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PHILADELPHIA ELECTRIC COMPANY  
LIMERICK GENERATING STATION  
OFF-SITE TRAINING PROGRAM  
SCHOOL OFFICIALS TRAINING MODULE

Instructor Note

I. INTRODUCTION

This training module is designed to familiarize school officials with the concepts upon which emergency planning for the protection of school children and staff is based. School officials will also be made aware of their specific responsibilities in the event that an accident should ever occur at the Limerick Generating Station.

Slide - Limerick  
(35 R)

Response procedures must be implemented for both natural and man-made emergencies. Today's society faces many potential hazardous situations that were not as prevalent with past generations. Fortunately, pre-planning for response to emergency situations can alleviate confusion and direct individuals and/or agencies on effective response to these hazardous situations. Today we will discuss your school district's emergency response to an emergency situation created by an event at the Limerick Generating Station. This discussion will be divided into four general topics.

Slide - Disaster  
Collage (435)

Slide - Topics of  
Discussion (37 E)

- \* A brief description of a Boiling Water Reactor.
- \* Radiation and its effects.
- \* Emergency planning and response concepts.

- \* An overview of the emergency response plan.

## II. CONCEPTS OF A NUCLEAR POWER STATION

### A. Nuclear Reactor Concept and Design

1. The nuclear-electric power plant produces commercial electric power using the conventional heat-to-steam method. The energy source, however, is the nuclear fuel contained within the nuclear reactor. Basically, the nuclear fuel in the reactor core provides the heat to turn water into steam which turns the electric turbine generator that produces the electricity. The reactor, serving as the furnace, provides the environment for the generation of heat through the fission process. The fission process involves the splitting of atoms and results in the release of energy.

Slide - heat-to-steam (32-U)

(keep brief)

Slide - fission process (32 C)
2. The initial reactor core weighs about 100 tons. The fuel contained in the core is slightly enriched uranium dioxide which is in the form of small cylindrical pellets. These pellets are placed in thin metal tubes to form fuel rods. A number of fuel rods bundled together make up the fuel assembly, a number of fuel assemblies make up the reactor core. The core is contained in a massive 6 1/2 inch thick steel cylinder, known as the reactor vessel, through which cooling water flows.

Slide - pellets (32 E)

Slide - fuel rods (32 F)

Slide - fuel assembly (32 G)

Note: Stress differences between reactor and bomb.

3. The two most common types of commercial reactors used in the United States are the pressurized water reactor and the boiling water reactor.

The basic difference is the primary coolant system.

- a. The Limerick Generating Station is a boiling water reactor. The boiling water reactor primary cooling system does not employ a heat exchanger. Instead, the water is permitted to boil in the reactor vessel. The steam generated in the reactor vessel is fed directly to the turbine-generator which converts the thermal energy of the steam to ultimately electrical energy.

Slide - BWR  
(32 P)

- b. In both types of reactors, the cooling water that flows through the cooling towers is isolated from the primary system water; therefore, it contains no radioactivity other than the natural radioactivity present in all water.

Slide - cooling towers  
(35 S)

## B. Reactor Safety Features

1. Equipment and instrumentation continuously monitor and indicate plant conditions. The information from the equipment and instruments is provided to the control room operators through visual and audible means and to the reactor's computer system electronically.

Slide - Control Room Simulator  
(35 C)

The computer system is designed to automatically activate reactor safety systems at the first sign of an unsafe condition. Additionally, control room operators can manually manipulate safety systems in the event of computer failure.

If the plant has a problem, the first priority is to shut down the nuclear reaction. Basically, this is accomplished by the raising of control rods into the core. The control rods absorb neutrons. Neutrons cause fission to occur. By absorbing all of the neutrons, the reaction is stopped. Control rods can be inserted into the core automatically by the reactor computer system or manually by the operators.

Slide - Control  
rods (32 W)

Once the reaction is stopped, it is still necessary to keep the reactor core cool. Heat is still being generated by the highly radioactive fission products in the fuel. In addition to the primary means of heat removal (the turbine), there are backup systems provided to remove heat from the core and provide cooling water in the event the primary system fails.

2. All reactor safety systems which provide protection for the public have backups. An example of this design philosophy is the multibarrier concept used to contain the radioactive fuel. The fuel is contained in

Slide - Multibarrier  
Concept (32 R)

the fuel rods; the fuel rods are contained in the steel pressure vessel; the vessel is surrounded by the steel and concrete primary containment; which is contained within a secondary containment. For the radioactive fuel to reach the public all the barriers--the rod, the vessel and both containments--must be breached.

Slide - Limerick  
Containment  
Building (35 B)

### C. Previous Nuclear Reactor Safety Problems

1. The "defense in depth" philosophy is one reason the nuclear industry (when compared to other commercial industries), has a relatively safe history. However, safety systems can fail and accidents happen. This is why emergency planning is necessary.
2. The incident at Three Mile Island received a great amount of media coverage. The Three Mile Island Unit 2, through a series of mechanical failures and human misjudgments, experienced damage that resulted in a minor release of radiation that amounted to less radiation than that of a person smoking two packs of cigarettes in a lifetime.

Slide - TMI (32 M)  
Media Coverage

The accident began when a blockage occurred in a transfer line to a resin regeneration tank. This blockage caused a loss of condensate flow that lead to a trip of the main feedwater pump. At that point the turbine also tripped. Automatically, the emergency feedwater pump started;

Slide - PWR (32 B)  
schematic  
(Presentation of  
this material  
depends upon the  
make-up of the

however, since the line was blocked, it could not deliver the water to the steam generators.

The loss of feedwater to the steam generators caused the primary coolant water to become hotter, and therefore, increased the pressure to such a degree that the pressurizer relief valve opened. High reactor coolant pressure caused the control rods to trip. The control room operators then realized that the emergency feedwater block valves were closed and opened the valves thus restoring the flow of coolant water to the steam generators.

The insertion of the control rods slowed down the rate of fission and reduced the pressure. At this point, the pressurizer relief valve should have closed but it remained open. As the coolant continued to discharge through the pressurizer relief valve, the primary coolant pressure decreased. In addition, the coolant was being discharged into and filled the drain tank in the bottom of the containment building. A rupture disk burst in the drain tank and the primary coolant flowed to the containment building sump.

Another error occurred when the operators cut back the high-pressure injection system that had begun pumping borated water. The operators were unaware that a loss of coolant accident was in progress and considered the use of the emergency core cooling system to be inappropriate.

audience. Explain or point out on schematic all equipment mentioned in narrative.)

The two reactor coolant pumps were turned off due to severe vibrations that occurred because the pumps were then handling steam instead of pressurized water. A bubble formed in the core leaving uncovered fuel. While a portion of the core was uncovered, the zirconium cladding became very hot and melted. Simultaneously, conditions produced a large amount of hydrogen.

The operators finally isolated the open relief valve and began efforts to provide coolant to the core.

Primary coolant was inadvertently pumped from the containment sump to auxiliary building lower levels--severely contaminating the auxiliary building and allowing releases to atmosphere via auxiliary building ventilation.

If anyone is interested in discussing, in more detail, how and why the accident occurred, we will be glad to do so at the end of the training session.

3. Prior to this accident, many people were convinced that accidents such as this could not happen. However, since the accident at Three Mile Island, public officials, and the nuclear industry as well, have realized the heightened need for protecting communities located near reactors.

4. During the last two years, many advances have been implemented to better protect the safety of the nuclear reactors and community residents.

Slide - Industry Safety Improvements (32 S)

- a. Development of comprehensive plans regarding the utility's and communities' response to an accident. These plans were proven effective during response to the incident at the Ginna Nuclear Steam Generation plant located outside Rochester, NY.
- b. Implementation of training programs for utility employees and community emergency response organizations.
- c. Provision of additional reactor safety features.
- d. Development of communications systems to notify public officials and alert the general public of possible accidents.

- Comprehensive plans
- Training Programs
- Designed Reactor Safety Features
- Communications Systems

Mention Crystal River, Failed PORV

### III. INTRODUCTION TO RADIATION

Prior to a discussion of your school's response plan, we will discuss radiation and its effects on the body.

Within a decade after a type of radiation known as X-rays came into use in the late 1890's, it became apparent that this type of radiation could be either beneficial or harmful, depending upon its use and control. It also became apparent that protective

Slide - X-ray Machine (10 M)



measures were necessary. Although the term "radiation" is very broad and includes such things as visible light and radio waves, it is most often used to mean "ionizing" radiation that may cause biological changes.

Slide - Types of Radiation (10.1 D)

Explain "Ionizing Radiation"

A. Types of Radiation

There are various types of ionizing radiation: alpha, beta and gamma radiation, X-rays and neutrons, each with different characteristics. Atoms that emit these kinds of radiation are said to be radioactive. Should a radiological release ever occur at the Limerick Generating Station, public officials would be mainly concerned with the following types of radiation.

Slide--radioactive (10 D)

1. Alpha radiation consists of positively charged particles and is emitted from naturally occurring elements--such as, uranium and thorium as well as from some man-made elements. Alpha radiation will just penetrate the surface of the skin. It can be stopped completely by a sheet of paper. However, the potential hazard that alpha-emitting materials present is due to the possibility of their being taken into the body by breathing or swallowing along with food or water.

Slide--alpha (10 Q)

2. Beta radiation is a small negatively charged particle similar to an electron. It is more penetrating than alpha radiation and can pass through 2 millimeters of water or human flesh.

Slide--beta (10 R)

A sheet of aluminum a few millimeters thick can stop beta radiation. Beta radiation can cause damage to the skin similar to a burn but cannot penetrate through the skin to affect internal organs unless it too is taken into the body through breathing or swallowing.

3. Gamma radiation can be very penetrating. It can pass through the human body but would be almost completely absorbed by about 40 inches of concrete. Dense materials such as concrete and lead are often used to provide shielding against gamma radiation. Gamma rays are very similar to X-rays.

Slide--gamma (105)

Slide - comparison  
of alpha, beta  
and gamma (10.1 B)

3. Exposure occurs when an object or person is subjected to radiation. Exposure does not contaminate.

4. Contamination is radioactive material where it is not wanted. If someone were to become contaminated, they would be exposed to this contamination until it was removed--normally through washing with soap and water.

Slide - Radioactive  
Mat. vs. Radiation  
10.1 C

#### B. Terms Used in Measuring Radiation

There are a number of terms used when talking about radiation. We will cover those that are commonly used for emergency planning purposes and for discussing the biological effects of radiation on the human body.

1. Radiation: Exposure to radiation results in what is called a radiation dose. However, as in the case of coffee, brandy or medicine, the effects of a dose of radiation depends upon how much is received, the length of time over which the dose is received and in which part of the body the dose is received. For example, a single glass of whiskey can be drunk and no significant side effects experienced. But what effects would drinking ten glasses have? Among other things, one would need to know whether they were consumed over 20 minutes or 20 days.  
Slide - Watch and Calendar (10.1 E)
2. A roentgen is a unit of measurement of radiation present in the air (amount of ionization of the air).  
Slide - roentgen (10 N)
3. Frequently, you will hear the term REM (Roentgen Equivalent Man), which is the amount of radiation absorbed by living tissue. (A normally a person receives approximately 10 rems during the course of his/her life.) The REM (Roentgen Equivalent Man) is simply a way of expressing radiation in terms of its impact on humans.  
Slide - rem (10-0)
4. Although these terms have specific technical differences, for offsite purposes these terms can be used to mean the same thing.  
Slide - 1 Roentgen = 1 Rem (10 K)
5. One last term we will be using is the prefix milli, usually in the term millirem. Milli is a prefix used in the metric system. One  
Slide - 1000 millirem 1 Rem (10 L)

thousand milli equals one. Therefore, 1,000 millirems equal 1 rem. Measurements given in millirems usually involve low levels of radiation.

Slide - comparison of radiation levels (FMI vs. nuclear attack) (10.1 A)

#### IV. PLANNING CONCEPTS

Radiological response planning concepts, such as Emergency Planning Zones (EPZ) and protective actions, have been developed to minimize radiation exposure to the public if an accident were to occur at the Limerick Generating Station.

##### A. Emergency Planning Zone (EPZ)

The area surrounding a fixed nuclear facility for which planning is needed to ensure that prompt and effective actions can be taken to protect the public in the event of an accident. There are two types of Emergency Planning Zones utilized in Radiological Emergency Response Plans.

Slide - explaining PEP an IEP EPZ's. (144)  
Explain plume.

1. Plume Exposure Pathway EPZ - approximately 10-mile EPZ.

Slide - Map 10-mile Limerick EPZ (54 A)

A ten-mile radius surrounding a nuclear plant site where the principal exposure sources are from:

- a. Whole body external exposure to gamma radiation from the plume and from deposited material, and

- b. Internal exposure from breathing or swallowing radiation materials from the passing radioactive plume.

- 2. Ingestion Exposure Pathway EPZ - approximately 50-mile EPZ.

A fifty-mile radius surrounding a nuclear plant site where the principal exposure source would be from the eating or drinking of contaminated water or foods such as milk, fresh vegetables or fish.

V. PROTECTIVE RESPONSE OPTIONS FOR THE PLUME EXPOSURE PATHWAY EPZ

Slide - Protective Actions (15.1 D)

Those actions taken to avoid or reduce a projected dose of radiation. The selection of a particular protective action depends upon the conditions of the emergency.

A. For the general public

1. Sheltering

Slide - "Sheltering" (15 C)

- a. If this action were recommended, the public would be advised to seek shelter in a permanent, reasonably airtight structure, such as a house, commercial building or office building. The public would be instructed to close doors and windows and to reduce outside air intake from heating or cooling systems.

Slide - Closing Windows (15.1 F)

- b. Persons traveling by motor vehicle in the risk area will be advised to close windows and vents and to turn off heating or cooling systems.

Slide - Person in  
Car (15.1 G)

## 2. Selective Evacuation

Slide - Selective  
Evacuation  
(15.1 A)

- a. Selective Evacuation is a protective action that provides for the evacuation of specific elements of the population such as pregnant women, pre-school children and the chronically ill. These people warrant special consideration because of their susceptibility to radiation induced injury or need additional time to evacuate.

Slide - High Risk  
Individual  
(15.1 E)

## 3. Evacuation

Slide - General  
Evacuation  
(15.1 B)

- a. Evacuation is a protective action which may be recommended to the resident and non-resident populations. When an evacuation is recommended, all members of the public will be advised to leave the risk area until it has been determined that all danger has passed.
- b. Although County Commissioners and municipal officials can recommend an evacuation, the Governor has the ultimate authority to order an evacuation of any risk area should such an evacuation become necessary.

Slide - Traffic  
(15 M)

c. Evacuation Concepts

Slide - Evacuation  
Concepts (56 Q)

• Spontaneous Evacuation

The evacuation of members of the general public on their own and prior to the recommendation or order of public officials.

Although an evacuation of the general public surrounding Three Mile Island was never recommended by public officials, certain studies estimated that 48-52% of the general public evacuated without being instructed to do so by officials. Spontaneous evacuation may substantially reduce the amount of people who would later need to be evacuated.

• Main Evacuation Routes

Those roadways identified in advance as the principal routes to evacuate people from the risk area. Specific evacuation routes would be announced at the time. Local conditions would determine actual evacuation routes to be used. Bus drivers will use these routes to get out of risk area and then will proceed to host school

Slide - EPZ w/  
Main Evacuation  
Routes (54 B)

or reception center. (Indicate routes appropriate to area.)

• Pick-Up Points

Those predesignated locations at which members of the general public without automobiles or other means of transportation will be provided with transportation out of the risk area. If assigned pick-up point run, driver will receive a map from transportation staging area to Municipal EOC. Someone familiar with area will board bus and direct around area to pick up residents.

• Traffic Control Points

Those locations on main evacuation routes that would be staffed by local police or the State Police in order to provide ease of access and continued movement of traffic.

Slide - Traffic  
Control/Access  
Control Points  
(54 C)

• Access Control Points

Those predesignated locations staffed by local police, the State Police, or by the National Guard in order to prevent entry into the risk area during an accident. These points will be located on or immediately beyond the boundary of the risk area. Check



points will stop all people from entering an area, except residents.

- Host Schools for Students

Slide - Mass  
Care Concepts  
(56 S)

Those places where school students and staff will be evacuated to and later reunited with their families.

Slide - Host  
Schools/Mass  
Care/Reception  
Center (54 D)

- Reception Centers

Those predesignated sites outside the risk area at which evacuees will be directed to shelters if they need a place to stay. Pick-up runs will go through reception centers to mass care.

- Mass Care Centers

Those facilities established outside the risk area at the time of an accident for the purpose of providing food, lodging and medical care on a short-term basis for persons evacuating the risk area. Evacuees and their vehicles will be monitored and decontaminated if necessary.

- Central Resource Receiving Points

A location outside the risk area suitable for receiving and distributing supplies and equipment.

Slide - Emergency Worker Concepts (56 R)

Slide - E.W. Map (54 F)

- Transportation Staging Area

A designated location from which transportation resources are coordinated and/or dispatched. These are located on each of 5 major access roads into the area:

Rt. 422, Rt. 100 (Berks)

Rt. 100 (Chester)

Rt. 63, Rt. 309, Rt. 363/202  
(Montgomery)

This is the point where but drivers will report to receive detailed information and re-assignments.

- Decontamination Station

A facility located just outside the risk area where emergency workers undergo any necessary decontamination monitoring or decontamination.

#### 4. Response Concepts

- a. If schools were required to evacuate, students located within the 10-mile EPZ

would be bussed directly to host schools to await pick-up by parents or guardians.

- b. Students attending public, parochial and non-profit private schools will be provided with transportation to the host schools. Private vehicles will not be required to evacuate students. District policy for the use of private vehicles will prevail.
- c. All students within the 10-mile EPZ will be moved at one time. Priority will be given to those schools closest to the Limerick Generating Station.
- d. Designated school faculty/staff will accompany students being evacuated to host schools in the buses or in their private vehicles. Designated faculty/staff will remain at the host schools with the students until the students are picked up by parents/guardians in accordance with District policy.
- e. Students who live within the 10-mile EPZ but attend school outside the EPZ will remain at their schools until picked up by their parents/guardians.
- f. If any students have not been picked up by 8 p.m., they would be provided with meals and lodging either at the host school or at a mass care center. Parents/

guardians would be notified as to the location of their children.

- g. The contact person for public, parochial and private non-profit school officials is the County School Services Officer located at the County Emergency Operations Center. The County EOC, which is located in \_\_\_\_\_, is the location to which county officials would report to coordinate response activities.
- h. The contact person for all other educational facilities, including day care centers, is the Municipal Emergency Management Agency Coordinator located at the municipal Emergency Operations Center.

5. Public Alert/Notification System

- a. If an accident were to occur at the LGS, emergency public information activities would be initiated to inform the public of the nature and severity of the accident. Emergency public information will be coordinated through news releases by the State, in addition to facility and key response organization spokespersons.
- b. The Nuclear Regulatory Commission requires that a warning system be installed around every operating nuclear power plant. The system must provide the capability for

Slide - Siren  
(18 H)

alerting and providing information to residents of the plume exposure pathway EPZ.

- c. The public alert/notification system refers to sirens primarily for the alert and the Emergency Broadcast System for notification of the general public. Monitors, mobile loudspeakers, and other special provisions for alerting supplement the sirens for public alert.

Slide - EBS Radio  
18 I  
Slide - EBS system  
54E
- d. The siren is designed to alert the population at risk to tune to their Emergency Broadcast System (EBS) for important emergency information. The sounding of sirens does not mean that the public should take shelter or evacuate. The sirens only indicate that people should turn to the EBS for information or instructions.

200 sirens will be installed by PECO. They will be placed on top of 50-foot utility poles. The sirens will rotate and can each be heard for a distance of about 4,000 feet. Installation will begin about Feb. 1, 1983, and should be completed by July 1, 1984.
- e. Specifically, this system has been designated for the capability to provide both an alert signal and an informational or instructional message to the population throughout the plume exposure pathway EPZ, within 15 minutes.
- f. Philadelphia Electric Company, following discussions with County and State officials, will purchase sirens to be installed as the alert portion of the public alert/notification system.

Cost of the system will be about \$4 million.

- g. The siren system would be activated from County Offices. The siren system would produce a 3-5 minute steady tone and would be sounded to advise persons living, working or traveling in risk portions of the County to tune to the EBS stations for further information.
- h. Should any of the sirens fail to sound, the system would indicate County officials. Route alert teams would then be dispatched to provide public alert through the use of public address systems or bullhorns.
- i. County officials would activate the public alert/notification system.
- j. After the activation of the alert/notification system, the County, in coordination with the State, would provide continuing emergency public information through a County Public Information Officer to be located at the County's Media Center.
- k. If conditions change, the public alert/notification system would again be activated for the purpose of disseminating such recommendations to the public.
- l. During the next several months, both Philadelphia Electric Company and County officials will be conducting a public education program. The public alert/

notification system concept will be extensively discussed throughout the public education program.

- B. Specifically for emergency workers (bus drivers entering the 10-mile EPZ)

1. Radioprotective Drugs

Slide - Radio-  
protective Drugs  
(15 F)

Should a release occur at the power plant, officials would be concerned about the presence of Iodine-131, a radioactive form of iodine. All iodines--radioactive and non-radioactive--tend to be absorbed by the thyroid gland.

- a. Radioprotective drugs are substances which tend to saturate the thyroid with non-radioactive iodine, thus reducing the thyroid gland's ability to absorb a radioactive iodine which could be released during an accident. Potassium iodide (chemical symbol KI) is a substance that may be used for this purpose.
- b. Radioprotective drugs could be recommended for emergency workers or institutionalized persons within the plume exposure pathway EPZ at the time of an accident. These drugs are administered in a tablet form. Those bus drivers who are entering or re-entering an evacuating area would be given potassium iodide tablets to help protect their thyroid glands.



2. Limitation to Duration of Exposures

Slide - Limitation  
to Duration of  
Exposure (15 E)

- a. Limitation to duration of exposure in an identified risk area involves the use of self-reading dosimeters. These self-reading dosimeters allow the user to continually check their dosimeter to determine the amount of exposure they are receiving.
- b. Limits would be imposed for the amount of exposure that individuals would be allowed to receive.
- c. Any bus driver entering a reentering an evacuating area would be given two self-reading dosimeters, as well as a thermoluminescent dosimeter that would be read by officials at the end of the emergency.

3. Respiratory protection is an action which could also be used by emergency workers.

Slide - Respira-  
tory Protection  
(15 D)

When respiratory protection is recommended, emergency workers would be advised to cover their noses and mouths with handkerchieves, cloth, or other protective materials, and to limit air intake from heating or cooling systems if they are in an enclosed area.



4. Double Clothing

Slide - Double  
Clothing (15.1 C)

- a. Double clothing is a protective action which can be used by itself or in conjunction with other protective actions.
- b. If recommended, workers would be advised to use such clothing as rain gear, turnout gear, boots or galoshes with pant legs tucked in, winter coats with collars turned up, gloves, hats, etc., to provide protection by minimizing skin and street clothing/uniform contamination.

VI. PROTECTIVE ACTION GUIDELINES

Slide - PAG's  
(14 F)

The United States Environmental Protection Agency has developed Protective Action Guidelines (PAGs) to assist local and state officials in making the decisions as to what protective actions should be recommended at certain projected levels of radiation. The guidelines were developed and intended to be used solely as guidance. Other factors such as weather and highway conditions must also be considered in addition to the Protective Action Guidelines.

The guidelines developed for the General Public will be applied to school children, however, consideration will be given to providing an increased level of protection to school children when time and circumstances permit.

A. General Public or School Children

Slide - (14 I)

1. Whole body projected dose of less than 1 Rem,  
or thyroid projected dose of less than 5 Rem:

- a. No immediate action necessary.
- b. A sheltering or selective evacuation  
advisory may be considered.

2. Whole body projected dose of 1 to less than  
5 Rem, or thyroid projected dose of 5 to less  
than 25 Rem:

Slide - (14 J)

- a. Sheltering will be recommended as a minimum  
in affected areas along with respiratory  
protection if appropriate.
- b. Evacuation will be considered and may be  
recommended.
- c. Access control will be implemented for areas  
identified at risk.

3. Whole body projected dose of 5 Rem and above,  
or thyroid projected dose of 25 Rem and above:

Slide - (14 K)

- a. Evacuation will be recommended in affected  
areas.
- b. Sheltering and respiratory protection will  
be recommended alternatives if evacuation is  
not immediately feasible.

- c. Implement access control for the entire plume exposure pathway EPZ.

## VII. INCIDENT CLASSIFICATIONS

Proper protective actions undertaken during an emergency depend upon the seriousness of the incident at the power plant.

Slide - Incident  
Classifications  
(2 K)

It is the responsibility of plant personnel to provide accurate information to county and state officials concerning the level of the incident classification.

The four incident classifications are:

A. Unusual Event:

A minor change has occurred in the normal plant operating procedures. No release of radioactive material is expected.

Slide - Unusual  
Event (2 C)

B. Alert:

An abnormal plant condition exists and very small amounts of radiation may be released.

Slide - Alert  
(2 E)

C. Site Emergency:

Plant functions needed to protect the public may fail. Releases of radioactive materials are expected to be in small amounts.

Slide - Site  
Emergency (2 G)

Instructor Note

- |                              |   |                                 |
|------------------------------|---|---------------------------------|
| D. <u>General Emergency:</u> | A threat to the general public either currently exists, or is likely to occur in the near future. | Slide - General Emergency (2 I) |
|------------------------------|---|---------------------------------|

VIII. EMERGENCY RESPONSE (SCHOOL IN SESSION)

- |                  |                |
|------------------|----------------|
| A. Unusual Event | Slide - (52 A) |
|------------------|----------------|

1. Plant personnel would immediately notify county and state officials if an Unusual Event were declared.
2. School administrators would not be notified of an Unusual Event and no actions would be expected of school officials.

B. Alert

1. The County School Services Officer located at the County Emergency Operations Center would notify School District Superintendents and ensure that private school officials are notified. Municipal emergency management officials would confirm notification.

2. School District Superintendents would:

Slide - Superintendent (52 B)

- a. Ensure that school district telecommunications equipment is operational.

- b. Notify all school building principals within the district.
- c. Notify school transportation providers to:
  - (1) Place drivers on standby.
  - (2) Inventory and ready transportation equipment.
  - (3) Review transportation assignments/ maps.
  - (4) Fuel and maintain transportation vehicles.
  - (5) Provide for priority maintenance of vehicles.
  - (6) Report unserviceable vehicles to the Superintendent.
- d. Order district-wide cancellation of:
  - (1) Special activities
  - (2) Extracurricular activities
  - (3) Intramural/interscholastic sporting events
  - (4) Competition

- (5) Club meetings
- (6) Class trips
- (7) After school activities

- e. Monitor EBS announcements.
- f. Receive any applicable redundant notification/confirmation.

3. Risk school building principals would:

3 Slides - Principals  
(52 G)

- a. Ensure immediate update of student attendance and class rosters.
- b. Update rosters every 3 hours.
- c. Report attendance to Superintendent three times each day.
- d. Cancel special activities as ordered by the Superintendent.
- e. Assure preparation of the building for sheltering, coordinating with school maintenance/security personnel:
  - (1) Fuel and test support systems.
  - (2) Secure entrances/exits/windows.
  - (3) Review food service capabilities.

- (4) Instruct staff to prepare shelter activities/equipment.
- (5) Report unmet needs to the Superintendent.
- f. Request the school nurse to inventory special student medical supplies/needs and advise of any resource requirements.
- g. Review situation and RERP procedures with appropriate staff.
- h. Recall volunteer staff and dismiss appropriate staff such as pregnant women and single parents.
- i. Receive confirmation of Alert from Municipal EMA Director (via telephone).

C. Site Emergency

1. Response

- a. School District Superintendents would, upon receipt of notification from the County Emergency Operation Center:

Slide - School District Superintendent (52 C)

- (1) Complete all procedures outlined for Alert.
- (2) Report to the District administrative office.



- (3) Further notify school transportation providers to:
    - (a) Prepare buses/vehicles for evacuation.
    - (b) Priority repair out-of-service vehicles.
  - (4) Confirm host school building locations/evacuation routes (as provided by the County Emergency Operations Center with building principals.
  - (5) Authorize implementation of emergency staffing including dismissal of pregnant staff/single parents, as appropriate.
  - (6) Report unmet needs to County School Services Officer.
  - (7) Receive applicable redundant notification/confirmation.
  - (8) Monitor EBS announcements.
- b. Risk School building principals would, upon notification by the Superintendent or the County Emergency Operations Center:
- (1) Complete all procedures outlined for Alert.

Slide - School  
Principals  
(52 H)



- (2) Confirm resources necessary for sheltering, reporting unmet needs to Superintendent (coordinate with maintenance/security, food service and nursing personnel).
- (3) Assure distribution of authorization for student pick-up forms and other supplies.
- (4) Initiate emergency staffing and excuse/dismiss staff as ordered by Superintendent.
- (5) Receive confirmation of Site Emergency from Municipal EMA Coordinator (via telephone).

#### D. General Emergency

##### 1. Response

Slide - (52 D)

- a. School District Superintendents would, upon receipt of notification from the County Emergency Operations Center:
  - (1) Complete all procedures outlined for Alert and Site Emergency.
  - (2) Order school transportation providers to mobilize for completion of preplanned assignments.

- (3) Confirm positioning of buses/evacuation vehicles and assignment of ARES mobile units, reporting unmet transportation needs, received from building principals, to the County Emergency Operations Center.
- (4) Provide protective action recommendations to building principals.
- (5) Monitor EBS announcements.
- (6) Establish designated temporary District headquarters.

(7) IF EVACUATION IS RECOMMENDED:

Slide - (52 F)

- (a) Monitor evacuation process/sheltering, reporting unmet needs to the County Emergency Operations Center and direct that bus/vehicle drivers completing evacuation assignments report to the assigned staging areas or contact the EOC by radio/telephone.
- (b) At 8 p.m., order closing of host schools and coordinate movement of students to designated locations (i.e., mass care centers).
- (c) Request that building principals reduce staff at host schools, as appropriate.

- (d) Excuse building principals/staff upon completion of student pick-up.
- (e) Receive student evacuation records and remain in contact with the County Emergency Operations Center to provide census information as required.
- (f) Receive applicable redundant notification/confirmation as applicable.

(8) IF SHELTERING IS RECOMMENDED:

Slide - (52 E)

- (a) Coordinate sheltering of students attending school in the EPZ.
- (b) For 8 p.m., coordinate Red Cross activities to establish mass care capability at the schools hosting students awaiting dismissal.

b. Risk School building principals would, upon notification by the Superintendent or the agreed upon designate, the County Emergency Operations Center:

Slide (52 I)

- (1) Complete all procedures outlined for Alert and Site Emergency.

- (2) Immediately suspend any non-classroom special activities, practices, etc., not previously cancelled and recall students to campus or to a designated location outside the EPZ, as directed by the District Superintendent or the County Emergency Operations Center.
- (3) Receive confirmation of General Emergency from the Municipal EMA Director (via telephone).
- (4) UPON RECOMMENDATION TO SHELTER:
  - (a) Notify all school faculty and staff.
  - (b) Ensure that all outside activities are terminated and all personnel moved to predesignated shelter areas.
  - (c) Direct maintenance/security staff or assigned individuals to:
    - (i) Shut down heating/ventilation/air conditioning systems.
    - (ii) Ensure closing/locking of all exterior doors/windows.
    - (iii) Move students to areas of the building providing the most shelter from outside environ-

Slide - (52 J)

ment, as appropriate. Note:  
Have students place dampened  
clothes over nose and mouth,  
as directed by the County  
Emergency Operations Center.

(d) Direct food service personnel to:

- (i) Secure area to extent possible.
- (ii) Assemble water and snacks in shelter areas.
- (iii) Assemble food/snacks for an 8 p.m. schedule.

(e) Direct administrative personnel to:

- (i) Secure all personnel records and student files as for week-end departure.
- (ii) Take attendance records to shelter areas.
- (iii) Take attendance "authorization for pick-up" forms to shelter areas.

(f) Direct teachers or classroom monitors to:

- (i) Close all windows in classroom.
  - (ii) Maintain discipline/order.
  - (iii) Verify classroom attendance and take attendance record to shelter area.
  - (iv) Check non-classroom areas for students.
  - (v) Secure required materials for predetermined shelter area activities.
  - (vi) Initiate pre-planned shelter activities.
- (g) Direct school nurse to:
- (i) Augment resources as needed.
  - (ii) Secure student health records.
  - (iii) Assemble required health supplies in shelter area.
- (h) Determine status of unmet transportation resources and inventory buses available, notify superintendent of unmet needs.

- (i) Assure administrative staff and maintenance supervisors prepare schools as they would for a regular weekend; closing all windows, locking doors, locking files and closing outside ducts or air intakes.
- (j) Do not dismiss students into the EPZ.
- (k) Cooperate with the County EOC, Superintendent, and Red Cross to establish a mass care center at the school, should the shelter advisory require.

(5) UPON RECOMMENDATION TO EVACUATE:

Slides - (52 K)  
(52 L) (52 M)

- (a) If not sheltered, assure updated attendance.
- (b) If sheltering, students are to be reunited with their assigned faculty member and attendance updated.
- (c) Non-cancelled special activities should be immediately terminated and student attendance taken and records completed.

- (d) Initiate orderly movement of students to transportation vehicles and monitor loading and seating of students/staff. Assure telecommunications capability of at least one transportation vehicle assigned, or obtain an ARES mobile unit through the County EOC to accompany vehicles.
- (e) Provide drivers with maps to host schools/reception centers, as required.
- (f) Provide drivers accompanying students to non-cancelled special events (within EPZ or outside EPZ) directions to host school or reception center, as appropriate.
- (g) Assign staff to accompany students in each transportation vehicle.
- (h) Direct unassigned staff to accompany buses in their private vehicles.
- (i) Provide staff with appropriate attendance records assure recording of students in each vehicle.
- (j) Supervise movement to host school, notifying County EOC via telecommunication of progress/problems.



- (k) Upon disembarking in an orderly fashion, verify student attendance and provide attendance records to school staff.
- (l) Assign staff to remain with students at host school until all students in staff's charge are picked up by parent/guardian or until relieved by other staff or instructed to leave.
- (m) Provide staff "authorization for pick-up records" and direct that completed lists/records be returned.
- (n) Report status of student pick-up to Superintendent every \_\_\_\_\_ hours.
- (o) After 8 p.m. and if students remain to be picked up by their parents or legal guardians and an order has been received from the District Superintendent; assign staff and accompany remaining students to designated location, (i.e., mass care center).
- (i) Initiate orderly movement of students to transportation vehicles.

- (ii) Assure that host facility is secured.
- (iii) Notify Superintendent that host school is closed/secured.
- (p) Upon arriving at designated mass care center and disembarking in an orderly fashion, verify student attendance and provide attendance records to center personnel.
- (q) Assure that staff remain with students at predesignated location, i.e., mass care center until all students in staff's charge are picked up by parent/guardian or until relieved by other staff, instructed to leave, or are assigned to after duty.
- (r) Report completion of student pick-up to Superintendent and arrange to provide Superintendent pick-up/attendance records.
- (s) Excuse remaining staff and provide Superintendent a means of future contact - for receipt of reentry orders.

IX. EMERGENCY RESPONSE (SCHOOLS NOT IN SESSION)

A. Unusual Event

No action required.

B. Alert

1. School District Superintendent will, upon receipt of notification from the County Emergency Operations Center. Slide - School District Superintendent
- a. Notify and brief school building principals in the risk area (includes private, non-profit schools).
- b. Order District wide cancellation of:
  - (1) Special activities
  - (2) Extracurricular events
  - (3) Intramural/interscholastic sporting events
  - (4) Competitions
  - (5) Club meetings
  - (6) Class trips
  - (7) After school activities

- c. Monitor EBS announcements.
- d. Receive applicable redundant notification/confirmation.

- 2. Risk school building principals will, upon receipt of notification from the Superintendent:

Slide - School  
Building Prin-  
ciples

- a. Cancel/terminate special activities ordered by Superintendent.
- b. Review RERP procedures.
- c. Receive confirmation of Alert from Municipal EMA Director (via telephone).
- d. Notify any groups or individuals occupying the school building, requesting that all non-district employees vacate the building.

#### C. Site Emergency

- 1. Complete all procedures outlined for Alert.
- 2. A recommendation to keep schools closed would be made by PEMA/PDE and be provided to Superintendents through the County Emergency Operations Center.
- 3. The Superintendent would, upon receipt of notification from the County Emergency Operations Center:

Slide - School  
District Super-  
intendent

- a. Implement the decision, notifying parents/guardians and staff utilizing normal District procedures, supplementing appropriate EBS announcements.
  - b. Notify all building principals of all public and private schools of the decision to keep schools closed, and brief them of the situation.
  - c. Receive applicable redundant notification.
  - d. Monitor EBS announcements.
4. Risk school building principals would, upon receipt of notification from the Superintendent:

Slide - School  
Building Principal

- a. Provide the Superintendent their personal evacuation location and means of contact, and assure that their own building is secured and vacated; immediately cancelling any activities.
- b. Receive confirmation of Site Emergency from Municipal EMA Director (via telephone).
- c. Notify key faculty, department heads and supervisors of the cancellation and direct notification of faculty/staff.

D. General Emergency

1. A decision to keep schools closed will be made by the Governor/PEMA/PDE/the County and be provided to Superintendents through the County Emergency Operations Center.
2. Complete all procedures outlined for Site Emergency.
3. Superintendent will, upon receipt of notification from Chester County DES.
  - a. Establish designated temporary District headquarters.
  - b. Receive applicable redundant notification.
  - c. Monitor EBS announcements.
4. Risk School Building principals would, upon receipt of notification from the Superintendent:
  - a. Assure notification of faculty/staff/drivers accompanying students to special events (inside/outside the EPZ) to terminate activity and provide instructions/route to designated location, i.e., mass care center, should evacuation be ordered or to a designated location outside the EPZ should sheltering be in effect.

- b. Receive confirmation of General Emergency from Municipal EMA Director (via telephone).

X. RECOVERY

- A. Recovery involves the returning of the community back to normal. Recovery efforts could involve long periods of time depending upon the severity of the accident and the protective response implemented.
- B. Based upon information provided by the power plant and state officials, county officials would decide whether to relax protective actions. If protective actions were relaxed, the recovery phase would be initiated.
- C. School Response
  - 1. The County School Services Officer would notify the Superintendent of the decision to reoccupy the evacuated area.
  - 2. The Superintendent would direct that buildings be inspected for reoccupation by the building principal and that deficiencies be reported to the Superintendent.
  - 3. The Superintendent will report unmet needs to the County School Services Officer, coordinate necessary repair/resupply and keep accurate records of costs incurred.

4. The Superintendent would, based on information received from PEMA/PDE through the County EOC, decide to reopen District school(s) and communicate this decision to building principals.
5. Parents/faculty/staff will be notified of the decision to reopen schools using normal media/information procedures, supplementing appropriate EBS announcements.
6. Superintendent will monitor daily attendance at reopened schools until attendance returns to pre-incident levels, providing summary attendance reports to the County EOC.