DCD/DCBCRIDS)

Docket No. 50-346

APR 0 2 1992

Centerior Service Company
ATTN: Mr. Donald Shelton
Vice President
Nuclear-Davis-Besse
c/o Toledo Edison Company
300 Madison Avenue
Toledo, OH 43652

Dear Mr. Shelton:

This refers to the NRC's Systematic Assessment of Licensee Performance (SALP) 9 Report for the Davis-Besse Nuclear Station, and our meeting of March 3, 1992, which discussed in detail the contents of the report and your written comments dated March 27, 1992 relative to the report.

Based on our discussions during the meeting and our review and evaluation of your letter of response, we have reached the conclusion presented in the enclosed meeting summary. With the incorporation of the revised pages from Enclosure 3, the Initial SALP Report, dated February 5, 1992, should be considered the Final SALP Report.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter with the referenced enclosures, will be placed in the NRC's Public Document Room.

No reply to this letter is required; however, should you have questions regarding the Final SALP Report, please let us know and we will be pleased to discuss them with you.

Sincerely,
Carl Paperiello
A. Bert Davis
Regional Administrator

Enclosures:
1. Final SALP 9 Report
No. 50-346/91001
(Meeting Summary)
2. Revision sheets
3. Revised Pages to SALP Report
4. Licensee Response ltr,
dtd March 27, 1991

See Attached Distribution

RIII	RIII	RIII	RIII	RIII	RIII	RIII	RIII
Yes	Yes	Yes	Yes	Yes			Yes
Gavula/sd	Jackiw	Brown	Hasse	Greenman	Miller	Norelius	Knop
4/1/92		4/1/92	4/1/92	4/1/92	4/2/92	4/1/92	4/1/92

RIII RIII
Paperiello Davis
4/2/92 4/2/92

9204130032 920402
PDR ADOCK 05000346
Q PDR

IE40
1/1

Distribution

cc w/enclosure:
L. Storz, Plant Manager
DCD/DCB (RIDS)
G. LFDCB
Resident Inspector, RIII
State Liaison Officer, State
of Ohio
Robert E. Owen, Ohio
Department of Health
A. Grandjean, State of Ohio,
Public Utilities Commission
INPO

The Chairman
K. C. Rogers, Commissioner
J. R. Curtiss, Commissioner
F. J. Remick, Commissioner
E. G. de Planque, Commissioner
J. H. Sniezek, DEDR
T. E. Murley, Director, NRR
State Liaison Officer, State
of Ohio
NRR/LPEB (2 copies)
J. Hannon, NRR Director, Project Directorate III-3
J. Lieberman, Director, Office of Enforcement
L. R. Greger, RIII
W. Levis, SRI
L. L. Cox, RIII (2 copies)
TSS, RIII
RIII Files
RIII PRR

Enclosure 1

Davis-Besse Nuclear Power Station

A. Summary of Meeting with Toledo Edison Company on March 3, 1992

The findings and conclusions of the SALP Board are documented in Report No. 50-346/91001 and were discussed with the licensee on March 3, 1992.

While the meeting was primarily a discussion between the licensee and NRC, it was open to members of the public as observers.

The following licensee and NRC personnel were in attendance, as well as the noted observers.

Centerior Energy Corporation

R. J. Farling, Chairman, President, CEO
M. R. Edlman, Executive Vice-President Power Generation
D. C. Shelton, Vice-President-Nuclear

Toledo Edison Company

G. A. Gibbs, Director, Quality Assurance
S. C. Jain, Director, Engineering
T. J. Meyers, Director, Technical Services
E. M. Salowitz, Director, Planning & Support
L. F. Storz, Plant Manager
R. W. Schrauder, Manager, Nuclear Licensing

Nuclear Regulatory Commission

A. B. Davis, Regional Administrator
H. J. Miller, Director, Division of Reactor Safety
W. L. Forney, Deputy Director, Division of Reactor Projects
W. Levis, Senior Resident Inspector
J. B. Hopkins, Project Manager, NRR
R. K. Walton, Resident Inspector
J. A. Gavula, Reactor Inspector

Other

J. Witt, Ottawa County Administrator
D. Opfer, Ottawa County Commission
S. Arnot, Ottawa County Commission
J. Fritz, President, Ottawa County Board of Commissioners
T. Reeves, Ohio EMA
C. Oclaire, Ohio EMA
Z. Clayton, Ohio EMA
K. Schultz, Ohio EPA
B. Parish, Sandusky County EMA
R. Pennington, Deputy Director, Ottawa County EMA
J. Greer, Director, Ottawa County EMA
B. Halsey, Director, Lucas County EMA

B. Comments Received from Licensee

Toledo Edison Company response to the Davis-Besse Initial SALP 9 Report dated March 27, 1992, included several comments that have resulted in a minor revision of the Initial SALP Report. These changes are listed in Enclosure 2 and the revised pages are included as Enclosure 3.

Enclosure 2

REVISION SHEET

PAGE	LINE	NOW READS	SHOULD READ
12	34	. . . lacked thoroughness . . .	. . . lacked adequate detail . . .
12	36-37	. . . without sufficient recognition of the unique plug and weld design.	. . . but did not provide enough technical information on the unique plug and weld design requiring the NRC to request additional information and test reports.

Basis: Based on information supplied to the licensee by their contractor regarding the successful performance of an alternate welded plug at other plants, it was assumed that no NRC review and approval was needed. However, 10 CFR 50.55a requires that proposed alternatives to the ASME Code be authorized by the Director of Nuclear Reactor Regulation.

12	37	. . . design. Misinterpretation . . .	. . . design. Inadequate justification . . .

Basis: The issue more appropriately involves inadequacies of justification for Code relief.

13	1	Although some knowledge deficiencies were noted in the engineering department, the overall effectiveness of training in the engineering area, . . .	The overall effectiveness of training in the engineering area . . .

Basis: This is a broad statement and is not indicative of any significant knowledge deficiencies in the engineering department.

Enclosure 3

SALP 9

FINAL SALP REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

Inspection Report No. 346/91001

Toledo Edison Company

Davis-Besse Nuclear Power Station

July 1, 1990, through November 30, 1991

A weakness was noted in the size of the engineering backlog. Over the years this backlog had increased to approximately 1600 modifications and 500 deficiency-related items, some of which had been physically started but not completed. This problem, which the licensee noted may have contributed to several potential personnel safety issues, was brought to management's attention early in the assessment period by an Independent Safety Engineering Group (ISEG) investigation. A prioritized program was approved late in the assessment period to clear the backlog by 1993.

The approach to identification and resolution of technical issues was generally good. When potential safety concerns related to boron precipitation were relayed to the licensee, the reactor was maintained at an appropriate power level until engineering fully evaluated the concern. The initial approach to criticality following startup from refueling was delayed by nuclear engineering, with management's support, until questions related to the predicted criticality point were resolved. A reanalysis of containment design parameters following a possible design analysis deficiency involving a feedwater line break outside containment was both timely and correct. In addition, a design change was implemented to prevent a known problem of a reactor trip following the loss of a single feedwater pump. The performance engineering group continued to use sophisticated diagnostic equipment to detect equipment deficiencies. The licensee's use of system engineers was very good. System engineers were routinely present at shift briefings and provided excellent support to maintenance and operations. For example, they were instrumental in the discovery of the problem with No. 2 EDG's turbocharger. In addition, the system engineer's use of the DAAS allowed the cause of the reactor trip to be identified even though it was an intermittent problem. Their use of the DAAS improved the operations staff's ability to make the transition to automatic operation of the Integrated Control System during plant startup. System engineers were involved in all aspects of the maintenance process, including problem resolution, root cause analysis, preventive maintenance determinations, and system performance monitoring. This involvement resulted in a definite sense of system ownership. Communication between maintenance personnel and system engineers was good.

The licensee's application of the American Society of Mechanical Engineers (ASME) Code at times lacked thoroughness, most notably in an application dealing with steam generator tube plugging. In this case, an ASME Code relief focused on an automatic welding process without sufficient recognition of the unique plug and weld design. Misinterpretations of the ASME Code also were noted in the submittal of the licensee's second 10-year inservice testing program for pumps and valves. Deficiencies were noted in the modification program. In one case, an inadequate design, coupled with installation and testing errors, resulted in the catastrophic failure of a transformer. In another case, deficiencies during the installation of the SFAS bypass modification rendered the EDG sequencer inoperable. In the case of the EDG field flash failures which occurred at the end of the assessment period, engineering was initially slow in identifying the root cause, however, once the third failure occurred, an aggressive problem resolution program was implemented.

Staffing levels were adequate, and resources were available to deal with emergent problem areas. Support for the NRC's requalification examination development was excellent. The new design engineering supervisor brought both engineering and operations experience to the department.

SEE REVISED SHEET

A weakness was noted in the size of the engineering backlog. Over the years this backlog had increased to approximately 1600 modifications and 500 deficiency-related items, some of which had been physically started but not completed. This problem, which the licensee noted may have contributed to several potential personnel safety issues, was brought to management's attention early in the assessment period by an Independent Safety Engineering Group (ISEG) investigation. A prioritized program was approved late in the assessment period to clear the backlog by 1993.

The approach to identification and resolution of technical issues was generally good. When potential safety concerns related to boron precipitation were relayed to the licensee, the reactor was maintained at an appropriate power level until engineering fully evaluated the concern. The initial approach to criticality following startup from refueling was delayed by nuclear engineering, with management's support, until questions related to the predicted criticality point were resolved. A reanalysis of containment design parameters following a possible design analysis deficiency involving a feedwater line break outside containment was both timely and correct. In addition, a design change was implemented to prevent the known problem of a reactor trip following the loss of a single feedwater pump. The performance engineering group continued to use sophisticated diagnostic equipment to detect equipment deficiencies. The licensee's use of system engineers was very good. System engineers were routinely present at shift turnovers and provided excellent support to maintenance and operations. For example, they were instrumental in the discovery of the problem with No. 2 EDG's turbocharger. In addition, the system engineer's use of the DAAS allowed the cause of the reactor trip to be identified even though it was an intermittent problem. Their use of the DAAS improved the operations staff's ability to make the transition to automatic operation of the Integrated Control System during plant startup. System engineers were involved in all aspects of the maintenance process including problem resolution, root cause analysis, preventive maintenance determinations, and system performance monitoring. This involvement resulted in a definite sense of system ownership. Communication between maintenance personnel and system engineers was good.

The licensee's application of the American Society of Mechanical Engineers (ASME) Code at times lacked adequate detail, most notably in an application dealing with steam generator tube plugging. In this case, an ASME Code relief focused on an automatic welding process but did not provide enough technical information on the unique plug and weld design requiring the NRC to request additional information and test reports. Inadequate justification of the ASME Code also were noted in the submittal of the licensee's second 10-year inservice testing program for pumps and valves. Deficiencies were noted in the modification program. In one case, an inadequate design, coupled with installation and testing errors, resulted in the catastrophic failure of a transformer. In another case, deficiencies during the installation of the SFAS bypass modification rendered the EDG sequencer inoperable. In the case of the EDG field flash failures which occurred at the end of the assessment period, engineering was initially slow in identifying the root cause, however, once the third failure occurred, an aggressive problem resolution program was implemented.

Staffing levels were adequate, and resources were available to deal with emergent problem areas. Support for the NRC's requalification examination development was excellent. The new design engineering supervisor brought both engineering and operations experience to the department.

Although some knowledge deficiencies were noted in the engineering department, the overall effectiveness of training in the engineering area, as reflected in the support of, and credibility with, operations and maintenance organizations was good. The engineering staff was experienced in all phases of design engineering and as a result design packages were done at the site. System engineers' experience levels were good. Not only did they receive detailed training in their specific systems, they were also provided the opportunity to attend national industry conferences related to system or associated component performance. In addition, a continuing education program encouraged personnel to obtain advanced degrees. Training effectiveness in the initial operator license area and requalification training programs was very good.

2. Performance Rating

Performance is rated Category 2 with an improving trend in this area. Performance was rated Category 2 during the previous assessment period.

3. Recommendations

None.

G. Safety Assessment/Quality Verification

1. Analysis

Evaluation of this functional area was based on the results of 12 routine inspections by resident inspectors and 3 inspections by region-based inspectors. In addition, licensee requests for amendments, exemptions or relief, responses to NRC generic communications, and other interactions with the NRC staff were considered.

Enforcement-related performances continued to be good. One violation was identified where the corrective action to prevent recurrence of a similar event was inadequate. This event involved the overfill of steam generator 1-2 and subsequent release of 700 gallons of water to the onsite storage pond during the seventh refueling outage. A similar event occurred during the sixth refueling outage. This event was attributed to personnel error, as was the case with the majority of events at the site. Management has many initiatives to improve human performance and to reduce the number of personnel errors; however, some problems with personnel errors remained.

Management effectiveness in ensuring quality was generally good, as shown by the corrective actions taken in response to unresolved issues previously identified by NRC staff. The licensee has addressed systematic weaknesses by modifying the SFAS circuitry to prevent unnecessary SFAS actuations when the plant is in a mode where SFAS is not required. Their commitment to zero fuel defects resulted in the ultrasonic inspection of all fuel rods used in the present operating cycle. The licensee performed a shutdown risk assessment to identify the contributions to risk and to recommend methods to minimize that risk during a refueling outage. The assessment was comprehensive, focused on

SEE REVISED SHEET

The overall effectiveness of training in the engineering area, as reflected in the support of, and credibility with, operations and maintenance organizations was good. The engineering staff was experienced in all phases of design engineering and as a result design packages were done at the site. System engineers' experience levels were good. Not only did they receive detailed training on their specific systems, they were also provided the opportunity to attend national industry conferences related to system or associated component performance. In adc ion, a continuing education program encouraged personnel to obtain advanced degrees. Training effectiveness in the initial operator license area and requalification training programs was very good.

2. Performance Rating

Performance is rated Category 2 with an improving trend in this area. Performance was rated Category 2 during the previous assessment period.

3. Recommendations

None.

G. Safety Assessment/Quality Verification

1. Analysis

Evaluation of this functional area was based on the results of 12 routine inspections by resident inspectors, and 3 inspections by region-based inspectors. In addition, licensee requests for amendments, exemptions or relief, responses to NRC generic communications, and other interactions with the NRC staff were considered.

Enforcement-related performances continued to be good. One violation was identified where the corrective action to preclude recurrence of a similar event was inadequate. This event involved the overfill of steam generator 1-2 and subsequent release of 700 gallons of water to an onsite storage pond during the seventh refueling outage. A similar event occurred during the sixth refueling outage. This event was attributed to personnel error, as was the case with the majority of events at the site. Management took many initiatives to improve human performance and to reduce the number of personnel errors; however, some problems with personnel errors remained.

Management effectiveness in ensuring quality was generally good, as shown by the corrective actions taken in response to unresolved issues previously identified by NRC staff. The licensee has addressed systematic weaknesses by modifying the SFAS circuitry to prevent unnecessary SFAS actuations when the plant is in a mode where SFAS is not required. Their commitment to zero fuel defects resulted in the ultrasonic inspection of all fuel rods used in the present operating cycle. The licensee performed a shutdown risk assessment to identify the contributions to risk and to recommend methods to minimize that risk during a refueling outage. The assessment was comprehensive, focused on

Docket Number 50-346

License Number NPF-3

Serial Number 1-979

March 27, 1992

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Response to Initial Systematic Assessment of Licensee Performance (SALP) 9 Report (IR 91001)

Gentlemen:

Toledo Edison Company (TE) has reviewed the initial SALP 9 Report (Inspection Report No. 50-346/91001) for the Davis-Besse Nuclear Power Station, covering the period July 1, 1990 through November 30, 1991.

The SALP transmittal letter (Log Number 1-2601), dated February 5, 1992, stated that TE may provide written comments to the NRC within 30 days after the March 3, 1992, SALP 9 meeting.

Attached are TE's comments concerning the SALP 9 Report.

If you should have any questions regarding this matter, please contact Mr. R. W. Schrauder, Manager - Nuclear Licensing, at (419) 249-2366.

Very truly yours,

KAF

Attachment

cc: A. B. Davis, Regional Administrator, NRC Region III
J. B. Hopkins, NRC/NRR DB-1 Senior Project Manager
W. Lewis, DB-1 NRC Senior Resident Inspector
Utility Radiological Safety Board

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

RESPONSE TO INITIAL SALP 9 REPORT

1. ASME Code

On Page 12, in the Engineering/Technical Support (E/TS) analysis section (paragraph 2), the initial SALP report states: "The licensee's application of the American Society of Mechanical Engineer's (ASME) Code at times lacked thoroughness, most notably in an application dealing with steam generator tube plugging. In this case, an ASME Code relief focused on an automatic welding process without sufficient recognition of the unique plug and weld design. Misinterpretations of the ASME Code also were noted in the submittal of the licensee's second 10-year inservice testing program for pumps and valves."

As presented, this statement in the SALP Report incorrectly creates the perception of a general weakness in the understanding and thorough application of ASME Code requirements. The facts surrounding the examples provided in the SALP Report do not support the conclusion reached. In fact, activities accomplished during the SALP 9 period demonstrated a general strength in both understanding and application of ASME Code requirements.

An example of thorough ASME Code application during the SALP 9 period involved a proposed alternative to Section XI of the ASME Code. It involved inspections of the outside diameter weld surfaces of the core flood and reactor vessel nozzles. This effort by TE avoided at least 60 Rem anticipated from using the inspection techniques specified in the ASME Code.

Toledo Edison's commitment to proper interpretation and application of the ASME Code was exemplified by the formation of a Davis-Besse ASME Code Committee. This committee has been successful in reviewing and advising TE personnel/departments on ASME Code queries. In addition, TE has been active in obtaining and maintaining the National Board Inspection Nuclear Repair (NR), Valve Repair (VR), and Repair (R) Stamps for added Code compliance.

A. Steam Generator Tube Plug

Toledo Edison contracted ABB/Combustion Engineering (CE) to perform steam generator inspections and steam generator tube plug installations for the seventh refueling outage. In one steam generator tube location where a backup plug was required, a welded plug was specified because of insufficient clearance for a mechanical plug. During its review of CE's methodology for installation of the backup plug, TE identified that the automatic welding process for steam generator tube plugging is not sanctioned by Section XI of the 1986 edition of the ASME Code. Although the automatic welding process is sanctioned by the 1989 edition of the ASME Code, the NRC has not yet endorsed that edition.

Toledo Edison's attention to detail and Code knowledge was manifested in TE's request for relief from ASME Code Section XI to permit machine welding of steam generator plugs in a letter dated September 3, 1991 (Serial 1978).

Prior to submittal of the relief request, as part of its independent design verification process, TE reviewed the acceptability of the plug design specification. In addition, CE was requested to submit a letter of justification and a stress report for the proposed weld design and plug material INCO 82. Based on reviews of the ASME Code, the information supplied by CE, and the successful performance of the INCO 82 welded plug in other plants, TE concluded that the weld design and plug material were acceptable and in compliance with the 1986 edition of Section XI of the ASME Code. Since the only departure from ASME Code requirements was in the area of the automatic welding process, the relief request (Serial 1978) centered on the welding process; other technical information was not intended to be included.

Not withstanding the above, the NRC's review of the relief request focused on the plug material and weld design. As a result, the NRC questioned CE's material selection and weld design of the backup plug. Follow-up information and test reports were sent to the NRC to support the use of INCO 82 with the proposed weld design in steam generator tube plugging applications.

The NRC accepted the automatic welding process, proposed plug material, and weld design in its Safety Evaluation Report (SER) dated October 31, 1992 (Log 3614). Although the plug material and weld design issues were resolved, the NRC requested information be provided by the end of the eighth refueling outage on long term corrosion of INCO 82 in steam generator tube plugging applications.

In conclusion, characterizing TE as having a lack of thoroughness based on the steam generator tube plugging issue is inappropriate. The SALP 9 final report should be revised to accurately characterize the issue.

D. 10 Year Inservice Testing (IST) Program

Toledo Edison submitted the second 10 year IST program on March 22, 1990. Toledo Edison identified areas where compliance with ASME Code requirements was considered impractical or burdensome. In these cases, relief was requested. The issue does not involve misinterpretation or omission of ASME Code requirements, it involves the adequacy of justification for Code relief. This is different than misinterpretation or omission. The final SALP 9 report should be revised to include this clarification.

2. Engineering Staff Knowledge Deficiencies

On Page 13, in the E/TS analysis section (paragraph 1), the initial SALP report states: "Although some knowledge deficiencies were noted in the engineering department, the overall effectiveness of training in the engineering area...was good."

Based on statements made by the NRC at the SALP 9 meeting at Davis-Besse on March 3, 1992, it is TE's understanding that the final SALP 9 report will be revised to remove the reference to 'knowledge deficiencies'.