Nebraska Public Power District

GENERAL OFFICE
P.O. BOX 499, COLUMBUS, NEBRASKA 68601-0499
TELEPHONE (402) 564-8561

LQA8300129

April 15, 1983

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

SUBJECT: Response to NUREG 0737 Supplement 1
Emergency Response Capability
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

Dear Mr. Eisenhut:

This letter and its attachments provide Nebraska Public Power District's response to generic letter 82-33 Supplement 1 to NUREG 0737, "Requirements for Emergency Response Capability" for Cooper Nuclear Station. It is our objective to work with the NRC to develop and implement a schedule for cost-effective emergency response improvements that fully meets the intent of Supplement 1. Therefore, we have developed an overall strategy for the implementation of the requirements.

The District's strategy for implementation of Supplement 1 to NUREG-0737 includes the following objectives:

1. Fully meet the intent of the 0737 Supplement 1 requirements.

2. Provide a cost effective implementation plan.

3. Provide for the proper integration of the various emergency response improvements from a human factor standpoint.

4. Maximize the benefits to NPPD from the efforts of the BWR Owners' Group which we have supported in several areas.

5. Establish a systematic dialog and review process with the NRC staff which will allow us to establish commitment dates based upon sound information and to estimate dates where information is not yet firm enough to establish a commitment. At the same time, we will keep the staff fully informed of our evolving plans.

Attachment 1 shows the relationship of the major activities involved in the emergency response improvement program. Attachment 2 shows a summary of our proposed implementation schedule.

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In the area of Emergency Operating Procedures (EOP's), the District intends to use the work which has been performed by the BWR Owners' Group (BWROG) to develop generic guidelines, consider the input from the INPO/EOPIA Review Group writers' guide, and develop a plant-unique writers' guide for CNS to use in converting the generic guidelines to our Cooper-specific emergency operating procedures. Our plan regarding development of the CNS Emergency Operating Procedures is described in further detail in Attachment 3.

With regard to the Control Room Design Review (CRDR), the District has performed the review phase under the BWROG control room survey program. The methodology used was as described in the BWROG letter 81-51 (W.J. Armstrong to V.A. Moore [NRC]) dated Aug. 25, 1981. As noted in BWROG letter 83-04 (Dente [BWROG] to Eisenhut [NRC]) dated March 7, 1983, the BWROG is awaiting action on the August 25, 1981 submittal. However, we understand that the program is generally considered acceptable by the NRC. Our plans regarding the control room design review are discussed in further detail in Attachment 4.

With regard to Regulatory Guide (R.G.) 1.97, the District plans to complete the assessment of variables as described in Attachment 5. Any deviations or alternatives to instrumentation as discussed in R.G. 1.97 will be addressed in a report upon completion of the assessment.

The SPDS is being given high priority as requested by Supplement 1 to NUREG 0737. We are planning to continue to take advantage of the work that is being done by the BWROG. Specifically, we are considering the results of the control room design review as input in our SPDS design. We are also reviewing the results of the simulator evaluation of the BWROG graphics displays, which was conducted in Tulsa in May and June of 1982, factoring the results of that work into our SPDS design. Additionally, we plan to follow the work to improve the BWR Owners' displays, which is currently being planned by the Electric Power Research Institute under the technical guidance of the BWROG. The SPDS is discussed further in Attachment 6.

The District's goal is to complete the SPDS design, Reg. Guide 1.97 assessment, and writing of plant-specific emergency operating procedures at approximately the same time so that we can perform a final validation by a detailed walk-through of the EOPs in the plant, including any supplementary work that is required as a result of the control room design review. These activities are depicted in a flow path format in Attachment 1. Having trained the CNS operators in both the procedures and SPDS separately, we would then implement both SPDS and Emergency Operating Procedures. Having implemented the corrective action from the control room design review, with the SPDS and the emergency operating procedures in place, all the emergency response improvements would then be tested. This would provide the final validation that all the pieces work together to provide the desired emergency response capability. The training plan is described in more detail in Attachment 7.

With regard to establishing a systematic dialog and review system between NPPD and the NRC, District management has made commitments in this letter only for those items where we feel that we have sufficient information upon which to solidly base a commitment and these items are designated on Attachment 2 as C, indicating commitment. Other dates which are given are indicated by the letter E, meaning estimate. With many factors yet unsettled, the District does not feel it is appropriate to establish commitment dates where such things as outside procurements remain to be accomplished and contractural decisions having a direct affect on schedules are unresolved. Estimates are based on standard review cycles which would be expected normally in the course of business in the nuclear industry and are subject to change. What we propose to do is to set up a system whereby our Licensing Manager meets with the NRC Project Manager on a routine basis. At each of these meetings (or during telephone conversations), we would review the status of commitment dates, and some of the dates which ha' previously been in the "estimate" category would be updated to commitmen based upon subsequent action which had taken place. Our approach on the schedule commitments/estimates and subsequent systematic dialog with the NRC is described in further detail in Attachment 8.

The status of the District's Emergency Response Facilities (ERF's) is contained in Attachment 9.

We look forward to our initial meeting to review these plans with our Project Manager. This will be the start of a continuing dialog which will keep the NRC fully informed of our activities and allow us to proceed on an integrated basis to establish an overall emergency response improvement program as required by Supplement 1 to NUREG-0737.

Sincerely,

Jeffrey D. Mcarer
for

Jay M. Pilant
Division Manager of Licensing &
Quality Assurance

JMP:sn13/4

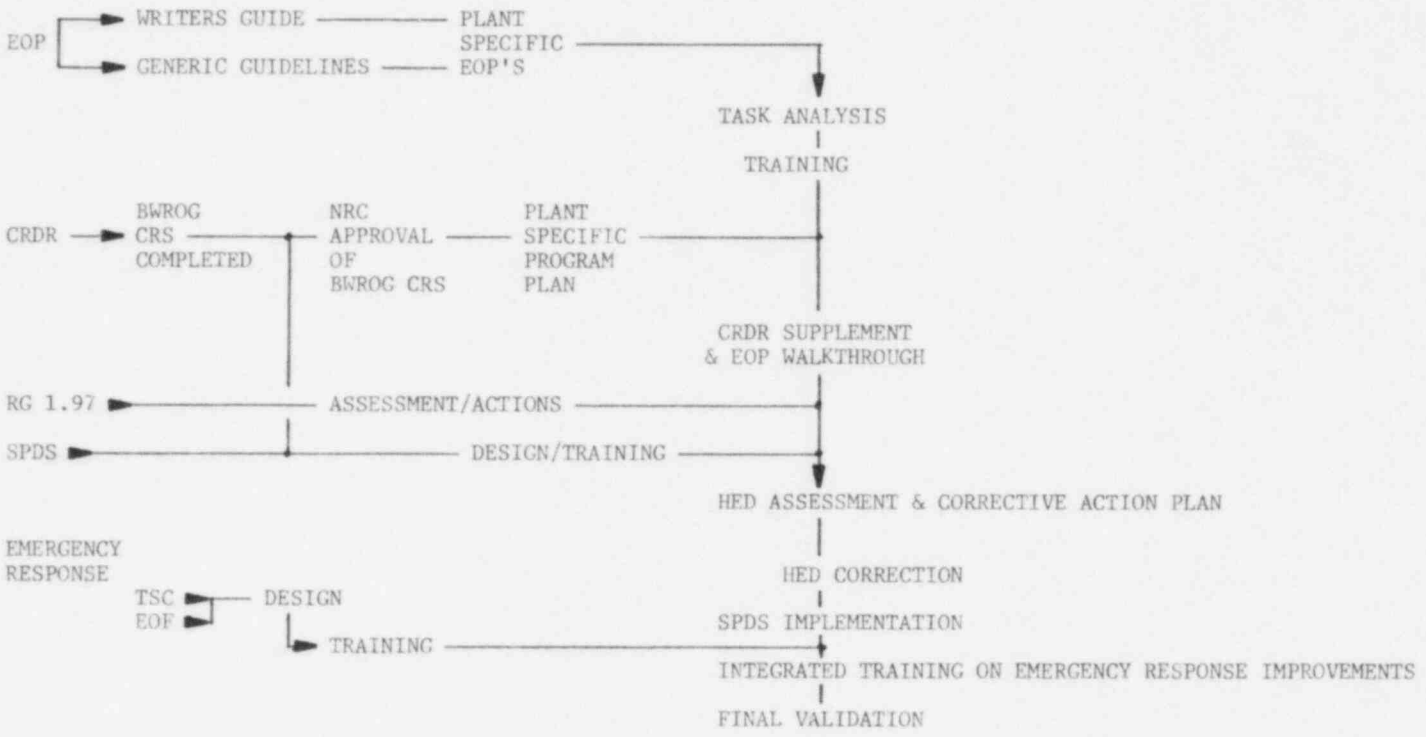
cc: John T. Collins, Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV

List of Attachments

1. Emergency Response Improvement Program
2. Implementation Schedule
3. Upgrade of Emergency Operating Procedures
4. Detailed Control Room Design Review
5. Regulatory Guide 1.97
6. Safety Parameter Display System/Plant Management Information System
7. Training Plan
8. Schedule Commitments/Estimates
9. Emergency Response Facilities

ATTACHMENT 1

Emergency Response Improvement Program



Note: E = Estimate (and subject to cha. ge)
C = Commitment

ATTACHMENT 2

Implementation Schedule

INITIATIVE	MILESTONE	DATE	STATUS*
SPDS	Submittal of Safety Analysis	Feb. 1, 1984	E
	SPDS Operable	Feb. 28, 1986	E
	Operators trained	Feb. 28, 1986	E
	Pre-Implementation Review by NRC (Verification & Validation Review)		
	∘ Start	Mar. 1, 1984	E
	∘ Completion	May 31, 1984	E
	∘ Audit of installed system by NRC	Feb. 28, 1986	E
CRDR	Submittal of Program Plan	Sep. 30, 1983	E
	Submittal of Summary Report	Apr. 15, 1984	E
Regulatory Guide 1.97	Submittal of Assessment Report	Nov. 30, 1983	C
	Implement Requirements	June 30, 1985	E
EOP Upgrade	Submittal of Generic Technical Guidelines	Dec. 22, 1982	C
	Submittal of Procedures Generation Package	June 30, 1984	E
	Implementation of EOPs	Dec. 31, 1984	E
ERF	Emergency Plan Exercise verifies facilities complete at this time	April 6, 1983	C
	Exercise to verify facilities complete per Supplement 1	April, 1986	E
Integrated Training	Completion of Integrated Training Plan	Mar. 31, 1986	E

* E = estimate (subject to change)
  C = commitment

ATTACHMENT 3

Upgrade of Emergency Operating Procedures

Current Status of Emergency Operating Procedure (EOP) Upgrade Development/Submittal Date for Generic Technical Guidelines

Nebraska Public Power District is planning to develop symptomatic based EOPs for Cooper Nuclear Station (CNS) based on the Emergency Procedure Guidelines (EPGs) developed by the BWR Owners' Group (BWROG) to satisfy the requirements of Supplement 1 to NUREG-0737, Item I.C.1. The following summarizes the generic guidelines status:

June 1, 1982	EPG, Revision 2, dated May 20, 1982 transmitted to the NRC
Oct. 4, 1982	Errata to EPG, Revision 2, dated September 28, 1982 transmitted to NRC
Feb. 4, 1983	NRC issued SER approving EPG, Revision 2 for use in development of upgraded EOPs.
Dec. 22, 1982	EPG, Revision 3, dated December 8, 1982 Transmitted to NRC.

Nebraska Public Power District presently plans to subcontract for assistance in the development of the EOPs and update the EOPs when EPG, Revision 3 is approved by the NRC. EPG, Revision 3 expanded EPG, Revision 2 by adding two new guidelines: Secondary Containment Control (identified as needing completion by the NRC in the SER for EPG, Revision 2) and Radioactivity Release Control. The BWROG plans to address combustible gas control and close on the exceptions identified in the SER for EPG, Revision 2 in 1984. A schedule for incorporation of EPG Revision 3 and future EPG Revision will be developed with the NRC as each revision is approved by the NRC. Requests for proposal for assistance in the development of EOPs for CNS are presently planned to be transmitted to qualified subcontractors in July 1983 (estimate).

Submittal Dates for Procedures Generation Package and Date for Implementing EOPs

It is presently anticipated that development and implementation of the EOPs for CNS will consist of the following planned elements.

1. Development of a CNS Writer's Guide for EOPs based on "Emergency Operating Procedures Writing Guideline," developed by the Emergency Operating Procedures Implementation Assistance (EOPIA) Review Group dated July 1, 1982 (INPO 82-017).

2. Collection of data and generation of plant-specific values and curves for the EOPs.

3. Preparation of CNS plant-specific Technical Guidelines based on the EPGs. Will be submitted as part of PGP.

4. Development of the EOPs for CNS based on the plant-specific Technical Guidelines and Writer's Guide.

5. Review of the existing CNS, EOPs, and Abnormal Operating Procedures (AOP) to delete those replaced by the upgraded EOPs and revision of those retained to ensure they integrate with the upgraded EOPs.

6. Preparation of a flow diagram for the CNS upgraded EOPs.

7. Development of an EOP verification program for CNS consisting of desk top reviews and control room walk-throughs based on "Emergency Operating Procedures Verification Guideline" being developed by the EOPIA Review Group.

8. Development of an EOP validation program for CNS consisting of simulation practice of the CNS upgraded EOPs based on "Emergency Operating Procedures Validation Guideline" being developed by the EOPIA Review Group.

9. Development of a CNS training program for the upgraded EOPs.

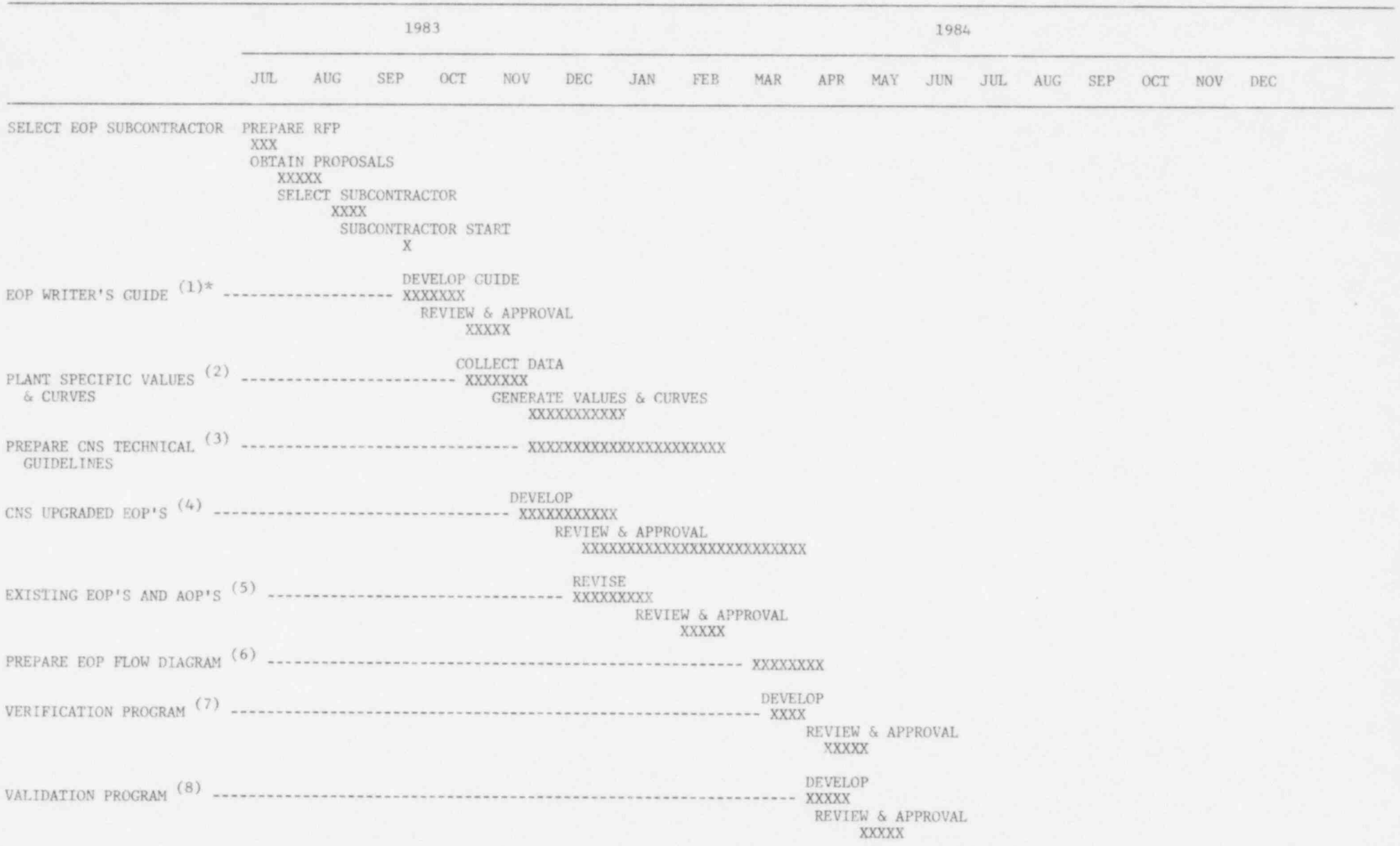
10. Based on the "Emergency Operating Procedures Generation Package Guideline" developed by the EOPIA Review Group dated February 1983 (INPO 83-007), prepare and submit to the NRC a Procedures Generation Package at least three months prior to formal CNS operator training on the upgraded EOPs. The Procedures Generation Package will include:

    - The CNS plant-specific Technical Guidelines
    - The CNS Writer's Guide
    - A description of the CNS validation program for the upgraded EOPs
    - A brief description of the CNS training program for the upgraded EOPs.

11. Incorporate SPDS in walkthrough of the EOP's.

The proposed schedule for these tasks is shown on the following two pages. Major milestones are shown in Attachment 2.

CNS EMERGENCY OPERATING PROCEDURES UPGRADE PROGRAM



* These numbers refer to planned elements in Attachment 3.

CNS EMERGENCY OPERATING PROCEDURES UPGRADE PROGRAM

	1983						1984											
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
DEVELOP TRAINING PROGRAM (9)										XXXXXXXXXXXXX								
DEVELOP PGP (10)												XX						
DELIVER TRAINING LECTURES															XXXXXX			
PROVIDE SIMULATOR TRAINING																XXXXXXX		
CONTROL ROOM TRAINING																	XXXXXXX	
EOP IMPLEMENTATION																		XXXXXXX

ATTACHMENT 4

Control Room Design Review (CRDR)

Current Status

CNS is a participant in the BWR Owners' Group (BWROG) Control Room Survey Program and is implementing its detailed control room design review (DCRDR) in accordance with the methodology described in the BWROG generic program plan (letter no. BWROG 83-51, from W.J. Armstrong to V.A. Moore, dated August 25, 1981). Currently the NRC is reviewing this generic program plan. Using the BWROG program, the review phase of the CRDR was performed in February 1981 by an inter-utility survey team. The results of this effort are currently being evaluated and will be incorporated into an integrated plan for control room enhancements.

Schedule for Submittal of Program Plan and Summary Report

A plant-specific program plan will be submitted per Attachment 2 with subcontractor assistance. The Summary Report will also be submitted per Attachment 2.

Integration of CRDR with Other Emergency Response Improvements

The overall integration plan for the DCRDR program with other emergency response improvements will include the following activities.

1. Factcr preliminary results into Safety Parameter Display System (SPDS) development.

2. Perform task analysis and walk-throughs of plant-specific emergency operating procedures when developed.

3. Consider SPDS in the development of the CRDR implementation plan.

ATTACHMENT 5

Regulatory Guide 1.97

NPPD is a participant in the BWR Owners' Group subcommittee on Regulatory Guide 1.97. Since several generic positions are being adopted through that organization and these positions will be submitted to the Staff, the CNS assessment will probably adopt those positions. Final resolution of the modifications to be implemented at CNS is dependent on the staff's review of the BWR Owner's submittal.

We are currently assessing Post Accident Monitoring variables identified by R.G. 1.97 to determine the current degree of compliance. Each variable is being assessed as to installed range, seismic and environmental qualification, quality assurance, redundancy, power supply, and display location. It is the District's intent that our initial review of the R.G. 1.97 variables will be reviewed by our NSSS vendor to verify the adequacy of our plans prior to submitting the final assessment to the Staff. The results of this review and schedule for installation of any modifications will be submitted to the NRC Project Manager as indicated in Attachment 2.

ATTACHMENT 6

Safety Parameter Display System/Plant Management Information System

PMIS Overview

Supplement I to NUREG 0737 provides for improved emergency response to accidents. Concurrently the Nebraska Public Power District (NPPD) is finding additional great need for:

1) placing numerous plant management functions on a computer,

2) computerizing engineering applications, and

3) replacing the GE/PAC 4020 plant process computer which is becoming obsolete.

NPPD Management consequently intends to install a new integrated computer system at Cooper Nuclear Station to satisfy the District's needs as well as the requirements of the NRC. Such a system will be a total Plant Management Information System (PMIS). By integrating all functions required of a new computer system, many safety aspects of plant operation will be improved to a point exceeding those of the present NRC requirements alone.

NPPD is in the process of developing a PMIS for Cooper Nuclear Station using the latest computer technology. Successful implementation of the following objectives will accomplish the NRC and District requirements.

1) Satisfy the Nuclear Regulatory Commission requirements of Supplement 1 to NUREG-0737 "Requirements for Emergency Response Capability" as it relates to the PMIS.

2) Replace the existing GE/PAC 4020 plant process computer which is reaching obsolesence.

3) Provide computer capability to perform other balance of plant and plant management functions.

4) Provide a system compatible with NPPD's long-range goal of an overall computer network.

In accordance with the established objectives, Figure 1 shows: 1) the various functions that will be performed by the PMIS, 2) the source of the function, and 3) the requiring agency. The pie segments show approximate proportions of the PMIS computer CPU usage for various groups of functions. As can be seen, the overall PMIS encompasses a greater number of functions than those required by NUREG-0737 and will provide additional capability to CNS.

Current Status of SPDS Design

In early 1981, shortly after the August 1980 issuance of the final report on NUREG-0696, the Functional Criteria for Emergency Response Facilities, NPPD started preliminary planning of an integrated computer system called the Plant Management Information System (PMIS) for CNS that would satisfy the NUREG-0737 requirements for a Safety Parameter Display System (SPDS) plus additional CNS needs.

There was an apparent urgency for a new meteorological system to obtain more reliable meteorological data. Since the meteorological system could easily be segmented out, it was initially decided to handle this task separately. It was planned the meteorological data would eventually be integrated into the PMIS computers to provide for predictive radiological dose assessment.

The Plant Management Information System (PMIS) is to be an integrated computer system comprised of a modular intelligent multiplexed front end data acquisition subsystem, redundant preprocessors, and modern, high-speed, real-time, multi-user multi-tasking central processors coupled with operator-interactive software and colorgraphic display equipment. The PMIS is to incorporate all functions of the existing GE/PAC 4020 Plant process computer as well as a Safety Parameter Display System (SPDS), ability to characterize and predict radiological plumes, the functions of the transient recording and analysis system, and additional plant management systems. The PMIS will provide improvements in the ability of the plant operators and support staff to determine the status of the plant, avoid abnormal events, and react promptly to recover from adverse conditions. Human-factored CRT displays will assist the operator in assessing the plant status and will guide him in the response to plant transients. Appropriate sample rates and on-line long-term data storage and retrieval capabilities are provided to support post-transient analysis and core performance calculations. The new system will also provide memory and computing power to support plant maintenance, spare parts inventory, periodic technical specification requirements, component qualification, interchangeability data, degraded core analysis, trend analysis of plant systems, ODAM and updated Appendix I, Spectrum Analyzer report generating, Reactor Engineering Analysis programs, STRUDL pipe stress analysis program, and other plant-specific computing needs.

COOPER NUCLEAR STATION

PLANT MANAGEMENT INFORMATION SYSTEM

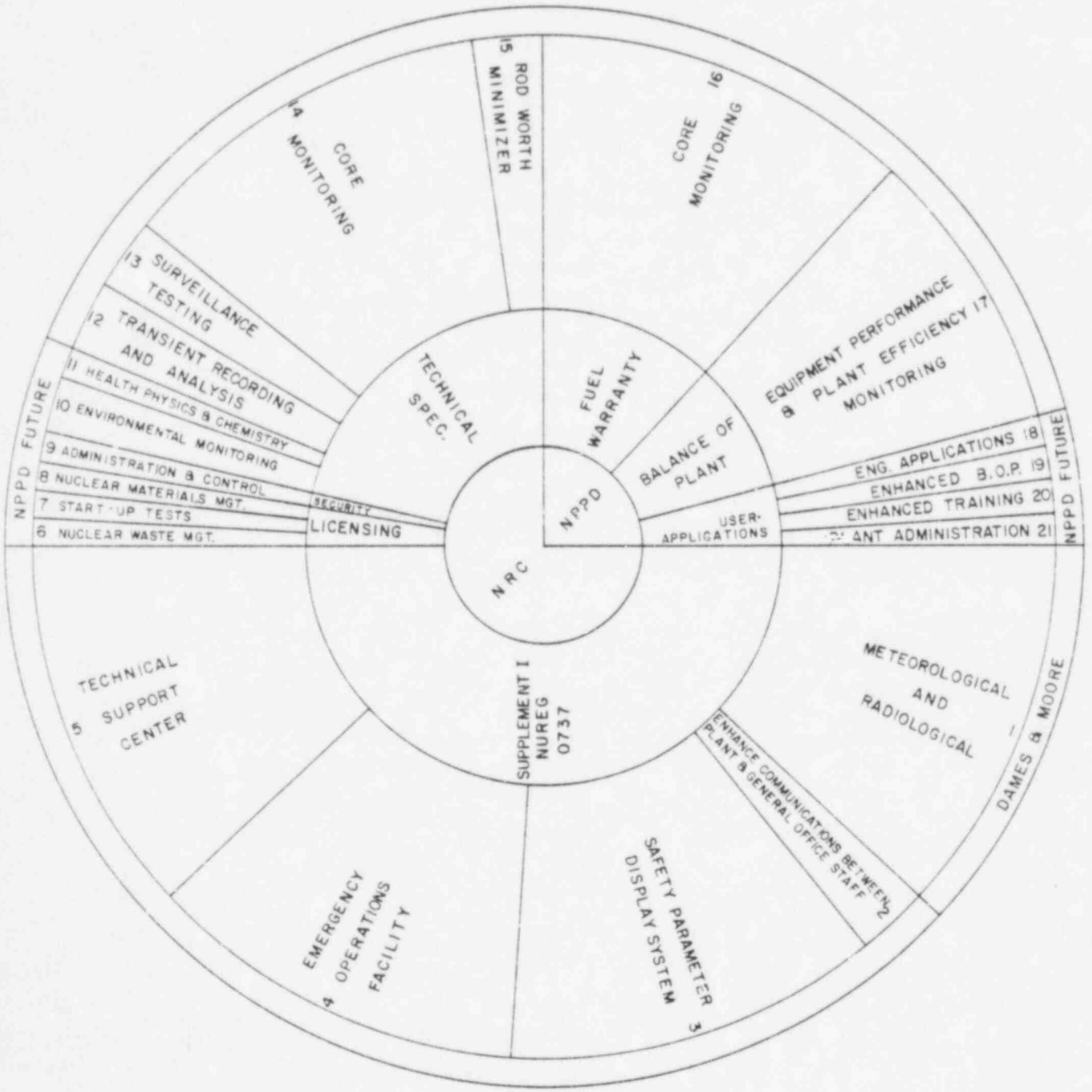


FIGURE I

Currently the District is in the process of selecting a System Integrator to design and develop a PMIS for CNS. The activities that have transpired prior to this point are as follows:

May 1981	A task force was established to determine what NPPD should do concerning the post-TMI Emergency Response Facilities and upgrading of the computer system at CNS.
June 1981	The task force initiated the evaluation process for selection of a nuclear/software vendor to design a PMIS for Cooper Nuclear Station that would satisfy the guidance of NUREG-0696 and NUREG-0654. Thirteen vendors made preliminary proposals. It became apparent during the interviews that a more thorough assessment of the requirements of a PMIS was needed.
August 1981	General Electric was contracted to perform a Plant Management Information System Application Assessment Report for Cooper Nuclear Station.
December 1981	General Electric presented the results of the report to NPPD management along with a budgetary cost estimate for the PMIS.
January 1982	A project manager was named to head up the PMIS project.
March 1982	A "Plant Management Information System Overview Report" was generated and presented to NPPD's Board of Directors.
May 1982	The Board of Directors approved project funding for further evaluation of nuclear/software vendors, generating implementation plans, engineering studies, and development of specifications. An architect/engineer, Burns & Roe, was also approved to assist NPPD in these tasks.
June 1982	A subtask under Burns & Roe's ongoing Engineering Service Agreement with the District was established for their consulting services.
July 1982	Started development of a preliminary PMIS functional specification that would make up the major portion of the Request for Information (RFI) document. This is the second phase of the system integrator evaluation process.
November 1982	Transmitted Request for Information document to six system integrators.

January 1983	Received written submittals to the RFI from the six System Integrators and initiated review.
February 1983	Received oral presentations from the six System Integrators.
March 1983	Selected three System Integrators from the original six to participate in the last phase of the selection process, the Request for Proposal (RFP).
March 1983	Initiated preparation of the Request for Proposal Document.

With the assistance of an A/E, the District has generated a functional specification for the PMIS and is currently in the process of selecting a system integrator to design and develop such a computer system for CNS. Six firms were requested to participate in a detailed Request For Information (RFI) evaluation phase. Three firms have been selected for further consideration. These firms will be asked to submit a proposal in response to a Request For Proposal (RFP) document issued by the District.

Status of Meteorological System

Implementation of the Meteorological Monitoring System for Cooper Nuclear Station has involved the efforts of several District departments as well as the consulting services of Dames and Moore. Full implementation of the system also involves close coordination with the CNS Plant Management Information System (PMIS). The following discussion provides an overview of the project status.

NRC/District Correspondence References:

1) June 30, 1980, Letter from J. M. Pilant to D. G. Eisenhut, "Post TMI - Requirements/NUREG 0737."

2) July 30, 1981, Letter from J. M. Pilant to T. A. Ippolito, Letter LQA 8100238.

3) June 9, 1981, Letter from J. M. Pilant to D. G. Eisenhut, "Emergency Response Facilities."

4) June 4, 1982, Letter from J. M. Pilant to D. G. Eisenhut, "Post PMI Requirements Response (Generic Letter No. 82-10).

The District is in the process of upgrading the meteorological measuring facilities at Cooper Nuclear Station (CNS). Dames & Moore was contracted to develop the implementation plan which was submitted to the NRC in Reference 1. The District later entered into an Engineering Service Agreement with Dames and Moore to develop the computer software required to meet the meteorological emergency preparedness requirements of Regulatory Guide 1.23.

I. The implementation plan served as a basis for the following activities:

1. Location of Primary and Backup Tower:

A map of the CNS site showing all possible locations of the towers that met the Regulatory Guide 1.23 guidelines was reviewed and tower locations selected. Location of the 100-meter primary tower does not fully comply with the 10 X distance rule. As a result of telephone conversations with the NRC staff concerning this matter and the NRC concurrence requested in Reference 2, the District concludes the tower locations are acceptable to the NRC.

2. 100 Meter Tower:

The 100-Meter guyed tower erection was completed in November, 1981, and installation of the instrument elevator was completed in December of 1981.

3. 10 Meter Tower:

A free standing climbable 10-meter tower with safety line and maintenance cage was erected in November, 1981.

4. Instrument Shelters:

An instrument shelter to house the meteorological signal processing equipment as well as any future microwave equipment has been constructed at the base of each of the 100- and 10-meter towers. These shelters have temporary power and air conditioning equipment intalled and operating. These shelters contain the meteorological sensor signal conditioners and the data transmission Data Acquisition System (DAS). These instruments are operating.

5. Meteorological Sensor Instrument: The sensor instrumentation for the meteorological monitoring system was purchased from Climetronics. The signal conditioners are installed in instrument racks in the shelters. The sensors are installed on the 100-, 60-, and 10-meter elevations of the primary tower and on the 10-meter backup tower. Sensor installation, with leads to the signal conditioners in the shelter, is complete.

6. Data Transmission:

A Computer Products Incorporated (CPI) Data Acquisition System (DAS) is used for transmission of meteorological data in digital form from the tower shelters to the CNS computer room where the information will be displayed on analog strip-chart recorders and in digital format.

During the interim model phase of the Meteorological/Radiological project the meteorological data will be manually inputted from the strip-chart recorders into the PRIME computer for operation of the interim model during emergency conditions. During the initial phases of the PMIS installation, the meteorological data will be manually inputted until the final Plume Dispersion Model becomes operational. At this time the meteorological data will be automatically-inputted directly into the PMIS computer system as well as the strip-chart recorders.

7. Power and Communications:

Temporary power has been provided to the instrument shelters from the existing construction power in the area of the tower sites. Permanent power will be provided to the shelters after completion of the 12.5 kV bus from the switchyard to the plant which is 95 percent complete. The power cable will be energized from the off-site substation switchyard under normal conditions with the capability of manually switching to the emergency bus from the plant if normal power has failed.

The communications cable consisting of two (50 twisted pair) underground cables has been installed to form a loop to provide two communication paths to the computer room.

8. Strip Chart Recorders:

At the present time the meteorological sensors, located on the Elevated Release Point (ERP) and the old 10 meter tower, feed data to strip-chart recorders located in the computer room. New Esterline Angus strip-chart recorders to record the meteorological data from the new 10- and 100-meter towers are installed in the computer room. The six new recorders will be replacing the existing meteorological instruments. These strip-chart recorders will be maintained after operation of the PMIS to provide permanent recording in accordance with NRC life of plant retention requirements.

9. Microprocessor:

A DEC PDP 11/23 16-bit microprocessor has been installed in the computer room to collect the meteorological data and drive the strip-chart recorders.

10. Software:

Operating software for acquiring the meteorological date from the towers, error checking, averaging, performing engineering conversions, and outputting to the strip chart-recorders and storing data on mag tape is approximately 80% complete.

II. The scope of the Dames & Moore Engineering Service Agreement covers an interim Model; Appendix I, Calculations and Reporting; and Plume Dispersion Model. A brief description of each activity follows:

Interim Model:

"An operable dose calculation methodology (DCM) shall be in use in the control room and at appropriate emergency response facilities." Dames & Moore developed an interim computer model EMERGENCY PREPAREDNESS MODEL (EPM2) for the District to provide a means of estimating the dispersion of radioactive material resulting from an accidental release. EPM2 computes relative concentrations, dose rates, and absolute doses due to accidental atmospheric releases of radioactivity. Results are based on source data and weather data provided by the operator for each 15-minute time interval simulated by the program. EPM2 has the capacity for 20 separate release scenarios. Each scenario addresses the relative abundance of the 13 radionuclides listed in NUREG 0654. The relative abundance of nuclides for each scenario is based on the source term, time factor following the accident, and mode of release. The effluent source rate of the accidental release if also input to the program. The effluent source rate combined with the relative abundance of nuclides for a specific scenario will provide absolute doses and dose rates for given distances and directions based on weather data which is input by the operator during each 15-minute interval. The weather data is current information which is read directly from the meteorological strip-charts. EPM2 computes relative concentrations at standard polar grid receptors and at 528 special receptor points, most of which are strategically located within a 10-mile radius of CNS.

Usage

The interim model became operational in February of 1982 and was operating during the March 10, 1982, NRC Emergency Preparedness Test. The model is run as a standalone program on the District's PRIME computer in the General Office. Meteorological data from strip-chart recorders and radiological data is manually input into the computer. The primary input terminal is located in the TSC with a slave terminal located in the EOF. The responsible TSC personnel input the meteorological conditions and release mode into the PRIME computer via microwave communications and a dial-up port. The program provides estimated doses at selected polar coordinates and at selected special points. This information is displayed in a matrix format on hard copy terminals in the TSC and EOF Data can also be inputted at the EOF terminal. However, the results are not available at the TSC.

Predictive Dose Assessment Model

This model will be operated with real-time meteorological data provided by the equipment described in Section I. The program will be run on the PMIS computer system as discussed in Reference 3. Development cannot therefore be pursued until design of the PMIS has progressed far enough to establish the type of computers that will be used.

Proposed Schedule

As previously addressed, the SPDS is a segment of a larger task, the PMIS, for which a System Integrator is currently being selected. A contract for design and development of the PMIS is planned to be let in the third quarter of 1983. Due to the magnitude and complexity of such a project, any schedule developed without the input of the System Integrator would have no sound justification to it. A valid schedule for the PMIS should be available approximately March 1984. A sample of an anticipated schedule typical of that to be used for tracking purposes is included as the following figure.

Provided below are the key activities:

1. Submittal of Safety Analysis which describes the basis for parameter selection and a SPDS implementation plan.

2. Start of pre-implementation review (submit validation and verification plan) by NRC.

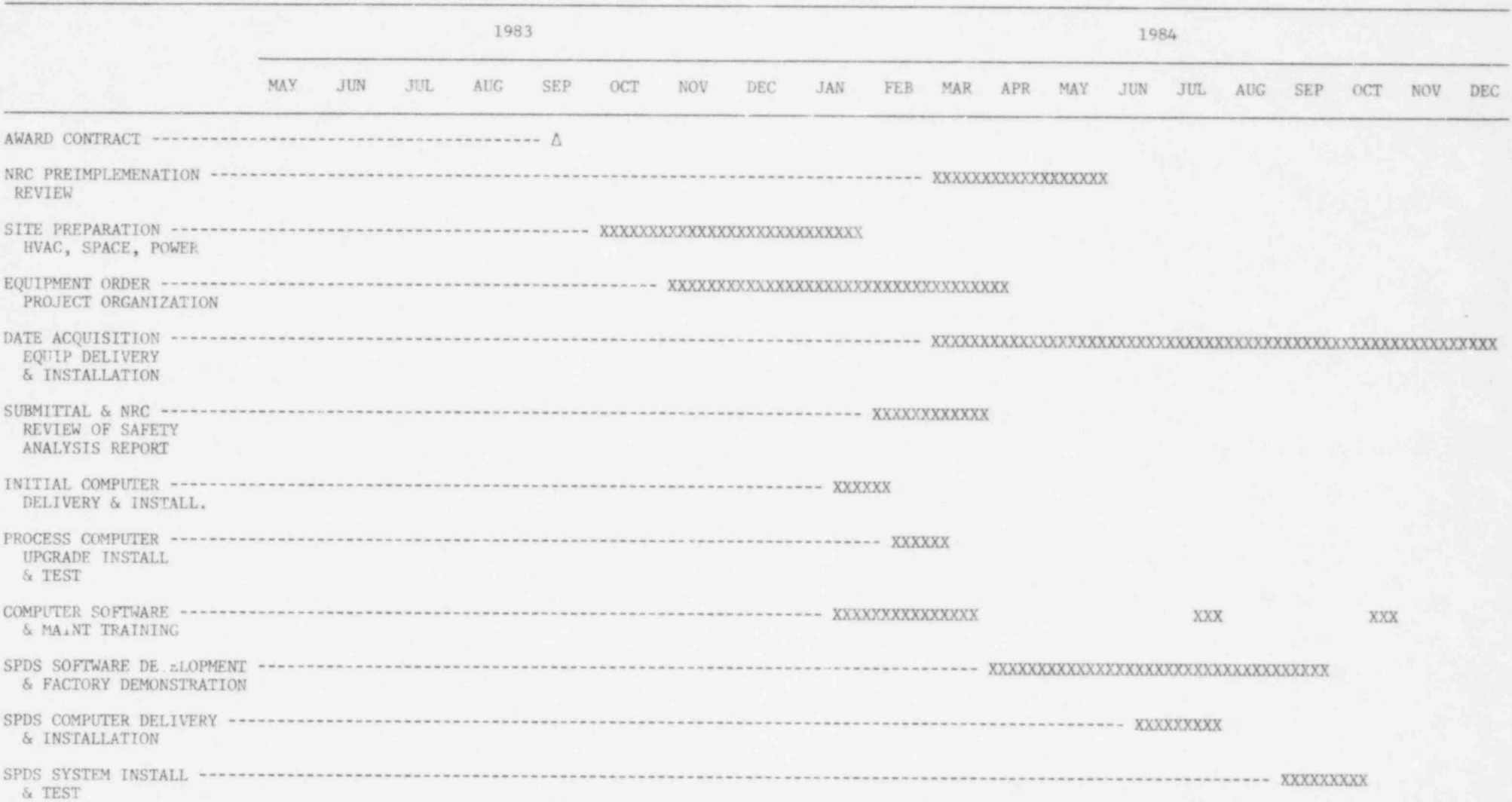
3. SPDS will be operable and operators trained.

4. Completion of NRC review.

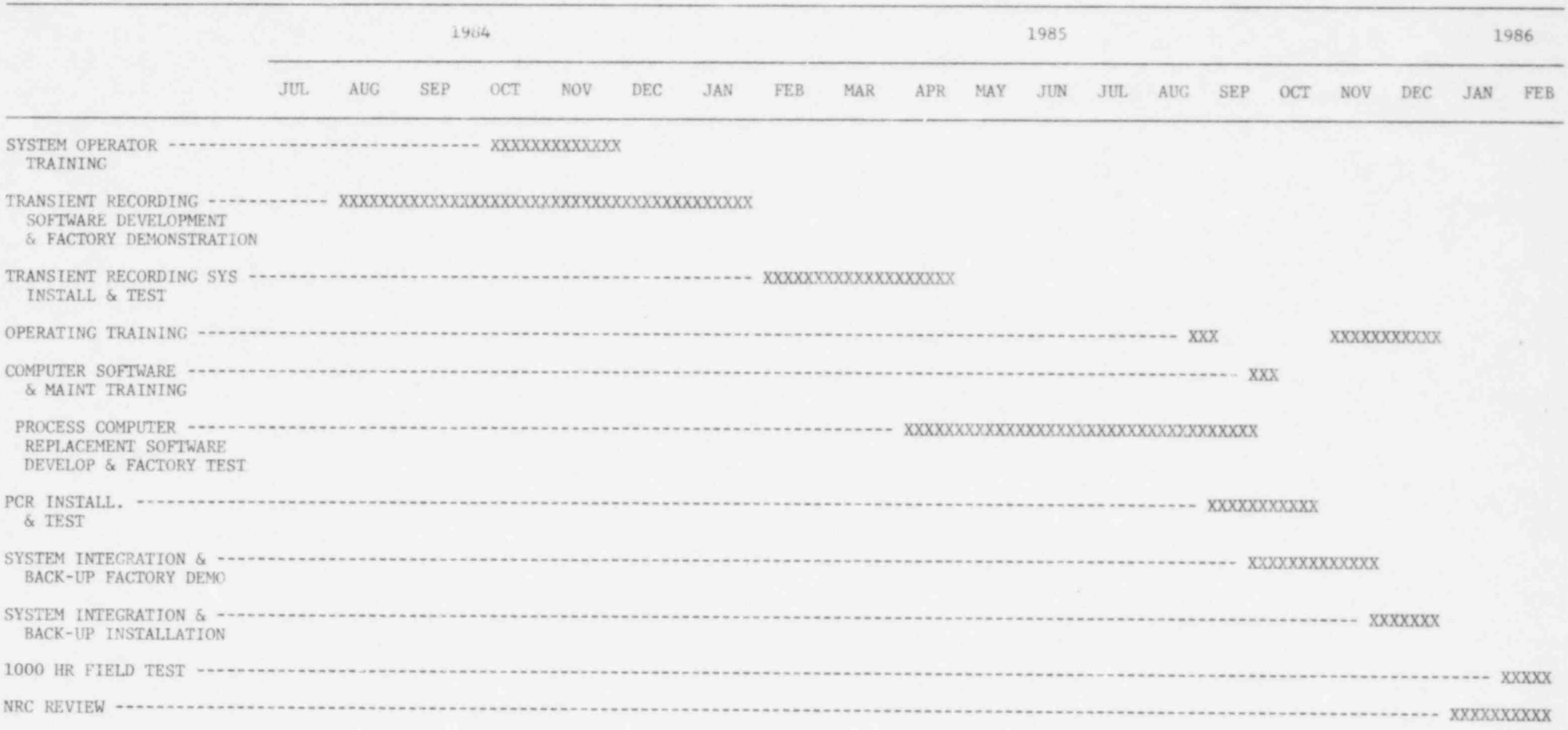
This schedule is indicated in Attachment 2. Upon employment of a System Integration (March 1984), the following figure will be deleted and a revision provided in accordance with the overall PMIS schedule.

The District currently intends to request a pre-implementation review by the NRC. The final decision will be made prior to awarding the PMIS contract.

SAMPLE OF
ANTICIPATED PMIS SCHEDULE



ANTICIPATED PMIS SCHEDULE



ATTACHMENT 7

Training Plan

SPDS

Training courses will be developed and delivered for users as well as plant operators prior to completion of operation of the system. The training program will be provided for SPDS users prior to completion of the system shop test and for plant operators at the completion of the 1000-hours test.

EOP

As part of the validation and verification of the new emergency procedures, a training program on these procedures will be provided.

- A site-specific lecture course (approximately one week) will provide instruction in the use of EOPs based on EPGs. This course includes a detailed discussion and explanation of all EPG concepts as they apply to each site-specific procedure.

  This course will be delivered two months after completion of the write-up of site-specific EOPs.

- A simulator course (approximately three days) will be provided covering the applications and use of procedures developed from the EPGs during simulated transients and accidents. This schedule is subject to availability of "slots" at the simulator.

- A site-specific control room walk-through course (approximately two days) utilizing site specific emergency procedures will be given to the supervisory and operating personnel. Operators are referred to control room panel indications and controls in specific emergency scenarios.

ERF

Utility personnel manning the TSC (Technical Support Center) and EOF (Emergency Operation Facility) have been trained on manning assignments and responsibilities and equipment operation as presently exists in the facilities.

- Classroom instruction followed by a written exam has been provided.

- Periodic drills to evaluate practical performance and to reaccess procedures and training have been performed.

Reg. Guide 1.97

Training will be provided as necessary where new instrumentation is introduced into the control room as a result of the R.G. 1.97 assessment. A training program consisting of training material, formal instruction and written exams will be established in a timely manner.

CRDR

Any control room (CR) modifications which are introduced as a result of the control room design review will be addressed in the training plan.

Integrated Training Plan

An integrated Training Program will be formulated to include training sessions on EOPs, SPDS, ERF and control room modifications introduced as a result of the R.G. 1.97 assessment or the Detailed Control Room Design Review.

The objectives of the integrated training program will be based on an analysis of the operator's performance requirements in each of the areas addressed. The course lectures will be instructed by the specific objective method. The training program utilizes examinations and quizzes as necessary to evaluate the performance of trainees. In addition, individual performance during drills will be evaluated and critiqued to determine if the training program is meeting the specified objectives. Provisions will exist for revising the training program based on the evaluation of operator performance during the critiqued drills and normal job activities following training.

Outline for Training

EOP:	- develop EOP training program - classroom lecture training on EOPs - simulator training using newly developed EOPs - control room training using EOPs
ERF:	- training program already in place; District-developed as part of Emergency Plan implementation
CR modifications resulting from Reg. Guide 1.97 assessment and CR Design Review:	- training to be implemented as needs are identified
SPDS:	- operator training on system use and operation
Integrated Training Plan	- implementation of training incorporating all changes and revisions.

ATTACHMENT 8

Schedule Commitments/Estimates

In accordance with Supplement 1 to NUREG-0737, the District is submitting a proposed schedule (Attachment 2) for completing each of the basic requirements for emergency response capability. Elements of this schedule indicate major milestones, particularly the necessary NRC submittals, in the implementation of the various emergency response improvements.

In order to establish a meaningful schedule, it is necessary to divide the submitted dates into two distinct categories: commitments and estimates. Commitment dates (denoted in Attachment 2 by a C) are provided for those items where we currently have sufficient information and control over the implementation process to establish a firm date for completion. Estimate dates (denoted in Attachment 2 by an E) are provided for those items where provisions for completing the individual item have not been finalized. Therefore, the estimated dates are based on review cycles and procurement times which are judged to be typical throughout the nuclear industry.

To properly administrate the development and implementation of our schedule, we propose to establish a systematic dialog and review system between NPPD and the NRC. Through this process, we will be able to upgrade previous estimate dates to commitments while keeping the NRC fully informed of our status on the completion of commitments and upgrade of the estimated dates. The systematic dialogue and review process would take place through a series of meetings between NPPD licensing personnel and our NRC project manager. At these meetings (or telephone conversations), we will brief the NRC on: (1) status of the completion of previous commitment dates, (2) proposed upgrade of estimated dates to commitments based on information acquired since the last update meeting or telephone contact, and (3) discussion of pertinent changes in the basis for either the estimated or commitment dates which may affect the ability of the District to comply with those dates. Excerpts from the District's Action Item Tracking System (AITS) and revised pages to this April 15, 1983, NRC submittal will be the vehicles by which the District's current status will be documented with the NRC Project Manager.

For each meeting, NPPD will coordinate the overall licensing approach to address all aspects of the emergency response improvements. Attention will be given to each of the licensing activities in addition to the integration of all the activities.

We at NPPD feel that we have proposed a workable process for establishment of a schedule which is meaningful and agreeable to the NRC. We hope to continue in a cooperative effort with the NRC toward the implementation of the required emergency response improvements.

ATTACHMENT 9

Emergency Response Facilities (ERF's)

The District has essertially completed construction of the ERF's as defined in NUREG 0737, Supplement 1. Some of the requirements of the Supplement remain to be met as part of the PMIS or Regulatory Guide 1.97 efforts. The status of District activities in this regard are contained in the attached "Action Item Tracking" (AIT) table.

The District will ensure that each requirement (or action item) in Supplement 1 is met by tracking all items on our AIT system. The NRC Project Manager will be provided similar tables for the other issues (i.e., SPDS, EOP's, RG 1.97, and DCRDR) at the routine meetings discussed in the schedule implementation program of Attachment 8.

NPPD ACTION ITEMS FOR
RESPONDING TO
SUPPLEMENT 1 TO NUREG-0737

ITEM	REQUIREMENT	DISTRICT RESPONSE
	EMERGENCY RESPONSE FACILITIES	
IS.8.2.1.a	Technical Support Center (TSC) The TSC is the onsite technical support center for emergency response. When activated, the TSC is staffed by pre-designed technical, engineering, senior management, and other licensee personnel, and five predesignated NRC personnel. During periods of activation, the TSC will operate uninterrupted to provide plant management and technical support to plant operations personnel, and to relieve the reactor operators of peripheral duties and communications not directly related to reactor system manipulations. The TSC will perform EOF functions for the Alert Emergency class and for the Site Area Emergency class and General Emergency class until the EOF is functional.	The TSC currently meets the intent of this requirement. Detailed information is contained in the CNS Emergency Plan as follows: CNS Staffing - Section 5.2.2(B) Figure 5.2-2 Table 5.2-1 TSC Functions - Section 7.2.1 TSC Floor Plan (Figure 7.2-1) further defines the functional requirements to be performed in this facility, as well as identifying the area reserved for five predesignated NRC personnel.
IS.8.2.1.b	The TSC will be located within the site protected area so as to facilitate necessary interaction with Control Room, OSC, EOF, and other personnel involved with the emergency.	The TSC is located within the site protected area. Furthermore, the engineering portion of the TSC is located in the Control Room; the remainder of the TSC is adjacent to the Control Room (see Figure 7.2-1 of the CNS Emergency Plan).
IS.8.2.1.c	The TSC will be sufficient to accommodate and support NRC and licensee predesignated personnel, equipment, and documentation in the center.	The TSC meets this requirement (see Figure 7.2-1 of the CNS Emergency Plan).
IS.8.2.1.d	The TSC will be structurally built in accordance with the Uniform Building Code.	The TSC is comprised of areas fabricated during the construction of CNS; therefore, they meet structural standards of the UBC.

ITEM	REQUIREMENT	DISTRICT RESPONSE
IS.8.2.1.e	The TSC will be environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment.	The TSC ventilation system is comparable to the Control Room ventilation system. Although not seismically qualified or redundant it does provide the necessary environment for personnel and equipment.
IS.8.2.1.f	The TSC will be provided with radiological protection and monitoring equipment necessary to assure that radiation exposure to any person working in the TSC would not exceed 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident.	As indicated in Figure 7.2-1 of the CNS Emergency Plan, a portion of the TSC is in the Control Room. Accordingly, the habitability of this portion of the TSC is identical to that of the Control Room and therefore meets the intent of this requirement. The portion of the TSC outside the Control Room is provided with radiological protection and monitoring equipment to protect personnel under most conditions, the exception being core degradation and leakage to the area above the refueling floor. In the unlikely event that this type of accident were to occur at CNS, TSC personnel would relocate to the Control Room, the OCS's, and/or the EOF as defined in the CNS Emergency Plan Implementing Procedures (EPIP'S). To ensure adequate radiological protection of the TSC personnel, a radiation monitoring system is provided in the TSC. This system consists of monitoring equipment dedicated to the TSC, capable of continuous indication of dose rates and airborne radioactivity concentrations. Local alarms provide early warning to TSC personnel. The TSC ventilation system is comparable to the Control Room ventilation system. Although not seismically qualified, redundant, or automatically activated, it does include high efficiency particulate air filters and charcoal filters. System capacity is based on design basis accident airborne radioactivity levels, independent of thyroid blocking provisions (potassium iodide).

ITEM	REQUIREMENT	DISTRICT RESPONSE
IS.8.2.1.g	The TSC will be provided with reliable voice and data communications with the Control Room and EOF and reliable voice communications with the OSC, NRC Operations Centers, and state and local operations centers.	The TSC is provided with adequate and reliable communications facilities. These are delineated in Section 7.2.1 of the CNS Emergency Plan (see page 7-4).
IS.8.2.1.h	The TSC will be capable of reliable data collection, storage, analysis, display, and communication sufficient to determine site and regional status, determine changes in status, forecast status, and take appropriate actions. The following variables shall be available in the TSC: The variables in the appropriate Table 1 or 2 of Regulatory Guide 1.97 (Rev. 2) that are essential for performance of TSC functions; and The meteorological variables in Regulatory Guide 1.97 (Rev. 2) for site vicinity and National Weather Service data available by voice communication for the region in which the plant is located. Principally, those data must be available that would enable evaluating incident sequence, determining mitigating actions, evaluating damages, and determining plant status during recovery operations.	The intent of this requirement will be met with the implementation of PMIS and RG 1.97.
IS.8.2.1.i	The TSC will be provided with accurate, complete, and current plant records (drawings, schematic diagrams, etc.) essential for evaluation of the plant under accident conditions.	The TSC will have the necessary documentation to support TSC personnel. It should be noted that all the records are not permanently stored in the TSC. They will be brought to the TSC as defined in EPIP 5.7.7, "Activation of Technical Support Center."
IS.8.2.1.j	The TSC will be staffed by sufficient technical, engineering, and senior designated licensee officials to provide needed support, and be fully operational within approximately one hour after activation.	Table 5.2-2 of the CNS Emergency Plan provides activation response times, all of which meet the time frame specified.

ITEM	REQUIREMENT	DISTRICT RESPONSE
IS.8.2.1.k	The TSC will be designed taking into account good human factors engineering principles.	The TSC is already designed and good human factors are evident from the TSC function descriptions in the Emergency Plan.
IS.8.3.1.a	Operational Support Center (OSC) When activated, the OSC will be the onsite area separate from the Control Room where predesignated operations support personnel will assemble. A predesignated licensee official shall be responsible for coordinating and assigning the personnel to tasks designated by Control Room, TSC, and EOF personnel.	CNS has three such facilities. As indicated in Section 5.2.2(B)(2) of the CNS Emergency Plan, the Maintenance and OSC Coordinator, located in the TSC, supervises the activities of the personnel located in the electric/I&C and mechanical OSC's. The Chemistry and HP Coordinator, located in the TSC, supervises the activities of the CNS Chemical/HP OSC. It should be noted that each OSC has its own OSC supervisor. See Figure 5.2-2 and Section 5.2.2(C) of the Emergency Plan for further information.
IS.8.3.1.b	The OSC will be located onsite to serve as an assembly point for support personnel and to facilitate performance of support functions and tasks.	All three CNS OSC's are located onsite as follows: Chem/HP OSC - Chem and HP Office El. 918 of the Office Building Mechanical Maintenance OSC - Maintenance Shop El. 903 of the Machine Shop I&C/Electrical OSC - Electrical Shop El. 932 of the Turbine Building (across the hall from the TSC) See Section 5.2.2(C) of the Emergency Plan for further information.
IS.8.3.1.c	The OSC will be capable of reliable voice communications with the Control Room, TSC, and EOF.	All three OSC's are provided with reliable voice communications.

ITEM	REQUIREMENT	DISTRICT RESPONSE
IS.8.4.1.a	Emergency Operations Facility (EOF) The EOF is a licensee controlled and operated facility. The EOF provides for management of overall licensee emergency response, coordination of radiological and environmental assessment, development of recommendations for public protective actions, and coordination of emergency response activities with federal, state, and local agencies. When the EOF is activated, it will be staffed by predesignated emergency personnel identified in the emergency plan. A designated senior licensee official will manage licensee activities in the EOF. Facilities shall be provided in the EOF for the acquisition, display, and evaluation of radiological and meteorological data and containment conditions necessary to determine protective measures. These facilities will be used to evaluate the magnitude and effects of actual or potential radioactive releases from the plant and to determine dose projections.	These functions of the EOF are provided for in the Emergency Plan. The required data will be provided as a part of PMIS.
IS.8.4.1.b	The EOF will be located and provided with radiation protection features as described in Table 1 (previous guidance approved by the Commission) and with appropriate radiological monitoring systems.	The new primary EOF that is located within 10 miles of Cooper Nuclear Station (actually within 100 yards) was designed and built to provide a protection factor that satisfies the required factor of 5 in Table 1 and is equipped with HEPA and charcoal filters.
IS.8.4.1.c	The EOF will be sufficient to accommodate and support federal, state, local, and licensee predesignated personnel, equipment, and documentation in the EOF.	The CNS EOF has been sized to provide sufficient space for emergency response personnel to perform their duties (see Figure 7.2-2 of the CNS Emergency Plan.
IS.8.4.1.d	The EOF will be structurally built in accordance with the Uniform Building Code.	The EOF meets the structural requirements of the UBC (1979 Edition).

ITEM	REQUIREMENT	DISTRICT RESPONSE
IS.8.4.1.e	The EOF will be environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment.	The EOF HVAC system provides an environment appropriate for personnel and equipment.
IS.8.4.1.f	The EOF will be provided with reliable voice and data communications facilities to the TSC and Control Room, and reliable voice communication facilities to OSC and to NRC, state, and local emergency operations centers.	The CNS EOF has the necessary communication facilities to support these goals.
IS.8.4.1.g	The EOF will be capable of reliable collection, storage, analysis, display, and communication of information on containment conditions, radiological releases, and meteorology sufficient to determine site and regional status, determine changes in status, forecast status, and take appropriate actions. Variables from the following categories that are essential to EOF functions shall be available in the EOF: Variables from the appropriate Table 1 or 2 of Regulatory Guide 1.97 (Rev. 2), and The meteorological variables in Regulatory Guide 1.97 (Rev. 2) for site vicinity and regional data available via communication from the National Weather Service.	The intent of this requirement will be met with the implementation of PMIS and RG 1.97.
IS.8.4.1.h	The EOF will be provided with up-to-date plant records (drawings, schematic diagrams, etc.), procedures, emergency plans, and environmental information (such as geophysical data) needed to perform EOF functions.	The EOF has the necessary documentation to adequately support the functions to be performed in it.

ITEM	REQUIREMENT	DISTRICT RESPONSE
I3.8.4.1.i	The EOF will be staffed using Table 2 (previous guidance approved by the Commission) as a goal. Reasonable exceptions to goals for the number of additional staff personnel and response times for their arrival should be justified and will be considered by NRC staff.	The number of preassigned individuals who will report to the EOF will provide adequate staffing in the event of an emergency. See Tables 5.2-1, 5.2-2, and Figure 5.2-3 of the CNS Emergency Plan.
IS.8.4.1.j	The EOF will be provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness.	Once activated, security will be provided by the CNS Contract Security Force. (See EPIP 5.7.9, Attachment E.)
IS.8.4.1.k	The EOF will be designed taking into account good human factors engineering principles.	In the design of the EOF, good human factors engineering principles were used. In addition, a building with both a comfortable atmosphere and a pleasant environment in which to work. Provided in the EOF is a kitchen equipped with a refrigerator, a drinking fountain, men's and women's restrooms equipped with showers, sinks, water closets and lockers, and dressing sections located in the Whole Body Count Room.
IS.8.4.2	Documentation and NRC Review Licensees should assure that the design of ERFs satisfies these requirements. Exemptions from or alternative methods of implementing these requirements should be discussed with NRC staff and in some cases could require Commission approval. Licensees should continue work on ERFs to complete them according to schedules that will be negotiated on a plant-specific basis. NRC will conduct appraisals of completed facilities to verify that these requirements have been satisfied and that ERFs are capable of performing their intended functions. Licensees need not document their actions on each specific item contained in NUREG-0696 or 0814.	The design of the ERF's satisfies the intent of the NRC requirements as discussed above.