

MAY 10 1984

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MEMORANDUM FOR: Frank J. Congel, Chief  
Radiological Assessment Branch, DSI

THRU: Oliver D. T. Lynch, Jr., Leader  
Radiation Protection Section, RAB, DSI

FROM: Richard J. Serbu, Health Physicist  
Radiation Protection Section, RAB, DSI

SUBJECT: TRIP REPORT - BEAVER VALLEY UNIT 2 SITE VISIT  
AND STATUS OF OPEN AND CONFIRMATORY ITEMS

I travelled to Beaver Valley Power Station (BVPS) on April 30 - May 1, 1984, accompanied by Marilyn Ley (DL Project Manager for BVPS-2). We met with plant and Duquesne Light Company personnel, toured the Unit 2 facility under construction and discussed remaining open and confirmatory items.

Resolution was reached for the following: all confirmatory items (12, 13, 14, 15, 16); two open items (95, 96) - additional submittals (FSAR amendments and letters) will be forthcoming from DLC. Open item 97 was reduced to a confirmatory item, pending a telecon or meeting with the BVPS Radiological Operations Coordinator (equivalent to radiation protection manager). During the plant tour, I was able to verify several FSAR statements and commitments, however, due to the unavailability of the Radiological Operations Coordinator (ROC) for the meeting (as I had requested), I was unable to discuss a number of issues or get a clear picture of the radiation protection/ALARA program from the personnel provided by DLC. I hope to clarify these matters in future discussions with the ROC in lieu of generating additional questions.

The personnel provided by DLC for the tour and meeting were quite cooperative. A list of our contacts at BVPS is provided in Attachment 1, and a summary of my observations is included as Attachment 2.

Original Signed By

Richard J. Serbu, Health Physicist  
Radiation Protection Section, RAB, DSI

Enclosure:  
(1) BVPS Personnel Contacts  
(2) BVPS - Observations

cc: See next page

FILED	DSI:RAB	DSI:RAB				
NAME	RJSerbu:sj	ODTLynch				
DATE	05/10/84	05/10/84				

F. Congel

-2-

cc: D. Muller  
O. Lynch  
M. Ley  
M. Miller (RI)  
G. Knighton

OFFICE	NAME	DATE				

ATTACHMENT 1

DUQUESNE LIGHT COMPANY

RADIOLOGICAL ASSESSMENT BRANCH

MEETING OF 5/1/84 8:30 - 4:10

<u>PERSONNEL IN-ATTENDANCE</u>	<u>POSITION</u>	<u>ORGANIZATION</u>
G. Beatty	Lead Licensing Engineer	Duquesne Light Company (DLC)
Robert Vento	Radiological Programs Coordinator	DLC
Bill Snider	Construction Specialist	DLC
Paul Allen	Lead Nuclear Technology Div.	Stone & Webster
Ed Cohen	Senior Health Physicist Specialist	DLC
Mark Pavlick	Senior Test Coordinator	DLC
Jim Kasnuick	Sr. Mechanical Maintenance Eng.	DLC
Tom Burns	Acting Training Director	DLC
Bud Haney	Training Coordinator (Rad Con)	DLC
Richard Serbu	Health Physicist	NRC/DST/RAB
Marilyn Ley	Project Manager	NRC/DL

## ATTACHMENT 2

### 1. Plant Tour

The following areas and features were viewed during the tour of BVPS-2 and related facilities.

- a. airlock, equipment hatch - typical configuration, adequate for access/egress of personnel and equipment.
- b. cubicles - typical layout with labyrinth - more shield block walls utilized for ease of maintenance.
- c. equipment - piping layouts - changes from unit 1 design include improved work area for maintenance (e.g. charging pumps areas); better crane accessibility to cubicles in aux building; piping runs designed to not interfere with equipment removal.
- d. shield blocks - plugs & wall blocks of typical design to prevent streaming; designed for easy lifting.
- e. steam generator access platform - added following unit one experience in erecting/removing scaffolding.
- f. reactor coolant pumps - location, design, seal repair/replacement features improved from unit one.
- g. enclosed stairwell in containment - allow shielded access to containment levels.
- h. reactor cavity - no change from unit one - potential for overexposures controlled by locked access to ladder and administrative controls; poor visibility to locate leaks during refueling.



- i. spent fuel transfer tube - under construction.
  - j. refueling cavity/spent fuel pool - typical design.
  - k. spent fuel transfer tube & shielding - not installed, of total shielding design for < 50 mR/hr with fuel in transit.
  - l. H.P. offices & change areas - additional labs, offices & change areas (men & women) provided for Unit 2.
  - m. Spent fuel cask handling area - well-designed cask transfer and cask decon area, steel-lined cask washdown area.
  - n. Ventilation systems - typical designs, readily maintainable.
  - o. Painted surfaces - in containment and the aux building can ease future decon efforts.
2. As Built Model of Unit 2 - Stone & Webster has an as-built model layout (owned by DLC) which is used in construction to verify plans and design. Avoids costly removal of interferences and rebuilding; minimizes "field run" piping; reflects as-built condition down to electrical service outlets. Provides an excellent tool for ALARA design mods and a potential work planning/dose reduction tool during plant operations.
  3. Training Facilities - a large new training facility has been completed, including space for rad controls training. A converted elementary school also is used. Little in the way of mockup training is used at the training facility - this is left to on-the-job-training conducted by radiological operations personnel.

4. Radiation Protection/ALARA Programs - A broad program incorporating trending is currently being implemented. Personnel interviewed had a perspective of their areas and opinions on other areas, however, the station RPM was not available for interview to resolve some conflicting information provided. Discussion of the radiation protection program took considerably longer than normal and did not cover as broad a scope as was desired.



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

MAY 11 1984

MEMORANDUM FOR: George Knighton, Chief  
Licensing Branch #3  
Division of Licensing, NRR

FROM: David B. Matthews, Acting Chief  
Emergency Preparedness Branch  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

SUBJECT: REVIEW OF EMERGENCY PLAN FOR BEAVER VALLEY

We have reviewed Issue 7 of the Emergency Preparedness Plan for Beaver Valley Power Station and find that several items require resolution before we can conclude that the Beaver Valley Power Station Emergency Plan will provide an adequate planning basis for an acceptable state of onsite emergency preparedness.

We request that a letter similar to the enclosed draft with the attached review be sent to the applicant. Please provide this Branch with a copy of the final correspondence. The Emergency Preparedness Branch contact is Gerald E. Simonds (X-24870).

*David B. Matthews*  
David B. Matthews, Acting Chief  
Emergency Preparedness Branch  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

Enclosure:

1. Draft Letter to Licensee
2. NRC Staff Review

cc: E. L. Jordan, IE  
S. A. Schwartz, IE  
J. N. Grace, IE  
C. R. Van Niel, IE  
F. Kantor, IE  
G. E. Simonds, IE  
L. M. Lazo, NRR

CONTACT: Gerald E. Simonds, IE  
492-4870

*8546190130*

*clb*

D R A F T

Docket No. 50-412

Gentlemen:

We have completed our review of of Issue 7 of the Emergency Plan for the Beaver Valley Power Station. Your plan was reviewed against the requirements of 10 CFR 50.47, Appendix E to 10 CFR Part 50, and the guidance criteria set forth in "Criteria for Preparation and Evaluation of Radiological Emergency Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Revision 1, November 1980. The guidance document addresses the standards set forth in these revised emergency planning regulations of 10 CFR 50.47 and has been endorsed as Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors."

Our review has indicated that additional information and commitment are required before we can conclude that your onsite emergency preparedness program is acceptable. Enclosed is our review which includes our comments for which resolution is necessary. Your plan should be revised to address these comments. Please submit the revised plan within 45 days of receipt of this letter.

As stated in paragraph 50.47(a)(2), the NRC will base its findings on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether the State and local plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate with reasonable assurance that they can be implemented. In addition, an emergency response exercise with State and local governments designed to test the integrated capability of the emergency preparedness plans must be conducted before operation above 5% of rated power.

Sincerely,

Enclosure:  
13.3 Emergency Preparedness  
Evaluation

## 13 CONDUCT OF OPERATIONS

### 13.3 Emergency Preparedness Evaluation

#### 13.3.1 Introduction

The Beaver Valley Power Station (BVPS) operated by Duquesne Light Co., is located on the banks of the Ohio River in Shippingport Borough, Beaver County, western Pennsylvania, about 25 miles northwest of Pittsburgh, PA and 5 miles east of Liverpool, Ohio. The plume exposure EPZ includes portions of three counties in three States: Beaver County, PA, Columbiana County, Ohio, and Hancock County, West Virginia.

Beaver Valley Unit 1 was first operational in October 1976, and Unit 2 has a projected construction completion date of December 1985. The Beaver Valley site adjoins the Shippingport Atomic Power Station, a light water breeder reactor demonstration plant operated by Duquesne Light Company (DLC) for the Department of Energy.

Shippingport has an emergency preparedness plan for emergency conditions at the Shippingport Station. Both the Shippingport emergency plan and the BVPS emergency plan provide for communications interface between the plants, primarily for notification and implementation of onsite protective actions at either plant in response to an emergency condition at the other plant.



Previously, the staff had reviewed and commented on an earlier version of the Beaver Valley Emergency Plan. (NRC letter, G. Smith to J. J. Carey, April 28, 1982, Emergency Preparedness Appraisal, Appendix C.) The current plan is Issue 7, Rev. 0, dated December 21, 1982. As stated in Duquesne Light Company letter of April 28, 1983, the plan requires revision to incorporate BVPS Unit 2 as an operating unit vice a construction site.

The acceptance criteria used as the basis for the staff's review of the BVPS emergency plan are specified in SRP Section 13.3, "Emergency Planning" (NUREG-0800, July 1981) and include the planning standards of 10 CFR 50.47(b), the requirements of Appendix E to 10 CFR 50, and the specific criteria of NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980. The criteria of NUREG-0654 have been endorsed in RG 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors" dated October 1981, and thus have the same status as a Regulatory Guide.

Evaluation of the state of emergency preparedness for the BVPS facility also involves the review of State and local radiological emergency response plans by the Federal Emergency Management Agency (FEMA). The Standard Review Plan states that the FEMA findings on offsite plans are reviewed by the NRC and that a full-scale exercise is conducted at the facility, demonstrating that the applicant and the State and local organizations are capable of taking ade-

quate protective actions should a radiological emergency occur. The FEMA findings have not yet been developed; however, the FEMA review of offsite plans and subsequent submittal of findings and determinations to the NRC must be complete before authorization of operation above 5% of rated power. Similarly, a full-scale exercise must be conducted before operation above 5% of rated power will be permitted. The findings and determinations of FEMA on the adequacy of the State and local emergency response plans, and the overall conclusion of the NRC on the state of emergency preparedness for BVPS will be presented in a future supplement to the SER.

Section 13.3.2 of this report lists each planning standard of 10 CFR 50.47(b), followed by an evaluation of the applicable portions of the applicant's plan that relate principally to that particular standard. Section 13.3.3 of this report provides the staff's conclusions.

### 13.3.2 Evaluation of the Applicant's Onsite Emergency Plan

#### 13.3.2.1 Assignment of Responsibility (Organization Control)

##### Standard

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the emergency planning zones (EPZ) have been assigned, the emergency responsibilities of the various

supporting organizations have been specifically established, and each principal response organization has staff to respond to and to augment its initial response on a continuous basis.

#### Emergency Plan Evaluation

The Beaver Valley Power Station (BVPS) Emergency Plan identifies those State, local, and Federal response organizations which have response roles in the event of an accident. Since the plume exposure and ingestion Emergency Planning Zones (EPZs) incorporate portions of Pennsylvania, Ohio, and West Virginia, three State emergency response agencies have primary response roles; Pennsylvania Emergency Management Agency (PEMA), Ohio Disaster Services Agency (ODSA), and West Virginia Office of Emergency Services (WVOES). Similarly, the Beaver County Emergency Management Agency, Columbiana County Disaster Services Agency, and the Hancock County Emergency Services Agency serve as the lead county response agencies in Pennsylvania, Ohio and West Virginia respectively.

A concept of operations for each of these organization and their relationship to the total effort is specified. The interrelationships are illustrated in Table 3.1, Figure 5.3, and in Figure 5.6 of the emergency plan. These Figures are applicable only to Unit 1, and will be revised for two unit operations.

The Emergency Director, initially the Shift Supervisor who is succeeded by the Station Superintendent, is identified as the person who will assure overall direction and control of the Duquesne Light emergency response.

Twenty-four-hour-per-day emergency response, including manning of communications links is provided by the on-shift crew. This crew can be augmented as required in an emergency.

Written agreements from Federal, State, and local agencies and other support organizations having an emergency response role within the EPZs are appended to the Plan. The Plan describes the role of each of the agencies with which there are agreements and its relationship to the role of the plant.

The Plan describes a corporate level support organization which would be responsible for assuring continuity of resources for protracted 24-hour operations. This organization encompasses all of the Nuclear Division as required; consisting mainly of Nuclear Operations, assisted by Nuclear Safety and Licensing, Nuclear Engineering, and Nuclear Support Services. This organization will perform emergency duties essentially identical with its normal duties.

#### 13.3.2.2 Onsite Emergency Organization

##### Standard

Onshift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified

##### Emergency Plan Evaluation

The onsite emergency organization of plant personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement are specified. Plant staff emergency assignments for managers and key coordinators are described. The On-shift Supervisor is designated as the Emergency Director and has the authority to initiate emergency actions and recommend protective measures to offsite officials until relieved of Emergency Director duties by a designated Senior Management Official (Station Superintendent, Chief Engineer, or Maintenance Supervisor). The responsibilities, lines of succession, and functions which cannot be delegated are also described. Table 5.1 specifies the position or title and major tasks to be performed by the

persons assigned to the functional areas of emergency activity. The plan indicates the staffing levels which can be augmented within 60-120 minutes. Table 5.1 of the plan has been revised to correspond with Table B-1 of NUREG-0654. Results of a survey conducted by BVPS on travel times indicates that augmentation by the emergency organization is in line with the guidelines of Table B-1.

The corporate management, administrative, and technical support personnel who will augment the plant staff are specified for those functional areas of emergency response. Section 6 of the revised plan states that the Shift Supervisor/ Emergency Director, upon classifying the condition as Alert or higher, will assure that key Emergency Coordinators are notified using the beeper paging system and/or telephonic communications. These Emergency Coordinators will initiate additional call-out of personnel as needed. Implementing Procedure EPP/IP 1.6, "Emergency Operations Facility Organization and Operation", was revised to describe the staffing, augmentation, and operation of the EOF.

The contractor and private organization who may be requested to provide technical assistance to and augmentation of the emergency response organization are specified, as are the services to be provided by local agencies, including police, ambulance, medical, hospital, and fire fighting organizations.

The interfaces between and among the onsite functional areas of emergency activity and the offsite emergency organization made up of corporate support, local services support, and State and local government response organizations



are specified. A block diagram is provided in Figure 5.4 of the Plan. Copies of letters of agreement with these organizations as well as letters of agreement with Westinghouse Electric Corporation, Teledyne Isotopes, and the Institute of Nuclear Power Operations are appended to the Plan.

#### 13.3.2.3 Emergency Response Support and Resources

##### Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accomodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

##### Emergency Plan Evaluation

The BVPS plan describes the types of response expected to be provided by the Federal agencies, such as NRC, DOE Federal Radiological Monitoring and Assessment Plan (FRMAP), National Weather Service (NWS), and FEMA. The primary and secondary method of notification for each is specified, but the person who is authorized to request Federal assistance is not named.

The BVPS plan states that, since FRMAP resources are to be used for offsite response, the emergency plans of Pennsylvania, West Virginia, and Ohio have made provisions for the use of FRMAP resources. To provide access to the plant release and meteorological data, space will be made available in the EOF for a liaison from FRMAP as well as liaison personnel from each jurisdiction within the EPZ.

The plan does not identify the specific State, local, and licensee resources available to support the Federal response, such as, airports, transportation, office space, communication, etc. The plan contains provision for the dispatch of DLC liaison personnel to the primary governmental EOCs upon request.

The BVPS plan describes onsite laboratories, such as the dosimetry lab and sample preparation and counting facility; the radiological lab, and the radiological monitoring van (a portable field laboratory). Offsite laboratory support is available from the Shippingport Atomic Power Station adjacent to BVPS; Bettis Atomic Power Labs approximately one hour by car; Teledyne, the environmental contractor; Radiation Management Corp., Philadelphia; NUS Corp., Pittsburgh; and Interex Corp., Natich, Maine. In addition to these, emergency support and assistance is available from INPO who maintains a roster of personnel and an inventory of material, equipment, and services. The NSSS supplier is Westinghouse who has agreed to provide emergency engineering assistance on a 24-hour/day, 7 day/week basis. Additional industry support is available from the Central Area Power Coordinating Organization (CAPCO), whose members own or control several nuclear power plants.

The following items require resolution:

1. The plan should specify the persons, by title, who are authorized to request Federal assistance (C1a).
2. The plan should specify licensee, State, and local resources available to support the Federal response (C1c).

#### 13.3.2.4 Emergency Classification System

##### Standard

A standard emergency classification and action level scheme, the basis of which includes facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensee for determinations of minimum initial response measures.

##### Emergency Plan Evaluation

The BVPS plan provides for a graded scale of response for distinct classifications of emergency conditions, action within those classifications, and criteria for escalation to a more severe classification. This classification system is compatible with the classification scheme used by the emergency/

disaster response agencies in all three risk counties and risk States. The Plan uses four categories, Unusual Event, Alert, Site Area Emergency, and General Emergency. The categories and the initiating events within each category are described in Section 4 of the Plan, and are consistent with the criteria of Appendix 1 to NUREG-0654.

The Emergency Action Levels (EALs) are outlined in Section 4 and Table 4.1 of the plan, and detailed in the emergency procedures to include specific instrument readings, plant system and effluent parameters, and equipment status indications characteristic of a spectrum of off-normal conditions and accidents corresponding to most initiating conditions of each emergency class.

The EAL sets appear adequate except that the following initiating conditions are missing or are deficient as noted. (The example initiating conditions are listed in Appendix 1 of NUREG-0654.)

#### Unusual Event

- ° Initiating Condition (IC) 9 - Loss of Engineered Safety Feature or fire protection system requiring Tech Spec. shutdown.

This initiating condition is listed in Table 4.1 but Tab 13 omits discussion of the fire protection system.

- Initiating Condition 13d - Hurricane

The EAL, in Table 4.1 of the plan, and Tab 22 of the procedure, discuss tornadoes only. There is no reference to hurricanes or other high winds.

Initiating Condition 14e - Turbine rotating component failure causing rapid shutdown.

This IC is not addressed.

- Initiating Condition 15 - Other plant conditions.

This IC is not addressed.

- Initiating Condition 17 - Rapid depressurization of secondary side.

This IC is not addressed. Tab 7 addresses only Main Steam Line break.

#### Alert

- Initiating Condition 2 - Steam Generator tube failure with loss of offsite power.

This IC is not addressed in either Tab 6 or 7.

- Initiating Condition 15 - Radiological effluents greater than 10 times Technical Specifications.

The monitors and instruments are specified in Tab 20, however, the alarm set-point is 100 times Technical Specifications vice 10 times.

- ° Initiating Condition 17d - Hurricane winds near design level.  
None of the EALs address hurricane winds.
- ° Initiating Condition 18e - Turbine failure causing casing penetration.  
This IC is listed as an Unusual Event which is overly conservative.
- ° Initiating Condition 19 - Other plant conditions.  
This IC is not addressed.

#### Site Area Emergency

- ° Initiating Condition 3 - Rapid failure of Steam Generator tubes with loss of offsite power.  
This IC is not addressed.
- ° Initiating Condition 9 - Transient requiring operation of shutdown system with failure to scram.  
This IC is partially addressed as an alert condition (IC 11), but is not addressed as a Site Area Emergency.



- ° Initiating Condition 15c - Sustained winds in excess of design levels.  
Table 1 of EPP/J-1 lists EAL of "winds in excess of design levels" but  
Tab 22 discusses only tornado winds.
- ° Initiating Condition 17 - Other conditions.  
This IC is not addressed.

#### General Emergency

- ° Initiating Condition 5b - Loss of Feedwater and Condensate system followed  
by failure of emergency feedwater systems.  
Table 1 of EPP/I-1 lists this IC but there is no discussion in any of the  
Tabs.
- ° Initiating Condition 5d - Loss of onsite and offsite power with total loss  
of emergency feedwater make-up capability for several hours.  
This IC is listed in Table 1 of EPP/I-1 but is not addressed in any of the  
Tabs.

#### 13.3.2.5 Notification Methods and Procedures

##### Standard

Procedures have been established for notification, by the licensee, of State and local response organization and for notification of emergency personnel by all response organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

##### Emergency Plan Evaluation

The emergency communications procedures contain instructions and forms for initial contact and notification, and forms to be used when the agency calls back for follow-up information and verification.

The Shift Supervisor, upon classifying the event as an Alert emergency or higher, will ensure that key Emergency Coordinators are notified, as needed, using the beeper paging systems or telephonic communications. The key Emergency Coordinators will initiate additional call-out of personnel as needed. The emergency notification procedure, EPP/IP-1.1, contains instructions for notification of offsite authorities and emergency response agencies, phone lists, and an Initial Notification Form. The Initial Notification Form contains

the basic information recommended in NUREG-0654, and requests that appropriate individuals of the response organization contact the station for additional information. The dissemination of public information to the news media has been done per EPP/IP-9.1, "Emergency Public Information Plan BVPS". The licensee has installed a public alert and warning system consisting of sirens mounted along public highways and at various fire stations throughout the 10-mile EPZ.

#### 13.3.2.6 Emergency Communications

##### Standard

Provisions exist for prompt communication among principal response organizations to emergency personnel and to the public.

##### Emergency Plan Evaluation

The emergency plan specifies five independent systems for outside communications to Federal, State and county authorities, corporate management, and offsite support/response groups. These systems are commercial telephone system, the utility PAX system, dedicated "hot lines", the utility system operator direct lines, and the utility's industrial radio system. Onsite, the plant alarm system, station paging system, and a two-way alarm system between BVPS and Shippingport provide communication and notification for station personnel. These communication links

are illustrated in Figures 7.2.a and b of the plan. The plan provides 24-hour-per-day activation of the State and local emergency response network through the Pennsylvania Emergency Management Agency (PEMA). The various primary and backup systems have redundant power supplies. A telephone link is provided between the plant and the Beaver County hospitals with a radio link between the hospitals and ambulances. Periodic testing of the communication systems will be conducted.

#### 13.3.2.7 Public Information

##### Standard

Information is made available to the public on a periodic basis on how it will be notified and what its initial actions should be in an emergency; the principal points of contact with the news media for dissemination of information during an emergency (including physical location or locations) are established in advance; and procedures for coordinated dissemination of information to the public are established.

##### Emergency Plan Evaluation

The BVPS, in cooperation with State and county authorities, will develop and periodically disseminate emergency planning instructional material to residents and transients in the EPZ. This material will include (1) basic information on radiation, (2) public notification system, (3) public response to warning

signals, (4) evacuation routes and procedures, (5) sheltering procedures, and (6) ingestion pathway protective actions. The methods to be utilized to ensure that emergency planning information is transmitted to residents and transients in the EPZ are (1) yearly ads in the local newspapers summarizing actions to be taken by the residents, (2) printed instructions and evacuation maps to be distributed to EPZ residents, (3) printed instructions to be included in the local telephone directory, and (4) printed instructions and evacuation maps to be distributed to motels, hotels, and recreation areas.

The Manager, Public Information Department will provide a point of contact for the news media. A nearsite emergency news center for use by the news media will be established at the Willows Motel about 3 miles from the site for events classified higher than an Alert. The DLC corporate headquarters and the William Penn Hotel will be used as an alternate news center in case the Willows Motel is unavailable due to radiological conditions. Corporate headquarters will be the point of contact for Unusual Event and Alert emergencies. The Vice President, Nuclear Division, or designee, will serve as the company spokesperson.

The Public Information Department will maintain a representative at the Technical Support Center (TSC) and Emergency Operation Facility (EOF) to ensure that correct and proper information is provided for public release.

The Customer Services Department will be staffed and prepared to answer calls from the news media and general public and to deal with rumors and incorrect information that may develop during the emergency.

Programs will be conducted annually by DLC to acquaint news media representatives with the content and implementation of the BVPS emergency plan, and the public notification system. In addition, information concerning radiation and points of contact for release of public information during an emergency will be provided.

The following item requires resolution:

The printed instructions and evacuation maps for the public shall be developed, submitted for FEMA and staff review, and distributed to residents and transients within the 10-mile EPZ. (G1)

#### 13.3.2.8 Emergency Facilities and Equipment

##### Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.



### Emergency Plan Evaluation

The licensee has established a Technical Support Center (TSC) and a nearsite Emergency Operations Facility (EOF) in the Emergency Response Facility (ERF). An Operations Support (Assembly) Center with adequate capacity has been established in the Process Instrument and Rod Position Instrument Area. An offsite EOF has been established at the company's South Heights district office that is about 10 miles from the site. The permanent ERF, designed to satisfy the functional requirements of the TSC and the EOF, also contains an Emergency Control Center, a Dosimetry Lab, Sample Preparation and Counting Facility, and Decontamination Facility, as described in DLC's response to Generic Letter 82-33 (Supplement 1 to NUREG-0737). The permanent ERF is complete and operational except for the Safety Parameter Display System (SPDS). The SPDS is scheduled for installation during the forth refueling outage of Unit 1, starting in September 1984. Activation and staffing of the ERF will be done in a timely manner, following the guidelines of Table 2 of Supplement 1 to NUREG-0737 (Table B-1 of NUREG-0654). On an interim basis the staff finds the ERF facility adequate for the purpose.

As indicated in Supplement 1 to NUREG-0737, the staff will conduct a post-implementation appraisal of the adequacy of the applicant's completed emergency response facilities against the requirements in Supplement 1 to NUREG-0737 in accordance with a schedule to be developed between the applicant and the NRC (see 13.3.4, Item III.A.1.2. of this report).

Onsite and offsite monitoring and analysis systems and equipment have been established and are identified in the plan. The central point for the receipt and analysis of field monitoring data and coordination of sample media has been established at the EOF.

Meteorological instrumentation and procedures have been, or are being established including provisions for obtaining representative current meteorological information from the National Weather Service at Moon Township. The routine inspection, inventory, maintenance and calibration of emergency equipment and supplies is satisfactorily addressed in the plan.

The revised plan, and implementing procedure EPP/IP-1.6, "EOF Organization and Operation ", provides for augmentation of the EOF organization to perform the functions of overall emergency management, radiological/environmental assessment, and protective action recommendations.

#### 13.3.2.9 Accident Assessment

##### Standard

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of radiological emergency condition are in use.

### Emergency Plan Evaluation

The revised plan, and Table 1 of emergency procedure EPP/I-1, present an emergency classification system and EALs, consistent with Appendix 1 of NUREG-0654. The procedure, EPP/I-1, supplements the table with Tabs for each initiating condition identifying the instruments for each parameter with alarm setpoints or emergency action levels for each. See Section 13.3.2.4 for the review of the EALs.

In the event of a known or projected release of radioactive material in quantities or concentrations greater than the Beaver Valley Power Station Technical Specifications, immediate and continuous assessment, including dose projection, is performed by on-duty shift personnel. Following activation of the Technical Support Center, dose projection activities are performed by the Environmental Assessment and Dose Projection Coordinator and assigned assistants at the TSC. Upon declaration of a Site Area or General Emergency, this function transfers to the Emergency Operations Facility (EOF). Responsibilities and functions assigned to these personnel are identified in the Plan. Activation of the emergency facilities is described in the plan. The training of personnel assigned dose projection functions is identified.

The plan and procedures describe dose commitment methods that rely on manual calculation. DLC is developing computer equipment and methodology to upgrade

these dose calculations. The manual methods will be retained as back-up to the computer method.

#### 13.3.2.10 Protective Response

##### Standard

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

##### Emergency Plan Evaluation

Onsite protective actions, including criteria and methods, are described in the plan. The primary protective action is evacuation of non-essential personnel and the use of protective equipment and clothing for those personnel who are required to perform emergency activities. Provision is made for increasingly larger areas of evacuation commensurate with existing conditions. Other onsite protective actions include the use of respiratory protection equipment, anti-contamination clothing, thyroid prophylaxis, and the administration of an effective radiological controls program.

Measures have been established to provide for personnel accountability in the event of an evacuation in accordance with Emergency Implementing Procedures. These measures are based on security identification badges and/or computerized access security system (card-key). The plan does not specify a time limit for initial accountability per the criteria of NUREG-0654, nor continued accountability of members of the emergency organization.

Offsite protective actions are addressed in the plan. Such actions are primarily the responsibility of State and local emergency organizations, but may be based on recommendations by the BVPS Emergency Director (Emergency/ Recovery Manager for Site Area or General Emergencies). These offsite organizations may invoke any emergency actions which they deem appropriate, according to assessment of the individual situation, and at any level of radioactive material release or projected offsite dose. The key element which ensures compatibility of the BVPS Plan and offsite emergency plans is the provision for initial notification and continuing status reports to the State and local agencies, conveying current release and dose projection information.

The plan, in the Time Evacuation Study, gives time estimates for evacuation of individuals in the various planning sectors of the EPZ, maps showing major roadways through the EPZ, radiological sampling and monitoring locations, and population distribution by sectors throughout the EPZ.

Radiological monitoring procedures are detailed in the Radiological Control Manual (RCM). During site evacuations, personnel and vehicle surveys are performed on the site exit road adjacent to the Switchyard Relay Building, using portable survey instruments. Decontamination of vehicles will be done with fire hoses on the graveled area in the switchyard adjacent to the fire hydrants. Individuals will be returned to the Station, or to the Shippingport Visitors Center for decontamination. In the event of an immediate evacuation, personnel will be directed to proceed by personal automobiles to the designated remote assembly area for personal and vehicle monitoring.

The following item requires resolution:

The plan does not indicate if initial accountability can be accomplished within 30 minutes, or the methodology to be used to maintain accountability on a continued basis. (J.5)

#### 13.3.2.11 Radiological Exposure Control

##### Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Workers and Life-Saving Activity Protection Action Guides.

### Emergency Plan Evaluation

The BVPS Radiation control Manual and the Radiation Protection Procedures establish the radiation protection program at the Beaver Valley Power Station by providing criteria, guidelines, and instructions for maintaining the radiation exposure of station personnel as low as reasonably achievable (ALARA) and within Federal standards (10 CFR 20). Specifically, the BVPS Radiation Protection Program provides for exposure control, exposure monitoring, access control, identifying radiological areas and materials, respiratory protection, contamination control, and radioactive material handling. Administrative controls (radiation workpermits, radiation clearance, and ALARA measures) will remain in force during an emergency. If necessary operations require personnel exposure in excess of normal limits or if normal work practices result in unacceptable delay, the Radiological Controls Coordinator may waive or modify established exposure control criteria and methods, but the Emergency Director or Emergency/Recovery Manager are the only individuals who may authorize doses in excess of 10 CFR 20 limits. Procedures are listed in the plan to provide a 24-hour-per-day capability to determine the radiation dose received by emergency workers, issue and process dosimetry devices and maintain dose records.

Onsite control of access to contaminated areas, and control of access to onsite food and drinking water has been established. Provisions have been established for decontamination of personnel, materials and equipment, for disposal of contaminated waste, and return contaminated areas and items to normal use. The Licensee has established the capability to monitor and decontaminate relocated (evacuated) personnel and provide clean clothing as required. Decontamination kits are stocked with the various decontamination materials required for the various kinds of contamination including radioiodine on the skin.

#### 13.3.2.12 Medical and Public Health Support

##### Standard

Arrangements are made for medical services for contaminated injured individuals.

##### Emergency Plan Evaluation

At least two first aid personnel, trained in Red Cross Multi-Media are onsite at all times. First Aid Kits are available at several locations onsite, and a first aid room is available. The licensee has made arrangements by written agreement with Aliquippa Hospital, Medical Center of Beaver County, Wald & Spritzer Associate/University of Pittsburgh RERP, and Presbyterian-University Hospital for medical assistance to injured personnel who also may be contaminated.



These organizations can be contacted directly or through the Beaver County Emergency Medical Services (via Beaver County Communications Center). Emergency Medical Services Radio provides communications between the Beaver County Communications Center, the ambulances, and the Beaver Valley hospitals. Ambulance emergency supply kits, per Appendix D of the plan, are available from storage in the First Aid Room at the station.

Personnel dosimetry for ambulance personnel is provided by the station. Contaminated patients are accompanied by a radiation control person who is responsible for appropriate contamination control measures to minimize the spread of contamination to the ambulance, the hospital, and hospital personnel. Back-up transportation can be provided by a suitable company vehicle, or a private vehicle (on a voluntary basis). A letter of agreement for transport of injured/contaminated personnel has not been included in Appendix D of the plan, although Medic-Rescue is listed in the table of contents.

The following items require resolution:

1. The plan lacks a letter of agreement for ambulance service. (A.3)
2. Licensee shall certify annually as to the currency of the letters of agreement. (P.4)

13.3.2.13 Recovery and Reentry Planning, Postaccident Operations

Standard

General plans for recovery and reentry are developed.

Emergency Plan Evaluation

Provisions are made for establishing a recovery organization which is commensurate with the scope and magnitude of an emergency condition. These provisions include the assignment of qualified individuals to fill recovery organization positions as may be appropriate. Termination from a severe emergency involving offsite consequences will be through joint evaluation by the utility, the three States involved, and the NRC.

Criteria for termination of the emergency condition and establishment of the primary recovery organization are detailed in the plan. All emergency response and support organizations shall be notified of the termination of the emergency, and/or the initiation of recovery operations, using the same procedures used for initial notification. If the emergency resulted in damage to the plant, the Duquesne Light Nuclear Division will be activated as the recovery organization under the direction of the Manager of Nuclear Operations. The Nuclear Division is structured into functional areas and staffed by personnel competent in the various disciplines necessary for emergency recovery conditions. The Nuclear Division maintains offices either onsite or nearsite.

The BVPS plan contains provisions for periodically estimating total population exposure resulting from radioactive releases during the emergency.

#### 13.3.2.14 Exercises and Drills

##### Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercise or drills are (will be) corrected.

##### Emergency Plan Evaluation

An exercise appropriate to a Site Area or General Emergency, and which simulates conditions resulting in offsite radiological releases which would require protective response by offsite authorities shall be conducted at least once per calendar year for the Beaver Valley Power Station. This exercise shall test the integrated capability and a major portion of the basic elements of the Emergency Preparedness Plan. The scenario will be varied from year to year such that all major elements of the Plan and the emergency organizations are tested within a five-year period. Consistent with the ability of offsite agencies to participate, this exercise should be scheduled to commence between the hours of 1800 and 2400, and between 0000 and 0600 once every six years.

Scenarios for the joint exercises will be a cooperative effort between all participants, and, to the extent possible, will allow free-play for decision-making by the participants.

Each exercise will be observed and critiqued by qualified observers from Federal, State, and/or local governments. Critiques of all scheduled exercises will be held soon after the completion of the exercise, with all observers having the opportunity to provide input. An overall exercise report will be compiled and distributed to all primary participants. The exercise critique report shall document the significant deficiencies observed during the exercise. The Emergency Planning Supervisor is responsible for recommending corrective actions for each deficiency, submitting the recommendations to the Onsite Safety Committee for review and to the Station Superintendent for approval. The Emergency Planning Supervisor will also prepare necessary changes to the Emergency Preparedness plan and/or Emergency Implementing Procedures for review and implementation by the Onsite Safety Committee.

The plan provides for drills as pre-planned simulations in which the participants are "walked" or "talked" through one or more procedures, or aspects of the emergency plan to provide individuals with hands-on training in a controlled situation. Drills will be evaluated by the drill instructor, who will normally correct erroneous performance on-the-spot.

Each exercise or drill will be conducted to: (1) ensure that the participants are familiar with their respective duties and responsibilities, (2) verify the adequacy of the BVPS Emergency Preparedness Plan and the methods used in the Emergency Implementing Procedures, (3) test communications networks and systems, (4) check the availability of emergency supplies and equipment, (5) verify the operability of emergency equipment, and (6) verify the adequacy of interrelationships with offsite agency plans.

The following drills will be conducted according to schedule:

Fire Emergency Drill	Semi Annual
Medical Emergency Drill	Annual
Radiation Emergency Drill	
Onsite Airborne	Semi Annual
Onsite Liquid	Annual
Offsite Air and Liquid	Annual

Communications drills will be conducted regularly per the plan on a frequency schedule to ensure continued operability of the systems.

#### 13.3.2.15 Radiological Emergency Response Training

##### Standard

Radiological emergency response training is provided to those who may be called upon to assist in an emergency.

##### Emergency Plan Evaluation

The licensee provides training and annual retraining in the plan and procedures for all permanent plant personnel. This training includes assignment of duties and responsibilities, location and use of assembly areas, and familiarization with alarms and communications systems. In addition, those personnel having specific response roles as part of the onsite emergency organization are given specialized training in accordance with their expected duties. These areas include emergency response coordination and direction, accident assessment, radiological monitoring, repair and damage control, rescue, and first aid.

The plan provides training for non-emergency onsite personnel, and those individuals working onsite but outside the Protected Area. Training consists (as a minimum) of instructions on warning signals, assembly areas, and evacuation routes.

The applicant will provide training and annual retraining for those offsite organizations whose services may be required in an emergency, such as fire, police, medical support, and rescue personnel. The training will be consistent with the organization's emergency functions. The training program for members of the applicant's emergency organization will include practical drills, as discussed in Section 13.3.2.14 above.

13.3.2.16 Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Standard

Responsibilities for plan development and review and distribution of emergency plans are established, and planners are properly trained.

Emergency Plan Evaluation

The BVPS Superintendent has overall responsibility and authority for maintenance of an appropriate emergency preparedness stature at BVPS. The Station Superintendent is assisted by the Emergency Planning Supervisor who is assigned the primary responsibility for the emergency plan. The Emergency Planning Supervisor remains current by attending appropriate seminars and training courses. The Emergency Planning Supervisor is responsible for the development and update of the Emergency Plan, coordination with onsite and offsite response organizations, and ensures the correspondence of the BVPS Emergency Plan with the



interfacing offsite plans. These plans are listed in Section 2.5 of the BVPS Plan. The plan has a table of contents, and includes, in Appendix C, a listing of implementing procedures. The Onsite Safety Committee uses the review of the combined exercise report as an annual review of the Emergency Preparedness program. See Planning Standard 13.3.2.14, for discussion of the review, management controls for evaluation and correction, and distribution of the critique report.

#### 13.3.3 Conclusions

Based on a review of the Beaver Valley Power Station Emergency Plan for conformance with the specific criteria in NUREG-0654/FEMA-REP-1, which addresses each of the planning standards of 10 CFR 50.47(b) and with the requirements of Appendix E to 10 CFR 50, the staff concludes that, upon satisfactory correction of those items requiring resolution and those items requiring commitment by Duquesne Light Company, as identified in Section 13.3.2 of this report and summarized below, the Beaver Valley Emergency Plan will provide an adequate planning basis for an acceptable state of onsite emergency preparedness.

- o Revise the emergency plan to include Unit 2 as an operating unit vice a construction site.
- o The plan should specify the persons, by title, who are authorized to request Federal assistance.



- o The plan should specify licensee, State, and local resources available to support the Federal response.
- o Correct the deficiencies in the EAL sets as listed in Section 13.3.2.4.
- o The printed instructions and evacuation maps for the public shall be developed and submitted for staff review.
- o The plan should specify methodology for initial accountability (to be accomplished within 30 minutes), and the methodology to be used to maintain accountability on a continued basis.
- o The plan lacks a letter of agreement for ambulance service.
- o Licensee shall certify annually as to the currency of the letters of agreement.

After reviewing the findings and determinations made by FEMA on the adequacy of State and local emergency response plans, and after reviewing the revisions to the applicant's Emergency Plan, a supplement to this report will provide the staff's overall conclusions as to whether the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

#### 13.3.4 TMI Action Items

##### III.A.1.2 Upgrade Emergency Support Facilities

Supplement 1 to NUREG-0737, "Requirements for Emergency Response Capability" issued by Generic Letter No. 82-33, dated December 17, 1982, states that the NRC will conduct post-implementation reviews of emergency response facilities (ERF's), and provides all licensees and applicants with the requirements and guidance against which the ERF's will be evaluated.

Generic Letter No. 82-33 requested that by April 15, 1983, each licensee and applicant develop and submit to the NRC its own plant-specific schedule for completion of the ERF's, including a description of the plans for phased implementation and integration of all emergency response activities. Final staff evaluation of the operational capability of completed ERF's (i.e., TSC, OSC, and EOF) will be conducted as part of the post-implementation review of emergency response capabilities against the requirements contained in Supplement 1 to NUREG-0737. Accordingly, the schedule for the post-implementation appraisal of the ERF's will be established after these facilities have been completed.

##### III.A.2 Improving Emergency Preparedness - Long Term

The objective of this item was for each nuclear facility licensee to upgrade its emergency preparedness effort at each nuclear facility in order to provide

reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. This task involved three phases: (1) submittal of upgraded emergency plans consistent with the revised emergency planning regulations effective November 3, 1980 and the guidance of NUREG-0654, FEMA-REP-1, Revision 1; (2) submittal of implementing procedures, and (3) implementation of radiological response plans. Particular emphasis in this task was given to the upgrade of meteorological assessment capabilities. The previous guidance on meteorology found in Appendix 2 to NUREG-0654 and in Revision 1 to Regulatory Guide 1.23 has been superseded by Supplement 1 to NUREG-0737. Review efforts under this task will be conducted in accordance with the rule on emergency planning, the guidance in NUREG-0654, and Supplement 1 to NUREG-0737. The results of this review are reported in Section 13.3 of the SER. The capability of licensees to implement their emergency plans will be assessed during an onsite appraisal as part of the preoperational inspection.