

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD:

Gary Edles, Chairman
Dr. John Buck, Administrative Judge
Dr. Lawrence Quarles, Administrative Judge

'84 MAR 12 A11:35

In the Matter of)

METROPOLITAN EDISON COMPANY, ET AL.)

Docket 50-289

(Three Mile Island Nuclear
Generating Station, Unit 1))

AAMODT MOTION FOR RECONSIDERATION OF ALAB-697
IN VIEW OF NEW INFORMATION CONCERNING EMERGENCY PLANNING FOR FARMERS

Abstract

In this document, the Aamodts move the Appeal Board to reconsider their decision ALAB-697. It is now evident that specific instructions must be developed for the farmers' self-protection which are acceptable to the farmers in the TMI area. The Commonwealth of Pennsylvania's information brochure, distributed to farmers in the 10 mile EPZ, does not contain specific, suitable or acceptable recommendations for actions by which the TMI area farmers can protect themselves in the event of a radiological emergency at TMI.

Introduction

The Appeal Board decided that the issue of emergency planning for farmers in the TMI area was resolved with the single condition that the Commonwealth of Pennsylvania would develop and distribute information concerning the farmers' options in the event of an accident at TMI-1.

See ALAB-697 at 29; Attachment 4.

The Appeal Board advised the Commonwealth to seek the input of the local agricultural community in developing the information concerning protective options and that specific instructions for the farmers' self-protection be included. See Id. at 28 - 30.

However, on June 29, 1983 the Commonwealth distributed an agricultural information brochure¹ which was developed without any input from TMI area farmers or veterinarians and which lacked any specific information for farmers' self-protection. The brochure is reproduced as Attachment 1.²

In addition, information provided by Jane Lee of Etters, PA to the Commissioners (Attachment 2) in January 1984 brings to the clear light of day the Federal Emergency Management Agency's (FEMA) continued disinterest in planning for farmers as a unique segment of the TMI area population. This attitude, at the time of a crisis, would undermine state or county planning for the farmers. It also undermines the capability of the NRC to determine the adequacy of the emergency plans for the farmers.

It is evident, therefore, that the Appeal Board made a gross error in merely recommending that the Commonwealth's revision of the farmers' emergency information include specific information for the farmers' self-protection. Farmers in the TMI area still lack the information necessary to provide for their self-protection.

^{1/} The Commonwealth limited the distribution of the brochures to the 10 mile EPZ rather than the 50 mile EPZ, as recommended by the Appeal Board. See ALAB-697 at 29.

^{2/} The Commonwealth, the NRC Staff and the Licensee have, to this day, neglected to provide the information brochure to the boards and parties.

Discussion

1. The revised plans were developed without the input of the local agricultural community, contrary to the recommendations of the Appeal Board.

The Commonwealth informed the Commissioners on November 9, 1982, during a meeting in Harrisburg (PA), that no local agricultural input had been sought and that the revision was nearly completed. See Transcript of Commission Meeting, November 9, 1982 at 133,142,143. As with the original plans, the revised plans were developed solely by the state Department of Agriculture. The acceptability of the plans to the local farmers was not determined.

The Appeal Board's advise, that the Commonwealth seek the advice of local farmers and veterinarians, was sound. A rationale on which the Commission's new emergency planning rules were based is that "adequate protective actions in response to actual or anticipated conditions can and will be taken." See Federal Register/Vol. 45, No. 162/55403 (Rationale).

2. The brochure does not provide specific information for the farmers' self-protection, contrary to the Appeal Board's recommendation.

The options for self-protection are described under the headings "HOW WILL I KNOW WHAT TO DO?" and "WHAT PROTECTIVE ACTIONS CAN BE TAKEN?" The lack of specific protective actions can best be noted by referring to these sections of the brochure (Attachment 1). The only recommended actions are that the farmers should listen to the Emergency Broadcast System announcements and if "Take Shelter" or "Evacuation" advisories are given, should contact their county Emergency Management Agency.

Easily provided specifics, as telephone number(s) of the county emergency management agencies are not included. Nor is the location of the distribution point for dosimetry and medication. Information on the use of dosimetry and potassium iodide is not provided.

The brochure does not even provide any specific information on "how" to protect livestock and poultry (although that is its stated objective). See Attachment 1, Brochure under Purpose of this Booklet. Only guidelines are provided concerning shielding characteristics of various kinds of shelters and minimum space, food and water requirements for maintenance of various kinds of livestock. See Id. The "how" is left to the farmer's imagination and initiative.

The lack of specific information for self-protection and protection of livestock is unconscionable. The Appeal Board was clear in its recommendations concerning the type of information the Commonwealth should provide, and the degree of specificity. See ALAB-697 at 26 (Footnote 29), 28 (Footnote 31). The Appeal Board provided examples. For instance, it suggested that farmers be reminded of the use of the "weathervane to determine the best time to tend to their livestock" and "told to use protective clothing and use wet cloths as a means of respiratory protection." The Appeal Board stated, "We strongly recommend that protective information specific to farmers be developed and distributed." Id. at 29. The Appeal Board was concerned "that neither the PEMA pamphlet nor the Commonwealth's Department of Agriculture plan contains specific instructions on self-protection for those farmers who remain on the farm or return to care for their livestock." Id. at 28.

3. The brochure does not provide adequate information to initiate farmers' planning.

The brochure promotes complacency. The brochure attempts to 'downplay' the significance of the brochure, beginning with the title. It is deceptive to use the word "Incidents" in the title to describe the kind of situation at the plant which would make protective actions necessary. The purpose of the brochure was to educate the farmers concerning protective actions necessary in the event of serious accidents.

The information concerning the effects of radiation is inaccurate, again on the side of understatement. It asserts that "Beta particles have a low penetration ability and are stopped by things such as a layer of skin, a sheet of plastic or a piece of wood." This does not provide a warning that Beta particles can be inhaled with serious consequences and skin exposure can be serious.³

Further inaccurate impressions are created by the introduction of the brochure. It likens an explosion at a nuclear power plant to a boiler explosion and implies that any resultant release of ionizing radiation would never reach the level of risk of an atomic bomb explosion, all of which is utter poppy-cock. However, the farmer is unlikely to question the reliability of information provided by state authorities in matters about which he has little knowledge or familiarity. The farmer can be misled to believe that the hazards from a nuclear power plant accident will always be less significant than it potentially can be. Such a perception would affect the farmer's willingness to take any actions other than remaining and pursuing his daily activities.

^{3/} According to the Environmental Protection Agency, Beta particles would have the greatest effect on the performance of livestock. See Attachment 3.

The guidelines, relative to sheltering, are also not conducive to planning or to taking action. What kind of action can result from the following conflicting recommendations?

"DO NOT USE FANS FOR VENTILATION."

"If you must (use fans), plan to set them to low speed to reduce air intake."

(A table is provided which lists expert opinion (presumably) of minimum ventilation requirements for various kinds and sizes of livestock, and following this:)

"Ventilation needs are the judgement of the herdsmen."

"Remember, it is better to have some radioactive contamination than losses from overcrowding, heat and poor ventilation."

A farmer will simply ignore such whimsical information. He has his fans presently set according to his best judgement.

4. Are the plans adequate?

No, the plans are still inadequate.

The obstacles which the farmers must overcome in order to obtain dosimetry and medication will place these protective devices out of his reach during an emergency. Consider the complexity of the instructions in view of the farmer's remote location and multiple responsibilities. After an emergency is announced, the farmers are to contact the county emergency management agency to find out where a distribution center is located, travel there, fill out forms and learn how to use the dosimetry and potassium iodide. There would be no opportunity for the farmers to obtain medical advice and tests relative to allergic reaction to potassium iodide. In the event of allergy, the farmer's health would be in jeopardy, in his remote location, far from medical assistance.

4/ Farmers should be factored into emergency drills. NRC could then determine whether farmers can and will function as emergency workers to protect the food supply.

The only farmer-critique we have in-hand is letter of Joan and Jeremiah Fisher to the NRC and provided with Attachment 2. The Fishers are highly critical of the brochure. They do not know how they would restrain animals whose feed and water are reduced below the amount regularly provided. They do not feel that their economic situation, or that of other farmers in the area, would allow diversion of resources to long range planning to protect livestock from dangers posed by operation of TMI-1. They are concerned that the proposed plans for reduction of ventilation, feed and water are unworkable because of the great risk to the animals' health, productivity and safety, perhaps unnecessarily and, we would add, without compensation.

The Fishers' comments can reasonably be assumed to represent the farmers in the area. The Fishers have farmed in the TMI area all of their lives and live within three miles of the plant. See Lytle, et al. Tr. 18749. The criticisms of the other farmers and veterinarians who testified in the hearing were similar to the Fishers' criticisms of the revised plans. This is not surprising since the Commonwealth's original and revised plans are remarkably similar.

The emphasis of the revised plans is the protection of livestock contrary to the Appeal Board's request that the Commonwealth improve and provide specific actions for farmers' self-protection. NRC rules and regulations place protection of human life above the protection of livestock and other property. Federal Register/Vol. 45, No. 162 55406-7.

The revised plans are silent concerning substitute care of livestock that would facilitate the evacuation of farmers and their families and provide no information concerning the procedures that the Commonwealth asserted during the hearing the farmers must follow in order to

evacuate with their livestock. See ALAB-697 at 24,25; Tr. 18,514(VanBuskirk).

The testimony of the agricultural witnesses was clear that the farmers' willingness to evacuate would depend on the availability of means to care for their livestock. Tr. 18,728 (Lyle); Tr. 18,730 (V. Fisher); See ALAB -697 at 22(Footnote 26).

5. All agencies responsible for the farmers' emergency planning as well as the Commonwealth of Pennsylvania have failed to accept their responsibility.

The NRC, FEMA and PEMA have not accepted their responsibility to see that adequate plans are in place for the farmers in the TMI area. This conclusion is readily reached by reading the correspondence from the NRC, FEMA and USDA to the Fishers. See Attachment 2. The NRC forwarded the Fishers' letter to FEMA whom NRC considered had been "given the responsibility for assessing the adequacy of offsite (i.e., state and local) emergency preparedness for nuclear power facilities." See Dec. 6, 1983 letter, DeYoung to Fishers. However, FEMA forwarded the Fisher letter to the U. S. Department of Agriculture (USDA) because this agency had "the expertise to deal with detailed guidance for farmers". See Dec. 23, 1983, FEMA letter to Fishers. USDA responded by forwarding the matter to the Pennsylvania Emergency Management Agency (PEMA) in Harrisburg. The Fishers, to date, have received no response from PEMA or the Pennsylvania Department of Agriculture nearly two months after they were contacted by USDA on the Fishers' behalf. NRC continues to assert (See Kammerer to Goodling, Attachment 5) that the Fishers' and other farmers' concerns are the rightful responsibility of FEMA. The NRC states that it lacks the expertise to assess adequacy of planning for farmers. Id. This, we find, unacceptable since the

new emergency rules clearly state that emergency planning must be sensitive to local populations and the adequacy of the plans is the joint responsibility of the NRC and FEMA. NRC is to review FEMA findings and determinations on the adequacy and capability of implementation of State and local plans. Federal register/Vol. 45, No.162/554409;554406. The rules state, "In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on a question of adequacy." Part 50.47. The Kammerer assertion of NRC lack of expertise relative to the plans for the special population of farmers is, therefore, new evidence which calls into question the NRC's findings and ALAB-697.

The Commonwealth's assumption of responsibility for determining the adequacy of the farmers' emergency plans was a gross error. See 3-8 infra. Such a delegation of authority to the Commonwealth is contrary to NRC rules and regulations, and in view of the Commonwealth's performance,
5
a mistake in judgement.

Conclusions

The Appeal Board has grossly erred in considering the matter of emergency planning for farmers resolved by the Commonwealth's promise to develop revised plans and the condition that these plans, not accessed by FEMA or the NRC, be distributed to farmers in the 10 mile EPZ of TMI.

5/ In fact, the Commonwealth appears to have deliberately misled the Appeal Board into believing that significant revisions would be made to the original plans. See ALAB-697 at 27,28(Footnote 30), 29,30. We view the Commonwealth's withdrawal of its obviously-faulted plans, prior to the Appeal Board's decision, as nothing more than legal strategy to avoid an unfavorable decision. See Transcript, June 24, 1982, Arguments before the Appeal Board, at 92: Buck: "I think I have looked carefully through the Commonwealth Exhibit 2A, as massive and confused as it is. And I wish the Commonwealth were here today because I do have a quarrel with that."


The brochure distributed to the farmers in June 1983 was not revised in the areas of the Appeal Board's concern, which was that specific information for the farmers' self-protection be provided. The brochure will mislead the farmers concerning the importance of adequate planning and makes burdensome recommendations which the farmers can be expected to ignore.

The NRC now claims to have no expertise in order to assess adequacy of plans for farmers despite its responsibility to do so. FEMA continues to assert no responsibility for determining the adequacy of planning for farmers.

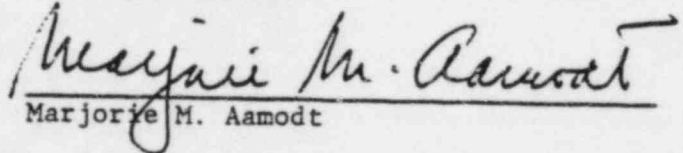
MOTION

We motion the Appeal Board to reconsider its decision relative to emergency planning for farmers.

Respectfully submitted,



Norman O. Aamodt



Marjorie M. Aamodt

March 7, 1984

ATTACHMENT 1

Farmers Emergency Information Brochure

"WHAT YOU SHOULD KNOW ABOUT NUCLEAR POWER PLANT INCIDENTS"

Farmers Emergency Information

**WHAT YOU SHOULD
KNOW ABOUT
NUCLEAR POWER
PLANT INCIDENTS**



Commonwealth of Pennsylvania
Pennsylvania Department of Agriculture
2301 North Cameron Street
Harrisburg, Pennsylvania

(*underlining added*)



Dear Farmer,

This booklet contains general information on the needs and care of animals and specific information on what you may be asked to do if an incident should occur at Three Mile Island Nuclear Power Station.

The protective actions outlined in this booklet are supported by state, county and municipal emergency plans.

The likelihood of a serious accident at a nuclear power plant is small, but it can happen. A popular misconception is that a nuclear reactor could explode like an atomic bomb in the event of a nuclear accident. The fact is that nuclear reactors are designed so that it is impossible for them to explode like an atomic bomb. If an explosion would occur because of a malfunction in the reactor, it would have the same effect as a boiler exploding. The most probable hazard from a nuclear reactor accident is exposure to ionizing radiation.

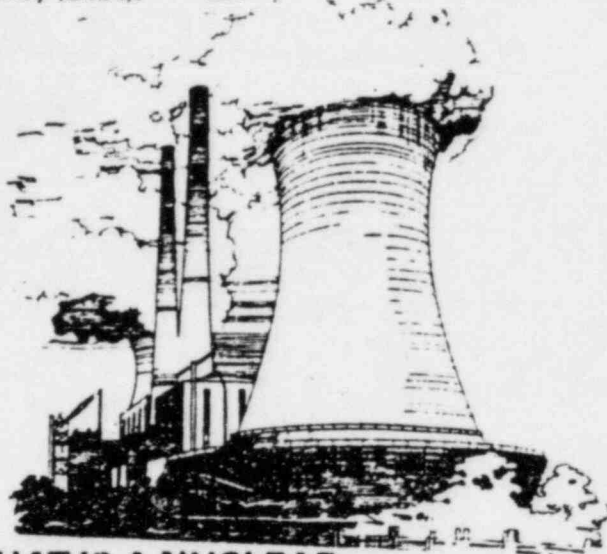
Please read this booklet carefully and discuss the information with your family. Keep it in a convenient place for future use.

Remember, it is important that you know the alert system. If an emergency occurs, turn your radio or TV on and respond quickly but calmly.

Penrose Hallowell
Secretary of Agriculture

PURPOSE OF THIS BOOKLET

This booklet provides information to farmers and livestock owners on how to protect livestock and poultry should a nuclear power plant incident occur. It supplements the emergency information given in "What You Should Know About Nuclear Power Plant Incidents," developed by the Commonwealth of Pennsylvania for people living near nuclear power plants. This booklet also supplements information supplied by the county Emergency Management Agency (EMA).



WHAT IS A NUCLEAR POWER PLANT INCIDENT?

The most frequently thought of nuclear power plant incident is the abnormal release of radioactive material by a nuclear power plant. But a nuclear power plant incident may not involve an active release of radiation.

Nuclear radiation is energy in the form of invisible particles or rays that are given off by radioactive materials. There are three general types of radiation; Alpha particles, Beta particles and Gamma Rays. Alpha particles offer little hazard unless the radioactive material is ingested or inhaled. Beta particles have a low penetration ability and are stopped by things such as a layer of skin, a sheet of plastic or a piece of wood. Gamma Rays are identical to X-rays and can easily penetrate low density materials. The radioactive materials having the greatest impact on agriculture are the radioiodines. Radioactive iodine is important because of its abundance in a reactor and its affinity for the pasture-cow-milk-food chain.

Accidents not requiring protective action by the general public may still require removal of dairy cattle and/or feed from the contaminated area.

HOW IS RADIATION DETECTED?

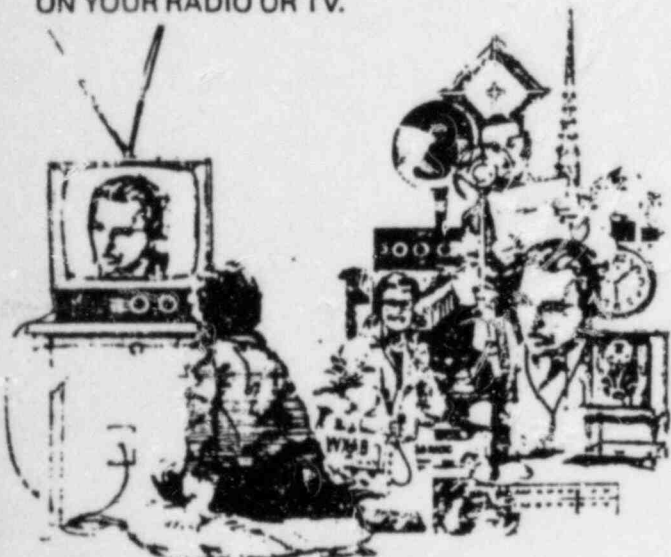
Radiation cannot be detected through any human senses, but it can be detected by special instruments. Experts use these instruments to continually monitor radiation levels around nuclear power plants. If a nuclear incident does occur, monitoring will be increased and accurate information will be gathered for potentially affected areas.

The amount of radiation in an area is measured by radiation dose, called a Rem. The Rem, based on effects of radiation on the human body, is essentially the same as the unit measurement for X-rays. Millirem, commonly heard, is one-thousandth (1/1000) of a Rem.

HOW WILL YOU LEARN OF A NUCLEAR INCIDENT?

If protective measures are required, the standard "Alert Signal" will be sounded over a siren system installed within a ten-mile radius of all nuclear power plants. The "Alert Signal" is a steady three to five minute tone — not a wailing or warbling sound. The "Alert Signal" means people within hearing distance should tune to their local TV or Radio Emergency Broadcast Station. A message will be broadcast advising the action to be taken. To make sure everyone "gets the word," the emergency broadcast message will be repeated frequently. State and or local municipal police, fire departments and other agencies will carry the message. Sound trucks, bull horns and door to door contacts will be made.

REMEMBER: If the "Alert Signal" is heard, TURN ON YOUR RADIO OR TV.



HOW WILL I KNOW WHAT TO DO?

Each county EMA has established a "Contact and Dosimetry KI Distribution Point for Farmers," at a location easily accessible and known. At the time of the emergency, Emergency Broadcast System (EBS) Announcements will direct farmers to report to the designated location. At the location, farmers will receive dosimeters, potassium iodide (KI) and a "Pass" enabling them to exit and re-enter the contaminated area. A dosimeter is a pen or card shaped device used to measure accumulated radiation exposure. Potassium iodide (KI) is a drug that offers some protection to the thyroid gland from injury due to an accumulation of radioactive iodide. The "pass" will consist of a "Farmer Emergency Worker Certification" form filled out by each farmer. The original serves as his "pass."

Farmers will also be given information at the distribution point on the use of dosimeters, what the readings mean, what the KI is for and, how and when to use it. Any questions will be answered at the distribution point. *Why not now?*

Farmers should be aware of the Food and Drug Administration's (FDA) protective action guidelines. These are not regulations, but are recommended guidelines for farmers and emergency workers. According to the guidelines, projected radiation dosage should not exceed 5 Rem for the whole body. Dosimeters and calculations are used to determine the radiation dose. Farmers will receive help at the distribution point on their calculations.

Emergency workers from the Pennsylvania Department of Agriculture will be available to collect field samples of milk, livestock forage, feed, and water for laboratory analysis. Contamination levels and appropriate health related advisories will be issued. *who*

WHAT PROTECTIVE ACTIONS CAN BE TAKEN?

There are two simple and effective steps that can be taken in a nuclear power plant incident.

One step is taking cover or shelter; go indoors. Take shelter is the action usually taken if a small puff of radiation rises from a nuclear plant and moves swiftly away. Farmers hearing a "Take Shelter" advisory should take shelter themselves and if time permits, shelter animals and provide uncontaminated feed and water.

Another step is evacuation. Evacuation is recommended if there is a possibility of, or if large amounts of radiation have escaped from the plant. Farmers

hearing an "Evacuation" advisory should shelter their animals if enough advance warning is given. Sheltering gives some protection from airborne radioactive particles and makes it easier to supply feed and water without contamination.

Farmers affected by a "Take Shelter" or "Evacuation" advisory should contact their county Emergency Management Agency (EMA) as directed by the Emergency Broadcast System (EBS).

The basic objective of protective actions is to reduce the amount of radiation received by the farmer and his livestock. Farm operators near a nuclear power plant should take advantage of all their resources, plan ahead for adequate livestock shelter, ventilation and protection of feed and water. Poor ventilation or lack of water can harm animals just as readily, if not more so, than radiation.

WHAT TYPE OF SHELTER SHOULD BE USED?

Sheltered animals are protected from potentially contaminated air and radioactive materials which are deposited as the radioactive cloud passes. Livestock housed in farm buildings can receive some protection from direct radiation exposure.

Plan ahead for shelter by deciding which buildings offer the greatest protection. Barns, milking parlors, machine sheds, garages, corn cribs and swine or poultry buildings are all possible livestock shelters. Some buildings offer greater protection than others depending on their construction:

PROTECTION OFFERED BY COMMON FARM BUILDINGS

Percent of outside radiation received by animals inside the building

| | Type of Building |
|---------|--|
| 5-10 | Large dams, concrete or masonry |
| 20 | Multi-story poultry houses, masonry |
| 20-40 | Large frame buildings |
| 20-40 | Full masonry or concrete block hoghouse |
| 30-50 | Conventional frame barns |
| 30-90 | Other poultry houses |
| 50 | Conventional hoghouse (part concrete) |
| → 60-80 | Pole barns, loafing sheds, stock confined under roof |

HOW MUCH SPACE IS REQUIRED IN THE SHELTER?

Decide how many animals need shelter and determine priorities for sheltering stock. Providing shelter and care for all livestock is usually impractical and impossible. Plan to give dairy cows and best breeding stock the most protected areas. If an evacuation is called and there is time, place the calves, especially newborns, with valuable lactating cows. Try to milk all cows BEFORE evacuating. The following chart can help determine space requirements.

SPACE REQUIREMENTS FOR LIVESTOCK IN CLOSED BUILDINGS

| Dairy Cows | Cow in Production | Dry Cow | Weaning Calves |
|---------------------------|-------------------|-----------------|--------------------|
| 20 cows or less | .30 square feet | | |
| 21 cows or more | .50 square feet | | |
| 5 cows or less | | .20 square feet | |
| calves up to 6 months | | | .15-20 square feet |
| calves 6 months to 1 year | | | .20-30 square feet |

| Beef Cows | |
|---------------------------|--------------------|
| Beef cow with calf | .150 square feet |
| Beef cow dry | .50 square feet |
| Weaning calves | |
| calves up to 6 months | .15-25 square feet |
| calves 6 months to 1 year | .20-30 square feet |

| Sheep | |
|---------------|-----------------|
| Ewe with lamb | .32 square feet |
| Ewe, dry | .16 square feet |
| Weaning lamb | .16 square feet |

| Swine | |
|-----------------------|-----------------|
| Brood sow with litter | .40 square feet |
| Brood sow, dry | .15 square feet |
| Weaning pigs | .10 square feet |
| Fattening Hogs | |
| 100 pounds | .4 square feet |
| 200 pounds | .6 square feet |

| Poultry | |
|-------------|-------------------------|
| Laying hens | .2 square feet per bird |
| Boilers | .6 square feet per bird |
| Turkeys | .4 square feet per bird |

WHAT ABOUT VENTILATION?

A primary limiting factor in sheltering livestock is ventilation. Listen to your Emergency Broadcasting System (EBS) announcements to obtain information on radiation exposure conditions.

Livestock confined in a roofed building and being fed uncontaminated feed and water will still be exposed to radiation from contaminated air entering the building. Therefore, outside air entering the building should be kept to a minimum.

DO NOT USE FANS FOR VENTILATION. If you must, plan to set them on low speed to reduce the air intake.

RECOMMENDED VENTILATION IN ANIMAL SHELTERS

| Animal | Cubic Feet Minute/ Animal Winter | Cubic Feet Minute/ Animal Summer |
|-----------------|--|--|
| Cattle | | |
| 400 pound calf | 30 | 80 |
| 800 pound dairy | 70 | 200 |
| 1000 pound | 100 | 225 |
| 1600 pound | 130 | 300 |
| Hen | $\frac{1}{2}$ | 6 |
| Sheep | | |
| Nursing ewe | 10 | 30 |
| 60 pound lamb | 7 | 20 |
| Swine | | |
| Sow and litter | 50 | 100 |
| 100 pound hog | 15 | 40 |
| 200 pound hog | 25 | 75 |

Ventilation needs are the judgement of the herdsmen. Remember, it is better to have some radioactive contamination than losses from overcrowding, heat and poor ventilation.

WHAT ABOUT FEED AND WATER FOR ANIMALS?

Plan to protect feed and water from radioactive contaminants. If animals ingest contaminated feed and water, they will be exposed to internal radiation. Give animals uncontaminated feed and water until questionable samples have been analyzed and determined safe.

Feed stored in buildings is protected from contamination. Feed stored outside can be protected by placing plastic or canvas covering over it as soon as warning of an incident is heard.

The animals' most crucial need is safe water, even more so than feed. Water from a covered or deep well or running spring is safe for livestock.

Livestock care and maintenance may not be possible for the first 48 hours after an evacuation advisory.

For this reason; the farmer should plan to provide a minimum emergency supply of water and withhold feed until care is possible. The lack of feed will help reduce the need for water. Decreased water intake will help reduce milk flow.

After the first 48 hours or more, feed livestock one-half their normal feed for a day; gradually increase the amount by one pound a day per animal until they are back to their normal rations.

Animals can survive on the following minimum

rations and water for several months. Additional protein will be needed to build tissues.

| DAIRY COWS | WATER/DAY | FEED/DAY |
|-------------------------|--|----------------------------|
| In Production | 9 gallons summer 7 $\frac{1}{2}$ gallons winter | 20 pounds hay |
| Dry cows | 9 gallons summer 7 $\frac{1}{2}$ gallons winter | 20 pounds hay |
| Weaning calves | 6 gallons summer 3 gallons winter | 8-12 pounds hay |
| Cow (pregnant) | 7 gallons summer 6 gallons winter | 10-15 pounds of legume hay |
| Cow with calf | 9 gallons summer 8 gallons winter | 12-18 pounds of legume hay |
| Calf (400 pounds) | 6 gallons summer 4 gallons winter | 8-12 pounds of legume hay |
| Swine | | |
| Brood sow with litter | 4 gallons summer 3 gallons winter | 8 pounds grain |
| Brood sow (pregnant) | 1-2 gallons summer 1 gallon winter | 2 pounds grain |
| 150 pound gilt or board | 1 gallon | 3 pounds grain |
| Sheep | | |
| Ewe with lamb | 4 quarts | 6 pounds hay |
| Ewe, dry | 3 quarts | 3 pounds hay |
| Weaning lamb | 2 quarts | 3 pounds hay |
| Poultry | | |
| Layers | 5 gallons/100 birds | 17 lbs/100 birds |
| Broilers | 5 gallons/100 birds | 10 lbs/100 birds |
| Turkeys | 12 gallons/100 birds | 40 lbs/100 birds |

Farmers should make plans to protect their animals BEFORE an actual nuclear power plant emergency occurs. Farmers are advised to gather as much information as possible to determine the best method for protecting livestock should an incident occur.



WHAT ABOUT CROPS & FOOD?

Protective actions for crops, fresh fruits and vegetables and other food products depends on when the contamination occurs as well as the type of crop.

Contamination just before or during harvest time requires washing or peeling of fresh fruits and most vegetables before consumption. Root vegetables are protected by the soil. Wait to harvest them until determined safe by authorities.

Contamination of field crops at harvest time can be minimized through storage. Radioactive decay will reduce contamination of field crops with time.

Other foods may also be canned or frozen to allow time for radioactive decay.



At other periods in the growing cycle, effects of contamination should be limited depending on the length of time before harvest.

Further information on protective actions for crops and food products will be available through the Emergency Broadcast System (EBS).

SUMMARY

The basic principles of protecting livestock (and people) against radiation are easy to apply. The objective is to reduce the total exposure to radiation.

IF AN ACCIDENT OCCURS:

Siren alert systems will signal the public in the vicinity of a nuclear reactor that a problem has occurred. Turn on your radio or television for more information.

Emergency Broadcast System announcements (radio and or television) will provide instructions or directions to the public. Public information statements will be issued over the same system.

Two primary protection action options for the general public are sheltering and evacuation. It is important that you respond quickly but calmly when notified that any protective action should be taken.

Lactating dairy cows should be removed from pasture to protect milk supply. Animals should be given uncontaminated feed and water. Feed stored in buildings is protected from contamination. Water from a covered well or running spring is safe for animals.

Sheltered animals receive some protection from radiation exposure.

A limiting factor in protecting livestock is ventilation. It is better to have some radioactive contamination than losses from over crowding, heat and poor ventilation.

Milk and other food products produced in the area of contamination will be tested by an appropriate agency. Their advice should be followed.

Farmers affected by an "Evacuation" advisory should contact their county Emergency Management Agency to receive dosimeters, potassium iodide and a pass to enable them to care for their livestock.

Good judgement and a cool head will be helpful in protecting the Agricultural Community in the event of a nuclear reactor accident.



ATTACHMENT 2

January 23, 1984 Memorandum, Jane Lee to Commissioners

October 15, 1983 Letter, Mr. and Mrs. Jeremiah Fisher to NRC

December 6, 1983 Letter, Richard C. De Young to Fishers

December 23, 1983 Letter, FEMA to Fishers

IMPORTANT

January 23, 1984

Memorandum For: Chairman Palladino
Commissioner Gilinsky
Commissioner Asselstine
Commissioner Bernthal
Commissioner Roberts

From: Jane Lee

Subject: FARMERS' EMERGENCY INFORMATION PAMPHLET/ RESTART
CERTIFICATION ITEM NUMBER 149

Enclosed correspondence from the NRC, FEMA and the Food Safety & Inspection Service were generated out of a letter originating from Jeremiah & Joan Fisher who own and operate a dairy farm in Etters, PA

After numerous pieces of correspondence, Mr. & Mrs. Fisher turned the matter over to me (Jane Lee) and requested that I contact the appropriate Government Agency to seek adequate redress on the questions they raised concerning farm evacuation.

Despite numerous reservations and discrepancies pointed out by the Fishers and that this plan was unworkable and unacceptable, John F. Stolz, Chief Operating Reactors Branch #4 Division of Licensing, wrote to Henry Hukill, Vice Pres. & Director of TMI 1, notifying him: "We therefore consider this restart certification (FEMA Agric. Pamphlet) item to be complete." (Nov. 22. 83)

FEMA's testimony before the Licensing Board assured the Board they would be responsible for farm evacuation. We now witness, with their own signature, that the buck has been passed to the Food Safety & Inspection Service and for all we know may ultimately end up in the Bureau of Transportation or Turtle Research.

Obviously we are witnessing another break in the chain of command within the NRC. This requires immediate attention and correction by the NRC Commissioners.

The entire issue of incompetence surrounding this recent event merely substantiates our continued uneasiness about a viable evacuation plan on any level. There is no doubt should these evacuation plans require mobilization in the near future, the Commissioners will be confronted with their greatest embarrassment to date.

May we suggest that the Commissioners seek out those who work, operate and invest in farms what is a viable evacuation plan and indeed, is it a workable plan.

(underlining added)

It is an absurdity when the average citizen is compelled to scrutinize government documents almost daily within one bureaucratic agency and correspondence becomes a weekly endeavor at full-time capacity because of incompetent Staff, all of which are salaried by the same citizens who must do their work without remuneration.

We would appreciate immediate and corrective action on the Farmers' Evacuation Plan and who is responsible for implementing the plan.


Jane Lee

Enclosures: 5

cc: Rep. Morris Udall
Rep. Richard Ottinger
Rep. William Goodling
Rep. Peter W. Rodino, Jr.
Rep. Edward Markley
Rep. Robert S. Walker
Rep. Robert W. Edgar

Sen. Arlen Specter
Sen. H. John Heinz III
Sen. William Bradley

State Rep. Bruce Smith

October 15, 1983

Nuclear Regulatory Commission
1717 H. Street, N.W.
Washington, DC 20555

Gentlemen:

Several months ago we received a brochure from the Pennsylvania Dept. of Agriculture on Emergency Preparedness. This particular brochure was for farmers only. (see enclosure)

It is obvious from the start that the success of these proposals requires intense cooperation between farmers and agriculture personnel willing to forfeit their health and safety for the survival of animals.

The farmers are told to contact their county Emergency Management Agency in the event of a nuclear mishap. However, it does not specify a particular office, telephone number or person(s) who will be responsible for this endeavor. Even if such were the case, to expect 400 to 500 farmers to call at one office simultaneously is a bizarre expectation.

The idea that farmers are expected to run to the fields in the middle of a nuclear accident to bring reluctant cattle to shelters at irregular schedules, day or night, under questionable weather conditions thus placing themselves in jeopardy, is just too ludicrous to imagine.

To suggest, as the Agriculture ^{Dept.}/has, that farmers should make long-range plans on alternate uncontaminated feed and water supplies, extends additional burdens on an industry that is already on the brink of extinction due to high interest rates, inflation and low returns on their products. This type of investment is an unreasonable request and is unacceptable to farmers.

To instruct farmers "NOT TO USE FANS FOR VENTILATION" reveals how little the Pennsylvania Agriculture understands about farm operations.

Commercial chicken operations house chickens in very large enclosed buildings. Ventilation systems are operated by out-take fans or air conditioned units with thermostatic controls. Chickens are highly susceptible to high temperatures and will die very quickly. Cows generate enormous levels of heat thereby requiring constant ventilation. Without ventilation these animals will encounter physical problems that may lead to death.

The request that farmers cut back on feed rations and water may sound reasonable to people but to livestock, this is nonsense. Animals, especially large ones where restraints are only effective when the animal is well fed, begin to become restless and bellow in protest. Should the feeding procedure continue, they would break their tethers and bedlam would ensue.

Contemporary farm procedures where the use of open stalls has become the norm, is given little or no consideration in the event of emergency evacuation.

In the event of a nuclear accident, open-stall operations would have no protection from radioactive releases into the atmosphere.

The Pennsylvania Agriculture Dept. describes gamma rays as the same as x-rays but fails to relate that the difference between x-rays and gamma rays released from a nuclear power plant is that hospital x-rays are under controlled situations whereas gamma rays from a nuclear accident, are uncontrolled and deliver whole-body doses. All gamma rays...hospital and radioactive releases are cumulative. The Agriculture Dept. also failed to warn the farmers about radioactive particulates such as strontium 90 which enters the body as calcium and lodges in the bones...or cesium which seeks the muscles and reproductive organs. The list of radioactive particulates is long.

The generous advice given to farmers about emergency evacuation and preparing them for the inevitable accident by expending their own monetary resources while the Commonwealth of PA hasn't taken the first step in handing out the promised dosimeters, potassium iodide tablets and the passes for farmers so they may gain entrance or exits into and out of contaminated areas (if anyone should be foolish enough to want a pass) or even holding a "live" evacuation of all citizens, is the supreme insult. Can anyone seriously believe that any of these proposals will or can be applied in the event of another accident at TMI?

Our advice to the nuclear industry, who gave us such glowing reports about how cheap, clean and safe nuclear power was prior to the accident and who now make admissions about all manner of releases and that after all we must expect these cost/benefit events in our modern society is: The costs to our health and safety, the costs to our peace of mind, the cost in electric service to the ratepayers, the costs to the states for Emergency Management, the costs for evacuation and the costs for the depreciation on our homes and farms is above and beyond what any rational person could consider reasonable or acceptable. All this just to boil water!

Sincerely,

Jeremiah K. Fisher
Joan S. Fisher

Jeremiah K. Fisher

Joan S. Fisher

CC: Commonwealth of Penna
enclosure (Farmers Brochure)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DEC 6 1983

Jeremiah K. Fisher
Joan S. Fisher
183 Valley Road
Etters, Pennsylvania 17319

Dear Jeremiah and Joan Fisher:

This is in response to your letter to the Nuclear Regulatory Commission of October 15, 1983, in which you expressed concern over the effectiveness of the guidance contained in the emergency information brochure for farmers titled, "What You Should Know About Nuclear Power Plant Incidents," prepared by the Pennsylvania Department of Agriculture. Your comments have significant merit, and we have forwarded them to the Federal Emergency Management Agency (FEMA) for their consideration. Following the accident at Three Mile Island, President Carter directed that FEMA be given the responsibility for assessing the adequacy of offsite (i.e., State and local) emergency preparedness for nuclear power facilities. The Nuclear Regulatory Commission (NRC) is responsible for onsite emergency preparedness and has the final licensing authority.

Although the emphasis in emergency planning is providing protection for people, NRC and FEMA are sensitive to the special needs of farmers. A considerable amount of attention was devoted to this subject during the public hearing concerning the restart of TMI Unit 1. The preparation and distribution of the current Pennsylvania Department of Agriculture brochure was a direct result of this hearing process. The primary purpose of the brochure is to provide basic planning information to farmers on what to do in the event of a radiological emergency. Like other emergency planning documents, the agricultural brochure is subject to change and revision as more experience is acquired in its usefulness through the conduct of exercises and as comments such as yours are received by the emergency planning organizations. Accordingly, as indicated above, your comments are being forwarded to FEMA for their consideration in the continuing development of emergency response guidance for agricultural interests in the vicinity of nuclear power plants.

I trust that this letter is responsive to your concerns. Thank you for your comments on this important subject.

Sincerely,

A handwritten signature in dark ink, appearing to read "R C DeYoung", is written over the typed name.

Richard C. DeYoung, Director
Office of Inspection and Enforcement



Federal Emergency Management Agency

Washington, D.C. 20472

DEC 23 1983

Jeremiah K. Fisher
Joan S. Fisher
183 Valley Road
Etters, PA 17319

Dear Jeremiah and Joan Fisher:

Your letter of October 15, 1983, expressing concern over the guidance provided in a brochure by the Pennsylvania Department of Agriculture ("What You Should Know About Nuclear Power Plant Accidents") has been forwarded to this office.

While the Federal Emergency Management Agency (FEMA) is charged with general Emergency Planning, the expertise to deal with detailed guidance for farmers resides in the U.S. Department of Agriculture (U.S.D.A.). We are therefore forwarding your letter to the office of Emergency Planning, Food Safety and Inspection Service, U.S.D.A., for their consideration. You should receive a response from them shortly. We regret this unavoidable delay.

Comments such as yours are valuable to emergency planners and we thank you for taking the time to write the Federal Government.

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard W. Krimm", is written over the typed name.

Richard W. Krimm
Assistant Associate Director
Office of Natural and Technological
Hazards Programs



United States
Department of
Agriculture

Food Safety
and Inspection
Service

Washington, D.C.
20250

January 13, 1984

Mr. and Mrs. Jeremiah K. Fisher
183 Valley Road
Etters, Pennsylvania 17319

Dear Mr. and Mrs. Fisher:

This is in further response to your letter of October 15, 1983, to the Nuclear Regulatory Commission concerning the Commonwealth of Pennsylvania Department of Agriculture brochure titled "What You Should Know About Nuclear Power Plant Incidents."

Since the incident at Three Mile Island, the U.S. Department of Agriculture as well as other Federal, and State agencies have placed renewed emphasis on emergency planning for nuclear incidents and have gained significant knowledge and experience in the development of protective actions for residents and property.

The brochure you have read is only a small part of the overall planning and preparedness effort in Pennsylvania. Many of the issues you raised are more fully addressed in the extensive Commonwealth of Pennsylvania, Disaster Operation Plan for Fixed Nuclear Facility Incidents and the York County Radiological Emergency Response Plan for Incidents at the Three Mile Island Nuclear Station, which supplements the Commonwealth Plan.

We have discussed your letter with Mr. John Comey, Press Secretary for the Pennsylvania Emergency Management Agency (PEMA) in Harrisburg. Mr. Comey has indicated that PEMA, in conjunction with the Pennsylvania Department of Agriculture, will provide you with a further response addressing your concerns.

- - -

Sincerely,

George E. Bickerton, Director
Office of Emergency Planning

ATTACHMENT 3

Page 24 from Environmental Protection Agency bulletin
on radiation effects on livestock (further identification unavailable)

months after exposure and would be most pronounced during the winter and in colder climates. Although the effects may be considerable, they would probably not be as severe as those of internal beta radiation exposures. Reduced conception rates could result in fewer offspring in the second year. The effects of the weight and condition of the dam on size and health of the offspring would also be greatest at this time.

As body weight and condition returned toward normal, reproductive efficiency would be less affected. Also, muscular weakness, especially in males, may decrease reproductive efficiency somewhat at a much earlier date. Feeding extra or higher quality feed could prevent weight loss and insure normal reproduction and growth.

Developing young of animals grazing fallout-contaminated pastures could be injured by the accumulation of radioactive iodine in their thyroids. Reproductive performance of such animals could be decreased unless proper therapy was given. Thyroid damage of mature animals could adversely affect reproduction also, but supplemented animals would perform at normal levels.

Work. Draft and pleasure animals (horses and mules) surviving gamma ray exposures in the LD₅₀ range could show decreased work performance while sickness was apparent but, thereafter, little effect would be seen. Exposures of gamma and external beta radiation could be followed by instances of decreased ability to work within a few weeks (due to muscular weakness), and as effects on body weight and condition became apparent work efficiency could drop to a low point 8 to 10 months after exposure. These effects would be more noticeable in cold weather. Large areas of skin damage could make it impossible to harness or saddle the animals. As the areas heal and body weight returns toward normal, work performance would increase. Animals receiving exposures con-

sisting of gamma, internal beta, and possibly external beta radiation could show decreased performance within a short time. Decreased ability would be related to body weight losses and tissue destruction and repair. Performance over the first year could be well below normal. As the damage healed and weight was regained strength would increase to near normal levels.

Genetics and longevity. There is a common belief that irradiated individuals will produce offspring with genetic abnormalities. This may be technically correct; however, *there is little or no evidence to support the contention that transmission of economically or functionally undesirable traits due to radiation-induced changes in the germ cells of livestock will be a problem after an attack.* Animals showing gross abnormalities of the skeleton due to radiation exposures during development conceive and bear normal offspring (Figure 14). In addition, cattle surviving gamma or gamma plus external beta exposures produce normal offspring (Figure 12). The same is true for exposed bulls and boars.

The longevity of farm animals is directly related to their productivity; the more productive animals stay in the herd the longest. To the extent that exposures affected productivity of livestock, they would affect actual lifespan. It is probable that exposures involving combinations of external and internal beta radiation would have the greatest effect because performance may never return to pre-attack levels. On the other hand, the need to increase herd or flock numbers could decrease culling rates and lessen the importance of performance in the selection process. Culling on the basis of health and disease would probably increase, especially in later years, since it appears that survivors would show a slightly increased incidence of complications in later life.

(underlining added)

ATTACHMENT 4

November 22, 1983, Letter, John F. Stolz to Henry Hukill

re distribution of farmers emergency information brochure



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

November 22, 1983

Docket No. 50-289

Mr. Henry D. Hukill, Vice President
and Director - TMI-1
GPU Nuclear Corporation
P. O. Box 480
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

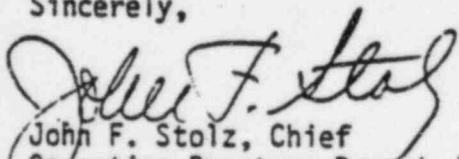
The Atomic Safety and Licensing Appeal Board for the TMI-1 Restart proceeding required in ALAB-697 that agricultural brochures be distributed to all farmers in the 10-mile plume exposure EPZ prior to restart. The staff has been tracking this requirement as restart certification item number 149.

In this respect, the Pennsylvania Department of Agriculture has developed an emergency information brochure titled, "Farmers Emergency Information - What You Should Know About Nuclear Power Plant Incidents." The booklet provides information to farmers and livestock owners on how to protect livestock and poultry should a nuclear power plant incident occur.

Over two thousand copies of the publication were mailed first class to farmers within the 10-mile plume exposure pathway EPZ on June 29, 1983, utilizing mailing lists furnished by the Pennsylvania Department of Agriculture and the local Agriculture Stabilization and Conservation Service (ASCS) offices of the U.S. Department of Agriculture. In addition, supplies of the pamphlet were placed in the county offices of the ASCS, Cooperative Extension Service, Soil Conservation Service, and Emergency Management Agencies of Cumberland, Dauphin, Lancaster, Lebanon and York Counties on July 1, 1983.

The Federal Emergency Management Agency has verified that the agricultural pamphlet has been distributed. We therefore consider this restart certification item to be complete.

Sincerely,


John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

cc: See next page

(underlining added)

ATTACHMENT 5

February 15, 1984, Letter, Carlton Kammerer to Congressman Goodling



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

February 15, 1984

006111 833

The Honorable Bill Goodling
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Goodling:


Thank you for your letter enclosing correspondence from Jane Lee and Jeremiah and Joan Fisher, regarding a brochure for farmers from the Pennsylvania Department of Agriculture.

Mr. and Mrs. Fisher originally wrote to the Nuclear Regulatory Commission with comments on the brochure, "What You Should Know About Nuclear Power Plant Incidents". The NRC does not have the expertise in agriculture to evaluate the substance of the Fishers' comments. However, it is our understanding that these comments were forwarded to the Pennsylvania Department of Agriculture on January 13, 1984 and that the Department would be responding directly to the Fishers.

The brochure was developed and distributed pursuant to a requirement of the Atomic Safety and Licensing Appeal Board for the TMI-1 restart proceeding (restart certification item 149) that such a brochure be distributed to farmers in the vicinity of the plant. The Federal Emergency Management Agency has verified that the agricultural brochures were distributed to all farmers within the 10 mile plume exposure emergency planning zone around Three Mile Island in compliance with this requirement. FEMA has the responsibility for assessing the adequacy of offsite planning.

The primary emphasis in emergency planning is providing protection for people. The primary purpose of the brochure is to provide basic planning information to farmers on what to do in the event of a radiological emergency. Like other emergency planning documents, the brochure for farmers is subject to change and revision as more information is obtained and comments, like those of the Fishers, are received and considered.

Sincerely,


Carlton Kammerer, Director
Office of Congressional Affairs

(underlining added)

This is to certify that the document AAMODT MOTION FOR RECONSIDERATION OF ALAB -697 IN VIEW OF NEW INFORMATION CONCERNING EMERGENCY PLANNING FOR FARMERS was served on the following Service List on March 8, 1984 by deposit in First Class U. S. Mail

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Atomic Safety & Licensing
Appeal Board
U.S. Nuclear Regulatory Comm.
Washington, D. C. 20555

Jane Lee
183 Valley Rd.
Etters, PA 17319

Dr. John H. Buck
Atomic Safety & Licensing
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Robert Edgar, Congressman
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205 Cannon House Office Bldg.
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Att: Richard D. Udell

Docketing & Service Branch
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Dauphin County Office
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