UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

OCT 31 1983

MEMORANDUM FOR: R. R. Keimig, Chief, Projects Branch No. 3
Division of Project and Resident Programs (DPRP)

FROM: E. L. Conner, Chief Project Section 3B, DPRP

SUBJECT: SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP) INPUTS - LIMERICK UNITS 1 AND 2

In accordance with Region I Instruction 0501.5, dated October 8, 1982, this is notification of the trigger date (board date minus 60 days - November 16, 1983) for preparing inputs to the Limerick SALP. By copy of this memorandum, responsible (lead) section chiefs in Region I, Project Managers in NRR and NMSS, and responsible engineers in AEOD are requested to provide inputs for the SALP to Mr. E. L. Conner, at the Region I Office, by December 2, 1983 (re: NRC Manual Chapter 0516).

Lead organizations for the functional areas to be assessed during the SALP are annotated on the enclosure, along with support sections or offices that may be required to provide feeders on activities conducted during the SALP period (12/1/82 to 11/30/83).

I will keep you appraised of any delays in preparing the SALP input per schedule.

E. L. Conner, Chief
Project Section 3B, DPRP

Contact: J. Wiggins, SRI
(215) 327-1344

Enclosure:
As stated

ENCLOSURE

SALP INPUT RESPONSIBILITY
Limerick Units 1 and 2
(Period 12/1/82 to 11/30/83)

FUNCTIONAL AREA	LEAD	SUPPORT
1. Preoperational Testing and Operational Readiness	RPS3B	TPS, LPM, FRPS, SFFS
2. Containment and Other Safety Related Structures	M and PS	RPS3B
3. Piping Systems and Supports	M and PS	RPS3B
4. Safety-Related Components	M and PS	RPS3B
5. Support Systems	M and PS	PSS,RPS3B
6. Electrical Power and Distribution	PSS	RPS3B
7. Instrumentation	PSS	RPS3B
8. Licensing		
OL	LPM	RPS3B
SNM	PM-NMSS	RPS3B
9. Engineering and Design Control	RPS3B	M and PS, PSS

RESPONSIBILITY CODES

FRPS	Facility Radiological Protection Section, Region I
LPM	Licensing Project Manager, NRR
M and PS	Materials and Processes Section, Region I
PM-NMSS	Project Manager, NMSS
PSS	Plant Systems Section
RPS3B	Reactor Projects Section 3B, Region I
SFFS	Safeguards and Fuel Facilities Section, Region I
TPS	Test Programs Section, Region I

1/4/84

Limerick

Note To: A. Schwencer

From: MJ Campagnone

Subject: List of Admitted Contentions Regarding Limerick Generating Station

On January 4, 1983 you requested an updated list of Limerick's admitted contentions. Enclosed is a copy of that updated list. If you wish any additional information Please let me know

Mari-Jo Campagnone

Pipeline V-3a,b

V-3a

In developing its analysis of the worst case rupture of the ARCO [Atlantic Richfield Company] pipeline, the applicant provided no basis for excluding consideration of siphoning. Thus, the consequences from the worst case pipeline accident are understated.

V-3b

In discussing deflagration of gas and petroleum due to pipeline rupture, no specific consideration has been given to the effect of radiant heat upon the diesel generators and associated diesel fuel storage facilities.

Carburetor Icing V-4

"Neither Applicant nor Staff have considered the potential for and impact of carburetor icing of aircraft flying into the airspace that may be affected by emissions from the Limerick cooling tower."

LEA I-41 Systems Interaction

I-41.

Exacerbation of accidents

(a) The TMI accident showed how non-safety systems can interact with safety systems to cause or exacerbate an accident. A systems interaction analysis can reveal actions and consequences that could adversely affect the presumed redundancy and independence of safety systems.

The Applicant has not performed an systems interaction analysis at Limerick; such an analysis must be done in order to assure that necessary interactions, failure combinations and accident sequences have been considered, and that potential adverse systems interactions have been identified. Without such an analysis, there is no reasonable assurance that Limerick can operate before the ultimate resolution of this issue, Unresolved Safety Issue A-17, without undue risk to the health and safety of the public.

The NRC's program to resolve A-17 under the TMI Action Plan (NUREG-0660, Item II.C.3) is nowhere near complete, and the Staff's SER does not provide a plant-specific interim resolution of this matter. Therefore the Staff cannot meet the "justification for operation" requirement of the Appeal Board's decision in North Anna, ALAB-491, NRC 245 (1978).

BASIS.

NUREG-0606 (Aqua Book); TMI Action Plan, NUREG-0660, Item II.C.(1). The Recently issued SER states; at page C-9:

> The Applicant has not described a comprehensive program that separately evaluates all structures, systems and components important to safety for the three categories of adverse systems interactions, which are (1) spatially

I-41 cont.

coupled, (2) functionally coupled, and (3) humanly coupled. However, there is assurance that Limerick can be operated without endangering the health and safety of the public. The plant has been evaluated against current licensing requirements that are founded on the principle of defense-in-depth. Adherence to this principle results in requirements such as physical separation and independence of redundant safety systems as well as protection against hazards such as high-energy line ruptures, missiles, high winds, flooding, seismic events, fires, human errors, and sabotage. These design provisions are subject to review against the Standard Review Plan (SRP) (NUREG-0800), which requires interdisciplinary reviews of safety-grade equipment and addresses different types of potential systems interactions. Also, the quality assurance program that is followed during the design, construction, and operational phases for each plant contributes to the prevention of introducing adverse systems interactions. Thus, the current licensing requirements and procedures provide an adequate degree of plant safety.

LEA does not believe that this boilerplate language, which could be used for any plant, satisfies the requirements of North Anna.

I-42. ENVIRONMENTAL QUALIFICATION

The applicant has not shown compliance with the Commission's rule, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants, Jan. 21, 1983, 48 FR 2729, 10 CFR §50.49. Particularly, it has neither established a program for qualifying all of the electrical equipment covered by §50.49, nor performed an analysis to ensure that the plant can be safely operated pending completion of equipment qualification, as required by §50.49(i). Failure to comply will threaten the health and safety of the public.

BASIS:

a) The new rule covers qualification of safety-related electrical equipment, required by NUREG-0588 (safety-related equipment being Class 1E equipment in IEEE Standard 323), and non-safety-related equipment whose failure under postulated environmental conditions could mislead the operator or otherwise prevent satsifactory accomplishment of specified safety functions. It also covers certain post-accident monitoring equipment. Applicant's EQ program, designed prior to issuance of the new rule, was designed to qualify safety-related equipment only (see EQ Report, §§ 1 and 2 and Appendix B, for example). Applicant relies upon NUREG-0588 to demonstrate the adequacy of its EQ program.

It is clear from the new EQ rule, however, that it was the Commission's intention to expand its EQ requirements to cover equipment outside of the scope of the Class 1E list (see 48 FR 2733, column 1, including footnote 3). In addition, GDC 4 of

10 CFR Part 50, Appendix A, requires that equipment important to safety be designed to be compatible with postulated environment conditions.

In light of the broader coverage of 10 CFR §50.49 and the confusion and/or disagreement that has arisen between NRC staff members and between NRC staff and the regulated community concerning the definitions of safety classifications (see affidavi of James H. Conran, pp. 28-33, previously submitted), applicant should promptly develop a list of the equipment at Limerick that is "important to safety" (and not just safety-related) and that will be tested in its environmental qualification program (such a list is required by 10 CFR §50.49(d)). Failure to promptly develop this list and to reach agreement as to what additional equipment must be qualified in order to comply with the new §50.49 and GDC 4 will seriously impair applicant's progress in qualifying all necessary equipment.

Without the documentation that the applicant has included all necessary non-safety-related but important-to-safety equipment in its EQ program, and without the analysis required by §50.49(i), applicant cannot assure that post-accident failure of non-safety-related equipment will not degrade any safety function or mislead the operator pending completion of qualificat

Examples of systems or equipment that should be reviewed for inclusion in the applicant's EQ program include those for feedwater control, emergency lighting and communications systems, the plant process computer system, and computer software.

b) Consideration of those systems that are required to mitigate the consequences of a LOCA or HELB, in order to determine the list of systems and equipment to be qualified, is inadequate (see EQ Report, p. 2-1.) It is important to consider not only the interaction of failed equipment with other equipment caused by accident initiators such as LOCA and HELB, but to conduct a human interaction review to determine which equipment failures caused by adverse environmental conditions can mislead the operator and therefore degrade safety functions. As an example, the applicant's response to Q 281.11 of the FSAR states:

> Non-safety-related valves that are part of the PASS [post-accident sampling system] are not included in the Limerick equipment qualification program. However, those valves that are not accessible for repair after an accident do not contain materials that, if degraded, would prevent the PASS from performing its sampling function.

LEA contends, however, that it is important to determine whether failure of such valves would mislead the operator into misjudging the level of radionuclide releases occurring, and therefore to cause miscategorization of an accident for emergency planning purposes. Applicant's EQ Report contains no documentation that such human interaction problems have been addressed.

c) The applicant's EQ Report is inadequate, in that:

1) EQRRs (Equipment Qualification Review Records) are provided for only one type of equipment -- Limitorque valve motor operators (see Appendix E).

2) Where qualified life of a piece of equipment does not equal the 40 year plant life, no action is identified to correct the deficiency (see EQRRs pp. 8, 32-35).

3) The Report excludes some safety-related equipment without explanation or justification. For instanc in its qualification of equipment related to the standby liquid control system, squib valves and the related key lock switch in the control room are excluded.

LEA reserves the right to review the October, 1983 amendments to the EQ Report and to submit additional contentions as necessary

LEA VIII -1 thru VIII-20 Onsite Emergency Plannin

VIII-1.

The Emergency Plan is inadequate, and does not comply with 10 CFR § 50.47 and the planning bases for the Commission's regulations on emergency planning in that the spectrum of postulated accidents in Section 4.2 of the Plan does not encompass the spectrum of credible accidents for which emergency planning is required. The Plan, at § 4.2, states that "the adequacy of this Emergency Plan is demonstrated by applying its provisions and noting that the provisions encompass the estimated radiological consequences of the postulated accidents". Table 4-1 shows that the postulated accidents are merely design basis accidents, with a maximum estimated dose at the LPZ of 1090 mrem (LOCA).

The regulations and planning bases for emergency planning plainly contemplate planning for accidents of much greater severity. (See, e.g. NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants").

BASIS

10 CFR § 50.47; Part 50, Appendix E; NUREG-0654; NUREG-0396; NUREG-0696 (Functional Criteria for Emergency Response Facilities).

VIII-2.

Applicant has not established an adequate emergency classification and action level scheme as required by 10 CFR § 50.47(b)(4) and NUREG-0654 guidance, in that:

(a) Initiating conditions of the Plan do not include all of the postulated accidents in the LGS FSAR, as required by NUREG-0654, Criterion D.2. Section 4.2 of the Plan lists only eleven of the many accidents postulated in the FSAR. No justification is provided for choosing these eleven and omitting all ot ers.

BASIS

10 CFR § 50. 47 (b)(4); NUREG-0654, Criterion D.2 and Appendix 1. LGS Plan § 4.2.

VIII-3.

The on-site plans do not identify and establish the on-site monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1 of NUREG-0654, as required by Criterion H.5 of that document. Applicant's response to Q. 810.32 states that this information will not be available until the fourth quarter of 1983.

BASIS

NUREG-0654, Criterion H.5.

VIII-5.

The Plan fails to comply with Criterion J.10(m) of NUREG-0654, which requires the Applicant to set forth the bases for a choice of recommended protective actions for the plume exposure pathway, considering expected local protection afforded in residential units or other shelter, and evacuation time estimates. Applicant's response to Q 810.52 suggests that this information will be provided in implementing procedures that will not be available until fourth quarter, 1983. Applicant's response to Q810.54 states that a "commitment to define guidelines for determining plume exposure protective action recommendations" is found in the Plan, but no specific guidelines and bases have yet been established.

BASIS

10 CFR §50.47(b)(10); Part 50, Appendix E; NUREG-0654, Criterion J.10(m

VIII-6.

The on-site plans for emergency notification fail to comply with 10 CFR § 50.47 (b) (5) and the guidance of NUREG-0654, in that:

(a) The Plan does not yet demonstrate that the bases established for the Applicant's notification of response organizations ~~are mutually agreeable~~ with responsibilities for onsite augmentation.

(b) The Plan fails to make adequate provisions for follow-up messages to off-site authorities in that the notification formats set forth in Appendix F are for initial notification only, and thus fail to contain all the information required by NUREG-0654, Criterion E. 4, (p. 44)

(c) The Plan's provisions for prompt notification do not comply with the guidance of NUREG-0654, Appendix 1, in that the Plan at § 6.1 provides for notification of emergency organizations "within about 15 minutes after classifying the event" for each emergency class. NUREG-0654, Appendix 1, p. 1-3 requires that notification take place within 15 minutes from the time at which operators recognize that events have occurred which make declaration of an emergency class appropriate, not from the time of classification, and requires notification sooner than 15 minutes for classes more serious than unusual events.

BASIS

10 CFR § 50.47, Part 50, Appendix E; NUREG-0654, Criteria E. 1, 4; Appendix 1; Plan § 6.1, Appendix F.

VIII -7.

The on-site plans fail to demonstrate that the on-shift 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 augmentations of response capabilities is available, and the interfaces among various on-site response activities and off-site support activities is specified, as required by 10 CFR §§ 50.47 (b)(2), especially in that:

(a) The plans fail to establish a line of succession for the emergency coordinator position beyond a single alternate for the interim emergency director and emergency director, and fails to identify specific conditions for higher level utility officials assuming this function, all as required by NUREG-0654, Criterion B.3 (p. 34). Failure to establish a sufficient line of succession will cause chaos in the event of the unavailability of the persons listed, as the responsibilities of the emergency director are specifically <u>not</u> delegated to other segments of the emergency organization, which include the initiation of protective measures on-site.

(3) 30 and 60 minute augmentations of minimum staffing does not comply with Table B-1 (See Plan, Table I-1) and while Figure 5-2 is referenced in Table I-1, neither augmentation timing, nor position augmentation are coherently shown.

(e) The responsibilities imposed upon the Interim Emergency Director or Emergency Director in §5.2.1.1 (which are explicitly "not delegated to other segments of the emergency organization") are excessive and cannot reasonably be implemented by a single individual. According to Fig. 5.3 of the Plan, the Interim Emergency Director (or Emergency Director) is responsible for making a very large number of initial contacts in the event of an emergency. In addition, the list of other non-delegable duties of the Interim Emergency Director, as listed in §5.2.1.1 of the Plan is lengthy and complicated. It is unreasonable to assume that one individual can receive all relevant information from plant operators transpose it into complete, accurate and useful information for emergency-relevant organizations, and transmit it to them in a timely manner, while carrying out all of his other duties. The Interim Emergency Director should concentrate on decision-making and managing and coordinating the appropriate response mechanism; initial notification responsibilities themselves should be delegated to other qualified individuals.

BASIS

10 CFR §50.47(b)(2); Part 50, Appendix E; NUREG-0654, Criteria B.2, B.3, B.4, B.5, Table B-1; Plan §§5.2.1.1, 5.2.1.2, 5.2.1.3, Figures 5-1, 5-2, 5-5, Table I-1; LEA communications with emergency response consultants.

VIII-8.

The LNGSEP fails to demonstrate that adequate emergency facilities and equipment to support emergency response are provided and maintained as required by 10 CFR §§ 50.47 (b) (8), especially in that:

(a) The documents to be supplied in or made accessible to the Technical Support Center (see Plan §§ 7.1.3) are inadequate to properly perform the function of the center in that they fail to include copies of plant operating records, and plant operations reactor safety committee records and reports (see NUREG-0814, p. 2-15), which may be vital in determining the plant-specific behavior of equipment; they also fail to include documentation for procedures to access and use the system for remote interrogation of atmospheric measurements and predictions (NUREG-0654, Appx. 2, p. 2-5). Defer

(b) The Plan's descriptions of the Emergency Operations Facility (Plan § 7.1.2), the Technical Support Center (Plan §§ 7.1.3), the Operational Support Center (Plan § 7.1.4), and emergency equipment and supplies are all insufficient to meaningfully assess compliance with 10 CFR § 50.47 (b) (8) and to evaluate the facilities with with respect to the criteria of NUREG-06 Supplement 1 to NUREG-0737 (§8), and NUREG-0696. Intervenor contends the applicant has not demonstrated that the facilities proposed are adequate. Applicant's response to Q 810.30 states that the plan will be expanded when final information is available on these facilities.

(c) The Plan fails to set forth the procedures for or manner of maintenance of the emergency facilities so as to preclude degradation of facility effectiveness, which maintenance is required by 10 CFR §§ 50.47 (b) (8).

BASIS

10 CFR §§ 50.47 (b) (8); Part 50, Appendix E; NUREG-0654, Criteria H. 1, 2, 9, NUREG-0696, "Functional Criteria for Emergency Response Facilities: NUREG-0814, pp. 2-15; Supplement 1 of NUREG-0737, §8.

VIII-9.

The on-site plans fail to demonstrate that provisions exist for prompt communications among principal response organizations to emergency personnel and to the public, as required by 10 CFR §§ 50.47 (b) (6) especially in that:

(a) The Plan fails to establish reliable backup means of communication for the Applicant, except for backup radio communication between the control room and Montgomery County Office of Emergency Preparedness, and backup power for the PABX telephone system described in §§ 7.2.2 of the Plan;

BASIS

10 CFR §§ 50.47; Part 50, Appendix E; NUREG-0654, Criteria F 1, 2, 3.

VIII-10.

The on-site plans fail to comply with 10 CFR §50.47(b)(2) and the guidance of NUREG-0654, Criterion B.9, in that:

(a) Where the Applicant has identified the services to be provided by some local agencies for handling emergencies, the agreements with those local support sources do not delineate the authorities, responsibilities and limits on the actions of the contractors/agencies, but merely briefly describe the general nature of the service to be provided.

(b) Section 2.2.4 of the Plan lists the Radiation Medicine Center of the Hospital of University of Pennsylvania (HUP) as a local agency that has agreed to respond to requests for assistance at Limerick. Section 5.3.2.1 of the Plan states that HUP will be one of two hospitals to which victims are evacuated from the site, and lists the extensive capabilities of that organization, which is designated as the "central point" of PECO's Emergency Medical Assistance Plan. On the other hand, section 6.5.4 of the Plan, entitled Medical Treatment, totally omits mention of HUP as a support service. The Plan contains no written agreement for support services from HUP, as required by NUREG-0654, Criterion B.9. The fact that the director of Radiation Management Corporation, which is under contract with PECO, is on the staff of HUP (see Plan, §5.3.2.1) in no way guarantees that HUP will provide services without a prior written agreement.

BASIS

10 CFR §50.47(b)(2); Part 50, Appendix E; NUREG-0654, Criterion B.9; Plan §§ 2.2.4, 5.3.2.1, 6.5.4, Appendix A.

Note: LEA has not submitted a contention alleging missing county agreements, since the Plan indicates that those are forthcoming.

VIII-11.

The agreement with Linfield Fire Co. #1 to provide "all needed fire protection for the Philadelphia Electric Power generating station" is not adequate, as the Linfield Fire Co. #1 does not have adequate equipment to respond alone to the entire range of fires which may occur at the facility. Additional agreements should be reached with other local fire companies to provide additional fire protection.

BASIS

The Linfield Fire Co. #1 has only 4 vehicles: one fire truck in good condition, 1 old fire truck, one van and one jeep. Disability of any one of the fire trucks, a more than one alarm fire, or the fire company's response to another fire within its service area, would each operate to render the response inadequate. The information on equipment is premised upon LEA personal communications with Linfield Fire Co. See agreement letter in Plan Appendix A.

VIII-12.

The on-site plans fail to demonstrate that adequate arrangements have been made, or will be made, for medical services for contaminated injured individuals on-iste, as required by 10 CFR §50.47(b)(2) and (12), in that:

(a) While medical services and facilities are described in sections 5.3.2.1 - 5.3.2.5 of the Plan, it has not been demonstrated that these services and facilities are adequate for the potential number of persons contaminated by the spectrum of credible accident scenarios for which planning is required, including some core-melt sequences (see NUREG-0396). The plans contain an agreement with Pottstown Memorial Hospital, a facility only two miles from the site, to provide emergency treatment to contaminated patients. In a general emergency, the hospital will be required to evacuate its own patients, which will preclude acceptance and treatment of radiation victims coming from the site. The status of medical support from the Hospital of University of Pennsylvania is unclear as well (see contention VIII-9(b), above). These are the only two hospitals listed in the Plan as available for medical services to on-site contaminated victims. See NUREG-0654, Criteria B.9 and L.1.

(b) The Plan does not demonstrate that the Applicant has arranged adequate transportation of ~~victims of radiological accidents~~ contaminated injured persons to medical support facilities, as required by NUREG-0654, Criteria B.9 and L.4. The Applicant's provisions as described in §6.5.3 of the Plan fail to demonstrate the availability of sufficient ambulance service, and shielding for such service, in view of the potential number of contaminated persons.

While the plans contain an agreement with Goodwill Ambulance Unit to transposrt on-site accident victims to off-site medical facilities, in a general emergency the Unit will be required to evacuate non-ambulatory patients requiring critical care from Pottstown Memorial Hospital. The Unit has, as of late 1982, only 4 well-equipped vehicles, and is the only ambulance unit in the plant vicinity. Therefore, additional provisions for ambulance service will be necessary.

BASIS

10 CFR §§50.47(b)(2) and (12); Part 50, Appendix E; NUREG-0654 Criteria B.9 and L.1 and 4; NUREG-0396; Plan §§ 5.3.2.1 -5.3.2.5, 6.5.3; personal communications with Goodwill Ambulance Unit facilities.

VIII-13.

The on-site plans fail to demonstrate that arrangements for requesting and effectively using assistance resources have been made, and other organizations capable of augmenting the planned response have been identified as required by 10 CFR §50.47(b)(3), especially in that:

(a) The Plan does not properly incorporate on-site Federal response capability into its operation plan, as it neither specifies the nature of the resources expected from Federal agencies, including estimated arrival time at Limerick, nor incorporates specific licensee, State and local resources available to support the Federal response (e.g., air fields, command posts, telephone lines, radio frequencies and telecommunications centers), as required by NUREG-0654, Criterion C.1.

(b) The Plan does not sufficiently identify the radiological laboratory capabilities and availabilities for augmented response to emergencies, as required by NUREG-0654, Criterion C.3.

BASIS

10 CFR §50.47 (b)(3); Part 50, Appendix E; NUREG-0654 Criteria C.1, 3, 4.

VIII-14.

The on-site Plans fail to demonstrate that adequate methods, systems and equipment for assessing and monitoring actual or potential off-site consequences of a radiological emergency condition will be in use by the Applicant, as required by 10 CFR §50.47 (b)(9) especially, in that the Plans do not demonstrate or describe:

(a) With adequate particularity the plant system and effluent parameter values characteristic of an adequate spectrum of off-normal conditions and accidents, as required by NUREG-0654, Criterion I.1; values in Table 4.2 of the Plan have not been supplied.

(c) Adequacy of procedures for analysis of off-site dosimetry and procedures describing methods for calculating off-site doses, as referred to in section 6.2, pp. 6-3 and 4 of the Plan, in that these procedures have not been provided, and assessment of adequacy is impossible.

(d) The specific kinds of monitoring instruments to be used and their capabilities.

(e) Adequate on-site capability and resources to provide initial values and continuing assessment throughout the course of an accident. Applicant's response to Q 810.48 states that the design of the assessment system will not be complete until 1984.

(f) Adequate methods and techniques to be used for determining the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors. Applicant's response to Q 810.40 states that this information will not be available until 1984.

(g) The capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2 to NUREG-0654; provisions for access to meteorological information by the Emergency Operations Facility and the Technical Support Center; availability to the Commonwealth of Pennsylvania of suitable meteorological data processing interconnections which permit independent analysis by the Commonwealth of Pennsylvania. The Applicant's response to Q 810.42 states that this information will not be available until 1984.

(h) The methodology for determining the release rate and projected doses if the instruments used for assessment are off scale or inoperable. Applicant's response to Q 810.44 states that these procedures will not be available until 1984.

(i) The specific capability and resources for field monitoring within the plume exposure EPZ;

(j) That the Applicant has adequate capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10^{-7} u Ci/cc under field conditions, and that any interference from the presence of noble gases and background radiation will not decrease the stated minimum detectable activity, as required by NUREG-0654, Criteria I. 9., p. 58. Applicant's response to Q 810.46 does not verify sensitivity of 10^{-7} u Ci/cc, and does not state that interference from noble gases and background radiation will not decrease the minimum detectable activity.

(k) That the Applicant has established means for relating the various measured parameters to dose rates for key isotopes, and gross radioactivity measurements; nor has the Applicant shown that provisions have been made for estimating the integrated doses from the projected and actual dose rates, and for comparing these estimates with the protective action guides, as required by NUREG-0654, Criterion I.10. Applicant's response to Q 810.48 states that this information will not be available until 1984.

BASIS

10 CFR §50.47(b)(9); Part 50, Appendix E; NUREG-0654 Criteria I.1-11 inclusive; Plan § 6.2.

VIII-15.

The on-site plans fail to demonstrate that an adequate range of protective actions has been developed for the Plume Exposure Pathway for persons on-site, as required by 10 CFR §50.47 (b) (10), in that:

(a) The Plan fails to demonstrate that the Applicant has made sufficient provisions for evacuation routes and transportation for on-site individuals to a suitable off-site location, including alternatives for inclement weather, high traffic-density, and specific radiological conditions, as required by NUREG-0654, Criterion J. 2., especially in that no routes have been designated in the Plan, no suitable off-site location has been designated, and no alternatives for any contingencies have been established

(b) The Plan fails to establish that the Applicant has provided for adequate radiological monitoring of people evacuated from the site, as required by NUREG-0654, Criteria J. 3., (p. 59), especially in that the plans do not reflect the time within which the taking of whole body counts and the processing of dosimetry devices of evacuees, can be completed; nor do the plans indicate that all plant personnel, visitors, construction workers, etc. who may be exposed to radioactivity during an accident will have possession of dosimetry devices; nor do the plans indicate when and how techniques will be established which will provide data for estimating neutron dose where suspected. With respect to neutron

dose, the plan refers to implementing procedures which have not been provided (p. 6-12).

(c) While applicable guidance (NUREG-0654, Criterion J. 4.) requires that the Applicant must provide for the evacuation of on-site non-essential personnel in the event of a site or general emergency, the Plan fails to make any distinction between "essential" and "non-essential personnel", and it is unclear how the Applicant will administratively enforce such a distinction;

(d) The Plan fails to describe the decontamination capabilities at the point of radiological monitoring, with sufficient specificity to determine adequacy of the monitoring required by NUREG-0654, Criterion J. 3, 4;

(e) The Plan fails to demonstrate a capability within 30 min to account for all individuals on-site at the time of an emergency, as required by NUREG-0654, Criteria J. 5;

(f) The Plan fails to establish that the Applicant has made provisions for each person remaining or arriving on-site during the emergency to have individual respiratory protection, protective clothing and individual thyroid protection, as required by Criterion J. 6.

BASIS

10 CFR §§ 50.47 (b) (10); Appendix E; NUREG-0654, Criteria J.2, 3, 4, 5, 6 (a-c).

VIII-15.

The on-site plans fail to demonstrate that adequate means for controlling radiological exposures in an emergency have been established for emergency workers and that such means include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides, as required by 10 CFR §§ 50.47 (b) (11) in that:

(a) While the on-site plans provide for distribution of KI "per approved procedure", these procedures are not available for review, and their adequacy cannot be assessed. Further, the plan provides that distribution shall be limited to specific emergency workers judged in need of treatment. Such a distribution arrangement is inadequate, because KI is only effective if the stable iodine is administered before or shortly after the start of intake of radioiodine. (US EPA, Manual of Protective Action Guides, p. 142). See also Applicant response to Q. 810.52.

(b) The Plan fails to meet the guidance of NUREG-0654 Criteria K. 2., without justification, in that it fails to set forth advance procedures for permitting on-site volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities, which procedures must include expeditious decision-making and a reasonable consideration of relative risks, especially in that no advance procedures

have been established at all, no reasonable consideration of relative risks has been made, and other than the impermissibly vague guidance of Table 6-1, the determination of exposure limits is left utterly to t e individual;

(c) The Plan does not demonstrate how emergency workers will have sufficient information concerning radiation risks upon which to make an informed judgment regarding radiation exposure, although the plan leaves exposure limits to the individual;

(d) The Plan fails to establish that the Applicant has made provisions for 24 hour-per-day capability to determine the doses received by emergency workers involved in an accident at Limerick, has made provisions for distribution of sufficient dosimeters, has ensured that the dosimeters are read at appropriate frequencies, and that dose records are maintained, as required by NUREG-0654, Criteria K. 3. (a) - (b). While the Plan (§6.5.1) makes reference to emergency access procedures, these have not been provided for review.

(e) The Plan fails to establish that the Applicant has specified action levels for determining the need for decontamination, or has established adequate means for radiological decontamination of emergency personnel wounds, supplies, instruments, equipment, and for waste disposal as required by NUREG-0654, Criteria K. 5, in that the action levels are to be determined in emergency implementing procedures which have not yet been pro-

vided, and the decontamination capabilities are not described with sufficient detail to assess their adequacy. Applicant's response to Q 810.57 states that the information will be provided shortly before fuel loading. Intervenor requests access to the information as soon as available, and reserves the right to file contentions based upon the information set forth therein.

(f) The Plans fail to demonstrate that the Applicant has established procedures for, and capability for, on-site contamination control measures, including area access control, drinking water and food supplies, and criteria for permitting return of areas and items to normal use, all as required by NUREG-0654, Criteria K. 6., p. 67. The Plan provides that some of these matters will be addressed by implementing procedures (See Plan, §§ 6.4.3.1. and Applicant Response to Q 810.58) but no procedures have yet been submitted by the Applicant. Intervenor requests access to the implementing procedures as soon as available, and reserves the right to file contentions based upon the information set forth therein.

(g) The Plans fail to demonstrate that the Applicant has established the capability for decontamination of relocated on-site personnel, including provision for extra clothing and decontaminants suitable for expected contamination, including radioiodine contamination of the skin, as required by NUREG-0654, Criteria

K. 7., p. 68. The quantity of extra clothing is nowhere mentioned in the equipment lists set forth in the plans, and while mention is made of "decontamination chemicals", these are not described sufficiently either in the Plan or in the Applicant's response to Q 810.59 to ascertain effectiveness for radioiodine skin contamination.

BASIS

10 CFR § 50.47 (b) (11); Part 50, Appendix E; NUREG-0654, Criteria K. 1, 2, 3, 5, 6, 7; EPA Emergency Worker and Lifesaving Activity Protective Action Guides (EPA 520/1-75/001); LNGSEP, §§ 6.5.1., 6.5.2., 7.1.5 (c), Table 6-1, 6.4.3.1.

VIII-17.

The on-site Plans fail to establish that the Applicant has developed adequate plans for recovery and re-entry as required by 10 CFR § 50.74 (b) (13), in that:

(a) The Applicant's "plans" consist merely of a string of titles and personnel functions (Plan, §§5.4.1 --5.4.11) without any evidence of any plans or procedures to guide these functions. Section 9 of the Plan submitted to date indicates that no recovery and re-entry plans have been developed, and specific plans will not be developed until needed. (Plan, § 9.2). Intervenor contends that the failure to provide even general plans violates 10 CFR § 50.47 (b) (13).

(b) The Plans fail to describe the means by which decisions to relax protective measures will be reached, considering both existing and potential conditions;

(c) The Plan fails to specify the method to be used for periodically estimating the total population exposure. Applicant's response to a 810.60 states that this information will not be available until shortly before fuel loading.

BASIS:

10 CFR § 50.47 (b) (13); Part 50, Appendix E; NUREG-0654, Criteria M. 1, 4.

VIII-18.

The on-site plans fail to demonstrate that adequate radiological emergency response training will be provided to those who may be called upon to assist on-site in an emergency, as required by 10 CFR § 50.47 (b) (15), in that the training programs are not sufficiently described to assume compliance with the guidance of NUREG-0654, Criteria 0.2 and 4. Intervenor requests access to all training materials to be used for the purpose of compliance with 10 CFR § 50.47 (b) (15) as soon as available, and reserves the right to file contentions based upon the information contained therein, including contentions placing in issue the adequacy of such training materials. Applicant's response to Q 810.63 states that the procedures for training will not be developed until training needs are identified (and vice versa).

BASIS

10 CFR § 50.47 (b) (15); Part 50, Appendix E; NUREG-0654, Criteria 0.1, 2, 4; Plan § 8.1.1, Table 8-1.

VIII- 19.

The on-site plans fail to demonstrate that responsibilities for plan development and review and for distribution of emergency plans are established and planners are properly trained as required by 10 CFR §§ 50.47 (b) (16), in that:

(b) The Plan fails to demonstrate that the organization or persons responsible for annual review of the emergency preparedness for the Applicant are independent; and that the results of review and recommendations will be reported to all involved federal, state and local organizations, and retained for five years, as required by NUREG-0654, Criteria P. 9. Applicant's response to Q. 810.67 and 810.68 indicate that procedures will be developed by the third quarter of 1984.

BASIS

10 CFR §§ 50.47 (b) (16); Part 50, Appendix E; NUREG-0654, Criteria P. 1, 4, 9; Plan §§ 8.2.1, 8.2.4.

The on-site plans fail to demonstrate that adequate periodic exercises will be conducted to evaluate major portions of emergency response capabilities, periodic drills will be conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills will be corrected, as required by 10 CFR §§ 50.47 (b) (14), in that:

(b) The Plan provision for testing of communications is inadequate, in that the guidance of NUREG-0654 Criterion N. 2. (a) requires quarterly testing of communications with States within the ingestion pathway, whereas §§ 8.1.2.5 of the Plan does not provide for such testing;

(d) The Plans fail to demonstrate that either the Applicant or the Commonwealth of Pennsylvania will conduct semi-

annual health physics drills which involve response to and analyses of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment, as required by NUREG-0654, Criteria N. 2. (e) (1), p. 73;

(e) The Plans fail to demonstrate that the Applicant will annually include in the health physics drills required analysis of inplant liquid samples with actual elevated radiation levels including use of the post accident sampling system, as required by NUREG-0654, Criteria N. 2. (e) (2), p. 73;

(f) Inasmuch as no exercise scenarios have been submitted by either the Applicant, or state or local emergency response organizations, the Plans fail to demonstrate that such scenarios comply with the requirements of NUREG-0654, Criteria N.3., p. 73-74; Deferred

(g) The Plan's provisions for maintaining emergency preparedness fail to provide that the drills required by NUREG-0654, Criteria N. 2. (a) through (e) will be held in addition to an annual exercise, as the guidance requires, but instead provides that "scenarios may be developed in such a manner as to accomplish more than one periodic requirement" (Plan §§ 8.1.1);

(h) The Plan's provisions for annual exercises fail to set forth whether the local emergency response organizations will be required to be activated, thus constituting an actual

exercise of the integrated emergency response capability, or whether the local emergency response organizations will merely be notified by the Applicant, thus constituting only a test of the communications system. This violates the guidance of NUREG-0654, Criterion N. 1. (b), which requires that an exercise "shall include mobilization of . . . local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response."

BASIS

10 CFR §§ 50.47 (b) (14); Part 50, Appendix E; NUREG-0654, Criteria N. 1,2,3; LNGSEP §§§ 8.1.2.2.; 8.1.2.3.; 8.1.2.5.

AWPP VI-1 Welding QA

Applicant has failed to control performance of welding and inspection thereof in accordance with quality control and quality assurance procedures and requirements, and has failed to take proper and effective corrective and preventive actions when improper welding has been discovered.