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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of)
)
PHILADELPHIA ELECTRIC COMPANY)
)
(Limerick Generating Station,)
Units 1 and 2))

Docket Nos. 50-352 0L
50-353 6L

DOCKETING
BRANCH

COMMONWEALTH OF PENNSYLVANIA'S PROPOSED FINDINGS OF FACT
ON ONSITE EMERGENCY PLANNING

In accordance with 10 C.F.R. § 2.754, the Commonwealth of Pennsylvania hereby files proposed findings of fact on issues in which it participated in hearings on onsite emergency planning contentions.

Introduction

Contentions relating to onsite emergency planning covered several subject matter areas, including medical services for contaminated injured individuals, arrangements for augmentation of onsite response by offsite agencies, training for offsite response agencies, ability to meet 30/60 minute staffing requirements, and personnel radiation monitoring (including personnel dosimetry and decontamination). Contentions were litigated according to subject matter, rather than in numerical order. Testimony was filed by the Applicant and the NRC staff.

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In accordance with its status as an interested governmental participant in this proceeding, the Commonwealth participated through cross-examination in hearings on onsite emergency planning held April 23-25, 1984. As a general matter, the Commonwealth's purpose in participating in hearings on this subject matter has not been to advocate a position with regard to any of these contentions, but rather, to aid in the development of a record. In some instances, however, the Commonwealth has reached certain conclusions based on the evidence presented with regard to the showing made by the Applicant, the party with the burden of proof on these issues. While these findings are generally proffered for the purpose of aiding the Board in evaluating the record on onsite emergency planning, in some instances the Commonwealth will advocate a position.

The Commonwealth's proposed findings are presented by subject matter, rather than by individual contention:

MEDICAL SERVICES FOR CONTAMINATED INJURED INDIVIDUALS

1. Applicant's onsite emergency plan relies primarily upon Pottstown Memorial Medical Center (Pottstown) for medical care for contaminated injured individuals. Applicant has no agreement with any other hospital for this purpose. Boyer, ff. Tr. 9772, at 8; Tr. 9801 (Linnemann).

2. Applicant has an agreement with Radiation Management Corporation (RMC) for the use of the Hospital of the University of Pennsylvania (HUP) as a backup hospital for purposes of treating contaminated injured individuals from the Limerick station. Tr. 9801 (Linnemann); Applicant Ex. 42. Applicant's agreement with RMC expires in 1984 with an automatic one-year renewal. Tr. 9801 (Linnemann).

3. Applicant is able to avail itself of the use of HUP based on an agreement between RMC and HUP for the treatment of contaminated injured patients on behalf of particular nuclear power facilities in the mid-Atlantic states. Boyer, ff. Tr. 9772, at 9-10, 14.

4. RMC was originally formed by Applicant in conjunction with several other utilities. Applicant and these other utilities sold RMC to Canberra Industries, a Connecticut corporation in January 1982. Tr. 9791-93, 9879 (Linnemann).

5. Prompt medical treatment is necessary for serious trauma injury. Tr. 9815 (Linnemann). By comparison, serious radiation "injury" does not manifest itself for days or weeks after exposure. Once the dose is known, the course of illness for c. five weeks can be predicted. Medical personnel therefore know what to monitor, and what treatment to pursue. Tr. 9910 (Linnemann). Radiation treatment is therefore generally a secondary consideration in the initial phase of medical treatment for contaminated injured persons. Tr. 9807-09, 9813-14, 9845, 9861 (Linnemann). Radiation injury per se requires prompt treatment only in a very few cases, where the patient has received an exceedingly high dose. Tr. 9807-08 (Linnemann). See also Tr. 9808-09 (Linnemann).

6. In terms of hospital disaster planning, numbers of radiation injuries do not pose as difficult a problem by comparison to an equal number of traumatic injuries. Tr. 9807 (Linnemann). In terms of ability to treat injury, Pottstown's disaster plan is comparable with regard to Limerick as it would be in its response to an accident at any other industrial facility in the area. Tr. 9813-14 (Linnemann).

7. Pottstown's disaster plan, in its current form, is not adequate for the radiological aspects of Pottstown's response to an accident at Limerick. Tr. 9814, 9865 (Linnemann). Treatment of contaminated injured persons requires specialized procedures and training. Pottstown is currently in the process of developing such procedures in association with RMC and Applicant. RMC expects these procedures will be in place by mid-July 1984. Tr. 9811-12 (Linnemann).

8. The Pottstown disaster plan will be modified in several respects to include planning for radiation injuries. An area in the hospital will be designated a "radiation emergency area" (REA), where contaminated injured patients will be sorted and treated. Procedures will be developed for controlling, or isolating, contamination to the REA. Finally, procedures will be developed whereby, once the patient's trauma has been stabilized, attending staff would seek consultation on dose evaluation. Tr. 9814 (Linnemann). The Pottstown disaster plan will also have to be adapted to account for administrative procedures related to treating patients from the Limerick site, for example, holding an ambulance which has come in from Limerick at Pottstown until the ambulance has been monitored for contamination. Tr. 9815 (Linnemann).

9. Pottstown must have special equipment and supplies to respond to radiological accidents at Limerick. These would include radiation instrumentation, special bath arrangements, decontamination supplies, and sample taking supplies. Tr. 9816-18 (Linnemann).

10. Special radiological treatment supplies described in Proposed Finding #9, supra, are not currently available at Pottstown. Tr. 9818 (Linnemann). Applicant intends to review the list of needed equipment with the hospital. Applicant will supply such equipment if the hospital does not have it available and Applicant considers it necessary. Tr. 9819-20 (Poyer). On this record, it is not definite whether Pottstown will be equipped to treat contaminated injured individuals from the Limerick site.

11. Internal deposition of radioactive materials can be determined in two ways - by use of a whole body counter, or by examination of patient excreta. Tr. 9817 (Linnemann). Measurement of internal deposition need not be done immediately; the dose can be measured one-two days after a patient is admitted for treatment, and extrapolated back to the time of exposure. Tr. 9905 (Linnemann). Given the need not to use whole body counters immediately to measure internal deposition of radioactivity, and the fact that hospitals have very little routine use for whole body

counters, RMC maintains a mobile whole body counter in the Philadelphia area. The device would be transported to a patient if appropriate. Tr. 9820-21, 9905 (Linnemann).

12. Pottstown staff will be trained by RMC in procedures for handling radiation injuries which are similar to those used at HUP. Tr. 9829, 9932, 9940 (Linnemann); see Applicant Ex. 40. Training will be in the basic nature and biological effects of ionizing radiation, acute radiation classification of radiation injuries, the clinical course of various types of radiation injury, and initial and emergency room treatment of radiation injury. Tr. 9830, 9947-48 (Linnemann). Training documents will be those used by RMC at many other hospitals across the country. Tr. 9829 (Linnemann). Initial training will be in three sessions, two days each, and three drills, which Dr. Linnemann will evaluate personally and make his evaluation available to Pottstown and to the Applicant. Tr. 9955 (Linnemann). The Pottstown staff will participate in the joint FEMA/NRC/Applicant exercise. The results of the exercise will be evaluated by FEMA and the NRC. Tr. 9954 (Linnemann). Training after this will be on a semi-annual basis. Tr. 9828, 9903 (Linnemann).

13. Pottstown staff to receive RMC training will be emergency room physicians, nurses, maintenance persons with responsibility for setting up the REA, security and administration. Other hospital personnel will not be required to receive RMC training. About 30 members of Pottstown staff will receive RMC training. Tr. 9830-31, 9867, 9904 (Linnemann).

14. Generally the emergency room staff at Pottstown will be expected to carry out three actions: stabilize, decontaminate and take initial samples. Tr. 9868-69 (Linnemann). Radiation technicians from Pottstown and assigned by Applicant from the Limerick site will be responsible for control of the contamination, i.e., isolation to the REA and disposition of contaminated materials. See Tr. 9826-27, 9869, Applicant Ex. 43 (Linnemann).

15. The REA can be "expanded" to meet the needs of incoming contaminated injured persons. Boyer et al., ff. Tr. 9772, at 9; Tr. 9866-67 (Linnemann). "Expansion" means broadening of the control points between the clean part of the hospital and that part that is anticipated to be contaminated; for example, occupancy of more rooms for contaminated patients. Tr. 9867 (Linnemann).

16. In the event the REA is expanded, additional physicians other than emergency room staff may be needed to treat contaminated injured patients. Tr. 9868 (Linnemann). These additional physicians, if they are not members of the emergency room staff, will not necessarily have received RMC training in treatment of contaminated injured patients. Tr. 9868 (Linnemann).

17. Pottstown is less than two miles from the Limerick site. Tr. 9831, 9905 (Linnemann). If Pottstown is in preparation to evacuate in the event of a general evacuation of the Limerick plume exposure pathway EPZ, it will not receive patients. Tr. 9944 (Linnemann). Patients will, under normal medical practice, be transferred to other hospitals. Tr. 9944 (Linnemann). If Pottstown is not operating, it will not be available to receive contaminated injured persons from the Limerick site. Tr. 9843 (Boyer).

18. Should Pottstown not be available, HUP is available on a backup basis if time is not a critical factor. Boyer et al., ff. Tr. 9772, at 10, 14; Tr. 9906-07, 9912, 9958-59 (Linnemann). Driving time from the Limerick site to HUP is approximately 45 minutes. Tr. 9844 (Linnemann).

19. It may be medically sound to transport a contaminated injured patient to a hospital closer to the Limerick site than HUP, in the event that Pottstown is not available. Tr. 9912 (Linnemann). As a matter of prudent medical practice, it is advisable to have at least arrangements in place with another nearby hospital to let them know they might, on an ad hoc basis, be looked to to receive contaminated injured patients. Tr. 9915 (Linnemann). The NRC does not require Applicant to enter an agreement with a second area hospital; the NRC assumes that other hospitals will accept patients if necessary. Tr. 9930-31 (Sears). Tr. 9912-14 (Linnemann).

20. Applicant does not have a written agreement for care of contaminated injured persons from the Limerick site with any hospital other than Pottstown. Tr. 9801 (Linnemann), 9843 (Boyer, Linnemann). RMC has no agreement with any hospital in the plume exposure pathway EPZ for care of patients from Limerick other than Pottstown. Tr. 9843-44 (Linnemann).

21. Phoenixville Hospital may be available in the event Pottstown is unavailable to treat contaminated injured patients from Limerick. Phoenixville is approximately 8-10 miles from the Limerick site. Tr. 9906 (Linnemann).

Pottstown may also have an agreement with St. Joseph's hospital in Reading to take Pottstown patients in the event Pottstown is evacuated. Tr. 9917 (Boyer). In order to be accredited by the Joint Committee on Hospital Accreditation, hospitals must have capability to treat contaminated injured persons. Tr. 9912-14 (Linnemann). Other than this general assumption, the witnesses were not personally familiar with the capability of either Phoenixville or St. Joseph's hospitals to treat contaminated injured patients from the Limerick site. See Tr. 9951, 9956-58 (Linnemann), 9917 (Boyer).

22. Ambulance availability is an important and necessary component of onsite emergency medical arrangements. Tr. 9935 (Linnemann). Applicant has a letter of agreement with Goodwill Ambulance Company to respond onsite. Boyer et al., ff. Tr. 9772, at 10; Tr. 9846 (Kankus). Applicant's agreement with Goodwill provides that Goodwill is prepared to respond to a call for ambulance services within the limits of its resources. Tr. 9850 (Kankus). Goodwill has five ambulances. Tr. 9847 (Kankus).

23. Goodwill may have response demands under local offsite emergency plans. Tr. 9847, 9936 (Kankus). Applicant believes that if Goodwill's resources are occupied at the

time it receives a call for assistance from Applicant, Goodwill's dispatcher will either itself arrange for alternate ambulance service, or notify Montgomery County and ask the county dispatcher to arrange for another ambulance. Tr. 9848-49, 9874-75 (Boyer, Kankus). This is not in Applicant's emergency plan, nor to Applicant's knowledge is this provided for in the Montgomery County offsite emergency plan. Tr. 9849-49, 9937-38 (Boyer).

24. Negotiations are presently going on between Applicant and Trappe Ambulance Company, located within the plume exposure pathway EPZ north of Norristown, to provide backup ambulance service. Boyer, ff. Tr. 9772, at 10; Tr. 9872-73, 9933-35 (Boyer, Kankus).

25. Under normal operating conditions, notification to Goodwill Ambulance by the Applicant comes from the control room supervisor. Tr. 9873, 9874, 9928, 9961-62 (Dubiel). Where the Limerick site is under emergency conditions (at the alert level or higher), the personnel safety team leader is responsible for calling offsite ambulance services. Tr. 9928, 9962 (Dubiel). Notification is made directly to Goodwill. Tr. 9874, 9875 (Kankus). Either the control room supervisor or the personnel safety team leader may delegate this responsibility. Tr. 9932, 9963 (Dubiel).

26. RMC and Keystone Helicopter have an agreement with regard to provision of helicopter services. Applicant Ex. 41; Tr. 9850-51 (Linnemann). RMC's agreement with Keystone pertains to several other nuclear facilities in the New Jersey, Pennsylvania and Maryland area as well as to Limerick. Tr. 9852 (Linnemann). The agreement between RMC and Keystone provides that RMC will have use of a single five or six passenger helicopter, on reasonable notice and if Keystone has such a helicopter available. Tr. 9853 (Boyer); Tr. 9854 (Linnemann). RMC's understanding is that two hours constitutes reasonable notice. Tr. 9854 (Linnemann). Keystone has not agreed to dedicate any one of its helicopters for RMC's exclusive use under their agreement. Tr. 9854 (Linnemann).

27. RMC's agreement with Keystone provides that the Keystone helicopter will be used for medical evacuation purposes, and other uses that may arise from time to time. Applicant Ex. 41. RMC's understanding is that this agreement includes transportation of RMC's "radiation emergency management" (REM) team and transportation of patients. RMC does not expect, however, that the Keystone helicopter will be sent to the Limerick site to pick up a patient. Tr. 9859-60 (Linnemann). Applicant believes that if ambulance service were unavailable, Applicant would use a private vehicle, not Keystone helicopter, to transport contaminated injured persons off the Limerick site. Boyer

et al., ff. Tr. 9772, at 11; Tr. 9860 (Boyer). See also Tr. 9857 (Linnemann) (take patients by "most expeditious means" from accident scene to closest hospital). Keystone helicopter service is therefore primarily to transport patients and the REM team from one hospital to another, not to take patients from the Limerick site or take the REM team to the Limerick site. See Tr. 9855, 9859 (Linnemann). Compare Boyer et al., ff. Tr. 9772, at 11.

28. RMC's "REM" team generally will respond directly to the hospital, rather than to the Limerick site, although it may respond to the site as well. Tr. 9859 (Linnemann); Applicant Ex. 42. The only purpose for the REM team to respond to the site would be for evaluation of radiobiological and radiation dose evaluation. The REM team will not provide treatment for trauma. Tr. 9946, 9859-59 (Linnemann). The mission of the REM team is generally to provide that, when the patient has been stabilized, to assist the hospital in evaluation of the patient's radiation condition and aid the hospital in cleaning up the contaminated area. Tr. 9858-59, 9860-61 (Linnemann).

29. The REM team will use vehicle or helicopter depending on the circumstances. Tr. 9859 (Linnemann). The REM team is mobilized through an "on-call" network. Twelve RMC staff are on-call at all times. Tr. 9946-47 (Linnemann).

30. Transfer of a stabilized patient from Pottstown to HUP will be effected through the treating physician at Pottstown. RMC will assist that physician in coordinating the necessary transportation. For example, RMC would call the helicopter or ambulance for removal of a patient to HUP. Tr. 9870-72, 9956 (Linnemann).

31. Should ad hoc response involving transportation of a patient from Pottstown to a hospital other than HUP be required, the record does not establish that plans for transportation to such an alternative hospital are in place. See Tr. 9959-61 (Linnemann, Kankus).

32. Applicant will train 18-20 employees in procedures for supporting transportation of contaminated injured victims offsite. Employees will be trained in procedures for transporting patients to a hospital, control and monitor of contamination, protection of ambulance personnel and hospital staff, and the provisions of the Pottstown disaster plan. Tr. 9876 (Dubiel).

33. In an accident situation, if one injured contamination person must be transported offsite, Applicant will assign one individual to accompany him. If several victims are involved, Applicant will assign as many employees as there are number of ambulances. Tr. 9877 (Dubiel). More than one patient can be transported in one ambulance. Boyer, ff. Tr. 9772, at 11; Tr. 9877 (Dubiel).

34. Assignments to offsite medical support functions will be made at the time a call is received in the control room indicating need for this activity. The control room will coordinate through plant health physics personnel and identify individuals needed to support the first-aid treatment of the victim, as well as prepare for an individual to accompany the patient in the ambulance. Tr. 9877 (Dubiel). One or more employees may be required to performed both first -aid and patient transport functions. Tr. 9877 (Dubiel).

35. The decision whether to evacuate the contaminated injured person from the site immediately or hold him at the site and await medical treatment is made by the first-aid team attending the victim. First-aid team members are trained in the American Red Cross multi-media first aid program. Tr. 9940 (Dubiel). It is expected that patients will go directly to a hospital, although agreements have been executed with two individual physicians that provide

these physicians will come onsite to treat injured patients. Tr. 9927 (Boyer, Linnemann).

36. Pottstown expects that Applicant will decontaminate contaminated injured victims, to the extent possible, prior to their arrival at the hospital. Applicant employees are trained in decontamination procedures. Tr. 9825-26, 9923 (Linnemann); Applicant Ex. 43. Pottstown staff will be trained by RMC to decontaminate arriving patients if necessary. Tr. 9923 (Linnemann).

37. Applicant will send a technician to Pottstown to remove contaminated waste from the hospital and bring it back to the Limerick site for proper disposal. Tr. 9826-27 (Linnemann); Applicant Ex. 43.

38. It may be necessary for ambulance drivers to undergo decontamination. This may be done either at Pottstown or back at the Limerick site. Depending on the need for returning the ambulance to service quickly, ambulance drivers may be instructed to return to the Limerick site for decontamination. Tr. 9926 (Dubiel). Ambulance drivers would be so instructed only in the circumstance where hospital decontamination facilities are being utilized for higher priority purposes based on triage principles. Tr. 9926 (Linnemann). The concern in decontaminating ambulance drivers is not with the actual effects on skin that is

exposed, as skin is relatively radiation-resistant, but with ingestion. Tr. 9924-25 (Linnemann).

OFFSITE RESPONSE AUGMENTATION

39. Offsite agency assistance will be provided by Linfield Fire Department, Limerick Fire Department, two private physicians, Goodwill Ambulance Company, and possibly Trappe Ambulance Company (should an agreement be reached between Applicant and the latter organization). Tr. 9966, 9976 (Kankus).

40. Applicant will limit the actions of offsite response personnel on the Limerick site. Tr. 9967 (Kankus).

41. Goodwill Ambulance personnel will be restricted as to site access and entry to specific areas of the site. They will be provided an escort at all times and directed to appropriate areas for attention to victims. Tr. 9967 (Kankus).

42. Ambulance personnel will be provided dosimetry. Tr. 9967 (Kankus); Tr. 10,252 (Dubiel).

43. Fire company personnel coming on site will be escorted to the fire site by Applicant staff, and will be directed by Applicant fire-fighting staff insofar as how the fire should be extinguished. Tr. 9967-69, 9971 (Kankus). Fire company personnel will have discretion as to what equipment they should bring onsite, depending on the notification they receive from Applicant. Tr. 9967-69 (Kankus).

44. Applicant's fire-fighting group is headed by a shift supervisor, one of two who is onsite on a 24 hour basis. Tr. 9972, 9973, 10,008 (Kankus, Ullrich). The appropriate shift supervisor receives training in fire fighting techniques through Applicant's "fire school." Tr. 10,008-09 (Ullrich).

45. Limerick and Linfield Fire Company equipment meets guidelines set by the National Fire Protection Association with regard to equipment design; the equipment is not "certified" by that or any other organization. Boyer et al., fol. Tr. 9772, at 13; Tr. 9770 (Reid). Applicant has independently evaluated the adequacy of equipment maintained by Linfield Fire Company. Applicant has not evaluated the equipment maintained by the Limerick Fire Company. Tr. 9976 (Reid).

46. Applicant will call the Montgomery County dispatch center to mobilize fire fighting support organizations. The county will dispatch Linfield Company, and if necessary, Limerick Company. The county dispatch center is aware of the Applicant/Linfield and Applicant/Limerick agreements. Boyer et al., ff. Tr. 9772, at 7; Tr. 10,007-08 (Kankus).

47. If a fire occurring offsite required the response of both Linfield and Limerick fire companies, Applicant would have no recourse for offsite fire-fighting support. Tr. 9977-78 (Reid). No evidence has been presented with regard to the frequency of such an occurrence; evidence was presented that, when called, the Linfield Fire Company is very rarely out on a call. Boyer, ff. Tr. 9772, at 13; Tr.

9978-80 (Reid, Kankus). The record is not clear as to whether that conclusion is based on information based on records kept by Linfield Fire Company, or whether it is Montgomery County's assessment of that company's availability. See Tr. 9978-80 (Reid, Kankus). In the event of a general emergency requiring evacuation of the plume exposure pathway EPZ, both Linfield and Limerick Fire Companies are designated in offsite emergency plans to perform route alerting tasks. Tr. 9982 (Kankus). Applicant takes the position that Limerick is designed to be basically self-sufficient in terms of fire fighting capability. Tr. 9983 (Kankus, Reid).

48. The Commonwealth's Department of Environmental Resources, Bureau of Radiation Protection will send out field survey teams for offsite release monitoring if appropriate. Applicant field survey teams will provide information to BRP field survey teams once the latter are activated. Applicant field survey teams will provide continuous assessment of offsite radiation release throughout the course of an accident. Boyer et al., ff. Tr. 9772, at 16-17; Tr. 10,004-05 (Kankus).

49. The U.S. Department of Energy will provide support in an emergency in the form of radiation monitoring and evaluation of offsite releases. Boyer et al., ff. Tr. 9772, at 16. The initial DOE response team will be five to eight persons and can be amplified. The DOE team will arrive in a Coast Guard helicopter. Tr. 9990-91 (Sears). Advice from DOE to minimize public radiation exposure would likely relate to ingestion of food and water materials and tracking of the plume. The plume will be tracked by use of helicopter or ground vehicles. Boyer et al., ff. Tr. 9772, at 16; Tr. 9992 (Kankus).

50. In an emergency, the NRC staff has the authority to direct Applicant to perform certain functions if the NRC believes it is necessary to protect the public health and safety. NRC advice would be given to Applicant, in most cases, after consultation with NRC Headquarters. Tr. 10,010-011 (Sears). Applicant has agreed it will follow the directions of the NRC staff in such instances. Tr. 10,012 (Boyer).

51. Training for personnel from offsite support organizations with regard to radiation risk is outlined in Table 8-1 of the Limerick Generation Station Emergency Plan. Table 8-1 refers to "radiation protection practices", which consist generally of information on risk factors, dosimetry, internal exposure, monitoring, and means for access control. Tr. 10,045-46 (Kankus, Dubiel). Training as described in Table 8-1 is provided to offsite support personnel in advance of an emergency. Tr. 10,019-20 (Dubiel).

52. Applicant uses the BEIR-III report as a guideline for presentation of information on radiation risks to offsite support workers. Tr. 10,019-20, 10,022, 10,023 (Dubiel).

53. Applicant employees from the Nuclear Training Section prepare training materials and give the training course to offsite response personnel. All these instructors must be deemed qualified by Applicant's Health Physics supervisory personnel. Tr. 10,041-42, 10,050-51 (Dubiel).

54. The training program is presented according to a minimum course outline. Tr. 10,024 (Dubiel).

55. Training information present to offsite response personnel is presented on the assumption that Applicant's plans call for this class of emergency workers to be potentially exposed to low levels of radiation exposure only. The training they receive is limited to information as the effects of low levels of ionizing radiation. Tr. 10,024-25 (Dubiel).

56. Offsite emergency response personnel receive information generally relating the risk of exposure to low levels of ionizing radiation. These workers are told that radiation exposure effects may occur years after exposure. They are told effects may be manifest in terms of genetic effects such as birth defects in their children and in succeeding generations, and as teratogenic effects. Tr. 10, 019-20, 10,025-27 (Dubiel).

57. NRC Regulatory Guide 8.13 sets out information with regard to radiation risks relating to pregnant women. The Applicant's minimum course outline requires that the information in Regulatory Guide 8.13 be presented. Tr. 10,036 (Dubiel). Should the particular group receiving training not include women, Applicant might not present that group detailed information with regard to the effects

specific to pregnant women. Tr. 10,033, 10,037-38 (Dubiel).

58. Trainees are presented information on internal exposure due to internal emitters, methods by which radioactive material may enter the body, general information as to migration of radioactive materials to certain body parts, how radioactive materials may seek out certain bodily organs, and general information as to techniques for calculation and monitoring of internal dosage. Tr. 10,038-39 (Dubiel).

59. Trainees are given information on the TLD and self-reading dosimeters. They are instructed how to read their self-reading dosimeter. They are instructed that their TLDs will be collected and their exposure read, and that they will be informed as to their TLD reading. Tr. 10,040, 10,046-47 (Dubiel).

60. Fire company personnel are instructed, with regard to respiratory protection, that their usual respiratory equipment and procedures for its use will protect them adequately against inhalation of radioactive material. Tr. 10,041 (Dubiel).

61. Trainees do not receive information on the point that general inherited traits may contribute to their risk of radiation injury. Tr. 10,027 (Dubiel). They are not informed as to a body of scientific opinion that disagrees with the premises and conclusions of the BEIR-III Report. Tr. 10,031 (Dubiel). Trainees are not given information with regard to potassium iodide (KI), U.S. Environmental Protection Agency Protective Action Guides, or Applicant's emergency action classification levels. Tr. 10,041 (Dubiel).

62. Emergency workers from offsite response organizations will not be provided with "further orientation and General Employee Training provided to site personnel." Boyer, ff. Tr. 9772, at 32. Such training provides information to enable site employees to access certain areas within the plant, informs them as to the radiation work permit system, how to maintain normal daily exposure limits, and ALARA principles from the perspective of maintenance jobs. Tr. 10,0478 (Dubiel). General Employee Training includes information relating to the acute effects of high levels of radiation. Such information is not presented to offsite emergency workers because Applicant does not plan for these workers to be exposed to high levels of radiation. Tr.

10,047-48, 10,054-55 (Dubiel).

63. Fire company personnel will not be examined on their training by Applicant. Tr. 10,052 (Dubiel).

64. Linfield Fire Company has already received one training session. Training of offsite response organizations is expected to be completed by July 25. Tr. 10,043, 10,044 (Kankus, Dubiel).

STAFFING REQUIREMENTS

65. The Applicant has surveyed its current staff with regard to the 30/60 minute augmentation requirements set out in Table B-1, NUREG-0654. The survey was conducted by contacting plant personnel assigned to the positions outlined in Table B-1 and asking them their door-to-door transit time between home and plant site. Tr. 10,126-27 (Kankus); Applicant Ex. 46.

66. A significant amount of testimony was developed with regard to Applicant's staffing of the necessary complement of health physics (HP) technicians. HP technicians are involved in a number of different emergency procedures. Applicant intends to assign available HP technicians according to the priority accorded each function given the nature of the emergency. See Tr. 10,149-50 (Dubiel).

67. Two HP technicians are onsite at all times. Tr. 10,130 (Dubiel). Applicant believes that, during the first half hour of an accident, two HP technicians could administer the necessary functions as outlined in Applicant's emergency procedures. Tr. 10,149-50 (Dubiel).

68. Applicant has a contract with Applied Radiological Control (ARC) for an initial complement of 12 HP technicians. Under this agreement, ARC will provide more than 12 HP technicians on Applicant's request. These technicians are intended to be a part of Applicant's onsite work complement until Applicant hires up to 30 additional HP technicians. Tr. 10,159-62, 10,165-66 (Dubiel). The contract between ARC and Applicant is terminable at will by either party. Tr. 10, 163 (Dubiel). Applicant's survey of personnel available to augment the initial emergency response within 30 and 60 minutes did not include HP technicians available under its contract with ARC. Tr. 10,162 (Dubiel); Applicant Ex. 46.

69. Applicant's survey indicates it can have seven HP technicians onsite within 30 minutes, and nine more HP technicians within 60 minutes, making a total of 18 ostensibly available within the first hour of an accident. See Tr. 10, 130, 10,148 (Dubiel); Applicant Ex. 46.

70. Several emergency procedures requiring HP technicians must or might be invoked during the first half hour to an hour of an accident. These procedures include offsite surveys (EP-222); in-plant surveys (EP-251); radiation protection team activation (EP-220); vehicle evacuee control group (EP-254); and procedures for personnel monitoring at exits from the plant site (EP-254).

71. Applicant expects to mobilize two offsite survey teams within 30 minutes. Each team includes one HP technician. Additional teams must be dispatched (up to four) should an event last longer than 30 minutes. Tr. 10,134-36 (Dubiel).

72. Applicant expects one or two in-plant survey squads would be mobilized in the initial hour of an accident. Tr. 10,139 (Dubiel). As many as five or six squads could be needed within the first five hours. Tr. 10,140 (Dubiel). Applicant believes that the need for in-plant radiation surveys in the initial stages of an event is minimal due to the capacity for control room instrumentation to detect radiation levels throughout the plant. Tr. 10,141 (Ullrich).

73. Both the Personnel Safety Team and the Radiation Protection Team might be activated in the first half hour of an event. Tr. 10,142 (Dubiel).

74. An HP technician will accompany a contaminated injured victim in the ambulance to the hospital. Tr. 10,146 (Dubiel).

75. Two HP technicians are required under EP-254 for the vehicle evacuee control group (assuming full complement on a day shift). Tr. 10,146-47 (Dubiel).

76. Actions in the later stages of an emergency also anticipate use of HP technicians. On-site, out of plant surveys might be conducted based on the emergency director's determination of need for information. Two HP technicians would be assigned to this function, if it is performed. Tr. 10,136-37, 10,139 (Dubiel). Vehicle decontamination (EP-255) requires one HP technician to report to the decontamination facility. Tr. 10,147, 10,149 (Dubiel).

77. The NRC staff has determined that Applicant can meet the 30/60 minute augmentation requirements outlined in Applicant Ex. 46 based on an assumption that the transit times reported by Applicant employees are true. Tr. 10,152, 10,154, 10,156, 10,169 (Sears). This is apparently consistent with NRC practice in this area. See Tr. 10,170-71 (Sears).

PERSONNEL MONITORING/DOSIMETRY/DECONTAMINATION

78. Dosimetry for offsite response augmentation organizations will receive a self-reading dosimeter and a TLD. This is detailed in emergency implementing procedures as to fire fighters but not as to ambulance personnel. Tr. 10,221, 10,222 (Dubiel). Dosimetry for ambulance personnel will be issued at the time the ambulance arrives at the Limerick gate. It will be surrendered when ambulance personnel leave the site or at the hospital after the victim is removed the ambulance. Ambulance personnel dosimetry will be analyzed. Tr. 10,252 (Dubiel).

79. Two portal monitors will be installed at each of the evacuation exits -- the administration building, and the technical support center (TSC). Tr. 10,238 (Dubiel). Should a portal monitor detect contamination, a HP technician stationed at the exit will establish the location of the contamination on the individual using portable survey equipment. The most likely area of contamination will be the individual's clothing. See Tr. 10,239, 10,256 (Dubiel). Removal of clothing would likely remove approximately 90% of contamination, but would not address contamination on face and hands. Tr. 10,269 (Dubiel).

80. Applicant provides for "random" monitoring at reassembly areas with portable survey equipment in the event that portal monitors at the site exits are not operating. Tr. 10,225-227, 10, 237, 10,256 (Dubiel).

81. One or two HP technicians are assigned to the reassembly area. More can be called upon if there is a large number of evacuees. Tr. 10,231, 10,237, 10,259 (Dubiel).

82. In the worst case scenario, including all day shift Applicant employees and all Bechtel workers, approximately 3000 persons could be evacuated to a reassembly area. Tr. 10,237-38 (Dubiel). Bechtel workers are automatically evacuated at the alert level. Tr. 10,252 (Dubiel).

83. HP technicians at the reassembly area will be informed as to whether or not evacuees have been monitored before leaving the Limerick site by the personnel safety team leader. The personnel safety team leader will be informed on this matter through contact with both the emergency director and with HP technicians stationed at the site exit points. Tr. 10,255 (Dubiel).

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84. Monitoring at the reassembly area is done by identifying a "control point", through which individuals will be asked to pass. This is a standard health physics practice and is not outlined in Applicant's emergency plan or implementing procedures. Tr. 10,259 (Dubiel).

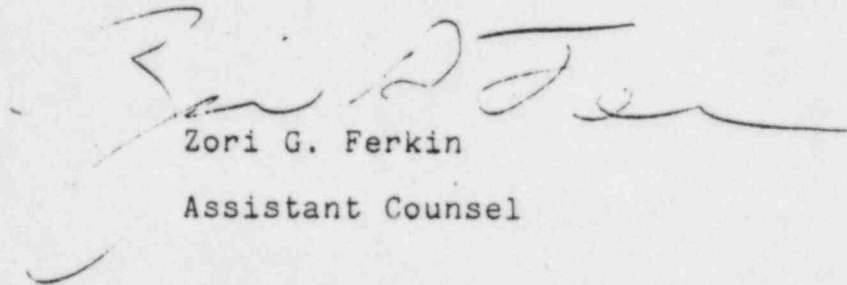
85. "Random" monitoring at the reassembly area, in the event exit portal monitors are not operating, will not suffice to ensure all evacuees are monitored for contamination in the worst case, or even a less drastic scenario. As many as 3000 workers could be present at the reassembly area. Only one or two HP technicians need be assigned there. Additional HP technicians are available, but in the worst case will be deployed to numerous other functions outlined in Applicant's emergency plan. Applicant is relying on standard health physics practice and training to ensure that all individuals evacuating the site are monitored before they are released from the reassembly area, not on an outlined emergency procedure. Tr. 10,229-30, 10,255 (Dubiel). Applicant also relies on normal health physics practice for the proposition that an effort will be made, in the event one or more evacuees are discovered to be contaminated, to discover their work place and attempt to monitor and treat other individuals who may have been contaminated in that same area in the plant. Tr. 10,238 (Dubiel).

86. The NRC staff witness expressed his opinion that, even in the worst case, all evacuees would be checked for contamination by the time they left the reassembly area. His opinion was premised on an assumption that up to 30 HP technicians could be deployed to the reassembly area if necessary. Tr. 10,261 (Sears). Applicant does not intend to deploy that number of HP technicians in its planning. Tr. 10,261 (Dubiel).

87. At the reassembly area, decontamination will be accomplished by collecting contaminated clothing, washing exposed skin areas, or, for example, clipping contaminated hair. Tr. 10,243 (Dubiel).

88. . Decontamination for individuals remaining on site follows the same procedures outlined in Proposed Finding #87, supra. Showering is necessary only if these methods fail. Tr. 10,243 (Dubiel). Two decontamination shower facilities are available onsite; each shower can hold one individual at a time. Tr. 10,239-40 (Dubiel).

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Zori G. Ferkin", is written over the typed name and title.

Zori G. Ferkin

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