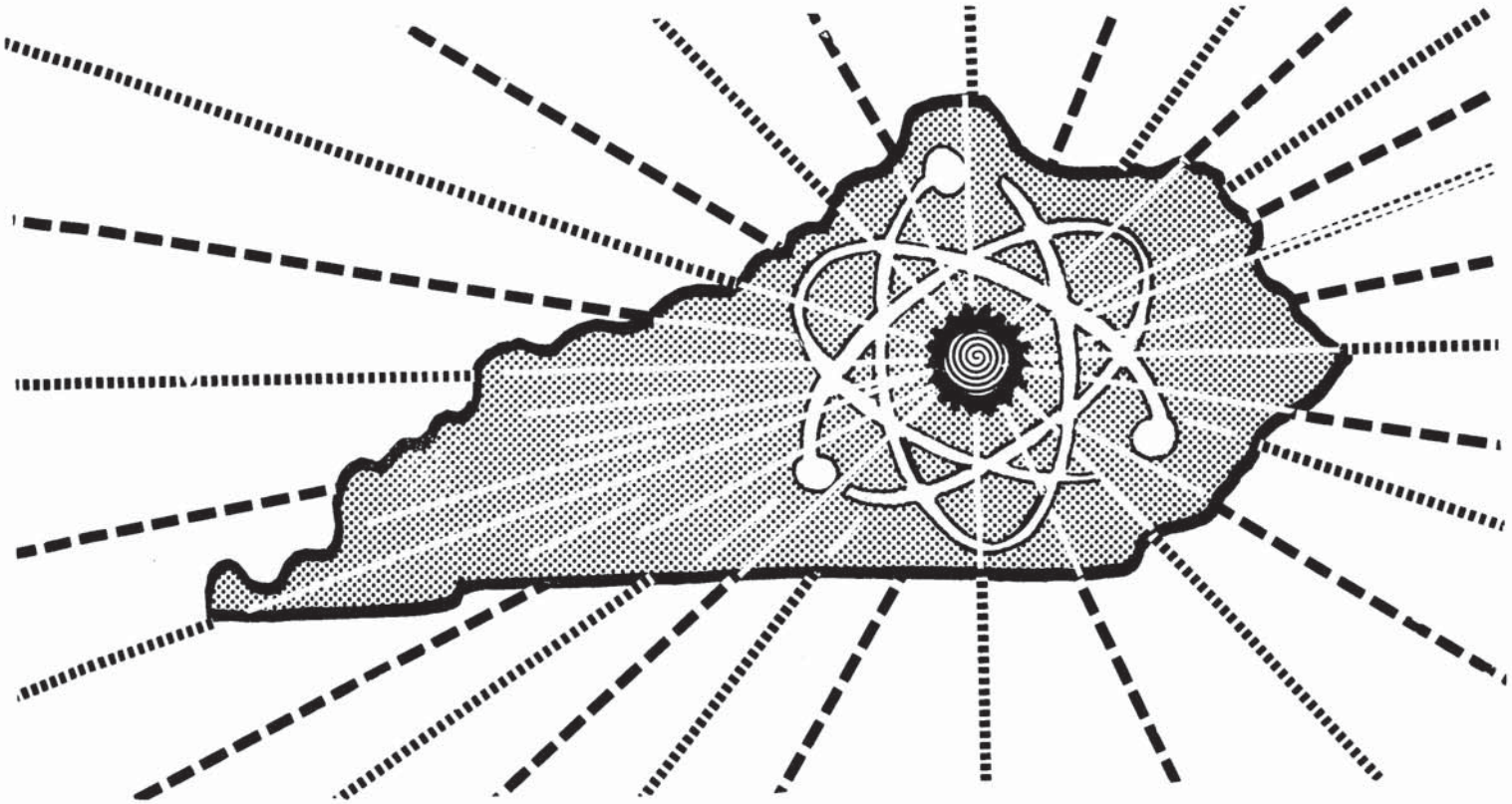
REPORT OF THE SPECIAL ADVISORY COMMITTEE ON NUCLEAR ISSUES

(1980-81 Interim)



RESEARCH REPORT NO. 192

LEGISLATIVE RESEARCH COMMISSION
Frankfort, Kentucky

KENTUCKY LEGISLATIVE RESEARCH COMMISSION

SENATOR JOE PRATHER
President Pro Tem

REPRESENTATIVE BOBBY H. RICHARDSON
Speaker

Chairmen

Senate Members

DELBERT MURPHY
Assistant President Pro Tem

JOE WRIGHT
Majority Floor Leader

EUGENE P. STUART
Minority Floor Leader

DAVID K. KAREM
Majority Caucus Chairman

DOUG MOSELEY
Minority Caucus Chairman

HELEN GARRETT
Majority Whip

CLYDE MIDDLETON
Minority Whip

House Members

DAVID THOMASON
Speaker Pro Tem

JIM LEMASTER
Majority Floor Leader

ARTHUR L. SCHMIDT
Minority Floor Leader

WILLIAM (BILL) DONNERMEYER
Majority Caucus Chairman

HERMAN W. RATTLIFF
Minority Caucus Chairman

JIM DUNN
Majority Whip

WOODY ALLEN
Minority Whip

VIC HELLARD, JR., Director

* * * * * *

The Kentucky Legislative Research Commission is a sixteen-member committee, comprised of the majority and minority leadership of the Kentucky Senate and House of Representatives. Under Chapter 7 of the Kentucky Revised Statutes, the Commission constitutes the administrative office for the Kentucky General Assembly. Its director serves as chief administrative officer of the legislature when it is not in session.

The Commission and its staff, by law and by practice, perform numerous fact-finding and service functions for members of the General Assembly. The Commission provides professional, clerical and other employees required by legislators when the General Assembly is in session and during the interim period between sessions. These employees, in turn, assist committees and individual members in preparing legislation. Other services include conducting studies and investigations, organizing and staffing committee meetings and public hearings, maintaining official legislative records and other reference materials, furnishing information about the legislature to the public, compiling and publishing administrative regulations, administering a legislative intern program, conducting a pre-session orientation conference for legislators, and publishing a daily index of legislative activity during sessions of the General Assembly.

The Commission also is responsible for statute revision, publication and distribution of the **Acts** and **Journals** following sessions of the General Assembly and for maintaining furnishings, equipment and supplies for the legislature.

The Commission functions as Kentucky's Commission on Interstate Cooperation in carrying out the program of the Council of State Governments as it relates to Kentucky.

REPORT OF THE 1980-81

SPECIAL ADVISORY COMMITTEE ON NUCLEAR ISSUES

Representative Pete Worthington, Chairperson
Representative George Plummer, Vice-Chairperson

Senator James P. Bunning
Senator Helen Garrett
Senator John "Eck" Rose
Representative Henry C. "Hank" List
Dr. Terry Devine, Kentucky State University
Mr. John Embry, Sierra Club
Dr. Douglas Humphrey, Western Kentucky University
Mr. Allen Holbrook, Citizens Concerned about Maxey Flats
Mr. Max Schwartz, Citizen Representative
Dr. Hugh T. Spencer, University of Louisville
Ms. Sharon Wilbert, Louisville Board of Aldermen
*Mr. Bobby Wilson, University of Louisville
Dr. Clayton Zerby, Union Carbide

LRC STAFF ASSIGNEES: Peggy Hyland, Charles Hardin, Mary Lynn Collins and Stephanie Kirtley

*Mr. Wilson accepted a position out of state and resigned from the Committee in June, 1981.

This Report was prepared by the Legislative Research Commission and paid for from state funds.

FOREWORD

In the last several years nuclear-related issues facing the General Assembly and the Commonwealth have increased significantly. To deal with these technical areas, the General Assembly has established each session since 1976 a special advisory Committee consisting of legislators and a variety of interested persons knowledgeable and experienced in the nuclear area to maintain oversight and make recommendations between regular sessions of the legislature. The Special Advisory Committee on Nuclear Issues established by the General Assembly to function during the 1980-81 interim examined several topics resulting from federal legislation requiring states to provide for management of the low-level radioactive waste generated within their borders, and the subsequent initiation of interstate compact negotiations for regional low-level nuclear waste disposal. Other issues considered by the Committee revolved around the proliferation of nuclear facilities bordering the Commonwealth and the need to decommission the Maxey Flats low-level nuclear waste disposal site.

The Committee has attempted with this report to summarize its activities, to provide an historical record and to present the General Assembly with data, alternatives and guidelines on which to base its decisions on nuclear-related matters.

Chapter III of this report was drafted by Charles M. Hardin and reviewed and approved by the Committee. The remainder of the report was prepared by Peggy Hyland and Mary Lynn Collins and reviewed by the Committee.

We would like to extend appreciation to the Committee members and to all of those who provided the Committee with the data and input necessary to complete their work.

Vic Hellard, Jr.
Director

The Capitol
Frankfort, Kentucky
January 1982

TABLE OF CONTENTS

PAGE

FOREWORD i
TABLE OF CONTENTS iii
LIST OF TABLES AND FIGURES iv
SUMMARY AND LEGISLATIVE RECOMMENDATIONS v

CHAPTER 1 INTRODUCTION 1

CHAPTER 2 MAXEY FLATS 7
Status of the Site 7
Site Stabilization 7
Decommissioning 10
Health and Safety Issues 12
Financing Long-term Care and Maintenance 15
Federal Grants and Activities at Maxey Flats 15

CHAPTER 3 ALTERNATIVE METHODS FOR THE MANAGEMENT OF KENTUCKY-GENERATED RADIOACTIVE WASTE 21
Background 21
Kentucky Generators 24
Source Types of Radioactive Waste Generated in Kentucky 25
Radionuclides in Kentucky Wastes 25
Volume Reduction 28
Options for Non-Generator Management 30
Conclusions and Recommendations 33
Guidelines for Regional Compacts 35
Other Action 38

CHAPTER 4 NUCLEAR POWER FACILITIES BORDERING KENTUCKY 39
State and Local Emergency Planning 39
Safety Investigations 40
Environmental Monitoring 42

CHAPTER 5 COMMITTEE ACTION AND RECOMMENDATIONS 45
Maxey Flats 45
Management of Kentucky Generated Low-level Radioactive Waste 46
Nuclear Power Facilities Bordering Kentucky 47
Legislation 49

APPENDICES 51
1. House Resolution 4 53
2. Minutes of Committee Meetings 57
3. Letter to the U.S. Nuclear Regulatory Commission on Future Research Activities at Maxey Flats and the Nuclear Regulatory Commission Response 116
4. Dissenting Comment on Alternative Methods for the Management of Kentucky-generated Radioactive Waste 126

5. Letter and Response of the Division of Disaster and Emergency Services to Questions Relating to Emergency Plans....128
6. Committee Resolution on the Proposed Southeastern Compact for Low-level Radioactive Waste....141
7. Prefiled bill, BR 599....143

LIST OF TABLES

PAGE

1. Factor Comparison of Dewatering Choices.... 12
2. Estimated Task Budget Allocation for the Maxey Flats Management Contract.... 19
3. Low-level Radioactive Waste Volume Distributed by State (1979).... 22
4. Radioactive Waste Shipped by the University of Kentucky and the University of Louisville in 1979.... 27

LIST OF FIGURES

1A. General Schematic of the Maxey Flats Site.... 8
1B. Improvements and Research at the Maxey Flats Site.... 9
2. Future Work Plans for Activities at the Maxey Flats Disposal Site.... 11
3. Possible Choices for Stabilizing Trenches at Maxey Flats.... 13
4. Policy Guidelines Recommended for Consideration of Regional Compacts for Low-level Radioactive Waste Management.... 36
5. Proposed Nuclear Power Stations Bordering Kentucky.... 41

SUMMARY AND RECOMMENDATIONS

House Concurrent Resolution 4 of the 1980 General Assembly established a Special Advisory Committee on Nuclear Issues, composed of legislators, nuclear experts, representatives from environmental groups, and lay members representing the general public. The charge of the Committee was to assume an oversight role on behalf of the Kentucky General Assembly on all matters pertaining to the nuclear industry and nuclear waste disposal during the 1980-82 interim; conduct a comprehensive study and review of alternatives for the management, handling and disposal of radioactive wastes generated in the Commonwealth and recommend a plan for dealing with such wastes; and receive reports from the Kentucky Department for Natural Resources and Environmental Protection on its progress in developing and implementing a long-term plan for the stabilization and decommissioning of the Maxey Flats low-level radioactive waste disposal site.

Based on these directives, the Committee held fourteen meetings and received testimony from various state, regional, and federal agencies; from university representatives and industry; from citizen groups and legislators. In addition, the Committee toured the Maxey Flats low-level radioactive waste disposal site and the Paducah Gaseous Diffusion Plant, operated by Union Carbide for the U.S. Department of Energy. The Committee also participated in the U. S. Nuclear Regulatory Commission seminar on current research activities at Maxey Flats and participated as observers in the mock emergency exercise held for the Zimmer nuclear power facility located at Moscow, Ohio.

As a result of its activities over the interim, the Committee made numerous findings concerning the status of and plans for decommissioning the Maxey Flats low-level radioactive waste disposal site, alternatives for managing Kentucky-generated low-level radioactive waste, regional compacts for low-level radioactive waste, and state policies and programs regarding nuclear power facilities bordering Kentucky. A summary of all Committee actions for the interim is included in the body of this report. Major areas considered and recommendations are discussed below.

Maxey Flats

Reports presented to the Committee indicate that progress has been made toward stabilization of the Maxey Flats site. The Old Tank Farm and the Small Pond, both areas for accumulation and contamination of rainwater, have been virtually eliminated. Water infiltration into the trenches has been diminished by the reworking of trench caps, recontouring, and drainage improvements. Further rainfall infiltration will be controlled by temporary plastic covers over 21.5 acres of trenches and a demonstration multilayer seal over 4.6 acres. A final plan for decommissioning of the site has not been developed, although the DNREP is working on some preliminary proposals. The evaporator will have to continue to be operated at least through 1983, due to the backlog of contaminated water onsite.

RECOMMENDATIONS

The Committee made the following recommendations regarding the Maxey Flats site:

1. An appropriation equivalent to the $2.4 million appropriated for the 1980-82 biennium should be made for maintaining and stabilizing the site.

2. The Commonwealth should move toward decommissioning as quickly as possible, as provided in KRS 211.898, due to the large financial drain of the site in its current state.

3. The Commonwealth should set aside $4 million to serve as a state match for a federal-state 80-20 cost share for decommissioning. Federal participation in financing decommissioning should be pursued. Any expenditure of state monies for decommissioning upon receipt of federal support should be subject to legislative oversight.

4. Future NRC-funded research activities at Maxey Flats should focus on decommissioning low-level burial sites in humid areas, in order to be of maximum benefit to the Commonwealth as well as to researchers and the U. S. NRC.

Management of Kentucky-generated Low-level Radioactive Waste

Basically, the Committee found that Kentucky currently generates a small amount of low-level nuclear waste compared to most other states. About 97% of the low-level nuclear waste generated in Kentucky comes from state institutions. Currently, this waste is sent out-of-state, primarily to Hanford, Washington, for burial. The federal Low-Level Radioactive Waste Policy Act of 1980, PL 96-573, makes each state responsible for its own radioactive waste and encourages states to form compacts to develop regional disposal sites. After January 1, 1986, compact states will be allowed to refuse to accept wastes from non-compact states.

RECOMMENDATIONS

Based on the information it received, the Committee recommended that:

1. The Commonwealth conduct a feasibility study of building a storage/treatment facility to manage all Kentucky-generated radioactive waste not managed by the generator.

2. The Commonwealth actively pursue entering an interstate compact with one or more states, giving thorough consideration to the advantages and disadvantages of joining such a compact.

3. Kentucky state government, on all fronts, work toward ensuring that the currently available commercial low-level waste disposal sites remain open to Kentucky generators.

4. The criteria set down in this report be used as guidelines by the Kentucky General Assembly in its deliberations on becoming a party to a regional compact for the management of low-level radioactive waste. (See Figure 4.)

5. The Department for Human Resources require by regulation certain information annually from its Licensees relating to the volume and activity of radioactive waste generated and means of disposal.

Nuclear Power Facilities Bordering Kentucky

Although Kentucky has no nuclear power plants, nuclear facilities are being built along its borders. The Marble Hill and Zimmer nuclear power plants are located within ten miles of the Kentucky border. In addition, there are three facilities proposed in Tennessee (including the Clinch River Breeder Reactor), which lie within fifty miles of Kentucky. Federal regulations require that nuclear power facilities, in addition to onsite emergency plans, have offsite emergency plans, including an early warning system, an evacuation plan for the ten-mile radius around the plant, and additional procedures for counties within a fifty-mile range.

The Committee found that the Kentucky Department of Military Affairs, acting as the coordinator for emergency planning in the state, was operating under the policy that the development and implementation of the emergency plans required for nuclear power facilities along the borders of Kentucky would involve no cost to Kentucky citizens. In addition, no state plan will be submitted to the Federal Emergency Management Agency unless it has been approved by the affected county judges/executive.

Actions the Committee took concerning nuclear power facilities and emergency planning are presented below:

1. The Committee endorsed the current state policy that there be no cost to Kentucky citizens in developing and implementing these emergency plans, and that no plan should be submitted from Kentucky unless it has been approved by the affected counties.

2. The Committee members participating in the mock emergency exercise for the Zimmer nuclear power facility highlighted the need for providing a high degree of emergency response readiness over the long term.

Legislation

Because of the continuing need for oversight of the decommissioning of Maxey Flats, and because of the plan for managing Kentucky-generated low-level nuclear waste, the need to monitor the operation of nuclear power facilities bordering Kentucky, and the need to examine the transportation of nuclear materials through the Commonwealth, the Committee voted to prefile the following legislation, which can be found in Appendix 7:

82 BR 599 - A concurrent resolution directing the Legislative Research Commission to establish a Special Advisory Committee on Nuclear Issues for the 1982-83 interim; directing the University of Kentucky and the University of Louisville to conduct a study, coordinated by the Department for Human Resources, of building and operating an in-state facility for the storage/treatment of Kentucky-generated low-level waste; directing the Department for Human Resources to require by regulation that its licensees provide certain information annually on the nuclear waste generated.

CHAPTER 1

INTRODUCTION

Kentucky first became involved in nuclear energy in 1962 when the Commonwealth issued a radioactive materials license to the Nuclear Engineering Company (NECO) to operate a low-level nuclear waste disposal site on 252 acres of land in the knob region of Fleming County, known as Maxey Flats. For almost ten years, the site accepted nuclear waste from all over the county with seemingly little public awareness. Public concern surfaced in 1972 when the Kentucky Department of Health (now the Department for Human Resources) discovered a measured increase in offsite radioactivity. This discovery and continual buildup of water in the trenches where the waste was buried prompted the state, the U. S. Environmental Protection Agency, the U. S. Nuclear Regulatory Commission, and the U. S. Geological Survey to conduct studies on the Maxey Flats site. These studies determined a number of unsatisfactory disposal practices and led to major management changes at the site.

The 1976 General Assembly, recognizing the concerns of its citizenry, enacted three pieces of legislation dealing with Maxey Flats. An excise tax of 10¢ per pound was imposed on all waste accepted at Maxey Flats, agency responsibilities at Maxey Flats were reorganized, and a special legislative oversight committee was established for the 1976-77 interim. The LRC Research Report No. 142 sets forth the findings and recommendations of the advisory committee set up by the 1976 General Assembly and includes detailed information concerning the early years at Maxey Flats.

In 1977, NECO detected radioactivity in a newly constructed trench, indicating lateral seepage along the sandstone lens from an old trench two hundred feet away. The state began negotiating at that time to close the site.

NECO's twenty-five-year contract/lease was terminated in 1978 at a net cost to the state of $1.27 million. At the time of its closing, Maxey Flats contained around 4.75 million cubic feet of radioactive waste, containing about 2.4 million curies of radioactivity. More than 99 percent of the waste originated outside the state. While Maxey Flats is referred to as a low-level waste site, the term "low-level" is misleading, as it only indicates that the waste did not result from the reprocessing of spent nuclear fuel. Maxey Flats contains highly radioactive and long-lived material, such as plutonium, strontium-90, and cobalt 60.

The 1978 General Assembly enacted legislation which required that the General Assembly give its approval prior to the locating of any other nuclear disposal facility in the Commonwealth and established a special advisory committee on nuclear waste disposal. The findings and recommendations of this committee are contained in LRC Research Report No. 167.

A number of pieces of legislation pertaining to nuclear energy were passed by the 1980 General Assembly. House Resolution 4 established a special advisory committee on nuclear issues, which was not only charged with an oversight role on Maxey Flats, but was directed to conduct a comprehensive review of alternatives for management of Kentucky-generated low-level radioactive

waste and to make recommendations to the 1982 General Assembly. The scope of the committee was expanded to include all matters pertaining to the nuclear industry. A copy of House Resolution 4 can be found in Appendix 1. Other legislation passed by the 1980 General Assembly includes:

1. Senate Bill 376. Amends KRS 152.590, transferring responsibility for Maxey Flats from the Department of Finance to the Department for Natural Resources and Environmental Protection (DNREP). (This oversight function had already been transferred to DNREP by executive order.)

2. House Bill 98. Sets forth policy for the Commonwealth regarding transfer of the Maxey Flats site to the federal government; requires approval of a majority of members of each house of the General Assembly and the Governor before reopening Maxey Flats; and requires the Department for Natural Resources and Environmental Protection to proceed toward stabilization and decommissioning of Maxey Flats.

3. House Concurrent Resolution 57. Requests the federal government to assist Kentucky, both technically and financially, in the decommissioning of the Maxey Flats site.

This report, therefore, serves as a supplement to the two previous reports concerning Maxey Flats and addresses other nuclear issues in the state, such as Kentucky-generated low-level nuclear waste and the nuclear power plants bordering the state.

Committee Activity

The Special Advisory Committee on Nuclear Issues is composed of legislators, nuclear experts, representatives from environmental groups, and lay members representing the general public. During the 1980-81 interim, the Committee held fourteen meetings. The Committee toured the Maxey Flats nuclear waste disposal site and the Paducah Gaseous Diffusion Plant, operated by Union Carbide for the U. S. Department of Energy. The Committee also participated in a U. S. Nuclear Regulatory Commission Seminar, held in Frankfort, on research activities conducted at Maxey Flats, and in the mock emergency exercise for the area surrounding the Zimmer nuclear power plant. Details of these meetings and issues raised follow:

Meeting No. 1, Frankfort, August 7, 1980

Slide presentation on Radiation, LRC Staff.

Description of licensees who use radioactive materials in Kentucky, Radiation Control Branch, Department for Human Resources (DHR).

Statement by Elizabeth Paxson, Citizens Concerned about Maxey Flats.

Activities at Maxey Flats, Department for Natural Resources and Environmental Protection (DNREP).

Meeting No. 2, Frankfort, September 26, 1980

Plan for Low-level Nuclear Waste Management, Louise Dressen, U. S. Department of Energy.

Report on the Low-level Radioactive Waste Conference, Senator Ed Ford, Representative Ron Cyrus, and Chuck Hardin, LRC Staff.

Meeting No. 3, Northern Kentucky University, November 21, 1981

Off-site environmental surveillance of Maxey Flats, Radiation Control Branch, DHR.

Activities at Maxey Flats, Department for Natural Resources and Environmental Protection.

Current Status of emergency planning for nuclear power reactors on Kentucky borders: Department of Military Affairs
County Judges/Executive
Utilities

Lessons learned from Three Mile Island relative to emergency response and emergency preparedness planning, Representatives from Oak Ridge National Laboratory.

Meeting No. 4, Frankfort, January 16, 1981

Statement by Scott Houchins, Paddlewheel Alliance.

Emergency planning activities, Don Reder, representing the City of Mentor. Survey of Kentucky Licensees Who Generate Radioactive Waste, Radiation Control Branch, DHR.

Interstate compacts for the disposal of low-level radioactive waste:

Ray Peery, Southern States Energy Board
Birney Fish, DNREP
Craig Nern, E.G. & G. Idaho, Inc.

Meeting No. 5, Frankfort, February 13, 1981

Staff report on Alternatives for Decommissioning Maxey Flats.

Staff report on Interstate compacts.

Meeting No. 6, Morehead, Kentucky, March 20, 1981

Tour of the Maxey Flats site/address by Jackie Swigart, Secretary, DNREP.

Status report on Maxey Flats, DNREP.

Off-site monitoring activities at Maxey Flats, Radiation Control Branch, DHR.

Statement by Elizabeth Paxson, Citizens Concerned about Maxey Flats.

Meeting No. 7, Frankfort, April 28, 1981

Role of Attorney General's Office relating to the licensing of nuclear power facilities along the border of the Commonwealth, David Martin, Attorney General's Office.

Radioactive low-level waste at Kentucky universities:

Leonard C. Wilson, Radiation Safety Officer
University of Kentucky

Ahren Jacobsen, Radiation Safety Officer
University of Louisville

Meeting No. 8, Paducah Community College, June 1, 1981

Tour of Gaseous Diffusion Plant operated by Union Carbide for U. S. DOE.

Report on emergency planning meetings for Zimmer facility, Senator Jim Bunning.

Presentation of draft report by LRC Staff, "Alternatives for Managing Kentucky Generated Low-level Waste".

Update on regional compacts for low-level radioactive waste, Birney Fish, DNREP.

Meeting No. 9, University of Louisville, July 9, 1981

Management contract for Maxey Flats site, DNREP.

Estimated expenditures on Maxey Flats from 1962 to 1982/estimated cost for decommissioning, DNREP.

Update on compacts, Birney Fish, DNREP.

Meeting No. 10, Frankfort, July 22 and 23, 1981
Seminar on past research activities at Maxey Flats, U. S. Nuclear Regulatory Commission.

Meeting No. 11, Frankfort, August 28, 1981

Budget and decommissioning recommendations for the 1982 General Assembly, DNREP.

Update on compacts, Birney Fish, DNREP.

Meeting No. 12, Frankfort, September 25, 1981

Committee discussion concerning committee report, "Alternatives for Kentucky-Generated Low-level Nuclear Waste" and legislative recommendations.

Meeting No. 13, Frankfort, October 16, 1981

Update on emergency planning activities for nuclear power facilities along Kentucky's borders, Kentucky Department of Military Affairs.

Meeting No. 14, Frankfort and Northern Kentucky, November 17-18, 1981

Briefing on the mock emergency exercise for the area surrounding the Zimmer Power Plant, Kentucky Department of Military Affairs.

Participation by the Committee in mock exercise.

Committee minutes are presented in Appendix 2 and tapes of the meetings are available in the LRC library, located on the fourth floor of the Capitol, Frankfort, Kentucky.

CHAPTER 2

MAXEY FLATS

One charge of the Special Advisory Committee on Nuclear Issues was to receive reports from the Department for Natural Resources and Environmental Protection on its progress in developing and implementing a long-term plan for the stabilization and decommissioning of the Maxey Flats site. This chapter summarizes the progress reported in this area. (See Figures 1A and 1B)

Status of the Site

In February of 1979 when the DNREP took over management of the Maxey Flats site from the Department of Finance, the following conditions were present at the site:

1. Water was accumulating in the trenches, contaminated evaporator concentrates storage tank area, and storage ponds at a rate of approximately 2 million gallons per year.

2. The maximum practical rate of processing water through the evaporator is 1.3 million gallons per year. Thus, contaminated water was accumulating faster than it could be evaporated.

3. In addition, there was a backlog of water in the trenches estimated to be 3-5 million gallons.

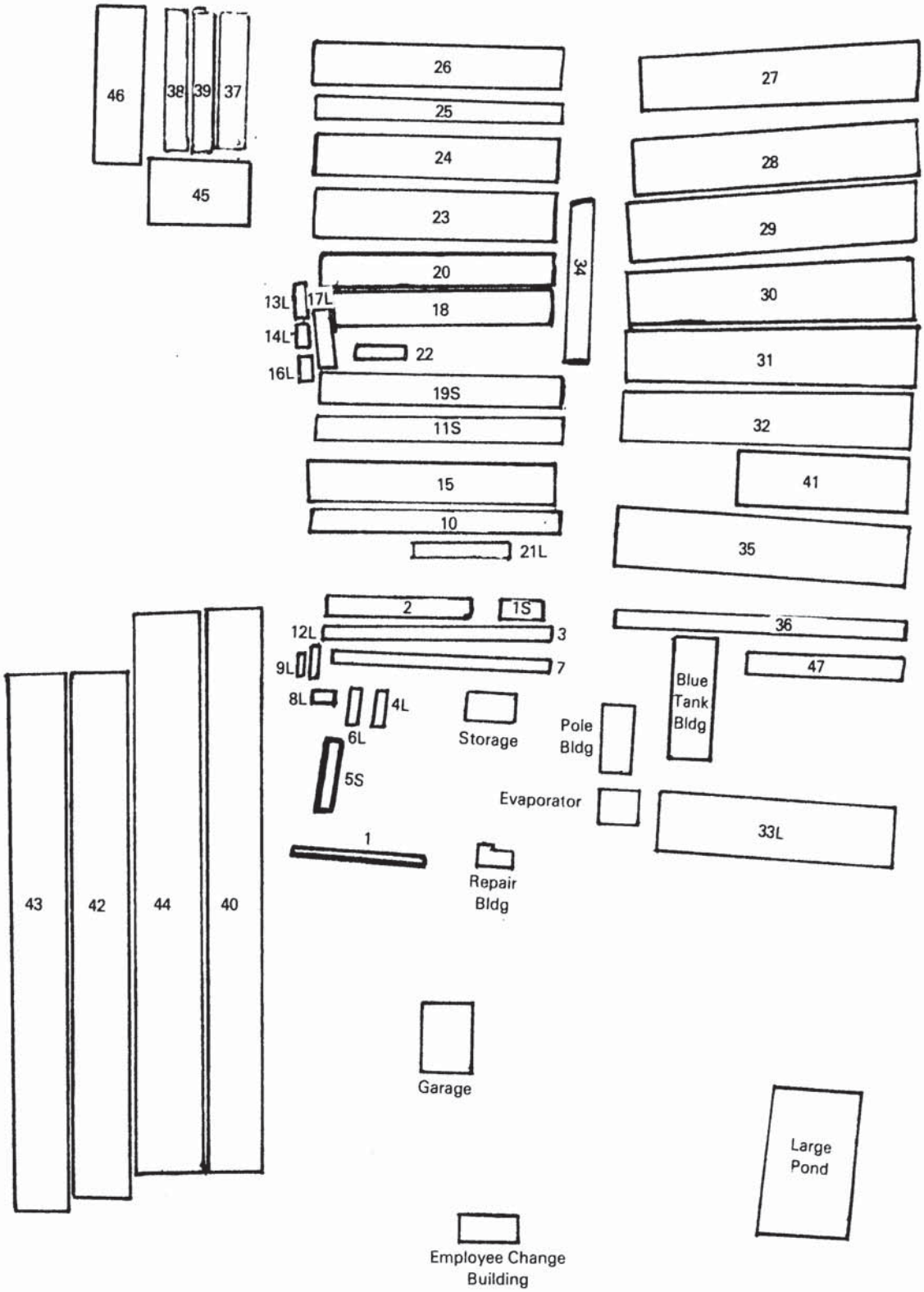
4. An additional 1.5 million gallons of water was stored onsite, including 200,000 gallons which had been pumped from the trenches and stored in holding tanks, 150,000 gallons of sludge from the evaporator awaiting solidification and reburial, and more than 1,000,000 gallons of contaminated water stored in two above ground ponds originating from trench leachate and rainfall accumulating in a contaminated area around the evaporator concentrates holding tanks (Old Tank Farm Area).

5. Rainwater was accumulating in the one remaining open trench (Trench 46). This open trench is used to bury waste items from the evaporator operation, filters, pipes, pumps and other contaiminated materials resulting from remedial cleanup activities onsite.

Site Stabilization

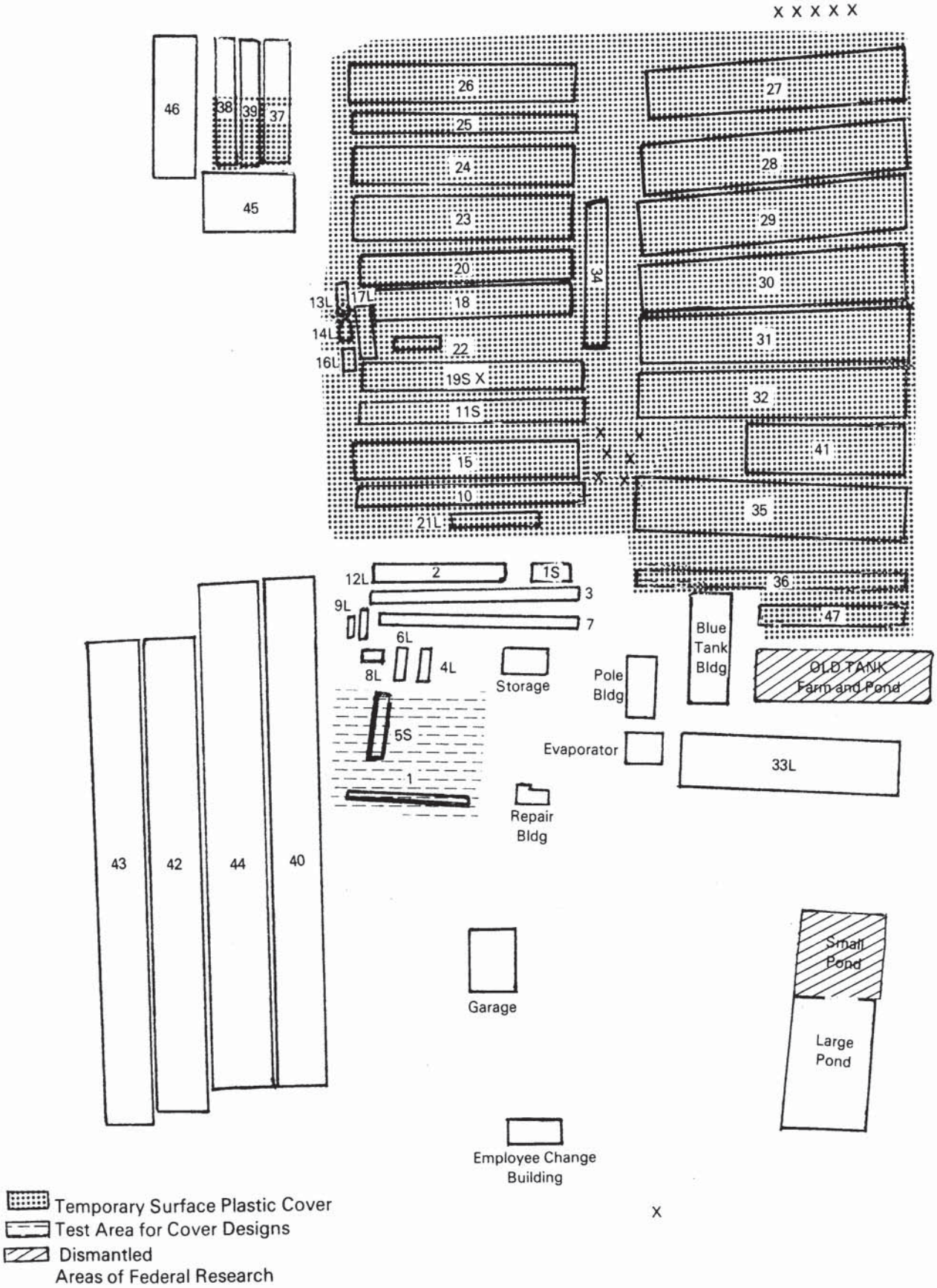
The department has made efforts to enchance surface run-off and minimize infiltration of water into the trenches by the installation of culverts, reseeding, recontouring, and the reworking of trench caps. These remedial actions have reduced infiltration of rainwater into the trenches from 2 million gallons a year to about 600,000 gallons a year. A temporary plastic covering will be used to cover most of the trenches until a permanent covering is selected. A small 4.6 acre area, which in the past has been the source of

FIGURE 1A
General Schematic of the
Maxey Flats Site



Disposal Trench
S Special
L Liquids

FIGURE 1B
Improvements and Research
at Maxey Flats Site



39% of the total trench leachate and about 75% of the tritium, will be used as a demonstration area for a permanent cover, a multilayer seal, under a grant from the U.S. DOE. The temporary surface covers are to be completed by the end of 1981; the demonstration permanent cover is anticipated to be in place by the end of 1982. (See Figure 2.) These activities should reduce water infiltration to about 100,000 to 200,000 gallons a year.

In the spring of 1980 emergency remedial action was required at the Maxey Flats site. The large amount of rainfall threatened to cause the large and small pond areas to overflow. The earth around the two ponds was built up to form a higher berm and new plastic covers were placed over the ponds to prevent further rain accumulation. In addition, a roof was constructed over the one open trench to prevent accumulation of rainfall. By the end of August, 1981, the department had dismantled the Old Tank Farm and placed it in Trench 47. Evaporator residues amounting to about 200,000 gallons were put through the evaporator again and reduced to 50,000 gallons. The Old Tank Farm area was being filled in, recontoured, and revegetated.

Liquid in the Small Pond was evaporated and the area eliminated as a water retention area in July of 1981. Evaporation of water from the Large Pond was initiated and is expected to be completed by late 1982.

In addition, under contract with Dames and Moore, a complete review of water and sludge management alternatives was performed.

Thirty-eight additional sumps have been installed in burial trenches to facilitate removal of liquids. Boundaries of the property have been mapped and clearly marked. Wet weather springs have been identified and aerial photos have been used to better determine the location of burial trenches.

DNREP is working with various groups, making use of the site as a unique "outdoor laboratory," to investigate the characteristics of trench water, the interaction of the water with geological formation, effective methods of minimizing infiltration, and minimization of radioactive uptake in the environment.

The committee endorsed the replacement of an old trailer on the site with a new change building for the employees at Maxey Flats. The building was exempted from the contruction freeze, resulting in an authorized "force account" for $63,000 to design and construct the new building.

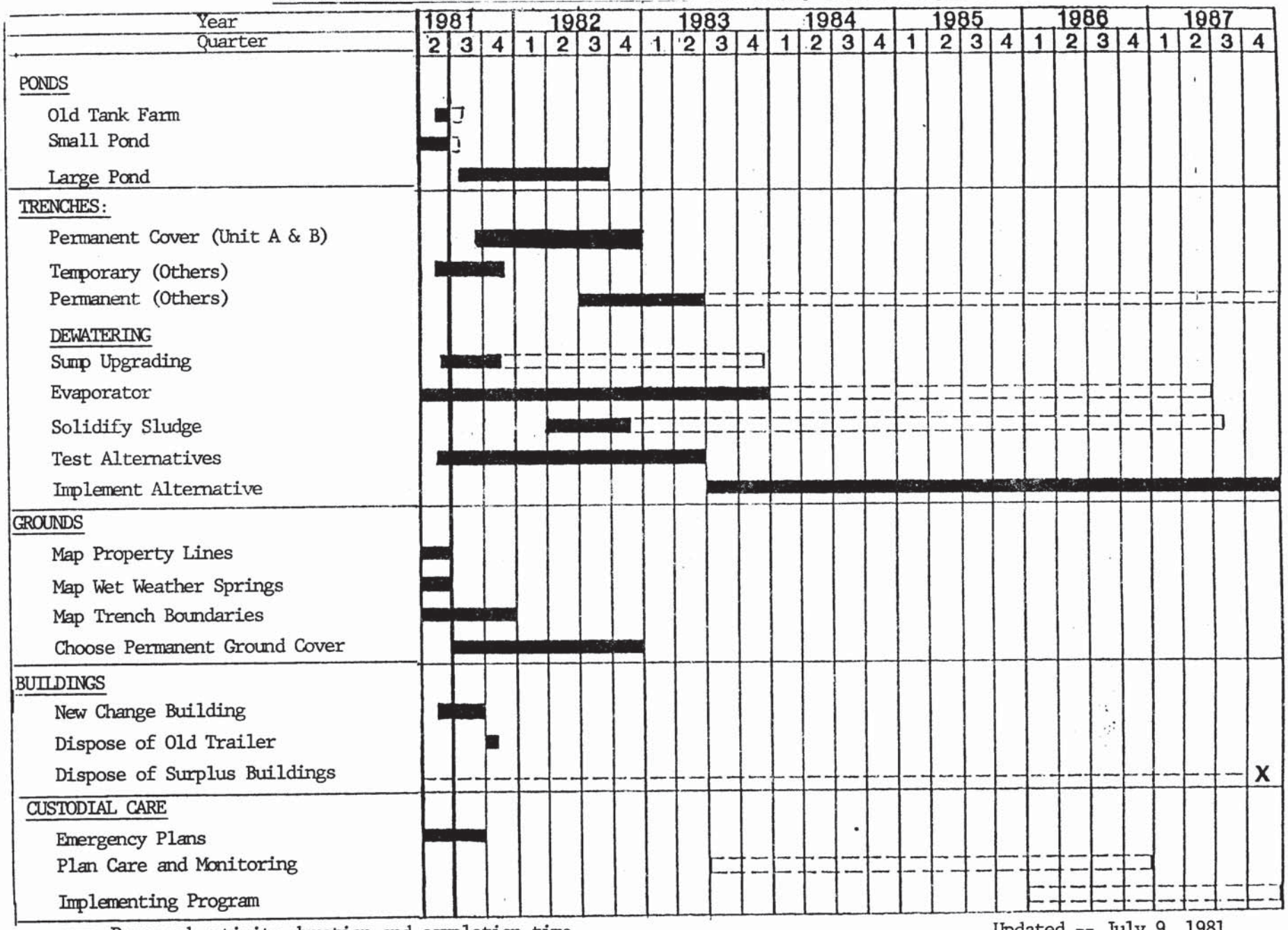
The DNREP hired two additional staff persons to work on the Maxey Flats site. One position was established at the site to conduct administrative audits and handle purchasing for the site. The other position will involve citizen liaison and long-range planning activities.

Decommissioning

KRS 211.898 directs the DNREP to proceed toward the stabilization and decommissioning of Maxey Flats "as expeditiously as is reasonably possible in order to place the facility in such a condition that active ongoing maintenance is eliminated and only surveillance and monitoring are required."

Throughout the interim, the DNREP outlined several options for stabilizing and decommissioning the site. Figure 3 represents three methods for

Future Work Plans for Activities at the Maxey Flats Disposal Site



Proposed activity duration and completion time
---- Potential activity duration and completion time

Updated -- July 9, 1981

FIGURE 2

cutting off all infiltration of water into the trenches (covering the area with asphalt, a multilayer seal, or a steel roof) and compares these with maintaining the status quo.

There are other options for eliminating the already contaminated water that has accumulated on site. These range from solidification of the entire backlog of water, to evaporation of the entire backlog, to combinations of both processes (Table 1).

Although no final plan for decommissioning has been developed, preliminary plans indicate that decommissioning will cost in the range of $20-25 million. Total decommissioning would require a project on the order of encapsulation of the site with chemically-treated reinforced concrete.

TABLE 1
FACTOR COMPARISON OF DEWATERING CHOICES

Option	Time (Mo.) to complete trench dewatering	Dewatering* Cost (1981 dollars)	Airborne Tritium (KCi)** total amount released
Solidify all of backlog	12	$10,500,000	0
Evaporate all of backlog	28	$ 2,070,000	18
Evaporate low tritium trenches/solidify rest	12	$ 7,128,000	0.7
Evaporate all but highest tritium trenches/solidify rest	22	$ 3,756,000	4.6

* These figures reflect only the incremental cost of dewatering and are in addition to other normal operating costs of about $450,000/year in 1981 dollars.

** Estimated Total Released During the Dewatering Operation

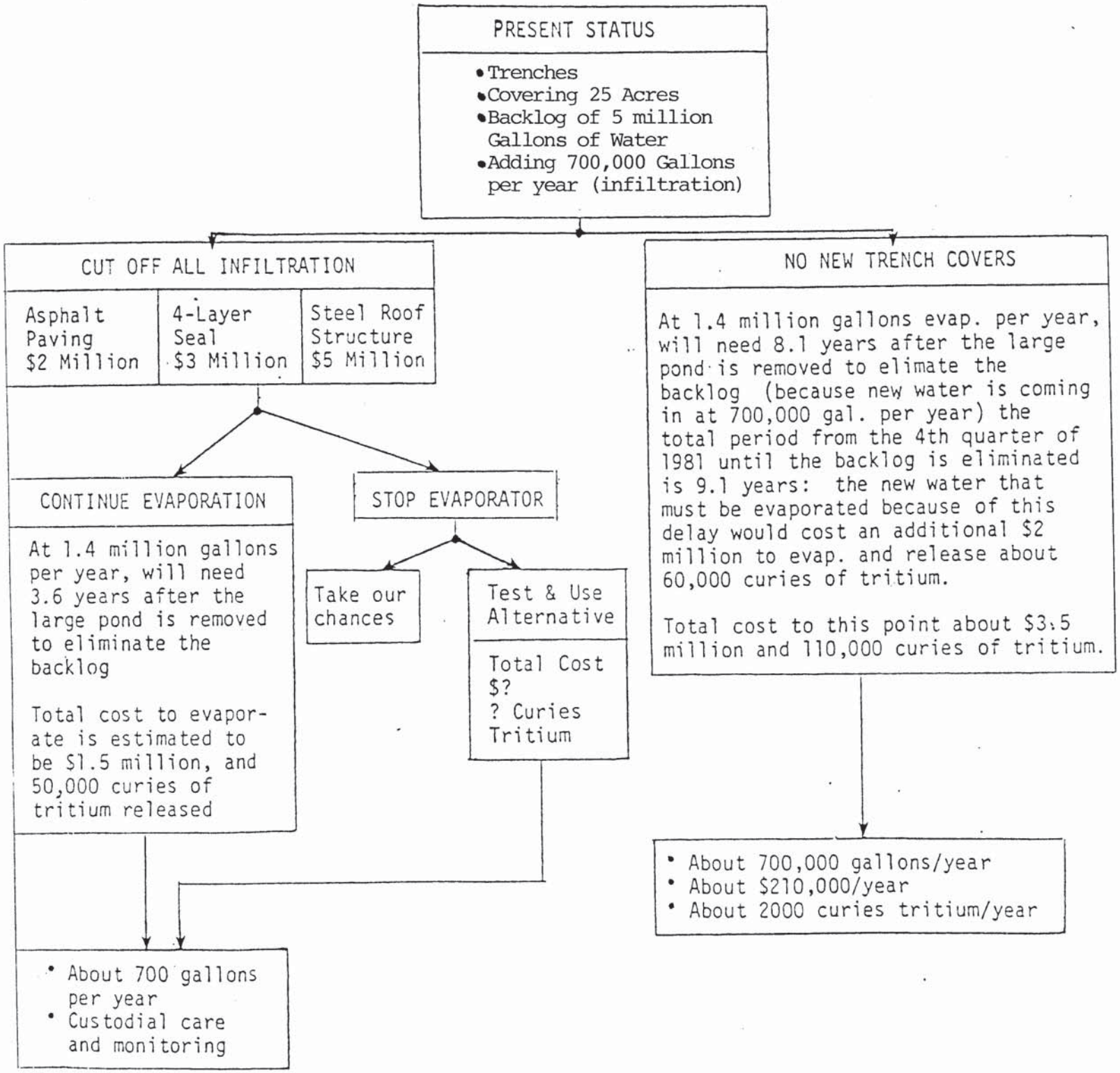
Source: DNREP, August 25, 1981

Health and Safety Issues

The Committee received reports and updates from the Department for Human Resources (DHR), which has responsibility for offsite environmental surveillance and the radiation monitoring program at Maxey Flats, and from the Department for Natural Resources and Environmental Protection (DNREP), the agency responsible for onsite monitoring of the facility. These reports included the following information:

1. No damage was observed by the earthquake centered in the area in July, 1980. According to the Radiation Control Branch of

FIGURE 3
Possible Choices for
Stablizing Trenches
at Maxey Flats



DHR, an earthquake registering between 7 and 8 on the Richter Scale would cause little, if any, surface contamination. If a crack were created in the subsurface, the volume of water flowing out of the trenches through the cracks would be small and would travel slowly. The maximum credible earthquake in the area would be about 5.5.

2. DHR indicated that tests to determine the amounts of methane gas at Maxey Flats have been done but that not all trenches have been tested. Explosions are not normally experienced at sanitary landfills because there is not enough oxygen. The DNREP has requested the federal Environmental Protection Agency (EPA) to survey the trenches for methane gas.

3. The amount of tritium released to the air by the evaporator was 8.8 kilocuries in 1980; the maximum allowable is 44 kilocuries. From 1975 to 1980 the annual release of tritium from the evaporator has ranged from 2 to 12 kilocuries. Other radioactive isotopes are very largely contained and concentrated in the evaporator residue.

4. DHR currently has twenty-six offsite sampling stations. A sequential sampler was recently installed on Rock Lick Creek, where all surface runoff must pass; samples are taken every six hours and picked up every two weeks from the sequential sampler. No readings above the maximum permissible concentration (MPC) have been officially reported at the site. Monthly summaries of DHR offsite monitoring were previously sent to the Fleming County Court Clerk. This service was stopped when the site was closed, but reports may still be obtained from the Kentucky Radiation Control Branch.

5. The offsite sampling stations include drinking wells, streams, and ponds. Monitoring efforts are aimed at water samples, as opposed to vegetation samples, because water samples are available year round at exact locations. Some water sampling stations are hydrologically isolated from the site so that any radiation measured at these sites above background can most likely be attributed to fallout from the evaporator plume. Seven thousand six hundred analyses are performed yearly. A comparative sampling is done for tritium deposits at the Kentucky River bi-weekly, and for gross alpha and beta particles at the Ohio River monthly. Data obtained from Maxey Flats is then compared with findings from both the Kentucky and Ohio Rivers.

6. Site operators are also required to take vegetative samples twice a year - once at the beginning of the growing season and again at the season's end, but the Radiation Control Branch does not have the capability for proper small animal sampling. DNREP has air samplers around the fence of the Maxey Flats site and monitors for tritium and particulates.

Financing Long-term Care and Maintenance

Once the site is stabilized, and without decommissioning, operating costs on an annual basis will still run about $600,000 (1981 dollars) a year (about one-half of the current rate). Because maintenance of the site in this stabilized mode may be required for anywhere from 100 to 500 years, the total price tag for maintenance ranges from $60 million to $300 million. If, in addition to stabilization, the site is decommissioned - that is, put in a condition where active maintenance is minimized and primarily surveillance and monitoring are required - this cost can be reduced significantly. Only a routine custodial position would be required to be maintained.

The DNREP estimates that, based on 1981 dollars, the Commonwealth of Kentucky has from 1962 to the present spent about $7 million on the Maxey Flats site, including regulation, monitoring, maintenance, and remedial activities. The bulk of that has been spent in recent years.

Currently, the DNREP has $1.2 million budgeted for each year of the biennium and will request an equivalent appropriation for the 1982-84 biennium. There is still approximately $302,000 in the Maxey Flats Perpetual Care and Maintenance Fund that has not been tapped.

In the area of financing and decommissioning, the Committee made the following recommendations to the Appropriations and Revenue Committee:

1. An appropriation equivalent to the $2.4 million appropriated for the 1980-82 biennium should be made for maintaining and stabilizing the site.

2. The Commonwealth should move toward decommissioning as quickly as possible, as stated in KRS 211.898, due to the large financial drain of the site in its current state.

3. The Commonwealth should set aside $4 million to serve as a state match for a federal/state 80-20 cost share for decommissioning. Federal participation in financing decommissioning should be pursued. Any expenditure of state monies for decommissioning upon receipt of federal support should be subject to legislative oversight.

The committee considered a resolution petitioning Kentucky's Congressional delegation to sponsor legislation providing for a special appropriation for the decommissioning of Maxey Flats. After much discussion, the committee decided not to prefile the resolution but to leave it to the discretion of the legislators and the Appropriations and Revenue Committee.

Federal Grants and Activities at Maxey Flats

The DNREP is soliciting federal monies from the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE).

The 1980 General Assembly passed House Concurrent Resolution 57, asking the federal government to assist Kentucky technically and financially in the permanent decommissioning of Maxey Flats. The resolution was sent both to the

NRC and the U.S. DOE. NRC responded that to provide funds for decommissioning would be inconsistent with their regulatory function but that NRC had provided and would continue to provide technical assistance to Kentucky regarding Maxey Flats. The U.S. DOE has indicated it will participate in demonstration projects at Maxey Flats.

Currently, the Commonwealth has a continuation contract with the U.S. NRC for studies at Maxey Flats relating to streams, run-off, the soil surface and radiation mapping. The contract is renewable for three years. The amount of the contract for FY 81-82 is $184,000. DNREP has contracted with Dames and Moore to continue the studies during a transition phase while state employees are trained to take over field activities (at the end of the current fiscal year).

The department has received two notices of grants awarded by the U.S. DOE for use at Maxey Flats. One grant for approximately $406,000 is for a demonstration project for trench covers. The project will place a multilayer seal cover on 4.6 acres of trenches at Maxey Flats to see if such a design is suitable as a permanent cover for all of the trenches at the site. The acreage the department selected to cover has traditionally been the largest single source of leachate and tritium.

The second notice of award from U.S. DOE is a planning grant for $42,000 to prepare a comprehensive low-level radioactive waste management plan for Kentucky-generated low-level radioactive waste. The grant is for eighteen months.

The ongoing research projects at Maxey Flats funded by the U.S. NRC amount to about $1.4 million a year. The Special Advisory Committee on Nuclear Issues attended a two-day seminar on research activities at Maxey Flats, conducted by the U.S. NRC. Scientists from all over the United States met in Frankfort to present their research and summarize their most significant findings.

The committee found that the research did not specifically address decommissioning issues. It appeared that the Kentucky site was being used as a laboratory to gain information directed largely towards the needs of others, rather than towards Kentucky's information needs. The committee sent NRC a letter requesting that future NRC-funded research activities at Maxey Flats focus on decommissioning low-level shallow land burial sites in humid areas. The letter also requested NRC to set up a task force to summarize all available data regarding decommissioning to offer technical advice to Kentucky as it proceeds toward decommissioning.

The committee letter and the NRC response are included in Appendix 3. Basically, NRC indicated that it would explore the possibility of sponsoring an independent contractor who would develop information relating to the findings-to-date from research performed at the Maxey Flats site pertinent to proper stabilization and decommissioning of the site, identification of other information needed to proceed with stabilization and decommissioning, and identification of alternatives for site decommissioning. NRC also provided the following responses to these specific questions:

a) Can the evaporator at Maxey Flats be shut down?

"Based on present conditions, the evaporator cannot be shut down. The large volume of contaminated water still needs to be

disposed of. However, methods of minimizing groundwater infiltration and flow through the site and the use of evapotranspiration to dispose of any water that does get there are under consideration by the Department for Natural Resources and the NRC-funded contractors. These alternative methods may prove superior on a cost/benefit basis to the use of the evaporator."

b) Has there been a release of radioactive material from the Maxey Flats site detected above MPC levels to date?

In answering this question the NRC referred to the data accumulated by the Commonwealth:

"According to the Department for Natural Resources, there has been no release above MPC levels detected at Maxey Flats."

c) Is there technology currently proven on how to decommission the Maxey Flats site so as to shut down the evaporator?

"The general consensus regarding stabilization of the Maxey Flats site is that excess water must be kept away from the trenches. There are a number of standard engineering techniques which may be applied to control the surface and groundwater at the site, including the use of improved trench caps, surface grading, and construction of drainage trenches. These were described by Mr. Birney Fish of the State of Kentucky's Department for Natural Resources and Environmental Protection, at the July 23 research progress meeting in Frankfort. A matter which may require further analysis is optimizing the effectiveness of such engineering solutions with regard to the cost of implementation."

d) Could Maxey Flats be reopened?

The U.S. NRC, in responding to this question, cited Kentucky's authority as an Agreement State:

"The State of Kentucky has the authority, since it is an Agreement State, to determine if future low-level waste disposal operations will be conducted at Maxey Flats." (Under the federal Atomic Energy Act, states may assume certain regulatory authority over some types of radioactive materials, including low-level waste, if they enter into an agreement with the federal government to do so. Kentucky became an Agreement State in 1962.)

The Contract

In 1979, the DNREP signed a contract with National Waste Management Services (NWMS) to manage the day-to-day operations at Maxey Flats at a cost of $380,000. An additional contract for consulting and engineering services was signed with Dames and Moore, Inc., for up to $287,000. These contracts were renewed in 1980. In 1980 the NWMS contract amounted to $425,000; the consulting contract, $110,000. The NWMS contract was amended in April of 1981,

increasing its amount by $23,100, to cover dismantling and elimination of the old tank farm and small pond.

When the contracts came up for renewal in 1981, the DNREP advertised a request for proposals in May for the contract to manage Maxey Flats. The department developed a five-member evaluation committee to interview the potential contractors. Applicants were National Waste Management Services, a subsidiary of Dames and Moore, who had been operating the site; Hittman Nuclear Development Corporation, of Columbia, Maryland; The Problem Solvers, from Louisville; Radiation Management Corporation, from Philadelphia, Pennsylvania; and Chem Nuclear Systems, Inc., from Columbia, South Carolina. The department decided to award the contract to Hittman because of its previous experience in the area of decontamination of spills and some cleanup at Three Mile Island. Also, Hittman's nuclear engineering expertise is quite comprehensive. Its experience appeared to be the most compatible with Maxey Flats' decommissioning needs. The Hittman Associates, Inc., located in Lexington belongs to the same present company.

The new contract reflects a change in management only; the site crew has remained, becoming employees of Hittman.

The contract is for $405,159, which includes the maintenance at this site and some stabilization activities. The contract contains a defined scope of services and a list of activities to be accomplished during the coming year. Various tasks and their proposed costs are show in Table 2.

The consulting contract held by Dames and Moore was not let again, because of the scope of activities included in the management contract and the expertise available from new in-house staff at DNREP.

The Committee went on record as requesting DNREP to oversee any capital input at the site, so that the Commonwealth does not become dependent on any one contractor to manage the site or lose any of its flexibility to open the contract for bids when it comes up for renewal. There was concern that dependency on the equipment of any one contractor could at some point tie the hands of the department. Any lag time, for example, in acquiring large equipment could potentially leave the site without necessary maintenance.

TABLE 2
ESTIMATED TASK BUDGET ALLOCATION FOR THE
MAXEY FLATS MANAGEMENT CONTRACT

Estimated Site Contractor Budget

Task No.	Task Description	Maxey Flats	Lexington	Columbia, Maryland	Subcontract*	Total
1.	Site Operations	$241,789	$10,830	$11,260	$ -	$263,879
2.	Dewatering Sump Installation	5,390	2,560	-	39,200	47,150
3.	Trench 21L Dewatering	6,460	-	-	-	6,460
4.	Support Cradles	2,150	-	-	5,600	7,750
5.	Sump Maintenance	9,690	-	4,240	-	13,930
6.	Trench Covers	34,720	13,870	-	5,600	54,190
7.	Small Pond Decommissioning	2,690	-	-	-	2,690
8.	South Drain Sampler	5,110	-	2,820	-	7,930
9.	Review Existing Lab Manual	-	-	1,180	-	1,180
		$307,999	$27,260	$19,500	$50,400	$405,159

*Includes Contractor general and administrative fee of 12% allowed on subcontractual agreement

CHAPTER 3

ALTERNATIVE METHODS FOR THE MANAGEMENT OF KENTUCKY-GENERATED RADIOACTIVE WASTE

The 1980 General Assembly, through House Resolution 4, mandated that the Special Advisory Committee on Nuclear Issues "conduct a comprehensive study and review of alternatives for the management, handling, and disposal of radioactive waste generated in the Commonwealth and recommend a plan for dealing with such waste." This chapter presents the report, drafted by the Committee, on alternative methods for the management of Kentucky-generated radioactive waste and includes other action the Committee took concerning low-level radioactive waste disposal. A dissenting comment is included as Appendix 4.

Background

During the 1960s and early 1970s, the Commonwealth of Kentucky, through use of land in the southeastern part of Fleming County, an area known as Maxey Flats, contributed significantly to the disposal of low-level radioactive wastes for the United States, especially the eastern portion of the country. The Maxey Flats site was opened in 1963 and closed in 1977. During this period of time, at least 4.75 million cubic feet of radioactive waste was buried at the Maxey Flats site. Of this total volume, less than one percent was generated in the state of Kentucky.

Kentucky produces less than one percent of the total radioactive waste generated in the United States. Based on a study conducted by the NUS Corporation in 1980, Kentucky ranked 31st in the volume of radioactive waste generated in the United States during 1979 (See Table 3). The NUS study, however, identified waste collected by a Kentucky waste-collecting firm as Kentucky-generated waste. Such waste was not necessarily Kentucky-generated waste, but most likely came from outside the borders of Kentucky. In the fall of 1980, the Kentucky Department for Human Resources (DHR), Radiation Control Branch, conducted a survey of all licensed facilities in Kentucky to determine the magnitude of the radioactive waste problems in the Commonwealth. According to this DHR survey, approximately 3,818 cubic feet of Kentucky radioactive waste was shipped in 1979. Assuming the data obtained by DHR more accurately represents the Kentucky volume, Kentucky would rank 32nd (including the District of Columbia) in the total U.S. volume generated. Although the amount of radioactive waste generated in Kentucky is very small when compared to that of other states, it must be managed properly to assure the protection of the public and the environment.

Since the closing of the Maxey Flats site in 1977, radioactive waste generated in Kentucky has been shipped to other licensed burial grounds. These other burial grounds are located in Hanford, Washington, Barnwell, South Carolina, and Beatty, Nevada. A site in Sheffield, Illinois, was available until the burial capacity was exhausted in early 1978. This Illinois site was officially closed in March of 1979. A site located in West Valley, New York, was closed prior to the closing of Maxey Flats. Currently, then, only three commercial burial sites are available for the disposal of all commercial low-level radioactive wastes generated in the United States, including that which is generated in Kentucky.

Table 3
Low-Level Radioactive Waste Volume
Distributed by State (1979)

State	Cubic Meters (m^3)	Cubic Feet (cf)	% of Total
1. New York	9,572	338,026	12
2. South Carolina	8,089	285,655	10
3. Pennsylvania	6,825	241,018	9
4. Illinois	6,758	238,652	8
5. North Carolina	5,304	187,305	7
6. Massachusetts	4,860	171,626	6
7. California	4,342	153,333	5
8. Virginia	4,230	149,378	5
9. Connecticut	3,970	140,197	5
10. Alabama	3,672	129,673	5
11. New Jersey	3,008	106,225	4
12. Florida	2,592	91,534	3
13. Michigan	2,150	75,925	3
14. Ohio	1,905	67,273	2
15. Minnesota	1,461	51,594	2
16. Georgia	1,261	44,531	2
17. Oregon	1,219	43,048	2
18. Tennessee	1,131	39,940	1
19. Maryland	978	34,537	1
20. Iowa	961	33,937	1
21. Nebraska	801	28,287	1
22. Washington	779	27,510	1
23. Texas	543	19,176	<1
24. Wisconsin	487	17,198	<1
25. Rhoad Island	463	16,350	<1
26. Maine	416	14,691	<1
27. Vermont	370	13,066	<1
28. Missouri	329	11,618	<1
29. Arkansas	265	9,358	<1
30. Colorado	225	7,946	<1
31. Kentucky	194	6,851	<1
32. Delaware	120	4,238	<1
33. Utah	106	3,743	<1
34. Hawaii	83	2,931	<1
35. New Mexico	80	2,825	<1
36. New Hampshire	77	2,719	<1
37. Mississippi	68	2,401	<1
38. Arizona	54	1,907	<1
39. West Virginia	40	1,413	<1
40. District of Columbia	33	1,165	<1
41. Indiana	27	954	<1
42. Oklahoma	21	742	<1
43. Louisiana	19	671	<1
44. Kansas	10	353	<1
45. Idaho	7	247	<1
46. Nevada	4	141	<1
47. Montana	3	106	<1
48. North Dakota	2	71	<1
49. South Dakota	< 1	< 35	<1
50. Wyoming	< 1	< 35	<1
51. Alaska	< 1	< 35	<1

$m^3 \times 35.314 = cf$

Source: The 1979 State-By-State Assessment of Low-Level Radioactive Wastes Shipped to Commercial Burial Grounds, NUS Corporation, November 1980.

In July, 1979, due to problems involving the transport of waste to the site, the Governor of Nevada ordered the shut-down of the Beatty site. On the basis of assurances from the Nuclear Regulatory Commission (NRC) that these transportation problems would be resolved, the Beatty facility was reopened later in July of 1979.

Despite these NRC assurances, the state of Washington later discovered similar deficiencies in shipments bound for the Hanford site, and in October, 1979, the Governor ordered the Washington site closed. Also in October, 1979, the Governor of Nevada again temporarily closed the Beatty site after waste drums were unearthed on the burial site outside the fenced area.

The closure of the two sites in Washington and Nevada left available only the Barnwell site in South Carolina for all commercially-generated low-level radioactive wastes. Added to the problem during this period was a policy adopted by the state of South Carolina that wastes which were being shipped to the Beatty or Hanford site would not be acceptable in South Carolina.

Unfortunately, the bulk of Kentucky-generated wastes, primarily from the University of Kentucky, was being shipped to the Hanford site. These rather sudden developments left many Kentucky generators of radioactive waste with "no place to go."

Our two major teaching institutions, the University of Kentucky (UK) and the University of Louisville (UL), generate over 97% of Kentucky's total radioactive waste. The UK, which is the state's largest generator, had to store its waste on site during the closing of the Hanford and Beatty sites. Since the storage capacity at the University was limited, its staff faced the prospect of suspending nuclear-related activities.

Fortunately, the sites at Hanford and Beatty were reopened before this drastic action at the University was required. However, the potential for this situation to develop again still exists. For example, an initiative was passed in the state of Washington in November, 1980, that prohibits the importation and storage of nonmedical radioactive waste generated outside the state of Washington after July 1, 1981 (this action was later ruled unconstitutional under both the Commerce Clause and the Supremacy Clause by the U.S. District Court, Eastern District of Washington); the state of South Carolina is reducing the amount of low-level wastes that the Barnwell site will accept annually by 50%; and continued operation of the Beatty site is being critically reviewed by the Nevada officials.

The Commonwealth of Kentucky must therefore have contingency plans. This section suggests options and alternatives which the Commonwealth can implement to manage the generated waste. It is ironic that Kentucky provided a site for the management of a large portion of the commercial low-level radioactive wastes generated in the U.S. for almost fifteen years, and now faces difficulty in finding sites for its own small amount of wastes.

In the final days of the 96th Congress, a bill was passed which addressed the disposal of low-level waste. This act, PL 96-573, cited as the "Low-Level Radioactive Waste Policy Act," makes it a federal policy that "each state is responsible for providing the availability of capacity either within or outside the state for the disposal of low-level radioactive waste generated within its borders except for waste generated as a result of defense activities..." The Act further states that "low-level waste can be most safely and efficiently managed on a regional basis."

The Act permits states to enter into compacts to provide for the establishment and operation of regional disposal facilities. However, such compacts cannot take place until the Congress, by law, has consented to the compact. One very significant provision of the Act would allow states which entered compacts to prevent other non-compact states from shipping their wastes to sites within the compact. This provision could take effect as early as 1986, if Congress approves. An example of the potential impact of the provision may be seen in the compact that several southeastern states are forming with South Carolina. Since Kentucky is not a member and since the compact could exclude non-members, the Barnwell site could become unavailable after 1986. In addition, a regional compact already formed by the northwestern states authorizes exclusion of out-of-region waste after July 1, 1983. Although the legality of this provision is questioned, the impact would be significant for Kentucky and other states currently sending their wastes to Hanford, Washington.

Kentucky Generators

Based on the 1980 DHR survey, six categories of waste generators were identified. They are:

1. University of Kentucky
2. University of Louisville
3. Kentucky Hospitals (In vitro studies)
4. NRC licensed Hospitals (In vitro studies)
5. Medical Laboratories (In vitro studies)
6. Industry

Both universities conduct a variety of procedures using radioactive material. These include medical procedures, both diagnostic and therapy, basic research, and general education. The hospitals, both Kentucky-licensed and NRC-licensed, conduct various types of diagnostic and/or therapeutic procedures using radioactive materials. "In vitro" laboratories conduct diagnostic medical procedures.

The use of radioactive material by industry has many applications. Radioactive materials are used in quality control programs for material thickness control, for example, as well as density measurements and level gauges. The use of radioactive material for radiography has proven to be very valuable, especially with field pipeline construction and welding. In Kentucky, radioactive material is also used to "log" various gas and oil wells.

In many procedures using radioactive material, a certain amount of radioactive waste is generated. An example is contaminated laboratory equipment, gloves, clothing, or other items used in laboratory procedures. Generally, the radioactive waste generated by Kentucky users is low in radioactivity.

Source Types of Radioactive Waste Generated in Kentucky

Radioactive waste can exist in a variety of physical or chemical forms. Physically, the waste can be a solid, liquid, or a gas. Most waste generated in Kentucky is solid or liquid. Very little gaseous waste is generated. Where such small amounts of gaseous wastes are generated, usually with diagnostic medical procedures, the gaseous waste is released to the environment under closely regulated control conditions. Therefore, the management of gaseous radioactive waste does not, in general, pose a problem for Kentucky generators.

Solid radioactive waste can be discrete sealed sources, powders, metals, filters, clothing, absorbent paper, gloves, glassware, or a variety of other solid matter that has been contaminated. A substantial amount of radioactive waste generated in Kentucky is in this category.

Liquid radioactive waste can be various cleaning solutions contaminated during clean-up procedures, unused liquid radiopharmaceuticals, various liquids "tagged" with radioactive tracers used in research. From a volume viewpoint, the liquid radioactive wastes of most concern to Kentucky generators are scintillation chemicals. These liquid scintillation chemicals are used rather extensively in both medical and research procedures, and in radiological environmental monitoring laboratory procedures. Although the amount of radioactivity in these liquids is small, the volume used is large enough to represent a significant management problem for Kentucky generators because of its toxicity and flammability.

It should be noted that the U.S. NRC has recently adopted regulations (10 CRF 20 - Part 20.306) which allow any NRC licensee to dispose of liquid scintillation-counting media and animal tissue without regard to its radioactivity, provided such material does not exceed certain radioactivity limits. Kentucky is an Agreement State and Kentucky licensees are therefore not under the requirements of NRC. Although the licensing agency of Kentucky, DHR, is considering amending its regulations to conform to the NRC amendment above, at the time of this writing, such amendments had not been made. Therefore, Kentucky licensees must still consider the radioactivity of scintillation media and animal tissue.

The chemical form which creates the most serious management problem for Kentucky generators is chemicals which have been restricted from land burial by some of the present commercial sites. An example is toluene, the chemical most used in liquid-scintillation procedures.

Radionuclides in Kentucky Wastes

There are hundreds of radioactive elements (radionuclides) available for use. However, based on the DHR survey, less than thirty radionuclides were identified for the generation year of 1979 in Kentucky. Those identified in the survey are listed below by increasing half-life:

Identified Radionuclides

Radionuclides	Half-life
1. Technetium - 99m/Molybdenym-99	6.0 hours/67.0 hours
2. Iodine - 123	13.0 hours
3. Iodine - 133	20.0 hours
4. Thallium - 201	74.0 hours
5. Gallium - 67	78.0 hours
6. Indium - 111	2.8 days
7. Iodine - 131	8.05 days
8. Phosphorus - 32	14.3 days
9. Chromium - 51	27.8 days
10. Iron - 59	45.0 days
11. Iodine - 125	60.0 days
12. Sulphur - 35	88.0 days
13. Selenium - 75	120.4 days
14. Calcium - 45	165.0 days
15. Zinc-65	245.0 days
16. Cobalt - 57	270.0 days
17. Manganese - 54	290.0 days
18. Sodium - 22	2.6 years
19. Cobalt - 60	5.26 years
20. Tritium - (H-3)	12.3 years
21. Strontium 90	28.1 years
22. Cesium - 137	30 years
23. Nickel - 63	92 years
24. Radium - 226	1602 years
25. Carbon - 14	5730 years
26. Chlorine - 36	3.1×10^5 years

A general rule of thumb is that once a radioactive material has decayed through ten half-lives, it approaches that radiation level of background. However, this concept depends upon the amount of radioactivity initially present. If the radioactivity initially present is large, more than ten half-lives would be necessary to decay to background levels. But, for planning purposes, and since the amount of radioactivity in Kentucky waste is usually low, the ten half-life concept could be used. In no case, however, would waste be allowed to be released as non-radioactive until it had been measured with appropriate instruments to determine that it had, in fact, decayed to background levels. Appropriate instrumentation includes consideration of low energy beta emitters such as tritium and carbon-14.

Although the 10 half-life rule can be used for planning, its actual application must be used with extreme caution. An acceptable de minimus quantity should be established for each radionuclide, and any release to the environment should be based on this de minimus level. However, such de minimus levels have not been established by regulatory agencies. (Specific levels have been established for tritium and carbon-14 in biomedical wastes and liquid scintillation counting media, pursuant to U.S. NRC regulations, 10 CFR Part 20, Section 20.306.)

Until such de minimus levels are established, the use of the 10 half-life rule will be used for planning purposes.

If the generator had storage capacity allowing approximately three

months' storage, applying the ten half-life rule, radioactive waste with a nine-day half-life or less could be managed by the generator. The generator would have to keep records of decay time per package and meet regulatory standards for security and radiological monitoring under such conditions.

Table 4 shows the volume and radioactivity of waste shipped by the UK and UL in 1979. These two universities generate over 97% of all Kentucky-generated radioactive waste. The table shows that approximately 3,687 total cubic feet was shipped by the two universities. However, of this total amount, none of the waste falls in the nine-day-or-less half-life. This is because the two universities are already managing their waste that allows for storage and decay. Therefore, the total 3,687 cubic feet would have to be managed by a non-generator facility.

Table 4

Radioactive Waste Shipped
by
University of Kentucky and University of Louisville
1979

Radionuclide	Half-life	Activity (ci.)	Vol. (cu. ft.)
Phosphorus - 32	14.3 days	0.003	13
Chromium - 51	27.8 days	< 1	4
Iron - 59	45.0 days	< 1	2
Iodine - 125	60.0 days	1.504	357
Sulphur - 35	88.0 days	0.004	10
Selenium - 75	120.4 days	< 1	64
Calcium - 45	165.0 days	< 1	36
Zinc - 65	245.0 days	< 1	32
Cobalt - 57	270.0 days	< 1	< 1
Manganese - 54	290.0 days	< 1	< 1
Sodium - 22	2.6 years	< 1	< 1
Cobalt - 60	5.26 years	< 1	< 1
Tritium - (H-3)	12.3 years	10.03	2,730
Cesium - 137	30.0 years	< 1	< 1
Nickel - 63	92.0 years	< 1	< 1
Carbon - 14	5,730.0 years	10.007	405
Chlorine - 36	3.1×10^5 years	< 1	34

ci. - curies
cu. ft. - cubic feet

At a non-generating facility, this waste could be further classified by half-life. For example, if a storage period of 10 years were established for management of intermediate life waste, applying the 10 half-life rule, waste with a half-life of one year or less could be segregated and allowed to decay, under tightly controlled security and monitoring, until it would reach background levels. Application of this concept would account for approximately 518 cubic feet of the total 3,687 cubic feet. Based on the UK/UL data, this 518 cubic feet would represent approximately 1.5 curies of radioactivity.

The remaining 3,169 cubic feet, which would contain approximately 20

curies, primarily tritium and carbon, could be managed for long-term storage before permanent disposal. From a practical viewpoint, this 3,169 cubic feet would represent less than five hundred 55-gallon drums. (7.35 cubic feet per 55-gallon drum.) For the purpose of comparing this volume with another unit of measure, the material in 3,169 cubic feet would fill a building, tank, or other type of container measuring just less than 15 feet x 15 feet x 15 feet (not including necessary space taken up by proper shielding).

Volume Reduction

Based on the DHR survey, approximately 3,818 cubic feet of radioactive waste was shipped to commercial waste sites in 1979. The total projected 1980 waste volume was approximately 4,300 cubic feet, an increase of approximately 11 percent. Assuming no future volume reduction, and an annual increase of approximately 10 percent for 10 years, the estimated volume for each year until 1989 would be as follows:

1980	-	4,300 cubic feet
1981	-	4,730 cubic feet
1982	-	5,203 cubic feet
1983	-	5,723 cubic feet
1984	-	6,295 cubic feet
1985	-	6,925 cubic feet
1986	-	7,617 cubic feet
1987	-	8,379 cubic feet
1988	-	9,217 cubic feet
1989	-	10,139 cubic feet
10-year total		68,528 cubic feet

It is obvious from this projection that methods of volume reduction should be pursued. Three methods will be discussed, although other methods may be available.

1. Generation Reduction

The most obvious place to reduce volume is at the point of generation. Specifically, by implementing more stringent procedures in handling radioactive materials, spills or other careless activities could be reduced, thus eliminating or reducing the volume of clean-up liquids, towels, gloves, coats, etc. Each generator could review other procedures and techniques to reduce volume.

It would not be anticipated that a substantial volume reduction would occur with the implementation of more stringent procedures, since present procedures are already stringent but this method should be evaluated by each generator for possible volume reduction.

2. Compaction

A larger portion of waste can be compacted, and thus substantially reduce its volume. Compaction can be performed by the generator but possibly more economically by a non-generator facility.

In the DHR survey, the Radiation Safety Office at the University of Kentucky indicated that its waste volume could be reduced by one-half by the implementation of a compaction system, and that the Universtiy planned to install a compaction unit in 1980.

With the installation of compaction systems by the generators or by non-generator facilities, assuming a one-half volume reduction for 90 percent of the total projected ten-year waste volume, the new total volume by 1989 would be approximately 37,691 cubic feet.

3. Incineration

Since the great majority of radioactive waste generated in Kentucky is institutional-type waste (i.e. university or hospital), incineration appears to be the most promising option for volume reduction. In a recent survey by the University of Maryland, it was found that forty-six of 142 medical and academic institutions (32% surveyed) incinerate at least one form of radio-actively contaminated waste. The ash from the incinerator was either disposed of through a commercial land burial facility or in a sanitary landfill. In this survey, one institution in Kentucky was identified as licensed to use an incinerator. The study further divided the wastes incinerated as follows:

a. Biological Waster - consisting mostly of animal carcasses, excreta and bedding; also tissue and excreta from medical uses.

b. Dry, Solid Wastes - consisting of dry solid materials used in research or medical uses. Includes syringes, tubes, paper wastes, gloves, etc.

c. Liquid Scintillation Wastes - consisting of waste resulting from liquid scintillation counting; they are organic solutions used principally as tracers in biological studies, labeled with tritium, carbon-14, phosphorus-32, sulfur-35, or calcium-45.

d. Other Organic Liquid Wastes - consisting of laboratory solvents which are not liquid scintillation fluids. These include alcohols, aldehydes, ketones, and organic acids.

e. Aqueous Liquid Wastes - results from medical use of radionuclides.

The University of Maryland's survey showed that some problems have occurred with the incinerator used, but none of the identified problems were insurmountable. Problems mentioned were the nuisance of ash removal, melting plastic or glass which "clogged" the system, heavy black smoke, and small explosions of incinerating intact scintillation vials.

It is interesting to note the reasons given by many institutions included in the survey for not being interested in employing an incinerator. State and local restrictions and fear of public reaction were frequently stated as the reasons for not pursuing an incinerator for the management of generated radioactive waste. If the incinerator is to be a viable alternative, state and/or local regulations may need amendment to allow such procedures to occur. Maybe it is even more important to establish a program of public awareness and need for such alternatives and, therefore, public acceptance of incineration as a method of managing institutional waste in Kentucky.

Although state or local regulations may need amendment to allow for incineration, the procedure must be closely regulated and monitored to assure that:

1. The off-gasses meet acceptable safety standards;

2. The ash is properly handled; and

3. The procedure provides for safety of the workers operating the incineration.

The use of incinerators provides not only volume reduction for the institution, but generally is more convenient than most other alternatives, and, perhaps even more important to the institution, is more economical. For example, the average burial cost has increased from $45 per barrel in 1975 to $185 per barrel in 1980. Incineration should, therefore, substantially reduce the institutional cost when compared to burial costs.

It has been estimated that with incineration, institutional waste could be reduced by 90 percent or more. Therefore, with the installation of an incinerator the 1989 projection would be only 6,853 cubic feet.

Options for Non-Generator Management

Option 1. Establishment of Waste Storage Treatment Facility

A facility could be established to provide interim and/or long-term storage of waste generated in Kentucky. Such a facility could also provide for volume reduction, either through incineration or compaction, or both. Two or more systems of volume reduction could be used, allowing one system to process material which required short-term storage, and the other system material which required long-term storage or permanent disposal. The residue from the incinerators or the compacted materials could then be segregated for either short- or long-term storage.

Based on an assumed 10-year-maximum accumulated waste volume, with 90 percent reduction through incineration, a total volume of 6,853 cubic feet was projected. Of this 6,853 cubic feet of mostly residue waste, approximately 85 percent, based on UK/UL data, would require long-term management. Thus, it would be estimated that by 1989, approximately 1,000 cubic feet of waste would require interim storage, and 5,800 cubic feet would require long-term storage or disposal, representing approximately eight hundred 55-gallon drums. We might describe this volume with a more familiar unit of measure by observing that the material in 5,800 cubic feet would fill a building, tank, or other type container measuring 18' x 18' x 18' (not including necessary space taken up by proper shielding).

The advantages of this option are that in case of closure of facilities, as occurred in 1979, the state would have interim storage capacity as a backup to generator storage. This option would also provide storage while other options are being developed. The interim storage buys time to allow for the development of improved technologies for ultimate disposal of radioactive materials.

The disadvantage lies in the fact that some intermediate-lived waste generated in the Commonwealth would need to be stored for hundreds of years, and very long-lived material would require ultimate disposal. In addition, the cost of the siting, construction, operation, maintenance, and possible expansion of such a facility would be significant. Finally, it has not yet been determined by the courts whether a state-owned-and-operated facility could exclude out-of-state waste.

Option 2. Re-open Maxey Flats

This option is unlikely. Public sentiment and the political atmosphere would probably not allow the Maxey Flats site to reopen, even if the site were found to be technically and environmentally acceptable. However, this is an option which could be considered, particularly if the site were proven beyond question to be an acceptable site for certain types of radioactive wastes. For this action to be considered, it would have to be clear that the site would meet the most stringent criteria for an environmentally sound facility.

The advantage of this option, if all problems are solved, is that use of an existing facility would reduce costs and time delays of facility siting and keep construction and development costs to a minimum. The disadvantage lies in the fact that the complexity of the geology and hydrology of the Maxey Flats site and the existing water problem at the site make it unlikely that at any time in the near future or perhaps even the distant future the necessary assurances regarding the integrity of the site can be given. Due to its long history of problems and poor management, the perception that location of a facility at Maxey Flats was a mistake is likely to prevail. It is also not clear whether Kentucky could exclude out-of-state waste there.

Option 3. Establishment of a new shallow land burial facility

The experiences at Maxey Flats would make the establishment of a new land burial facility difficult in Kentucky. They would also make other available options difficult to accomplish. However, much has been learned about shallow land burial since the siting of the Maxey Flats facility in the early 60's. For example, the NRC has developed rather comprehensive and stringent draft regulations which, if finalized, must be met before a new shallow land burial facility can be licensed (10 CFR Part 61). Although Kentucky is an "Agreement State" and would issue a license for such a new site, it could be assumed that the Kentucky licensing agency would follow the same licensing process that would be required by the NRC (in addition to its own statutory requirements). The advantages to this option are that it provides for ultimate disposal of the waste. It alleviates dependence on other states for disposal capacity. The disadvantage lies in the fact that the state is a small generator of low-level waste. Even if such a site could be limited to in-state waste, the state would still have to absorb large construction, operating, and maintenance costs. If the site is open to out-of-state waste, which may be required, Kentucky will become the caretaker of a great deal of radioactive waste from which its citizens will have derived little benefit.

Option 4. Interstate Compact or Agreement

Since the problems of management of radioactive wastes are not unique to Kentucky, but nationwide, much consideration has recently been given to states joining together to address the problem. The recommended method is through a compact or agreement between two or more states. The best approach under this concept would appear to be dividing states into regions, and having those states within a given region develop a regional plan to manage the radioactive waste generated within that region.

The regional interstate compact or agreement concept is supported by many groups: the National Governors Association (NGA), the National Conference of State Legislatures (NCSL), the State Planning Council (SPC), the Southern Governors' Association, and Congress - through its enactment of Public Law 96-573. At the 1980 annual meeting of the Southern Governors' Association, the Governors agreed by resolution that "every state is responsible for the disposal of low-level radioactive wastes generated by non-federal-related activities within its borders...states should be authorized and encouraged by Congress to enter into interstate compacts, as necessary for the purpose of carrying out this responsibility." The southern governors directed the Southern States Energy Board (SSEB) to develop "a regional program for low-level radioactive waste management." SSEB has sponsored some meetings between southern states to promote discussions on the issue.

Kentucky has been party to the negotiations in this Southeast Region. A final compact draft was approved in October. States listed as eligible member states include Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee.

In addition, Kentucky has met with states in the East Central Region, including Virginia, Delaware, Maryland, West Virginia, and Washington, D.C. This particular group of states met twice, but will likely not proceed to draft a compact.

Fifteen midwestern states have met several times to discuss the potential for a compact. Kentucky currently is a member of a steering committee (consisting of representatives from Illinois, Michigan, Missouri, and South Dakota) drafting compact language for some of the midwestern states. A draft compact is expected to be complete by January, 1982.

The basic concept of a regional compact or agreement is that member states could share in different responsibilities related to the management of radioactive or other hazardous wastes. This concept would appear the most cost-effective method for one or more shallow land disposal sites. To become a member of a compact, the joint state may have to contribute some benefit. One state may offer a site for the disposal of other hazardous waste; another may offer an interim storage facility.

There are many problems to be worked out, both legal and technical, before such compacts can actually be implemented. Therefore, although this concept is being supported and promoted by various groups, its realization as a functional concept is probably a few years away.

The advantage of this alternative is that Kentucky will be assured of disposal capacity for its generated wastes. The disadvantages depend on the specific content of the compact. Because Kentucky is such a small generator of low-level nuclear waste, a compact could be unattractive if the burden of siting and supporting the compact and/or facility did not take into consideration such factors as:

a) volume of waste generated by a state, and

b) contributions of states with existing land disposal facilities for low-level nuclear waste, whether currently in operation or not.

In addition, the Commonwealth would need to weigh trade-offs involved in the cost of supporting the compact, the potential for requirements for treatment facilities in states not hosting the landfill, and changes required in existing state law relating to facility siting.

Conclusions and Recommendations

Although the Commonwealth of Kentucky, through its Maxey Flats site, provided one of the leading facilities to dispose of radioactive waste in the 1960's and 70's for the eastern part of the United States, the Commonwealth now faces the potential of not having a place to dispose of its own radioactive waste. This is due to the closing of Maxey Flats, the sites at Sheffield, Illinois, and West Valley, New York, and a great deal of uncertainty about the remaining commercial sites at Beatty, Nevada, Barnwell, South Carolina, and Hanford, Washington. Therefore, the Commonwealth finds itself in the position of identifying methods and plans that can be implemented if there is no commercial site available to the Kentucky radioactive waste generators.

Fortunately, Kentucky does not generate a large volume of radioactive waste. Also, approximately 97% of waste generated in Kentucky is of the institutional type, primarily from our two largest universities - the University of Kentucky and the University of Louisville. Most of the waste generated by these two institutions contains small amounts of radioactivity. Therefore, the management problem for Kentucky is not the problem that faces other states. States with major nuclear facilities, such as nuclear power reactors, generate greater volumes of radioactive waste, waste which is higher in radioactivity.

The radionuclides in Kentucky wastes could be classified into three groups. The generator could manage those materials in the first group. The second group could be stored by a non-generator facility for decay, then released as non-radioactive waste. The last group would have to be stored for long periods, or permanently disposed of.

One of the first steps in managing Kentucky's generated waste would be to reduce its volume. Volume reduction can be done by various methods or procedures. The three which appear most feasible for Kentucky are:

1. Implementation of administrative or technical procedures at the generating point that reduce the generation of such waste. It would be anticipated that substantial volume reduction would <u>not</u> be achieved by this method.

2. Install compaction units, either at the facility of the generators, or at a central facility designed to handle all of Kentucky's waste.

3. Install an incineration unit, either at the facility of the generators, or at a central facility, designed to handle all of Kentucky's waste.

The options which appear available to manage Kentucky-generated waste are:

1. Establishment of a central waste storage/treatment facility to manage, on an interim basis, all Kentucky waste not managed by the generators.

2. Reopening the Maxey Flats site to dispose of waste not managed by the genrators.

3. Establishing a new land disposal facility to dispose of waste not managed by the generators.

4. Entering into a compact or agreement with one or more other states to share in the management problems.

Of the various options listed above, priority should be given to entering a compact with another state or states, assuming such a compact meets the conditions desired by the Commonwealth.

However, should the Commonwealth be unsuccessful in entering such a compact, the potential exists that, as early as 1986, no existing commercial site would be available which would accept Kentucky's waste.

It is only prudent, therefore, that the Commonwealth be prepared for such an eventuality and have a contingency plan ready. Based on these findings, the following recommendations are made:

RECOMMENDATIONS

1. That the Commonwealth conduct a feasibility study of building a storage/treatment facility to manage all Kentucky-generated radioactive waste not managed by the generators. Such a feasibility study should include, but not be limited to:

- Size of such facility, based on Kentucky's present and projected needs.

- Identification of environmental and occupational hazards of such a facility.

- Identification of regulatory requirements, federal, state, and local, which must be met.

- All costs for such a facility, including capital, operating, and closure.

The study should be performed in the 1982-84 interim and include recommendations for implementation. It should be emphasized that storage is only an interim management technique for long-lived materials. Such materials will ultimately have to be permanently disposed of.

2. That the Commonwealth actively pursue entering an interstate compact with one or more states, giving thorough consideration to the advantages and disadvantages of joining such a compact.

3. That Kentucky state government on all fronts work toward assuring that the currently available commercial low-level waste disposal sites remain open to Kentucky generators. This effort could take the form of preliminary agreements, resolutions, or assurances which would reduce the anxieties of these site states regarding the small amount of Kentucky waste now shipped to their sites. These actions could be considered preliminary to an eventual PL 96-573 type compact negotiation.

Guidelines for Regional Compacts

As was mentioned above, PL 96-53, the "Low-Level Radioactive Waste Policy Act," makes each state responsible for its own radioactive waste, and encourages states to form compacts to develop regional disposal sites. After January 1, 1986, compact states will be allowed to refuse to accept waste from noncompact states. States which have neither entered compacts nor developed sites for disposal of low-level radioactive waste may have no way of disposing of their waste outside of their state boundaries.

Since it was the feeling of the Committee that, of the various options available to Kentucky for the disposal of low-level waste, priority should be given to entering a compact with another state or states, the Committee followed closely new developments in Kentucky compact negotiations with other states. By Executive Order, Birney Fish from the Department for Natural Resources and Environmental Protection, and Representative Pete Worthington, Chairperson of the Special Advisory Committee on Nuclear Issues, were appointed official delegates of the Commonwealth for regional compact discussions. Kentucky has entered into compact negotiations with three regional groups of states: the Southeast, the East Central, and the Midwest.

Pursuant to PL 96-53, as of this writing, only one compact has been formed nationwide. This compact is located in the Northwest. Washington, Oregon, and Idaho have ratified the compact; Utah has joined by Executive Order of the Governor. The states of Alaska, Hawaii, and Wyoming are also eligible to join. As mentioned before, the language of this compact would exclude out-of-region waste as of July 1, 1983.

In the development of a regional low-level waste disposal site by compact, there are a number of procedural issues that must be spelled out in the compact language. Among the most controversial is the method by which a host state for the disposal site is selected. A commission made up of representatives of member states might have full authority to select which state or states should establish the regional disposal site. A compact might or might not contain a clause giving a potential host state veto power, if selected.

Concerned that Kentucky might be selected a host state at a time when it is still grappling with the expense and hazards associated with a former low-level nuclear waste disposal site (Maxey Flats), the committee took the position that Kentucky should not presently be required to be a host state. Kentucky served for fourteen years as a repository for other states' low-level nuclear waste, and it is itself a very small generator of low-level nuclear waste, compared to many states. Since any compact agreement Kentucky might enter into would require legislative approval, the committee, in anticipation, developed the guidelines shown in Figure 4 for consideration by the General Assembly before entering into regional compacts for low-level nuclear waste management.

On August 28, 1981, the Committee received a report from Mr. Birney Fish and Representative Pete Worthington on the status of the Southeast Compact. At that time, the language drafted for the compact gave no consideration to Kentucky's historical contribution to management of the nation's low-level nuclear waste. Also, under that draft, the Commission would have the right to designate a host state, but would take no responsibility for costs that might be incurred by the regional facility due to unforeseen circumstances. The Committee concluded that it would not be in the best interest of the Commonwealth to open itself to the potential for another low-level nuclear waste site without assurances of financial assistance from party states, and also until some financial assistance for the decommissioning of Maxey Flats is forthcoming. Thus the Committee, by resolution, went on record in opposition to joining the Southeast Compact as it was written at that time (See Appendix 6). At a meeting on October 19, the final language of the Southeast Compact was agreed upon. Kentucky was not included as a state eligible to join the Compact.

Figure 4
Policy Guidelines Recommended for
Consideration of Regional
Compacts for Low-level Radioactive Waste Management

FACTS

Kentucky has served as a respository for low-level nuclear waste generated throughout the U.S. by private and federal entities. About 4.5 million cubic feet of nuclear waste, 99% of which was generated outside of the Commonwealth, is buried at Maxey Flats.

The citizens of Kentucky have from 1962 to July 1, 1981, spent $7,000,000 (1981 dollars) to monitor, regulate, clean-up, stabilize, and decommission the Maxey Flats site. Costs currently are running over a million dollars a year.

Kentucky currently is a very small generator of low-level nuclear waste, compared to other states. The volume of waste deposited at Maxey Flats is equivalent to 1,200 years of low-level nuclear waste generated in Kentucky at the current rate.

All of this reflects the fact that the Commonwealth has "paid its dues" in addressing the national problems of low-level nuclear waste management. With this in mind, the following guidelines are recommended to the General Assembly in evaluating the advantages and disadvantages to the Commonwealth of a particular regional compact.

GUIDELINES

1. The compact should take into consideration the contribution already made by the Commonwealth relating to the national low-level nuclear waste disposal problem. All states are not starting off on equal footing in this area. Kentucky should not be eligible to be selected as a host state until such time as Maxey Flats is decommissioned or some provision is made for other party states to share in the total cost of decommissioning Maxey Flats.

2. The compact should provide that commission activities be financed by charges placed on the generators of the waste, via disposal fees or other appropriate mechanisms. In some cases, state monies for start up or seed money for a commission may be acceptable. The major thrust, however, should be toward financing via generator user fees.

3. The effects of the compact on existing state laws should be carefully examined. Any provision of the compact which would provide for automatic repeal of conflicting state laws should be thoroughly analyzed, so that its impact is understood.

4. Although the host state may be responsible for providing mechanisms for funding costs associated with being the host state and for closure and long-term care of the site, party states should have some responsibility for addressing unforeseen occurrences during the life of the regional facility (including its operational phase, its closure phase, and its long-term care phase). The financial obligations under these circumstances should be proportioned among the party states, based on the respective amount of waste by volume or by radioactivity sent to the site from each state.

5. The compact should provide for incentives to the local community that will host the regional facility. Such incentives might take the form of a provision in the compact authorizing the local community to charge a fee for waste disposal, the revenue from which could go to the general fund of the local community to be used as it would see fit.

6. It is preferable for the siting authority of the commission that is established by the compact to be advisory. However, if the siting authority of the commission is binding, then specific siting criteria should be included in the compact and criteria to be used

in selecting a site should include the following factors: public health and safety, minimization of transportation, and volume of waste generated by the state. When a commission has binding siting authority, the designation of a site should require a two-thirds vote of the total commission membership.

7. The compact should provide for all states to have the same number of representatives and votes on the governing commission.

8. It is desirable for a compact to contain language calling on the agencies of the federal government to provide enforcement and technical assistance in their particular areas of expertise. The impetus for development of new technologies for disposal of low-level nuclear waste would most appropriately be at the federal level.

9. Since there is a need to be able to guarantee the waste stream for the regional facility in order to make it economically feasible, party states should not be permitted unilaterally to negotiate to dispose of their wastes outside the compact. The commission should be authorized to negotiate on behalf of party states to have their wastes disposed of outside the compact region.

Other Action

In addition to the recommendations the Committee made in its report on "Alternative Methods for Management of Kentucky-generated Radioactive Waste," the following action was taken concerning low-level waste disposal:

1. The Committee petitioned the U.S. Nuclear Regulatory Commission that de minimus levels for radioactive isotopes in air, soil, water, and solid waste be established and that the concept be included in NRC's current revision of 10 CFR Part 61.

2. The Committee requested that the Kentucky Department for Human Resources amend Section 18 of 902 KAR 100:020, in accordance with federal changes, to require that any onsite burial of low-level nuclear waste be permitted only if such is done with prior approval of the DHR.

3. The Committee prefiled legislation for the 1982 General Assembly which included a directive that the Kentucky Department for Human Resources require annually, by regulation, certain information on nuclear waste generated by Kentucky licensees.

CHAPTER 4

NUCLEAR POWER FACILITIES BORDERING KENTUCKY

Kentucky has no nuclear power facilities and currently no plans for any. There are, however, several power plants being built along Kentucky's borders (Figure 5). The Zimmer nuclear power facility, owned by Cincinnati Gas and Electric Company (C.G.&E.) is scheduled to go on line in 1983 and the Marble Hill nuclear facility, owned by Public Service Indiana, is scheduled to go on line in 1986. In addition, there are three plants proposed for Tennessee, including the Clinch River Breeder Reactor, that are within fifty miles of Kentucky. The Special Advisory Committee on Nuclear Issues pursued a number of issues raised by the location of these facilities so close to Kentucky: emergency planning and environmental monitoring for those areas surrounding a nuclear facility and safety investigations at the Marble Hill and Zimmer nuclear power facilities.

State and Local Emergency Planning

In addition to an on-site emergency plan required for nuclear facilities by the U.S. Nuclear Regulatory Commission, there is required to be in place an off-site emergency plan, including an early warning system, an evacuation plan for the ten-mile radius around a plant, and additional procedures for counties within a fifty-mile radius. The Division of Disaster and Emergency Services (DES) of the Kentucky Department of Military Affairs is the agency responsible for coordinating all Kentucky agencies involved in emergency planning for nuclear plants. The issue of who should pay the costs for emergency plans in Kentucky was taken up by the committee. MG Billy G. Wellman, Adjutant General, Department of Military Affairs, informed the committee that his department was negotiating with Cincinnati Gas and Electric Company and had received assurances from the company that those costs incurred by the state and local governments for emergency plans for the area surrounding Zimmer, including equipment and maintenance, would be paid for by the Cincinnati Gas and Electric Company.

General Wellman told the committee that while contacts have been made with Public Service Indiana concerning emergency planning at Marble Hill, negotiations with the company to assist in the cost of emergency plans have not yet begun.

Upon hearing testimony from county judges/executive and local citizens from counties surrounding the nuclear facilities, the committee requested that the Division of Disaster and Emergency Services work with all communities, large and small, that might be affected by an emergency plan for nuclear power facilities.

In addition, the committee requested and received responses from DES on a set of thirty-eight questions submitted by a county official relating to the specifics of emergency plans (Appendix 5).

Before the U.S. Nuclear Regulatory Commission (NRC) can issue an operator's license for a nuclear power facility, the applicant (utility) must demonstrate that both on-site and off-site emergency planning is in order.

General Wellman assured the committee that the state would not submit any emergency plan to the Federal Emergency Management Agency (FEMA) that had not been approved by the affected counties. However, if the utility can demonstrate that provisions for off-site emergency response are adequate, the federal agencies could approve the plan and issue an operating license without state or local government approval.

On October 18, 1981, the committee participated in the mock emergency exercise for the area surrounding Zimmer. Based on observation of the exercise, the committee voiced the following concerns:

(1) There is a need for additional training of state personnel, staff, and volunteers in the county emergency operation centers (EOC).

(2) Although not all of the communication equipment is in place, it is clear that improvements in communications and message flow are needed.

(3) Operations at both state and county levels need to be checked for logistics and suitability.

(4) Some schedule of periodic emergency exercises is needed to ensure a high response readiness over the long term.

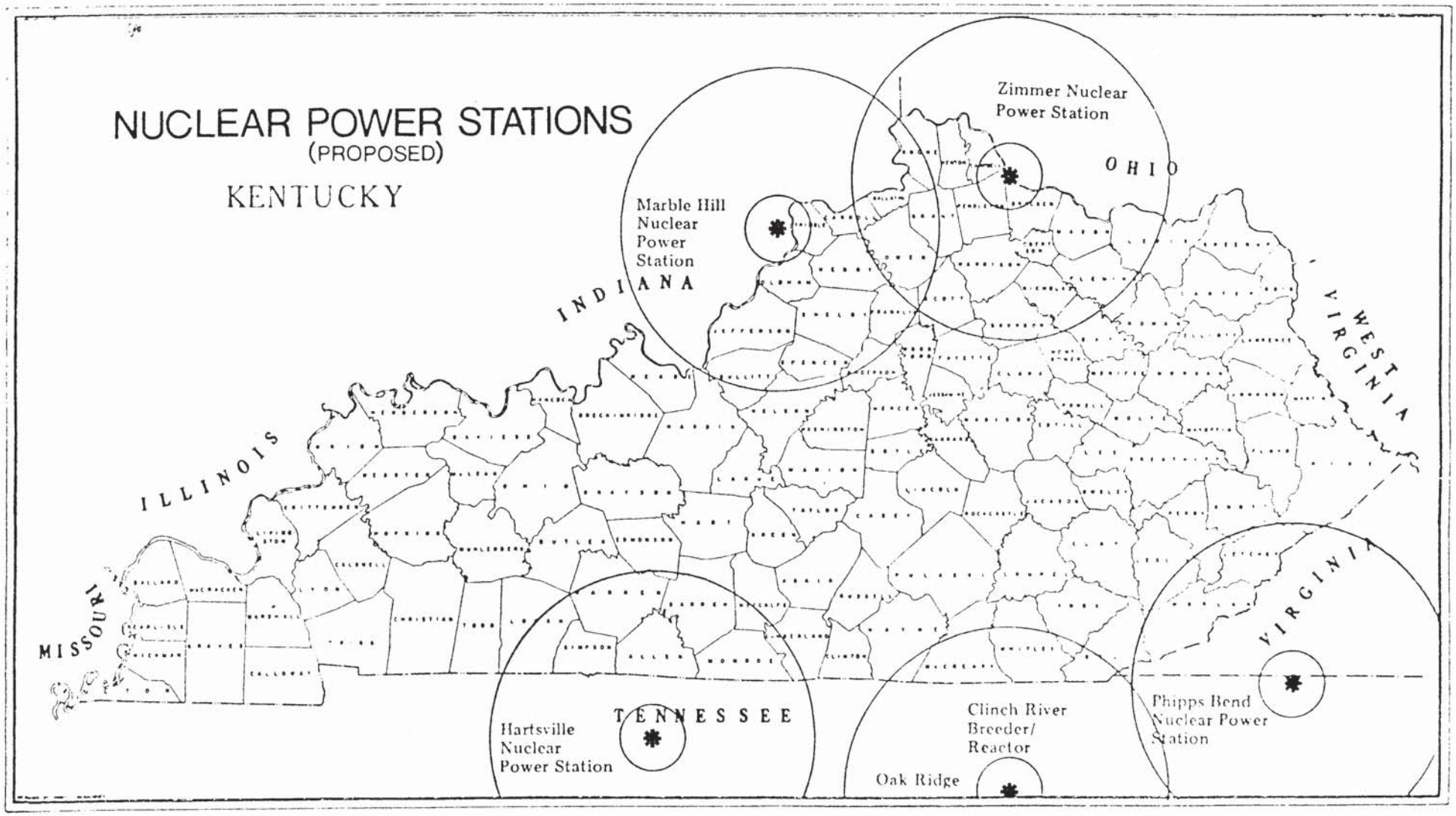
On October 19, 1981, the Committee attended the exercise evaluation held at the Americana Inn at the Greater Cincinnati Airport. In addition to the Committee, participants in the evaluation included state and county agency leaders; DES area coordinators; personnel from the private firm, Stone and Webster, who developed the state plan; and representatives from a number of federal agencies.

Most of the deficiencies noted by the Committee were discussed during the evaluation. General Wellman announced that the Kentucky plan will not be submitted for approval until such deficiencies are corrected. However, a major concern of the committee is Kentucky's ability to maintain a high degree of readiness over the long term. Turnovers in state personnel, local public officials and local volunteers make ongoing training and periodic exercises essential to maintaining readiness. While FEMA regulations currently require annual drills, proposed changes would require drills only every other year. A Committee letter to General Wellman expressed support for a Kentucky program to maintain readiness. General Wellman responded that he shared the Committee's concern and would address this issue with his staff.

Safety Investigations

In the construction of both the Marble Hill and Zimmer facilities, questions of safety have arisen. The Committee requested a staff report of the status of those safety investigations. On August 15, 1979, construction of the Marble Hill nuclear power plant was stopped because of questions concerning the concrete. The U.S. Nuclear Regulatory Commission (NRC) subsequently hired two individual consultants to investigate the procedures used to evaluate the soundness of the concrete. In addition, NRC allowed Dr. Cassaro, a University of Louisville professor of

Figure 5



10 and 50 mile radii denoted on map

✱ Nuclear Power Station

engineering and representative of Save the Valley (the environmental organization opposed to the facility) to submit a report. While Dr. Cassaro concluded that the number of tests conducted at Marble Hill was insufficient to ensure that the concrete meets federal safety standards, the NRC lifted the ban on construction, based on the reports of the independent consultants. NRC is also investigating allegations concerning quality control and safety at the Zimmer plant.

The Committee requested that a representative from the Attorney General's Office (AGO) come before the Committee to discuss the AGO role in the licensing of the nuclear power facilities along Kentucky's border. In 1976, Kentucky intervened in the construction of the Marble Hill facility, but the construction permit was granted in 1978. Kentucky intervened as an interested party in the issuance of the operating permit of the Zimmer facility. The Committee was informed that the Attorney General has been reviewing federal actions taken concerning safety measures in the construction of both the Marble Hill and Zimmer facilities.

There is no agency in Kentucky specifically funded to review and determine the adequacy of the construction of nuclear power plants. However, the DHR has agreed that it is appropriate for it to request U.S. NRC reports and to evaluate them. DHR has indicated to the Committee that it will monitor the NRC reports concerning the construction of the nuclear power plants and notify the appropriate state agencies if the findings warrant it.

After the work of the Special Advisory Committee on Nuclear Issues was basically completed, additional developments in nuclear facility safety inspections occurred.

In October, 1981, the NRC admitted that the tests performed to determine the soundness of the concrete at Marble Hill failed to meet established NRC criteria, and that, consequently, the NRC had used insufficient data in lifting the construction ban. NRC did not indicate whether this finding would result in another construction ban.

In November, 1981, NRC completed an investigation of allegations concerning quality control and safety at the Zimmer nuclear power plant. While emphasizing that the plant was safe, NRC proposed a $200,000 fine on Zimmer for failing to maintain an adequate quality control program. Specifically, the proposed fine was based on three major findings of violations, which were falsifying inspection records, harrassment and intimidation of quality control workers, and failure to properly monitor the contractor's work.

Environmental Monitoring

The Radiation Control Branch of the Kentucky Department for Human Resources will be responsible for off-site environmental monitoring of those Kentucky areas surrounding the Marble Hill and Zimmer facilities. To ensure adequate monitoring of the nuclear power plants, as well as to continue the monitoring program at Maxey Flats, the Committee requested of Governor Brown that the Radiation Control Branch be provided with the equipment needed to carry on the monitoring responsibilities of the

Commonwealth.

The Radiation Control Branch reported to the Committee that the environmental monitoring program for the Zimmer facility has already begun. As of July 1979, twenty-three sampling locations have been established within ten miles of the Zimmer plant. Samples of water, vegetation, milk, and soil are now being taken, so as to establish a baseline background radiation level for the area, including seasonal fluctuations. In case of emergencies, one hundred and seventy-three monitoring location points have been identified and would be selectively used as additional monitoring points, depending on wind direction and other factors. Kentucky will be able to monitor selected locations inside the plant only in cases of emergency. DHR will submit a bill to the Division of Disaster and Emergency Services (DES) for costs incurred in setting up the monitoring program. DES, in turn, will submit the bill to Cincinnati Gas and Electric Company. Since the Marble Hill facility is not scheduled to begin operations before 1986, monitoring activities by DHR have not yet begun there.

CHAPTER 5

COMMITTEE ACTION AND RECOMMENDATIONS

House Concurrent Resolution 4 of the 1980 General Assembly established a Special Advisory Committee on Nuclear Issues. The charge of the Committee was to:

a) assume an oversight role on behalf of the Kentucky General Assembly on all matters pertaining to the nuclear industry and nuclear waste disposal during the 1980-82 interim,

b) conduct a comprehensive study and review of alternatives for the management, handling and disposal of radioactive wastes generated in the Commonwealth and recommend a plan for dealing with such waste,

c) receive reports from the DNREP on its progress in developing and implementing a long-term plan for the stabilization and decommissioning of Maxey Flats.

Based on these directions, the following actions were taken by the Committee.

Maxey Flats

The Committee received reports on the management, status, and stabilization and decommissioning of the Maxey Flats site on four separate occasions. In addition, the Committee attended a two-day seminar held by the U.S. NRC in Frankfort on ongoing research at Maxey Flats.

Reports presented to the Committee indicate that progress toward stablization of the Maxey Flats site has been made. The Old Tank Farm and the Small Pond, both areas which allowed accumulation and contamination of rainwater, have been virtually eliminated. Water infiltration into the trenches has been diminished by the reworking of trench caps, recontouring, and drainage improvements. Further rainfall infiltration will be controlled by temporary plastic covers over 21.5 acres of trenches and a demonstration multilayer seal over 4.6 acres.

A final plan for decommissioning of the site has not been developed, although the DNREP is working on some preliminary proposals.

The evaporator will have to continue to be operated at least through 1983, because of the backlog of contaminated water onsite.

Based on the information presented at these meetings, the Committee took the following actions.

1. The Committee endorsed the replacement of an old trailer on the site with a new change building for the employees at Maxey Flats. The building was exempted from the state construction freeze, resulting in an authorized "forced account" for $63,000 to design and construct the new building.

2. The 1980 General Assembly, in House Concurrent Resolution 57, asked the federal government to assist Kentucky, technically and financially, in the permanent decommissioning of Maxey Flats. The resolution was sent both to the Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE). The Committee followed up on this resolution. NRC responded that to provide funds for decommissioning would be inconsistent with its regulatory function but that NRC had provided and would continue to provide technical assistance to Kentucky regarding Maxey Flats. The U.S. DOE has indicated that it will participate in demonstration projects at Maxey Flats.

3. The Committee sent NRC a letter requesting that future NRC-funded research activities at Maxey Flats focus on decommissioning low-level shallow land burial sites in humid areas. The letter also requested NRC to set up a task force to summarize all available data pertinent to decommissioning and to offer technical advice to Kentucky as it proceeds towards decommissioning.

4. The Committee requested and received from DNREP an inventory of capital equipment at Maxey Flats and a breakdown of expenditures for maintenance and stabilization at Maxey Flats for Fiscal Year 1979-80 and Fiscal Year 1980-81.

5. The Committee made the following recommendations to the Appropriations and Revenue Committee:

   a. An appropriation equivalent to the $2.4 million appropriated for the 1980-82 biennium should be made for maintaining and stabilizing the site.

   b. The Commonwealth should move toward decommissioning as quickly as possible, as provided in KRS 211.898, due to the large financial drain of the site in its current state.

   c. The Commonwealth should set aside $4 million to serve as a state match for a federal-state 80-20 cost share for decommissioning. Federal participation in financing decommissioning should be pursued. Any expenditure of state monies for decommissioning upon receipt of federal support should be subject to legislative oversight.

6. The Committee sent a letter to the DNREP requesting that capital improvements at the site be done in such a manner that the Commonwealth does not become dependent on any one contractor.

Management of Kentucky-generated Low-level Radioactive Waste

The Committee received testimony from the DHR, Radiation Control Branch, concerning the number of licensees and the amount of radioactive waste generated in the Commonwealth. The DHR conducted a survey of its licensees at the request of the Committee. Because 97% of the waste generated in Kentucky comes from the University of Kentucky and the University of Louisville, the Committee was addressed by the radiation safety officers from these two institutions.

The Committee received several updates on the status of regional compact negotiations for interstate cooperation in the management of low-level nuclear waste.

Basically, the Committee found that Kentucky currently generates a small amount of low-level nuclear waste compared to most other states. About 97% of the low-level nuclear waste generated in Kentucky comes from state institutions. Currently, this waste is sent out-of-state, primarily to Hanford, Washington, for burial. The federal Low-Level Radioactive Waste Policy Act of 1980, PL 96-573, makes each state responsible for its own radioactive waste and encourages states to form compacts to develop regional disposal sites. After January 1, 1986, compact states will be allowed to refuse to accept wastes from noncompact states. In fact, the Northwest Compact, including the State of Washington, excludes out-of-region waste as of July 1, 1983. Although the legality of this provision is questioned, states which have neither entered compacts nor developed sites for disposal for low-level waste may face tremendous problems. The Committee also was made aware of the complexities involved in negotiating interstate compact language.

Based on the information it received, the Committee took the following actions.

1. The Committee recommended that:

   a. The Commonwealth conduct a feasibility study of building a storage/treatment facility to manage all Kentucky-generated radioactive waste not managed by the generator.

   b. The Commonwealth actively pursue entering an interstate compact with one or more states, giving thorough consideration to the advantages and disadvantages of joining such a compact.

   c. Kentucky state government, on all fronts, work toward ensuring that the currently available commercial low-level waste disposal sites remain open to Kentucky generators.

2. The Committee established a set of criteria as guidelines for the Kentucky General Assembly in its deliberations on becoming a party to a regional compact for the management of low-level radioactive waste. (See Figure 4.)

3. The Committee petitioned the U.S. NRC by letter to consider establishing de minimum levels of radioactive isotopes for air, water, soil, and solid waste in its revision of 10 CFR Part 61.

4. The Committee requested the Kentucky DHR to amend Section 18 of 902 KAR 100:020, in accordance with federal NRC changes, to require that any onsite burial of low-level nuclear waste be permitted only with prior approval by the DHR.

Nuclear Power Facilities Bordering Kentucky

Although Kentucky has no nuclear power plants, nuclear facilities are being built along its borders. The Marble Hill and Zimmer nuclear power plants are located within ten miles of the Kentucky border. In addition,

there are three facilities proposed in Tennessee (including the Clinch River Breeder Reactor) which lie within fifty miles of Kentucky. During the interim the Committee closely followed emergency planning activities for the nuclear facilities and considered safety issues raised during the construction of the Marble Hill and Zimmer facilities.

The Committee received a staff report on safety investigations at Marble Hill and Zimmer. A representative of the Attorney General's Office (AGO) informed the Committee that the Attorney General was reviewing federal actions concerning safety measures in the construction of nuclear power plants bordering Kentucky. The DHR discussed its program for monitoring background radiation for the facilities before they come on line. General Wellman, Department of Military Affairs, briefed the Committee on the status of emergency planning for these nuclear power facilities. The Committee found that the Kentucky Department of Military Affairs, acting as the coordinator for emergency planning in the state, was operating under the policy that developing and implementing the emergency plans required for nuclear power facilities along the borders of Kentucky would represent no cost to Kentucky citizens. In addition, no state plan will be submitted to the Federal Emergency Management Agency unless it has been approved by the affected county judges/executive. The DHR has been monitoring within the ten-mile radius of the Zimmer facility since July, 1979, in order to establish a radiation baseline for the area and will continue monitoring when the facility begins operation.

Currently, there is no agency in Kentucky funded to review the adequacy of construction of the power plants bordering Kentucky. The AGO has reviewed some NRC reports using expertise from the Kentucky Department of Transportation. The DHR has agreed to request copies of NRC reports, to evaluate them, and when necessary, to report its findings to other appropriate state agencies.

Actions the Committee took concerning nuclear power facilities and emergency planning are presented below:

1. The Committee heard testimony from the Division of Disaster and Emergency Services (DES), Department of Military Affairs; utilities; County Judges/Executive and local citizens on the status of emergency planning for the nuclear facilities.

2. The Committee endorsed the current state policy that there be no cost to the citizens of Kentucky in developing and implementing these emergency plans, and that no plan should be submitted from Kentucky unless it has been approved by the affected counties.

3. The Committee requested DES to work with all cities that might be affected by an emergency plan.

4. The Committee participated in the planned mock emergency exercise for the Zimmer facility.

5. The Committee requested that DHR evaluate NRC reports on construction work at Marble Hill and Zimmer and notify appropriate agencies if the reports warrant it.

6. To ensure adequate environmental monitoring around nuclear power reactors being built on Kentucky's border, as well as to continue the

monitoring program at Maxey Flats, the Committee requested of Governor Brown that the Radiation Control Branch of the Department for Human Resources (DHR) be provided with the equipment needed to carry on the monitoring responsibilities in the Commonwealth.

Legislation

Because of the continuing need for oversight of the decommissioning of Maxey Flats, and because of the plan for managing Kentucky-generated low-level nuclear waste, and the need to monitor the operation of nuclear power facilities bordering Kentucky, the Committee voted to prefile the following legislation, which can be found in Appendix 7:

82 BR 599 - A concurrent resolution directing the Legislative Research Commission to establish a Special Advisory Committee on Nuclear Issues for the 1982-83 interim; directing the University of Kentucky and the University of Louisville to conduct a study, coordinated by the Department for Human Resources,, of building and operating an in-state facility for the storage/treatment of Kentucky-generated low-level waste; directing the Department for Human Resources to require by regulation that its licensees provide certain information annually on the nuclear waste generated.

APPENDICES

1. House Resolution 4.....

2. Minutes of Committee Meetings.....

3. Letter to the U.S. Nuclear Regulatory Commission on Future Research Activities at Maxey Flats and the Nuclear Regulatory Commission response.....

4. Dissenting comment on Alternative Methods for Management of Kentucky-Generated Radioactive Waste.....

5. Letter and Response of the Division of Disaster and Emergency Services to Questions Relating to Emergency Plans.....

6. Committee Resolution on the Proposed Southeastern Compact for Low-Level Radioactive Waste.....

7. Prefiled bill, BR 599.....

80 BR 271

GENERAL ASSEMBLY

COMMONWEALTH OF KENTUCKY

REGULAR SESSION 1980

House Resolution No. 4

January 25, 1980

The following bill was reported to the Senate from the House and ordered to be printed.

A CONCURRENT RESOLUTION directing the formation of a long term plan for stabilization and decommissioning of a nuclear waste disposal site and providing for legislative oversight.

WHEREAS, a nuclear waste disposal facility in Kentucky has shown evidence of subsurface migration of radioisotopes and serious hydrological problems creating doubts as to its long term safety and integrity; and

WHEREAS, some progress has been made in attempting to address the immediate water management problems on-site; and

WHEREAS, there is now a need to develop and implement a long range plan to permit the stabilization and to move toward permanent decommissioning of the site; and

WHEREAS, the Kentucky General Assembly commends the actions of the executive agencies to protect public health and is desirous of joining forces to involve the people of Kentucky in decisions concerning nuclear issues; and

WHEREAS, it is the belief of the General Assembly that nuclear issues are of such a serious, technical, and long term nature that the expertise available in the Commonwealth should be tapped and brought to bear on this topic;

NOW, THEREFORE,

Be it resolved by the House of Representatives of the General Assembly of the Commonwealth of Kentucky, the Senate concurring therein:

1 Section 1. That the Legislative Research Commission
2 be directed to appoint a Special Advisory Committee on
3 Nuclear Issues consisting of membership from both houses
4 of the legislature, which shall choose from among its
5 members a chairperson and vice-chairperson, by mutual
6 agreement. In addition, the Legislative Research Commis-
7 sion shall appoint to the committee members recognized as
8 experts in areas related to nuclear issues, representa-
9 tives from environmental groups, and lay members repre-
10 senting the general public, but in no case shall total
11 membership exceed fifteen (15) members.
12 Section 2. That the Special Advisory Committee
13 shall assume an oversight role on behalf of the Kentucky
14 General Assembly on all matters pertaining to the nuclear
15 industry and nuclear waste disposal during the 1980-82
16 interim. The Committee shall meet at least quarterly and
17 shall report its findings and recommendations to the
18 Legislative Research Commission and the 1982 General
19 Assembly no later than January 1, 1982.
20 Section 3. That the Department for Natural
21 Resources and Environmental Protection in consultation
22 with the Department for Human Resources move expedi-

1 tiously to develop and implement a long term plan for the
2 stabilization and eventual decommissioning of any nuclear
3 waste disposal site owned by the Commonwealth on the
4 effective date of this Act with the objective of leaving
5 the site in a condition such that the need for active
6 ongoing maintenance is eliminated and only surveillance
7 and monitoring are required.
8 Section 4. That the Department for Natural
9 Resources and Environmental Protection report to the Spe-
10 cial Advisory Committee on Nuclear Issues on the progress
11 of such long term plan and implementation of such plan no
12 less than two (2) times a year.
13 Section 5. It is estimated that the operation of
14 the Committee and the provision of staff services will
15 cost approximately $20,000, such monies to be provided
16 from the regular budget of the Legislative Research Com-
17 mission.

SPECIAL ADVISORY COMMITTEE ON NUCLEAR ISSUES

Minutes of the First Meeting of the 1980-81 Interim

August 7, 1980

The first meeting of the Special Advisory Committee on Nuclear Issues was held on August 7, 1980, convening at 1:30 p.m. in Room 327 of the State Capitol. Chairman Pete Worthington called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairman; Representative George Plummer, Vice Chairman; Representative Hank List; Senator John Rose; Dr. Terry Devine; Dr. Doug Humphrey; Dr. Hugh Spencer; Mr. Bobby Wilson; Mr. Clayton Zerby; Mr. John Embry; Mr. Max Schwartz; and Ms. Sharon Wilbert.

Guests: Betty Rich, Molly Carew, Allen Holbrook, Elizabeth Paxson, Forrest Roberts, and Ed Scott, Citizens Concerned about Maxey Flats, Morehead, Kentucky; Paula Moore-Carson, OPM, Department of Finance; John Razor and Gene Samsel, National Waste Management Systems, Inc.; Birney R. Fish, UK-McDowell Cancer Network; Etta Ruth Kepp, Environmental Quality Commission; Nancy Osborne, Doyle Mills, Roger Blair and Richard Fry, Department for Natural Resources and Environmental Protection; Roy Osborne, Department for Human Resources; and Dudley Conner, Department for Human Resources, Radiation Control Branch.

LRC Staff: Chuck Hardin, Peggy Hyland, Vic Hellard, Bill Miller, Linda Kubala, Jim Pepper, Don Stosberg, Barbara Rhoads, Mary Helen Wilson, and Beth Wilson.

Press: Herb Sparrow, AP; and Mike Lynch, WKYT.

Representative Worthington called the meeting to order and announced that he would chair the Special Advisory Committee on Nuclear Issues, and that Representative Plummer would serve as Vice Chairman. Chairman Worthington then introduced the LRC staff working with the committee, and asked each committee member to introduce themselves as the roll was called.

A quorum being present, Chairman Worthington gave a brief history on the origins of the committee and the issues

covered by similar committees over the past several years. The two major charges of the committee, as stated in House Resolution 4, are that the Special Advisory Committee shall: 1) assume an oversight role on behalf of the Kentucky General Assembly on all matters pertaining to the nuclear industry and nuclear waste disposal during the 1980-81 interim; and 2) conduct a comprehensive study and review of alternatives for the management, handling, and disposal of radioactive wastes generated in the Commonwealth and recommend a plan for dealing with such wastes.

A slide presentation was then given by Chuck Hardin of the LRC staff on radiation, with special emphasis given to Maxey Flats.

Chairman Worthington explained that a resolution had passed the 1980 General Assembly (House Concurrent Resolution 57), asking the federal government to assist Kentucky technically and financially in the permanent decommissioning of Maxey Flats. This resolution has been sent to the federal Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC). NRC responded that to provide funds for decommissioning of Maxey Flats would not be consistent with their regulatory responsibility. Regarding technical assistance, the NRC stated they had authority to provide such assistance, and since 1974 had provided technical assistance to Kentucky regarding Maxey Flats. No response, as yet, has been received from DOE. Without federal assistance in funding, Kentuckians will carry the full burden of the expensive cost for decommissioning of this nuclear waste disposal site. The Department for Natural Resources and Environmental Protection (DNREP) is pursuing available federal funding through grant proposals to NRC and DOE.

The commission discussed alternative approaches to follow up on Resolution 57 and to solicit a response from DOE, but delayed any action until testimony had been received from the scheduled speakers. It was the concensus of the committee to invite a representative of the U.S. Department of Energy to come to the next meeting and address the department's activities in low level waste disposal, and specifically, how such activities might apply or affect Kentucky's efforts on decommissioning Maxey Flats.

Mr. Roy Osborne, Department for Human Resources (DHR), appeared before the committee and gave a brief description of the department's responsibility in the area of radiation control. Mr. Osborne said that there are 263 licensees who use radioactive materials in Kentucky, including 80 medical facilities, 162 industrial facilities, and 21 academic facilities. Waste disposal procedures are included as part of the license. Several questions were raised by members of the committee, and a lengthy discussion followed on the activities of DHR in this area, including its response to accidents involving the transportation of nuclear materials.

A motion was made by Dr. Spencer requesting DHR to conduct a written survey of all facilities licensed for the use of radioactive material and to determine the types and quantities of radioactive waste generated last year, how they managed the radioactive wastes, and future projections of waste production. Ms. Wilbert seconded the motion, and the motion carried by voice vote.

The Department for Natural Resources and Environmental Protection was represented by Nancy Osborne and Roger Blair. Ms. Osborne stated that no damage has been discovered at Maxey Flats at this time from the earthquake centered in that area in late July. Ms. Osborne then briefly presented the committee with a background on the department's activities at Maxey Flats in moving toward stabilization and decommissioning. A major point discussed was the construction of an employee change building to replace the existing unsatisfactory trailer arrangement at the Maxey Flats site.

Committee members requested several pieces of information for DNREP outlining the status of the water problem onsite, the working budget for the year, copies of the license and copies of the grant proposals.

Mr. Allen Holbrook presented a letter to the committee stating the feelings of citizens from Rowan, Elliott and Carter Counties on the Maxey Flats issue. Mrs. Elizabeth Paxson also briefly addressed the committee as a concerned citizen.

Ms. Wilbert expressed concern over the safety and welfare of the persons working at the Maxey Flats site, and Dr. Devine said that there is still a basic need for proper facilities. After lengthy discussion on the proposal of the employee change facility, a motion was made by Dr. Spencer that the committee go on record endorsing the construction of an employee change building at the Maxey Flats site and urging that construction should not be delayed. Ms. Wilbert seconded the motion, and the motion carried by voice vote. The motion did not, however, support any dollar figure for the cost of the facility, which was estimated to be $75,000.

The committee further discussed the direction to be taken to clear up the confusion on the federal agency jurisdiction for funding low level hazardous waste disposal. The question of notifying the Kentucky Congressional Delegation relative to pending grant proposals was raised. After several suggestions had been made by the committee members, a motion was made by Mr. Zerby that the federal DOE be requested to send an authoritative representative to the next committee meeting to discuss the future plans of DOE to aid in the funding of the Maxey Flats decommissioning effort. Dr. Humphrey seconded the motion, and the motion was adopted by voice vote.

An organizational discussion followed on activities to be conducted by the committee during the interim. It was decided that the next tentative meeting date would be Friday, September 26, 1980. A questionnaire will be sent to each member for possible topics and issues to be dealt with by the committee.

A motion was made to adjourn. With no further business to come before the committee, the meeting adjourned at 5:45 p.m.

A SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Second Meeting
of the 1980-81 Interim

September 26, 1980

The second meeting of the Special Advisory Committee on Nuclear Issues was held on Friday, September 26, 1980, at 1 p.m. in Room A of the Capitol Annex. Chairman Pete Worthington called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairman; Senators James Bunning, Helen Garrett, and John Rose; Representatives Hank List and George Plummer; Dr. Terry Devine; Dr. Doug Humphrey; Mr. Bobby Wilson; Dr. Hugh Spencer; Mr. John Embry; Mr. Max Schwartz; Ms. Sharon Wilbert; Mr. Clayton Zerby; and Mr. Allen Holbrook.

Legislative Guests: Senator Ed Ford and Representative Ron Cyrus.

Guests: Doyle Mills, Department for Natural Resources and Environmental Protection; Louise Dressen, U.S. Department of Energy; James Clancy and James Cline, Dames and Moore; Roy Strange, Chevron U.S.A., Inc., Roy Osborne and Don Hughes, Department for Human Resources; Paula Moore-Carson, OPM, Department of Finance; John E. Razor and Gene Samsel, National Waste Management Systems, Inc.; Molly B. Carew, Citizens Concerned about Maxey Flats; and Scott Houchin, Paddlewheel Alliance.

LRC Staff: Chuck Hardin, Peggy Hyland, Mary Helen Wilson, Barbara Rhoads, and Beth Wilson.

Press: Jim Surbeck, Department of Public Information; and Herb Sparrow, Associated Press.

Chairman Worthington stated that Allen Holbrook would be recommended to replace Kenneth Karem, whose resignation left one vacancy on the special advisory committee. Mr. Holbrook attended the meeting, but had no voting power until his appointment to the committee by the Legislative Research Commission is confirmed.

A quorum being present, Representative List moved that the minutes from the previous meeting be approved. Dr. Humphrey seconded the motion, and the motion carried by voice vote.

Louise Dressen, U.S. Department of Energy (DOE), presented the committee a summary of DOE's low-level waste program and its technology development effort in the area of low-level waste disposal. The DOE's program mission is primarily aimed at having an effective low-level waste management system in the United States by 1988.

Ms. Dressen stated that the U.S. Department of Energy has been designated by the President as the lead agency in planning for low-level nuclear waste management and has oversight of activities of other agencies in this area. The U.S. Department of Energy is in the process of developing a document relating to low-level waste, which will focus on information for states. This report should be distributed sometime this fall for review and comment.

Ms. Dressen then presented the committee with a summary of DOE activities now underway. They include:

(1) A complete assessment of technology;

(2) The development of environmental models and monitoring - with guidelines for criteria for decommissioning;

(3) Procedures for implementing burial sites; and

(4) Field work in New Mexico and Oak Ridge, Tennessee, for design specifications, which include reduction techniques, waste fixation, and guidelines for waste packaging and treatment.

Ms. Dressen also said that Purdue University is developing an incinerator for the disposal of small animals, which should be completed by January, 1981. This would also aid in the disposal of university and hospital research wastes. In addition, by 1982, the DOE should have a plan for stabilizing shallow land waste sites. Ms. Dressen indicated that shallow land burial is expected to continue to be an acceptable method of disposal. Alternative methods for shallow land burial - intermediate depth burial sites (a cover of 30 feet or more) - should be available by 1986.

Ms. Dressen stated that the Nuclear Regulatory Commission (NRC) is developing new regulations on low-level waste disposal and a classification of waste system categories. There will be safeguards developed to meet waste disposal standards for DOE facilities. The Department of Energy, the Nuclear Regulatory Commission and the Environmental Protection Agency are all working toward an agreement for the criteria for low-level waste disposal.

Representative List asked if any recycling or conversion techniques were being studied by DOE, and Ms. Dressen indicated that recovered material may not have that much value now.

Ms. Dressen said that better trench caps, better solidification of waste, and surface drainage systems should help alleviate problems of waste disposal that have been occurring over a long period of time, relative to the geologic aspects of waste disposal problems.

Ms. Wilbert asked if DOE is providing adequate sites in health monitoring where there are low-level waste sites, and Ms. Dressen responded that DOE has no authority over this area or for any existing hazardous waste facilities.

Mr. Wilson asked if there were any proposals being made to communities to convince them to accept a waste disposal site in their area, and Ms. Dressen responded that DOE is developing educational programs for citizens on the issue of low-level waste disposal. Along with educating the public, incentives are available to those communities who accept a waste disposal site in their area.

Chairman Worthington asked what specifically DOE could do for the permanent decommissioning of Maxey Flats. Ms. Dressen indicated that DOE could provide assistance to help define what needs to be done at Maxey Flats and could and would provide continuing technical assistance and even financial assistance if the project were of generic value, that is, applicable to humid shallow land burial sites in general, not just Maxey Flats specifically. Currently, DOE's budget for decommissioning studies is about $500,000. Chairman Worthington indicated the Commonwealth has budgeted 1.2 million dollars for Maxey Flats alone for one year. Ms. Dressen agreed to talk to Mr. Bateman about responding directly to House Resolution 57 and to inform the committee of the timetable for his response. The committee then requested Ms. Dressen to inform them of the workshops to be held on low-level waste management and disposal.

The next order of business was a presentation by Senator Ed Ford, Representative Ron Cyrus, and Chuck Hardin on the the "Low-Level Radioactive Waste Conference," sponsored by the National Conference of State Legislatures in August. Senator Ford stated that there were two problems most commonly discussed at meetings during this conference. There were:

(1) Jurisdictional questions on who is responsible for siting, funding, and clean-up; and

(2) A specific definition of what low-level waste really is.

Senator Ford gave a brief background description of the history of low-level nuclear waste management and highlighted the potential problem for disposal capacity in the near future. Senator Ford stated that the most positive idea from the conference was the idea of developing inter-

state compacts for disposing of low-level waste. With a compact agreement such as this, each state would be responsible for wastes generated within its borders, and several states could go into an agreement for disposing of such wastes. Most states are leaning toward this compact concept. However, interstate compacts would need U.S. Congressional approval, although planning and "unofficial" agreements could be pursued in the interim. Representative Worthington questioned whether low-level waste is really a state or a national problem. A discussion followed on the regional compact issue.

Scott Houchin, Paddlewheel Alliance, briefly addressed the committee, offering input from various citizen groups on the issues relating to nuclear power plants, especially those concerning emergency plans for evacuation and transportation, and asked to be given an opportunity to address the committee at future meetings.

A motion was then made by Representative List that a letter be sent to Governor Brown, asking that the Special Advisory Committee on Nuclear Issues be notified of any discussions initiated with the Governor's office by the U.S. Department of Energy relating to any proposed investigations in Kentucky for repositories of high-level wastes, or low-level wastes, or any other proposal which they may initiate. Mr. Zerby seconded the motion, and the motion was adopted by voice vote.

Chairman Worthington asked that staff collect for the next meeting the policy positions of groups such as the State Planning Council and Southern Governor's Association, relative to the states' roles in nuclear areas.

Discussion followed on what specific issues the committee would be interested in considering at future meetings. The committee decided against breaking into subcommittees.

Ms. Wilbert briefly stated recommendations that had been given to her from and advisory group from Jefferson, Bullitt, and Oldham Counties. The recommendations which Ms. Wilbert presented were: the transportation of radioactive materials; state and local planning for emergencies; environmental monitoring around nuclear power reactors; collection of health data on workers in nuclear facilities and the application of worker's compensation to disabilities from radiation exposure; unauthorized storage facilities in Paducah; economic feasibility studies of nuclear power and uranium enrichment; resolutions opposing federal pre-emption; and requesting the Attorney General to inform the committee of all nuclear related cases.

The next meeting is scheduled for November 21 at 10 a.m., location to be announced.

After further discussion on the directions the committee will take this interim, the meeting adjourned at 4:35 p.m.

INTERIM SPECIAL ADVISORY
COMMITTEE ON NUCLEAR ISSUES

Minutes of the Third Meeting
of the 1980-81 Interim

November 21, 1980

The third meeting of the Interim Special Advisory Committee on Nuclear Issues was held on November 21, 1980, convening at 10 a.m. at Northern Kentucky University, Highland Heights, Kentucky. Chairman Worthington called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairman; Representatives Henry List and George Plummer; Senators James Bunning and John Rose; Dr. Terry Devine; John Embry; Allen Holbrook; Dr. Doug Humphrey; Max Schwartz; Dr. Hugh Spencer; Bobby Wilson and Clayton Zerby.

Guests: R. S. Wegene and J. U. Botts, Public Service Indiana; Dr. Philip McCartney, Northern Kentucky University; David Clark and Doug Draper, Radiation Control, Department for Human Resources; Susan Craft, Buffalo Trace Area Development District; Gene Samsel, John Razor, and Don Pollitt, National Waste Management; Birney Fish and Doyle Mills, Department for Natural Resources and Environmental Protection; Fred R. Mynatt and Carol Berger, Oak Ridge National Laboratory; General Billy Wellman and General Wilbur Buntin, Department of Military Affairs; Craig Martin; William Blessing, Kentucky Disaster Emergency Services; David Pribble, Pendleton County Judge/Executive; G. C. Ficke and D. W. Kemp, Cincinnati Gas and Electric Company; Clyde Greenwood, Trimble County Judge/Executive; Wendell Moore, Oldham County Judge/Executive; Robert Alexander, Campbell County Disaster Emergency Services (representing Judge Hehl); Margaret Dillinger, Oldham County; Scott Houchin, Paddlewheel Alliance; Clara Leuthart, University of Louisville; Mrs. Wendell Moore; Elain Mynatt; and Katie Nienaber.

LRC Staff: Chuck Hardin, Peggy Hyland, Don Stosberg, Barbara Rhoads, and Stephanie Kirtley.

Press: Ferrell Wellman, WAVE; Laurel Harper, Campbell County News; Gabriella Jacobs, The Kentucky Post; Cheryl McHenry, WCKY-Radio; and Kathy Luhr, WLW-Radio.

The minutes of the previous meeting were approved.

Mr. Doug Draper from the Radiation Control Branch, Department for Human Resources, addressed the committee.

on Control Branch has been conducting the ental surveillance and radiation monitoring axey Flats since 1963. Mr. Draper dis- n monitoring data for radiation level around m 1975 through October 1980.

r gave an historical account of on-site man- vities at Maxey Flats. When the evaporator was was determined by the Nuclear Regulatory Com-) and Department for Natural Resources and Envi- Protection - Air Pollution that the allowable tritium from the plume should be 20 millicuries d. Most other radioactive isotopes and tend to be in the concentrate. Department for Human Resources the limit for tritium release at 2 millicuries per one-tenth of the recommended level.

the first nine months of 1980, the tritium released een about 8.8 kilocuries-the annual limit is 44 uries. As a comparison, the Savannah River Project has aporator that releases about one kilocurie of tritium day of operation. The evaporator at Maxey Flats is cur- tly being run three shifts daily. Tritium released from evaporator is continuously monitored and analyzed daily -site. The DNREP is responsible for on-site monitoring ile DHR does off-site monitoring. There is no dual ampling from the evaporator.

DHR has monitoring stations in the vicinity of Maxey Flats. The location of these stations allows all of the drainage paths to be checked. All of the surface runoff eventually runs into Rock Lick Creek.

Mr. Draper then presented the data from various montitoring stations for gross alpha, gross beta, and tritium.

In response to a question from Senator Rose, Mr. Draper indicated that the data is presented as a yearly average since the Maximum Permissible Concentrations (MPC), the maximum allowed off-site, are set for annual units. The MPC values are set by Kentucky and must be as stringent as those of NRC. Mr. Draper indicated that the average could be misleading since some actual values could be higher or lower than the average. Any reading about the limit would be immediately checked. There have been no such situations since 1975.

The MPC for	gross beta is	30 pc/liter
	gross alpha	30 pc/liter
	tritium	3,000 pc/ml

These are in addition to background radiation. Gross beta background level in that area runs about 8 pc/liter (as seen from levels in streams geographically isolated from

Maxey Flats). Specific analyses will be run for any readings above these levels.

The statistics for 1978 are questionable for the limiting receptor well since only one sample was taken that year. Samples were done every two weeks in 1979 and 1980. Dr. Humphrey pointed out that the 2 millicuries/sec. limit for tritium from the evaporator is misleading since you can't really measure the release in a second. Since the data is collected over a 24 hour period, it would be more accurate to give a 24-hour release. The computer, however, is programmed to feed out data in millicuries/sec.

Representative Worthington pointed out that the data for tritium in the drinking water samples appears to be on the increase comparing 1979 and 1980 to 1975. Mr. Draper indicated that these figures generally follow the trends that EPA has determined for the nation.

DHR have monitors as far away as about seven nautical miles from the Maxey Flats site. Some vegetative studies have been done on garden and farm crops in the area.

A sequential sample has now been placed on Rock Lick Creek where all surface runoff must pass. One water sample is drawn every six hours. This sampler has been operational for the last month. This is in addition to the other routine samples taken from the area.

Mr. Draper indicated that some studies have been done on alternatives to eliminating the tritium. These technologies are not well developed currently.

David Clark, Radiation Control Branch, Department for Human Resources, addressed the committee concerning questions about gases in the trenches and the potential earthquake damage at Maxey Flats. He stated a study has been done on gases in the trenches, but the potential for explosion is negligible. Mr. Holbrook requested that the committee be supplied with data regarding gases in the trenches. Concerning earthquakes, Mr. Clark indicated the maximum credibility earthquake in the area would probably be about 5.5 on the Richter scale. Mr. Clark explained that the fault in the Maxey Flats area is in the basement rock. Mr. Clark stated that based on a postulated event by Bud Zehner, U.S.G.S., of an earthquake between 7 and 8, the primary damage would be to the tanks in the tank farm. They would lose leachate stored in the tanks because the tanks are on a concrete base. However, a bermed area around the tanks is designed so that all of the leachate would be contained. Water in the trenches would slosh, but would not likely cause surface contamination from the slushing. If a crack were created, the volume of water flowing out of the trenches through the cracks would be small and would travel slowly. The estimated rate would be approximately 60 feet

per year. Regarding the alleged explosion at a nuclear facility in Russia, Mr. Clark indicated that this was apparently a facility dealing with high level waste, and the waste was in the form of a nitrate. Apparently, the amonia nitrate in the waste caused the explosion.

Doyle Mills, Department for Natural Resources and Environmental Protection, addressed the committee on the department's activities at Maxey Flats. He indicated that the department is continuing its program to minimize infiltration of the water into closed trenches by improving drainage and preventing erosion. Volume reduction of the supernatant from the evaporator concentrate is being done; approximately, 200,000 gallons have been reduced to 50,000 gallons. Mr. Mills indicated that the contract with National Waste Management Services to provide the necessary day to day maintenance at the site had been renewed. The employee change building has been exempted from the construction freeze and plans are progressing on its design. The committee had endorsed this exemption at a previous meeting. The department is continuing its negotiations for funds with the U. S. NRC and the U. S. DOE. Dames and Moore, Inc., has been retained another year for consulting and engineering. The department hopes by March, 1981 to award a contract for solidification of the evaporator concentrates which have been accumulating over the last eight years. Other studies and research investigations are ongoing at the site.

Mr. Mills indicated that for the first time more water was being evaporated than was accumulating at the site. Before a detailed decommissioning plan can be developed the department needs more information on available technology, safety considerations, and probably costs. The department has hired two new staff to deal with Maxey Flats. Birney Fish will work as a liaison with citizens' groups and assist in long range planning and site decommissioning. Don Pollitt will be stationed at the site to handle administrative procedures. Mr. Fish is an experienced professional engineer. He is also experienced in health physics, radiological health, and environmental assessment.

Mr. Fish stated that by March the department should have a solidification process or at least have a bid for such a process. It has to be licensed by DHR to perform the solidification operation. The department has a proposed license modification which is still under discussion. The solidified products will be buried at the site.

General Wellman of the Department of Military Affairs discussed the current status of emergency planning for nuclear power reactors being built on Kentucky's border. The Division of Disaster and Emergency Services coordinates all agencies having some responsibility for emergency planning for these nuclear facilities. It is the policy of the

department that the cost of an effective warning system and evacuation plan must be borne by the utility, and it is the policy of the department to not expend state funds for these purposes.

The department has been working with the Cincinnati Gas and Electric Company for about eleven months to develop an early warning system and evacuation plans for the counties affected by the Zimmer facility, specifically Bracken, Pendleton, and Campbell Counties.

The plan being developed is based on regulations of NRC and FEMA regulations, which have seventy-one requirements as a guide. All requirements of local and state government will be included prior to submission of the final plan to the Governor and FEMA for approval.

In regard to the Marble Hill plant, General Wellman stated that it is anticipated that the Zimmer plan can serve as a guide in the development of the plan for the Marble Hill facility.

The concept of the plan is for an early warning system and evacution plan for the 10-mile radius around a plant. Additionally, for those counties in a 50-mile zone, the department will assist those counties to modify their plans as appropriate.

Mr. Craig Martin of DES presented the current status of the plans. Since the facilities are operated in other states, Kentucky does not benefit financially from these plants, so a major problem of funding for planning exists.

In addition to the Zimmer and Marble Hill facilities, two facilities are proposed in Tennessee, the Hartsville and Phipps Bend facilities. They do affect Kentucky in the 50-mile planning zone. These plants are scheduled to be on line in mid-1980. Since there is sufficient lead time, no specific actions have been taken for these Tennessee plants. Most of the efforts will be spent on the 10-mile zone area in the immediate future.

In regard to the Marble Hill facility, the department has been in contact with the staff of Public Service of Indiana (PSI), but no detail planning, such as with the Zimmer plan, has taken place. Such planning with PSI should occur in 1981. It is not anticipated that Marble Hill will go on line until 1984 or 1985, so there is adequate lead time.

For the Zimmer facility, the anticipated on line date is late 1981 or early 1982. All involved state and local agencies have participated in the Zimmer planning. Progress is being made for the Zimmer plan with significant negotiations with the utility, Cincinnati Gas and Electric Company

(C.G & E.) for providing funding for early warning systems equipment, communication systems, certain planning costs, certain off-site monitoring systems, training and education, and exercises for the planning. These negotiations are on-going and much progress has been made.

Following the presentations by the DES representatives, the invited County Judges/Executive presented their views and concerns relative to the nuclear plants. Judge Greenwood, Trimble County, stated that his county was in the 10-mile zone and had much concern for the ability to adequately implement a plan to quickly notify and evacuate several thousand people. He was also concerned about where such people would go. He felt that Trimble County needed financial assistance from PSI in adequately planning for an accident that could occur at the Marble Hill facility. There is need for financial assistance not only from PSI but also from the state.

Judge Moore, Oldham County, presented the committee with a list of thirty-eight questions which he felt needed to be answered before the Marble Hill facility should be put into operation.

Judge Pribble, Pendleton County, and Mr. Bob Alexander, representing Judge Hehl, Campbell County, both felt that DES and C.G. & E. have been making good progress in preparing a plan for their counties, and that they had participated in the development of such planning. They both felt there were still areas that needed final resolution, but that work was being done to bring these unresolved areas to a solution.

Mr. Jack Bott of PSI stated that his company will make the same commitment to Kentucky as has been made to the Indiana counties surrounding the Marble Hill facility.

Ms. Carol Berger and Mr. Fred Mynatt from the Oak Ridge National Laboratory then addressed the committee on lessons learned from Three Mile Island (TMI) relative to emergency response and emergency preparedness planning.

Mr. Mynatt addressed the committee on reactor safety concerns. He stated that the emergency response at TMI was poor because of poor planning, poor accident management and poor communication. Mr. Mynatt then discussed some observations and conclusions relative to sound emergency planning. Basically, he stressed the need to rely on monitoring data and to key decisions to these measurements. He indicated that the emergency plan developed for the Sequoyah Nuclear Power Facility is a good model and more than adequate for the protection of the public.

Ms. Berger summarized some of the theories relative to radiation health effects. In addition to health risks from radiation exposure in the event of a nuclear emergency,

there are health risks associated with the evacuation itself (accidents, etc.). In any decision relative to evacuation, the risk of low doses of radiation exposure must be weighed against the risks associated with evacuation. A question and answer session followed.

The committee decided to hold its next meeting in Frankfort on January 16, 1981. The meeting adjourned at 5:30 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Fourth Meeting
of the 1980-81 Interim

January 16, 1981

The fourth meeting of the Special Advisory Committee on Nuclear Issues was held on January 16, 1981, at 10 a.m. in Room A of the Capitol Annex. Chairman Worthington called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairman; Representative Henry List; Senators James Bunning, Helen Garrett, and John Rose; Mr. John Embry; Dr. Terry Devine; Dr. Doug Humphrey; Dr. Hugh Spencer; Mr. Bobby Wilson; Mr. Clayton Zerby; and Mr. Allen Holbrook.

Guests: Scott Houchin, A. T. Bass, Marc A. Petitpurre, and Winifred Hepler, Paddlewheel Alliance; William Hanes, Birney Fish, Reba Page, and Nancy Osborne, Department for Natural Resources and Environmental Protection; Donald Hughes and Roy Osborne, Department for Human Resources; Craig Nern, E. G. & G. Idaho, Inc.; Gene Samsel, National Waste Management Service; Raymond Perry, Southern States Energy Board; Don Reder, city of Mentor; Robert Freeman; Margaret Dillinger, and Jack Comart.

LRC Staff: Charles Hardin, Peggy Hyland, Barbara Rhoads, Mary Helen Wilson, Don Stosberg, and Stephanie Kirtley.

Press: Mike Lynch, WKYT-TV; Wanda Bryant, WLEX-TV; Dick Farmer, WLAP-TV; Pat Braddock and Ferrell Wellman, WAVE-TV; Tom Loftus, The Kentucky Post; Ann Purdue, Courier-Journal; and Jim Surbeck, Department of Public Information.

The minutes of the previous meeting were approved.

Mr. Scott Houchin from Paddlewheel Alliance addressed the committee on the construction of the Marble Hill Nuclear power facility. He stated that before the Three Mile Island (TMI) accident occurred the Nuclear Regulatory Commission (NRC) inferred that a serious nuclear accident, particularly of the Class 9 classification, would not occur. Mr. Houchin said nuclear accidents do happen and people have been killed. He said that according to Dr. Kristin Schrader-Frechette of the University of Louisville, the probability that a core melt-down will occur in one of the 65 operating plants during their thirty year lifetime is one in ten (10% chance).

Mr. Houchin stated that in the United States there has never been a total melt down, but there have been close calls. According to the government document WASH-740, an estimated 45,000 immediate deaths, 100,000 later deaths and injuries, property damage as high as $17 billion, will result in the event of a Class 9 accident.

Mr. Houchin said that Oldham County, which is only a few miles from the Marble Hill construction site, has a population of 30,000 people. The county has two state prisons, two large high schools and a junior high. The closest medical facilities are in Louisville. Are they set up to care for contaminated individuals? He questioned the feasibility of evacuation, given traffic problems, road conditions and adverse weather conditions. He said because you cannot see, taste, smell, feel, or hear the radiation from a nuclear accident, people would panic a lot more than that if a flood or tornado occurred.

Mr. Houchin stated that utilities personnel have a very poor record of notifying public officials. Mr. Houchin recommended that the committee may want to take some measures to assure proper and quick notification by the facility operator in the event of an accident.

Senator Bunning asked if before a nuclear plant can be licensed, an emergency disaster plan has to be approved either by the state or local government. Representative Worthington said there has to be an emergency evacuation plan. General Wellman who spoke at the last meeting indicated the state would not agree to or submit a plan if the local people did not approve it. Charles Hardin, LRC staff, stated that the NRC procedure for licensing a nuclear power reactor included specific requirements on the applicant relating to emergency planning. The applicant (utility) must demonstrate that appropriate off-site emergency planning is "in place" before an operating license is issued. However, there is a provision that would allow the utility to proceed if the adjacent state or local government refused to participate in such planning.

The committee discussed the role of civil defense in providing shelters as an alternative to evacuation.

Mr. Don Reder, representing the city of Mentor, discussed the final regulations on emergency planning by the NRC. He said they require mutual agreement even with villages. Mr. Reder stated there are nearly 200 criteria and items that must be fulfilled by plant operators in order for NRC to issue plant operator licenses and said local government must be involved in the planning effort. He had questions concerning evacuation routes and provisions covering the barging of spent fuel.

Mr. Reder stated that on August 23, 1979 he appeared

before the Interim Joint Committee on Health and Welfare.

Representative List stated that before anyone else can help it, Mentor as a city, needs to find out what it can do for itself. Mr. Reder responded by saying if an accident occurs, the city is not capable of handling the situation.

Mr. Reder recommended some type of "time-motion study" be conducted to see how efficient an evacuation in the immediate area could be performed. He also stated that no state, federal, or county official had contacted the city of Mentor in planning activities for Campbell County.

Mr. Reder said he expected two more hearings on the Zimmer plant, one in February and probably one this summer. He recommended that the committee continue its oversight of nuclear emergency planning.

Senator Garrett made a motion to send a letter to the Division of Disaster and Emergency Services (DES) requesting that someone appear before the committee again in the future and give an update on the status of emergency planning for nuclear facilities, and to include in the letter a request from DES to participate with all cities that might be affected by the plant. Also, the letter should include the thirty-eight questions presented by Judge Moore at the committee's third meeting.

The motion was seconded by Dr. Humphrey and passed by the committee.

Representative Worthington asked the LRC staff to investigate what other states are doing in regard to nuclear facility siting, licensing, and emergency planning.

Following a recess for lunch, the committee heard testimony from Mr. Roy Osborne on the results of a survey of how Kentucky licensees manage their generated radioactive waste.

Mr. Osborne said that 289 questionnaires were sent out, with 259 responding. Of those not responding, Mr. Osborne felt they were in a category of using "sealed sources", which were returned to the manufacturer, and thus did not generate waste.

Mr. Osborne referenced a national study on generated low-level waste, performed by the NUS Corporation. This NUS study entitled "The 1979 State-By-State Assessment of Low Level Radioactive Wastes Shipped to Commercial Burial Grounds", indicated that for the state of Kentucky, that 194 cubic meters (6,850 cubic feet) were shipped to commercial sites in 1979. The total activity was 37 curies.

Mr. Osborne stated that these NUS numbers differed from

the results obtained from his survey. His survey showed that only 3,818.3 cubic feet of radioactive waste were shipped to commercial sites in 1979. The activity in this volume would be approximately 1.5 curies. Compared to other states Kentucky would not be considered a large producer.

Apparently the discrepancy between the two studies was due to some waste obtained from other states by the Nuclear Engineering Company and other Kentucky licensed waste collectors. Such waste was then forwarded to a commercial site and recorded as Kentucky generated waste in the NUS study, when actually it was non-Kentucky generated waste.

The projected waste for 1980 and 1981 obtained by the DHR study were:

YEAR	VOLUME
1980	Approximately 4,300 cubic feet
1981	Approximately 3,045 cubic feet*

*Reflects volume reduction from 1980 due to compaction in 1981 at the University of Kentucky.

Representative Worthington asked Mr. Osborne if DHR could assist the committee in methods to manage Kentucky waste should the present commercial sites become unavailable. Mr. Osborne stated he thought they could. Representative Worthington also asked DHR to look into whether or not any of the department's regulations relating to disposal of radioactive waste was in conflict with KRS 211.852.

Mr. Zerby indicated that any alternatives study should include a cost evaluation of the alternative.

Mr. Wilson informed the committee of a seminar on the incineration of waste, to be presented by the University of Maryland sometime in late March or early April. Mr. Wilson made a motion to investigate the possibility of sending someone to this seminar. Senator Bunning seconded the motion, which was passed by the committee.

Representative Worthington distributed a letter which he had received from the manager of the Radiation Control Branch in DHR. This letter identified the need to purchase new equipment for the Branch's environmental laboratory.

Senator Bunning made the motion that the committee should go on record in support of the needs identified by the Radiation Control Branch, and to send a letter to the Governor indicating our support. The motion was seconded by Dr. Spencer. Mr. Holbrook made a motion to amend Senator Bunning's motion to include in the letter to the Governor any other needed equipment to monitor Maxey, the Zimmer and Marble Hill nuclear facility.

The motion to amend it was seconded by Dr. Humphrey and passed by the committee.

The original motion, as amended, was passed by the committee.

Mr. Holbrook make a motion to request the Department for Human Resources to consider developing a regulation which would require all Kentucky radioactive material licensees to submit annually all necessary information to keep track of their generated radioactive waste.

The motion was seconded by Dr. Spencer and passed by the committee.

Testimony was given by Mr. Ray Perry of the Southern States Energy Board (SSEB) regarding the Board's activities with regionalization and interstate compacts for the disposal of low-level radioactive waste. Mr. Perry stated that SSEB represented sixteen states and Puerto Rico.

He said there were three options for a state regarding the disposal of radioactive waste:

1. Status quo - using existing sites. However, the state of South Carolina has indicated it will require a substantial reduction in the annual allowable volume at the Barnwell site. Also, the state of Nevada is looking at a reduction in the annual acceptable volume at the Beatty site. A referendum was passed in the state of Washington which would only allow waste generated in the state of Washington to be placed in the Richland site.

2. Each state to handle its own waste by a state disposal site. This option is not considered economical.

3. Regionalization of a group of states, and forming an interstate compact. Such a compact would be binding on those states which signed the compact.

The recently passed Senate Bill 2189, by Congress, encourages interstate compacts and would allow the restriction of waste from states not part of the compact. Mr. Perry discussed other provisions of SB 2189.

Mr. Perry discussed the recent meetings held on interstate compacts by the states of Virginia and South Carolina. These two meetings were designed to initiate discussions between various states on the interstate compact concept.

Mr. Perry stated that SSEB is developing criteria for regional development of disposal sites, and when such criteria has been developed, it will be forwarded to the Gover-

nor of each SSEB member state.

Following Mr. Perry, Mr. Birney Fish, with the Department for Natural Resources and Environmental Protection (DNREP), gave a summary of the two meetings on interstate compacts which were held in Virginia and South Carolina. Mr. Fish represented Kentucky at both of these meetings. He said that eight states were at the South Carolina meeting and six states at the Virginia meeting. Apparently, Kentucky was invited to these two meetings with the assumption that Kentucky could appropriately "fit" into a region of either area.

Mr. Fish said South Carolina will be holding another meeting in March, and Virginia will hold a meeting the first part of February.

Dr. Spencer made a motion to request the Governor to keep the committee fully informed on activities being considered by Kentucky relating to interstate compacts.

The motion was seconded by Mr. Wilson and passed by the committee.

Mr. Craig Nern, representing E. G. & G., a contractor to DOE for low level waste, discussed what some other states are doing about their state generated low-level waste. He indicated that E. G. & G. has been helping various states develop plans to deal with their waste. Alternatives include volume reduction, interim storage, decay storage and incineration.

Presently, the states of North Carolina, Tennessee, and Virginia have plans for their state generated waste. Work is also being done in Florida and Michigan. Mr. Nern indicated that the Tennessee plan would probably be the best guide for Kentucky to use in our alternatives study.

Mr. Nern indicated that E. G. & G. could be approached about assisting in the developing of Kentucky's plan. E. G. & G. is also interested in remedial technology.

The committee agreed to have the next meeting in Frankfort on February 13th at 1 p.m. That meeting is to be a working session of the committee. The committee also agreed to hold the March meeting in Morehead, but no specific date was set.

The meeting was adjourned at approximately 5:30 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Fifth Meeting
of the 1980-81 Interim

February 13, 1981

The fifth meeting of the Special Advisory Committee on Nuclear Issues was held on February 13, 1981, at 1 p.m. in Room C of the Capitol Annex. Senator Rose, Acting Chairman, called the meeting to order, and the secretary called the roll.

Present were:

Members: Senator John Rose, Acting Chairman; Representative Hank List; Senator Jim Bunning; Dr. Terry Devine; Dr. Doug Humphrey; Clayton Zerby; John Embry; Allen Holbrook; Ms. Sharon Wilbert; and Max Schwartz.

Guests: Doyle Mills, Department for Natural Resources and Environmental Protection; Etta Ruth Kepp, Environmental Quality Commission; Peg Dillinger, Paddle Wheel Alliance; Roy Stevens, Ashland Oil; and Robert Freeman.

LRC Staff: Mary Lynn Collins, Peggy Hyland, Chuck Hardin, Don Stosberg, Barbara Rhoads, Mary Helen Wilson, and Stephanie Kirtley.

Press: Mary Gehant, Department of Public Information; and Herb Sparrow, Associated Press.

Dr. Humphrey moved to approve the minutes of the previous meeting. Mr. Embry seconded, and the motion was adopted.

Senator Rose opened the meeting by stating that its purpose was to discuss committee activities to date and future work plans. The first issue for discussion was the decommissioning of Maxey Flats. Peggy Hyland, LRC staff, gave a brief summary of the two reports that the Department for Natural Resources and Environmental Protection (DNREP) presented to the committee at previous meetings and indicated there would be two more reports by DNREP as required by House Resolution 4.

The committee was presented by staff with a number of options that could be pursued concerning the decommissioning of Maxey Flats. Mr. Holbrook moved that the committee, in anticipation of the third report by DNREP, pose specific questions to the department, to be answered in detail. Information to be requested of DNREP includes status reports on proposals sent to the U.S. Department of Energy (DOE) and

the Nuclear Regulatory Commission (NRC), a specific breakdown of items and cost of activities being performed at the site, a timetable for the decommissioning of the site, and a maintenance plan for the facility once the site has been decommissioned. In the motion which was adopted, Mr. Holbrook also moved to request the Department for Human Resources (DHR) to report to the committee the individual trench inventory by isotopes.

The second issue discussed by the committee was federal participation in funding at Maxey Flats. Mr. Zerby moved that the staff draft a resolution for the committee's approval requesting the Kentucky Congressional delegation to introduce legislation specifically appropriating funds to decommission Maxey Flats. Mr. Embry seconded the motion, and the motion was adopted.

Environmental monitoring was the third issue discussed by the committee. At a previous meeting the Department for Human Resources (DHR) gave a presentation on environmental monitoring at Maxey Flats. The committee voted to request DHR to come back before the committee to answer questions raised as a result of that and other presentations and to update the monitoring program. Mr. Holbrook moved that the DHR also be asked to explain what off-site monitoring is being done in regard to evaporator emission. The motion was seconded by Ms. Wilbert and was adopted. In addition, a motion was passed to ask DHR to explain how they are communicating monitoring information to the local communities involved.

The fourth issue before the committee was emergency planning for nuclear power plants. At the request of Mr. Schwartz, Chuck Hardin explained how Kentucky got involved in the emergency planning of a nuclear power plant not located in the state. Mr. Hardin explained that the NRC required that the applicant, prior to the issuance of an operator's license, must demonstrate in the application that both on-site and off-site emergency planning is in order. This NRC requirement puts the burden on the applicant to work with local and state governments to develop an acceptable plan for off-site emergency response. The acceptability of such an off-site plan is determined by the Federal Emergency Management Agency (FEMA), which uses a specific set of criteria to determine its acceptability. If FEMA accepts the plan and recommends the acceptance to NRC, NRC will proceed on in the licensing process.

If FEMA does not recommend the acceptance of the plan, NRC may:

(1) Refuse to issue the operating license until the plan is acceptable;

(2) Proceed on with the licensing process if the

applicant can demonstrate that they (the applicant) have made provision for off-site emergency response, even if the state or local governments have not adopted, due to refusal or other reasons, an acceptable plan.

Mr. Hardin explained that Kentucky derived its authority to be involved in the emergency planning from the broad authority granted in KRS 39.400 which authorizes the adjutant general to coordinate all state disaster planning with the federal government and other states. In addition, Chapter 211 designates the DHR as the radiation control agency for the Commonwealth.

Representative List stated that in order for an emergency plan to be effective each city should evaluate locally to see what they can do for themselves.

Ms. Wilbert suggested that the Division of Disaster and Emergency Services (DES) should be questioned as to the content and quality of their emergency plan. Representative List moved and Ms. Wilbert seconded the motion to have DES appear before the committee to update their emergency plan and explain what evacuation models they plan to implement.

Senator Bunning indicated that he would be participating in a meeting with Cincinnati Gas and Electric (C. G. & E.) concerning emergency plans at Zimmer and would report to the committee next month on the meeting. The committee voted to request to have a member of the committee or staff participate as an observer in the planned mock exercise for the Zimmer facility and to ask DHR to report on its observations of the mock exercise.

Mr. Holbrook expressed concern that an emergency evacuation plan could be implemented that was not approved by the county judges of the affected counties. He moved that the committee request a representative from the Attorney General's Office to appear before the committee to address the issue and inform the committee on the position of the Attorney General's Office concerning nuclear power plants. Senator Bunning indicated that he preferred the Attorney General to appear before the committee instead of a substitute. The motion was approved by the committee. Mr. Schwartz asked staff to obtain copies of the independent inspection reports on the Marble Hill construction.

The fifth issue discussed by the committee was alternatives for Kentucky generated waste. In discussing the generators of Kentucky radioactive waste, Chuck Hardin pointed out that the University of Louisville and the University of Kentucky generate 98% of the radioactive waste in Kentucky. Representative List made a motion to invite the radiation safety officers to attend a future committee meeting to report on the activities of the universities requiring radioactive materials and current practices and problems.

Dr. Humphrey seconded the motion, and the motion was adopted.

The final issue taken up by the committee was interstate compacts. Much interest has recently centered around regionalization and interstate compacts for the management of low-level radioactive waste. Chuck Hardin reported that Kentucky was invited to attend two meetings (Virginia and South Carolina) on interstate compacts. The committee recognized there were a number of questions concerning interstate compacts and Mr. Holbrook made a motion for the committee to keep its options open for further study but to make a commitment to act on a policy toward regional compacts before the committee expires. The motion was seconded by Dr. Humphrey and adopted by the committee.

The committee asked the staff to report on the March 9 joint meeting of the subcommittee on the Interim Joint Committee on Agriculture and Natural Resources and the Interim Joint Committee on Transportation concerning the transportation of hazardous materials.

Senator Rose stated that the next meeting would be Friday, March 20 at Morehead and the committee members will be able to tour the Maxey Flats Site on that date.

The meeting was adjourned at 4 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Sixth Meeting
of the 1980-81 Interim

March 20, 1981

The sixth meeting of the Special Advisory Committee on Nuclear Issues was held at the Carl Perkins Community Center, Morehead, Kentucky, on Friday, March 20, 1981. A tour of the Maxey Flats nuclear waste disposal facility began at 9 a.m., and the meeting was held at 1:30 p.m. Representative Pete Worthington, Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairperson; Senators James Bunning, Helen Garrett, and John Rose; Representative George Plummer; Dr. Terry Devine; John Embry; Dr. Doug Humphrey; Allen Holbrook; Dr. Hugh Spencer; Ms. Sharon Wilbert; Bobby Wilson; and Clayton Zerby.

Guests: Secretary Jackie Swigart, Donnie Pollitt, Myra Converse, Reba Page, Doyle Mills, and Birney Fish, Kentucky Department for Natural Resources and Environmental Protection; Gene Samsel and John Razor, National Waste Management; Douglas Draper and Roy Osborne, Radiation Control Branch, Kentucky Department for Human Resources; Linda Christ, Robert Freeman, Ann Olson, Frank Olson, Jack Comart, Elizabeth Paxson, and Glenn Fullbright, Citizens Concerned About Maxey Flats; Albert Futsch, Appalachia Science in the Public Interest; Dr. Sarah Comley; David Howard; Peg Dillinger, B. L. Cooper; Dr. Jerry Howell and Rhonda Jones, Morehead State University; James Clancy and Michael Cody, Dames and Moore; and Etta Ruth Kepp, Environmental Quality Commission.

LRC Staff: Peggy Hyland, Mary Lynn Collins, and Beth Wilson.

Press: John Roth, WLEX-TV; and Ben L. Kaufman, Enquirer.

Chairperson Worthington welcomed members and guests in attendance and stated the committee business would deal with issues relating to Maxey Flats. Minutes of the previous meeting were approved without objection.

Secretary Jackie Swigart, Kentucky Department for Natural Resources and Environmental Protection (DNREP), briefly gave background information of DNREP's involvement with Maxey Flats, and introduced members of her staff who work

directly with the facility. Mr. Birney Fish discussed stabilization of the trenches. There are 25 acres on Maxey Flats where infiltration of rainwater has occurred, and 2-3% of the rain that falls seeps into the ground. The department is addressing this problem by trying to stop water infiltration in closed trenches and by placing a cover on the one opened trench. In addition, by June, 1981, DNREP hopes to dispose of the Small Pond and Old Tank Farm and by June-September, 1982, it is hoped the Large Pond will also be eliminated, with support from the federal Nuclear Regulatory Commission (NRC).

Mr. Doyle Mills, DNREP, gave a brief overview of how land at Maxey Flats was acquired. With Kentucky Department of Transportation aid, boundaries of the site have been more clearly defined. Wet weather springs have also been identified and aerial photographs have helped determine burial trenches. If NRC aid is forthcoming, additional mechanisms will be available to more clearly define trenches. Mr. Mills further stated that ground cover has been planted to prevent erosion and to reduce infiltration.

The employee change building was discussed, and Mr. Mills said the Kentucky Department of Parks has been working with preliminary designs for the structure. All designs have been submitted to proper state agencies, and DNREP is waiting for building permits to be issued. Three barriers to the change building's construction are: 1) the site's water supply - if a chlorination system is added, bottled water will no longer have to be carried to the site; 2) a package treatment plant will be needed to keep sewage (generated at the site) disposed of properly; and 3) the problem of handling surplus buildings and property and what to do with the old employee change building needs to be addressed by the Department of Finance. Estimated cost for this new building is $63,000.

Mr. Fish said there may be as much as 5 million gallons of water in the trenches and as much as 700,000 gallons added per year from infiltration. He said future DNREP plans include the evaporator being replaced by other water management techniques. Additionally, there are three methods being considered to stop infiltration. They include: 1) paving the 25 acres with asphalt at an initial cost of $2 million; 2) placing steel structures over the trenches, at a cost of approximately $5 million; or 3) developing a 4-layer underground structure at an approximate cost of $3 million. Mr. Fish said the department should have a computer program for cost comparisons of different alternatives for stopping infiltration problems by the June meeting, and hopefully, one method will prove to be the most efficient way of handling the problem, thus putting oversight of Maxey Flats into the custodial care phase.

Mr. Fish explained that DNREP is negotiating with the

U.S. Department of Energy (DOE) to derive preventive solutions for trench infiltration. They are considering a demonstration project to permanently cover 3 1/3 acres of the worst seeping trenches while covering the remaining acres temporarily. U.S. DOE is also interested in using the sludge from the evaporator to demonstrate a method of solidification. It is hoped that an agreement can be reached with U.S. DOE to accomplish both of these tasks.

Mr. Fish further discussed the status of decommissioning the Maxey Flats site, and added that more definite plans should be available at the June committee meeting. Also, knowledge of funding mechanisms for the project should be available by then.

Mr. Roy Osborne, Kentucky Department for Human Resources (DHR), Radiation Control Branch, responded to questions raised by the committee at previous meetings. He explained that according to DHR Counsel existing DHR regulations are not in conflict with KRS 211.852. A distinction should be drawn between nuclear waste disposal facilities which require General Assembly approval, and other sources of potential radiation hazards which are monitored, licensed and regulated by the department. In addition, Mr. Osborne said the NRC is in the process of deleting Title 10 CFR 20.304 from the regulations. The Radiation Control Branch will also consider the deletion of 902 KAR 100:020, Section 18. Consideration is being given to requiring that Kentucky licensees using radioactive material report annually all disposals of material to the Radiation Control Branch. Action on this may possibly take place by late summer or early fall. Mr. Osborne said the committee will be informed of any future regulation changes.

In response to other questions posed to DHR, Radiation Control Branch, the following testimony was given by Mr. Douglas Draper.

Mr. Draper said the Radiation Control Branch monitors 26 offsite sampling stations which include drinking wells, streams and ponds. Monitoring efforts are aimed at water samples, as opposed to vegetation samples because water samples are available year round at exact locations. Some water sampling stations are hydrologically isolated from the site so that any radiation measured at these sites above background can most likely be attributed to fallout from the evaporator plume.

Site operators are also required to take vegetative samples twice a tear - once at the beginning of the growing season and again at the season's end, but the Radiation Control Branch does not have the capability for proper small animal sampling. Mr. Draper indicated that the DNREP has air samplers around the fence of the Maxey Flats site and monitors for tritium and particulates. Birney Fish, DNREP,

indicated that Oak Ridge will do some additional plume studies if supplied with the appropriate data.

Mr. Draper compared the offsite monitoring activities at Maxey Flats with other nuclear waste disposal sites in the U.S., indicating Kentucky's program was more intensive.

Mr. Draper said a problem of inadequate equipment keeps the Radiation Control Branch from administering as specific analyses as they would like. He also said monthly summaries of DHR activities around Maxey Flats were previously sent to the Fleming County Court Clerk, but since the site is no longer active, the service has stopped; however, interested citizens may obtain this data, which is usually 2-3 pages, from the Kentucky Radiation Control Branch in Frankfort, at a cost of 10 cents per page. The committee indicated that an annual summary report would be desirable.

Mr. Draper estimated 7,600 analyses are performed yearly, and said comparative sampling is done for tritium deposits at the Kentucky River bi-weekly, and monthly for gross alpha beta particles at the Ohio River. Data obtained from Maxey Flats is then compared with findings from both the Kentucky and Ohio Rivers.

Mr. Draper presented the committee with a report including the individual isotopes of trenches from 1963-1972. He indicated that the department had not updated the report due to lack of personnel and funds.

Mr. Draper said tests to determine amounts of methane gas at Maxey Flats have been done, but not all trenches have been tested. Explosions are not normally experienced at sanitary landfills because there is not enough oxygen in the methane rich area.

Discussion followed on criteria used to determine maximum permissible concentrations (MPC's) of radiation levels in the environment. A paper describing how the MPC's were developed was presented to the committee.

Mr. Osborne said the Radiation Control Branch is in need of additional equipment, and additional funds; the impact of proposed budget cuts was discussed. Chairperson Worthington responded that he supported the activities of the Radiation Control Branch, but needed to have them document their program needs.

Ms. Elizabeth Paxson, Citizens Concerned About Maxey Flats, stated that her group has prepared slide shows and lecture presentations to help inform area citizens of the problems faced at Maxey Flats. Additional concerns of the group include: 1) the buildup of methane gas in trenches; 2) the probability of natural disasters causing seepage; and 3) the need for evacuation plans around Maxey Flats. Ms.

Paxson also expressed recommendations the committee could explore: 1) study the feasibility of covering trenches, for example, with a plastic bubble; 2) propose the tritium be removed before water enters the evaporator; 3) remove methane build-up in trenches; 4) prepare evacuation plans in case of disaster; and 5) expand offsite monitoring of air and water and better inform area citizens of monitoring results.

Discussion of a resolution drafted to request a specific appropriation for the decommissioning of the nuclear waste disposal facility at Maxey Flats followed. A motion made by Mr. Holbrook and seconded by Mr. Wilson to pass over any action on the resolution carried without objection.

The members discussed a workplan for the next two months and decided the April meeting agenda would tentatively include testimony from the Attorney General on the licensing of nuclear power plants and from the radiation safety officers at UK and U of L. The May meeting will be held in Paducah, Kentucky and will include a tour of the gaseous diffusion plant. Representatives from the federal NRC will be invited to the May meeting to discuss low, intermediate and high level wastes and the new classification system. Regional compacts will also likely be addressed.

The next meeting was tentatively scheduled for April 28, 1981 at 10 a.m.

With no further business to come before the committee, the meeting was adjourned at 6 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Seventh Meeting
of the 1980-81 Interim

April 28, 1981

The seventh meeting of the Special Advisory Committee on Nuclear Issues was held on April 28, 1981 in Room 327 of the Capitol. Senator James Bunning, acting as Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Senator James Bunning, Presiding Chairperson; Representative George Plummer, Dr. Terry Devine, Mr. John Embry, Dr. Douglas Humphrey, Mr. Bobby Wilson, Mr. Clayton Zerby, Mr. Allen Holbrook, and Mr. Max Schwartz.

Guests: David Martin, Attorney General's Office; Leonard C. Wilson, Radiation Safety Officer, University of Kentucky; Ahren Jacobsen, Radiation Safety Officer, University of Louisville; Mary B. Davis, Sierra Club; Etta Ruth Kepp, Environmental Quality Commission; Winnie Hepler and Scott Houchin, Paddlewheel Alliance; Peggy Dillinger, Louisville; Tom Cox, Goshen; Mary Michael Steele, Lt. Governor's Office; and Birney Fish, Department for Natural Resources and Environmental Protection.

LRC Staff: Peggy Hyland, Mary Lynn Collins, Barbara Rhoads, Don Stosberg, and Stephanie Kirtley.

Press: Herb Sparrow, AP; Ken McCleod and Travis Shields, WLEX-TV.

The minutes of the previous meeting were approved.

David Martin, representing the Attorney General's Office (AGO), gave a summary of the AGO role relating to the licensing of nuclear power facilities along the borders of the Commonwealth.

He stated that in 1976 Kentucky intervened in the construction of the Marble Hill facility, but in 1978 a construction permit was granted. Kentucky appealed the issuance of the permit based on the premise that the facility needed a permit from Kentucky since Kentucky owned the Ohio River. On the decision of the Supreme Court, Kentucky lost the jurisdiction battle. On August 15, 1979, construction on the nuclear facility was stopped because of questions concerning the quality of the concrete. Public Service of Indiana (PSI) ran some tests to determine the quality of the

concrete that had been poured. Mr. Martin said that the AGO requested copies of that report, had it reviewed by the research staff in the Department of Transportation (DOT) and questions had been sent to the Nuclear Regulatory Commission (NRC). The response that the AGO received was still not satisfactory. Recently, NRC hired outside consultants to verify the validity of the concrete tests and based on their verbal findings NRC allowed PSI to resume construction. The AGO will look at the written reports when they are available.

In the case of the Zimmer plant, the Commonwealth intervened as an interested party in the issuance of the operating permit. Mr. Martin responded that the Commonwealth is concerned with the development of emergency plans. The NRC and the Federal Emergency Management Agency (FEMA) came up with revised guidelines, after the Three-Mile Island event, stating that emergency planning must be in place within a ten-mile and fifty-mile radius of a nuclear power facility. Mr. Martin said that Cincinnati Gas & Electric (CG&E) and the Division of Disaster and Emergency Services (DES) have been negotiating an emergency plan. If the Commonwealth agrees with the plan, then the state probably will not have to take an active part in the license proceedings. If neither one agrees, then NRC would deny CG&E a license unless an exception exists. Senator Bunning commented that it was his understanding that NRC and FEMA will not issue a license unless a cooperative effort is made and a plan is in effect and tested. Senator Bunning suggested that the AGO keep in close contact with DES and take action if the agreement and planning process is not satisfactory. Senator Bunning indicated that county plans are not even in draft form now and that any mock exercise would probably not take place before October.

Tom Cox, representing Oldham County, stated that he was concerned about his thoroughbred horses and how liability for damage to livestock etc. would be handled. He also said that the people in Oldham County are not involved enough in emergency planning. Mr. Martin responded that every nuclear facility carries some insurance and could possibly be sued. He also said that Marble Hill will not be operational until 1985 or 1986 and, therefore, there is not a great deal of emergency planning that has been done at this point. Senator Bunning told Mr. Cox that several public hearings will take place in the respective counties on the nuclear facilities being built that people will be able to attend.

Mr. Martin said Kentucky and West Virginia are probably the only states with the problem of power plants on their borders and no in-state facilities. He said the AGO would work with the committee in any way it could. A question was asked if the state could broaden its intervention in the Zimmer plant beyond emergency evacuation. Mr. Martin indicated that that was an option but that the NRC licensing

board would have to agree to bringing up new issues of quality assurance. Kentucky can also appeal the issuance of a license.

The committee recessed for lunch.

After lunch, Mr. Leonard C. Wilson, Radiation Safety Officer, University of Kentucky (UK), gave the committee materials on the low-level waste generated at the university, their existing programs, a breakdown on the sources of radioactive waste, and the volume of waste generated by radionuclides. He stated radioactive materials are disposed of by transport in U.S. Department of Transportation's approved containers to authorized waste disposal locations. Waste is generated from 220 research laboratories and two nuclear medicine programs. He said for the fiscal year 1979-80 the minimal volume of waste generated by radionuclides, including containers, was 3,168 cubic feet weighing 39,481 pounds.

Mr. Wilson said one of the problems was the cost of waste disposal services along with the possible closing of all disposal sites. In the case of closure, the only alternative would be to cease using radionuclides in the research and development program. He indicated UK had a 3-6 month storage capacity. At the present, UK operates a small compactor to reduce the volume of generated waste by about 50 percent. Mr. Wilson said that a proper incinerator could be a solution for both universities (UK and University of Louisville) for radioactive waste.

Mr. Wilson indicated that the two medical use programs generated little volume and consisted mostly of short-lived isotopes. Research makes up 85-90 percent of the overall volume of radioactive waste, although it contains a small amount of radioactivity. Research proposals must be screened by Mr. Wilson and approved by a committee. Most federal research grants provide 75 percent funding and amount to about $400,000 at UK.

Mr. Ahren Jacobsen, Radiation Safety Officer, University of Louisville (UL), has the same problems concerning radioactive low-level waste and agreed with Mr. Wilson that the need for an incinerator could be the greatest possible long-term solution. The UL currently has hired a consultant to look at modifying one of their existing incinerators to burn radioactive waste and/or hazardous waste. Mr. Jacobsen said about 85 percent of UL's waste could be incinerated. About 90 percent of the waste at UL is from research activities; the rest is from medical use. Storage capacity at UL is extremely small. Both Mr. Wilson and Mr. Jacobsen indicated that there is duplication in research nationwide, but that there is a review for duplication and that it often is necessary in order to compare results.

The next meeting is scheduled for June 1, 1981, in Paducah at 9 a.m. to tour the gaseous diffusion plant and have a committee meeting in the afternoon.

The meeting was adjourned at 2:10 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Eighth Meeting
of the 1980-81 Interim

June 1, 1981

The eighth meeting of the Special Advisory Committee on Nuclear Issues was held June 1, 1981 convening at 1:15 p.m. (CDT) at Paducah Community College, Paducah, Kentucky. Representative Pete Worthington, Chairman, called the meeting to order and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairman; Representative Henry List; Senators Helen Garrett and Jim Bunning; Dr. Terry Devine, Dr. Doug Humphrey, Dr. Hugh Spencer, Mr. Clayton Zerby, and Mr. Max Schwartz.

Guests: Ray Peery, Southern States Energy Board; Birney Fish, Department for Natural Resources and Environmental Protection; Donald Hughes, Department for Human Resources; Peg Dillinger and Winnie Hepler, Paddlewheel Alliance; Terry Massa, William Sacharnoski, Kenneth Reynolds, Val Moore, H. R. Pryer, W. G. Beasley, and B. J. Kinsey, Oil Chemical Atomic Workers; Mrs. Jackie Schwartz and Mrs. Julia Stosberg.

LRC Staff: Peggy Hyland, Charles Hardin, Mary Lynn Collins, Don Stosberg, and Stephanie Kirtley.

The minutes of the April 28 meeting were approved.

Chairman Worthington welcomed everyone. He explained that the committee had toured the Paducah Gaseous Diffusion Plant operated by Union Carbide for the U. S. Department of Energy. The plant was constructed in 1950-54 and has four primary process buildings for the enrichment of uranium. Union Carbide is a self-sufficient plant operating with its own fire, medical, and emergency staff and its own low level waste disposal site which is an above-ground facility.

Chairman Worthington informed the committee that Bobby Wilson was resigning to accept a position in North Carolina.

Senator Bunning gave a summary of the meetings he has attended concerning the Zimmer facility and emergency planning. He stated that the state-wide plan and the plan for Campbell County are in preliminary draft stages. The plans for Bracken and Pendleton Counties are not yet in draft form. The county-approved plans must be in place and submitted to the Federal Emergency Management Agency (FEMA) and

Nuclear Regulatory Commission (NRC) for approval before an operating license can be issued for Zimmer. Senator Bunning said that Stone-Webster, under contract with Cincinnati Gas and Electric, is cooperating with General Wellman of the Division of Disaster and Emergency Services in getting a plan drafted. He also stated that General Wellman would like as many members as possible to attend the practice exercise this fall. Dr. Spencer indicated a need for the committee to maintain review and oversight.

Charles Hardin, LRC Staff, gave a summary on the draft report for alternatives to management of Kentucky generated low-level waste. He said one of the main reasons for a report was because the resolution requested a specific document that dealt with this issue. Mr. Hardin stated that the three commercial sites that accept radioactive low-level waste presently may not accept it later due to some restrictions which leads Kentucky to be concerned with its own generators of radioactive waste and the need for an alternative plan. He stated that the report on radionuclides classifies the waste by half-life for the purpose of management. Mr. Hardin stated that Bobby Wilson sent in a few comments concerning the report that suggested that the radionuclides could be broken up by maximum permissible concentration (MPC). Mr. Hardin said that it may be difficult to put the radionuclides in a half-life and MPC category. He added that in looking for a storage facility on a long term basis, decaying of the waste is the first factor that should be taken into consideration. On volume reduction, Mr. Hardin said the people who generate the waste should look at other procedures that can be applied for reduction, such as compaction. Another option is the use of an incinerator, which was said to reduce waste by more than 70 percent. Bobby Wilson suggested in his comments that the generator and not DHR be held responsible for waste reduction measures. The options that are available to manage Kentucky generated wastes are:

1. Establishment of a central waste storage/treatment facility to manage all Kentucky waste, not managed by the generator.

2. Reopen the Maxey Flats site, an unlikely event, to dispose of waste not managed by the generator.

3. Establish a new land disposal facility to dispose of waste not managed by the generator.

4. Enter into a compact or agreement with one or more other state(s) to share in the management problems.

The committee agreed to have Mr. Hardin revise the report to include the volume of radionuclides generated in Kentucky by half-life and by activity. If necessary the University of Kentucky and the University of Louisville will

be contacted for the necessary data.

Mr. Don Hughes, Manager of the Radiation Control Branch, Department for Human Resources, stated that two things were not mentioned in the report such as NRC's regulation that permits material with .05 microcuries per gram or less of activity to be considered non-radioactive material. This is in conflict with the Department of Transportation's .002 microcuries per gram definition of what is radioactive. By NRC's definition you can have a non-radioactive material but when attempting to ship the material elsewhere, will have to package and transport it as radioactive. He also mentioned the recommendation by NRC to delete Section 18 from Kentucky regulation 902 KAR 100:020, thus requiring individual burying waste on their land to have that provision included specifically in their license.

Mr. Hughes also suggested that volume reduction techniques be part of any contract for conducting a feasibility study for the development of a storage/treatment facility for Kentucky waste rather than an independent study by DHR. In the area of regional compacts Mr. Hughes indicated the need for a state veto power in the agreement.

Chairman Worthington stated that in 1986 the states that do form a compact will be able to exclude other states from disposing of their waste within the compact boundaries. Kentucky will need an alternative at that time. Dr. Humphrey commented that while compaction will reduce the volume that would be shipped out, 75 percent of the radioactive waste generated by the universities is tritium which cannot be readily stored but would require disposal. If tritium is incinerated, 99 percent of it goes up the stack. Dr. Spencer indicated that if a contractor is hired to do a feasibility study, there should be ongoing oversight and input by knowledgeable people in the state. The staff was directed to look into alternatives for doing this.

Mr. Zerby commented that in his opinion there are only two ultimate solutions, which are either burying the waste in Kentucky or entering into a regional compact.

Chairman Worthington indicated that he would like to see in the report a comparison of the amount of waste generated in Kentucky to volumes generated in other states, particularly those with which Kentucky would be most likely to compact.

Birney Fish, Department for Natural Resources and Environmental Protection, gave an update on the meeting that he had attended. Mr. Fish read an Executive Order from Governor John Y. Brown, appointing him and Representative Worthington as official delegates of the Commonwealth for regional compacts discussions. Mr. Fish stated that the most recent regional compact meeting that he attended for

Kentucky is the Southeast region which consists of Alabama, Kentucky, Georgia, Mississippi, Florida, North Carolina, Tennessee, and South Carolina. He stated this group has come closest to a draft for a compact than any other but all the features are not acceptable. Mr. Fish said that South Carolina wants all states to come into the regional compact with a blank check giving the compact commission siting authority. Also, South Carolina will not accept all kinds of waste, opening up the need for an additional site. The Northwest compact which consists of Washington and Idaho has provisions that require a two-thirds majority and affirmative vote from the host state for siting of a facility.

Mr. Fish stated the other group he is meeting with is the East Central regional group that includes the District of Columbia, Delaware, Virginia, West Virginia, Maryland, and Kentucky. In this group, Virginia is the most likely prospective host state, but there is not a draft compact at this point. He also said during the first part of June he has a meeting in Chicago with the Midwest Region. This is the first meeting with this region consisting of Illinois, Kansas, Kentucky, Michigan, Missouri, and Wisconsin. Mr. Fish said he has drafted a proposal for this meeting. In his draft compact, facility siting will require a two-thirds vote plus the affirmative vote of the host state. Mr. Fish indicated that very likely some proposal will come before the 1982 General Assembly.

Mr. Fish indicated that there are still many questions surrounding the federal legislation authorizing compacts and the compacts themselves. The committee agreed to have the staff work with Mr. Fish to highlight the controversial issues in the compacts to set some criteria on what provisions Kentucky should or should not support in a compact arrangement.

Mr. Ray Peery of the Southern States Energy Board, whose responsibility is drafting compacts for the Southeast, Midwest, and Atlantic regions, stated that Kentucky needs to get in as many options as time and funds permit. If Kentucky gets in now, it can be assured of getting a better deal than coming in at the end when the compacts have been negotiated and the language is set. He also said that under the congressional legislation a state can enter into more than one compact. Mr. Peery stated that compacts need to deal with the management of low-level waste including treatment and storage and not just disposal. Mr. Peery said that South Carolina should have a draft by September and the Southwest region should have one by the end of the year.

Representative List asked if the board would expect the state to find a site or would the board select one. Mr. Peery stated that under the compact being drawn up by the South Carolina group, each state coming into the compact would have to submit a possible site suitable for management

of low-level radioactive waste. The commission would then study the list of sites and determine where the site should be located. Mr. Peery said under none of the compacts that he is dealing with will the commission have any power in the area of bonding. The commission does not have any power to develop, operate, or regulate a site because that will remain with the host state. The only power the commission will have is to select a host state and will be able to receive grants through the federal government for the funding of a staff.

The committee members discussed options for advising Mr. Fish in his negotiations on compacts and decided to hold off on any formal action until Mr. Fish gives his next update. The committee also discussed the desirability of including siting criteria and a consideration of a state's historical contributions in the area of sites in the compact itself.

The next meeting is scheduled for July 7, 1981 at 10 a.m. at the University of Louisville.

The meeting was adjourned at 5 p.m. (CDT).

SPECIAL ADVISORY COMMITTEE ON
NUCLEAR ISSUES

Minutes of the Ninth Meeting
of the 1980-81 Interim

July 9, 1981

The ninth meeting of the Special Advisory Committee on Nuclear Issues was held on July 9, 1981, convening at 10 a.m. at the University of Louisville, Louisville, Kentucky. Representative Pete Worthington, Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairperson; Senator Helen Garrett; Representative Henry List; Dr. Terry Devine, Dr. Doug Humphrey, Dr. Hugh Spencer, Mr. Clayton Zerby, Mr. John Embry, Mr. Allen Holbrook and Mr. Max Schwartz.

Guests: Birney Fish and Reba Page, Department for Natural Resources and Environmental Protection; Dave Clark, Radiation Control Branch, Department for Human Resources; Christopher Lind, Systems Science Institute; and John Harbour.

LRC Staff: Peggy Hyland, Mary Lynn Collins, Don Stosberg, Steve Pollock, and Stephanie Kirtley.

The minutes of the previous meeting were approved.

Reba Page, Department for Natural Resources and Environmental Protection (DNREP), gave a brief report on the status of the management contract for the Maxey Flats site. Ms. Page said that the department advertised a request for proposals in May for the contract to manage Maxey Flats. The department developed a five-member evaluation committee to interview the potential contractors. Applicants were National Waste Management Services, a subsidiary of Dames & Moore, who had been operating the site; Hittman Nuclear Development Corporation in Columbia, Maryland; Problem Solvers from Louisville; Radiation Management, Inc.; and Chem Nuclear. The department decided to award the contract to Hittman because of its previous experience in the area of decontamination of spills and some cleanup at Three Mile Island. Also, Hittman has a variety of nuclear engineering expertise available if needed. Its experience appeared to be the most compatible with Maxey Flats decommissioning needs. Dr. Spencer asked if the Hittman Company located in Lexington was another branch office. Ms. Page responded that it was a subsidiary of general consulting engineers belonging to the same parent company. It was stressed by

Ms. Page that this new contract reflects a change in management only; the site crew has remained, becoming employees of Hittman.

Representative Worthington asked the amount of the contract. Ms. Page said the contractor's fee is $405,159 which includes the maintenance at the site and some stabilization activities. The contract, still being negotiated, will contain a defined scope of services and a list of activities to be accomplished during the coming year.

Mr. Zerby asked why they decided on Hittman and not National Waste Management (NWM). Ms. Page responded that the NWM had no experience in decommissioning activities.

The Hittman contract must still be approved by the Personal Services Contract Committee of the legislature. The contract for consulting services which was also held by NWM will not be let again. The state at this time is not in a position to manage the site itself. State job classifications and pay scales would not be adequate for the Maxey Flats employees.

Birney Fish estimated expenditures on Maxey Flats from 1962 to the present in adjusted 1981 dollars to be almost $7 million. He stated that some of the things done at Maxey Flats last year may be taken out of this year's budget because of some orders that were placed at the end of the fiscal year. Mr. Fish generally outlined expenditures for fiscal year 1981 and proposed expenditures for fiscal year 1982 for personnel, consulting, other services, and capital outlay.

Mr. Fish briefly discussed activities at Maxey Flats and adjustments in the March time line toward decommissioning. The water has been pumped out of the old tank farm and the small pond, and they will be essentially decommissioned once they have been recontoured and revegetated. They will start pumping water from the large pond soon. The evaporator will continue to run at least through 1983 because of the backlog of water onsite.

The department has submitted a grant to the U.S. Department of Energy (DOE) for trench covers. Kentucky would contribute about 30 percent of the $600,000 project and the U.S. DOE would contribute 70 percent. The department will also submit another grant to the U.S. DOE for a solidification demonstration project.

In order to make a recommendation to the 1982 General Assembly, the committee agreed to send a memorandum to Secretary Jackie Swigert requesting information on how the 1980 funds appropriated for Maxey Flats were spent and what they achieved toward stabilization and decommissioning. An inventory of capital equipment on site, including useful

life and replacement cost, should be included. In addition, the department should recommend a decommissioning plan for Maxey Flats, including time table and total cost, and compare that with cost of doing no decommissioning work and maintaining the site for the next 50-100 years.

The committee discussed the policy of the Commonwealth towards contractors putting capital into the site for equipment as opposed to the state's retention of this role.

After lunch, Birney Fish stated that an estimate of the total cost for decommissioning and permanent coverage of Maxey Flats would be from $20-$25 million based on total encasement in concrete.

The rest of the afternoon was spent discussing regional compacts for low level nuclear waste management. Dr. Spencer pointed out that it might not be correct to assume that Kentucky will always be a small generator of radioactive waste due to synfuel plants. The committee generally agreed that interstate compacts should be funded by user fees at the point of disposal.

Mr. Fish discussed future negotiations with states concerning regional compact agreements for low level radioactive waste management. The Southeastern compact in which Kentucky has been involved is currently drafting language for the compact agreement. It was suggested by Mr. Schwartz that the committee needs to get an opinion of the legal status of compacts and their enforceability.

The committee voted to attend the seminar by the U.S. Nuclear Regulatory Commission on research activities at Maxey Flats to be in Frankfort July 22 and 23. The committee will meet on the 23rd to discuss further the issues concerning regional compacts for low level radioactive waste management.

The next regular meeting of the committee was tentatively set for August 28, 1981.

The meeting was adjourned at 5:00 p.m.

SPECIAL ADVISORY COMMITTEE ON
NUCLEAR ISSUES

Minutes of the Tenth Meeting
of the 1980-81 Interim

July 22 & 23, 1981

The tenth meeting of the Special Advisory Committee on Nuclear Issues was held on July 22 and 23, 1981, convening at 9 a.m. at the Civic Center in Frankfort, Kentucky. Representative Pete Worthington, Chairperson, called the meeting to order.

Present were:

Members: Representative Pete Worthington, Chairperson; Senators James Bunning and John Rose; Representative Henry List; Dr. Terry Devine; Dr. Douglas Humphrey; and Mr. Allen Holbrook.

LRC Staff: Peggy Hyland, Mary Lynn Collins, and Stephanie Kirtley.

The Special Advisory Committee on Nuclear Issues attended a two-day seminar on research activities at Maxey Flats conducted by the U.S. Nuclear Regulatory Commission (NRC). Scientists from all over the United States met to present their research and summarize their most significant findings. Committee members were able to comment and ask questions.

Representative Worthington made comments at the seminar relative to its applicability to the problem facing Kentucky, which is decommissioning of the Maxey Flats site. He asked what would happen if the evaporator were turned off. He asked if there was any documentation of significant levels of radioactivity released offsite. He commended NRC for bringing the meeting to Kentucky, and he regreted the lack of participation by the U.S. Department of Energy (DOE) because of their mandate in this area. Representative Worthington made several requests, all of which he indicated would be put in letter form to NRC. They included the need for research findings to be sent to the Kentucky Department for Natural Resources and Environmental Protection (DNREP) as soon as they are available; the need for NRC to apply the Maxey Flats research data to decommissioning of Maxey Flats and other humid shallow land burial sites and to focus future research to advance decommissioning technology. Representative Worthington also requested the assistance of NRC in reviewing any plans Kentucky develops for decommissioning of Maxey Flats.

Upon adjournment of the NRC seminar, the committee held

its business meeting. After discussing the seminar, the members of the committee agreed to have staff draft a letter to the NRC encompassing the issues raised by members at the seminar for consideration at the August meeting. It should include the request to NRC to do a critical review of what data they have and what is needed for proper decommissioning.

Representative Worthington said that he and Birney Fish (DNREP) would be attending a meeting on August 3 to make final recommendations on language for the southeast regional compact.

Representative Worthington suggested that the committee needs to set a policy or guidelines for the General Assembly to use in evaluating the language of a compact that will go before them for approval. He asked for comments on several issues including siting, funding, incentives for the host state and community, exportation rights, liabilities of party states in the case of unforeseen circumstances at a regional facility.

Members present discussed various ramifications of these issues.

The meeting was adjourned at 3:30 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Eleventh Meeting
of the 1980-81 Interim

August 28, 1981

The eleventh meeting of the Special Advisory Committee on Nuclear Issues was held on August 28, 1981 convening at 10:00 a.m. in Room 105 of the Capitol Annex. Representative Pete Worthington, Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairperson; Senators James Bunning and Helen Garrett; Representatives Henry List and George Plummer; Dr. Terry Devine, Dr. Douglas Humphrey, Dr. Hugh Spencer, Mr. John Embry, Mr. Allen Holbrook, and Mr. Clayton Zerby.

Guests: Secretary Jackie Swigart, Birney Fish, Bill Hanes, and Reba Page, Department for Natural Resources and Environmental Protection; Winnie Hepler, Peg Dillinger and Sarah Lynn Cunningham, Paddle Wheel Alliance; Etta Ruth Kepp, Environmental Quality Commission; and Paula Moore-Carson, Department of Finance.

LRC Staff: Peggy Hyland, Mary Lynn Collins, Charles Hardin, Jim Curtis, Barbara Rhoads, Don Stosberg, and Stephanie Kirtley.

Press: Herb Sparrow, Associated Press.

Representative Plummer moved, and Mr. Zerby seconded the motion that the minutes of the July 9 and July 22 and 23 meetings be approved. The motion was adopted.

The committee considered a draft letter to the U.S. Nuclear Regulatory Commission (NRC) regarding research projects at Maxey Flats requesting that they focus more on stabilization and decommissioning of the site. After some discussion, Mr. Zerby moved, and Senator Garrett seconded the motion to send the letter to NRC. The motion was adopted by the committee.

Charles Hardin discussed the changes in the draft II report on "Alternatives for Kentucky-Generated Low Level Nuclear Waste" that were recommended at the previous meeting. Don Hughes, Radiation Control Branch, Department for Human Resources (DHR), sent a letter regarding draft recommendation one in the report, relating to source reduction of waste, indicating from his department's perspective what

could be done has been done; licensees in the state are inspected regularly. The committee discussed Mr. Hughes' comments and recommendations 1 and 2 at length.

The committee decided on three alternatives for dealing with recommendations 1 and 2. They included deleting them in their entirety.

Representative Worthington suggested drafting language that UK and UL should cooperate in the future; keep good records on what is purchased, used, and how it is disposed of; report on types of volume reduction methods used; work toward minimizing the waste stream; eliminate unnecessary duplication; and report back to the committee. A third alternative was to include more specific direction to the universities as to what information the committee wanted from a study.

On Option 3, relating to a new storage/treatment facility, Mr. Zerby said that it needs to be made clear that storage is an interim solution. Dr. Spencer indicated public involvement is needed, especially if specific sites for such a facility are to be recommended.

Dr. Humphrey moved, and Mr. Zerby seconded the motion to adopt Option 4, relative to interstate compacts, as written. Senator Bunning then amended the motion to delete the last sentence. The motion was seconded by Dr. Spencer and adopted by the committee. Mr. Zerby opposed the motion as amended.

The committee endorsed recommendation five with the addition to the language indicating de minimus levels of radioactivity be set for air, soil, and water.

Representative Worthington asked the staff to redraft the recommendations based on the committee's discussion and circulate the new language to the committee before the next meeting.

Secretary Jackie Swigart and Birney Fish, DNREP, gave a report on the expenditures at Maxey Flats and analyzed the budget and decommissioning recommendations for the 1982 General Assembly. Secretary Swigart stated that the site needs to be stabilized and monitored.

Mr. Fish then discussed the short-term, mid-term, and long-term phases for stabilization of the Maxey Flats site. These include clean up of surface contamination, elimination of rain infiltration into the trenches and storage ponds, and the dewatering of all trenches. Mr. Fish outlined the options and costs for trench dewatering. Once the site is stabilized, operating costs on an annual basis will still run about $600,000 (1981 dollars) a year (about one-half of the current rate). Because maintenance of the site in this

stabilized mode may be required for anywhere from 100 to 500 years, the total price tag for maintenance ranges from $60 million to $300 million. If, in addition to stabilization, the site is decommissioned, that is put in a condition where active maintenance is minimized and primarily surveillance and monitoring is required, this cost can be reduced significantly. Mr. Fish agreed to provide the committee with an estimate of annual operating costs after decommissioning. He also agreed to provide a breakdown of how the $1.2 million per each year of the 1982-84 biennium would be used.

The committee agreed to have staff draft a letter to the Appropriations and Revenue Committee (A & R) endorsing an appropriation equivalent to the current $2.4 million for the maintenance and stabilization of Maxey Flats during the 1982-84 biennium. The A & R Committee will also be asked to seriously consider appropriating money for the decommissioning of Maxey Flats with the participation of the federal government and legislative oversight for dispersal of such funds.

Representative Worthington summarized a resolution pertaining to regional compacts for the management of low level nuclear waste. He stated that the current language proposed in the southeastern compact is not in the best interest of Kentucky. After many discussions, meetings, and agreements with other states in the southeastern compact an amendment at the last meeting deleted a provision protecting Kentucky from serving as a host state until Maxey Flats is decommissioned. Safeguards for other states were retained. The resolution advises Governor Brown not to endorse the language of the southeastern compact as it is currently drafted. Representative List moved, and Representative Plummer seconded the motion that the resolution be passed on with favorable expressions. The motion was adopted by the committee.

The committee agreed to discuss policy guidelines for regional compacts of low level nuclear waste at its next meeting.

The next meeting has been scheduled for September 25, 1981 at 10:00 a.m.

The meeting was adjourned at 4:10 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Twelfth Meeting
of the 1980-81 Interim

September 25, 1981

The twelfth meeting of the Special Advisory Committee on Nuclear Issues was held on September 25, 1981 convening at 10:00 a.m. in Room 103 of the Capitol Annex. Representative Pete Worthington, Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairperson; Senator James Bunning; Representative Henry List; Dr. Terry Devine, Dr. Douglas Humphrey, Dr. Hugh Spencer, Mr. John Embry, Mr. Allen Holbrook, and Mr. Clayton Zerby.

Guests: Reba Page, Department for Natural Resources and Environmental Protection; and Peggy Dillinger, Paddlewheel Alliance.

LRC Staff: Peggy Hyland, Mary Lynn Collins, Charles Hardin, Barbara Rhoads, Don Stosberg, Mike Greenwell, and Stephanie Kirtley.

Press: Glenn Osborne, UPI; Barry Peel, WTVQ-TV; Herb Sparrow, AP; Mark Allen, WFKY-Radio; and John Polb, WLEX-TV.

The minutes of the previous meeting were adopted.

Senator Bunning gave an update on the Zimmer facility and emergency planning. He stated that a table-top exercise will be conducted on October 29, and the final graded exercise will be held on November 18, which the committee is invited to attend. General Wellman will appear before the committee at the October meeting and will be asked to address, in addition to other items, the logistics of committee participation in the graded exercise.

Charles Hardin discussed the changes in the draft report on "Alternatives for Kentucky-Generated Low Level Nuclear Waste" that were recommended at the last meeting. A committee discussion followed. Staff was directed to draft some additional language changes.

On Recommendation #1, relative to the activities at the University of Kentucky (UK) and the University of Louisville (UL) in regard to the generation of radioactive waste, Mr. Zerby moved, and Senator Bunning seconded the motion, that #1 be deleted in its entirety. The roll call the vote was

5-yeas and 4-nays. The motion was adopted.

Dr. Spencer moved, and Mr. Embry seconded the motion to adopt Recommendation #1 and delete sections C and D. The roll call vote was 5-nays and 4-yeas. Motion failed.

Mr. Embry moved, and Representative List seconded the motion, on Recommendation #2 that "the Commonwealth hire an engineering firm" be deleted and replaced by "the Commonwealth conduct a feasibility study." The motion was adopted.

On Recommendation #4, Mr. Zerby moved, and Senator Bunning seconded the motion, that the Commonwealth petition the federal government to establish de minimus levels of radioactivity in the environment be deleted. The motion was adopted. It was determined that this recommendation could, if needed be better carried out in comment form on the NRC proposed regulation, part 61.

The committee then discussed the policy guidelines to recommend to the General Assembly in considering ratification of compacts for low level nuclear waste management. Representative Worthington stated that since Kentucky was a low producer of waste, the state does not have as much leverage as the larger producers, such as Florida or North Carolina in compact formulation.

Representative List asked if Kentucky will join a regional compact. Representative Worthington responded that the committee has approved a recommendation to encourage the Commonwealth to actively pursue compacting with other states. Following the discussion, staff was directed to draft policy positions on the impact of compacts on existing state laws; responsibilities of party states for unforeseen long term costs, maintenance or remedial activities; local siting incentives; siting authority of the commission; the federal role in developing technology; exporting and importing waste from outside the compact states; and composition of the regional commission. The committee will consider the draft language at the next meeting.

Peggy Hyland summarized the possible legislative recommendations for low level nuclear waste. The committee directed the staff to draft legislation establishing a special nuclear issues committee for the 1982-84 interim, directing the Commonwealth to conduct a feasibility study for a storage/treatment facility and directing the Department for Human Resources to require certain annual reports from all licensees. The committee also directed that a resolution be drafted petitioning Kentucky's congressional delegation to sponsor legislation providing for a special appropriation for the decommissioning of Maxey Flats.

The committee discussed a letter to be sent to the

Appropriations and Revenue Committee in regard to an appropriation of $2.4 million to be used for maintenance and stabilization of Maxey Flats. It is already the policy that the Commonwealth moved toward decommissioning as soon as possible. The proposed costs for decommissioning would be around $20 million, or an appropriation of $4 million during the 1982-84 biennium to serve as an 80-20 federal-state match. Mr. Embry moved, and Representative List seconded the motion, that the letter be sent to the Appropriations and Revenue Committee for consideration. The motion was adopted.

On a committee extension, Representative List moved, and Mr. Embry seconded the motion, that the committee ask for an extension to attend the graded exercise and to deal with the final "Committee" report. The motion was adopted.

Representative Worthington asked staff to redraft the report to include the current changes.

The next meeting has been scheduled for October 16, 1981 at 10:00 a.m.

The meeting was adjourned at 4:15 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Thirteenth Meeting
of the 1980-81 Interim

October 16, 1981

The thirteenth meeting of the Special Advisory Committee on Nuclear Issues was held on October 16, 1981, convening at 10 a.m. in Room 103 of the Capitol Annex. Representative Pete Worthington, Chairperson, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Pete Worthington, Chairperson; Senators James Bunning and Helen Garrett; Representative Henry List; Dr. Terry Devine, Mr. John Embry, Dr. Douglas Humphrey, Mr. Allen Holbrook, Mr. Max Schwartz, Dr. Hugh Spencer, and Mr. Clayton Zerby.

Guests: Representative Ron Cyrus; Major General Billy G. Wellman, General Wilbur R. Buntin, Craig Martin, Wayne Berry, Charlie Frazee, all of the Department of Military Affairs; Dr. David Allen and Don Hughes, Bureau for Health Services, Department for Human Resources; Peg Dillinger and Winnie Hepler, Paddlewheel Alliance; Reba Page, Department for Natural Resources and Environmental Protection; and Mayor James Black, Bedford, Kentucky.

LRC Staff: Peggy Hyland, Mary Lynn Collins, Don Stosberg, Barbara Rhoads, and Stephanie Kirtley.

Press: Glenn Osborn, UPI; Jane Hoffman, WAVE; Tim Weldon, WTVQ-TV; Dick Brown WKYT-TV; Jane Goodin and Mike Taylor, WLEX.

The minutes of the previous meeting were adopted.

Major General Billy G. Wellman, Department of Military Affairs (DMA), gave an update on emergency planning activities for nuclear power facilities along the boarder of Kentucky. General Wellman stated that their main concern is the safety, health, and welfare of the citizens in the Commonwealth and to have an effective early warning system and an effective evacuation system. He stated they have been dealing directly with the county judges/executive of the various counties surrounding the Zimmer facility because the judge/executive is the chief executive officer responsible for emergencies in the counties. The department has also tried to respond to smaller cities.

General Wellman stated that the cost for the develop-

ment of the plans, purchase and maintenance of equipment, and all the necessities are not paid for with state funds. He stated that Cincinnati Gas & Electric (C.G. & E.) is paying for the cost and that Kentucky has been reimbursed for their participation along with the affected counties. General Wellman stated that C.G. & E. has acted in good faith.

General Wellman stated that on October 29th there will be a practice emergency exercise and on November 18 the official graded exercise will be conducted and the committee is invited to attend. He stated that at that time, they will be joined and evaluated by the Federal Emergency Management Association (FEMA) and the Nuclear Regulator Commission (NRC) with other observers to determine how effective the plans are. He stated the information obtained from the Zimmer exercise will help in the planning for Marble Hill. Planning is just beginning on Marble Hill since it will not go online until 1986.

Mr. Schwartz asked if there would be a final report. General Buntin stated there will probably be several reports from the agencies that are evaluating the exercise. He stated that Kentucky and the DMA is only responsible for the offsite part of the exercise. What happens inside the plant is the responsibility of NRC. General Buntin stated that on the afternoon of November 19 the federal people from Region 5, Region 4, and the state people from Ohio and Kentucky will meet for a critique of the exercise. Based on the evaluations, the plan will be revised; submission of an approved plan to FEMA is likely in January or February, 1982.

Mr. Schwartz then asked what types of things would be evaluated to have a successful evacuation plan. General Buntin responded that the official observors will be looking at the county level, how certain problems are handled, such as sheltering, and communication, and the decontamination center. He stated that during the exercise no large amount of people will be moved due to liability problems. General Buntin also said that local officials will also participate in the exercise within their county.

General Wellman reassured the committee that no plan will be submitted to FEMA until the county judge/executive had approved his county plan and that the plan had been approved by the Secretary of the Department for Natural Resources and Environmental Protection (DNREP) and the Secretary of the DHR before being submitted to the Governor.

Representative Worthington asked what was the final plan in licensing the Zimmer facility. Mr. Craig Martin, Division of Disaster and Emergency Services, responded that Zimmer will be fully operational in the summer of 1983, more tests will be conducted six months prior to licensing

Zimmer, and from January to September 1982, there will be hearings on Zimmer.

Once the Zimmer facility goes on line there will be periodic testing of the emergency plan and emergency equipment. C.G. & E. has agreed to replace equipment as it wears out over the life of the Zimmer plant. Types of equipment being supplied include a complete communication system for the counties (base, mobiles, pagers), sirens, weather radios for each household in the planning area, teletypes, microwave telephone links from Zimmer to Frankfort and the counties, and monitoring equipment.

The question was asked whether C.G. & E. would reimburse for costs associated with a disaster. The department responded that the federal Price-Anderson Act addresses utility liability; persons would have recourse through the courts.

Dr. David Allen and Don Hughes, DHR, gave a description of the monitoring activities of the DHR relating to nuclear power facilities. Dr. Allen stated that one of their tasks was to establish the existing radiation baseline for the area and to try to stay up-to-date on the continued ramifications of Three Mile Island. Mr. Hughes stated that 23 monitoring systems were placed within a ten-mile radius of the proposed Zimmer facility in July 1979 and from that time to July 1, 1981, they have collected Ohio River water samples on a quarterly basis. Effective July 1, 1981, samples have been taken on a monthly basis and they also started collecting vegetation, soil, and milk samples. The department is attempting to determine seasonal fluctuations and background levels in radiation for the area.

An additional 173 monitoring points have been identified by coordinates, so that, in case of an emergency, additional monitoring can take place based on wind patterns, etc. When emergencies are called, the DHR will be able to monitor selected locations within the plant by a microwave computer hook up so that DHR can make an independent evaluation of danger to the Commonwealth. While the NRC will be on site at all times, on a day to day routine basis, DHR will monitor radiation in the atmosphere surrounding the plant. Kentucky can declare an emergency based on its outside monitoring data.

Representative Worthington asked who is the technical expert in Kentucky for determining the adequacy of the construction of power plants along Kentucky's border. Dr. Allen indicated that no agency in Kentucky is funded to do that. Representative Worthington asked if it would be appropriate for DHR to request NRC reports on construction and to evaluate them. Dr. Allen said that it would be appropriate and that his agency will do that and notify other appropriate state officials of their findings if

deemed advisable.

Dr. Devine summarized his report to the committee on the conference he attended on Incineration of Low Level Waste. He stated that it seemed advisable to pursue incineration in Kentucky for infectious waste and liquid scintillation vials. Incinerators require good monitoring procedures.

The committee discussed the final report on "Alternatives for Managing Kentucky Generated Low Level Waste." A committee discussion followed. Dr. Spencer moved, and Senator Bunning seconded the motion, to adopt the report as amended with minor changes. The roll call was 9-yeas, 1-nay. The motion was adopted.

The committee made minor changes to the policy guidelines recommended to the General Assembly for consideration of regional compacts for low level waste management. Mr. Zerby moved, and Dr. Humphrey seconded the motion, to adopt the guidelines as amended. The motion was adopted.

The committee considered 82 BR 599, a concurrent resolution relating to the management of low level radioactive waste in Kentucky and providing for legislative oversight. Mr. Zerby moved, and Dr. Humphrey seconded the motion, that Section 1 of the resolution be deleted. The motion was adopted. Dr. Humphrey moved, and Mr. Zerby seconded the motion, also in the resolution in Section 3 to delete "utilizing the appropriate expertise available at the universities." The roll call was 7-yeas, 3-nays. The motion was adopted.

A motion was made by Representative List, seconded by Mr. Zerby, to adopt the resolution with the amended changes. The motion was adopted. Senator Bunning moved, and Representative List seconded the motion, to prefile BR 599 as amended. The motion was adopted.

The committee then considered a concurrent resolution petitioning the U.S. Congress for a specific appropriation for the decommissioning of Maxey Flats. The committee agreed that something will be done with the resolution at the appropriate time and for now, the letter to the Appropriations and Revenue Committee requesting a state federal match for decommissioning of Maxey Flats would be sufficient.

Mr. Holbrook moved, and Dr. Devine seconded the motion, that the committee send a letter to NRC, commenting on the NRC regulations, Part 61, relating to establishing de minimus levels of radioisotopes for air, water, and soil. The motion was adopted.

Senator Bunning moved, and Mr. Holbrook seconded a

motion, that the committee send a letter to the DNREP requesting the department to consider a written policy to the effect that any capital input at the site be done in such a way that the Commonwealth does not become dependent on any one contractor. The motion was adopted.

Mr. Holbrook moved, and Dr. Devine seconded the motion, to send a letter to DHR requesting that they amend 902 KAR 100:020 consistent with changes in the federal regulations so that licensees burying radioactive materials onsite will be required to obtain prior approval from DHR. The motion was adopted.

The next meeting has been scheduled for November 17, 1981, to attend the Zimmer emergency exercise.

The meeting was adjourned at 3:30 p.m.

SPECIAL ADVISORY COMMITTEE
ON NUCLEAR ISSUES

Minutes of the Fourteenth Meeting
of the 1980-81 Interim

November 17-19, 1981

The fourteenth meeting of the Special Advisory Committee on Nuclear Issues was held on November 17-19, 1981, convening at 1:30 p.m. at Boone National Guard Center in Frankfort, Kentucky.

Present were:

Members: Representative Pete Worthington, Chairperson; Senator Jim Bunning; Dr. Terry Devine; Mr. Clayton Zerby; and Mr. John Embry.

Guests: Major General Billy G. Wellman, General Wilbur Buntin and Ronn Padgett, Disaster and Emergency Services (DES); Jack McKinnon, Stone and Webster; Richard Payne, Environmental Protection Agency (EPA); Jack Richardson, Regional Assistance Committee IV (RAC); Marty Bivens, Federal Emergency Management Administration (FEMA); Bob Trojanonski, Nuclear Regulatory Commission (NRC); and William Thompson, Union Carbide.

LRC Staff: Peggy Hyland, Mary Lynn Collins, and Gay Trevino.

General Buntin opened the meeting by restating the policy that the state will not pay for the development of emergency plans for the Zimmer nuclear power facility. He indicated that Cincinnati Gas and Electric (C.G. & E.) has been cooperative, thus far, in compensating the state for costs incurred in the development of emergency plans.

Ronn Padgett then briefed the committee on the emergency exercise scheduled for the following day. In order not to inconvenience or alarm the public, Mr. Padgett stated that the sirens would not be used, the evacuation would be simulated, and all messages going out would contain a disclaimer that such messages were part of a test exercise. The committee was told that participants in the exercise, although aware that the exercise was scheduled for November 18, had not been given any details of the hypothesized accident that was to occur. Members of the committee were given controlled exercise scenario material. Members then toured the state emergency operation and media center at Boone National Guard Center. Tom Little, Director of Operations, DES, explained the emergency communication capability of the state and procedures that would be instituted there in the event of an emergency at Zimmer.

The committee reconvened in the conference room and decided on assignments for the exercise the next day. Members agreed to meet in the Capitol Annex about 4 p.m. following the exercise to compile comments for the evaluation session on Thursday or to call their comments in to staff.

The committee then discussed comments to be submitted by committee member, Allen Holbrook, concerning his negative vote on the committee report, "Alternatives for Managing Kentucky-Generated Waste." Current plans are to include those comments as an appendix to the final committee report. The committee requested that staff include more information on the emergency exercise in the final report.

Senator Bunning and Representative Worthington informed the committee that the Department for Natural Resources and Environmental Protection had not included in its budget recommendation, the four million dollars for decommissioning Maxey Flats that the department had earlier indicated it would like to have in order to attract federal aid in a state/federal matching fund arrangement.

The committee recessed for the day.

On November 18, committee members and LRC staff dispersed to various locations to observe the mock emergency exercise. Locations where the committee were stationed included the state emergency operation and media center at Boone National Guard Center, the Field Radiological Center in Falmouth, Kentucky, the C.G. & E. emergency operation and medica center in Moscow, Ohio, and county operations in Campbell, Pendleton, Bracken, Mason, and Grant Counties.

The committee met later in the day at the Capitol Annex in Frankfort to discuss their observations of the exercise. While the committee members generally felt the exercise went smoothly, they felt improvement was needed in the area of training and clarification of responsibilities. State police need to be briefed in the use of dosimeters, and more equipment is needed to improve message flow and communications. Representative Worthington, however, stated that the most serious concern is that of maintaining a state of readiness over the long term. With turnovers in state personnel, local officials and volunteers, there is a need for ongoing training and regular emergency exercises beyond what is required by FEMA.

On November 19, the committee attended a critique on Kentucky's performance in the exercise, held at the Americana Inn at the Cincinnati Airport. Participants in the critique were: state and county agency leaders; DES area coordinators; personnel from the private firm, Stone and Webster, who developed the state plan and were involved in training participants for the exercise; and representatives

from a number of federal agencies that observed the exercise. Senator Bunning and Dr. Devine presented observations made by the committee. Recognizing the need for more training and equipment, General Billy G. Wellman, Department of Military Affairs, stated that the Kentucky plan will not be submitted for approval until all deficiencies noted at the critique are corrected.

The meeting was adjourned at 12:30 p.m.

SENATE MEMBERS

Joe Wright
Assistant President Pro Tem

John M. Berry, Jr.
Majority Floor Leader

Eugene P. Stuart
Minority Floor Leader

David K. Karem
Majority Caucus Chairman

Walter A. Baker
Minority Caucus Chairman

Lowell T. Hughes
Majority Whip

Clyde Middleton
Minority Whip

LEGISLATIVE RESEARCH COMMISSION
State Capitol Frankfort, Kentucky 40601 502-564-8100

Joe Prather, Senate President Pro Tem
William G. Kenton, House Speaker
Chairmen

Vic Hellard, Jr.
Director

HOUSE MEMBERS

C. M. "Hank" Hancock
Speaker Pro Tem

Bobby H. Richardson
Majority Floor Leader

Arthur L. Schmidt
Minority Floor Leader

William "Bill" Donnermeyer
Majority Caucus Chairman

Herman W. Rattliff
Minority Caucus Chairman

Woody May
Majority Whip

Woody Allen
Minority Whip

August 28, 1981

Mr. Wayne Kerr, Director
Office of State Programs
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Kerr:

On July 22 and 23, the U. S. NRC held a seminar in Frankfort, Kentucky, on the major findings from research projects being conducted with NRC funding at the Maxey Flats low level nuclear waste disposal facility. A special invitation to attend and participate was extended to the Special Advisory Committee on Nuclear Issues of the Kentucky Legislative Research Commission. This special legislative committee is composed of legislators, university and industry experts, and citizens. Based on their attendance and participation at this meeting, the committee would like to make the following comments and requests.

First of all, we appreciate the fact that this seminar was held in Kentucky, providing easy access by those persons most directly concerned about the Maxey Flats site. We believe that this is an appropriate policy for NRC to adopt in holding seminars on specific topics of local conern. It provides a unique opportunity for interaction among researchers, state decision makers, and local citizens. We encourage you to continue to bring such meetings to affected areas.

Secondly, as I am sure you are well aware, Kentucky is moving to stabilize and decommission the Maxey Flats site. With this in mind, there are several points the committee would like to make.

1. Because Kentucky is in the process of formulating decommissioning plans, the Department for Natural Resources and Environmental Protection can benefit from immediate access to major findings and observations made by researchers at the Maxey Flats site We would like to see some formal channels set up by which this can be accomplished.

2. We would like to see an interagency federal state study group set up to: a) summarize the findings-to-date from research performed at the Maxey Flats site that are pertinent for proper stabilization and decommissioning of the site. b) to identify other information needed to proceed with stabilization and decommissioning; c) to suggest some alternatives for site decommissioning.

It is our understanding that a task force of this sort was organized for the Sheffield site and reported its findings in September, 1979.

3. We would like to see future NRC research at the Maxey Flats site directed toward finding the data needed to fill the information gap identified by the federal-state task force, the Kentucky Department for Natural Resources and Environmental Protection, and other sources to properly decommission Maxey Flats in particular, and low level shallow land burial sites in humid areas in general. We are extremely supportive of using Maxey Flats as a laboratory but, we believe that the research should be focused directly on decommissioning, both to meet Kentucky's need to show that low level nuclear waste sites in humid areas can be successfully decommissioned. We request that some discussions be held with the Kentucky DNREP on this topic and a policy position adopted.

4. When Kentucky has formulated a decommissioning plan for the Maxey Flats site, we would like to request assistance from NRC in review and comment on the plan by their technical staff and by other technical advisors available to NRC.

5. At the seminar in Frankfort, these specific questions were asked and the following responses were given:

   a) Can the evaporator be shut down? No.

   b) Has there been a release of radioactive material from the Maxey Flats site detected above MPC levels to date? No.

   c) Is there technology currently proven on how to decommission the Maxey Flats site so as to shut down the evaporator? No.

   d) Could Maxey Flats be reopened? No.

Should any new information or findings become available that would change the response to these questions, we request that the Governor and the Legislative Research Commission be so apprised.

We appreciate your attention to the matters discussed here. Again, thank you for bringing the NRC - Maxey Flats seminar to Kentucky. Be assured of our cooperation and assistance on future Maxey Flats activity.

Sincerely,

Pete Worthington

Representative Pete Worthington
Chairperson
Special Advisory Committee on
Nuclear Issues

PW:smk

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

OCT 19 1981

The Honorable Pete Worthington
Chairperson
Special Advisory Committee on Nuclear
Issues
Legislative Research Commission
State Capitol
Frankfort, Kentucky 40601

Dear Mr. Worthington:

This is in response to your letter dated August 28, 1981 concerning stabilizing and decommissioning the Maxey Flats site. Your letter raised several points for our consideration. A statement of each point and our comment on it is provided as follows:

1. "Because Kentucky is in the process of formulating decommissioning plans, the Department for Natural Resources and Environmental Protection can benefit from immediate access to major findings and observations made by researchers at the Maxey Flats site. We would like to see some formal channels set up by which this can be accomplished."

   We believe channels presently exist which allow the Department for Natural Resources and Environmental Protection access to major findings and observations made by researchers at the Maxey Flats site. To assure that this is the case, we have arranged for Dr. Edward O'Donnell, Waste Management Branch, Office of Nuclear Regulatory Research, NRC to be our point of contact with the Kentucky Department for Natural Resources and Environmental Protection to permit immediate access to major findings and deal with any questions that arise regarding the research performed.

2. "We would like to see an interagency Federal State study group set up to: a) summarize the findings-to-date from research performed at the Maxey Flats site that are pertinent for proper stabilization and decommissioning of the site, b) to identify other information needed to proceed with stabilization and decommissioning, c) to suggest some alternatives for site decommissioning. It is our understanding that a task force of this sort was organized for the Sheffield site and reported its findings in September, 1979."

We are not sure at this time that a Federal-State study group would be the most appropriate approach for addressing the three aspects of the situation you specified. We are exploring the possibility of sponsoring an independent contractor to develop the information on the three aspects and prepare a report of its findings. At that time it may be desirable to convene a Federal-State study group to review the contractor report. I believe this would speed things up and give the Government representatives more time to focus on major issues. I would appreciate your reaction to this idea.

3. "We would like to see future NRC research at the Maxey Flats site directed toward finding the data needed to fill the information gap identified by the Federal-State task force, the Kentucky Department for Natural Resources and Environmental Protection, and other sources to properly decommission Maxey Flats in particular, and low level shallow land burial sites in humid areas in general. We are extremely supportive of using Maxey Flats as a laboratory but, we believe that the research should be focused directly on decommissioning, both to meet Kentucky's need to show that low level nuclear waste sites in humid areas can be successfully decommissioned. We request that some discussions be held with the Kentucky DNREP on this topic and a policy position adopted."

   We are hopeful that the research that NRC is presently sponsoring at Maxey Flats will demonstrate generically that shallow low-level disposal waste sites in humid areas can be successfully decommissioned. This information can then be applied to site specific situations such as Maxey Flats. I am sure you understand that the NRC has limited resources for funding research at Maxey Flats.

4. "When Kentucky has formulated a decommissioning plan for the Maxey Flats site, we would like to request assistance from NRC in review and comment on the plan by their technical staff and by other technical advisors available to NRC."

   We will be pleased to provide technical assistance, as resources permit, to the State of Kentucky to review and comment on a decommissioning plan when formulated. Our contact for this purpose is Mr. Donald A. Nussbaumer, Assistant Director for State Agreements Program, Office of State Programs.

5. "At the seminar in Frankfort, these specific questions were asked and the following responses were given:

   a) Can the evaporator be shutdown? No.

   b) Has there been a release of radioactive material from the Maxey Flats site detected above MPC levels to date? No.

   c) Is there technology currently proven on how to decommission the Maxey Flats site so as to shutdown the evaporator? No.

   d) Could Maxey Flats be reopened? No.

   Should any new information of findings become available that would change the response to these questions, we request that the Governor and the Legislative Research Commission be so apprised."

   Based on discussion held with the NRC personnel who attended the seminar, our position may be summarized as follows:

   a. Based on present conditions, the evaporator cannot be shutdown. The large volume of contaminated water still needs to be disposed of. However, methods of minimizing groundwater infiltration and flow through the site and the use of evapotranspiration to dispose of any water that does get there are under consideration by the Division for Natural Resources and the NRC funded contractors. These alternative methods may prove superior on a cost/benefit basis to the use of the evaporator.

   b. According to the Department for Natural Resources (telecom 9/23/81), there has been no release above MPC levels detected at Maxey Flats.

   c. The general consensus regarding stabilization of the Maxey Flats site is that excess water must be kept away from the trenches. There are a number of standard engineering techniques which may be applied to control the surface and groundwater at the site, including the use of improved trench caps, surface grading, and construction of drainage trenches. These were described by Mr. Birney Fish of the State of Kentucky's Department for Natural Resources and Environmental Protection

at the July 23 research progress meeting in Frankfort. A matter which may require further analysis is optimizing the effectiveness of such enginering solutions with regard to the cost of implementation.

d. The State of Kentucky has the authority, since it is an Agreement State, to determine if future low-level waste disposal operations will be conducted at Maxey Flats.

I hope this letter has been responsive to your inquiry.

Sincerely,

G. Wayne Kerr

G. Wayne Kerr, Director
Office of State Programs

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

OCT 19 1981

The Honorable Pete Worthington
Chairperson
Special Advisory Committee on Nuclear
Issues
Legislative Research Commission
State Capitol
Frankfort, Kentucky 40601

Dear Mr. Worthington:

This is in response to your letter dated August 28, 1981 concerning stabilizing and decommissioning the Maxey Flats site. Your letter raised several points for our consideration. A statement of each point and our comment on it is provided as follows:

1. "Because Kentucky is in the process of formulating decommissioning plans, the Department for Natural Resources and Environmental Protection can benefit from immediate access to major findings and observations made by researchers at the Maxey Flats site. We would like to see some formal channels set up by which this can be accomplished."

   We believe channels presently exist which allow the Department for Natural Resources and Environmental Protection access to major findings and observations made by researchers at the Maxey Flats site. To assure that this is the case, we have arranged for Dr. Edward O'Donnell, Waste Management Branch, Office of Nuclear Regulatory Research, NRC to be our point of contact with the Kentucky Department for Natural Resources and Environmental Protection to permit immediate access to major findings and deal with any questions that arise regarding the research performed.

2. "We would like to see an interagency Federal State study group set up to: a) summarize the findings-to-date from research performed at the Maxey Flats site that are pertinent for proper stabilization and decommissioning of the site, b) to identify other information needed to proceed with stabilization and decommissioning, c) to suggest some alternatives for site decommissioning. It is our understanding that a task force of this sort was organized for the Sheffield site and reported its findings in September, 1979."

OCT 19 1981

We are not sure at this time that a Federal-State study group would be the most appropriate approach for addressing the three aspects of the situation you specified. We are exploring the possibility of sponsoring an independent contractor to develop the information on the three aspects and prepare a report of its findings. At that time it may be desirable to convene a Federal-State study group to review the contractor report. I believe this would speed things up and give the Government representatives more time to focus on major issues. I would appreciate your reaction to this idea.

3. "We would like to see future NRC research at the Maxey Flats site directed toward finding the data needed to fill the information gap identified by the Federal-State task force, the Kentucky Department for Natural Resources and Environmental Protection, and other sources to properly decommission Maxey Flats in particular, and low level shallow land burial sites in humid areas in general. We are extremely supportive of using Maxey Flats as a laboratory but, we believe that the research should be focused directly on decommissioning, both to meet Kentucky's need to show that low level nuclear waste sites in humid areas can be successfully decommissioned. We request that some discussions be held with the Kentucky DNREP on this topic and a policy position adopted."

   We are hopeful that the research that NRC is presently sponsoring at Maxey Flats will demonstrate generically that shallow low-level disposal waste sites in humid areas can be successfully decommissioned. This information can then be applied to site specific situations such as Maxey Flats. I am sure you understand that the NRC has limited resources for funding research at Maxey Flats.

4. "When Kentucky has formulated a decommissioning plan for the Maxey Flats site, we would like to request assistance from NRC in review and comment on the plan by their technical staff and by other technical advisors available to NRC."

   We will be pleased to provide technical assistance, as resources permit, to the State of Kentucky to review and comment on a decommissioning plan when formulated. Our contact for this purpose is Mr. Donald A. Nussbaumer, Assistant Director for State Agreements Program, Office of State Programs.

5. "At the seminar in Frankfort, these specific questions were asked and the following responses were given:

   a) Can the evaporator be shutdown? No.

   b) Has there been a release of radioactive material from the Maxey Flats site detected above MPC levels to date? No.

   c) Is there technology currently proven on how to decommission the Maxey Flats site so as to shutdown the evaporator? No.

   d) Could Maxey Flats be reopened? No.

   Should any new information of findings become available that would change the response to these questions, we request that the Governor and the Legislative Research Commission be so apprised."

   Based on discussion held with the NRC personnel who attended the seminar, our position may be summarized as follows:

   a. Based on present conditions, the evaporator cannot be shutdown. The large volume of contaminated water still needs to be disposed of. However, methods of minimizing groundwater infiltration and flow through the site and the use of evapotranspiration to dispose of any water that does get there are under consideration by the Division for Natural Resources and the NRC funded contractors. These alternative methods may prove superior on a cost/benefit basis to the use of the evaporator.

   b. According to the Department for Natural Resources (telecom 9/23/81), there has been no release above MPC levels detected at Maxey Flats.

   c. The general consensus regarding stabilization of the Maxey Flats site is that excess water must be kept away from the trenches. There are a number of standard engineering techniques which may be applied to control the surface and groundwater at the site, including the use of improved trench caps, surface grading, and construction of drainage trenches. These were described by Mr. Birney Fish of the State of Kentucky's Department for Natural Resources and Environmental Protection

at the July 23 research progress meeting in Frankfort. A matter which may require further analysis is optimizing the effectiveness of such enginering solutions with regard to the cost of implementation.

d. The State of Kentucky has the authority, since it is an Agreement State, to determine if future low-level waste disposal operations will be conducted at Maxey Flats.

I hope this letter has been responsive to your inquiry.

Sincerely,

G. Wayne Kerr

G. Wayne Kerr, Director
Office of State Programs

ALLEN W. HOLBROOK
ATTORNEY AT LAW
316 E. Main Street
P.O. Box 631
Morehead, Ky. 40351
TEL: 606-784-6977

November 17, 1981

DISSENT FROM REPORT

Since I was the sole committee member to vote against the final report, I felt I owed the committee and the legislature an explanation of my vote.

The committee has performed a great service to the legislature, and the Commonwealth, with its detailed and highly informative report on the nuclear wastes in the Commonwealth. As a representative of Citizens Concerned About Maxey Flats, I was very pleased that our group was represented on this committee since the main focus of the committee's work was, of course, oversight of Maxey Flats.

The reason for my dissent from the final report was not, however, connected with Maxey Flats. My dissent stems from the failure of the committee to act on what I consider the underlying problem of the actual production of radioactive wastes.

Although the committee discussed at length the advantages and disadvantages of a state policy to reduce or eliminate programs in Kentucky that produce radioactive waste in order to reduce the amount of radioactive waste generated in the Commonwealth, the committee voted not to recommend such a policy. I disagree with the committee action in this area.

As the report makes clear, virtually all of the nuclear wastes generated within the borders of the Commonwealth stems from the various research and development programs at the University of Louisville and the University of Kentucky. The committee heard testimony from the radiation safety officers at these respective universities, and, based on this testimony, two facts emerged.

First, the respective universities do not consult with one another, nor coordinate with one another, their various research programs involving the use of radioactive isotopes.

Second, the universities have apparently given no consideration to either the elimination or the reduction of such programs in order to help the Commonwealth with its waste disposal problem.

Based on these facts, the committee has entirely rejected one other possible alternative for the disposal of Kentucky-generated wastes. That alternative is, simply, elimination or reduction of the source of that waste. For if the Commonwealth produced no nuclear wastes, or at least waste not requiring permanent burial, then there would be no need for any of the other alternatives suggested in the report.

Because the committee has declined to endorse this particular alternative, we have, in essence, defaulted to the universities in an extremely important area of state policy. Without any input from the political branches of government, the universities nonetheless ask us to solve their waste disposal problems.

I believe that the production of such wastes, because of the tremendous problems presented by disposal, is a political problem as much as it is a scientific one. The citizens of the Commonwealth should be allowed to make a decision regarding the research programs at the respective universities. A balance must be struck between the need for basic research involving radioactive isotopes and the long term problems associated with the disposal of nuclear wastes. If the citizens of the Commonwealth decide that such programs must continue, even at their present levels, then the various alternatives, as listed in the report, should certainly be fully considered. But the first step would seem to be a thorough and critical analysis of the need for programs that produce such wastes.

Thus, I have no quarrel with the alternatives as listed in the final report, nor with any other matters listed in the report. My quarrel is with what is not included in the report, and I believe that the failure to include this recommendation requires that I dissent from the report as a whole.

SENATE MEMBERS

Joe Wright
Assistant President Pro Tem

John M. Berry, Jr.
Majority Floor Leader

Eugene P. Stuart
Minority Floor Leader

David K. Karem
Majority Caucus Chairman

Walter A. Baker
Minority Caucus Chairman

Lowell T. Hughes
Majority Whip

Clyde Middleton
Minority Whip

LEGISLATIVE RESEARCH COMMISSION

State Capitol Frankfort, Kentucky 40601 502-564-8100

Joe Prather, Senate President Pro Tem
William G. Kenton, House Speaker
Chairmen

Vic Hellard, Jr.
Director

HOUSE MEMBERS

C. M. "Hank" Hancock
Speaker Pro Tem

Bobby H. Richardson
Majority Floor Leader

Arthur L. Schmidt
Minority Floor Leader

William "Bill" Donnermeyer
Majority Caucus Chairman

Herman W. Rattliff
Minority Caucus Chairman

Woody May
Majority Whip

Woody Allen
Minority Whip

January 21, 1981

Mr. Billy G. Wellman
Major General
Department of Military Affairs
Boone National Guard Center
Frankfort, KY 40601

Dear General Wellman:

At the January 16th meeting of the Special Advisory Committee on Nuclear Issues, testimony was given by Mr. Don Reder, representing the City of Mentor, Kentucky, located in Campbell County. Mr. Reder indicated that the City of Mentor had not been contacted by county, state, or federal governments in the emergency plan being developed for counties surrounding the Zimmer nuclear facility. Mr. Reder had several significant suggestions and recommendations regarding the emergency planning effort.

Based on the concerns of the City of Mentor, as expressed by Mr. Reder, and on behalf of the committee, I would like to request that your department contact Mr. Reder for his suggestions. His address and phone number are Route 2, Box 270, California, Kentucky 41007, phone: 606/635-2396.

In light of the concern expressed by the City of Mentor, there may be other small communities close to the nuclear facilities which have similiar concerns. Therefore, I would like to encourage you to consider the concerns of all communities, large or small, in your planning efforts for these facilities.

During our November 21st meeting, Judge/Executive Wendell Moore of Oldham County, presented a list of thirty-eight questions which he feels need to be addressed in the emergency planning process. I have enclosed these questions for your consideration and appropriate action. At one of our future meetings, probably in early summer, the committee would like you to update the members on your planning effort at Zimmer, including your consideration of these questions raised by Judge Moore.

Should you have any questions on the above, please contact Charles Hardin or Peggy Hyland of the LRC staff.

Yours very truly,

Representative Pete Worthington, Chairman
Special Advisory Committee on Nuclear Issues

cc: Judge/Executive Moore
Don Reder

LEGISLATIVE RESEARCH COMMISSION REGARDING MARBLE HILL

QUESTIONS THAT NEED TO BE ADDRESSED:

1. HOW ARE CITIZENS PREPARED FOR AN EMERGENCY EVACUATION ANNOUNCEMENT?

2. DO CITIZENS KNOW THE WARNING SIGNALS?

3. HOW WILL CITIZENS KNOW WHICH ROUTES TO TAKE FOR EVACUATION?

4. WHERE WILL CITIZENS BE EVACUATED TO?
   (a) There is not enabling legislation to evacuate across county and state boundary lines?

5. ARE CERTAIN STATE AND COUNTY ROADS CLOSED IN CASE OF A DISASTER?

6. DURING SCHOOL HOURS, ARE CHILDREN TO BE EVACUATED BY BUS? (a) WHERE TO?

7. WHAT PROVISIONS ARE THERE FOR REUNITING FAMILIES OF CHILDREN WHO ARE IN SCHOOL, MOTHER AT HOUSE OR WORK, HUSBAND AT WORK, ETC?

8. WHAT AUTHORITIES ARE IN CHARGE, AND DO CITIZENS KNOW THIS?

9. ARE GOVERNMENT OFFICIALS PREPARED?

10. ARE HOSPITALS PREPARED TO EVACUATE?

11. ARE DOCTORS AND PERSONNEL TRAINED TO HANDLE RADIATION VICTIMS?

12. WILL SOME HOSPITALS REFUSE TO TREAT RADIATION VICTIMS?

13. WHAT HAPPENS WHEN THE HOSPITAL BECOMES CONTAMINATED?

14. ARE HOSPITALS PREPARED TO EVACUATE?

15. ARE NURSING HOMES PREPARED TO EVACUATE?

16. ARE PRISONS AND JAILS PREPARED TO EVACUATE?

17. WILL VOLUNTEER RESCUERS HAVE QUALMS ABOUT GOING INTO A RADIOACTIVE ZONE?

18. WILL CONTAMINATED PEOPLE BE FORCIBLY STOPPED FROM ENTERING A NON-CONTAMINATED ZONE?

19. HOW MUCH MONITORING EQUIPMENT IS AVAILABLE AND WHO WILL PAY FOR THE EQUIPMENT AND OPERATION OF?

20. WHAT PROVISIONS ARE MADE TO COPE WITH A DEEP SNOW, FOG, DRIVING RAIN, HURRICANE, DUST STORMS, OR A COMBINATION OF INCLEMENT WEATHER CONDITIONS?

21. WHO IS RESPONSIBLE FOR AND WHO PAYS FOR THE UPDATING OF EMERGENCY PLANS?

22. WHO PAYS FOR EMERGENCY PLANS AND COSTS OF IMPLEMENTATION WHEN THE PLANT IS LOCATED IN ANOTHER STATE AND THERE IS NO JURISDICTION ACROSS STATE LINES?

23. WOULD THERE BE PRIORITIES FOR DECONTAMINATION SUCH AS FACTORIES, RESIDENCES, ETC.?

24. WHAT PROVISIONS EXIST FOR EVACUATION OF INCREASED POPULATION DUE TO TOURISTS AND/OR RECREATIONAL ACTIVITIES?

25. ARE THERE ENOUGH TRAINED PERSONNEL OUTSIDE THE IMMEDIATE REACTOR SITE WHO WOULD KNOW HOW TO HANDLE AND TREAT RADIATION VICTIMS?

26. WOULD HOSPITALS AND OTHER BUILDINGS HAVE METHODS OF PREVENTING DISSEMINATION OF RADIOACTIVE MATERIAL THROUGH THE GENERAL AIR CONDITION SYSTEMS AND WHO WOULD PAY FOR THEIR EMERGENCY PREPAREDNESS MEASURES?

27. SINCE CITIZENS ARE NOT ABLE TO SENSE RADIATION BY SEEING, SMELLING OR HEARING, HOW WOULD AUTHORITIES PERSUADE PEOPLE TO GO AT ALL IN THE ABSENCE OF ANY VISIBLE OR SENSIBLE THREAT, WHEN CITIZENS HAVE BEEN ASSURED OVER AND OVER AGAIN THAT NOTHING WILL EVER HAPPEN?

28. WOULD EVACUEES BE WILLING TO PART FROM THEIR PROPERTY ON A LONG-TERM BASIS?

29. WOULD EVACUEES UNDERSTAND THAT THEY CANNOT RETURN TO ANY AREA TO BEGIN CLEANING UP BECAUSE THIS MUST BE DONE BY DECONTAMINATION CREWS?

30. HOW WILL RUNOFF FROM CONTAMINATED AREAS BE PREVENTED, SUCH AS VIA RIVERS, STREAMS, ETC.?

31. WHO WILL PAY FOR AND MAKE UP THE DECONTAMINATION CREWS?

32. WILL FARMERS BE WILLING TO ABANDON THEIR LIVESTOCK ON A LONG-TERM BASIS AND WHO WILL PAY FOR THEIR LOSS OF INCOME?

33. WHO PAYS THE EVACUATION EXPENSE OF CITIZENS LIVING AWAY FROM HOME?

34. HOW WOULD LOOTING BE PREVENTED?

35. WHAT WOULD COUNTY AND CITY GOVERNMENTS DO IF THEY COULD NOT EVACUATE THEIR CITIZENS FAST ENOUGH?

36. WHAT WOULD BECOME OF THE CONTAMINATED (DEAD AND INJURED) WILDLIFE AND OTHER DOMESTIC ANIMALS? ROOSTING BIRDS WILL CARRY CONTAMINATION FROM LEDGES OF BUILDINGS TO AREAS AS MUCH AS 40 MILES AWAY?

37. WHY SHOULD THE STATE OF KENTUCKY BEAR THE BURDEN OF THE COST AND HAZARDS THAT A PLANT IN ANOTHER STATE WILL PLACE ON ITS CITIZENS?

38. YOU CAN SEE THAT THE ANSWERS TO THE ABOVE QUESTIONS ARE NOT EASY, HOWEVER, THEY ARE QUESTIONS THAT SHOULD BE ANSWERED FROM SOME BRANCH OF GOVERNMENT THAT HAS THE AUTHORITY. LOCAL GOVERNMENTS CAN WITHOUT ENABLING LEGISLATION DO BUT VERY LITTLE TOWARDS ANSWERING ANY OF THESE QUESTIONS.

I BELIEVE THAT WE WOULD BE FOOLING OURSELVES TO PREPARE EVACUATION PLANS WITHOUT METHODS OF IMPLEMENTION.

Wendell Moore
Oldham County Judge

SENATE MEMBERS

Joe Wright
Assistant President Pro Tem

John M. Berry, Jr.
Majority Floor Leader

Eugene P. Stuart
Minority Floor Leader

David K. Karem
Majority Caucus Chairman

Walter A. Baker
Minority Caucus Chairman

Lowell T. Hughes
Majority Whip

Clyde Middleton
Minority Whip

LEGISLATIVE RESEARCH COMMISSION

State Capitol Frankfort, Kentucky 40601 502-564-8100

Joe Prather, Senate President Pro Tem
William G. Kenton, House Speaker
Chairmen

Vic Hellard, Jr.
Director

HOUSE MEMBERS

C. M. "Hank" Hancock
Speaker Pro Tem

Bobby H. Richardson
Majority Floor Leader

Arthur L. Schmidt
Minority Floor Leader

William "Bill" Donnermeyer
Majority Caucus Chairman

Herman W. Rattliff
Minority Caucus Chairman

Woody May
Majority Whip

Woody Allen
Minority Whip

September 14, 1981

Mr. Billy G. Wellman
Major General
Department of Military Affairs
Boone National Guard Center
Frankfort, KY 40601

Dear General Wellman:

The Special Advisory Committee on Nuclear Issues would again like to have you update them on the status of emergency planning for the nuclear facilities being developed along the borders of the Commonwealth. The members are interested in the following areas:

1. The content of the plan as it addresses the 38 questions posed at an earlier meeting by Wendell Moore, County Judge/Executive, Oldham County (copy enclosed).

2. The methods used to involve towns, cities, local communities and counties in formulation of the plans.

3. The responsibilities and roles of local communities in emergency response, including some clarification of when an emergency is determined to be over and DES or utility responsibility ceases.

4. The use of civil defense facilities in emergency response.

5. The need for any legislation to permit the Commonwealth to deal effectively with an emergency, such as, providing temporary housing in other counties for evacuees.

6. An explanation of what procedures exist for state reimbursement by the utility for monies expended in emergency planning.

7. A description of the proposed mock exercise and a timetable for plan finalization for Zimmer and other facilities if possible.

The next meeting has been scheduled for Friday, September 25, 1981 in Room 103 in the Capitol Annex at 10:00 a.m.

We appreciate your cooperation and look forward to hearing from you at that time. If you have any questions, please contact our staff person, Peggy Hyland.

Sincerely,

Pete Worthington

Representative Pete Worthington
Chairperson
Special Advisory Committee on
Nuclear Issues

Enclosure

COMMONWEALTH OF KENTUCKY

DEPARTMENT OF MILITARY AFFAIRS

OFFICE OF THE ADJUTANT GENERAL
BOONE CENTER
FRANKFORT 40601

14 October 1981

Representative Pete Worthington
Chairperson
Special Advisory Committee on
Nuclear Issues
The Capitol
Frankfort, Kentucky 40601

Dear Representative Worthington:

Thank you for the opportunity to discuss the status of our emergency planning in response to needs caused by nuclear facilities in adjoining states. Our answers to the questions presented in your letter of 14 September are provided in Attachment 1. Responses to questions presented by County Judge/Executive Wendell Moore are provided in Attachment 2.

We have now completed interim state and county plans for response to emergencies at the Zimmer Nuclear Power Station. These interim plans will be used for the scheduled 18 November exercise and will be modified to correct problems identified during the exercise.

In addition, we have begun to negotiate with Public Service Indiana to develop agreements by which plans will be prepared for counties affected by the Marble Hill facility. I expect these negotiations to continue during the next several months. Once again, we will strive to provide the best possible emergency plans without expenditure of public funds in Kentucky.

I would like to invite the Committee members to participate as observers during the 18 November exercise. I believe you will find this to be an excellent opportunity to assess state and local plans. If any Committee members wish to serve as observers we would welcome their help. A briefing for all observers will be conducted in the State Emergency Operations Center on 17 November at 10:00 A.M. Committee members who want to observe the exercise should attend this session, since the scenario and conduct of the exercise will be explained at that time.

Thanks once again for your continued support. If my staff and I can provide any assistance or other information, please call.

Sincerely,

BILLY G. WELLMAN
Major General, KyNG
The Adjutant General

BGW/WRP/asb

Attachment 1 - Answers to questions posed by the Special Advisory Committee on Nuclear Issues.

1. Presented in Attachment 2

2. As the planning process begins, those officials in charge of emergency response within the 10 mile Emergency Planning Zone (EPZ) and in host counties are brought together and briefed by our staff on the work to be done. After the initial meeting the individual officials will be interviewed to ascertain their capabilities and inadequacies. Throughout the drafting process, staff planners will remain in close contact with local officials to insure all proper information is incorporated in the plan. A review process by local and state officials will follow prior to the plan being submitted to federal authorities for approval.

3. Local government responsibilities, fully supported by the state and federal government, private agencies and the utility, are generally to provide for warning residents and to advise them if actions to protect their health are necessary as recommended by the state and the utility. In case evacuation is recommended, the local communities would provide for routes out of the area and for the security of resident's property. Other government jurisdictions outside the EPZ may be asked to care for evacuees who have no other place to go. These activities, which include feeding and sheltering people, will be supported by the state and the Red Cross. An emergency is over when the plant operation is secure and any radiation released to the environment has either decayed to safe levels or has been removed through decontamination.

4. As in any emergency, all available civil defense facilities, equipment and manpower will be used as necessary. This includes radiation detection instruments, warning devices and rescue equipment.

5. We feel the provisions of KRS 39.400 provide for an effective response to an incident at a nuclear power station. Federal legislation requiring nuclear plants, outside a state, but which impact that state, to pay emergency related costs would be most helpful.

6. For the Zimmer Power Station procedures have been developed for Cincinnati Gas & Electric to reimburse state and local organizations for costs incurred in plans development and in exercises. These organizations are to submit costs (with documentation) through the appropriate county judge executive to DES. DES will deliver semi-annual billings to CG&E. Of course, CG&E has reserved audit privileges. Once costs have been approved CG&E will forward payment to DES. DES with submit appropriate documents to the Department of Finance and deliver payment to the organizations involved. DES has reserved the right to challenge CG&E audit exceptions.

7. A schedule of exercise events is provided on the following page.

   The FEMA-graded exercise is scheduled for 18 November. It will involve seven Kentucky counties: Bracken, Pendleton and Campbell, which lie partially in the EPZ; and Boone, Grant, Mason and Harrison, which have agreed to provide support for evacuees from the EPZ.

The exercise scenario is based upon a hypothetical accident at ZPS-1 which is sufficient to require a General Emergency declaration under NRC standards. The scenario will require simulated evacuation for Pendleton, Bracken and Campbell counties into the assigned host counties. Full mobilization of state and county Emergency Operations Centers in Ohio and Kentucky will be required. The scenario has been designed to test fully the abilities of state and local governments and other organizations to respond and to provide a comprehensive test of emergency plans. Evacuation, warning and notification, monitoring, decontaminatoin, traffic and access control and re-entry/recovery procedures are to be tested.

State and local plans for the Zimmer Station are now draft plans for exercise use. The shortcomings identified during the exercise will be incorporated in these plans before a final draft is submitted for the approval of the Governor and the County Judges/Executive. We expect that these plans will be submitted for federal approval in late January 1982.

ZPS - 1 Exercise Schedule of Events

*29 October	Practice Exercise (6:00 - 10:00 PM) (approximate)	Training, orientation & exercise at State EOC, ZPS-1, County EOCs, decontamination stations, shelters & reception centers.
*30 October	Practice Critique (10:00 AM)	EOC-Boone Center, assigned Area Coordinators to attend; local officials encouraged to attend.
*10 November	Pre-Exercise Brief for County Officials & Exercise Staff (7:00 PM)	Concurrent sessions in Campbell, Pendleton & Bracken Counties at EOCs-host county officials encouraged to participate.
*16 November	Pre-Exercise Brief for DES Staff (10:00 AM)	EOC - Boone Center Participating staff to attend.
	ZPS-1 Public Meeting (7:00 PM)	New Richmond (Ohio) H.S. Auditorium Designated staff.
*17 November	KY DES-FEMA 4 Brief for Exercise Observers and Evaluators (10:00 AM)	EOC - Boone Center FEMA 4 and RAC Staff Designated DES staff.
	Pre-Exercise News Conference (10:00 AM)	Location in Cincinnati BG Buntin, Gordon Nichols
*18 November	Exercise	Various locations; Cast of thousands.
*19 November	Ky DES-FEMA 4 Critique (10:00 AM)	Americana Inn, Cincinnati Airport. Designated DES Staff; FEMA/RAC staff; Local Officials encouraged to participate
	NRC-FEMA Exercise Critique (3:30 PM)	Cincinnati Area Designated staff

ictims will be taken to those hospitals which have indicated that they are illing and capable of accepting such patients. If necessary, patients ill be transported to the larger hospitals in Louisville, Lexington or orthern Kentucky which have been identified as capable of providing such are.

n the unlikley event that this would occur, several methods of econtamination are available. These include wash down or waiting for the adiactive material to decay to a safe level. Decontamination would be nder the supervision of the Radiation Control Branch, Department for Human esources

ospitials, along with other "special facilities" such as schools, nursing omes and manufacturing plants which are in the ten mile Emergency Planning one, will be provided with plans and procedures to deal with an incident t a nuclear plant. Please note that hospitals, as part of their licensing equirements (902 KAR 20:015 Section 3), must have and regularly exercise a isaster and evacuation plan.

efer to #14.

efer to #14.

ll emergency personnel will be properly trained and equipped to respond to n incident of this type. Through knowledge and use of detection equipment ear of this unseen hazard can be reduced.

rocedures will be developed and response personnel trained to identify ontaminated persons and to take proper actions for decontamination.

xisting DES radiological defense instruments will be used and any dditional equipment required will be identified and provided by the tility.

nclement weather conditions which could affect a response to an incident re known and will be considered during the planning effort. Such onditions will, of course, affect response to any emergency.

he utility.

he utility (please refer to our present arrangement with Cincinati Gas and lectric for work being done at the Zimmer Plant).

es. Such decisions and priorties would be made on a "command" basis at hat time.

reas within the 10 mile EPZ that would attract tourists are identified and rovisions are made to alert and remove these people in case of an ncident.

ertified EMT's have had training in handling contaminated patients. This nowledge will be reinforced through refresher courses. Hospital personnel .ll also be trained as mentioned in questions 11 and 12.

Attachment 2 - Answers to questions posed by Wendell Moore
Judge/Executive.

1. Through a public information program which will descr
operation, the possible hazard, warning systems and t
both the public and government agencies to an inciden

2. Prior to the operation of the plant, the public will
warning signals through the public information progra

3. Evacuation routes and procedures will be described in
information program and residents will be provided wi
maps and other materials to assist them. As in any e
if certain main routes are impassable, alternates wil
this information will be passed to the public through
Broadcast System, and by other measures.

4. Specific sites will be designated as emergency plans a
Marble Hill Plant. Evaucation reception centers have
for counties affected by Zimmer.

5. Yes, access control and traffic control points are est
evacuation and to prevent unauthorized reentry.

6. Schools receive special attention in development of wa
plans. Children whose homes <u>are in</u> the EPZ will be tr
any other available transportation to reception center
counties. Children whose homes <u>are not within</u> the EPZ
go home or will be taken to a school outside the EPZ w
can pick them up. Children who <u>live in</u> the EPZ but at
the EPZ may be picked up by their parents. If they are
designated time, they will be taken to a Reception Cen
County. Each student will be registered so that famili
reunited.

7. As part of the public information package, parents of s
be informed where their children would be taken in case
They would be requested to go to that location to meet
evacuation were ordered during school hours.

8. The same authorities who are in charge during any emerg
should know this already, however this subject will be
public information program (refer to #1).

9. After the plans are developed, regular exercises will b
provide these officials with training and to provide re
validation of plans.

10. Personnel of any hospitial which may be affected by a nu
incident will be provided with the needed training.

11. Hospitals equipped and staffed to handle these victims h
identified and agreements will be drawn up with the admi
insure that they will accept radiation victims.

12. V
w
w
n
c

13. I
d
r
u
R

14. H
h
Z
a
r
d

15. R

16. R

17. A
a
f

18. P
c

19. E
a
u

20. I
a
c

21. T

22. T
E

23. Y
t

24. A
p
i

25. C
k
v

26. There are no hospitals within the EPZ for Marble Hill or Zimmer. Shut down of ventilation systems and blocking of ducts to and from contaminated areas would reduce this problem. Payment for preparedness measures would have to be negotiated with the utility.

27. No citizen can be forced to leave his place of residence and in all likelyhood some may choose not to evacuate. We can only explain the seriousness of the hazard and hope they will heed official instructions. Based on past experience however, this problem is minimal. Emergency plans include provisions for public warning and public information. The decision by residents to evacuate or to take other protective actions will largely depend on their confidence in state and local officials issuing the guidance.

28. It is quite doubtful anyone would have to leave their property for an extended period of time. This is a question no one can answer as it is up to the individual.

29. Through the public information effort before and during an incident, this problem would be explained to the evacuees. Under such circumstances, they can be prevented from returning to their homes, once they have evacuated, through normal security procedures used for any disaster situation.

30. Run off over large areas cannot be prevented. However, some precautions are available. Water system intakes could be shut down during periods when the water is contaminated beyond acceptable levels.

31. The utility would pay. The state and local governments would coordinate the activities of the crews.

32. In the event of an evacuation, farmers would be notified to remove grazing animals to barns and place them on stored feed. Department of Agriculture personnel will be made available to help farmers in securing feed grain, monitoring the animals and feeding them if necessary. If any loss due to the accident occurs, the utility, of course, is liable.

33. All costs for evacuation ordered by state or local government will be borne by the utility and its insurer.

34. Through normal security precautions taken during any evacuation or disaster. Kentucky State Police and National Guardsmen will augment local law enforcement authorities.

35. There are several variables involved in response to this question. Dependent upon the intensity and expected duration of release, residents may be advised to remain indoors or evacuate if the risk is less than that realized by remaining in place. It is commonly expected that any serious release requiring protective actions will occur with adequate time and predictability to allow notification of the public and to evacuate them.

36. Dead animals would be disposed of in a manner similar to that used for any radioactive wastes. The contamination carried by wildlife would be insignificant.

37. It is the expressed policy of the Governor that no costs for such planning and related work will be borne by Commonwelath residents. So far, CG&E has agreed to reimburse all agencies involved for these costs.

38. These concerns are being addressed by both state, federal and local governments in areas where planning is currently taking place. They will also be addressed when planning begins for the Marble Hill facility. The state office and the utility are required by NUREG 0654-REV1 FEMA REP-1 to develop a comprehensive plan to respond to an incident at a nuclear facility.

A RESOLUTION relating to regional compacts for the management of low level nuclear waste.

WHEREAS, the Commonwealth of Kentucky has negotiated in good faith to find compact language to provide for the management of low level nuclear waste within the southeastern states; and

WHEREAS, Kentucky has served as a repository for low level nuclear waste generated throughout the U.S. by private and federal entities. About 4.5 million cubic feet of nuclear waste, 99% of which was generated outside of the Commonwealth, is buried at Maxey Flats; and

WHEREAS, the current language of the proposed compact gives no consideration to Kentucky's historical contribution to management of the nation's low level nuclear waste; and

WHEREAS, under the current compact language the Commission reserves the right to designate a host state, but accepts no responsibility for costs incurred by the regional facility due to unforeseen circumstances at the site; and

WHEREAS, such a compact leaves a host state with the total liability and financial burden of such a facility established to serve the region; and

WHEREAS, the citizens of Kentucky have from 1962 to July 1, 1981 spent $7,000,000 (1981 dollars) to clean-up, stabilize and decommission the Maxey Flats site and costs currently are running over a million dollars a year; and

WHEREAS, it would not be in the best of interest of the Commonwealth to open itself to the potential for another low level nuclear waste site without assurances of financial assistance from party states:

NOW THEREFORE,

Be it resolved by the members of the Special Advisory Committee on Nuclear Issues of the Kentucky Legislative Research Commission on August 28, 1981:

Section 1. That the Commonwealth should refrain from further participation in the compact negotiations of the southeastern states and focus its efforts on other emerging compact regions.

Section 2. That the Governor of the Commonwealth of Kentucky is advised to refrain from endorsing the language of the compact proposed for the southeastern states as it is currently written.

Section 3. That this committee recommend to the Kentucky General Assembly that they not approve the compact proposed for the southeastern states as it is currently written, should it be presented to them for ratification.

Section 4. That copies of this resolution be forwarded to the Governor of Kentucky and to the Governors of the states participating in compact negotiations for the southeastern region.

KENTUCKY LEGISLATIVE RESEARCH COMMISSION

1980-81 Interim

BR 599 - PREFILED

October 16, 1981

The following resolution was prefiled for the Special Advisory Committee on Nuclear Issues with a recommendation for passage by Representative Pete Worthington.

Paid for from state funds

A CONCURRENT RESOLUTION relating to the management of low level radioactive waste in Kentucky and providing for legislative oversight.

WHEREAS, the Congress of the United States has by enactment of the Low Level Radioactive Waste Policy Act of 1980, PL 96-573, delegated responsibility for the management of low level radioactive waste to the states; and

WHEREAS, in order to properly manage the low level radioactive waste generated in the Commonwealth, various data relating to the types, volumes, and form of the waste generated is required and such data is needed on a periodic basis; and

WHEREAS, currently available data indicates that the University of Kentucky and the University of Louisville generate 97% of the low level radioactive waste produced in the Commonwealth; and

WHEREAS, generators of waste should be accountable for the waste they produce; and

WHEREAS, given the limited availability of disposal capacity nationwide, the feasibility of a storage/treatment facility instate should be examined; and

WHEREAS, given the technical nature of the issue and the timeliness with which it must be addressed there is a need for continuing oversight by experts and citizens in the Commonwealth;

NOW, THEREFORE,

Be it resolved by the House of Representatives of the General Assembly of the Commonwealth of Kentucky, the Senate concurring therein:

1 Section 1. That the Legislative Research Commission
2 be directed to appoint a Special Advisory Committee on
3 Nuclear Issues for the 1982-83 interim to assume an over-
4 sight role on behalf of the Kentucky General Assembly on
5 all matters pertaining to the nuclear industry and
6 nuclear waste disposal. The committee shall consist of
7 membership from both houses of the legislature, which
8 shall choose from among its members a chairperson and
9 vice-chairperson, by mutual agreement. In addition, the
10 Legislative Research Commission shall appoint to the
11 committee members recognized as experts in areas related
12 to nuclear issues, representatives from environmental
13 groups, and lay members representing the general public,
14 but in no case shall total membership exceed fifteen (15)
15 members. The committee shall meet at least quarterly and
16 shall report its findings and recommendations to the
17 Legislative Research Commission no later than January 1,
18 1984.
19 Section 2. That the University of Kentucky and the
20 University of Louisville conduct a feasibility study, co-
21 ordinated by the Kentucky Department for Human Resources

1 (DHR), of building and operating a storage/treatment
2 facility to manage all Kentucky generated radioactive
3 waste, not otherwise managed by the generator. Such
4 feasibility study should include, but not be limited to:
5 (1) Size of such facility, based on Kentucky's
6 present and projected needs.
7 (2) Identification of environmental and occupa-
8 tional hazards of such a facility.
9 (3) Identification of regulatory requirements, fed-
10 eral, state, and local, which must be met.
11 (4) All costs for such a facility, including capi-
12 tal, operating, and closure. The DHR shall report at
13 least every six (6) months to the Special Advisory
14 Committee on Nuclear Issues during the 1982-83 interim on
15 the scope and status of the feasibility study.
16 Section 3. That the DHR be directed to require by
17 regulation certain information of all nuclear licensees
18 in the Commonwealth on an annual basis relating to man-
19 agement of their nuclear waste. This information should
20 include the volume of waste produced by radioisotope,
21 radioactivity, physical and chemical form; the method and
22 place of disposal; and source reduction and volume reduc-
23 tion practices.
24 Section 4. It is estimated that the operation of
25 the Special Advisory Committee on Nuclear Issues and the
26 provision of staff services will cost approximately

1 $30,000, such monies to be provided from the regular
2 budget of the Legislative Research Commission.