AUG 30 1989

In Reply Refer To:
Dockets: 50-445/89-43
50-446/89-43

TU Electric
ATTN: W. J. Cahill, Jr., Executive
Vice President
Skyway Tower
400 North Olive, L.B. 81
Dallas, Texas 75201

Gentlemen:

SUBJECT: EMERGENCY PREPAREDNESS APPRAISAL

During the period of June 5-9, 1989, NRC conducted an appraisal of the emergency preparedness program at the Comanche Peak Steam Electric Station. The appraisal was performed by a team of inspectors and contractors with Mr. Nemen M. Terc as Team Leader. The objective of the appraisal was to evaluate the overall adequacy and effectiveness of the licensee's onsite emergency preparedness program and to identify areas of weakness that need to be strengthened. Areas examined in this appraisal are described in the enclosed report. Within these areas, the appraisal team reviewed selected procedures and representative records, inspected emergency facilities and equipment, and interviewed personnel.

The findings of this emergency preparedness appraisal indicate that certain corrective actions are required in your emergency preparedness program. These are discussed in Appendix A, "Significant Appraisal Findings." Appendix B, "Emergency Preparedness Improvement Items," contains other findings which are of lesser significance then those of Appendix A, but which may require corrective measures.

Appendices A and B of this letter contain an inclusive listing of all outstanding onsite emergency preparedness items at your facility at the time of the appraisal. The findings of the prior emergency preparedness appraisal, conducted during the period September 26 through October 7, 1983, are considered closed since the present appraisal replaced those findings.

We recognize that in addition to applicable regulatory requirements, other criteria were used to make a determination of adequacy, such as nuclear industry standards and professional judgement, for which no explicit regulatory requirement may currently exist. Notwithstanding this, you are requested to submit a written statement within 30 days after receipt of this letter, describing your planned actions for correcting each of the items contained in Appendix A and the results of your consideration of each of the items in

RIV:SEPS	C:SEPS	C:RPB	D:DRSS	NRR
*NMTerc	*DAPowers	*BMurray	BBeach	RWarnick RFW
/ /89	/ /89	/ /89	8/29/89	8/29/89

*previously concurred.

1/1
IE-35

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Original Signed By

R. F. Warnick, Assistant Director
for Inspection Programs
Comanche Peak Project Division
Office of Nuclear Reactor Regulation

Enclosures:
1. Appendix A - Significant Appraisal Findings
2. Appendix B - Emergency Preparedness Improvement Items
3. Appendix C - NRC Inspection Report
   50-445/89-43
   50-446/89-43

cc w/enclosures:
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Chief, Technological Hazards Branch
FEMA Region 6
Federal Center
800 North Loop 288
Denton, Texas 76201-3698

bcc dist. by RIV:
CPPD:OSP Reading (MS: 7-H-17)

*RIV Files	Local PDR
ADSP Reading (MS: 7-D-24)	*Site Reading File
*MIS System, RIV	NRC-PDR
*RSTS Operator	*DRP
*L. Shea, ARM/LFMB	J. Dyer, NRR
P. McKee, OSP	J. Lyons, OSP
J. Wilson, ADSP, NRR	M. Malloy, OSP
J. Moore, OGC-WF	J. Gilliland
M. Fields, OSP	E. Jordan
B. Grimes, NRR-WF	B. Hayes
*R. Martin	*RPB-DRSS
D. Crutchfield, OSP	*R. Warnick, CP
*J. Wiebe, CP	*H. Livermore, CP
CPPD-LA, OSP	C. Grimes, OSP

*w/766

APPENDIX A

SIGNIFICANT APPRAISAL FINDINGS

Improvements in the following areas are required to achieve an adequate program:

- Review the description of your emergency organization and revise it as necessary to provide a clear depiction of all emergency functions required during initial, intermediate, and final phases of augmentation and recovery; update the Site and Corporate Emergency Plans to describe the updated organization; revise and issue implementing procedures which have been human engineered so that all emergency response tasks can be carried out using the command and information pathways of the organization. The updated description of the emergency organization should include a sufficient level of detail: clearly specify the command hierarchy, its structure, reporting chains and interrelationships at any phase of augmentation, and include supervisory as well as non-supervisory elements. (See Section 2.0 of the Appraisal Report.)

- Remove dose assessment responsibilities from the shift technical advisor (STA) in order to comply with the intent of NUREG-0737, Appendix C. (Section 2.0)

- Complete training for emergency response personnel including any training associated with the completion of emergency systems and related procedures. (Section 3.0)

- Review and revise training requirements to include practical, hands-on training, and drill participation. (Section 3.0)

- Develop specific qualification requirements for each position in the emergency response organization. (Section 3.0)

- Complete the installation and testing of instrumentation, systems, and controls in the control room that are required to assess plant and environmental conditions. (Section 4.1.1.1)

- Complete the installation of Technical Support Center (TSC) equipment. (Section 4.1.1.2)

- Complete the setup of the multichannel analyzer and NaI detector for counting environmental samples. (Section 4.1.1.5)

- Assemble medical kits containing key medical supplies for emergency response personnel who would respond as part of the first-aid team. (Section 4.1.2.2)

- Provide decontamination supplies in decontamination facilities. (Section 4.1.2.3)

- Revise Procedure EPP-207 to provide specific instructions as to the news media and offsite agencies to be contacted initially for the dissemination of information to the public. (Section 4.1.4)

- Complete the news media seminar providing the news media with the utility points of contact and locations where accident information can be obtained. (Section 4.1.4)

- Complete the training of the CPSES staff on their duties in the News Center and dissemination of information to the public. (Section 4.1.4)

- Complete the installation, testing, and turnover of the Digital Radiation Monitoring System (DRMS), and confirm that instrument maintenance and calibration checks are performed in accordance with applicable requirements. (Section 4.2.1.2)

- Complete the installation, testing, and turnover of non-radiation monitoring systems. Initiate appropriate preventive maintenance checks on the systems and conduct appropriate training on operation, analysis, and distribution of data obtained from the systems. (Section 4.2.1.3)

- Complete the construction and installation of the primary meteorological tower and related equipment. (Section 4.2.1.4)

- Complete the review and revision of the Emergency Action Level (EAL)/Emergency Classification procedure. (Section 5.1)

- Revise procedures to assign a staff member other than the STA to perform dose assessment functions until the control room is relieved of the function by the TSC. (Section 5.1)

- Revise Procedure EPP-304 to add guidance for developing offsite PARs based on operational assessment of plant conditions. Incorporate, in Procedure EPP-304, a decisionmaking aid such as the "logic tree" shown in IE Information Notice 83-28, Figure 1, "Flow Chart for General Emergency Offsite Protective Decisions." Delete, from Procedure EPP-304, those considerations (such as weather, special facilities, and population distributions) that are not germane to effectively developing and recommending a protective action. Revise Procedure EPP-304 to eliminate the need to discuss PARs with the state or counties until after the PARs are made to offsite agencies. (Section 5.3)

- Demonstrate that the evacuation of the owner-controlled area (OCA), including all buildings, can be accomplished in a thorough and timely manner. (Section 5.4.3.2)

- Demonstrate the capability of performing personnel accountability of all personnel within the protected area within 30 minutes. (Section 5.4.3.3)

- Modify training materials to incorporate PARs based on core and containment conditions and retrain all personnel having responsibilities to formulate PARs. (Section 7.1.5)

APPENDIX B

IMPROVEMENT ITEMS

The following matters are considered improvement items:

- Position the required, dedicated emergency equipment in the Operations Support Center (OSC) or provide assurance that all required equipment will be properly located in the event of an emergency. (See Section 4.1.1.3 of the Appraisal Report.)

- Install an ingestion pathway map to assist in monitoring the efforts of offsite authorities responsible for defining the extent of long term, offsite radiological conditions. (Section 4.1.1.4)

- Maintain first-aid supplies in an orderly fashion. (Section 4.1.2.2)

- Review and revise Section 10.2 of the Emergency Plan to reflect the correct location of the onsite first-aid supplies and that Hood General Hospital Ambulance Service is the primary ambulance service, and complete the turnover of the ambulance service from the contractor. (Section 4.1.2.2)

- Review and revise Section 6.9 of the Emergency Plan to list the electrical and control building as the location of the decontamination facility in the plant rather than the turbine building. (Section 4.1.2.3)

- Include the correct storage locations of emergency kits in procedures. (Section 4.2.1.1)

- Mark spare batteries with shelf life expiration dates to permit persons performing inventories to readily determine if supplies are adequate. (Section 4.2.1.1)

- Provide potassium iodine (KI) tolerance testing for emergency responders. (Section 4.2.1.1)

- Assure that proper physical units are available at local instrument channel racks for emergency radiation monitors read-outs. (Section 4.2.1.2)

- Install protective dust caps/thread protectors on spare self contained breathing apparatus (SCBA) bottles. (Section 4.2.2.1)

- Initiate periodic testing as appropriate for all emergency communication systems; review and revise procedures to require periodic testing of all emergency communication systems and increase the FM radio capability at the TSC to permit monitoring of emergency channels. (Section 4.2.3)

- Correct administrative errors and discrepancies in emergency procedures. (Section 5.1)

- Review the alarm response procedures (ALPs) and include appropriate references to Procedure EPP-201. (Section 5.2)

- Correct inconsistencies in referencing the EP in abnormal conditions procedure. (Section 5.2)

- Enhance the emergency dose assessment program with a segmented plume atmospheric dispersion model that will take wind shifts into account. (Section 5.4.2.1)

- Complete the documentation of the Xu/Q values using the dose assessment model and document these values into procedures. (Section 5.4.2.1)

- Delete the reference to the calculation of total population dose from Procedure EPP-206. (Section 5.4.2.1)

- Ensure that units on the DRMS monitors used for dose assessment calculations are consistent with those in the RM-11 system, and the dose assessment model. (Section 5.4.2.1)

- Revise Section 7.3.2 of the Emergency Plan to indicate the actual communication link between emergency facilities and the offsite monitoring teams. (Section 5.4.2.2)

- Develop a procedure for the routine maintenance and operability check on the NaI detector system, and develop a procedure to describe counting procedures for environmental samples and the activation of the counting laboratory. (Section 5.4.2.2)

- Provide legible maps showing environmental thermoluminescent dosimeter (TLD) locations in Procedure EPP-309, including specific descriptions on how to reach these locations. (Section 5.4.2.5)

- Consider issuing dosimetry to personnel as they enter the Emergency Operations Facility (EOF). (Section 5.4.3.1)

- Review and revise Procedure EPP-313 to specify the use of emergency medical technicians (EMTs) as first-aid team members. (Section 5.4.3.5)

- Update the Letters of Agreement with the offsite support agencies. (Section 6.0)

- Prepare a matrix that would indicate what offsite agencies are to be trained, the subject to be trained on, and the status of completion. (Section 6.0)

- Review the materials for EAL training and revise, as necessary, to ensure that control room decisionmaking personnel fully understand the application of the "fire" EAL. (Section 7.1.2)

- Revise Procedure EPP-303 to include instructions for using a default release rate based on the most likely containment failure mode. (Section 7.1.4)

APPENDIX C

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Appraisal Report: 50-445/89-43
50-446/89-43

Construction Permits: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Applicant: TU Electric
400 North Olive, L.B. 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES)

Appraisal At: Comanche Peak Site, Glen Rose, Texas

Appraisal Conducted: June 5-9, 1989

Lead Appraiser: Nemen M. Terc, NRC Team Leader — Date: 8-15-89

Accompanying Personnel:
R. J. Everett, Chief, Nuclear Materials Licensing Staff, NRC, Region IV
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D. H. Schultz, Engineer, Comex Corporation
G. A. Stoetzel, Senior Research Scientist Pacific Northwest Laboratories
M. N. Stein, Engineer, Sonolex Corporation

Approved: Dr. D. A. Powers, Chief, Security and Emergency Preparedness Section — Date: 8-15-89

Appraisal Conducted June 5-9, 1989 (Report 50-445/89-43; 50-446/89-43)

Areas Appraised and Approval Summary

Special, announced emergency preparedness program appraisal to determine the adequacy of the applicant's program.

The appraisal of the onsite emergency preparedness program at Texas Utilities Electric Company's (TUCO) Comanche Peak Electric Steam Station included seven general areas: administration of the emergency preparedness program, emergency organization, emergency training, emergency facilities and equipment, procedures which implement the Emergency Plan, coordination with offsite agencies, and walk-throughs of emergency duties.

A review of the applicant's emergency organization showed that although the applicant had identified several organizational response elements, improvements were needed to further clarify duties and responsibilities, and to provide an organizational structure consistent with each emergency response task.

A review of the emergency preparedness training program showed that the program had been established, but qualification requirements for each task or position were not clearly specified and practical training was not required. A large portion of the training had been performed for the emergency responders, but the status of completion of some systems will require further training for personnel operating such systems. In addition, some organizational elements had not received training consistent with their duties during emergencies.

Those portions of emergency response facilities (ERFs) that had been completed were basically satisfactory; however, some facilities were still in various stages of completion, and equipment and supplies were not completely in-place.

Personnel accountability and evacuation of the protected areas (PAs) and the owner-controlled areas (OCAs) have not been demonstrated. The applicant has a unique situation in these areas due to the large number of workers in the PAs and OCAs.

Specific deficiencies were found in some procedures, mainly in the procedure used for making protective action recommendations (PARs), including the absence of operational assessment of plant conditions, and the inclusion of extraneous considerations which may have an impact on the efficient release of PARs.

The appraisal team concluded that the applicant has made a strong commitment to the emergency preparedness program. However, the findings identified in Appendix A to this report need to be corrected in order for the applicant to have an adequate emergency preparedness program.

CONTENTS

DETAILS

1.0 ADMINISTRATION OF EMERGENCY PREPAREDNESS

The administration of the applicant's emergency preparedness program was reviewed with respect to the requirements of 10 CFR 50, Appendix E, paragraph IV.A; and the criteria contained in NUREG-0654, Sections II.A and P.

The appraisal team reviewed responsibilities assigned for the administration of emergency planning, including authorities given to the emergency planning manager (EPM); coordination with onsite and offsite organizations, and members of the public. In addition, the appraisal team reviewed the selection and qualifications of the emergency planning staff; held discussions with members of the staff; reviewed position descriptions and individual qualifications; and reviewed in-place training programs for ensuring that the staff remains abreast of current developments in the emergency preparedness area.

Based on the above findings, this portion of the applicant's program appears to be adequate.

2.0 EMERGENCY ORGANIZATION

The appraisal team reviewed the applicant's emergency response organization against the requirements of 10 CFR 50.47 and 10 CFR 50, Appendix E, paragraph IV.A. In addition, the appraisal team reviewed CPSES Emergency Plan, Revision 10, dated July 27, 1988 (hereafter referred to as the Emergency Plan or EP) and Emergency Plan Procedures (EPPs), and held discussions with applicant personnel to evaluate the emergency organization.

The EP considers three basic augmentation phases (i.e., staffing levels): initial, intermediate, and final augmentation. The initial phase consists of the minimum staff operating the plant (i.e., in particular, during back shifts). The intermediate phase comprises the fully staffed onsite emergency organization, formed within about 60 minutes. The final augmentation phase includes the first two staffing levels, plus additional corporate staff and other support groups. A fourth recovery phase would be entered after the reactor has stabilized and any significant releases of radioactivity to the environment and any further potential for releases has ceased. At that point, the applicant will implement an organization designed to recover from the accident. The recovery phase will be further discussed in Section 5.4.6.

The applicant's emergency organization is identified in Section 1 of the EP. This included a description of the various phases of augmentation, including organizational charts and lists of duties and responsibilities for some of the organizational elements.

The appraisal team noted the following:

- The EP failed to describe the functional breakdown of the initial phase of the emergency organization consisting of the minimal staff operating the plant. Emergency titles and specific duties of the various organizational elements, including non-supervisory positions, were lacking.

- The applicant's organizational description did not include a block diagram showing the chain of command and information flow for the initial emergency phase.

- The assignment of dose assessment responsibilities to the shift technical advisor (STA) does not agree with NUREG-0737, Appendix C. The STA is a critical element of the operations staff responsible for technical support to operations during emergency conditions. Dose assessment responsibilities could prevent the STA from performing primary operations duties assigned to the STA.

- Although the EP described the general duties of some supervisory elements (i.e., emergency coordinators [ECs]), specific details on the organizational structure of the intermediate augmentation phase, including a detailed functional breakdown for supervisory and non-supervisory elements, were not provided.

- The EP did not clearly present, by a separate organizational chart, the organizational structure of the intermediate phase; including lines of command, information flow, and interrelationships among organizational elements.

- The emergency organization chart (Figure 1.4) in the EP represents the final augmentation phase due to the inclusion of corporate support and emergency operations facility (EOF) activation. Again, the description of the organization was obscured by the attempt to represent three distinct phases of augmentation occurring at different times, by one block diagram.

- Procedures requiring the formal transfer of EC responsibilities from the control room (CR) to the technical support center (TSC) or to the EOF failed to indicate as a necessary condition that the ERF needs to be fully activated for the EC to be able to adequately perform duties.

- The number of persons reporting directly to the EC appears to be excessive. A study of the information flow patterns from and to the EC would be needed to ensure that an excessive number of simultaneous information inputs would not saturate the EC and result in deficient coordination and control.

Based on the above findings, the following items are identified as significant appraisal findings

- Review the description of your emergency organization and revise it as necessary to provide a clear depiction of all emergency functions required during initial, intermediate, and final phases of augmentation and recovery; update the site and corporate EPs to describe the updated organization; and revise and issue implementing procedures which have been human engineered so that all emergency response tasks can be carried out using the command and information pathways of the organization. The updated description of the emergency organization should include a sufficient level of detail: clearly specify the command hierarchy, its structure, and reporting chains and interrelationships at any phase of augmentation, and include supervisory as well as non-supervisory elements. (445/8943-01; 446/8943-01)

- Remove dose assessment responsibilities from the STA in order to comply with NUREG-0737, Appendix C. (445/8943-02; 446/8943-02)

3.0 TRAINING

The appraisal team reviewed the applicant's training program with respect to the requirements of 10 CFR 50, Appendix E, paragraph IV.F and the criteria contained in NUREG-0654, Planning Standard O, and the training and retraining requirements for individuals assigned emergency duties and responsibilities as outlined in Section 13 of the EP and described in Procedure TRA-105, "Emergency Preparedness Training."

The appraisal team noted that the training program described the initial training and annual retraining for specific categories of emergency personnel, including personnel onsite and corporate support personnel, but no qualification requirements were specified for each emergency position. Personnel were assigned to the emergency organization based on their supervisor's judgement and their regular duties.

The appraisal team noted that hands-on training or drills were not used to qualify emergency response personnel; however, instructors were aware of the need to conduct practical hands-on training and drills, and as a consequence, made attempts to perform this type of training immediately after the classroom training for that module, even though the procedures and lesson plans did not require it. The appraisal team found no written requirement that an individual participate in a full-scale drill.

The appraisal team noted that the training program was being implemented in accordance with the training manual; however, all training had not been completed. For example, 31 percent of the public information training, and 58 percent of the cardiopulmonary resuscitation training were still pending. In addition, the appraisal team noted that completion of emergency systems and related procedures will require additional training.

The appraisal team noted that the training records documented the status of emergency personnel participation in hands-on training or drills associated with specific classroom training modules. Records of participation in the full-scale drills were being added to the computer

training record system so that personnel without full-scale drill experience could be identified.

Based on the above findings, the following items are identified as significant appraisal findings:

- Complete training for emergency response personnel including any training associated with the completion of emergency systems and related procedures. (445/8943-03; 446/8943-03)

- Review and revise training requirements to include practical, hands-on training, and drill participation. (445/8943-04; 446/8943-04)

- Develop specific qualification requirements for each position in the emergency response organization. (445/8943-05; 446/8943-05)

4.0 EMERGENCY FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

The appraisal team reviewed the CR pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria of NUREG-0654, Section II.H.

The appraisal team toured the CR to determine if updated copies of the EP and the EP implementing procedures were in place; that the emergency equipment specified in the EP was available and operable; and if the general status of completion of the CR would support emergency preparedness operations. In addition, the appraisal team reviewed Procedure EPP-112, Revision 6, "Duties of Control Room Personnel During Emergencies."

The appraisal team noted that several systems that would be used in emergency operations, such as the Digital Radiation Monitoring System (DRMS) (RM-11) and support systems such as CR heating, ventilation, and air conditioning system (HVAC), were in various stages of completion. Specifically, 80 of 96 channels of instrumentation in the RM-11 had been installed and tested, and were being controlled under the preventive maintenance program. (The remaining 16 channels were expected to be completed in late August 1989. Duct-work modifications and other work being performed in the CR HVAC system were expected to be completed and turned over to the applicant in September 1989.)

Based on the above findings, the following item is identified as a significant appraisal finding:

- Complete the installation and testing of instrumentation, systems, and controls in the CR that are required to assess plant and environmental conditions. (445/8943-06; 446/8943-06)

4.1.1.2 Technical Support Center (TSC)

The appraisal team reviewed the TSC pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph (IV)(E); and the criteria of NUREG-0654, Section II.H. The appraisal team also reviewed the EP and Procedure EPP-204, Revision 7, "Activation and Operation of the TSC;" and supporting procedures for activities and responsibilities of the TSC staff.

The appraisal team noted that the incomplete condition of the CR ventilation system affected the TSC in that the TSC ventilation system is a part of the CR system.

The level of ongoing construction effort in the CR and TSC made matters of general housekeeping a concern, particularly in the corridor and adjacent areas. Dust and construction debris were noted on various terminals, ERF computer, printers, and on shelves and technical manuals in the TSC library.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Complete the installation of TSC equipment. (445/8943-07; 446/8943-07)

4.1.1.3 Operations Support Center (OSC)

The appraisal team reviewed the OSC and alternate OSC pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.H. The appraisal team also reviewed the EP and Procedure EPP-205, "Activation and Operation of the Operations Support Center (OSC)."

The appraisal team noted that a telecopier was listed as required equipment in the OSC to facilitate communications between ERFs. However, the team learned that the machine was in routine use in the maintenance building. The OSC emergency equipment list was not annotated to reflect the actual location of the machine, and no person was assigned the responsibility to transport the machine to the OSC in the event of an accident.

Based on the above findings, the following matter is considered an improvement item:

- Position the required, dedicated emergency equipment in the OSC or provide assurance that all required equipment will be

properly located in the event of an emergency. (445/8943-08; 446/8943-08)

4.1.1.4 Emergency Operations Facility

The appraisal team reviewed the EOF with respect to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.H. The appraisal team reviewed the EP and Procedure EPP-206, "Activation and Operation of the Emergency Operations Facility (EOF)."

The appraisal team toured the EOF to assure that all equipment and facilities specified by the EP were installed and operable. The appraisal team noted that the facility was complete with all communication systems installed and operable.

The EOF was found to be adequately equipped with supplies and equipment to perform its intended function. The team did note, however, that although an emergency planning zone map (10-mile EPZ) was installed, a 50-mile ingestion pathway map was not available in the EOF command center to assist in the assessment of offsite radiological conditions.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Install an ingestion pathway map to assist in monitoring the efforts of offsite authorities responsible for defining the extent of long term, offsite radiological conditions. (445/8943-09; 446/8943-09)

4.1.1.5 Offsite Laboratory Facilities

The appraisal team reviewed offsite laboratories with respect to the requirements in 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Sections II.H and I. In addition, the appraisal team reviewed Sections 6.7 and 6.8 of the EP; toured the applicant's laboratory located in the nuclear operations support facility (NOSF); and interviewed several staff chemists. The appraisal team noted that the applicant had not completed the setup of the multichannel analyzer and the sodium iodide (NaI) detector that would be used for spectral analysis of environmental samples. No considerations had been given to detector-source geometries when counting soil, vegetation, and water samples.

Based on the above findings, the following matter is identified as a significant appraisal finding:

- Complete the setup of the multichannel analyzer and NaI detector for counting environmental samples. (445/8943-10; 446/8943-10)

4.1.2 Protective Facilities

4.1.2.1 Assembly/Reassembly Areas

The appraisal team reviewed assembly/reassembly areas with respect to the requirements of 10 CFR 50.47(b)(8), 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.J. In addition, the appraisal team reviewed the applicant's EP, Section 8.0, Implementing Procedure EPP-314, and held discussions with members of the applicant's security management staff.

The appraisal team noted that the applicant had identified adequate assembly areas inside and outside of the PAs, and these areas were clearly marked and boundaries delineated. In addition, the appraisal team noted that site personnel had received training on evacuation routes and assembly areas. Evacuation routes were clearly marked. The appraisal team noted that designated assembly areas outside the PA were large and appeared to have the capability to hold all evacuated personnel.

Based on the above findings, this portion of the applicant's program appears to be adequate.

4.1.2.2 Medical Treatment Facilities

The appraisal team reviewed medical treatment facilities with respect to the requirements of 10 CFR 50.47(b)(12); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.L. In addition, the appraisal team reviewed Sections 10.2 and 10.3 of the EP and Procedure EPP-313 entitled, "Medical Response." The appraisal team toured the first-aid facilities and conducted interviews with representatives of the applicant's radiation protection, fire and medical, and industrial safety staffs.

The appraisal team noted that medical kits were not fully assembled. First-aid supplies were found in the Electrical and Control Building instead of in the Turbine Building as described in the EP. In addition, the appraisal team noted that supplies were not stored in an orderly fashion.

The appraisal team noted that Section 10.3 of the EP stated that an ambulance was available onsite for transporting injured personnel to the appropriate medical facility. However, this ambulance was found to be under the control of the construction contractor who has plans to turn over the ambulance to the applicant before plant licensed operations commence. The appraisal team noted that Hood General Hospital Ambulance Services was the primary ambulance service until the onsite ambulance is available.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Assemble medical kits containing key medical supplies for emergency response personnel who would respond as part of the first-aid team. (445/8943-11; 446/8943-11)

In addition to the above finding, the following matters are considered improvement items:

- Maintain first-aid supplies in an orderly fashion. (445/8943-12; 446/8943-12)

- Review and revise Section 10.2 of the EP to reflect the correct location of the onsite first-aid supply area and that Hood General Hospital Ambulance Service is the interim ambulance service and complete the turnover of the ambulance service. (445/8943-13; 446/8943-13)

4.1.2.3 Decontamination Facilities

The appraisal team reviewed decontamination facilities with respect to the requirements of 10 CFR 50.47 (b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Sections II.J and K. In addition, the appraisal team reviewed Sections 6.9 and 9.3 of the applicant's EP and examined the decontamination facilities located in the Electrical and Control Building and the NOSF, and held discussions with radiation protection personnel cognizant of the decontamination facility.

The appraisal team noted that the decontamination facility was located in the Electrical and Control Building and not in the Turbine Building as stated in the EP. In addition, the appraisal team found that decontamination supplies were not in place, and that the applicant had no requirements for performing an inventory of decontamination supplies.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Provide decontamination supplies in decontamination facilities. (445/8943-14; 446/8943-14)

In addition to the above findings, this portion of the applicant's program appears to be adequate, but the following matter is considered an improvement item:

- Review and revise Section 6.9 of the EP to list the electrical and control building as the location of the decontamination facility in the plant rather than the turbine building. (445/8943-15; 446/8943-15)

4.1.3. Expanded Support Facilities

The appraisal team reviewed expanded support facilities pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H.

The appraisal team noted that the applicant's expanded support facilities consisted of the NOSF and the logistical support center. These facilities normally performed functions that would be expected to be performed in the event of an emergency. Corporate, contractor, and other personnel would be adequately supported with communications and evaluation equipment, such as computers and reference materials. The NOSF housed a complete document library just outside the EOF command center.

Based on the above findings, this portion of the applicant's program appears to be adequate.

4.1.4. News Center, Public Information, and News Media

The appraisal team reviewed the applicant's News Center and the programs to disseminate information to the news media and to the public against the requirements of 10 CFR 50.47(b)(7), Appendix E, paragraph IV.E; and criteria in NUREG-0054, Section II.G.

The appraisal team reviewed Section 6.4 of the EP; reviewed Procedures EPP-207, "Actuation of the News Center and Personal Duties," and CEPP-108, "Release of Emergency Related Information;" interviewed the information coordinator; and inspected the News Center.

The appraisal team noted that Procedure EPP-207 did not establish the principal points of contact for the local news media and the offsite support agencies for the initial dissemination of information to the public. The applicant stated that the procedure in question was to be re-written, based on the recommendations of an INPO audit, and the revised procedure would include specific instructions as to the agencies and media groups to be contacted.

At the time of the appraisal, a news media seminar had not been conducted. The applicant stated that a seminar would be conducted on July 13, 1989, with invitations extended to the local media and the major news services. At this meeting, the applicant would establish the utility points of contact and the physical location where the media can obtain information during an emergency. The appraisal team also noted that media training for the CPSES staff was about 20 percent complete at the time of the appraisal.

Based on the above findings, the following items are identified as significant appraisal findings:

- Revise Procedure EPP-207 to provide specific instructions as to the news media and offsite agencies to be contacted initially for the dissemination of information to the public. (445/8943-16; 446/8943-16)

- Complete the news media seminar providing the news media with the utility points of contact and locations where accident information can be obtained. (445/8943-17; 446/8943-17)

- Complete the training of the CPSES staff on their duties in the News Center and dissemination of information to the public. (445/8943-18; 446/8943-18)

4.2 Emergency Equipment

4.2.1 Assessment Equipment

4.2.1.1 Emergency Kits and Emergency Survey Instruments

The appraisal team reviewed emergency survey kits pursuant to the requirements of 10 CFR 50.47(b)(9); 10 CFR 50, Appendix E, paragraph IV.C; and the criteria of NUREG-0654, Sections II.H and I.

The appraisal team examined equipment and supplies designated for use during facility emergencies. Emergency equipment was found stored in labeled lockers, cabinets, or foot lockers located in or adjacent to the associated ERF. The storage facilities were found as specified in the EP except that Procedure EPP-901, "Maintenance and Inventory of Emergency Equipment and Supplies," Attachment 1 (Monthly Inventory Summary), reflected locations of supplies that were no longer applicable or correctly listed as to location. Specifically, Attachment 1 listed an OSC cabinet on the 825-foot 6-inch level which was no longer used and the EOF kit was listed as a cabinet which has been deleted. EOF supplies were properly stored in the EOF emergency storage room.

The appraisal team performed inventories of the emergency kits, and noted that the CR kit lacked one flashlight. Spare batteries in all kits were not uniformly marked as to "shelf life," and others had no marking. The battery powered, self-reading pocket dosimeter charger located in the CR kit did not reflect a date for installation of the battery.

The appraisal team noted that emergency kits contained ample supplies of potassium iodide (KI) for emergency workers, and manufacturer's instructions were available regarding dosage and cautions associated with usage. The appraisal team determined by interviews with emergency workers that no iodide tolerance testing had been performed for site personnel.

Based on the above findings, the following matters are considered improvement items:

- Include the correct storage locations of emergency kits in procedures. (445/8943-19; 446/8943-19)

- Mark spare batteries with shelf life expiration dates to permit persons performing inventories to readily determine if supplies are adequate. (445/8943-20; 446/8943-20)

- Provide KI tolerance testing for emergency responders. (445/8943-21; 446/8943-21)

4.2.1.2 Emergency Monitoring Systems

The appraisal team reviewed the emergency monitoring systems pursuant to the requirements of 10 CFR 50.47(b)(9); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H.

The appraisal team noted that the DRMS was installed but undergoing repair and testing. Specifically, 16 of 96 channels directly related to emergency response were in various stages of completion. The planned completion date for turnover of a fully tested, operational system was August 1989. All preventive maintenance requirements have been identified and procedures prepared. Not all calibrations had been completed at the time of the appraisal.

The appraisal team confirmed that the displays for the DRMS panels for the various instrument channels had physical units, but the local panel instrument racks did not include physical units on the instrument channels (e.g., panel CPX-ECPRCV-10, "N Vent Stack PIG"). In event of failure of the DRMS display, operators would have to obtain local instrument channel readings, therefore, physical units should be readily apparent on the instrument display.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Complete the installation, testing, and turnover of the DRMS system, and confirm that instrument maintenance and calibration checks are performed in accordance with applicable requirements. (445/8943-22; 446/8943-22)

In addition to the above findings, the following matter is considered an improvement item:

- Assure that proper physical units are available at local instrument channel racks for ARM and PRM read-outs. (445/8943-23; 446/8943-23)

4.2.1.3 Non-Radiation Monitors

The appraisal team reviewed the non-radiation process monitors intended to measure vital parameters of a non-radiological nature (e.g., plant pressures, temperatures, flows, seismic events, etc.) which would be relied upon for accident detection, classification, assessment, and mitigation; pursuant to the requirements of 10 CFR 50.47(b)(9); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.H.

The appraisal team noted that installation of all non-radiation monitors was complete, but operational testing of the seismic monitoring system had not been complete.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Complete the installation, testing, and turnover of non-radiation process monitoring systems. Initiate appropriate preventive maintenance checks on the systems and conduct appropriate training on operation, analysis, and distribution of data obtained from the system. (445/8943-24; 446/8943-24)

4.2.1.4 Meteorological Instrumentation

The appraisal team reviewed meteorological instrumentation pursuant to 10 CFR 50.47(b)(9); 10 CFR 50, Appendix E, paragraph IV.B; Regulatory Guides 1.23, 1.97, and 1.101; and the criteria in NUREG-0737. In addition, the appraisal team reviewed Section 6.13.5 of the applicant's EP and Procedure STA-714, "Meteorological Monitoring Program," and held discussions with the applicant's representative responsible for the meteorological system.

The appraisal team noted that the primary meteorological tower was destroyed in a recent storm and was scheduled to be operational in late July 1989. The new tower is to be constructed in the same location as the old tower.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Complete the construction and installation of the primary meteorological tower and related equipment. (445/8943-25; 446/8943-25)

4.2.2 Protective Equipment

4.2.2.1 Respiratory Protection

The appraisal team reviewed respiratory protection equipment pursuant to the requirements of 10 CFR 50.47(b)(11); 10 CFR 50, Appendix E,

paragraph IV.E; and criteria in NUREG-0654, Section II.H. The appraisal team inspected the SCBAs available in the CR, TSC, and EOF and noted that SCBAs were not available in the OSC, but were located in the adjacent corridor leading to the radiologically controlled areas. Each facility was provided with a large number of full-face respirators with particulate and iodine cartridges. The applicant had a large number of spare SCBA bottles, and had multiple capabilities for filling SCBA bottles. The appraisal team examined a spare bottle at a storage location on the open turbine deck and noted that no dust cap/thread protector devices were installed. Without protection, the threads could be damaged, and residue could collect in the air nozzles.

Based on the above findings, the following matter is considered an improvement item:

- Install protective dust caps/thread protectors on spare SCBA bottles. (445/8943-26; 446/8943-26)

4.2.2.2 Protective Clothing

The appraisal team reviewed protective clothing supplies pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H and J.

The appraisal team observed the stores of protective clothing and determined that the protective clothing would be accessible, under emergency conditions, to persons assigned to the facilities, and that protective clothing supplies were adequate and ready for use.

Based on the above findings, this portion of the applicant's program appears to be adequate.

4.2.3 Communications

The appraisal team reviewed the emergency communication systems pursuant to the requirements of 10 CFR 50.47(b)(6); 10 CFR 50, Appendix E, paragraph IV.E; and criteria given in NUREG-0654, Section II.H and J.

The appraisal team reviewed the applicant's communication systems and the instructions for use as described in Procedure EPP-202, "Emergency Communications." All communication systems were in place and operable. Monthly communication tests specified by Procedure EPP-901, "Maintenance and Inventory of Emergency Equipment and Supplies," had not been initiated. Paragraph 2.0 of the procedure stated that the procedure would not be implemented until 90 days before receipt of an operating license. The applicant completed a check during the period of the appraisal. No problems were identified.

The appraisal team noted that paragraph 4.3.5 of Procedure EPP-901, "Special Telephone Circuits," did not include the Point-to-Point telephones located in the CR, TSC, OSC, Alternate OSC, EOF, and OSC; therefore, these circuits would not be scheduled for testing. The Point-to-Point telephones were listed as emergency telephones in EPP-202, "Emergency Communications."

The appraisal team noted that the applicant's Gaitronics system used for plant announcing, paging, and alarms was installed and operable except for the Unit 2 Gaitronics. The appraisal team determined that no periodic testing of the plant alarms was being conducted. The applicant stated that preventive maintenance had been established for the system, but testing had not been performed.

The appraisal team noted that the applicant had increased the number of available channels on FM portable radios to a number that permitted first-aid, operations, and offsite survey teams to operate on independent channels. However, the addition of channels was accompanied by the disadvantage that the TSC, responsible for dose assessment until relieved by EOF, was unable to monitor the results of field surveys by off-site monitoring teams. Results had to be passed through the OSC since only the OSC and the EOF have the proper frequency for communicating with offsite teams.

Based on the above findings, the following matter is considered an improvement item:

- Initiate periodic testing as appropriate for all emergency communication systems; review and revise procedures to require periodic testing of all emergency communication systems; and increase the FM radio capability at the TSC to permit monitoring of emergency channels. (445/8943-27; 446/8943-27)

4.2.4 Damage Control/Corrective Action

The appraisal team reviewed procedures, maintenance equipment, and supplies pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H.

The appraisal team determined that Procedure EPP-116, "Emergency Repair and Damage Control," was the governing procedure for initiating and implementing emergency repair functions. Issues such as team composition, planning, equipping, routing, and authorization were adequately covered by the procedure. Identification of special equipment was addressed in the planning phase, with ready availability of tools in the tool crib of the Maintenance Building.

Based on the above findings, this portion of the applicant's program appears to be adequate.

4.2.5 Reserve Emergency Supplies and Equipment

The appraisal team reviewed reserve emergency supplies and equipment pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H.

The appraisal team interviewed site personnel and determined that adequate stocks and supplies of emergency equipment were maintained at the warehouse and in-plant locations to support a prolonged emergency response.

Based on the above findings, this portion of the applicant's program appears to be adequate.

4.2.6 Transportation

The appraisal team reviewed the transportation equipment available for emergency response pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.H.

The appraisal team determined that Procedure EPP-108, "Control of Designated Emergency Use Vehicles used for Routine Operations," was the controlling procedure for three designated emergency vehicles. The appraisal team examined the four wheel drive vehicles and their emergency kits and equipment, including two-way transceivers, and concluded that the vehicles were readily available for their intended use and could readily accomplish their function.

Based on the above findings, this portion of the applicant's program appears to be adequate.

5.0 EMERGENCY IMPLEMENTING PROCEDURES

5.1 General Content and Format

The appraisal team reviewed the general content and format of EPPs pursuant to the requirements of 10 CFR 50.47(b)(5) and (6); 10 CFR 50, Appendix E, paragraph IV.D; and criteria in NUREG-0654, Section II.E, F, H, and J.

The appraisal team noted that all EPPs conformed to a standard format that specified purpose, applicability, definitions, references, procedural steps, and attachments and checklists.

The appraisal team identified the following discrepancies in the procedures:

a. Procedure EPP-112, "Duties of CR Personnel During Emergencies," paragraph 4.2.2, "Shift Technical Advisor," assigned the STA secondary duties of performing dose assessment calculations. This

assignment of the STA to dose calculations was not consistent with the guidance of NUREG-0737, Appendix C. An alternate staff member should be trained to perform dose assessment functions to permit the STA uninterrupted ability to monitor plant critical safety functions, evaluate and analyze plant transient response, and perform accident mitigation and other matters related to operational safety. (See Section 2 of this report.)

b. Procedure EPP-204, "Activation and Operation of the Technical Support Center (TSC)," addressed the subject of core damage assessment with a note that required laboratory analysis of plant vent iodine and particulate samples to be reported to the CR within 1 hour of sampling, and post-accident sampling system (PASS) results to be completed within 3 hours of the time the decision was made to obtain the sample. The appraisal team determined that it was appropriate to establish goals for performing analysis. However, writing the procedure in a fashion that required an activity to be performed that may be impossible to achieve was not deemed appropriate.

Procedure EPP-206, "Activation and Operation of the Emergency Operations Facility (EOF)," contained the following discrepancies:

a. Action statements for the emergency staff, related to relocating the EOF, were either inaccurate or incomplete. For example, Table 4.3.6 directed the offsite radiological assessment coordinator to report to the TSC onsite radiological assessment coordinator (ONRAC) to assist with dose assessment responsibilities. Due to limited TSC physical size and probable radiological conditions, it was noted as highly unlikely that any additional persons could be transported to or accommodated in the TSC under accident conditions that required relocation of the EOF.

b. The appraisal team noted that after the activation of EOF, the radiological assessment manager (RAM) and the EOF manager (EOFM) will perform dose assessment and decisionmaking pertaining to PARs in accordance with the guidance of NUREG-0737, Supplement 1, Table 1. However, in the event the EOF became uninhabitable, the EOFM would go to the alternate EOF and the RAM to the TSC. This is contrary to the guidance of NUREG-0737, Supplement 1.

   In addition, the applicant did not provide instructions for performing the functions of the EOFM and the RAM while they are in transit from the EOF to the alternate EOF and to the TSC.

c. Some persons were not directed to report to any location upon relocation of the EOF, e.g., the EOF communications coordinator (Table 4.3.13).

Procedure EPP-901, "Maintenance and Inventory of Emergency Equipment and Supplies," included Attachment 2, "Verification of Operability of

Designated Emergency Equipment." This attachment was intended as an equipment guide list; however, the equipment was not specified.

Several informal documents were used to implement required functions in the TSC, such as a communications workbook, operational instructions for the radio, and an engineering workbook contained appendices and tables containing capacities, curves, and other plant information. The color coded EAL classification flow charts in the ERFs were not annotated as to title, revision, or source. The above examples were uncontrolled documents that could contain erroneous information. The appraisal team determined that operational instructions should be included in the applicable procedures and that design information should be verified correct and then controlled. Job aids, such as EAL classification schemes, should be marked with the latest revision/date and compared to controlled document inventory lists before use.

The plant specific emergency operating procedures (EOPs) were contained in binders entitled "Emergency Response Guidelines," which were noted to be the title of generic vendor guidelines from which the plant specific EOPs were derived. The binders should use correct titles to be readily identifiable.

Based on the above findings, the following items are identified as significant appraisal findings:

- Complete the review and revision of the EAL/Emergency Classification procedure. (445/8943-28; 446/8943-28)

- Revise procedures to assign a staff member other than the STA to perform dose assessment functions until the CR is relieved of the function by the TSC. (445/8943-29; 446/8943-29) (See also 445/8943-02; 446/8943-02.)

In addition to the above findings, the following matter is considered an improvement item:

- Review and revise emergency procedures to correct errors and discrepancies. (445/8943-30; 446/8943-30)

5.2 Emergency, Alarm, and Abnormal Condition Procedures

The appraisal team reviewed the alarm response procedures (ALPs), the abnormal condition procedures (ABNs), and the emergency response guidelines pursuant to the requirements of 10 CFR 50.47(6) and (8); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.H.

The appraisal team noted that the ALPs did not refer to the EP or EP procedures.

Some of the ABNs that would be entered in response to conditions requiring activation of the EP, had no specific reference to the EP or an EP procedure. The ABNs reviewed were:

1. ABN-103A, "High Reactor Coolant Activity"

2. ABN-803A, "Response to a Fire in the Control Room or Cable Spreading Room"

3. ABN-804A, "Response to Fire in the Safeguards Building"

4. ABN-805A, "Response to Fire in the Auxiliary Building or the Fuel Building"

5. ABN-806A, "Response to Fire in the Electrical and Control Building"

6. ABN-807A, "Response to Fire in the Containment Building"

7. ABN-808A, "Response to Fire in the Service Water Intake Structure"

8. ABN-809A, "Response to Fire in the Turbine Building"

Based on the above findings, the following matters are considered improvement items:

- Review the ALPs and include appropriate references to Procedure EPP-201. (445/8943-31; 446/8943-31)

- Correct inconsistencies in referencing the EP in abnormal condition procedures. (445/8943-32; 446/8943-32)

5.3 Implementing Instructions

The appraisal team reviewed implementing instructions pursuant to the requirements of 10 CFR 50.47(b)(5) and (6); 10 CFR 50, Appendix E, paragraph IV.D; and criteria in NUREG-0654, Sections II.E, F, H, and J.

The appraisal team reviewed implementing instructions to determine if they adequately implemented the provisions of the EP; provided the EC with an adequate scope of authority and non-delegable responsibilities; provided EALs based on observable information with required response actions; and directed the implementation of specific procedures required for effective overall emergency response.

The appraisal team reviewed the applicant's procedure for formulating and providing PARs with respect to the guidance of IE Information Notice 83-28 and NUREG-0654. Procedure EPP-304 was reviewed for content, format, and the method for formulating and communicating PARs during severe accidents.

The appraisal team noted that Procedure EPP-304 did not incorporate the guidance provided in IE Information Notice 83-28 because the procedure failed to provide adequate instructions for developing PARs based on operational assessment of plant conditions, that is, PARs based on the precursors of a release, such as reactor core and reactor building containment conditions. All PARs which were developed using EPP-304, except baseline PARs, were based primarily on dose assessments, either actual or projected. Further, Procedure EPP-304 did not include a decisionmaking flow chart to facilitate decisionmaking similar to that shown in IE Information Notice 83-28.

The appraisal team also noted that Procedure EPP-304 included unnecessary considerations for developing and communicating PARs that could result in unnecessary delays. Information used by offsite agencies to implement corrective actions such as weather conditions, population distributions, special facilities like nursing homes, hospital, prison, and offsite evacuation routes were included in the applicant's process for recommending protective actions.

In addition, the appraisal team noted that Procedure EPP-304 required that decisionmakers review PARs with the Texas Department of Health before recommending PARs to local officials, which further compromises the applicant's ability to recommend protective actions within 15 minutes.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Revise Procedure EPP-304 to add guidance for developing offsite PARs based on operational assessment of plant conditions. Incorporate, in Procedure EPP-304, a decisionmaking aid such as the "logic tree" shown in IE Information Notice 83-28, Figure 1, "Flow Chart for General Emergency Offsite Protective Decisions." Delete, from Procedure EPP-304, those considerations (such as weather, special facilities, and population distributions) that are not germane to effectively developing and recommending a protective action. Revise Procedure EPP-304 to eliminate the need to discuss PARs with the state or counties until after the PARs are made to offsite agencies. (445/8943-33; 446/8943-33)

5.4 Implementing Procedures

5.4.1 Notifications

The appraisal team reviewed notification procedures with respect to the requirements of 10 CFR 50.47(b)(5); 10 CFR 50, Appendix E, paragraph IV.D; and NUREG-0654, Sections II.E and F.

The appraisal team reviewed Procedures EPP-202, "Emergency Communications," and EPP-203, "Notifications," for adequate implementation of EP requirements; correlation of notification

requirements with EALs; adequacy of instructions regarding message content and equipment use; for provisions for required phone numbers; and reference to an authentication scheme for initial notifications to offsite authorities.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.2 Assessment Actions

5.4.2.1 Dose Assessment

The appraisal team reviewed dose assessment procedures against the requirements in 10 CFR 50.47(b)(9); 10 CFR 50, Appendix E, paragraph IV.B; NUREG-0654, Section II.I; and Supplement 1 to NUREG-0737.

The appraisal team reviewed Section 7.0 of the applicant's EP; Procedures EPP-206, "Activation and Operation of the EOF," EPP-300, "Manual Calculation of Offsite Dose Rates," EPP-303, "Micro-Computer Based Emergency Dose Assessment," and EPP-304, "Protective Action Guides;" and the documentation of the applicant's dose assessment system. In addition, the appraisal team conducted interviews with key personnel who would have dose assessment responsibility during an emergency.

The appraisal team noted that the applicant's dose assessment model used a straight-line Gaussian atmospheric dispersion model which will not account for wind shifts nor calculate cumulative doses at downwind locations. Current state-of-the-art dose assessment models in the nuclear industry have segmented-plume atmospheric dispersion models which account for wind shifts and provide the basis for calculating cumulative doses and doses resulting from ground deposition.

The appraisal team noted that an audit performed by the applicant revealed that the normalized dispersion parameters (Xu/Q) used in EDAM were not documented. The appraisal team noted that the vendor provided revised Xu/Q to the applicant, but that these values still need to be formally documented and included in dose assessment Procedures EPP-300 and EPP-303.

The radiation protection coordinator and the offsite radiological assessment coordinator have a responsibility to calculate population dose as defined in Procedure EPP-206. Interviews with emergency response personnel, who would fill these positions in an emergency, showed that personnel were not cognizant of the methodology to calculate population doses.

The appraisal team noted that Procedure EPP-206 references Procedure RPI-304, "Population Dose Assessment," which is no longer

an active procedure for calculating population dose. Since the applicant no longer has the capability to calculate population dose and there is no requirement for performing population dose early in an accident, the applicant should consider deleting this function from Procedure EPP-206.

The appraisal team compared the units on the DRMS with those that would be inputted to the EDAM computer program, and noted that the containment high range area monitor (CTE-116) read in counts per minute on the RM-11 while EDAM required the input in mR/h. Moreover, the containment high range area Monitor-Train B was listed as CTW-117 on the RM-11 and CTE-117 in Procedures EPP-300 and EPP-303.

Based on the above findings, the following matters are considered improvement items:

- Enhance the emergency dose assessment program with a segmented plume atmospheric dispersion model that will take wind shifts into account. (445/8943-34; 446/8943-34)

- Complete the documentation of the Xu/Q values using the dose assessment model and document these values into procedures. (445/8943-35; 446/8943-35)

- Delete the reference to the calculation of total population dose from Procedure EPP-206. (445/8943-36; 446/8943-36)

- Ensure that units on the DRMS monitors used for dose assessment calculations are consistent with those in the RM-11 system, and the dose assessment model. (445/8943-37; 446/8943-37)

5.4.2.2 Offsite Radiological Surveys

The appraisal team reviewed offsite radiological survey procedures pursuant to the requirements of 10 CFR 50.47(b)(8) and (9); 10 CFR 50, Appendix E, paragraphs IV.B and E; and criteria in NUREG-0654, Sections II.H, I, and K. In addition, the appraisal team reviewed Sections 6.13.11, 7.3.2, and Appendix J and H of the EP and EPP-309, "Offsite Radiological Monitoring." Discussions were also held with applicant's emergency planning staff cognizant of offsite radiological monitoring.

The appraisal team noted several areas where plan and procedural improvements could be made. Section 7.3.2 of the EP incorrectly states that the TSC is in communications with the offsite monitoring teams. Procedure EPP-309, Section 4.4.7.1 states that samples returned to the NOSF from the field shall be logged in by the offsite monitoring personnel on Form EPP-109-1. A review of Form EPP-109-1 showed it to be an emergency organization activities log sheet which does not appear to be adequate for logging in samples from the field.

The appraisal team conducted a walk-through with an offsite monitoring team (see Section 4.2.6) and noted that samples collected in the field would sometimes be transported back to the NOSF via a runner; however, nowhere in Procedure EPP-309 was there any discussion of the use of a runner.

The laboratory in the NOSF has the capability of performing more detailed analyses of environmental samples brought back from the field using the NaI detector counting system (see Section 4.1.1.5). No procedures exist for routine maintenance and operability checks on this system. In addition, there are no procedures for use of the system during an emergency which would include information such as handling, preparation, and counting of the samples, recording of sample results, and disposition of samples when sampling is complete.

Based on the above findings, the following matters are considered improvement items:

- Revise Section 7.3.2 of the EP to indicate the actual communication link between emergency facilities and the offsite monitoring teams. (445/8943-38; 446/8943-38)

- Develop a procedure for the routine maintenance and operability check on the NaI detector system, and describe counting procedures for environmental samples and the activation of the counting laboratory. (445/8943-39; 446/8943-39)

5.4.2.3 Onsite Out-of-Plant Radiological Surveys

The appraisal team reviewed onsite (out-of-plant) survey procedures pursuant to the requirements of 10 CFR 50.47(b)(8) and (11); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.K. In addition, the appraisal team reviewed Sections 7.3, 7.3.1, and 8.3 of the EP; Procedure EPP-310, "Onsite and In-Plant Radiological Surveys;" and Procedure EPP-316, "Emergency Repair and Damage Control." Interviews were held with cognizant members of the radiation protection staff.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.2.4 In-Plant Radiological Surveys

The appraisal team reviewed in-plant survey procedures pursuant to the requirements of 10 CFR 50.47(b)(8) and (11); 10 CFR 50, Appendix E, paragraph IV.E; and criteria in NUREG-0654, Section II.K. In addition, the appraisal team reviewed Sections 7.3, 7.3.1, and 8.3 of the EP; Procedures EPP-310, "Onsite and In-Plant Radiological Surveys," and EPP-316, "Emergency Repair and Damage Control," and

interviewed radiation protection technicians and radiation protection supervisors having emergency response duties.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.2.5 Radiological and Environmental Monitoring Program

The appraisal team reviewed the environmental monitoring program pursuant to the requirements of 10 CFR 50.47(b)(8), (9), and (11); 10 CFR 50, Appendix E, paragraphs IV.B and E; and criteria in NUREG-0654, Sections II.H, I, and K. In addition, the appraisal team reviewed Sections 6.13.11, 7.3.2, and Appendix J and H of the EP and Procedure EPP-309, "Offsite Radiological Monitoring," and held discussions with the emergency planning staff cognizant of offsite radiological monitoring.

The appraisal team noted that the map in Attachment 1 to Procedure EPP-309, showing the locations of environmental TLDs, was not legible, and additional training of radiation protection technicians may be necessary to assist them in finding TLD locations.

Based on the above findings, the following matter is considered an improvement item:

- Provide legible maps showing environmental TLD locations in Procedure EPP-309 including specific descriptions on how to reach these locations. (445/8943-40; 446/8943-40)

5.4.3 Protective Actions

5.4.3.1 Radiation Protection During an Emergency

The appraisal team reviewed the radiation protection program for emergencies pursuant to the requirements of 10 CFR 50.47(b)(11); 10 CFR 50, Appendix E, paragraph IV.A; and criteria in NUREG-0654, Section II.K. In addition, the appraisal team reviewed Sections 9.0, 9.1, 9.2, and 9.3 of the EP, Procedures EPP-305, "Emergency Exposure Guidelines and Personnel Dosimetry," and EPP-306, "Use of Thyroid Blocking Agents," and held interviews with radiation protection personnel.

The appraisal team noted that Procedure EPP-305 instructed the staff to issue TLDs in the EOF to document personnel exposure, and gave the EOF radiation protection coordinator the responsibility to issue TLDs under specific emergency conditions, rather than the routine issuance of TLD upon the arrival of each person at the EOF.

Based on the above findings, the following matter is considered an improvement item:

- Consider issuing dosimetry to personnel as they enter the EOF. (445/8943-41; 446/8943-41)

5.4.3.2 Evacuation of the Owner-Controlled Area

The appraisal team reviewed the applicant's plans for personnel evacuation of the OCA pursuant to the requirements of 10 CFR 50.47(b)(10) and criteria contained in NUREG-0654, Section II.J. In addition, the NRC team reviewed the EP, Section 8.0, and Procedure EPP-314.

The appraisal team noted that the applicant had a method to promptly initiate the evacuation of the exclusion area upon initiation of an evacuation order. The method used staged evacuation in three phases: building evacuation within the PA, evacuation of non-essential personnel to assembly areas located adjacent to the PA access control points, and evacuation of all non-essential personnel from the OCA. The applicant designates the OCA as the "exclusion area." The appraisal team noted that the applicant had not tested its ability to evacuate the OCA in a timely manner.

The appraisal team noted that Procedure EPP-314, " Evacuation and Accountability," provided for a "sweep" of the OCA within 2 hours. However, this procedure did not include the search of approximately 300 buildings in the OCA which are routinely occupied during working hours. The appraisal team noted that the method used by the applicant to conduct the "sweep" of these buildings consisted of security vehicles driving through the areas with a voice amplifier announcing a warning to personnel to evacuate.

The appraisal team noted that under certain accident scenarios and due to the prevalent wind direction on the site, a large number of buildings and personnel in the OCA could be exposed to the radioactive plume.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Demonstrate that the evacuation of the OCA, including all buildings, can be accomplished in a thorough and timely manner. (445/8943-42; 446/8943-42)

5.4.3.3 Personnel Accountability

The appraisal team reviewed personnel accountability capabilities pursuant to the requirements of 10 CFR 50.47(b)(10) and the criteria

in NUREG-0654, Section II.J. In addition, the appraisal team reviewed Procedure EPP-314, inspected access control points, equipment, and held discussions with security and emergency preparedness personnel.

The appraisal team noted that the applicant had not yet demonstrated the capability to perform personnel accountability of all personnel in the PA within 30 minutes.

Based on the above findings, the following item is identified as a significant appraisal finding:

- Demonstrate the capability of performing personnel accountability of all personnel within the PA within 30 minutes. (445/8943-43; 446/8943-43)

5.4.3.4 Personnel Monitoring and Decontamination

The appraisal team reviewed the personnel monitoring and decontamination program pursuant to the requirements of 10 CFR 50.47(b)(11); 10 CFR 50, Appendix E, paragraph IV.A; and the criteria in NUREG-0654, Sections II.J and K. In addition, the appraisal team reviewed Section 8.3 of the applicant's EP; Procedures EPP-313, "Medical Response," RPI-402, "Personnel Decontamination," EPP-307, "Radiological Monitoring of Site Evacuees," and RPI-108, "Skin Contamination Worksheet;" and conducted interviews with the radiation protection staff responsible for this program.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.3.5 Onsite First-Aid/Rescue

The appraisal team reviewed onsite the first-aid/rescue program with respect to the requirements of 10 CFR 50.47(b)(12); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.L. The appraisal team reviewed Section 10.2 and 10.3 of the EP and Procedures EPP-308, "Transporting Contaminated, Injured Personnel;" EPP-205, "Activation and Operation of the Operations Support Center;" and EPP-313, "Medical Response." In addition, the appraisal team interviewed representatives of the applicant radiation protection staff, fire and medical staff, and industrial safety staff.

The appraisal team noted that the applicant was in the process of replacing first-aid team members with emergency medical technicians (EMTs). Discussion with applicant's representatives revealed that there would be a minimum of five EMTs available on any shift. Procedure EPP-313 did not specify the use of EMTs as first-aid team members.

Based on the above findings, the following matter is considered an improvement item:

- Review and revise Procedure EPP-313 to sperify the use of EMTs as first-aid team members. (445/8943-44; 446/8943-44)

5.4.4 Security During Emergencies

The appraisal team reviewed security during emergencies pursuant to the requirements of 10 CFR 73, Appendix C. In addition, the appraisal team reviewed the applicant's security contingency plan and procedures, inspected security facilities, and held interviews with selected members of the security organization.

The appraisers confirmed that there were an adequate number of security officers to implement the security contingency plan and to perform security tasks pertaining to emergency response. The appraisers also noted that the security officers were aware of their responsibilities during emergencies.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.5 Repair/Corrective Actions

The appraisal team reviewed the repair and corrective actions program with respect to the requirements of 10 CFR 50.47(b)(13); 10 CFR 50, Appendix E, paragraph IV.H; and the criteria in NUREG-0654, Section II.K. In addition, the appraisal team reviewed Procedure EPP-116, "Emergency Repair and Damage Control," for the logistics involved in repair operations, the identification of a team leader, and the presence of instructions to assure adequate radiological and technical briefings of emergency repair personnel.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.4.6 Recovery Phase

The appraisal team reviewed recovery phase planning with respect to the requirements of 10 CFR 50.47(b)(13); 10 CFR 50, Appendix E, paragraph IV.H; and the criteria in NUREG-0654, Section II.M. In addition, the appraisal team reviewed Procedure EPP-121, "Reentry, Recovery and Closeout," for identification of key positions in the recovery organization; the delineation of organizational authority for entering the recovery phase; and provisions for evaluating plant conditions as well as radiological conditions when deciding if the recovery phase is appropriate.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.5 Supplementary Procedures

5.5.1 Inventory, Operational Checks, and Calibration of Emergency Equipment

The appraisal team reviewed inventory, operational checks, and calibration procedures pursuant to the requirements of 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E, paragraph IV.E; and the criteria in NUREG-0654, Section II.H. In addition, the appraisal team reviewed inventory and maintenance procedures applicable to emergency equipment.

The appraisal team noted that inventories, calibration, and performance testing had been adequately performed on a timely basis; test results had been properly documented; and clear lines of responsibilities were in place.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.5.2 Drills and Exercises

The appraisal team reviewed the applicant's drills and exercise program with respect to the requirements of 10 CFR 50, Appendix E, paragraph IV.F and the criteria contained in NUREG-0654, Planning Standard N.

The appraisal team reviewed selected drill and exercise files; observer and participant comments; the management controls for assigning responsibility for tracking and correcting findings identified in the drills and exercises; and the provisions for conducting communications, medical, radiological monitoring, and health physics drills.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.5.3 Review, Revision, and Distribution

The appraisal team reviewed the applicant's methods for performing the review, revision, and distribution of the EP and EPPs pursuant to the requirements of 10 CFR 50.47(b)(16); 10 CFR 50.54(q) and (t); 10 CFR 50, Appendix E, paragraph IV.G and V; and the criteria in NUREG-0654, Section II.P.

The appraisal team noted that the EPM was responsible for verifying that all emergency response telephone numbers were correct on a quarterly basis and revising the emergency response organization roster as necessary. The team noted that the telephone directory had the latest date of its review and revision on the cover. The rate of change of numbers showed that the document was undergoing revision approximately monthly. Checks of several telephone numbers verified that the sampled numbers were correct.

In addition, the appraisal team noted that periodic revisions to the emergency procedures were initiated based upon changes in the program; that program users could readily initiate recommendations for changes; and controlled documents contained properly revised and updated procedures.

Based on the above review, this portion of the applicant's program appears to be adequate.

5.5.4 Audits of Emergency Preparedness

The appraisal team reviewed the applicant's audit program of emergency preparedness against the requirements of 10 CFR 50.54(q) and (t) and criteria in NUREG-0654, Section II.P.9. In addition, the appraisal team reviewed Revision 2 of Procedures NQA 3.07, "Quality Assurance Audit Program," and CHP-2.03, "Emergency Preparedness Program Review," and held discussions with audit program personnel.

The appraisal team noted that the applicant had conducted two independent audits of the emergency preparedness program prior to the appraisal. One of the audits was performed by a contractor and the other by their corporate quality assurance audit staff. The appraisal team noted that both audits had been performed within the last 12 months preceding the appraisal; the audits were comprehensive; and identified a number of significant areas that needed improvement. In addition, the appraisal team determined that the applicant had a system in place to follow up on corrective actions related to each finding identified by the auditors.

Based on the above review, this portion of the applicant's program appears to be adequate.

6.0 COORDINATION WITH OFFSITE GROUPS

The applicant's contacts and coordination with the offsite support agencies were reviewed pursuant to the requirements of 10 CFR 50.47(b)(3) and criteria in NUREG-0654, Sections II.A, B, E, and L.

The appraisal team reviewed Sections 5.0, 5.1, and 5.2 of the applicant's EP and Procedure TRA-105, "Emergency Preparedness Training." In addition, the team interviewed the applicant's Public Information Coordinator and selected representatives of offsite agencies. These contacts verified that the applicant had contacted the responsible offsite agencies for the purpose of providing training and conducting drills. Further, these contacts indicated that they had copies of the applicant's EP and procedures, and understood their responsibilities during a CPSES emergency. The training records reviewed indicated that a significant amount of training had been conducted in the past 6 months on topics appropriate to the response of each agency. The applicant stated that original records of training are forwarded to the state of Texas for their review and determination of adequacy. The appraisal team was unable to determine which offsite agencies needed to be trained, the subjects to train on, and the status of completion.

The appraisal team also reviewed Letters of Agreement with the offsite support agencies. Although 17 letters were on file, some were not current and needed to be updated.

The appraisal team noted that a current emergency information brochure had been provided to persons within the 10-mile EPZ and posters to inform transients were posted at public and business locations.

Based on the above findings, the following matters are considered improvement items:

- Update the Letters of Agreement with the offsite support agencies. (445/8943-45; 446/8943-45)

- Prepare a matrix that would indicate what offsite agencies are to be trained, the subject to be trained on, and the status of completion. (445/8943-46; 446/8943-46)

7.0 DRILLS, EXERCISES, AND WALK-THROUGHS

7.1 Walk-Throughs Observations

The appraisal team performed walk-throughs to evaluate the performance of selected teams of the emergency response organization with respect to recognizing EAL entry conditions (emergency detection), correlating entry conditions with the appropriate action level (classification), notifying offsite agencies and emergency responders (notification), and formulating PARs for consideration by offsite agencies.

The appraisal team conducted walk-throughs based on prepared scenarios of postulated events. Personnel evaluated were given information such as plant alarms, reports of hypothetical events, and changes in key parameters to simulate events. When decisions required information that would normally be available, the information was provided by the appraisal team.

The appraisal team designed scenarios for the operating teams in order to test the ECs ability to respond to "fast breaking" severe accidents conditions requiring initial classification, escalation, and recommendation of protective actions. Additionally, scenarios provided events requiring dose assessment and notification from the CR as well as the use of EOPs for event mitigation. Scenarios began with normal conditions and degraded to accident conditions requiring emergency classification. The walk-throughs were conducted in the CR and operating teams were allowed access to procedures and equipment.

The format used for the walk-throughs was that of a "table-top" discussion except that procedures, checklists, and notification forms were actually used.

7.1.1 Emergency Detection

The appraisal team communicated degrading plant conditions to the CR operating team by orally identifying alarms and changes in pertinent parameters; the operators were expected to then use appropriate procedures and to simulate performing required actions.

Based on the above review, this portion of the applicant's program appears to be adequate.

7.1.2 Emergency Classification

The appraisal team postulated a fire in the "A" train diesel generator as the event requiring shift supervisors (SSs) to activate the EP. Three of four crews classified the emergency correctly as an alert; one crew over-classified the event as a site area emergency. Although all classifications were made in a timely manner, some minor problems were observed during use of the "fire" EAL. Uncertainty existed regarding whether the diesel fire must meet the notification of unusual event criterion by burning for more than 10 minutes before it could be considered a fire potentially affecting safety systems. Additionally, one SS failed to discriminate between a fire affecting a safety system and a fire causing the loss of a safety function.

The appraisal team noted that all escalations performed by the CR crew, the TSC group, and the EOF group were correct in accordance with Procedure EPP-201 and were issued within 15 minutes of receiving the initiating conditions.

Based on the above findings, the following matter is considered an improvement item:

- Review the materials for EAL training and revise, as necessary, to ensure that CR decisionmaking personnel fully understand the application of the "fire" EAL. (445/8943-47; 446/8943-47)

7.1.3 Notification

The appraisal team expected the SS to assign communicators and authorize notification messages. The communicators were instructed to simulate required notifications. In the TSC and EOF, the procedures, special considerations, and personnel assignments for notifying offsite agencies were discussed, and the notification forms were filled out.

Based on the above review, this portion of the applicant's program appears to be adequate.

7.1.4 Dose Calculations

The appraisal team noted that the STA performed dose calculations based on data provided by the appraisal team in accordance with Procedure EPP-303, "Micro-Computer Based, Emergency Dose Assessment."

The appraisal team noted that during scenarios that resulted in a large source term in containment but no release, the STAs used containment design leak rate for performing dose projections, even through plant conditions implied an eventual containment failure due to overpressure. (See Section 5.3 of this report, "Implementing Instructions" and 7.2.11, "Protective Action Decisionmaking.")

The appraisal team conducted walk-throughs with three computer operators (two in the EOF and one in the TSC) who were responsible for performing the dose calculations during an emergency. Based on the walk-throughs, the training received appeared to be adequate in this area, however, the procedure was found not to include default release rates.

Based on the above findings, the following matter is considered an improvement item:

- Revise Procedure EPP-303 to include instructions for using a default release rate based on the most likely containment failure mode. (445/8943-48; 446/8943-48)

7.1.5 Protective Action Decisionmaking

The appraisal team used two types of scenarios: one resulting in a general emergency with core damage and a radiological release. Another scenario resulted in a general emergency with buildup of a large source term in containment, no release in progress, and degrading plant conditions that were precursors to a probable radiological release.

The appraisal team noted that the PARs developed, based on dose projections associated with a potential release, were correct and baseline PARs were used appropriately for initial recommendations; however, PARs based on core and containment conditions were not incorporated in the decisionmaking process. (See 5.3, "Implementing Instructions.")

Based on the above findings, the following item is identified as a significant appraisal finding:

- Modify training materials to incorporate PARs based on core and containment conditions and retrain all personnel having responsibilities to formulate PARs. (445/8943-49; 446/8943-49)

7.1.6 Offsite, Onsite, and In-Plant Radiological Monitoring

The appraisal team performed a walk-through for one offsite radiological monitoring team. Activities observed during the walk-through included assembly of the team, equipment and supplies, plume monitoring techniques, air sampling and analysis methods, environmental sampling procedures, and recordkeeping. Performance of the team was adequate.

Based on the above review, this portion of the applicant's program appears to be adequate.

8.0 EXIT MEETING

At the conclusion of the appraisal, the appraisers reviewed the findings identified in this report and the applicant agreed to take corrective actions. The applicant did not identify as proprietary any of the materials provided to or reviewed by the appraisers during the appraisal.

9.0 PERSONS CONTACTED

L. Barnes, Operations Coordinator
D. Basinger, Balance of Plant Operator
T. Beaudin, Shift Supervisor
R. Beleckis, Senior Emergency Planner
M. Blevins, TSC Manager
T. Carden, Staff Emergency Planner
W. Carden, Radiation Protection Technician
D. Carlson, Auxiliary Operator
B. Clark, Shift Technical Advisor
T. Clouser, Balance of Plant Operator
V. Cornell, Licensing Engineer
C. Cotton, Assistant Shift Supervisor
D. Curry, Balance of Plant Operator
J. Curtis, Radiation Protection Supervisor
S. Cyphen, Auxiliary Operator
T. Daskam, Shift Supervisor
P. Daugherty, Auxiliary Operator
D. Davis, Engineering Team Coordinator
K. Davis, Assistant Shift Supervisor
N. Eggenmayer, Assistant Shift Supervisor
R. Fishencord, Radiation Protection Supervisor - Rad Waste
E. Floyd, Radiation Protection Technician
R. Garces, Health Physics Technician
D. Goodwin, Shift Technical Advisor
B. Grace, Radiation Protection Coordinator
N. Harris, Senior Quality Assurance Technician
S. Harvey, Shift Supervisor
W. Hise, Industrial Safety Supervisor
T. Jenkins, Engineering Support Coordinator
S. Johnson, Results Systems Engineer
J. Kelly, TSC Manager
M. Kertz, Reactor Operator
W. Knowles, Radiation Protection Technician
J. Laughlin, Emergency Coordinator Advisor
M. Lucas, Electrical Engineering Supervisor
J. Luna, Radiation Protection Technician
C. Mansfield, Staff Health Physicist
R. McCamey, Staff Chemist
J. McInvale, Shift Technical Advisor
J. McMahon, Communications Coordinator
L. Meller, Auxiliary Operator
W. Melton, Emergency Coordinator Advisor
M. Mitchum, I & C Supervisor
D. Moore, Operations Coordinator
R. Muncy, Auxiliary Operator
L. Nace, EOF Manager
M. Niemeyer, Communications Coordinator
W. Nix, Senior Emergency Planner

G. Nuchow, Reactor Operator
P. Olson, Auxiliary Operator
L. Pope, TSC Advisor
A. Redlow, Radiation Protection Supervisor
A. Reiff, Radiation Protection Training Coordinator
C. Rickgauer, Engineering Team Coordinator
T. Robinson, Emergency Preparedness Specialist
D. Ross, Reactor Operator
T. Rucker, Balance of Plant Operator
J. Salsman, Site Emergency Planning Coordinator
B. Scanlon, TSC Advisor
E. Schmidt, Radiation Protection Manager
E. Sirois, Senior Engineer
R. Smith, Shift Technical Advisor
M. Smith, Shift Supervisor
B. Smith, Assitant Shift Supervisor
T. Spalding, Staff Chemist
M. Stakes, Staff Engineer, Technical Support
W. Stengar, Staff Emergency Planner
P. Stevens, Engineering Support Coordinator
T. Stewart, Auxiliary Operator
F. Sutherland, Reactor Operator
J. Taylor, Master Parts List Supervisor
N. Terrell, Operations Engineering Supervisor
D. Walden, Site Coordinator, Fire and Medical
J. Warkentin, Principal Engineer, Nuclear Engineering
J. Wise, Auxiliary Operator

NRC also held discussions with other station and corporate personnel in the areas of security, health physics, operations, training, and emergency response. In addition, NRC contacted representatives of offsite agencies.