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EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards response to Generic Ltr 82-33,Suppl 1 to NUREG-0737,containing addl clarification of emergency response capabilities.

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TITLE: OR/Licensing Submittal: Suppl 1 to NUREG-0737(Generic Ltr 82-33)

NOTES: Add W. Paulson

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 15, 1983

Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket 50-220
DPR-63

Dear Mr. Eisenhut:

Enclosure 1 to your December 17, 1982 letter (Generic Letter 82-33) contained additional clarification regarding emergency response capabilities. This information was transmitted as Supplement 1 to NUREG 0737. The letter also requested licensees to furnish a proposed schedule for establishing compliance with the requirements for each of the items discussed in the enclosure. Additionally, an implementation and integration plan for these emergency response activities was requested. Contained herein is information which addresses those requests.

The schedules contained in the attachment to this letter are based on our preliminary review of additional efforts that will be required to comply with Supplement 1 to NUREG 0737. Niagara Mohawk will work closely with the Nuclear Regulatory Commission Project Manager for Nine Mile Point Unit 1 to finalize, revise if necessary, and implement these schedules.

Sincerely,

C. V. Mangan
Vice President
Nuclear Engineering & Licensing

CVM/BDW:bd

Attach.

A003
Add: W Paulson

NIAGARA MOHAWK POWER CORPORATION

Response to Nuclear Regulatory Commission

Request for Information

Regarding Supplement 1 to NUREG 0737
(Generic Letter 82-33)

Introduction

On December 17, 1982 the NRC transmitted "Supplement 1 to NUREG 0737" (Generic Letter 82-33). The Supplement outlines fundamental requirements regarding emergency response capabilities. The Supplement points out that these requirements are not legally binding, but that licensee responses to the items contained in the supplement would eventually become binding legal requirements, pending review by the appropriate Project Manager. Additionally, the provisions for scheduling set forth in the Supplement supersede any former schedules with respect to such items contained in NUREG 0737.

Specific topics discussed in Supplement 1 to NUREG 0737 include Coordination and Integration of Initiatives, Safety Parameter Display Systems, Detailed Control Room Design Review, Regulatory Guide 1.97 - Application to Emergency Response Facilities, Upgrade Emergency Operating Procedures, and Emergency Response Facilities. A request for information regarding licensee's schedules for implementing the requirements of Supplement 1 to NUREG 0737 was contained in the document transmittal letter. Provided below is Niagara Mohawk's response to that request. The information provided in this response is based on our interpretation of Supplement 1 to NUREG 0737 and information presented at Nuclear Regulatory Commission regional meetings regarding emergency response capabilities.

Recognition of the need for industry guidance in implementing the requirements of Supplement 1 to NUREG 0737 led to the establishment of an industry working group. This group, the Nuclear Utility Task Action Committee (NUTAC) on emergency response capability, is composed mainly of utility representatives with support provided by the Institute of Nuclear Power Operations. The main objective is to develop guidance documents to be used at the discretion of individual utilities in implementing the requirements of Supplement 1 to NUREG 0737. Niagara Mohawk is participating in these activities, and where appropriate, will incorporate the guidance provided.

Status and Schedular Information

1. Coordination and Integration of Initiatives - Niagara Mohawk is using as a guide the implementation plan as described in the NUTAC document Guidance for an Integrated ERC Implementation Plan (currently in draft form). A brief description of the document contents is provided in Attachment 1. The plan was formulated for generic application and does not take into consideration work previously performed by a particular utility. However, these factors will be taken into account in the development of plant specific input and process criteria (Figure 1 of Attachment 1). The development of plant specific input and process criteria will include review of guidelines prepared by industry groups, such as NUTAC's or Owner's Groups and, where appropriate, incorporation of those guidelines.

   The description provided in Attachment 1 is taken verbatim from one of the draft NUTAC documents. It is intended to provide an overview of the integration approach that will be used by Niagara Mohawk. Deviations from the guidance may occur because of site specific attributes or utility preferences. However, the general scheme will be followed.

2. Safety Parameter Display System - The purpose of the safety parameter display system is to provide the operator with a concise display of critical plant parameters. Certain plant parameters (i.e. reactivity control) are already displayed on centrally located control panels in the control room. Duplication of these displays would not serve to aid the operator during abnormal conditions. Additionally, the Technical Support Center is provided with the capability for monitoring plant parameters via a TV system. This system is remotely controlled from the Technical Support Center and includes a camera with zoom, focus, pan and tilt features installed in the control room.

   The capability for displaying additional information on a CRT in the control room, technical support center, and emergency operations facility, currently exists. These displays currently include information pertaining to core cooling, coolant system integrity, containment integrity, radioactive releases and reactivity. The graphic display is generated from variables which are input to the plant process computer.

   Display of other plant variables could provide the operator with additional assessment information. Niagara Mohawk will evaluate the need for and desirability of providing additional display capability, taking into account the contents of Emergency Operating Procedures and human factors engineering principles. A safety evaluation report discussing the results of our evaluation will be submitted to the Nuclear Regulatory Commission by January 1, 1984. A detailed implementation schedule cannot be developed until the additional plant variables which may be added to the Safety Parameter Display System have been defined. Therefore, in addition to the safety evaluation report, we will submit our implementation plan by January 1, 1984.

   During the Nuclear Regulatory Commission regional meetings to discuss emergency response capabilities, optional pre-implementation review by the Nuclear Regulatory Commission was proposed. At this time, Niagara Mohawk does not anticipate the need for such a review.

3. Detailed Control Room Design Review - Niagara Mohawk has participated in the Boiling Water Reactor Owner's Group efforts regarding control room design review. A review of the Nine Mile Point Unit 1 control room was conducted utilizing the guidance contained in "BWR Owners Group Control Room Design Review and Draft Evaluation Criteria". This document was submitted to the Nuclear Regulatory Commission for review on August 25, 1981. To date, the NRC has not produced a documented review. Implementation of a program plan is dependent upon completion of the Nuclear Regulatory Commission review. Therefore, a description of a program plan for the Nine Mile Point Unit 1 control room design review cannot be submitted at this time. However, Niagara Mohawk will submit a plant specific summary report to the Nuclear Regulatory Commission by October 1, 1983. This report will include a schedule for implementing actions to alleviate identified deficiencies.

4. Regulatory Guide 1.97 - Application to Emergency Response Facilities -

   a. Control Room - Regulatory Guide 1.97 requires the capability for displaying Type A, B, C, D and E variables in the control room. Supplement 1 to NUREG 0737 allows plant specific exceptions if justification can be provided. Certain of the Regulatory Guide 1.97 variables are currently indicated in the Nine Mile Point Unit 1

control room. However, additional review of existing instrumentation is required to ascertain the degree of conformity with the recommendations of Regulatory Guide 1.97. Niagara Mohawk will submit a report by April 1, 1984 documenting the results of this review. The report will include information needed to address the categories listed in Section 6.2 of Supplement 1 to NUREG 0737. Additionally, that report will propose a schedule for implementing the recommendations of Regulatory Guide 1.97 which are deemed to be necessary.

Meteorological variables specified in Regulatory Guide 1.97 are currenty displayed in the control room. Chart recorders provide information pertaining to wind speed, wind direction, and atmospheric stability. National Weather Service data is currently obtained from Weather Services International (WSI). This data is available in the control room via communication with the Technical Support Center, Emergency Operations Facility or directly with WSI.

b. Technical Support Center - Variables that are essential for performing Technical Support Center activities are currently available. A printout of selected variables is available from the process computer. As mentioned in item 2 above, certain other plant parameters can be displayed on a CRT in the Technical Support Center. Currently, meteorological variables can be obtained via voice communication with the control room. However, by July 1, 1983 a computer printout/CRT display of the meteorological variables will be available upon request. This display will include information from an inland tower to aid in formulating site specific conditions.

c. Emergency Operations Facility - Indicators needed to monitor containment conditions and radioactive plant releases are currently provided in the primary Emergency Operations Facility. The methodology for obtaining meteorological data discussed above for the Technical Support Center also applies to the Emergency Operations Facility.

5. Upgrade Emergency Operation Operating Procedures - Niagara Mohawk has participated in the Boiling Water Reactor Owners Group development of "Emergency Procedure Guidelines, Revision 2" NEDO 24934 dated June 1982. The Nuclear Regulatory Commission reviewed these guidelines and issued a safety evaluation on February 4, 1983, finding the guidelines to be generally acceptable. Niagara Mohawk will utilize these generic guidelines to develop site specific Emergency Operating Procedures. A procedures generation package will be submitted to the Nuclear Regulatory Commission by March 1, 1984. Additionally, it is anticipated that operator training on the Emergency Operating Procedures will commence by December 1, 1984 and implementation of Emergency Operating Procedures will take place by the 1986 refueling outage. It should be noted, however, that the schedule for training and implementation depends on completion of a site specific simulator, scheduled for March 1984. Delays in construction of the simulator could cause subsequent delays in the training and implementation schedules.

6. Emergency Response Facilities -Supplement 1 to NUREG 0737 provides the final criteria for the Technical Support Center, Operational Support Center, and Emergency Operations Facility. General descriptions of these facilities as they pertain to the Nine Mile Point site and their functional status were provided in Niagara Mohawk's October 1, 1982, June 1, 1982 and June 7, 1982 letters. The ability to perform facility functions has been demonstrated during emergency drills and exercises. However, complete compliance with the criteria presented in Supplement 1 to NUREG 0737 cannot be assured at this time. Niagara Mohawk will review the design of these facilities against those criteria. We anticipate completing the review by January 1, 1984. Resolution of any deviations found as a result of this review and development of an implementation schedule will be pursued through discussions with Nuclear Regulatory Commission staff, as recommended in the Supplement.

Summary

A summary of Niagara Mohawk's position on the items addressed in Supplement 1 to NUREG 0737 is given below.

Safety Parameter Display System - By January 1, 1984 submit a safety evaluation report and associated implementation plan to NRC.

Detailed Control Room Design Review - Waiting for NRC review of BWR Owners Group program. Site specific summary report will be submitted to NRC by October 1, 1983.

Regulatory Guide 1.97 - Application to Emergency Response Facility - By April 1, 1984 submit report on conformance with RG 1.97 and associated implementation schedule. Meteorological data provided by printout/display by July 1, 1983.

Upgrade Emergency Operating Procedures - Submit procedures generation package by March 1, 1984. Commence training on EOP's by December 1, 1984. Complete implementation of EOPs by 1986 refueling.

Emergency Response Facilities - Perform review against final criteria by January 1, 1984.

Niagara Mohawk has proposed these schedules with the understanding that additional internal review may lead to revisions. As stated in the transmittal letter, such revisions will be discussed with the Nine Mile Point Unit 1 Project Manager.

ATTACHMENT 1

NUTAC

INTEGRATION SCHEME

Introduction

A subcommittee of the NUTAC on emergency response capabilities was formed to provide industry guidance to individual utilities for the development of an integrated implementation plan that addresses the provisions of Supplement 1 to NUREG 0737. The method developed to integrate these provisions is shown in Figure 1. Recognizing the different stages of compliance to the individual ERC requirements, the method shown in Figure 1 assumes no work has been accomplished. However, after determining individual plant status, each utility can apply the method to prepare the plant-specific implementation plans required by the NRC.

Figure 1 is divided into basic steps that should be considered in the development of an integrated, plant-specific implementation plan. Each step and its relation to previous and succeeding steps is discussed in the following plan descriptions.

EOP Plan

The EOP plan consists of those tasks that will provide a documented method for developing, utilizing, revising and controlling Emergency Operating Procedures.

This plan will include defining source documents, determining manpower requirements, establishing a schedule, and specifying method of document control. This plan also will define the interfaces with other ERC elements to ensure complete integration.

Initial plant-specific EOPs are developed by utilities for the purpose of mitigating the consequences of a broad range of initiating events and subsequent multiple failures or operator errors, without the need to diagnose a specific event. These procedures are function-oriented and written with human factor considerations to improve human reliability. These initial EOPs are based upon a writer's guide, NSSS generic technical guidelines and a plant-specific task analysis.

Determination of procedure adequacy is dependent upon the trained operator's needs. EOPs should be checked for completeness, understandability, technical correctness, usability, and compatibility with the control room. A walk-through of the initial EOPs provides a method of evaluating these criteria. A utilitymay choose to perform an EOP walk-through in the control room, in a simulator, using a mock-up of their control room, or any combination of the three. Although Figure 1 indicates only one EOP walk-through, this process should be repeated following any major modifications to the EOPs.

Plant-specific EOPs should be incorporated in an iterative process with control room HEDs, specific utility application of RG-1.97 recommendations, SPDS design bases, and emergency response facility criteria. This interactive process should be used to determine what changes can be made easily to the EOPs to accommodate deficiencies in other areas without impacting the effectiveness of the EOPs. For this iterative process to be most effective, all of the elements that impact EOPs should be available at the same time.

However, due to economics, manpower limitations, or vendor restrictions, this may not be possible. To accommodate this situation and to ensure effective EOPs, a utility should consider performing the iteration between EOPs and the other impacting elements as soon as each one has been developed.

CRDR Plan

The CRDR program plan is the first step toward performing a CRDR and provides a method for performing the entire review.

The control room inventory portion of the CRDR (identification and documentation of equipment) can be done independently of the other tasks associated with the CRDR.

The operating experience review is performed to identify any operational problems resulting from design discrepancies or to identify any improvements to the control room that would improve the ability of an operator to respond to an emergency condition.

In performing the CRDR, accepted human factors guidelines should be used. Good human engineering practices should be incorporated in any control room design since the operator must interface with this equipment under stressful, as well as normal, conditions.

The control room survey should utilize results from the EOP walk-through, since we say above that it can be done independently, operating experience data, and human engineering criteria, to uncover any control room design problems. This survey should include, among other things, an assessment of control room layout, the control room environment, the usefulness of audible and visual alarms, the readability of displays, the adequacy of instrumentation, and the information recording and recall capabilities.

The results of task analysis must be compared with the control room inventory list during the survey process to determine if any required displays or controls are missing.

The operators tasks and informational requirements are validated by the EOP walk-through and provide input criteria to the control room survey process.

Control room additions associated with the parameter display (e.g., SPDS) and incorporation of selected RG-1.97 recommendations should be considered during the CRDR.

The control room improvements should be coordinated with changes resulting from other programs, such as EOP, RG-1.97, SPDS, and ERF.

RG-1.97 Element

The RG-1.97 plan provides administrative guidance required to assess and document all aspects of RG-1.97 consideration. A complete set of design criteria is developed from the plan to form a basis for plant-specific instrument selection. Utilizing the design criteria, as well as the

post-accident instrumentation requirements identified from the CRDR task analysis, a plant-specific list of accident monitoring instrumentation, qualification criteria and locations is developed. Th plant list also provides feedback to the control room survey and SPDS design basis. ERF design criteria provide additional input to the plant list. Once the list is finalized in design, an iterative process occurs to consider changes associated with EOPs, control room improvements, SPDS design, and ERF design.

SPDS Plan

The SPDS plan describes the tasks that will provide a method for developing, revising, assessing, and implementing the safety parameter display system design bases and a method for documenting these efforts. This plan is plant-specific, though it is developed with cognizance of current NRC and industry guidelines.

The plan should provide a description of each task involved and administrative guidance required to perform the tasks, including defining source documents, determining manpower requirements, specifying vendor involvement, establishing a schedule, and specifying a method of configuration control. Interfaces with other Supplement 1 to NUREG 0737 elements should be clearly defined to ensure complete integration.

SPDS usability is essential to the effectiveness of the system. The document provided by the SPDS NUTAC entitled, Guidelines For An Effective Safety Parameter Display System Implementation Program provides human factors guidance criteria for an SPDS, as well as guidance for other factors that influence usability.

A plant-specific list of human factors criteria pertaining to the SPDS should be developed as a basis for developing and assessing plant-specific SPDS designs. This list of criteria may be developed in conjunction with the human factors criteria required as input for the performance of a control room survey.

The EOPs, as a result of the efforts performed by the NSSS owners groups and plant-specific considerations, specify the critical safety functions for a plant. The SPDS design bases should incorporate this information to allow the operator to use the SPDS, if available, in conjunction with his EOPs.

The CRDS/SPDS design basis interface may be classified as one-way or two-way, depending upon the intended use of the SPDS: i.e., the interface becomes two-way if a utility intends to resolve control board HEDS by taking credit for the information displayed by the SPDS or incorporating additional information on the SPDS.

The ERF criteria/SPDS design bases interface is classified as one-way, i.e., the SPDS design bases may be used as input in the ERF design criteria; however, the ERF design should have no direct effect on the SPDS.

The iteration interface is an ongoing process, as long as HEDs exist or design changes that could impact the SPDS are made to any of the other basic Supplement 1 to NUREG 0737 elements. A great deal of coordination is essential to determine modifications to the SPDS effectively, without creating additional discrepancies.

To ensure an effective SPDS, the design bases must specify hardware, inputs, and software in the case of a computer-based system and identify SPDS user(s), specify location, and define availability. Design bases may vary considerably. Whereas some plants may elect to design an SPDS that serves only to aid in monitoring the critical safety functions, others may elect to incorporate additional functions into the system. In all cases, the SPDS design must consider operator usability and compatibility with plant-specific EOPs.

Once the SPDS design bases have been determined, a task analysis should be performed to evaluate the adequacy of the design. This task analysis may be done concurrently with the plant-specific control room task analysis. However, it is preferable to perform the CRDR first, to factor into the SPDS design bases.

The EOP/SPDS design bais interface is classified as one-way, i.e., structure of the EOPs will affect the SPDS design, but the SPDS design does not determine what must be included in the EOPs.

ERF Plan

The ERF plan consists of those tasks that describe a method for designing, implementing, and utilizing the emergency response facilities. The plan should be plant-specific and developed in cognizance of current NRC and industry guidelines. The following items should be considered in the development of an ERF plan:

- purpose of the TSC, EOF, and OSC
- description of tasks
- source document availability
- project personnel requirements and materials needed
- manpower requirements and restrictions
- description of the design documentation required
- desired date of completion and milestones
- schedule controlling factors
- interfaces with other Supplement 1 to NUREG 0737 elements

A set of criteria that provides a basis for the design or upgrade of the technical support center (TSC), emergency operating facility (EOF) and operational support center (OSC) needed to be determined. The bases for this criteria should include 10CFR50.47, 10CFR50, Appendix E, NUREG 0696, utility emergency plans, and guidance provided by nuclear industry organizations. Plant-specific criteria should include, but not be limited to, the following information:

- purpose
- location

- required instrumentation (not required for OSC)
- habitability (not required for OSC)
- communications needs
- structural considerations (not required for OSC)
- size
- human factors considerations (not required for OSC)
- staffing needs

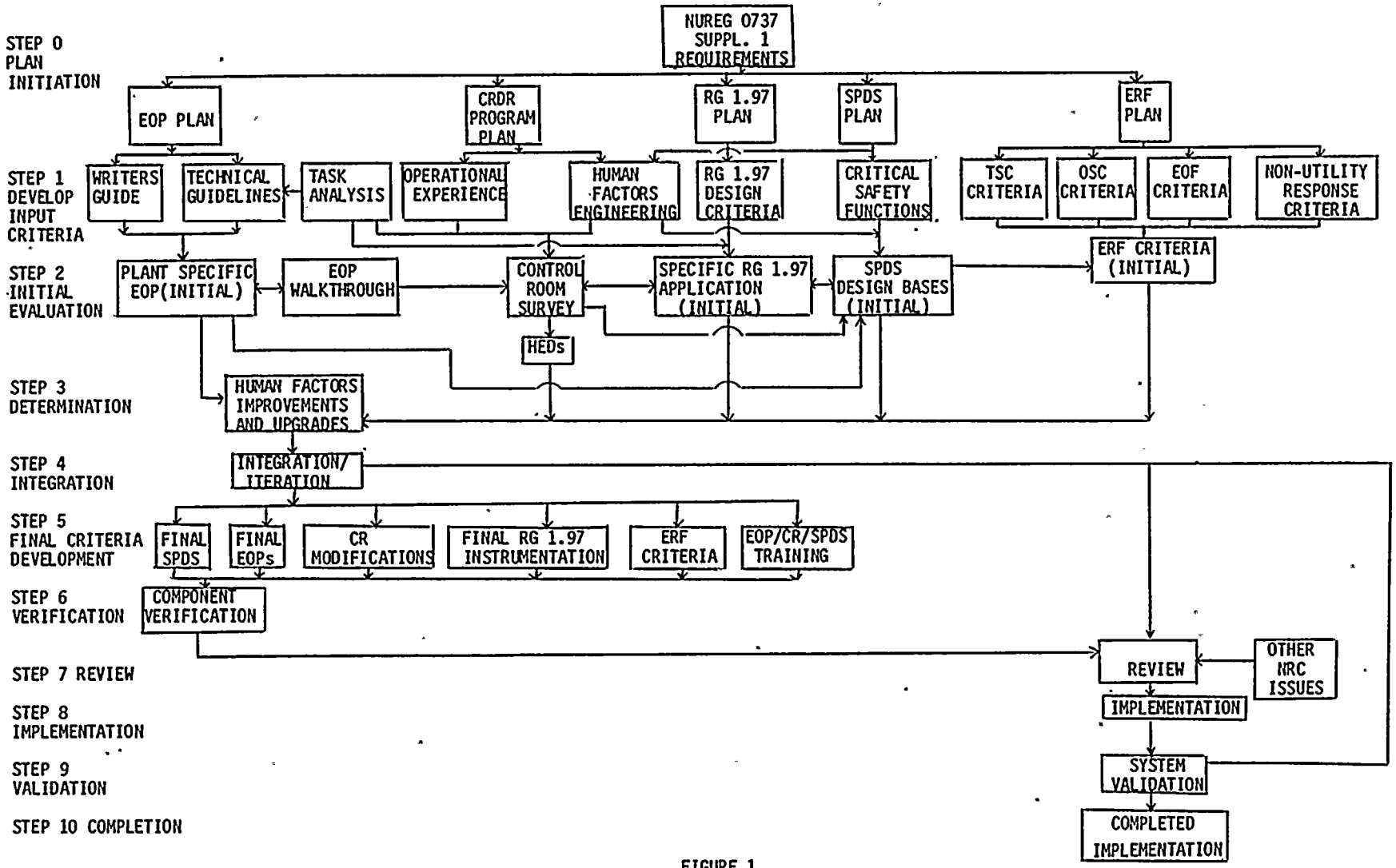
Guidance produced by the ERC NUTAC should provide assistance in the development of this criteria.

A set of criteria that provides a basis for identifying non-utility or utility off-site interactions that have an impact on the emergency response facilities should be developed to provide the following:

- interactions with state and local government
- communications required between plant and utility headquarters
- resources required from utility headquarters
- emergency capabilities supported by NSSS vendors, A/Es, and medical facilities
- non-utility personnel located in the ERF during emergency conditions

A set of criteria that provides a basis for ensuring the integration of the TSC, OSC, EOF, and off-site facilities, and consideration of the initial SPDS design bases should be developed.

The ERF criteria should be included in an iterative process with other elements of Supplement 1 to NUREG 0737. These include control room improvements, plant-specific EOPs, specific RG-1.97 application and SPDS design. This iterative process should continue until all of the elements associated with ERF criteria have been completed. A final set of criteria used to build or upgrade emergency response facilities should be developed, based on the proceeding considerations.


STEP 0
PLAN
INITIATION
NUREG 0737
SUPPL. 1
REQUIREMENTS
EOP PLAN
CRDR
PROGRAM
PLAN
RG 1.97
PLAN
SPDS
PLAN
ERF
PLAN
STEP 1
DEVELOP
INPUT
CRITERIA
WRITERS
GUIDE
TECHNICAL
GUIDELINES
TASK
ANALYSIS
OPERATIONAL
EXPERIENCE
HUMAN
FACTORS
ENGINEERING
RG 1.97
DESIGN
CRITERIA
CRITICAL
SAFETY
FUNCTIONS
TSC
CRITERIA
OSC
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EOF
CRITERIA
NON-UTILITY
RESPONSE
CRITERIA
STEP 2
INITIAL
EVALUATION
PLANT SPECIFIC
EOP(INITIAL)
EOP
WALKTHROUGH
CONTROL
ROOM
SURVEY
SPECIFIC RG 1.97
APPLICATION
(INITIAL)
SPDS
DESIGN BASES
(INITIAL)
ERF CRITERIA
(INITIAL)
HEDs
STEP 3
DETERMINATION
HUMAN FACTORS
IMPROVEMENTS
AND UPGRADES
STEP 4
INTEGRATION
INTEGRATION/
ITERATION
STEP 5
FINAL CRITERIA
DEVELOPMENT
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EOPs
CR
MODIFICATIONS
FINAL RG 1.97
INSTRUMENTATION
ERF
CRITERIA
EOP/CR/SPDS
TRAINING
STEP 6
VERIFICATION
COMPONENT
VERIFICATION
STEP 7 REVIEW
REVIEW
OTHER
NRC
ISSUES
STEP 8
IMPLEMENTATION
IMPLEMENTATION
STEP 9
VALIDATION
SYSTEM
VALIDATION
STEP 10 COMPLETION
COMPLETED
IMPLEMENTATION

FIGURE 1