

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/91004(DRSS)

Docket No. 50-346

License No. NPF-3

Licensee: Toledo Edison  
Edison Plaza  
300 Madison Avenue  
Toledo, Ohio 43652

Facility Name: Davis-Besse Nuclear Power Station, Unit 1

Inspection At: Davis-Besse Site, Oak Harbor, Ohio

Inspection Conducted: January 14-18, 1991

Inspector: J. Foster *James E. Foster*

*1/23/91*  
Date

Approved By: *William Snell*  
William Snell, Chief  
Radiological Controls and  
Emergency Preparedness Section

*1/23/91*  
Date

Inspection Summary

Inspection on January 14-18, 1991, (Report No. 50-346/91004(DRSS))

Areas Inspected: Routine, announced inspection of the following areas of the Davis-Besse Nuclear Power Station emergency preparedness program: licenser action on previously-identified items (IP 92701); followup on actual emergency plan activations (IP 92700); and operational status of the emergency preparedness program (IP 82701). The inspection involved one NRC inspector.

Results: No violations, deficiencies or deviations were identified during this inspection. The Davis-Besse Emergency Preparedness program continues to be well maintained, with continual minor enhancements. The Emergency Response Data System received successful final testing during the inspection.

## DETAILS

### 1. Persons Contacted

- \*B. DeMaison, Manager, Emergency Preparedness
- \*B. Cope, Supervisor, Onsite Emergency Preparedness
- \*R. Bast, Associate Nuclear Systems Analyst
- \*A. Antrassian, Associate Engineer, Licensing
- \*M. Findlay, Supervisor, Offsite Emergency Preparedness
- \*G. Honma, Compliance Supervisor, Licensing
- N. Peterson, Engineer, Licensing
- \*J. Stotz, Engineer, Licensing
- J. Moyers, Manager, Quality Verification
- \*J. Basa, Corporate/JPIC Emergency Planner
- \*J. Lash, Manager, ISE
- \*B. Andrews, Auditor, Quality Assurance
- \*T. O'Dou, Radiological Assessor
- D. Gordon, Emergency Preparedness
- \*T. Meyers, Technical Services Director
- \*I. Borland, Associate Health Physicist
- \*J. Priest, Associate Health Physicist
- \*J. Wood, Plant Operations Manager
- \*J. Heffley, Plant Maintenance Manager
- \*W. Haney, Radiological Engineering
- \*R. Coad, General Superintendent, Radiological Support

\*The above personnel attended the January 18, 1991 exit interview.

The inspector also contacted other members of the licensee's staff during the course of the inspection.

### 2. Licensee Action on Previously Identified Items (IP 92701)

(Closed) Open Item No. 50-346/89018-03: The Data Acquisition and Display System (DADS) program dedicated to dose calculation had not received formal verification and validation as a dose assessment system. Discussion with licensee personnel and review of documentation indicated that the system has been verified and validated, and appropriate software controls are in place to preclude unreviewed modifications to the system. A verification and validation report, "Dose Calculations on the Davis-Besse Data Acquisition and Display System" (Revision 0), was issued November 2, 1990, providing an overview of the hardware and software utilized by the system, and details of system functions. Section 5.0 of the report includes a list of all algorithms utilized in the software. Section 5.1 provides a validation of the algorithms by comparing the hand calculations of procedures HS-EP-02240 and HS-EP-02245 with the output of the DADS dose calculation software. This item is closed.

(Closed) Open Item No. 50-346/90011-01: This item was assigned to track a needed change to the plant Emergency Plan and implementing procedures to delete requirements for monthly communications tests with the Region III office of the NRC. These communication checks were not necessary, and had not been implemented by the licensee. The most recent change to the Emergency Plan (Revision 14), dated January 15, 1991, has deleted this requirement. This item is closed.

(Closed) Open Item No. 50-346/90008-01: During the 1990 emergency preparedness exercise, communication of the NRC of reactor parameters was sometimes slow. As documented in Section 5 of this report, the licensee has implemented the Emergency Response Data System, which should greatly improve communication of reactor parameters during an actual emergency. In addition, a "backup" to ERDS, in the form of a single printed page of reactor parameters which could be telefaxed to NRC Headquarters or NRC Region III, was developed. Either system should greatly enhance communication of reactor data to the NRC. It should be clear that implementation of ERDS or the backup system is not meant to take the place of the Emergency Notification System (ENS) telephone system, and performance in the area of verbally communicating reactor data to the NRC will continue to be evaluated during exercises and actual events. This item is closed.

(Open) Open Item No. 50-346/90008-02: During the 1990 emergency preparedness exercise, the overall function of the Joint Public Information Center (JPIC) was not adequate. Discussion with licensee personnel indicated that significant efforts had gone into reviewing the overall JPIC function, including staffing, information flow, procedures, training and facility layout. A number of changes have been made to address exercise shortcomings. This item will remain open, pending demonstration of the JPIC during an evaluated exercise.

No violations or deviations were identified.

### 3. Emergency Plan Activations (IP 92700)

Licensee and NRC records of actual emergency plan activations for the period May 1990 through January 1991 were reviewed. These records included (as applicable): summaries generated by NRC Duty Officers; Licensee Event Reports (LERs); Control Room logs; initial notification message forms to State and NRC officials; followup message forms prepared by onsite personnel; and evaluations of licensee records for each event.

During this time period, the licensee declared two Unusual Events. These situations were correctly classified per the licensee's Emergency Action Level (EAL) scheme, or the discretion of the Shift Supervisor. All emergency declarations were made in a timely manner. Records generated by onsite personnel for each declaration were sufficiently well detailed to facilitate later reconstruction of their emergency response activities. Initial notifications of State, local and NRC officials were completed (except as noted below) within the specified time limits following each declaration.

On May 18, 1990, (with the unit in cold shutdown) an Unusual Event was declared at 2200 hours due to the inadvertent initiation of the emergency core cooling system between 2121-2126 hours the same day. It was determined that this event met Emergency Action Level (EAL) 1.A.1, "Unplanned Initiation of Emergency Core Cooling". The Unusual Event was terminated during the notification call, as the initiating condition no longer existed. A failure of the dedicated four-way ("white phone") ringdown line delayed notification of the Ohio State Highway Patrol, but efforts to notify the State continued, and the notification was made via

a backup commercial telephone at 2230 hours. The four-way telephone was repaired on May 19, 1990, and successfully tested on May 21, 1990.

As a result of the detailed review of the above event, the licensee discovered that inadequate guidance existed as to the proper response to a "transitory event", where the event is over even before classification occurs. Eight "action items", requiring further review and resolution by the Emergency Preparedness Section, were developed to correct observed problems.

On October 8, 1990, an Unusual Event was declared at 1532 hours, due to accidental mixing of chemicals in the Water Treatment Building Backwash Sump and resulting onsite release of chlorine gas. This gas release resulted in the evacuation of the Water Treatment Building and transportation of two (uncontaminated) employees to a local hospital. The classification of an Unusual Event was made as a result of a conservative interpretation of EAL 7.E.1, "Near or onsite toxic or flammable gas release to atmosphere at life threatening levels". The Unusual Event was terminated at 1642 hours on the same date.

Licensee review of the actions taken during the above event resulted in 6 "observations", each with suggestions for improvement of the conditions depicted in the observation. Eight of the suggested actions were added to those tracked via the Emergency Planning Activity Scheduling System (EPASS) tracking system.

Evaluations of records associated with actual emergency plan activations were very thorough, including documentation of event critiques, identification of problems and associated corrective actions. While the reviews were very well done, review formats differed slightly, and no procedure directed the performance and documentation of such reviews.

No violations or deviations were identified. However, the following item is recommended for improvement:

- ° Procedural guidance on the post-activation performance and documentation of actual Emergency Plan activation reviews would insure that these reviews are performed and documented in a consistent manner.

#### 4. Operational Status of the Emergency Preparedness Program (IP 82701)

##### a. Emergency Plan and Implementing Procedures

By letter dated February 27, 1990, NRC Region III staff documented their review and approval of Revision 13 to the Emergency Plan for Davis-Besse, which had an effective date of December 14, 1990. Review of the revisions made to the emergency preparedness program indicated that major changes had not been made, and these changes had not adversely affected the overall state of emergency preparedness. Licensee personnel were aware that changes to the Emergency Plan determined to decrease the effectiveness of the plan could not be implemented without prior NRC approval.



Emergency Plan revisions are discussed in the Emergency Plan in Section 8.3, "Review and Update of the Emergency Plan and Implementing Procedures". The inspector reviewed the procedure (NG-IH-00115, Revision 6) directing review, modification and approval of changes to the licensee's Emergency Plan and Emergency Plan implementing procedures. Changes made to this procedure since that last routine inspection have been minor. Site procedures provide for the appropriate distribution of plan modifications onsite, and plan change transmittal to the NRC within 30 days of approval.

During the inspection, Revision 14 to the Emergency Plan was finalized. A copy was provided to the inspector to substantiate that changes had been made to the portion applicable to testing communications with the NRC. A formal review of the revisions will be made by the NRC subsequent to receipt of the revision through the normal revision procedure.

The inspector verified that current copies of the Emergency Plan and Implementing Procedures were available in the onsite Emergency Response Facilities (ERFs) and the Control Room.

No violations or deviations were identified.

b. Emergency Response Facilities (ERFs), Equipment, and Supplies

The onsite ERFs (Control Room, Technical Support Center [TSC], Operational Support Center [OSC], Emergency Control Center [ECC], Radiological Testing Laboratory [RTL]) were toured and were as described in the Emergency Plan and relevant Emergency Plan Implementing Procedures (EPIPs). All facilities appeared to be in an acceptable state of operational readiness. Emergency Notification System telephones (NRC "Red Phones") were successfully tested in the ECC, TSC, and the Control Room. Inspection of a small, representative sample of essential equipment, instrumentation and supplies did not reveal any significant problem areas.

Virtually all of the emergency facilities (TSC, FCC, RTL, OSC storage, Joint Public Information Center storage, isolation trailers, men's/women's berthing areas) have entry-indicating plastic seals, and detailed records are kept of entries into the facilities and any discrepancies found during entries. These records indicated excellent control of the facilities and provide assurance that the facility and related equipment will be as desired during an emergency situation.

It was noted that the closed circuit television in the Control Room, intended to provide TSC personnel with the capability to monitor Control Room functions/specific reactor readings, was out of service, and had been out of service for some time. The reliability of this system has not been good, and should receive more attention. Discussion with licensee personnel indicated that system modifications to improve reliability are being considered.

A selective review of completed checklists for the period May 1990 through December 1990 indicated that the licensee had completed procedurally required periodic communications equipment checks, first aid supplies inventories, and inventories of Health Physics and office supplies reserved for use by emergency responders. Inventory checklists specified minimum quantities of items and required verification of the supplies' locations and completeness.

The Emergency Preparedness Group continued to utilize the Emergency Planning Activity Scheduling System (EPASS) program to schedule periodic emergency preparedness activities. The subset of this program "Reoccurring Activity Tracking System (RATS)" tracks activities such as equipment inventories.

Appropriate inventory checklists addressed periodic replacement of perishable items, verification of the current calibration of survey instruments and air samplers, and functional tests of battery powered equipment. Inventory procedures included provisions for conducting inventories after use of the supplies or following discovery of an unsealed supply container, in addition to the periodic inventory requirement.

Records reviewed indicated that problems identified during inventories and communications equipment checks had been corrected in a timely manner.

No violations or deviations were identified.

c. Organization and Management Control

The overall organization and management control of the Emergency Preparedness program is unchanged from the last routine inspection, conducted during May 1990. No major changes have been made in the responsibilities and authorities of key emergency response personnel, or interfaces and coordination between onsite, offsite, and corporate organizations.

The reporting chain for the Emergency Preparedness organization remains through the Director - Technical Services to the Vice - President Nuclear. The Manager - Emergency Preparedness directs the Onsite and Offsite Emergency Preparedness groups through their respective supervisors.

There are presently fourteen positions assigned to the Onsite and Offsite Emergency Preparedness sections, and eighteen positions are assigned duties in the Emergency Preparedness organization (one position is currently vacant). A minor restructuring of the Emergency Preparedness organization has resulted in the loss of two positions since the last inspection, an Emergency Preparedness Representative, and Assistant Emergency Preparedness Representative. It did not appear that the loss of these positions would have a negative impact on the functioning of the Emergency Preparedness group, but further reductions would have to be carefully evaluated.

The formal and informal corrective action tracking systems in place during the previous inspection remained in use during 1991. The formal tracking systems encompassed onetime and periodic action items.

Adequate numbers of personnel have been identified for specific lead and support positions in the onsite Emergency Response Organization (ERO). Administrative systems were in use to ensure that ERO members and their supervisors were informed of the formers' ERO membership. The callout procedure for the onsite ERO has been updated on a quarterly basis.

No violations or deviations were identified.

d. Training

The required annual EP training program for members of the onsite Emergency Response Organization (ERO) is unchanged, consisting of classroom sessions, walkthrough drills, and required readings of Emergency Plan Implementing Procedures (EPIPs) and sections of the Emergency Plan relevant to specific ERO positions.

The Emergency Response Telephone directory (section three) is utilized as the official list of those currently qualified for emergency response positions. The listing is updated quarterly, based on responses to requests for telephone number changes, and computer program checks to insure that the individual has current training before inclusion of the individual's name in section three of the telephone book. A listing of individuals projected to be not qualified (at a specified future date) due to training expiration is periodically generated. Action can then be taken to ensure that these individuals are made aware that their training is near expiration, and that appropriate training courses are available.

The assigned positions and training records are tracked in the Individual Training Report Matrix. The requalification period for emergency response training is fifteen months (twelve months with a "grace period" of three months) after which an individual is dropped from section three of the Emergency Response Telephone Directory. If an individual leaves the site, an interim change or pen and ink change can be initiated prior to the quarterly revision.

The inspector reviewed the records of a small sample individuals in detail, and compared them with telephone directory listings. No discrepancies were noted.

One individual, with the emergency position of Recovery Advisor (in the TSC), was interviewed to determine his knowledge of general emergency preparedness and his emergency position in particular. The interviewed individual demonstrated an excellent understanding of his position and responsibilities, and emergency preparedness in general. During the interview, procedure HS-EP-02720 "Recovery Organization" was reviewed and discussed. The overall procedure was adequate to provide guidance on the establishment and configuration

of a recovery organization. Attachment three to the procedure is a recovery worksheet which provides general areas to be considered during recovery planning. Section V, "Administrative", item D, notes that preparations should be made for the likely NRC incident investigation. Discussion indicated that it would be worthwhile to add to the procedure some of the anticipated NRC incident investigation team needs. Such an NRC team would normally request the following licensee actions:

1. Any failed equipment not necessary for plant safe shutdown should not be repaired or manipulated until the team could inspect the equipment and participate in failure determination.
2. Preservation of any documents, logs or computer information related to the incident or accident.
3. Interviews with Control Room and other operations staff as to their roles and actions taken during the incident. These interviews may be transcribed.
4. Appropriate working space onsite for the team and above interviews.

The following onsite EP drills took place during 1990, per Section 8.1.2 of the Emergency Plan and Emergency Plan Administrative Procedure HS-EP-00200 (Revision 3, dated June 28, 1990): semiannual Health Physics drills (April 17, 19, and 25, May 31, October 22 and 30, 1990), annual medical drill (September 26, 1990); post-accident sampling drill (October 3, 1990) and semiannual staffing response time drills (June 27, November 27, 1990). Records indicated that required EP drills had been successfully conducted, critiqued, and adequately documented during 1990.

Emergency Plan Administrative Procedure HS-EP-00200 (Revision 3, dated June 28, 1990) has been properly revised to delete Exercise Planning objective 10, related to performance of an unannounced annual exercise. Recent interpretations of exercise requirements are that the conduct of an unannounced annual exercise is not a requirement.

The report for the October 3, 1990 Post Accident Sampling System (PASS) drill was reviewed. The report was concise but complete, and contained two suggestions for future PASS drills and three equipment or procedural concerns which were added to the EPASS tracking system. Drill evaluators noted that a PASS drill during a full, evaluated exercise would have provided a better test of the adequacy of communication (telephone, gaitronics, and Self Contained Breathing Apparatus communications) with the PASS team. It was concluded that all drill objectives had been met.

The inspector reviewed the licensee's 1990 Emergency Preparedness Exercise report (AVE 90-20722). The report was detailed and complete, containing critique items, observations, notations as to items corrected/repared and references to tracking systems



for the 22 items entered on the EPASS system for evaluation as possible program improvement items. The report also contained items to be more thoroughly stressed during subsequent training, and comments as to items which were viewed as "drill limitations" (items which would not have occurred if other aspects of the Emergency Response Organization had played or had been available for the exercise).

Also reviewed was the report of the August 29, 1990 "Dry Run" exercise. The report was concise and complete, containing numerous observations, items to be further stressed in training, and 15 items entered into the EPASS tracking system.

Training for local hospitals and fire department/emergency medical service (EMS) personnel was provided for St. Charles hospital and Jerusalem Township fire/MS on September 12, 1990, and to Magruder hospital and Carroll Township fire/EMS on September 18, 1990. This training included refresher training on radiation fundamentals, reviews of past medical drills, "walk-throughs" and a "dry run" drill. The medical drill was held on September 26, 1990, with different scenarios for Ottawa and Lucas County responders.

Training on, and copies of, the station's Emergency Action Levels (EALs) used to classify abnormal plant conditions were provided to representatives of the State of Ohio Emergency Management Agency, and the counties of Lucas, Erie, Ottawa, and Sandusky on August 21, 1990, in accordance with the requirements of 10 CFR 50, Appendix E (IV.B). A tour of the enhanced backup Joint Public Information Center and a presentation on plant operations, utilizing the plant "See Thru Model", were also provided to attendees.

The 1990 annual Media Day training was held on August 22, 1990. Presentation topics included regulatory overview, health physics concerns, JPIC functions, Emergency Preparedness at Davis-Besse, and federal, State, and county responsibilities. A representative from the Federal Emergency Management Agency (FEMA), Region V, described the role of FEMA in a nuclear plant accident.

No violations or deviations were identified.

e. Independent Reviews/Audits

Quality Assurance (QA) Department records of 1990 audits and surveillances of the Station's EP program were reviewed. All records were complete and readily available. The 1990 audits satisfied the requirements of 10 CFR 50.54(t), including the requirement to make portions of the audit dealing with the interface with offsite authorities available to offsite authorities. Records indicated that timely and adequate corrective actions had been taken on identified problems.

The 1991 annual audit of Emergency Preparedness was scheduled to be performed during February 4-15, 1991, and will be reviewed

during the next routine inspection. The 1990 annual audit was reviewed in the previous routine NRC inspection report (No. 50-346/90011).

The inspector reviewed Quality Assurance Surveillance Report No. QA-DP-00351-3 R1, dated October 16, 1990, documenting surveillance SR-90-EMPRP-03, performed during September 18-20, September 26, and October 2, 1990, which reviewed activities during the 1990 Emergency Preparedness exercise, the 1990 Annual Medical Emergency Drill, and the Annual Post Accident Sampling Drill. This surveillance was performed by five surveillance specialists. It was concluded that all of the objectives for each exercise/drill were achieved. The surveillance report was complete, well detailed and well written, and contained 15 recommendations for improvement. Recommendations for improvement had been assigned to appropriate groups for their response(s).

No violations or deviations were identified.

#### 5. Testing of the ERDS System

On January 15, 1991, the inspector witnessed the final testing of the Emergency Response Data System (ERDS). By letter dated June 29, 1989, Toledo Edison volunteered to be one of the early plants to implement an ERDS system. On August 21, 1989, the NRC issued Generic Letter 89-15 to all power plant licensees, informing them of the Commission's position on ERDS.

The system was tested utilizing test procedure NRC-312, "ERDS Licensee Site Installation Test Procedure Single-Feeder System Sites", Revision 0.0, developed by E. I. International (now a part of Nuclear Utility Services). Testing of the system on a quarterly basis was discussed with licensee personnel. Requirements for testing the system have not yet been determined, and therefore testing frequency and procedure are to be developed.

The test procedure was adequately detailed, testing activation of the system, and system responses to suspend and resume data transmission. The tests included: system ability to successfully respond to disconnection of the line, terminate communication functions, and to automatically reconnect and resume data transmissions when desired. All tests were passed successfully. A successful 24-hour continuous communications test followed. The plant is the third to have completed a functional ERDS system, and the first to have the system fully tested utilizing the finalized testing procedure.

During development of the system, licensee personnel determined that it would be beneficial to have a back-up data transmission system available in case of ERDS failure (ERDS is neither a safety-related system nor addressed by the plant Technical Specifications). The system automatically prints out a single page listing of parameters and data points references on initiation and at approximately fifteen minute intervals. It is the intention that these sheets be telecopied to the

NRC (either NRC RIII or NRC Headquarters) during an Alert or higher emergency classification with concurrent failure of the ERDS system. Discussion indicated that this backup method had not yet been incorporated into implementing procedures.

Licensee personnel stated that two procedures, HS-EP-02310, "TSC Activation and Response", and HS-EP-02290, "Facilities and Operation" would be revised to include guidance on the initiation, operation, and termination of ERDS. It is the licensee's intent to activate the ERDS system by first responders to the Technical Support Center during emergencies classifiable as an Alert or higher. Discussion with licensee personnel indicated that activation from the Control Room had been considered, but was viewed as an unnecessary additional burden to impose on control room personnel in the midst of responding to an emergency situation. In addition, it was hypothesized that it would take some time for NRC personnel to respond to the NRC Incident Response Center, and that the overall effect of the slight delay would be negligible.

Further discussion indicated that the NRC receiving system is continuously activated, and could be receiving ERDS information during the time NRC personnel were staffing the Incident Response Center. The NRC ERDS system has the capability to store and display trend data, so having the ERDS system activated at the earliest possible time could provide valuable data for analysis upon arrival of cognizant NRC personnel.

No violations or deviations were identified.

6. Exit Interview (IP 30703)

On January 18, 1991, the inspector met with those licensee representatives identified in Section 1 to present the preliminary inspection findings. The inspector provided his evaluation that the Davis-Besse emergency preparedness program remains well maintained, and continual minor improvements have been. The ERDS system received final testing during the inspection, and should greatly enhance communications with the NRC during an actual emergency situation.

The licensee indicated that none of the matters discussed during the exit interview were proprietary.