of 10 C.F.R. Part 20 and the guides on technical specifications for limiting conditions for operation found in Section IV of Appendix I to 10 C.F.R. Part 50. Releases of radioactivity are continuously measured by radiation detection equipment, and release rates are continuously recorded.

4. Information concerning the type and quantities of radioactivity released are reported to the NRC at intervals specified in the Technical Specifications. These reports are reviewed by the NRC to ascertain whether regulatory requirements have been met. The reports, which are made available for public inspection, also provide a basis for evaluating the adequacy and performance of effluent treatment methods and controls.

5. The operational Environmental Radiological Monitoring Program described in §11.6 of the FSAR, whose conduct will be a requirement of the Technical Specifications, the results of which are reported to the NRC, also verifies the magnitude of releases from the Station and the adequacy of effluent controls. In addition, the NRC's Office of Inspection and Enforcement performs regular inspections. There are presently two Resident Inspectors situated at the Zimmer Station. Announced and unannounced inspections of all station activities are conducted, including review and

verification of records pertaining to the release of radioactive materials, as well as observation of on-going operations. These inspection activities also include verification of the accuracy of the radiation detection equipment used as a basis for reporting releases of radioactive materials. This is accomplished, in part, by comparing the results of split samples analyzed separately by the Applicants and by the NRC on its equipment.

6. These measures provide a sound basis for assuring that releases of radioactive materials from the Zimmer Station will be controlled, monitored, reported, and verified such that all regulatory requirements are met. Aside from the cooperation of citizens in obtaining environmental samples, further "involving the citizenry in the vicinity of the site" would not assist in the monitoring of the plant effluents. In any event, the Applicants' operational Environmental Radiological Monitoring Program meets or exceeds all NRC regulations and requirements.

2(c) It is unclear from the Applicant's plans whether all radioactive emissions will be monitored or whether certain isotopes will be monitored.

7. The Environmental Radiological Monitoring Program, the purpose of which is to establish pre-operational environmental radioactivity levels, and following plant start up, to monitor for any changes in environmental radioactivity

levels attributable to Station operation, has been described in Paragraphs 2-6, supra, and meets all regulatory requirements. The isotopes and pathways that were selected for monitoring were based upon NRC guidance and extensive experience gained at other operating reactors. The operational Environmental Radiological Monitoring Program is designed in accordance with Regulatory Guide 4.1 (Revision 1), and the relevant Branch Technical Position on the radiological portion of the environmental monitoring program (Rev. 1, November 1979) which sets forth an acceptable radiological monitoring program. Procedures for sample collection and analysis will be consistent with EPA's "Environmental Radioactivity Surveillance Guide" (June 1972), and the appropriate Regulatory Guides.

8. Based upon experience at other stations and at the Zimmer Station during the preoperational phase, the number, location and sampling frequency of monitoring as shown in FSAR Table 11.6.5 provides a high degree of assurance that data will be provided on measurable levels of radiation and radioactive materials in the environment in order to evaluate the relationship of quantities of radioactive material released in effluents and resultant radiation doses to individuals from probable pathways of exposure.

2(e) The statement by Applicants that monitoring shall be "as comprehensive as possible" is vague and monitoring matters are unclear.

9. The referenced statement "as comprehensive as possible" appears in FSAR Section 11.6.3, and was intended

to characterize the Environmental Radiological Monitoring Program as presented in FSAR Table 11.6-5 (which is referenced in FSAR Section 11.6.3). The operational Environmental Radiological Monitoring Program, including location, frequency and type of analysis is fully described therein.

10. Thus the assertion that the monitoring program is vague and unclear is entirely without foundation.

2(f) No monthly assay of isotopic concentration in food stuff are provided for.

11. The Zimmer Station Environmental Radiological Monitoring Program does indeed include requirements for periodic isotopic evaluation of foodstuffs as shown in Table 11.6.5 at the time intervals specified therein. Such foodstuffs include green leafy vegetation, domestic meat, milk, fish and poultry, and the methods of analysis include gamma spectrometric analysis, radioiodine, and strontium -89 and -90 analysis, as appropriate. These requirements were included based upon operating experience at other facilities, surveys and contacts done by the Applicants as part of the pre-operational programs and knowledge of the limiting pathways gained by extensive operating experience at other nuclear power plants. The choice of foodstuffs is entirely adequate to monitor the expected critical pathways and in accordance with all regulatory requirements.



- 2(g) There are no plans for a ring of monitoring stations around the site to continuously monitor gaseous releases.

12. As previously discussed in response to Contentions 2(b), (c), and (e), the Environmental Radiological Monitoring Program for the Zimmer Station, including the number and location of monitoring stations, will assure that data will be provided on measurable levels of radiation and radioactive material in the environment in order to evaluate the relation of quantities of radioactive material released in effluent and resulting radiological dose to individuals from probable pathways of exposure. Specifically, with regard to this subpart, as shown on Table 11.6.5, there are eight air sampling station locations which continuously collect samples for weekly analysis for particulates and iodines. Moreover, in addition to the eight thermoluminescent dosimeters ("TLD") at these stations which are read quarterly, the Applicants will place another 32 TLD's around the site at least six months prior to fuel load. The NRC has placed 40 TLD's around the site. Moreover, the States of Ohio and Kentucky have placed approximately 37 TLD's around the site. In addition, the liquid and gaseous release paths from the Zimmer Station are continuously monitored to assure that all regulatory requirements are met (See ¶3, supra).

13. While not a requirement of the NRC and not intended to be a component of the Environmental Radiological Monitoring Program, the Applicants, as a result of discussions with

governmental agencies, have agreed to provide a ring system of "real time" radiation monitors surrounding the Zimmer Station as schematically shown in the attached diagram. A total of 15 remote detector locations will be established around the Zimmer Station as shown on the attached map. Seven locations will be located in Kentucky and eight in Ohio. Because of electric power requirements, the remote locations will be where Prompt Notification System sirens or Environmental Monitoring Program Stations are situated. See the attached figure for a description of the planned location of the fifteen monitors.

14. Data collected at each remote location will be transmitted by radio to the Station where it would be stored in a computer and could be accessed, inter alia, in the control room. See the attached schematic.

15. In case of activation of the emergency plan, the stored data from these ring monitors as well as real time radiation measurements would be available to computer terminals via the microwave system in the Emergency Operations Facility and the Emergency Operation Centers for Ohio, Kentucky, Clermont County and in the City of Cincinnati's Columbia Control Center. It must be emphasized that while this system might produce useful data and would be used as appropriate, the other provisions of the emergency plans for



monitoring would be relied upon in the first instance for decision-making regarding protective actions. This subpart of Contention 2 has no merit.

Greg C. Ficke  
Greg C. Ficke

SWORN to before me this 30<sup>th</sup> day of November, 1981.

Jerome A. Vennemann  
Notary Public

JEROME A. VENNEMANN, Attorney at Law  
Notary Public, State of Ohio  
My Commission has no expiration date  
Section 147.03 R. C.

My Commission expires \_\_\_\_\_

DOCKETED  
USNRC

*UIC*

QUALIFICATIONS  
GREG C. FICKE  
THE CINCINNATI GAS & ELECTRIC COMPANY ~~BY~~ DEC -2 A11:37

My name is Greg C. Ficke and my business address is 139 East Fourth Street, Cincinnati, Ohio. I am presently employed by The Cincinnati Gas & Electric Company.

SECRETARY  
& SERVICE  
Lynch

I graduated from Miami University in 1974 with a Bachelor of Science Degree in Engineering Physics. I received a Master of Science Degree in Nuclear Engineering in 1976 from Ohio State University. I have attended evening classes at the University of Cincinnati since 1978 and am pursuing a Master of Business Administration Degree.

From March 1976 to August 1977, I was employed by Bechtel Associates Professional Corporation as an engineer. During this period, I worked on various assignments in the areas of environmental analysis of radiological releases, in-plant exposure to airborne radioactive materials, and meteorological data analysis.

I have been employed by The Cincinnati Gas & Electric Company since August, 1977 as an engineer in Licensing and Environmental Affairs Department. In this capacity, I have been responsible for environmental radiological monitoring programs and emergency planning for the Wm. H. Zimmer Power Station.

I have attended various professional development courses during my employment with Bechtel and CG&E including

Bechtel Power Plant Design Course; FEMA Interagency Course in Radiological Emergency Response Planning for Fixed Nuclear Facilities; General Electric Company BWR Training Center Design Orientation Course and University of Cincinnati Hospital Preparation for the Management of Radiation Accidents.

I am a member of the American Nuclear Society and a registered Professional Engineer in the State of Ohio.

FIGURE 1

BOOKETED  
BRNC

Detector Locations

'81 DEC -2 A11:37

*040*

SECRETARY  
TRAINING & SERVICE  
BRANCH

O30

O16

O26

O3

O24

O4

O23

O17

50

ZIMMER  
STATION

3 MILE  
RADIUS

20

7

O22

O14

O19

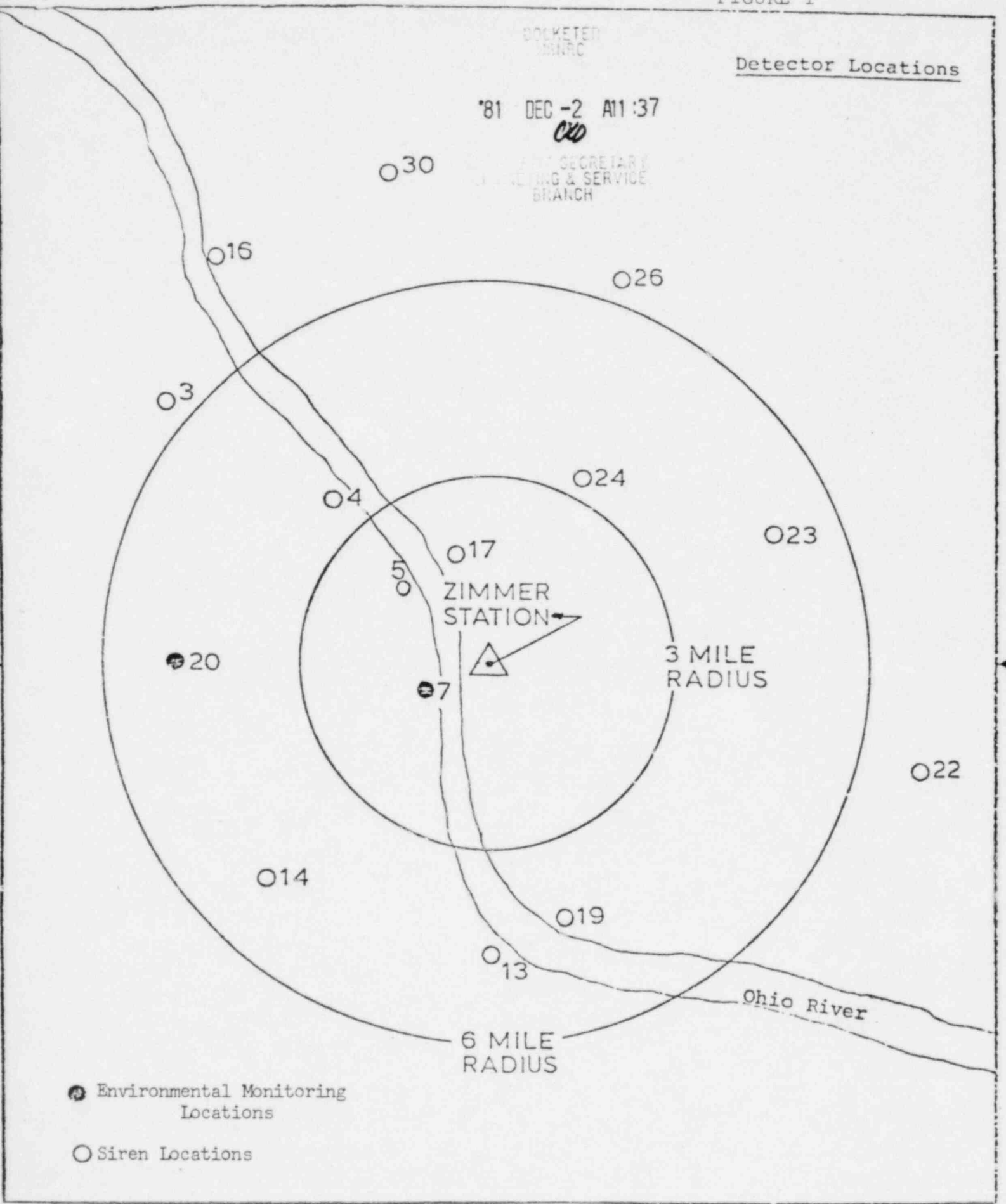
O13

Ohio River

6 MILE  
RADIUS

● Environmental Monitoring  
Locations

○ Siren Locations



(TYPICAL OF 15)

System Diagram

