



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION III  
 769 ROOSEVELT ROAD  
 GLEN ELLYN, ILLINOIS 60127

203

September 22, 1981

MEMORANDUM FOR: ~~J.~~ Boyd, Projects Leader, Midland SALP Report

FROM: G. Pirtle, SALP Coordinator, Division of Engineering and Technical Inspection

SUBJECT: DEII SALP INPUTS FOR MIDLAND

The enclosed correspondence contains all of the DEII inputs for the Midland SALP report except for the Materials and Processes Section. ~~Mr. Gosselin~~ will provide his section's input as a separate addendum to this memo. During your review process, changes or modifications to the inputs may be necessary. Mr. J. Belanger and I are acting as the DEII SALP Coordinators. Please feel free to contact us to assist you in resolving any issues that arise. If the issues are of a technical nature for a certain functional area, we can advise you of the DEII technical representative responsible for the input(s). Attachment A contains a summary of DEII inspection manhours in each functional area. Attachment B contains data pertaining to total manhours and noncompliance for Midland, as provided by Mr. Ismbling's section. DEII comments to clarify some issues are also included in Attachment B. I hope these attachments are of assistance to you in resolving questions that may arise.

A couple significant points should be noted. Two DEII sections provided inputs for the Quality Assurance functional area. Their recommended ratings are different. We have also recommended a "Below Average" rating for the Site Preparation and Foundations functional area based upon the Civil Engineering input. Finally, although the Electrical functional area is rated average, an increased inspection effort was recommended to confirm the effectiveness of corrective actions.

*Gary S. Pirtle*  
 G. Pirtle, SALP Coordinator  
 Division of Engineering and  
 Technical Inspection

Attachments: As stated

cc w/attachments:  
 C. E. Norelius

Division of Engineering and Technical Inspection  
SALP Input for Midland

1. Quality Assurance:

A. Analysis: (Electrical and Instrumentation Input)

Two inspection (74 hours) have been performed during this evaluation period. Three violations were identified. These violations were:

- (1) Severity Level V violation (Criterion V) for failure to develop appropriate procedures to assure that Class IE cable minimum bend radius criteria was not violated (2 examples).
- (2) Severity Level V violation (Criterion III) for failure to translate FSAR commitments into specifications, drawings, procedures or instructions in that there was no requirements that Class IE impulse lines and associated process system instruments be identified in such a manner which distinctively identifies these items as being a part of the protection system.
- (3) Severity Level V violation (Criterion XVI) for failure to assure that conditions adverse to quality are promptly identified and corrected in that, as of May 22, 1981, corrective action had not been taken in response to a Quality Assurance finding dated April 3, 1980, and licensee Audit finding dated January 27, 1981, which identified the lack of approved procedures for the rework of items which had been inspected and accepted by Quality Control.

The first two items were identified during a routine safety inspection on April 28-30 and May 1, 1981, and the last item was identified during a team inspection on May 18-22, 1981.

B. Rating:

Average.

C. Comments:

~~Recommend increased inspection effort in this area to confirm the effectiveness of corrective actions already initiated.~~

A. Analysis: (Civil Engineering Input)

One routine inspection (80-25; 80-26) has been performed during the evaluation period. No noncompliances were identified.

Two special inspections (80-32; 80-33 and 81-D1) regarding CPCo 50.54(f)

Summary and Comments (Midland)

1. Six of the eight violations on the master sheets for the Quality Assurance functional area are addressed in the DETI input. Two of the six violations are Severity Level IV; however, the master sheet does not indicate any Severity Level IV's for this functional area. The master sheet may be in error.
2. The master sheet does not cite any violations in the Site Preparation and Foundations functional area. The DETI input for this functional area addressed one Severity Level IV, one Severity Level V violation and one deviation. The master sheet may be in error.
3. The master sheet indicates six violations in the Electrical functional area. The DETI inputs address three Severity Level V violations. One of the violations applies to Unit 1 only, one violation applies to Unit 2 only, and the remaining violation applies to both units. The DETI input identifies which violations apply to which unit.
4. The master sheet indicates 73 hours and 71 hours inspection effort for Units 1 and 2 in the Quality Assurance functional area. The DETI input indicates 149 hours inspection effort for each unit in this functional area (112 hours Civil Engineering and 37 hours for Electrical and Instrumentation).
5. The DETI input for the Site Preparation and Foundations functional area indicates 53 inspection hours for each unit in this functional area (106 total hours).
6. One hundred-ten of the 211 hours cited on the master sheet for the Electrical functional area are DETI hours.

1. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND

Docket No. 330

Unit 2

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations												
		Severity Levels						Categories						
		I	II	III	IV	V	VI	Obj	Infr.	Def.	D			
1. Quality Assurance	71					4								
2. Site Preparation and Foundations	17													
3. Containment Structures	5													
4. Safety-Related Structures	2													
5. Piping and Hangers	40				1	4					2			
6. Safety-Related Components	17					2								
7. Electrical	104													
8. Instrumentation	0					2	1							
9. Fire Protection	24													
10. Preservice Inspection	34													
11. Corrective Action and Reporting	1													
12. Procurement	0													
13. Design and Design Changes	2													
14. Training	0													
15. Plant Operations Preparation	0													
16. Fuel Loading Preparation	0													
17. Maintenance	0													
18. Security & Safeguards	0													
19. Surveillance and Pre OPERATIONAL TESTING	0													
20. Emergency Planning	0													
21. Audits, Reviews, and Committee activities	0													
22. Modules Not included in Any Functional Area	921					1	1			20	3			
TOTALS	1240					2	2			20	3			

LESSING

A - Outstanding  
 BA - Exceeds Average  
 NOT OBS - Not Observed

responses were performed during the evaluation period. Two noncompliances were identified. These were:

- (1) Severity Level IV violation for failure to take adequate corrective action to prevent repetition of not identifying design documents for the remaining FSAR re-review packages.
- (2) Severity Level V violation for failure to have adequate soil implementing procedures.

A special team inspection (81-12) was performed during the evaluation period. One noncompliance was identified: Severity Level IV violation for failure to take adequate corrective action regarding identified adverse trends. For example, 22 instances of construction bypassing QC hold points were included in the trending analysis, but an adequate analysis to identify the root cause was not performed. Subsequent to the inspectors finding, QA issued a stop work order in this area.

A management meeting between CPCo and the NRC was held on March 13, 1981, to present the new Midland Project QA team. Actions taken and proposed to improve the QA program were also discussed.

B. Rating:

Below Average. Based upon all the effort put forth by CPCo. since the December 1979 order, the inspector was disappointed to find that they did not have adequate soil implementing testing procedures in place, that the major FSAR re-review effort was not being accomplished according to procedures, and that they were not taking adequate corrective action in their trending program. Conversely, the Quality Assurance program as it pertains to the electrical and instrumentation areas appeared

C. Comments: Satisfactory.

The inspection frequency for this area should be increased to verify compliance with commitments discussed during the March 1981 management meeting and to confirm the effectiveness of corrective actions already initiated.

2. Site Preparation and Foundations:

A. Analysis: (Civil Engineering Input)

One routine inspection (81-09) has been performed during the evaluation period. One noncompliance has been identified: Severity Level Y violation for failure to follow procedures in the procurement of Woodward-Clyde Consultants.

Two special inspections (80-32; 80-33 and 81-01) regarding CPCo 50.54(1) responses were performed during the evaluation period. One noncompliance and one deviation were identified. These were:

*N.T.S.*

- (1) Severity Level IV violation for failure to have adequate design control measures with three examples cited.
- (2) Deviation for failure to provide a fulltime onsite geotechnical engineer.

The licensee has issued one 50.55(e) in this area: the borated water storage tank foundations cracks.

No significant events took place in this area during the evaluation period. Midland soils bearing preliminary work (i.e., discovery, disposition, etc.) was proceeding.

B. Rating:

Below Average. The inspectors were disappointed to find that the licensee did not have adequate soil boring procedures in place prior to commencement of work; that design interface problems still existed in Ann Arbor's Bechtel office and that there wasn't a geotechnical engineer onsite.

C. Comments:

The inspection frequency should be increased proportional to the amount and type of remedial soils work that CPCo begins.

3. Containment Structures:

A. Analysis: (Civil Engineering Input)

One routine inspection (80-25; 80-26) has been performed during the evaluation period. No items of noncompliance were identified.

The licensee has issued two 50.55(e)'s in this area. These were:

- (1) The seismic model used for the auxiliary building appears to be incorrect.
- (2) Major shear reinforcement around major containment penetrations appears to be insufficient.

B. Rating:

Average.

C. Comments:

No significant events or activities took place in this area during the evaluation period. Inspection frequency for this activity is about right.

.. Containment work is complete.

4. Safety-Related Structures:

No DETI inspections were conducted during the SALF II evaluation period for this functional area. Therefore, the DETI input is "not observed."

5. Piping and Hangers:

No DETI inspections were conducted during the SALF II evaluation period for this functional area. Therefore, the DETI input is "not observed."

6. Safety-Related Components:

No DETI inspections were conducted during the SALF II evaluation period for this functional area. Therefore, the DETI input is "not observed."

7. Electrical:

A. Analysis: (Electrical and Instrumentation Input)

Three inspections (110 hours) have been performed during this evaluation period. Three violations were identified. These violations were:

- (1) Severity Level V violation (Criterion X) for failure to assure that activities affecting quality comply with documented instructions, procedures, design documents, and applicable codes and standards in that the Quality Control inspector failed to verify that electrical cables are routed within the equipment without violating the 6 inch minimum separation requirements between Class 1E and non-Class 1E cables (Unit 1 only).
- (2) Severity Level V violation (Criterion XV) for failure to establish measures to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation in that the inspectors identified 14 instances in which cable trays were not installed in accordance with separation requirements (barriers were not shown on drawings) and had not been identified and controlled. Each of the 14 cable trays had been inspected by Quality Control and released for cable installation and each tray contained cable.
- (3) Severity Level V violation (Criterion X) for failure to assure that activities affecting quality comply with documented instructions, procedures, design documents, and applicable codes and standards in that the Quality Control inspector failed to verify that electrical cables are routed within the equipment without violating the minimum bend criteria of electrical cables. (Unit 1 only.)

The first two items were identified during a routine safety inspection on

April 28-30 and May 1, 1981, and the last item was identified during a team inspection on May 18-22, 1981.

B. Rating:

Average.

C. Comments:

Recommend an increased inspection effort in this area to confirm the effectiveness of corrective actions already initiated. In general, the licensee has taken prompt and effective action to correct the violations identified by the RIII inspectors. The overall effectiveness and attitude of licensee's Quality Assurance personnel in complying with NRC regulatory requirements for the construction of nuclear power plants is very good in that they have established an effective "zero-line" inspection of their construction activities.

8. Instrumentation:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

9. Fire Protection:

No DETI inspections were conducted during the SALP evaluation period for this functional area. Therefore, the DETI input is "not observed."

10. Preservice Inspection:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

11. Corrective Action and Reporting:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

12. Procurement:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

13. Design and Design Changes:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

14. Training:



No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

15. Plant Operations Preparations:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

16. Fuel Loading Preparation:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

17. Maintenance:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

18. Security and Safeguards:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

19. Surveillance and Preoperational Testing:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

20. Emergency Planning:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

21. Audits, Reviews, and Committee Activities:

No DETI inspections were conducted during the SALP II evaluation period for this functional area. Therefore, the DETI input is "not observed."

DETI INVESTIGATION AND INSPECTION  
MANHOURS FOR EACH FUNCTIONAL AREA  
(Midland)

1. Quality Assurance: Unit 1 - 149 hours  
Unit 2 - 149 hours
2. Site Preparation and Foundations: Unit 1 - 53 hours  
Unit 2 - 53 hours
3. Containment Structure: Unit 1 - 25 hours  
Unit 2 - 4 hours
4. Safety-Related Structures: 0 hours
5. Piping and Hangers: 0 hours
6. Safety-Related Components: 0 hours
7. Electrical: Unit 1 - 55 hours  
Unit 2 - 55 hours
8. Instrumentation: 0 hours
9. Fire Protection: 0 hours
10. Preservice Inspection: 0 hours
11. Corrective Actions and Reporting: 0 hours
12. Procurement: 0 hours
13. Design and Design Changes: 0 hours
14. Training: 0 hours
15. Plant Operations Preparations: 0 hours
16. Fuel Loading Preparation: 0 hours
17. Maintenance: 0 hours
18. Security and Safeguards: 0 hours
19. Surveillance and Preoperational Testing: 0 hours
20. Emergency Planning: 0 hours
21. Audits, Reviews, and Committee Activities: 0 hours

MASTER SHEETS FOR INVESTIGATION AND  
INSPECTION HOURS AND NONCOMPLIANCES  
(Midland)

The first sheets of this attachment contain data obtained by Mr. Yembling's section in reference to total manhours and noncompliances for Midland. The left hand margin has recommended ratings for each functional area in which the Division of Engineering and Technical Inspection (DETI) provides an input.

The remaining page contains unresolved items noted between the master sheets and DETI inputs or general comments.

U.S. NUCLEAR REGULATORY COMMISSION  
REGION III

OUTGOING TRANSMISSION SERVICE REQUEST

Date 10-1-81

Number of pages 1

To (Name): R.J. COOK

From: D.C. BOYD

Description SALP-11 INPUT

Air Rights Bldg \_\_\_\_\_  
E/W Towers \_\_\_\_\_  
M Street \_\_\_\_\_  
MCBB \_\_\_\_\_  
Phillips Bldg \_\_\_\_\_  
Silver Springs  
(Willate Bldg) \_\_\_\_\_  
Lanow Bldg \_\_\_\_\_  
Region I \_\_\_\_\_  
Region II \_\_\_\_\_  
Region IV \_\_\_\_\_  
Region V \_\_\_\_\_  
Resident at MIDLAND \_\_\_\_\_  
KSAC \_\_\_\_\_  
INPO \_\_\_\_\_  
Corporate Office \_\_\_\_\_  
(Identify recipient & fax number)  
Other \_\_\_\_\_  
(Designate - include fax number)

FOR WF & D/C USE

System & (RF) \_\_\_\_\_  
Rapifax \_\_\_\_\_  
M. EXT #727 \_\_\_\_\_  
M. EXT #728 \_\_\_\_\_  
FTS \_\_\_\_\_  
Commercial \_\_\_\_\_  
Time Started \_\_\_\_\_  
Time Completed \_\_\_\_\_  
Trans. Time \_\_\_\_\_  
(Actual Mins.)  
Operator \_\_\_\_\_

I. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND

Docket No. 329

Date 1

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations											
		Severity Levels						Categories					
		I	II	III	IV	V	VI	Viol.	Infr.	Def.	De		
1. Quality Assurance	73					5							
2. Site Preparation and Foundations	18												
3. Containment Structures	26												
4. Safety-Related Structures	2												
5. Piping and Ranges	33				1	4				1			
6. Safety-Related Components	14												
7. Electrical	117						3						
8. Instrumentation													
9. Fire Protection	25												
10. Preservice Inspector.	32												
11. Corrective Action and Reporting	1												
12. Procurement	0												
13. Design and Design Changes	2												
14. Training	0												
15. Plant Operations Preparation	0												
16. Fuel Loading Preparation	0												
17. Maintenance	0												
18. Security & Safeguards	NONE												
19. Surveillance and Pre-OPERATIONAL TESTING	0												
20. Emergency Planning	0												
21. Audits, Reviews, and Committee activities	0												
22. Modules Not included in Any Functional Area	927				1	1				20	3		
TOTALS	1200				2	5				-	0		

LEGEND

A - Average

BA - Below Average

NOT OBS - Not Observed

## KRR PERFORMANCE EVALUATION

Facility: Midland Plant, Units 1 and 2 Project Manager: Darl Hood

Appraisal Period: July 1, 1980 - June 30, 1981

### 1. Performance Elements

#### -- Quality of Responses and Submittals

Responses and submittals during this review period have principally regarded the soils settlement issue, including seismic input, and responses to Post-TMI requirements (MUREE-D737). These matters involve significant design changes, extensive additional calculation soils exploration and laboratory analyses. During the earlier part of this review period, replies to staff's request were not substantive and tended to argue the staff's need for that information; on the management appeal decision or staff position was taken, the replies tended to become responsive. Hence, the quality of the replies tends to be acceptable once the need is firmly established. Following a long appeal to NRC management, recent responses providing soil borings and laboratory tests comply with the staff request and are of acceptable quality. Recent responses establishing new seismic design criteria for the site have been of high quality once the staff position letter (R. Tedesco, October 1, 1980) established the need. Like many other plants, the responses to post-TMI requirements at this point in time largely reflect plans and commitments with details left for a later stage. In summary, while early responses during report period were below average in responsiveness, the more recent responses tend to be substantive and of acceptable quality. This recognizes, of course, that in several areas, design progress does not yet provide for substantive replies.

#### b. Efforts Required to Obtain an Acceptable Response or Submittal

##### (1) Timeliness

It generally takes more than the average time and effort to obtain acceptable and substantive responses from this applicant. The propensity of this applicant to utilize the hearing process and NRC management appeal process to resolve disagreements results in that additional time and effort be expended by the staff in satisfying the applicant that the staff's request or views are adequate. Examples during this report period are discussed above the staff request for soil borings and the need for seismic code resolution. Such factors make it difficult to maintain schedule for this application.

##### (2) Effort

Refer to item 1b (1) above.

##### (3) Responsiveness to staff requests

Refer to item 1a

B. Number and Nature of Deficiency Reports

**DRAFT**

Thirteen (13) Construction Deficiency Reports (CDR's) reported pursuant to 10 CFR 50.55(e), were received by the regional office during the period of July 1, 1980 and June 30, 1981. The nature of these reports covers a broad range of material and construction problems as listed below:

- \*1. High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.
2. Sway Strut Rod Ends Deficiency, IIT Grinnell supplied sway struts, snubbers and shock suppressors have loose or totally disengaged rod end bushings.
- \*3. Component Cooling Water (CCW) Design, CCW system susceptibility to Loss of Coolant Accident (LOCA) induced failures.
4. Nuclear Steam Supply System (NSSS) analysis, anomalies identified in the NSSS seismic and Loss of Coolant (LOCA) analysis of the primary system.
5. Emergency Core Cooling Actuation System (ECCAS) vendor wiring in the ECCAS cabinets IC45 and 2C45 was inconsistent with redundant subsystem modules in the cabinets.
6. Low alloy quenched and tempered bolting 1 1/2 inches and greater in support of safety related systems.
7. Underrated Terminal Strips on Limiting Operators.
- \*8. Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

**DRAFT**

B. Number and Nature of Deficiency Reports

Thirteen (13) Construction Deficiency Reports (CDR's) reported pursuant to 10 CFR 50.55(e), were received by the regional office during the period of July 1, 1980 and June 30, 1981. The nature of these reports covers a broad range of material and construction problems as listed below:

- \*1. High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.
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4. Nuclear Steam Supply System (NSSS) analysis, anomalies identified in the NSSS seismic and Loss of Coolant (LOCA) analysis of the primary system.
5. Emergency Core Cooling Actuation System (ECCAS) vendor wiring in the ECCAS cabinets 1C45 and 2C45 was inconsistent with redundant subsystem modules in the cabinets.
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U.S. NUCLEAR REGULATORY COMMISSION  
 REGION III  
 OUTGOING TRANSMISSION SERVICE REQUEST

Date: 9/30/81 Number of Pages: 4  
 To (Name): R.J. COOK  
 From: DC Boyd  
 Description: NRIC SAMP 141-14

Air Rights Bldg \_\_\_\_\_  
 L/W Towers \_\_\_\_\_  
 1 Street \_\_\_\_\_  
 233 \_\_\_\_\_  
 Phillips Bldg \_\_\_\_\_  
 Silver Springs  
 (Willste Bldg) \_\_\_\_\_  
 Landow Bldg \_\_\_\_\_  
 Region I \_\_\_\_\_  
 Region II \_\_\_\_\_  
 Region IV \_\_\_\_\_  
 Region V \_\_\_\_\_  
 Resident at MIDLAND \_\_\_\_\_  
 NSAC \_\_\_\_\_  
 INFO \_\_\_\_\_

<u>FOR WP &amp; D/E USE</u>	
System 6 (WP)	_____
Rapifax	_____
3M EXT #727	_____
3M EXT #728	_____
FIS	_____
Commercial	_____
Time Started	_____
Time Completed	_____
Trans. Time	_____ (Actual Mins.)
Operator	_____

Corporate Office \_\_\_\_\_  
 (Identify recipient & fax number)  
 Other \_\_\_\_\_  
 (Designate - include fax number)

MEMO FOR : RF Heiskman

FROM : D.W. Hayes

SUBJECT: MIDLAND

①

The purpose of this memo is to discuss the project section views and recommendations relative to the excessive settlement of the Midland diesel generator building and to the broader question as to whether ~~the question~~ this is an isolated case or indicative of an overall lack of adequate quality program. For the purpose of this memo when we discuss the diesel generator building settlement we recognize that similar related problems may exist with other structures.

Q. As you know several adverse events have occurred at Midland since the show cause order in 1973. Following each of these events we thoroughly reviewed the adequacy of the quality assurance program applicable to those activities associated with each event. In each case we have satisfied ourselves that the program met requirements and that failures leading to the event were isolated. Further we established that the ability of the affected structure or equipment to perform its intended design function was not compromised.

Now comes the diesel generator building settlement problem and our confidence in the quality assurance program at Midland is again shaken. We do not have enough information at present to determine if the diesel generator building problem is an isolated event ~~or not~~ and if the program failures leading to the event occurred prior to full implementation of programs

improvements growing out of the  
show cause order and the rebar  
placement problems. Regardless  
however, we feel we are at a junction  
~~critical point~~ for this project  
~~is~~ not only because of this event  
but because of the critical  
stage of construction now in  
progress, <sup>active opposition to the project,</sup> and the upcoming hearings  
~~for an operating license.~~

We must not only establish  
exactly what happened ~~and when~~  
~~and why~~ concerning the  
diesel generator building deficiency  
and if there was prior knowledge  
or <sup>any</sup> intent to mislead the commission  
but we must also fully  
convince ourselves of the  
adequacy of the Midland quality  
assurance program and the  
ability of the licensee and  
his contractors to <sup>fully</sup> implement  
it on a continuing basis

The first phase of this effort has been initiated (Attached is an outline on what we feel should be covered) The last phase, which deals with generic questions we feel can be accomplished by the routine mid QA inspection already planned to be conducted in the next month or two.

We plan to <sup>supplement</sup> ~~modify~~ the mid QA inspection procedure to probe any deficiencies or weakness identified in our investigation of the diesel generator building problem. We also plan to broaden the coverage and inspect to a greater depth and detail ~~than~~ ~~specified~~ in the area of program provisions, activities and records concerning <sup>receipt</sup> evaluation of quality documents to establish acceptance of purchased equipment and components. We feel the ~~fact~~ <sup>fact</sup> ~~later~~ <sup>later</sup> is needed because of the <sup>many NCRs Baktel has written in this area</sup> identified problems relative to ~~paper~~ ~~documentation~~ ~~and~~ ~~support~~ ~~and~~ ~~qualification~~ of electrical components.

no 4

We also plan to delete <sup>those</sup> parts of the mid QA procedure requirements already thoroughly reviewed in connection with our investigation of the diesel generator building settlement problem or during other special inspections. Presently we are looking ~~to~~ at late February or early March 1979 to conduct the mid QA inspection. Details of the inspection plan should be ready for your review by February 15, 1979.

SWT

cc/ R.J. Cook  
W.A. Hansen  
T.E. Vandell  
Danielson  
Spessard

RECOMMENDED ITEMS TO BE REVIEWED  
RELATIVE TO THE SETTLEMENT OF THE  
DIESEL GENERATOR BLDG.

1. Did adequate QA/QC program provision exist to control the:

a. design and specification for the sub soils?

b. design and specification for the Diesel Generator building footings and foundation <sup>Diesel Gener. Foundations</sup>

c. design and specification for ~~the~~ any appurtenances <sup>to the DG building</sup> such as the ~~DG~~ electrical bus ducts?

d. installation of the sub soils?

e. preparation of the FSAR?

2. When were the design specifications for the sub soils approved and issued? What changes were made? What was the ~~the~~ issue date for each revision? What comments were received from Bechtel reviewers? From Consumers Power reviewers? Were the comments resolved? What revision(s) was in effect at the time of installation?

3. Same as item 2 above except for the design specifications for the footings and other parts of the diesel generator building foundation
4. Same as item 2 above except for the design specifications for ~~the~~ any appurtenances to the diesel generator building such as the electrical bus ducts
5. When was the fill material <sup>(sub soil)</sup> ~~(sub soil)~~ placed for the diesel generator building? ~~placed~~ For other affected structures?
- Was the specification followed in the installation of the sub soils?
  - What testing was performed? Was the testing consistent with specifications, codes and standards?
  - What was Bechtel's <sup>QA/QC</sup> involvement in the installation and testing?
  - What was Consumers Power <sup>QA/QC</sup> involvement in the installation and testing?



6. Were the QA/QC program provisions for the activities listed in item 1 above followed?

9. Was the cause of the <sup>excessive settlement of</sup> diesel generator building due to:

- inadequate specifications?
- inadequate QA/QC program?
- failure to follow ~~of~~ specifications and/or procedures?
- inadequate testing?
- other causes?

f. combination of above?

g. unexpected effect of increasing ground water level caused by filling at the cooling pond.

7. When was the excessive or unexpected settlement of the diesel generator building discovered? by whom?

8. What requirements exist for the measurement, ~~and~~ reporting <sup>and evaluation</sup> of settlement of Midland site structures? Were these requirements met? When were they issued? Who is responsible for the measurement? for the reporting? for evaluation?

10. Has excessive or unexpected settlement occurred on other structures? If so when was it discovered? What action was taken ~~by~~ by Bechtel? by Consumers Power?

Has any changes occurred relative to expected ground water level at the site? Has any changes in the relative elevations between the expected site ground water level and the Diesel generator building foundation?

MISC

In a letter dated December 12, 1978 to Mr Koppler Mary Sinclair states she heard about sinking of buildings from workers' children last Spring. Determine if possible if there was any basis for her statement.

Were the reporting requirements of 10 CFR 50.55(e) met in regard to the Diesel generator building settlement?

Assuming the sub soil for the diesel generator building were placed incorrectly would this deficiency ~~not~~ alone cause the problem?

# Midland Report

This report contains the Midland Units 1 and 2 Status for 1978.

The report provides status of:

- (1) the manual chapter inspection program and enforcement history
- (2) all open items (Non compliance and unresolved matters)
- (3) Repeatable deficiencies
- (4) Significant events and problem areas.

## 1 - Manual Chapter Inspection Program

The module inspection program for the B program is ~~considered to be~~ approximately 50% complete for both units. The summary status is as follows:

<u>Unit</u>	<u>Modules Complete</u>	<u>Modules Open</u>	<u>Modules to be Opened</u>
-------------	-------------------------	---------------------	-----------------------------

The inspection program has since July 1973 consisted of inspections performed by regional office personnel and by the Resident Inspector. ~~During these inspections~~ The following table provide ~~to~~ a historical summary of the number of inspections performed and the number of Non compliance items identified.

Year	No Reports	No Noncompliance Items
1970	6	4
1971 <sup>2/</sup>	2	0
1972 <sup>1/</sup>	1	0
1973 <sup>3/</sup>	11	9
1974	11	3
1975 <sup>2/</sup>	7	0
1976 <sup>4/</sup>	9	14
1977 <sup>5/</sup>	15	5
1978	20	8
1978 (R) <sup>6/</sup>	545	3

<sup>1/</sup> CP issued 12/14/72

<sup>2/</sup> Period of delayed construction

- 4/ Immediate action letter (Report 78-0)
- 5/ Immediate action letter April 1977 regarding Tendon Sheathing
- 6/ Reports of the Resident Inspector

~~Other power plants at the same status of construction~~

The following table provides data to indicate the inspection activity and inspection results (in terms of noncompliance items and unresolved matters) at other reactor plants ~~during the past~~ at a comparable ~~construction~~ state of construction.

Year	Plant No.		
	1 Reports of Non Comp	2 Reports Items of Non Comp	3 Reports Items of Non Comp
1974			
1975			
1976			
1977			
1978			

- 4 ✓ Immediate action letter Re: Report 76-0
- 5 ✓ Immediate action letter April 1977 regarding
- ~~5~~ Tendon Shearoff
- 6 ✓ Reports of the Resident Inspector

2 - Status of Open items  
Code Clerk 11

During 1973 — open items of Non compliance and unresolved matters were reviewed on the Construction Site and were determined to have been ~~been~~ satisfactorily resolved. The items still outstanding are:

How many  
 Does Cook note

Items of Non compliance 10 \*

Unresolved matters 12 \*\*

\* this includes 4 items identified in November and December. The Licensee has taken action to resolve the items but has not completed the action

\*\* this includes 3 items identified in

(5)

taken action to resolve the items  
but has not completed the action.

### 3- Reportable Deficiencies [CFR 50.55(e) items]

~~Following is a list of the~~  
~~Reportable Deficiencies~~  
~~and their current status~~

A - The following items ~~on~~ were  
reported by the licensee as  
~~50.55(e)~~ 50.55(e) items. The  
current status is provided.

- (1) Decay heat removal pump  
casting - radiography: The  
licensee follow up regarding  
the reported inadequate radiography  
was satisfactory. The pumps  
are being installed at the site.  
The item is closed



(F)

(2) Reactor vessel surveillance capsule holder tube: This item is a generic item regarding B&W designed specimen holders located inside of the RPV. This item is considered closed with the understanding that the licensee will stay informed of the experiences of <sup>the</sup> Davis-Besse <sup>plant (that has the same specimen holder design)</sup> (who also had the same change) for possible future problems.

(3) Containment building personnel airlocks weld cracking: A final report had been received by RIII regarding the repairs to the cracked welds. Followup by RIII disclosed that the welding performed failed to follow the prescribed instructions of the controlling <sup>Nonconformance Report</sup> ~~specification~~. This ~~was~~ <sup>has been</sup> identified as a noncompliance item in a recent inspection report. ~~The licensee indicated that a supplemental report will probably be issued in addition to the letter of response for the noncompliance item.~~ <sup>278-17-</sup>

(4) Unit 2 containment liner bulge: The design report, intended to be the final <sup>30,336</sup> report, was issued at a meeting held in Ann Arbor, <sup>Michigan</sup> ~~the~~ last of June 1977, attended by R. F. Heishmen and R. E. Shewmaker. This report is ~~still~~ <sup>in MA personnel</sup> under review by Mr. Shewmaker. ~~No response has ever been sent to the licensee acknowledging the final report.~~ The repair work was completed about ~~the end of~~ <sup>in</sup> May 1978, however ~~final~~ <sup>not made</sup> review has been done by RIII <sup>Inspector</sup> pending response from ~~Mr. Shewmaker~~ <sup>EE, KS</sup>.

(5) Seismic cable tray supports welding: A final report has been received, <sup>Final</sup> review by RIII ~~is yet to be done~~ <sup>NRC</sup> is not complete.

(6) Undersized fillet welds on ITT-Grinnell safety related pipe hangers: ~~Some of the final report has been done by the assigned Hangers and Snubbers Engineering inspectors, however, more review is planned.~~ <sup>The final Licensee Report has been received and is under review by R III Inspectors.</sup>

(7) Other reportable deficiencies in various stages of corrective action status by the licensee are as follows:

- (a) Reactor coolant pump motor flanges
- (b) Reactor building spray piping supports
- (c) Design deficiency of the NI/RPS grounding
- (d) Piping small break analysis not conservative
- (e) Class 1E station battery racks
- (f) Settlement of diesel generator building

(g) Components lack of qualification

(h) Crimping of electrical connections inside junction boxes

NRC Created Problem

**B. Items that have been referred to IE:HQ**

1. Unanswered inquiries addressed to IE:HQ regarding components and material relative to a safety/nonsafety status as follows:

(1) Failure to identify certain class 1E system components to be covered by Consumers Power's QA manual letter Spessard to Reinmuth April 28, 1978.

(2) Classification of spent fuel pool liner plate presently classed as nonsafety related by Bechtel. Letter Danielson to Reinmuth June 1, 1978.

(3) ~~Apparent noncompliance with 50.55 a (h) regarding identification of components (color coding of electrical equipment and cables).~~ Letter Spessard to Reinmuth dated May 3, 1978. *Identified*

*Not the 1st interaction. We have a response from IEI saying this is pointing an investigation. C. Miller*

*Under sized wire used in Control Room make up air filter drain heaters*

2. ~~In ability to deal effectively with licensee regarding 50.55(e) items due to lack of support from IE:HQ. Examples:~~

(4) Unit 2 containment liner bulge design report and completion of repair. ~~Headquarters personnel have been reviewing the report for 18 months now with no response.~~

(5) AWS D1.1 question regarding voltage/current requirements for welding. IE:HQ provided a position which appears questionable, then remains adamant without interest in resolving the problem.

Midland Facility Items

4 Significant Events and Problem Areas:  
a. Significant Events

(A) <sup>Major</sup> Installation of the NSSS components for both units was completed.

b. The cooling pond was filled from spring run off water from the Tidibewassee river

(2) Both units passed the 50% completion mark during the year. ~~as reported in the yellow book. This figure is considered to be conservative and the fuel load dates are considered to be obtainable.~~ <sup>appear</sup>

3. Consumers has added substantially to their QA/QC-staff for the Midland project. This as allowed them appreciably to expand their own areas of coverage and details of review.

(3) <sup>Resident inspector was assigned</sup> RIII inspection coverage was expanded by the assignment of a resident inspector in July 1978

Problem Areas:

B. Significant problems:

A. Acceptability of equipment qualification tests and/or discrepancies in qualification test data review touches different kinds of equipment (mechanical & electrical) supplied by different vendors. This has been addressed by Electrical Support Inspectors and the licensee's recent 50.55(e) reportable item. ~~The electrical inspectors believe it should rightfully cover all specification requirements. The involvement of the licensee expanding on this issue may have a limiting effect on the effectiveness of the mid QA inspection scheduled for January, 1979. This is considered the most urgent problem at Midland to date.~~

(1) There is (and has been) a continued reliance on the ~~credability~~ <sup>The form is used to</sup> of information on a Bechtel G321-D form, which states that ~~equipment has been shipped from the vendor in an acceptable manner.~~ <sup>certify that was satisfactory when it left the vendor</sup> ~~This reduces the depth of receipt inspection at the site. However, there are questions which pertain to the adequacy of the inspections performed at the vendor shops which result in materials being received at the site which do not necessarily meet all the requirements.~~ <sup>is used to</sup> ~~This item may be tied to item 1 above.~~ <sup>have been raised</sup>

(2) Warehousing: Items ~~are periodically being released from the warehouse without inspection by~~ <sup>have been</sup> and are stored in place without the preventative maintenance and equipment protection programs being triggered. ~~There may be other problems in the warehousing and dissemination of material. An adequate mid-QA inspection is being taken to improve. However this area should be thoroughly reviewed during the programs and/or implementation of these programs.~~ <sup>this has been brought to the attention of Consumer Power Company and action is needed to identify weaknesses in the licensee warehousing programs</sup> ~~Mid term QA inspection.~~

D. ~~CPCO management review of licensee QA inspector findings may not be as in depth as desired. Particularly on those items which may have a sedatory or long lead time affect on the plant integrity.~~

(3)

D. Settlement of the diesel generator building, and ~~all the ramifications associated with procuring and analyzing information which will ensure an adequate structure.~~

*examples?*  
E. Bechtel's repeated failure to inspect adequately, without tunnel vision, in a timely manner results in failure to promptly identify (if at all) unacceptable areas.

G. Build then design syndrome—Occasionally structures cannot be fitted to existing structures. The structure being placed is then altered from the original blue print with a change to the blue print made later. Rather than, the necessary engineering analyses being performed, the blue prints changed and then the structure being installed. Without assurance of a timely engineering review, proper placement (from a loading star point) of structures and/or snubbers cannot be guaranteed.

Need examples

208

79/80

NUREG-0834  
Final Report

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# NRC Licensee Assessments

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## U.S. Nuclear Regulatory Commission

Systematic Assessment of Licensee Performance  
Review Group (SALP)



### COMMISSION STATEMENT

The Commission endorses the staff's factual findings in this report concerning individual licensee operations. The Commission also encourages licensees to make improvements in the areas of weakness identified by the staff. However, in view of the long time span during which individual plant evaluations were made, the Commission does not believe that the relative rankings necessarily represent current conditions. The Commission has prepared guidance for the staff to govern the conduct of future assessments.

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

September 2, 1981

ERRATA SHEET

FOR

NUREG-0834

NRC LICENSEE ASSESSMENT

Published: August 1981

U.S. Nuclear Regulatory Commission

In Table 2, "Ratings for Power Reactor Facilities Under Construction" under "Average Facilities" between "River Bend 1 & 2" and "San Onofre 2 & 3" insert the following:

"St. Lucie 2	Florida Power and Light Company	9/1/79-8/31/80"
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DIVISION OF TECHNICAL INFORMATION

AND

DOCUMENT CONTROL





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

December 7, 1981

TO: RECIPIENTS OF NUREG-0834

Our publication distribution contractor has advised us that due to an error in the automated label generation process for NRC document "NUREG-0834" some individuals did not receive the document. In light of the importance of the material we have directed the contractor to redistribute copies of the document.

We regret any inconveniences this error may have caused.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

The following was provided as guidance by the Commission in a memorandum, dated October 20, 1981, for W. Dircks, Executive Director for Operations, from S. Chilk, Secretary.

COMMISSION GUIDANCE FOR FUTURE CONDUCT OF  
THE LICENSEE ASSESSMENT PROCESS

On September 22, 1981, the Commission was briefed on the results of the staff's evaluation of licensee performance conducted under the program entitled Systematic Assessment of Licensee Performance (SALP). The Commission also was briefed on the objectives underlying the program.

The Commission believes that those elements of the program directed toward fulfilling the objectives--especially the objective of improving allocation of inspection resources--should continue in the future. However, other aspects of the program should be changed along the lines of modifications suggested below:

- While it is understandable that the first assessment of licensee performance reached back to two years ago, the timeliness must improve. The staff should set as a target that assessments for each operating and construction facility will be completed annually. The individual facility assessments should take place at a uniform rate throughout the year.
- The assessments should be made at a regional level. Involvement of NRC offices other than the Office of Inspection and Enforcement should continue as part of the assessments. The headquarters activity should be redirected to evaluating the policy, criteria, and methodology for these assessments.
- Assessment criteria should be established that do not depend on looking at all plants to determine relative performance (e.g., an average and levels around that average). The staff should be sure that the new assessment criteria are widely published and well understood. We and the licensees must know what it takes to fall under the criteria and rise out from under them. Also, those doing the assessments should have recognized expertise in applying the criteria.

- The staff should ensure the existence of a process for taking licensee responses into account. Specifically, a licensee must have the opportunity to comment on assessment results before they are made final and the licensee is characterized, e.g., as needing to improve performance.
- The adverse implications of ranking utilities can be avoided by adopting three categories for the assessment. The first category should identify those facilities for which more licensee and hence more NRC attention is needed. The second category should identify those facilities for which proper balance of licensee and NRC attention has been achieved. The last category should identify those facilities for which more than adequate attention by the licensee is apparent and hence a reduction in NRC resources for those facilities can be realized.
- Actions identified as needed are expected to be initiated immediately following completion of the appraisal for a particular licensee. Where these actions include changes in the amount of NRC inspection resources devoted to a facility, criteria should be established to govern such changes (e.g., how many and what type of inspections should be added or subtracted).

The Commission understands that a draft Manual Chapter is currently in use for the program. This Manual Chapter should be rewritten to reflect this Commission guidance. Within the next month the revised Manual Chapter should be issued by the EDO. In the meantime, the licensee assessments that are underway should continue with the old guidance until the new Manual Chapter is issued. New assessments should be started under the new guidance as soon as possible.

Without holding up issuance of the new Manual Chapter, but within the near future, the public should be given an opportunity to evaluate and comment on the assessment process that will ultimately be used. In addition, as future NRC assessment techniques are developed, the staff should devise ways to work with the Institute for Nuclear Power Operations (INPO). By doing so, NRC could gain confidence in our own techniques and perhaps make use of NRC resources more efficiently.

Concerning the current summary report prepared by the staff, the Commission authorizes release of the report subject to the following conditions:

- this Commission guidance is displayed prominently on top of the report.
- the statement below is printed boldly on the cover of the report.

COMMISSION STATEMENT

The Commission endorses the staff's factual findings in this report concerning individual licensee operations. The Commission also encourages licensees to make improvements in the areas of weakness identified by the staff. However, in view of the long time span during which individual plant evaluations were made, the Commission does not believe that the relative rankings necessarily represent current conditions. The Commission has prepared guidance for the staff to govern the conduct of future assessments.

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# NRC Licensee Assessments

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Manuscript Completed: August 1981  
Date Published: August 1981

Systematic Assessment of Licensee Performance Review Group (SALP)

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



## COMMISSION STATEMENT

The Commission endorses the staff's factual findings in this report concerning individual licensee operations. The Commission also encourages licensees to make improvements in the areas of weakness identified by the staff. However, in view of the long time span during which individual plant evaluations were made, the Commission does not believe that the relative rankings necessarily represent current conditions. The Commission has prepared guidance for the staff to govern the conduct of future assessments.

## FOREWORD

This report provides facility ratings for operating power reactor licensees and construction permit holders as determined by the Systematic Assessment of Licensee Performance (SALP) Review Group. Facilities have been rated as above average, average, or below average.

Because the SALP process involves collection of data over an appraisal period of at least one year, followed by an evaluation interval, much of the performance information from which this review was made is from one to one and a half years old. Weaknesses found during the appraisal period are in various stages of correction by the licensees. This report does not reflect such corrective actions since they are dynamic and do not lend themselves to inclusion as a specific interim appraisal update. The effect of corrective actions will be reflected in the next SALP review. This appraisal delay is an inherent feature of SALP. Details concerning licensee corrective actions are available in inspection reports and correspondence in individual facility docket files.

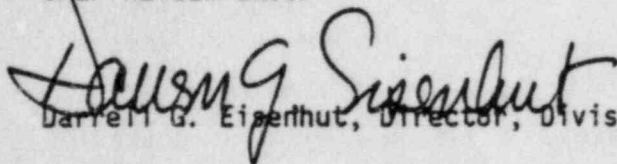
Any rating process that uses judgmental elements is susceptible to challenge. The facility ratings in this report are no exception. It is expected that some will feel that certain elements of performance were not given adequate emphasis and that others were overemphasized. Nevertheless, the facility ratings represent the best collective judgment of senior NRC managers viewing licensee nuclear safety performance from a national perspective. A rating of below average does not mean that a facility was unsafe or that its operation or construction should be stopped. The expected performance level for nuclear facilities is high, as it should be. A rating of below average means that the facility was not meeting the full measure of these high expectations and that, relative to the population of nuclear facilities, the facility's performance was judged to be less desirable than most other facilities.

The overriding goal of SALP is improved performance of the industry as a whole and greater assurance to the public that nuclear power reactors are built and operated safely. Areas of weakness were identified at various facilities

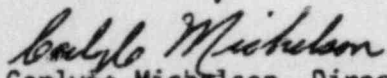
during the SALP. These weaknesses were discussed with the respective licensee management organizations and improvements in these areas are expected from licensee corrective actions already taken or initiated. The regulatory process has not historically made an effort to highlight good performance. Imperfections or perceived weaknesses are emphasized and reported more than positive attributes. The NRC has focused, and continues to focus, its attention on licensees warranting increased regulatory effort to ensure that their performance is adequate.

The appraisal of licensee performance is a task from the "NRC Action Plan Developed as a Result of the TMI-2 Accident" (NUREG-0660). The intent of the appraisal and rating process is not to "label" licensees, developing a sense of complacency for those rated above average or a sense of condemnation for those rated below average. The intent is for the findings of the Review Group be used for attaining a high level of performance by all licensees.

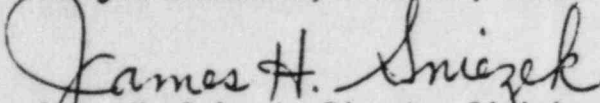
SALP REVIEW GROUP



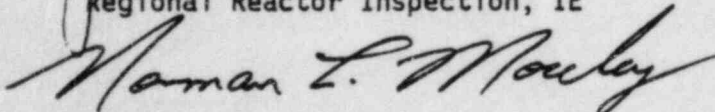
Darrell G. Eiserhut, Director, Division of Licensing, NRR



Carlye Michelson, Director, AEOD



James H. Sniezek, Director Division of Resident and  
Regional Reactor Inspection, IE



Norman C. Moseley, Director, Division of Program  
Development and Appraisal, IE, Review Group Chairman

Report on Licensee Assessments prepared for the  
SALP Review Group by R. H. Wessman, IE

#### ABSTRACT

This is the first report concerning NRC's program entitled Systematic Assessment of Licensee Performance (SALP). It provides facility ratings for operating power reactor licensees and construction permit holders as determined by the NRC's SALP Review Group. Facilities are rated as above average, average or below average.



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## NRC LICENSEE ASSESSMENTS

### 1.0 INTRODUCTION

A licensee appraisal program has been implemented in accordance with Task I.B.2 of NUREG-0660, Volume 1, "NRC Action Plan Developed as a Result of the TMI-2 Accident." The program itself is described in SECY 80-83 dated February 12, 1980 and the SALP Review Group Charter approved by the Executive Director for Operations on August 25, 1980. Copies of these documents are attached.

This first report presents the findings of the SALP Review Group based on a review of the licensee performance records. Among the records reviewed were the licensee evaluations made by NRC Regional Offices for operating power reactor facilities and power reactor facilities under construction. In this report, an operating power reactor facility or a power reactor facility under construction is referred to interchangeably as the "facility," the "licensee facility," or the "licensee." The evaluation period for an individual facility varied from twelve to eighteen months and generally fell between January 1, 1979 and December 31, 1980.

The regional licensee performance evaluations, in conjunction with other information, provide the SALP Review Group with a systematic basis for determining the relative performance of licensees. The objectives of the SALP program are to:

- Improve licensee performance.
- Improve the NRC regulatory program.
- Identify other-than-average licensee performance.
- Provide a basis for management allocation of NRC resources.

Facility ratings of above average, average, or below average were assigned by the SALP Review Group using the guidance provided below. Not all the indicated attributes were necessarily present for a particular rating to apply. The ratings used and their characteristics are as follows:

1. Above Average--A combination of characteristics having positive or desirable qualities; displaying unusually good performance.

A facility is characterized as being above average if there is little evidence of administrative, managerial, or material problems; if there are a relatively low number of substantive construction or operational events or items of noncompliance (when compared to others); and if there are few (or no) substantial regulatory issues involving the facility. There are few (if any) significant items of noncompliance, no significant breakdown in management controls, and a substantial fraction of the significant activity areas reviewed are characterized as above average.

2. Average--A combination of characteristics having typical or representative qualities; displaying usual performance.

An average facility may or may not display evidence of administrative, managerial or material problems, substantive construction or operational events, significant items of noncompliance, or regulatory issues. If such evidence does exist, the problem areas are such that they detract little from the licensee's ability to meet nuclear safety requirements and they exist in only a few of the activity areas. The facility's performance is similar to the performance of a majority of facilities, and a substantial fraction of the significant activity areas reviewed are characterized as average.

3. Below Average--A combination of characteristics having negative or undesirable qualities; displaying less than desirable performance.

A facility is characterized as being below average if there exists evidence of significant administrative, managerial, or material problems in several activity areas; substantive construction or operational events (when compared to others); significant items of noncompliance (when compared to others); evidence of repeated items of noncompliance; or several regulatory issues and management contacts involving the licensee's performance. The licensee may have had difficulty in its ability to meet requirements important to nuclear safety. A substantial fraction of the significant activity areas reviewed may be characterized as below average.

A finding of below average does not imply that a facility must be shut down or that construction of a facility must be interrupted. These ratings are only relative. Simply stated, a below average facility displays negative characteristics or undesirable qualities that are not typical of a majority of facilities.

The SALP program is an evolving program and this is the first report providing facility performance ratings. The Review Group found that, as with any new program, changes are necessary to correct programmatic weaknesses. Regional SALP Board evaluations were not all conducted in an identical fashion. Regional SALP Board reports varied in scope and depth. Also, the evaluation process itself involved elements of subjectivity. Steps have been taken to clarify definitions and revise instructions governing the SALP process to provide a more consistent approach in the future.

## 2.0 THE SALP EVALUATION PROCESS

This section describes the basic structure and methodology used by the NRC to systematically assess facility performance. This assessment program was applied to power reactor facilities with an operating license and power reactor facilities under construction. Because the SALP process is a licensee management assessment process, plants with multiple units were evaluated as a single facility (unless the individual units at the same location were under different management organizations). Construction and operating plant evaluations were separated. A licensee with several facilities received a separate rating for each facility.

An evaluation of each licensee's performance was made by a Regional SALP Board consisting of individuals who were involved in the inspection and licensing activities of the licensee such as inspectors, regional managers, and NRR project managers. The Regional SALP Board reviewed licensee technical and management performance and the quality of licensee safety actions.

The Regional SALP Board discussed areas of licensee activity judged as warranting additional or reduced actions. Additional action included meetings

with licensee management, inspection program increases, recommendations to the licensee, or recommendations for NRC action. Reduced actions were generally a reduction in the prescribed inspection program.

Since the Regional SALP Board review was based on historical perspective, there was evidence of NRC action already taken to improve the licensee's performance in an activity area where the finding was below average. A finding of less acceptable performance than below average (i.e., issues were of such a significant nature that they warranted concern over the safety of continued operation or construction prior to their correction) did not occur during the SALP evaluation. Any time that significant issues requiring licensee corrective action were identified, the NRC acted promptly to ensure such action was taken. Licensee or NRC actions may not have been completed at the time of a Regional SALP Board meeting, but the commitments or plans of action were established.

Following the Regional SALP Board evaluation, NRC management met with the corporate management of each facility that had been evaluated. This meeting provided a forum for discussion of issues relating to the facility's performance. These meetings were chaired by senior regional management. The meeting discussion topics included the following items:

1. Performance evaluation--Summary of the performance evaluations in each functional area considered; indications of significant performance trends; and capability and responsiveness of licensee personnel.
2. Enforcement history--Number, severity, and repetitive nature of items of noncompliance; adequacy and timeliness of responses to items of noncompliance; adequacy of corrective action and generic reviews; and indications of significant trends.
3. Reportable events--Significance and repetitive nature of reportable operational events or construction deficiencies; nature of causally linked events; adequacy and timeliness of the reports; adequacy of corrective action and generic reviews; adequacy of the licensee's event response system; and indications of significant trends and patterns.

4. Communications with NRC--Adequacy of bulletin responses and technical correspondence with NRR and other NRC offices.
5. Inspection findings--Status of significant unresolved and open items, and indications of significant trends.
6. Overall performance conclusion--Conclusion on facility performance.

At the meeting, the regional manager also identified those aspects of the licensee's performance that needed improvements based on the NRC assessment. Other matters were also discussed at the discretion of the regional manager. A report documenting the NRC meeting with the licensee was sent to the licensee and to the NRC Public Document Room.

The final step in the SALP process was the national overview and rating provided by the SALP Review Group. The Regional SALP Board evaluation results were forwarded to the SALP Review Group. Four senior NRC managers from NRR, AEOD, and IE reviewed the Regional SALP Board evaluations and other records and rated the licensee facilities as above average, average, or below average.

### 3.0 SALP REVIEW GROUP FUNCTIONS

The objectives of the SALP Review Group are to (1) identify unacceptable elements of licensee performance by reviewing regional licensee appraisals; (2) improve licensee performance by recommending corrective action to the Director, IE and/or the Director, NRR; and (3) overview the consistent application of the SALP program. The Review Group's goal is to rate on a yearly basis the performance of each operating power reactor facility or power reactor facility under construction.

The responsibility for the final national ratings of facilities as either above average, average, or below average is vested in the SALP Review Group. The ratings for this first evaluation represent the best collective judgment of the group and was based on review of the following information:

1. The evaluation of licensee performance for each facility as prepared by the NRC Regional SALP Board, which included the NRR Project Manager for the facility evaluated.
2. Information gathered by the SALP Review Group staff.
3. Results of inspections performed by the IE Performance Appraisal Branch and the Health Physics Appraisal Teams.
4. Consideration of the extent and nature of Construction Deficiency or Licensee Event Reports, number and seriousness of items of noncompliance, and number and severity of enforcement actions.

#### 4.0 SALP REVIEW GROUP FACILITY RATINGS

This section provides the facility ratings made by the SALP Review Group. It is presented in two parts. The first part provides ratings for operating power reactor facilities, and the second part provides ratings for power reactor facilities actively under construction.

For those licensee facilities rated as above average or below average, facility performance elements leading to that rating are summarized. No summary of performance elements is provided for licensee facilities rated as average. The performance of an average facility was similar to the performance of a majority of the facilities rated and lacked distinguishing characteristics that warranted inclusion of a summary in this report. Additional information regarding licensee assessments may be found in the public document room as part of the IE report documenting the regional management meeting with the licensee.

There are several reasons why summaries of licensee performance elements differ for different facilities. First, the SALP Review Group received significant input from the Regional SALP Board evaluation. The regional reports varied in format, style, and characterizations applied to licensees, since the agency directives were general in their requirements. For example, one region used the term "unsatisfactory" to describe below average performance. The terms "acceptable" and "adequate" were used interchangeably.

Second, inspection and licensing activities were not the same for all licensees. For example, not all facilities received the health physics appraisal or Performance Appraisal Branch inspection during the evaluation period, and the findings of these comprehensive team inspections may influence a facility SALP evaluation. In addition, the evaluation periods were different for different facilities.

#### 4.1 Ratings for Operating Power Reactor Facilities

Table 1 provides the ratings for operating power reactor facilities. The facilities in each rating category are listed alphabetically. Performance elements for facilities rated as above average or below average are summarized in Appendix A.

Two power reactor facilities with operating licenses were not evaluated. Three Mile Island 2 was not evaluated because it was shut down for accident recovery pursuant to an NRC Order. Humboldt Bay was not evaluated because it has been shut down pursuant to an NRC Order since 1976.

#### 4.2 Ratings for Power Reactor Facilities Under Construction

Table 2 provides the ratings for power reactor facilities under construction. The facilities in each rating category are listed alphabetically. Performance elements for facilities rated as below average are summarized in Appendix B.

The SALP Review Group found it difficult to rate power reactor facilities under construction. These facilities were at varying stages of activity and completion. The licensing and inspection activities varied with the level of licensee activity. In a number of instances very little information was available. The SALP Review Group did not find facilities under construction with distinguishing characteristics that would permit categorizing them as above average.

The SALP Review Group evaluated three facilities (Marble Hill, South Texas Project, and WNP-2) where construction was not actively in progress during the full extent of the evaluation period. Two of these facilities received



a Regional SALP Board evaluation. The preponderance of information available concerning these three facilities permitted the Review Group to make its rating.

TABLE 1

## RATINGS FOR OPERATING POWER REACTOR FACILITIES

Facility	Operating Utility	Period of Regional SALP Board Evaluation
<u>Above Average Facilities</u>		
Cooper	Nebraska Public Power District	1/1/79 - 8/6/80
Farley Unit 1	Alabama Power Company	5/1/79 - 4/30/80
Unit 2		4/1/79 - 3/30/80
Fort Calhoun	Omaha Public Power District	1/1/79 - 6/30/80
Millstone 1 & 2	Northeast Nuclear Energy Company	7/1/79 - 7/1/80
Oconee 1, 2 & 3	Duke Power Company	5/1/79 - 4/30/80
Point Beach 1 & 2	Wisconsin Electric Power Company	11/1/79 - 10/31/80
Prairie Island 1 & 2	Northern States Power Company	9/1/79 - 8/31/80
Vermont Yankee	Vermont Yankee Nuclear Power Corporation	5/1/79 - 5/1/80
Yankee Rowe	Yankee Atomic Electric Company	5/1/79 - 5/1/80
<u>Average Facilities</u>		
Big Rock Point	Consumers Power Company	9/1/79 - 9/30/80
Calvert Cliffs 1 & 2	Baltimore Gas & Electric Company	10/1/79 - 9/30/80
D. C. Cook 1 & 2	American Electric Power Service Corporation	10/1/79 - 9/30/80
Dresden 1, 2 & 3	Commonwealth Edison Company	7/1/79 - 6/30/80
Duane Arnold	Iowa Electric Light and Power	9/1/79 - 8/31/80
Ft. St. Vrain	Public Service Company of Colorado	10/1/79 - 10/1/80
Ginna	Rochester Gas and Electric Corporation	1/1/79 - 5/2/80
Haddam Neck	Connecticut Yankee Atomic Power Company	6/1/79 - 6/1/80
Hatch 1 & 2	Georgia Power Company	4/1/79 - 9/30/80
Indian Point 3	Power Authority of the State of New York	2/1/80 - 1/31/81
Kewaunee	Wisconsin Public Service Corporation	11/1/79 - 10/31/80
La Crosse	Dairyland Power Cooperative	8/1/79 - 7/31/80
Maine Yankee	Maine Yankee Atomic Power Company	9/1/79 - 8/31/80
McGuire 1	Duke Power Company	5/1/79 - 4/30/80
Monticello	Northern States Power Company	10/1/79 - 9/30/80
North Anna 1 & 2	Virginia Electric and Power Company	5/1/79 - 4/30/80

TABLE 1 (continued)

Facility	Operating Utility	Period of Regional SALP Board Evaluation
<u>Average Facilities (continued)</u>		
Peach Bottom 2 & 3	Philadelphia Electric Company	5/1/79 - 5/1/80
Quad Cities 1 & 2	Commonwealth Edison Company	7/1/79 - 6/30/80
H. B. Robinson 2	Carolina Power and Light Company	4/1/79 - 5/30/80
San Onofre 1	Southern California Edison Company	5/15/79 - 5/15/80
Sequoyah 1	Tennessee Valley Authority	8/1/79 - 3/29/80
St. Lucie 1	Florida Power and Light Company	5/1/79 - 4/30/80
Three Mile Island 1	Metropolitan Edison Company	4/1/80 - 3/31/81
Trojan	Portland General Electric Company	9/1/79 - 8/31/80
Turkey Point 3 & 4	Florida Power and Light Company	5/1/79 - 6/30/80
Zion 1 & 2	Commonwealth Edison Company	7/1/79 - 6/30/80
<u>Below Average Facilities</u>		
Arkansas 1 & 2	Arkansas Power and Light Company	1/1/79 - 8/19/80
Beaver Valley 1	Duquesne Light Company	9/1/79 - 8/31/80
Browns Ferry 1, 2 & 3	Tennessee Valley Authority	4/1/79 - 3/31/80
Brunswick 1 & 2	Carolina Power and Light Company	4/1/79 - 3/31/80
Crystal River 3	Florida Power Corporation	5/1/79 - 4/30/80
Davis-Besse	Toledo Edison Company	11/1/79 - 10/31/80
FitzPatrick	Power Authority of the State of New York	12/1/79 - 11/30/80
Indian Point 2	Consolidated Edison Company	1/1/80 - 12/31/80
Nine Mile Point 1	Niagara Mohawk Power Corporation	2/1/80 - 1/31/81
Oyster Creek	Jersey Central Power and Light Company	8/1/79 - 7/31/80
Palisades	Consumer Power Company	9/1/79 - 9/1/80
Pilgrim	Boston Edison Company	1/1/80 - 12/31/80
Rancho Seco	Sacramento Municipal Utility District	4/15/79 - 4/15/80
Salem 1 & 2	Public Service Electric and Gas Company	9/1/79 - 8/31/80
Surry 1 & 2	Virginia Electric and Power Company	5/1/79 - 4/30/80

TABLE 2

## RATINGS FOR POWER REACTOR FACILITIES UNDER CONSTRUCTION

Facility	Operating Utility	Period of Regional SALP Board Evaluation
<u>Average Facilities</u>		
Beaver Valley 2	Duquesne Light Company	3/1/80 - 2/28/81
Bellefonte 1 & 2	Tennessee Valley Authority	4/1/79 - 6/30/80
Braidwood 1 & 2	Commonwealth Edison Company	7/1/79 - 6/30/80
Byron 1 & 2	Commonwealth Edison Company	7/1/79 - 6/30/80
Callaway 1 & 2	Union Electric Company	7/1/79 - 6/30/80
Cherokee 1, 2 & 3	Duke Power Company	9/1/79 - 8/31/80
Clinton 1 & 2	Illinois Power Company	7/1/79 - 6/30/80
Commanche Peak 1 & 2	Texas Utilities Generating Company	8/1/79 - 7/31/80
Diablo Canyon 1 & 2	Pacific Gas and Electric Company	7/1/79 - 12/31/80
Fermi 2	Detroit Edison Company	7/1/79 - 6/30/80
Grand Gulf	Mississippi Power and Light Company	9/1/79 - 8/31/80
Hartsville A1, A2, B1, & B2	Tennessee Valley Authority	4/1/79 - 6/30/80
Hope Creek 1 & 2	Public Service Electric and Gas Company	11/1/79 - 10/31/80
LaSalle 1 & 2	Commonwealth Edison Company	7/1/79 - 6/30/80
Limerick 1 & 2	Philadelphia Electric Company	10/1/79 - 9/30/80
McGuire 2	Duke Power Company	9/1/79 - 8/31/80
Millstone 3	Northeast Nuclear Energy Company	3/1/80 - 2/28/81
Nine Mile Point 2	Niagara Mohawk Power Corporation	2/1/80 - 1/31/81
Palo Verde 1, 2 & 3	Arizona Public Service Company	5/1/79 - 5/31/80
Perry 1 & 2	Cleveland Electric Illuminating Company	7/1/79 - 6/30/80
Phipps Bend 1 & 2	Tennessee Valley Authority	4/1/79 - 6/30/80
River Bend 1 & 2	Gulf States Utilities Company	9/1/79 - 8/31/80
St. Lucie 2	Florida Power and Light Co.	7/1/79 - 7/31/80
San Onofre 2 & 3	Southern California Edison Company	6/1/79 - 6/30/80
Seabrook 1 & 2	Public Service Company of New Hampshire	1/1/80 - 12/31/80
Sequoyah 2	Tennessee Valley Authority	8/1/79 - 7/31/80
Shearon Harris 1,2,3 & 4	Carolina Power and Light Company	9/1/79 - 8/31/80
Shoreham	Long Island Lighting Company	3/1/80 - 2/28/81
St. Lucie 2	Florida Power and Light Company	9/1/79 - 8/31/80

TABLE 2 (continued)

Facility	Operating Utility	Period of Regional SALP Board Evaluation
<u>Average Facilities (continued)</u>		
Summer	South Carolina Electric and Gas	9/1/79 - 8/31/80
Susquehanna 1 & 2	Pennsylvania Power and Light Company	1/1/80 - 12/31/80
Vogtle 1 & 2	Georgia Power Company	5/1/79 - 8/31/80
Waterford 3	Louisiana Power and Light Company	8/1/79 - 7/31/80
Washington Nuclear Projects 1/4	Washington Public Power Supply System	5/29/79 - 7/18/80
Washington Nuclear Projects 3/5	Washington Public Power Supply System	8/1/79 - 8/31/80
Wolf Creek	Kansas Gas and Electric Company	8/1/79 - 7/31/80
Yellow Creek 1 & 2	Tennessee Valley Authority	4/1/79 - 6/30/80
<u>Below Average Facilities</u>		
Catawba 1 & 2	Duke Power Company	9/1/79 - 8/31/80
Marble Hill 1 & 2	Public Service of Indiana	7/1/79 - 6/30/80
Midland 1 & 2	Consumers Power Company	7/1/79 - 6/30/80
South Texas Project 1 & 2	Houston Lighting and Power Company	8/1/79 - 7/31/80
Washington Nuclear Project 2	Washington Public Power Supply System	4/1/79 - 4/1/80
Watts Bar 1 & 2	Tennessee Valley Authority	8/1/79 - 7/31/80
Zimmer	Cincinnati Gas and Electric Company	10/1/79 - 9/30/80

## APPENDIX A

### PERFORMANCE ELEMENT SUMMARIES FOR OPERATING POWER REACTOR FACILITIES RATED ABOVE AVERAGE OR BELOW AVERAGE

#### INTRODUCTION

This appendix contains performance element summaries for operating power reactor facilities rated above average (Part 1) or below average (Part 2) by the SALP Review Group. The summaries are provided alphabetically by facility. The evaluation periods are those used by the Regional SALP Board.

Areas of weakness were identified at various facilities during the SALP. These weaknesses were discussed with the respective licensee management organizations and improvements in these areas are expected from licensee corrective actions already taken or initiated.

#### PART 1 - ABOVE AVERAGE OPERATING POWER REACTOR FACILITIES

##### Cooper

Evaluation Period: 1/1/79 - 8/6/80

Cooper was assessed to be a well-managed facility. The licensee demonstrated an excellent record of refueling outage management. The total number of items of noncompliance identified at Cooper was relatively low when compared with other operating reactor facilities. Due to the low incidence of items of noncompliance, IE reduced the frequency of inspection effort in three areas (surveillance, training, and design changes). The licensee's management was characterized as normally taking action that assured long-term resolution to problems.

##### Farley 1 & 2

Evaluation Periods: Unit 1 - 5/1/79 - 4/30/80  
Unit 2 - 4/1/79 - 3/30/80

The Farley facility was assessed as having well-managed site and corporate organizations and a positive approach toward nuclear safety. The total number of items of noncompliance identified at Farley was relatively low when compared

with other operating reactor facilities. The health physics appraisal inspection revealed that Farley had an above average radiation protection program. The licensee was particularly thorough and responsive to the requirements for hanger and snubber inspections pursuant to IE Bulletin 79-14. Although the licensee displayed weaknesses in the implementation of certain quality assurance program requirements, it was responsive in taking effective corrective action during the evaluation period.

Fort Calhoun

Evaluation Period: 1/1/79 - 6/30/80

Fort Calhoun was assessed to be a well-managed facility with the senior licensee management and corporate engineering staff actively involved in the plant activities. The licensee was responsive to NRC requests and displayed a particularly positive attitude toward safety requirements. The total number of items of noncompliance identified at Fort Calhoun was relatively low when compared with other operating reactor facilities. Due to the low incidence of items of noncompliance, IE reduced the frequency of inspection effort in four areas of licensee activity (maintenance, surveillance, design changes, and committee activities). The licensee maintained good communications with the NRC and between the various plant and corporate staff organizations. Licensee management stressed the need for high performance, timely identification and resolution of problems, and the retention of a technically competent staff and operating organization.

Millstone 1 & 2

Evaluation Period: 7/1/79 - 7/1/80

The Millstone facility was assessed to be well run with particularly competent and responsive management. The health physics appraisal inspection revealed that the utility had a strong commitment to radiation protection. The quality assurance program was better than the quality assurance program at most other operating reactors. The licensee was very responsive in upgrading its security program to meet NRC requirements. The total number of items of noncompliance

identified at Millstone was relatively low when compared with other operating reactor facilities. The licensee displayed weakness only in the area of personnel adherence to procedures. However, the licensee was responsive to NRC concerns in this area.

Oconee 1, 2 & 3

Evaluation Period: 5/1/79 - 4/30/80

Oconee was assessed to have particularly competent site and corporate organizations. The licensee maintained good communications with the NRC. The total number of items of noncompliance identified at Oconee was relatively low when compared with other operating reactor facilities. The health physics appraisal inspection revealed that the licensee's radiation protection program was better than most licensees. Facility management was unusually responsive to NRC requirements, findings of noncompliance, and information requests. Although the licensee displayed weaknesses in personnel adherence to operating and administrative procedures, the licensee was responsive to NRC concerns in this area.

Point Beach 1 & 2

Evaluation Period: 11/1/79 - 10/31/80

Point Beach was assessed to be well managed and to be backed by an unusually competent corporate organization. Areas of above average performance included operations, radiation protection, and emergency planning. The total number of items of noncompliance at Point Beach was relatively low when compared with other operating reactor facilities. The licensee was particularly responsive in taking corrective action to issues involving personnel error. The health physics appraisal inspection found the licensee's radiation protection program to be better than most licensees inspected. The licensee's management positively and vigorously addressed the need for high performance and resolution of problems.



Prairie Island 1 & 2

Evaluation Period: 9/1/79 - 8/31/80

Prairie Island management was assessed as having a high level of competence and experience. Areas of above average performance included operations, radiation protection, and environmental protection. The facility management positively and vigorously addressed the need for high performance and resolution of problems. Licensee technical responses to NRR requests were above average and indicated a highly competent licensing and plant staff. The health physics appraisal inspection found the licensee's radiation protection program to be better than most licensees inspected. The total number of items of noncompliance identified at Prairie Island was relatively low when compared with other operating reactor facilities. The licensee had more items of noncompliance in the security area than some licensees considered to be above average, but the licensee's corrective actions and improved performance trend during the evaluation period demonstrated strong management attention to this area.

Vermont Yankee

Evaluation Period: 5/1/79 - 5/1/80

Vermont Yankee was assessed to have technically competent and responsive site and corporate management organizations. The licensee was responsive to regulatory issues and was attentive to anticipating problems. The total number of items of noncompliance identified at Vermont Yankee was relatively low when compared with other operating reactor facilities. The licensee received one noncompliance of the "violation" category, but it involved an isolated incident and did not reveal an overall breakdown in management controls. This incident concerned a package of low specific-activity material released to the carrier with a radiation level that exceeded the allowable limit.

Yankee Rowe

Evaluation Period: 5/1/79 - 5/1/80

Yankee Rowe was assessed to be a well-managed facility. The experience level of the licensee staff, combined with strong administrative controls, resulted in a low number of personnel errors. The total number of items of noncompliance identified at Yankee Rowe was relatively low when compared with other operating reactor facilities. Yankee Rowe displayed no evidence of any programmatic weaknesses. The licensee has demonstrated a high degree of responsiveness to NRC safety concerns.

PART 2 - BELOW AVERAGE OPERATING POWER REACTOR FACILITIES

Arkansas Nuclear One Units 1 & 2

Evaluation Period: 1/1/79 - 8/19/80

The Arkansas Nuclear One facility displayed evidence of weaknesses in the areas of training, security, reporting, and quality control.

Portions of the licensee's training plan were not implemented and portions of the requalification training program were not accomplished. Several items of noncompliance were identified, a civil penalty was subsequently levied, and licensee management meetings were held to correct training weaknesses. Numerous noncompliances were identified in the security area. There were weaknesses in the training of security personnel and other members of the plant staff regarding security requirements. Instances were identified in which licensee audits of security programs were not sufficient to identify discrepancies. The licensee hired a new security contractor in mid-1980. The reporting area was characterized by several licensee event reports that were late or incomplete. Quality control weaknesses precluded the licensee from identifying and correcting some discrepancies that were subsequently identified by the NRC.

Arkansas Nuclear One received a relatively large number of items of noncompliance when compared with other facilities. A performance appraisal team inspection identified several areas of licensee activity needing improved

management controls. The licensee had weaknesses in the staff support of licensing activities. Since early 1980, changes in the utility's licensing organization resulted in significant improvements in this area.

Beaver Valley 1

Evaluation Period: 9/1/79 - 8/31/80

The Beaver Valley 1 facility displayed evidence of weaknesses in nine functional areas. These areas were plant operations, maintenance, surveillance, quality assurance, committee activities, fire protection, design changes and modifications, security, and management controls.

A low corporate engineering staff manning level led to a lack of design control over some contractor activities. The onsite safety review committee was overburdened and some reviews were inadequate. Management control problems involved control of routine activities, resolution of technical and regulatory concerns, correction of deficient areas, implementation of security plan requirements, and scheduling of required surveillance activities.

Beaver Valley Unit 1 received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities. There were frequent meetings and contacts with this licensee regarding the conduct of safety-related activities. Many items of noncompliance concerned personnel errors, indicated instances of insufficient training, and revealed instances of poor supervision of personnel. The licensee experienced difficulties in meeting some technical commitments to NRR and lacked an adequate technical support staff.

Browns Ferry 1, 2, & 3

Evaluation Period: 4/1/79 - 3/31/80

The Browns Ferry facility displayed evidence of weaknesses in the areas of radiation protection, reporting, and management control.

Radiation protection weaknesses were characterized by numerous noncompliances, weaknesses in exposure controls, and instances when licensee personnel failed to follow procedures. Reporting weaknesses were characterized by instances of licensee event reports that were incomplete and failed to consider implications in other areas. Management control weaknesses contributed to a loss of Unit 3 primary containment integrity on December 6-9, 1979, while the reactor was at power. This violation of technical specifications resulted in escalated enforcement action. Management control weaknesses also included instances of missed surveillances, procedure adherence errors, and misoriented fuel assemblies that were not discovered during post-refueling core load verifications.

Browns Ferry received an average number of items of noncompliance when compared with other facilities. However, the licensee's below average performance in areas where the facility received many items of noncompliance was considered to be an important contributor to the overall below average performance rating.

Brunswick 1 & 2

Evaluation Period: 4/1/79 - 3/31/80

The Brunswick facility displayed evidence of weaknesses in the areas of radiation control, contamination control, and environmental protection.

The inadequate management control over radiation exposure and contamination resulted in unmonitored and uncontrolled release of airborne radioactive material. Management control weaknesses also resulted in the improper release of licensed material to a sanitary landfill and local salvage dealer. Brunswick management control weaknesses were characterized by numerous noncompliances concerning the quality assurance program (some of which were repetitive), problems in supervisory overview and the conduct of committee activities, and instances of activities conducted without procedures. The IE performance appraisal team found significant weaknesses in areas involving management overview, training, and corrective actions.

Brunswick received an average number of items of noncompliance. However, an Immediate Action Letter was issued concerning inadvertent release of radioactivity to unrestricted areas.

Crystal River 3

Evaluation Period: 5/1/79 - 4/30/80

The Crystal River 3 facility displayed evidence of weaknesses in four functional areas. These areas were emergency planning, plant operations, training, and radiation protection.

The licensee had problems meeting the requirements of its emergency plan. These problems have been resolved by the implementation of the new emergency plan. The plant operations area was characterized by numerous items of noncompliance and instances where operators failed to adhere to plant procedures, conducted activities without procedures, or changed procedures without conducting the required reviews. Training program weaknesses contributed to personnel errors and items of noncompliance. Required training activities were not completed on several occasions. The radiation protection area was characterized by numerous items of noncompliance, weaknesses in the exposure and contamination control programs, and inadequate control over liquid and solid radioactive waste.

Crystal River 3 received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities. During the evaluation period, the licensee initiated organizational and staffing changes to provide a higher level of management attention and a greater resource allocation to deal with identified problem areas.

Davis-Besse

Evaluation Period: 11/1/79 - 10/31/80

The Davis-Besse facility displayed evidence of weaknesses in the areas of security and plant operations.

The security area was characterized by numerous items of noncompliance resulting in several enforcement conferences between the NRC and licensee management. Weaknesses in both corporate and site security management control contributed to difficulties in the maintenance of security-related equipment. Performance in the area of plant operations was variable with some evidence of improvement near the end of the evaluation period. Plant operations during the evaluation period were characterized by instances of personnel errors and failure to follow procedures, staffing problems, repetitive equipment problems, and problems in managing facility changes and modifications. This resulted in a series of management level meetings between the NRC and the licensee. Some of the problem areas identified prior to the evaluation period were still in the process of being corrected by the licensee. Instances were identified where nonlicensed members of the plant staff had insufficient training. The licensee's program to upgrade the experience level of nonlicensed members of the shift operating crews was confirmed by an NRC Order.

Although responsive to most NRC concerns, the licensee responses to IE Bulletin 80-06 (Engineered Safety Feature Reset Controls) and to Three Mile Island - Lessons Learned - Category A items indicated a problem in management coordination and attention. The responses were either incomplete or not comprehensive; therefore requiring revisions or submittal of additional information.

Davis-Besse received a relatively large number of noncompliances when compared to other facilities. The majority of the noncompliances were in the security area. The licensee also received a civil penalty as a result of an individual overexposure that occurred in April 1980.

A performance appraisal team inspection, completed in November 1980 but covering the evaluation period, revealed average and above average performance in several areas, especially training. The inspection revealed a significant weakness only in the area of procurement of safety-related components.

FitzPatrick

Evaluation Period: 12/1/79 - 11/30/80

The FitzPatrick facility displayed evidence of weaknesses in eight functional areas. These areas were fire protection, design changes and modifications, radiation protection, emergency preparedness, radioactive waste management, transportation, security and safeguards, and management controls.

The fire protection area was characterized by several items of noncompliance and a failure to meet housekeeping commitments. There were instances where the licensee had not made program revisions to the design change and modification area in accordance with commitments to the NRC. Weaknesses in radiation protection, emergency preparedness, and radioactive waste management were identified during routine NRC inspection efforts and during the health physics appraisal inspection. In these areas there were instances of weaknesses in procedures, inadequate training, and personnel errors. The NRC issued an Immediate Action Letter to confirm the licensee's commitments to resolve weaknesses identified during the health physics appraisal. Weaknesses in security and safeguards identified during NRC inspections precipitated escalated enforcement action by the NRC, including a civil penalty and an Immediate Action Letter.

FitzPatrick received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities. During the evaluation period, the licensee's corporate management organization was strengthened by a management reorganization and by the addition of personnel to the corporate staff.

Indian Point 2

Evaluation Period: 1/1/80 - 12/31/80

The Indian Point 2 facility displayed evidence of weaknesses in five functional areas. These areas were plant operations, maintenance, reporting, committee activities, and management controls.

Most of the Indian Point 2 weaknesses were linked to the containment flooding incident that occurred October 17, 1980. The NRC investigation of this event revealed eleven items of noncompliance and resulted in escalated enforcement action. The plant operations area was characterized by instances where the licensee made improper assignments of supervisory personnel and failed to follow procedures. Review of the maintenance area revealed instances where the licensee failed to determine the causes of repeated equipment malfunctions and instances of incomplete maintenance actions. The licensee failed to submit several required reports to the NRC. The licensee's Station Nuclear Safety Committee failed to make reviews of several safety-related events and activities that involved the potential existence of an unreviewed safety question, as defined in 10 CFR 50.59(e). Further indications of weaknesses in the management controls area were identified as a result of the health physics appraisal and the licensee's approval of a procedure which disabled the automatic start feature of the containment spray system.

Indian Point 2 received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities.

#### Nine Mile Point 1

Evaluation Period: 2/1/80 - 1/31/81

The Nine Mile Point 1 facility displayed evidence of weaknesses in four functional areas. These areas were: radiation protection, emergency preparedness, radioactive waste management, and management controls.

The radiation protection area was characterized by items of noncompliance and inadequacies in major areas of the licensee's health physics program. Escalated enforcement action was taken to assure licensee corrective actions. The licensee had significant weaknesses in the areas of emergency preparedness and radioactive waste management. An inadequate installation prevented full compliance with the requirements for an increased range radiation monitor pursuant to the short term requirements of the TMI Lessons Learned. Licensee management failed to properly identify, correct and report this inadequate installation



which resulted in escalated enforcement action by the NRC. Subsequently, the licensee made significant changes in the management controls concerning radiation protection, emergency preparedness, and radioactive waste management.

Nine Mile Point 1 received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities.

Oyster Creek

Evaluation Period: 8/1/79 - 7/31/80

The Oyster Creek facility displayed evidence of weaknesses in the areas of radiation protection and radioactive waste management.

Problems with implementation of radiation protection and radioactive waste programs resulted in identification of numerous items of noncompliance, including escalated enforcement action. The licensee's use of health physics technicians not fully meeting the requirements of ANSI N18.1-1971 resulted in the issuance of an NRC Order modifying the facility license to correct this inadequacy. The plant review committee failed to require audits of the health physics area and portions of the plant staff training program. There were instances where the licensee failed to meet commitments made to the NRC. There were instances where licensee personnel failed to adhere to procedures, resulting in several items of noncompliance.

Early in the assessment period, the IE Performance Appraisal Team rated seven of fifteen designated areas as below average (then defined as poor). These areas were fire protection, training, inservice inspection and testing, maintenance, QA audits, radiation protection, and radioactive waste management. Similar inadequacies, with improvement noted, were identified later during the assessment period by the health physics appraisal team inspection and during routine Regional inspections.

Oyster Creek received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities. The licensee initiated organizational changes to provide direct management attention and resource allocation to identified problem areas.

Palisades

Evaluation Period: 9/1/79 - 9/1/80

The Palisades facility displayed evidence of weaknesses in the areas of plant operations, surveillance, and radiation protection.

Performance in the area of plant operations was characterized by personnel errors and failure to follow procedures. Repetitive instances of system misalignments impaired ECCS equipment operability and containment integrity. The licensee had numerous problems with defective plant operating procedures. There were instances where the licensee had difficulty in completing adequate corrective action for identified discrepancies. Weaknesses in the surveillance area were characterized by instances of defective procedures and personnel errors.

In the radiation protection area, there were items of noncompliance regarding personnel overexposure and inadequate controls over release of radioactive materials. In addition, the health physics appraisal team inspection found Palisades radiation protection programs to be below average. There were weaknesses in training and staffing, exposure control, procedure and QA program implementation, and instrumentation availability.

Palisades received a relatively large number of items of noncompliance when compared with other facilities. Escalated enforcement action was taken on several occasions. The licensee initiated corrective action prior to and during the evaluation period to improve performance.

Pilgrim

Evaluation Period: 1/1/80 - 12/31/80

The Pilgrim facility displayed evidence of weaknesses in five functional areas. These areas were: refueling, reporting, radiation protection, emergency preparedness, and management controls.

Weaknesses in refueling activities were characterized by several items of noncompliance, including escalated enforcement, concerning movement of fuel without secondary containment integrity and inadequate corrective actions for identified procedure discrepancies. The licensee had cases of inadequate and incomplete Licensee Event Reports and responses to IE bulletins. The radiation protection program was characterized by numerous items of noncompliance and program weaknesses, many of which were identified during the health physics appraisal team inspection. Escalated enforcement was taken to correct identified weaknesses and inadequacies in several emergency response procedures. Licensee management control weaknesses were indicated by inadequate evaluation of several events to prevent recurrence, instances of inadequate corrective actions, and instances of inadequate implementation of commitments made to the NRC.

Although Pilgrim received an average number of items of noncompliance, there were instances in which escalated enforcement action was taken to assure corrective action by the licensee. In September 1980 the licensee implemented major organization and personnel changes as a response to NRC concerns.

Rancho Seco

Evaluation Period: 4/15/79 - 4/15/80

The Rancho Seco facility displayed evidence of weaknesses in the functional areas of quality assurance audits, quality control inspections, training, and operations.

Weaknesses in the area of quality assurance audits were indicated by instances of audits not performed, inadequate response to audit findings, and audits lacking sufficient depth and scope. Quality control inspections were insufficient to assure control over some safety-related maintenance activities. Training requirements were not fully implemented for nonlicensed personnel. Operations area weaknesses were characterized by instances of failure to align systems or components properly, and personnel errors. Escalated enforcement action was taken to assure licensee corrective action following the discovery of an emergency core cooling system misalignment following maintenance.

Although Rancho Seco received an average number of items of noncompliance, management control weaknesses were identified in several areas of licensed activity. The Performance Appraisal Branch inspection identified seven, out of eleven, areas of management activity that had significant weaknesses. These areas were committee activities, quality assurance audits, design changes and modifications, maintenance, corrective action system, nonlicensed personnel training, and fire prevention.

Salem 1 & 2

Evaluation Period: 9/1/79 - 8/31/80

The Salem facility displayed evidence of weaknesses in four functional areas. These areas were plant operations, reporting, security and safeguards, and management controls.

Weaknesses in plant operations were characterized by instances of failure to operate in accordance with plant procedures and instances of violation of Technical Specification limitations. There were repeated cases where the licensee failed to complete required surveillance tests. Licensee reports were late, inaccurate, or incomplete on several occasions. There were problems in maintaining security controls between Unit 1, which was operating, and Unit 2, which was still under construction and subject to different security

requirements than an operating facility. Although the station staff demonstrated an ability to identify problems and propose solutions, there were instances where corporate management did not provide a timely response.

Salem received a relatively large number of items of noncompliance, including escalated enforcement action, when compared with other facilities. The licensee has taken or initiated corrective action for identified items of noncompliance.

Surry 1 & 2

Evaluation Period: 5/1/79 - 4/30/80

The Surry facility displayed evidence of weaknesses in the areas of plant operations, radiation protection, and quality assurance.

Weaknesses in the operations area were characterized by repetitive instances of failure to follow procedures, improper system lineups or tagging errors, and unapproved use of temporary hoses or jumpers. The licensee experienced difficulty in responding to unplanned maintenance problems, failed to take corrective actions in response to several recurring problems, and did not adequately test equipment following maintenance on several occasions. Weaknesses in the radiation protection area were indicated by numerous radiation protection items of noncompliance and escalated enforcement action concerning inadequate radiological surveillance on a radioactive waste shipment. Quality assurance weaknesses were characterized by instances of longstanding and uncorrected design problems in plant systems, instances where the licensee used unqualified parts in safety-related maintenance, and several procedures that were not properly revised following technical specification revisions.

Although the facility received an average number of items of noncompliance, there was one instance where escalated enforcement action was taken to assure corrective action by the licensee.

## APPENDIX B

### PERFORMANCE ELEMENT SUMMARIES FOR POWER REACTOR FACILITIES UNDER CONSTRUCTION RATED BELOW AVERAGE

#### INTRODUCTION

This appendix contains performance element summaries for power reactor facilities under construction rated below average by the SALP Review Group. No reactors under construction were rated above average. The summaries are provided alphabetically by facility. The evaluation periods are those used by the Regional SALP Board.

Areas of weakness were identified at various facilities during the SALP. These weaknesses were discussed with the respective licensee management organizations and improvements in these areas are expected from licensee corrective actions already taken or initiated.

#### Catawba 1 & 2

Evaluation Period: 9/1/79 - 8/31/80

The Catawba facility displayed evidence of weaknesses in the area of quality assurance, including management and training.

Quality assurance weaknesses were characterized by instances of inadequate design reviews, procedures not issued, specifications and commitments not translated into procedures, and audit programs not established. There were numerous items of noncompliance involving failure to follow procedures for activities involving welding, concrete placement, design, quality control inspections, records control, and electrical equipment installation.

Catawba received a relatively large number of items of noncompliance when compared with other power reactor facilities under construction. Most of these items of noncompliance were attributed to weakness in the licensee's quality assurance and management overview process.

Marble Hill 1 & 2

Evaluation Period: 7/1/79 - 6/30/80

Although construction at the Marble Hill facility was shut down by the NRC for most of the evaluation period, the licensee's activities prior to and during the early part of the evaluation period displayed evidence of project engineering, quality assurance, and construction management weaknesses.

The licensee had not sufficiently implemented quality assurance and management controls. There were ineffective controls over civil and mechanical construction as well as stored equipment and components. Quality control inspections by contractor personnel were not performed effectively. Conditions adverse to quality were not corrected prior to concrete placement. Corrective actions were not taken for discrepancies.

Marble Hill received a relatively large number of items of noncompliance when compared with other power reactor facilities under construction. There were instances where the licensee required escalated NRC enforcement action, frequent management contacts, and stop work orders to assure compliance with NRC requirements. An Order suspending all safety-related work was issued in August 1979, because of NRC concerns over the adequacy of the licensee's quality assurance program and controls over construction activities. Licensee actions were taken during the evaluation period to obtain NRC approval of the resumption of safety-related work. These included staffing and organizational changes, quality assurance program development, and the identification and resolution of problems. Incremental resumption of safety-related construction, subject to the approval of the NRC, commenced subsequent to the evaluation period.

Midland 1 & 2

Evaluation Period: 7/1/79 - 6/30/80

The Midland facility displayed evidence of weaknesses in three functional areas. These areas were quality assurance (including management and training), substructures and foundations, and safety-related components.

In the area of quality assurance there were numerous items of noncompliance, instances of unqualified QC inspectors, and instances of inadequate control of contractor activities. Earlier quality assurance problems associated with materials and placement of soils and backfills were identified during the evaluation period. The licensee was slow in responding to NRC concerns regarding soil placement. An NRC Order modifying the construction permit was issued to assure corrective action to the soil problems. Major deficiencies were identified in quality assurance controls over the installation of safety-related heating, ventilating, and air-conditioning components. These deficiencies resulted in the issuance of an NRC stop work order and the imposition of civil penalties to assure corrective action. Technical responses to NRR were occasionally inadequate but have shown improvement during the evaluation period.

Midland received a relatively large number of items of noncompliance when compared with other power reactor facilities under construction. During the evaluation the licensee initiated action that allowed a reorganization to be implemented in August 1980.

South Texas Project 1 & 2

Evaluation Period: 8/1/79 - 7/31/80

The South Texas Project facility displayed evidence of management weaknesses in the areas of quality assurance and overall construction management. A Regional SALP Board review and licensee meeting was not held as part of the South Texas Project evaluation. The Review Group examined investigation and inspection reports, and other data relevant to the evaluation period, in rating the South Texas Project facility.

The licensee had not sufficiently implemented quality assurance and management controls. Personnel training regarding quality assurance was inadequate. Construction pressures thwarted quality control functions. There were threats, harassment, and intimidation of quality control inspectors, and the licensee (who was knowledgeable of these problems) failed to take effective corrective



action. There were numerous instances of failure to follow procedures in the areas of document control, material storage, concrete placement, and welding. Audit and surveillance programs were improperly implemented.

The licensee had a breakdown in the implementation of the quality assurance program and management controls for safety-related concrete pours and safety-related welding. Extensive NRC investigation of licensee activities resulted in numerous items of noncompliance, escalated enforcement, frequent management contacts, and an NRC Show Cause Order to assure compliance with NRC requirements. Incremental resumption of safety-related concrete placement and welding has been subject to the approval of the NRC.

Washington Nuclear Project No. 2

Evaluation Period: 4/1/79 - 4/1/80

The Washington Nuclear Project No. 2 (WNP-2) facility displayed evidence of weaknesses in six functional areas. These areas were quality assurance (including management and training), safety-related structures, piping and hangers, electrical equipment, electrical (tray and wire), and instrumentation.

The area of quality assurance was characterized by ineffective program implementation and inadequate control of contractor activities. There were numerous items of noncompliance involving procedure and drawing adherence, control of special processes, and maintenance of quality assurance records. The licensee had extensive difficulties in the installation of safety-related pipe whip restraints, and in the erection and welding of the sacrificial shield wall. The NRC required the licensee to stop work related to these two areas of construction and took escalated enforcement action.

WNP-2 received a large number of items of noncompliance when compared with other power reactor facilities under construction. Licensee submittals to NRR displayed technical weaknesses and the licensee was not responsive to NRC technical requests on various occasions. The licensee received extensive NRC action (including escalated enforcement, frequent management contacts, and stop-work orders) to assure compliance with NRC requirements.

Watts Bar 1 & 2

Evaluation Period: 8/1/79 - 7/31/80

The Watts Bar facility displayed evidence of weaknesses in two areas. These areas were quality assurance (including management and training), and piping and hangers.

Quality assurance, management, and training weaknesses were characterized by numerous items of noncompliance and significant weaknesses in quality assurance program implementation. There were many instances where licensee personnel failed to adhere to procedures. There were instances where the licensee was unsuccessful in achieving adequate corrective action to identified discrepancies. The quality assurance organization and application of quality assurance was fragmented. Difficulties in the installation of pipe hangers were characterized by instances of hangers in the wrong location, use of the wrong types of hangers, anchor bolt problems, and the use of incorrect materials. Additionally, there were weaknesses in communications between various organizations within the Tennessee Valley Authority.

Watts Bar received a relatively large number of items of noncompliance when compared with other power reactor facilities under construction. There were several management contacts between the NRC and licensee management to assure problems were corrected. Organizational changes were made in the quality assurance area subsequent to the Regional SALP review period.

Zimmer

Evaluation Period: 10/1/79 - 9/30/80

The Zimmer facility displayed evidence of weaknesses in the areas of quality assurance management, piping and hanger supports, and training.

The licensee had not adequately implemented quality assurance and management controls. There were numerous items of noncompliance involving quality assurance criteria. There were instances where identification of problems and corrective actions were inadequate. The quality assurance organization lacked aggressive and effective management. There were numerous instances of rejected

work and continuing problems with the quality assurance aspects of piping and hanger supports installation. There were items of noncompliance involving procedure adherence and welding. The training area was characterized by inadequate staff, procedures that were not fully implemented, and lack of BWR operational experience in the training group.

Zimmer received a relatively large number of items of noncompliance, when compared with other power reactor facilities under construction.

February 12, 1980

Attachment 1

SECY-80-83

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

**INFORMATION REPORT**

For: The Commissioners

From: Victor Stello, Jr., Director  
Office of Inspection and Enforcement

Thru: Executive Director for Operations *W. J. Stello*

Subject: SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

Purpose: The purpose of this paper is to inform the Commission regarding the status of efforts by the Office of Inspection and Enforcement in the evaluation of licensee performance.

Discussion: In October 1978, IE submitted SECY 78-554 "Licensee Regulatory Performance Evaluation," which requested, and subsequently obtained, Commission approval for a two-year trial program for evaluating licensee regulatory performance. "Regulatory performance" was defined as the licensee's ability to meet regulatory requirements and to avoid reportable events.

SECY 78-554 indicated that an "integrated methodology" would be developed that incorporated selected aspects of the three previously considered methods (Statistical, Trend Analysis, and Regional Survey) that were described in the paper. The objectives of this methodology were defined as:

- . Identification of factors that lead to different levels of regulatory performance;
- . Effective and efficient use of NRC inspection resources; and
- . Evaluation of various aspects of the NRC inspection program.

The trial program was developed, but was never implemented because of the Three Mile Island (TMI) Accident.

A program for the comprehensive overview of licensee performance has been included as Task I.B.2 in the "Action Plans for Implementing Recommendations of the President's Commission and

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Other Studies of TMI-2 Accident" (NUREG-0660). This program is described in the enclosed paper and is entitled "Systematic Assessment of Licensee Performance" (SALP). The objectives of SALP are:

- . Identification of unacceptable licensee performance;
- . Improvement of licensee performance;
- . Improvement of IE Inspection Program;
- . Providing a basis for NRC management's allocation of resources; and
- . Achieving regional consistency by appraising licensee performance from a national perspective.

The SALP Program has been developed for power reactor licensees, but may, with modifications, be applicable to major materials licensees.

As was the case with the Licensee Regulatory Performance Evaluation, the SALP Program is designed to identify licensees whose regulatory performance warrants increased emphasis in licensing and inspection activities. If such licensees are identified, appropriate action will be initiated to upgrade the licensee performance; a major thrust of the SALP. The methodology has five (5) basic features:

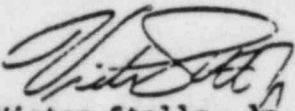
- . Evaluation of licensee performance by a board of regional inspectors, regional supervisors, and the NRR Project Manager (NMSS Project Manager for Materials licensees);
- . Determination by regional management of the action necessary to upgrade performance;
- . Holding annual meetings with licensee management to discuss the regional evaluations and planned actions;
- . Review of the evaluations of licensee performance and planned corrective action by a SALP Review Group, composed of senior NRC management personnel, with inputs from the regional evaluations, NRR appraisals, and the appraisals of other NRC offices (i.e., AEOD, PAB, etc.); and
- . Recommendations by the SALP Review Group to the appropriate NRC office director for major enforcement sanctions, license modifications, or increased (or decreased) inspection emphasis (frequency or scope) as warranted by the licensee evaluations.

Selected portions of the three previously considered methods of performance appraisal have been incorporated into the regional evaluations of licensee performance. An IE Manual Chapter (MC) defining the program for the regional evaluation of licensee performance is currently being reviewed by the regions. This MC will be issued in March 1980.

Regional evaluations will begin in April 1980 and will be completed in June 1980. The composition of the SALP Review Group, the procedures for Review Group operation, and details of the evaluations by the offices providing input to the Review Group, will be finalized by June 1980. The initial evaluations of the SALP Review Group will be completed in December 1980.

Coordination: The Offices of Nuclear Reactor Regulation, Management and Program Analysis, Analysis and Evaluation of Operational Data, and Standards Development concur. The Office of Nuclear Material Safety and Safeguards has no objection to the proposed program for reactor licensees.

The Executive Legal Director has no legal objections.

  
Victor Stello, Jr.  
Director  
Office of Inspection  
and Enforcement

Enclosure:  
"Systematic Assessment of  
Licensee Performance"

This paper is scheduled for consideration at an open meeting on February 14, 1980.

## SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

### 1. INTRODUCTION

This paper describes the Systematic Assessment of Licensee Performance (SALP) which is a refinement of a program previously referred to as the "Integrated Approach" to Licensee Regulatory Performance Evaluation (LRPE). SALP, like LRPE, is defined as an evaluation of the ability of a licensee to meet regulatory requirements and to avoid significant events that appear to be directly under the control of the licensee.

The SALP Program was developed for power reactor facilities in operation and construction, and is based on certain aspects of previously conducted NRC studies, with the methods substantially modified. The SALP Program, with modifications, may be applicable to major fuel facilities and major by-product licensed facilities.

The requirements for licensee performance appraisal were first established in NUREG-0397, "Revised Inspection Program for Nuclear Power Plants", which includes a national performance appraisal capability that provides the following elements:

- Evaluation of the performance of NRC licensees from a national perspective;
- Evaluation of the effectiveness of the NRC inspection program; and
- Confirmation of the objectivity of NRC inspectors.

During October 1978, IE submitted SECY 78-554, "Licensee Regulatory Performance Evaluation", to the Commission. As described in SECY 78-554, the objectives of LRPE were as follows:

- Identification of factors that lead to different levels of regulatory performance;
- Effective and efficient use of NRC resources; and
- Evaluation of various aspects of the NRC inspection program.

SECY 78-554 described three methods (Statistical Method, Trend Analysis Method, and Regional Survey Method) of licensee performance appraisal which had been studied by NRC. It also proposed the implementation of a trial program which was referred to as the "integrated approach" methodology to Licensee Regulatory Performance Evaluation (LRPE). This methodology was to be used to evaluate operating reactor licensees using 1978-1979 data. The trial program was developed, but its implementation was interrupted by the Three Mile Island Accident.

As a result of the investigative studies of the Three Mile Island Accident, a program for the comprehensive evaluation of licensee performance has

been included as Task I.B.2 in the "Action Plan for Implementing Recommendations of the President's Commission and Other Studies of TMI-2 Accident" (NUREG-0660). The program outlined by Task I.B.2 is a refinement of the LRPE methodology. This program which is the subject of this paper has been entitled the Systematic Assessment of Licensee Performance (SALP) to coincide with the recommendations of the Kemeny Report. The objectives of SALP have been defined as:

- Identification of unacceptable licensee performance;
- Improvement of licensee performance;
- Improvement of IE Inspection Program;
- Providing a basis for NRC management's allocation of resources; and
- Achieving regional consistency by appraising licensee performance from a national perspective.

These objectives will be accomplished through the performance of periodic evaluations of licensees by IE and NRR. The evaluations will be reviewed by a SALP Review Group of senior management personnel from NRC offices. The results of the evaluations, the reviews by the SALP Review Group, and the plans for appropriate action by NRC will be documented and distributed to the appropriate office director, to the licensees, and to the Public Document Rooms. In addition, the regional offices will hold annual management meetings with each of the evaluated licensees to discuss the results of the evaluations.

The appropriate action to upgrade licensee performance will be initiated by the regional offices as a result of the evaluations and may include enforcement action, or increased inspection frequency and scope.

## 2. INTEGRATED ASSESSMENT OF LICENSEE PERFORMANCE

### a. Program Inputs

Several groups within the NRC will provide inputs to SALP as follows:

- (1) The IE regional office will perform an evaluation of the performance of each licensee semiannually. This evaluation will be used to determine the need for an increase or decrease in the frequency and scope of regulatory activities. The region will document the results of the evaluation and their plans for action, and forward this documentation to the SALP Review Group.
- (2) NRR Project Managers will participate in the regional evaluations discussed in (1) above. The NRR Project Managers and technical support program personnel will also provide input



to the SALP Review Group. In addition, NRR will perform an independent study of the management capabilities and overall training of licensee employees. The results of this study will be submitted to the SALP Review Group for consideration during their initial evaluations.

- (3) The IE Performance Appraisal Branch will perform Management Appraisal (MA) and Program Appraisal (PA) inspections at licensee facilities. The reports of their inspections will contain an appraisal of licensee management which will be forwarded to the SALP Review Group. All licensees will not receive these inspections during the first two years of this program. However, it is expected that the number of licensees inspected will be sufficient to verify regional consistency.
- (4) Other NRC Offices (such as AEOD, etc) may provide input to the SALP Review Group as appraisal methodologies are developed with proven correlation to the safety of operations.

The regional evaluation discussed in (1) above will utilize appropriate portions of the three previously developed methods of performance evaluation. The details of the above evaluation/appraisal techniques will be discussed in Section 3 of this paper.

b. Review of Evaluation Results

Review of NRC evaluation results and the appropriate plans for upgrading performance will be conducted by the SALP Review Group consisting of senior managers from the NRC offices appointed by the Executive Director for Operations. The Review Group will provide an overview function of the evaluations and render an assessment of the safety adequacy of each facility and the adequacy of upgrading plans. Based on the findings, the Review Group is specifically charged to recommend major enforcement sanctions or license modifications to appropriate office directors. The Review Group will also confirm the consistency of regional evaluations and the regional implementation of NRC inspection programs.

The SALP Review Group, in addition to receiving inputs from regional evaluations, will receive inputs from NRR, IE Headquarters, and from other NRC offices as appropriate. The Review Group will convene at least once every six (6) months and review the evaluations of the licensees that are classified as needing "increased inspection scope/frequency." The remaining licensee evaluations will be evaluated once every twelve (12) months.

c. Feedback of Evaluation Results

The primary objectives of SALP are to identify unacceptable elements of licensee performance and to subsequently improve (upgrade) licensee performance. The former objective is achieved by the regional

evaluations and the reviews by the SALP Review Group, but to improve performance the results of these evaluations must be communicated to NRC management. The results of the regional evaluations and the recommended plan for the appropriate corrective action is forwarded to the Regional Director for review and approval. The results of the SALP Review Group are forwarded to the appropriate office director indicating a concurrence with the proposed regional action or recommending additional or alternate action.

NRC offices providing evaluation information will document the results of their evaluations with distribution to the licensee, PDR, and to the SALP Review Group. In addition, the region will submit an interoffice memorandum detailing the future plans for action by the region to correct the deficiencies identified during the evaluation.

The Review Group will issue a report at the conclusion of their periodic reviews to document the extent of their concurrence with the regional evaluations and proposed actions, or their recommendations for additional or alternate action.

Annual meetings will be conducted by regional management with the managements of the licensees evaluated by this program. These meetings will be utilized to discuss the results of the licensee performance evaluations and the NRC's general plan of action for correcting deficiencies.

### 3. METHODOLOGIES

#### a. Regional Evaluation

Each region will perform a detailed evaluation of their power reactor licensees semiannually. The evaluations will be performed by a board of the inspectors (including the resident inspector) and supervisors involved in the inspection program for that licensee. The board will also include the NRR Project Manager for the facility. The board will consider the enforcement actions, deficiency/event reports, technical and management performance, and safety attitudes of the licensee. The evaluations will also be based on the observations of the board members and their judgments of the licensee's performance. The evaluation will be the board's consensus of licensee performance; however, dissenting opinions with substantive comments will be included and transmitted to the SALP Review Group for concurrent evaluation. A number of functional areas will be evaluated by the board and a classification of "increase," "decrease," or "no-change" in the frequency and scope of inspection effort will be assigned for each functional area. The board will also provide an overall evaluation of the licensee and a detailed plan of the appropriate actions to upgrade performance.

The evaluation of each functional area will include the following considerations:

- . Adequacy of administrative controls;
- . Adequacy of supervisory review in the functional area;
- . Adequacy of training and qualification of personnel;
- . Adequacy of documentation and records control systems;
- . Overall effectiveness in complying with NRC requirements;
- . Attitude in assuring safe operations; and
- . Significant performance deviations or trends noted from previous evaluations.

The board's evaluation of the licensee's enforcement history in each functional area will include identified items of noncompliance and escalated enforcement actions. A statistical analysis will not be performed on noncompliance data; but an indepth analysis of indicated trends and sanction points will be determined and will be considered in the evaluation.

The board's review of deficiency/event reports will consider the number, significance and repetitive nature of the non-routine events or construction deficiencies in each functional area. The board will provide an indepth analysis of these reports to identify adverse trends (causally-linked events) which indicate insufficient attention to the correction of the events or insufficient capabilities of licensee management in the functional areas. This analysis is similar to that developed in the Trend Analysis Method described in SECY 78-554.

The NRR Project Manager will provide input on the licensee's performance in those functional areas in which he is knowledgeable.

A manual chapter is being developed that specifies the functional areas to be evaluated and the methodology for performing the evaluations.

This evaluation differs from the Regional Survey Method performed by the Hays Associates (referenced in SECY 78-554) in that it is a structured evaluation which represents the consensus of regional personnel and is supportable by inspection results and event reports as opposed to the Hays questionnaire which contained anonymous unsupported opinions.

b. Evaluations by NRR

NRR project managers and NRR technical support program personnel will perform an evaluation of each power reactor licensee semiannually and will submit the evaluation to the SALP Review Group for inclusion in their review. The details of this evaluation are yet to be developed.

In addition, the NRR QA Branch and selected contractor are developing acceptance criteria to describe the capabilities (number of people, kinds of people, background, experience, training, etc.) required of licensee management. This program is Task I.B.1 in NUREG-0660. They will subsequently evaluate all licensees against these criteria. Deficiencies identified in this study will be discussed with each licensee and will be documented in a report. NRR plans to complete this effort in the spring of 1980. The results of this one-time study will be provided to the SALP Review Group for their initial evaluations.

c. Performance Appraisal Branch (PAB) Inspections

Management Appraisal (MA) Inspections will be performed by the PAB on selected licensees in each Region. The objectives of these inspections are to provide a national perspective of licensee performance; to identify performance traits that licensees may have in common; and to confirm inspector objectivity.

The MA inspections are conducted at the licensee's corporate offices and at the reactor site with emphasis on evaluating the effectiveness of the licensee's management in controlling licensed activities and in providing technical support to ensure compliance with regulatory requirements and safety of operations. Results of these inspections will be furnished to the the SALP Review Group.

The technique for appraising licensee management performance is discussed in detail in the PAB annual report for FY 79. Basically, the MA inspection involves an appraisal of the licensee in a number of functional areas. The appraisals in these functional areas are based on a management control system which should contain the following features:

- . Written policies and procedures
- . Adequacy of the program to cover current requirements and guidance
- . Qualification and training of personnel implementing the program
- . Awareness by the personnel implementing the program of their responsibilities

#### Implementation of the program

IE Program Appraisal (PA) Inspections will also be conducted. These inspections are primarily designed to determine IE program effectiveness; however, information from these inspections will be provided to the SALP Review Group when the inspection results indicate a licensee performance problem or a significant program weakness.

Manual chapters are being developed specifying the methodologies of the MA and PA inspections and appraisals.

Attachment 2  
SALP REVIEW GROUP  
CHARTER

1. Objectives

The program for the Systematic Assessment of Licensee Performance (SALP) will evaluate the ability of power reactor licensees to meet their regulatory requirements and to avoid significant events. The SALP Program with modifications, may be applicable to major fuel facilities and major by-product licensed facilities.

The primary objectives of the SALP Review Group are to identify unacceptable elements of licensee\* performance by reviewing licensee appraisals; to improve licensee performance by recommending corrective action to the Director, IE and/or the Director, NRR; and to overview the consistent application of the SALP program throughout the regional offices.

2. Responsibilities and Authorities

The Review Group receives the evaluations and appraisals submitted by the Regional offices, NRR, PAB, and any other related evaluations. The Review Group staff will do a preliminary assessment of the evaluations/ appraisals to assure that the documents are complete and that evaluations/ appraisals which identify significant problems are immediately distributed to each of the Review Group members. If any of the members feel that the identified issues require immediate corrective action, they will recommend to the Review Group Chairman that the Group meet immediately to review the issue. For those licensees that do not have issues requiring immediate action, the Review Group staff will assemble a package containing all appraisals and evaluations for that licensee in preparation for the Review Group's periodic review.

The review Group will generally review the appraisals/evaluations for all of the licensees in a given region as a unit. The Review Group may visit a given site or Region or may request the presence of the appropriate Regional Director or staff to clarify any questions regarding the licensee's performance and the region's plans for corrective action.

The appraisal/evaluation packages will be distributed to the Review Group members prior to their meeting to enable a timely review by the members before the packages are discussed in a meeting.

The Review Group will also evaluate the consistency of the appraisals from region to region. The PAB inspection results will assist the review Group in calibrating or normalizing the regional appraisals.

\*Applicants in the case of power reactor under construction.

### 3. Composition

The Review Group shall consist of four members of senior NRC management appointed by the EDO. The Chairman of the Review Group shall be a senior manager from OIE. The three remaining positions shall be filled by a senior manager from the Office of NRR, IE, and AEOD.

#### A. Use of Alternates

Alternates will be appointed in writing to perform the duties of a regular member in his absence; however, the alternate shall be a member of senior management and shall be given appropriate notification of this assignment.

#### B. Consultants

The Review Group may require the attendance of regional and headquarters personnel to provide clarification of issues under discussion. These personnel shall not be included in the final decision making process of the Review Group.

#### C. Secretary

A full time technical secretary will report to the Review Group Chairman and have the following responsibilities:

- . Maintain the Review Group records
- . Arrange for Review Group meetings and site and region visits, as necessary.
- . Take and distribute meeting minutes.
- . Assist assigned technical staff in their activities
- . Route SALP correspondence to Review Group members
- . Prepare and distribute correspondence and other information, including review schedules, as directed by the Review Group Chairman.

The secretary shall not take part in the decision making process of the Review Group. This is intended to be a training rather than a permanent assignment; it is intended to provide needed assistance to the SALP Review Group and an opportunity to the assigned individual to receive on-the-job training in an important NRC program and to broaden his or her perspective of the Commission's overall mission. Since it is more an NRC than an individual Office program; individual Offices, on rotating bases, will be asked by the EDO to detail an appropriate GG-9 to 12 level individual to the Review Group Chairman for a period of about one year.

#### D. Review Group Staff

The Review Group shall have an assigned staff of two experienced professionals, one from IE and the other detailed from NRR to IE. Both will report to the Review Group Chairman and will provide assistance to the Review Group including the preliminary screening

of the appraisals/evaluations to determine if immediate review/action is required by the Review Group. It is intended that these full-time positions not be permanent assignments but that competent individuals be rotated into them for about an eighteen month period.

4. Meeting Frequency

The Review Group shall convene periodically as necessary to review regional appraisals. Meeting frequency will be no less than every two months.

5. Quorum

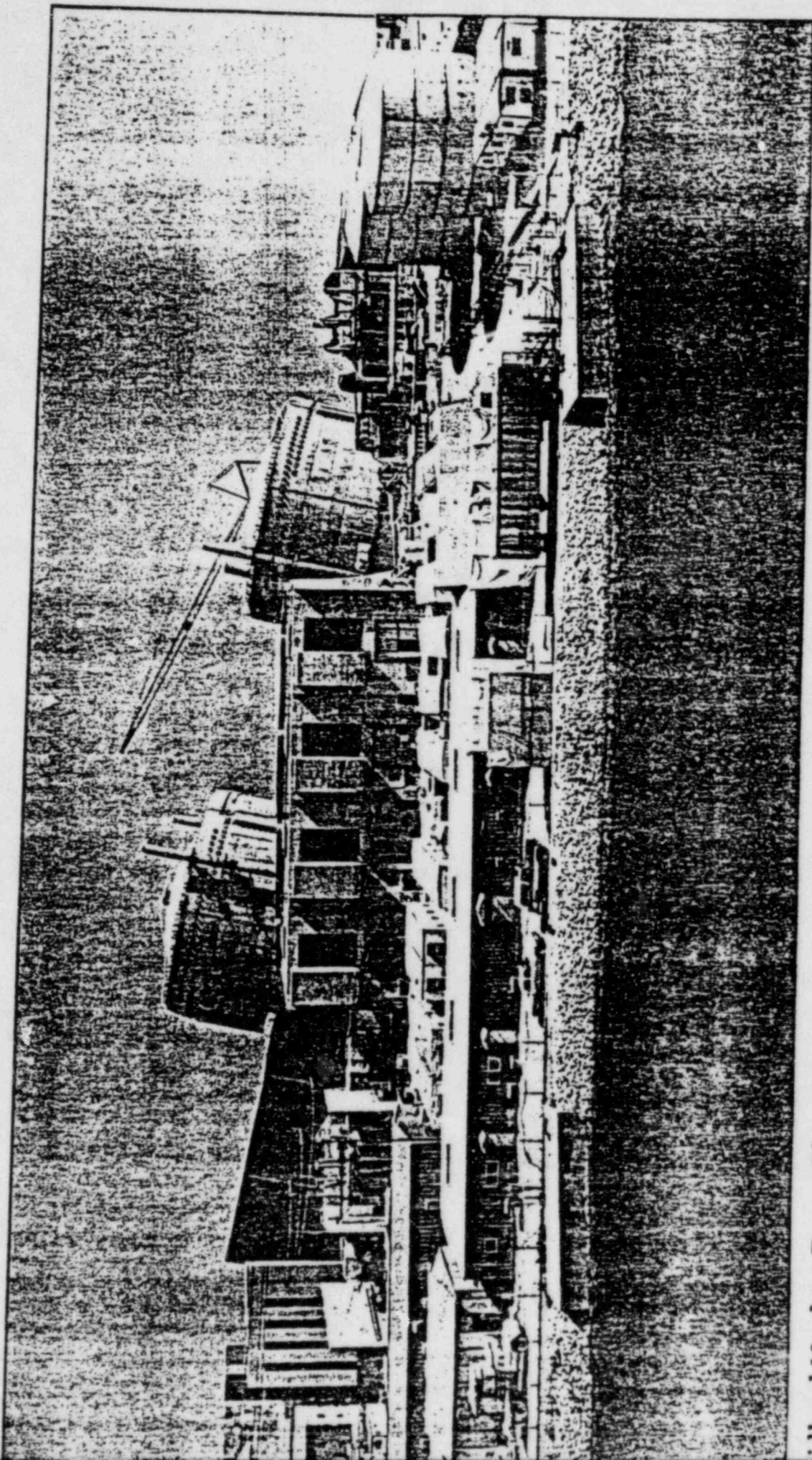
A quorum shall consist of three (3) members including the Chairman. No more than one alternate may be used to constitute a quorum. Each member of the Review Group, including the Chairman, shall have equal responsibility and authority with regard to decisions of the Review Group. A tie decision by the Review Group shall be reported as such to the appropriate Office Directors. A dissenting member is free to express his position with regard to a Review Group decision or recommendation. The dissenting opinion should be provided in writing as a supplement to the meeting minutes and should specify the reason for the member's dissent.

6. Meeting Records

Meeting minutes shall be taken and shall include the extent of the Review Group's concurrence with the appraisals and evaluations and the regional action plans. The Review Group's recommendations for additional or alternate action will also be discussed when appropriate. The meeting minutes will be distributed to the Director, IE; Director, NRR; and the applicable Regional Director.



<b>NRC FORM 335</b> (7-77)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b> <b>BIBLIOGRAPHIC DATA SHEET</b>		1. REPORT NUMBER (Assigned by DDC) NUREG-0834	
4. TITLE AND SUBTITLE (Add Volume No., if appropriate) NRC Licensee Assessments				2. (Leave blank)	
7. AUTHOR(S) D.G. Eisenhut, C. Michelson J. H. Sniezek, N.C. Moseley (SALP Review Group)				5. DATE REPORT COMPLETED MONTH August   YEAR 1981	
9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code) US Nuclear Regulatory Commission Office of Inspection and Enforcement Washington, DC 20555				DATE REPORT ISSUED MONTH August   YEAR 1981	
12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code) US Nuclear Regulatory Commission Office of Inspection and Enforcement Washington, DC 20555				6. (Leave blank)	
13. TYPE OF REPORT Regulatory				PERIOD COVERED (Inclusive dates) 1979-1980	
15. SUPPLEMENTARY NOTES				10. PROJECT/TASK/WORK UNIT NO.	
16. ABSTRACT (200 words or less)  This is the first report concerning NRC's program entitled Systematic Assessment of Licensee Performance (SALP). It provides facility ratings for operating power reactor licensees and construction permit holders as determined by the NRC's SALP Review Group. Facilities are rated as above average, average, or below average.				11. CONTRACT NO.	
17. KEY WORDS AND DOCUMENT ANALYSIS				14. (Leave blank)	
17a. DESCRIPTORS				17b. IDENTIFIERS/OPEN-ENDED TERMS	
18. AVAILABILITY STATEMENT Unlimited				19. SECURITY CLASS (This report) Unclassified	
20. SECURITY CLASS (This page)				21. NO. OF PAGES 5	
22. PRICE 5				23. PRICE	



Midland Nuclear Power Plant  
Midland, Michigan — August 1983

SOIL SETTLEMENT

6B  
11/11/83

Terry Black - May 9th Tour - State Director  
of \_\_\_\_\_ 720

May 4th, 1984 Schedule presentation to  
WRC by CPO.

CCP Assumptions

- 1) QVP - 100% reinspection
- 2) Rework from Reinspection  $1.6 \times 10^5$  hours
- 3) Paperwork to include - 80,000 CWP's, 30,000 NCR's, 16,500

Schedule Assumptions

S/A - 02/02/84 COMPLETE  
CWP Printout 2 Feb '85

Unit 1 decoupling

Project Perform merits Regulatory Support -

QC inspector rampup to two sl. ft. by midsummer 84

Funding Available -

\* Scope Remains Stable \* ✓

NCR & Total rework within Estimate. ✓

Electrical System - EARLY '85" 33 systems

3 Mechanical systems 0 Float for 4/86 Fuel Load Triage

3,020,000	±	3	880,000
36	100	36	300
			272
			280

880,000	more
	for

Kepler - another meeting - late 84. need to look at impact of  
CCP on scheduling.

00  
11/13/82

IPIN'S 11/3/82 1100

1. Welding was largest problem on hangers
2. Try to be more current on inspections After work completed
3. All inspections will be carried out to completion
4. Leo Davis and now Don Miller's group will look AT ALL IPIN'S
5. IPIN's used After DR were eliminated per 50.54 f
6. With present changes in IPIN procedure, IR will be left outstanding during system turnover.
7. PSP-611-1 - all open quality inspections not complete will be listed on turnover package.
- 8.

11/4/82 1100 Fire Protection Inspection Review

1. Walkdown of sprinkler system, 15 done in plant, 45% to 50% completed
2. Hose stations All turned over, walkdowns completed, and Aux building has one that will be completed Friday.
3. Insurance Carrier Mutual Limited & Annual
4. Yard piping and fire hydrant installed, but not checked out.
5. Firepumps - Acceptance checked and capacity was observed by insurance carrier.
6. CO<sub>2</sub> system installed, needs further walkdown, not in service till the first of the year.
7. Fire brigade getting hands-on training now, will have basic and advanced fire training

9. Emergency Lighting - 8 hour battery packs, being treated as a system separate from fire protection.

CPCO Expectations: J. Cook

1300-1700

1. "Intermediate Exit Meeting" ?
2. "View today's session as ~~final~~ "Exit" "Meeting"
3. Traceability, need to get Act together and give presentation to NRC - D Miller 11/23/82 Email CR? Meeting
4. How was IPEN handled in past? D.M.  
4000 IPENS issued, a lot or most were stopped in the process of using IPEN.  
500 or 600 kept open.  
12,000 to 13,000 OPEN IR'S.

1735 to

CPCO'S IDEAS on Construction Status & QA/QC STATUS.

R. Warwick. (OPENING)

1. Basic comments related to need to stop safety work and what work we can allow to continue. HVAC/TOOLS/ISSS (B&W) can continue
2. Primary concern adequacy of QC program and "up to darkness" of it
3. Takes long time to issue orders.

CPCO

1. J. Cook would like to have time to resolve backlog of IR & implement program to hasten work to get plant into/within Quality requirements. "A systematic method"

Docket No. 50-329  
Docket No. 50-330

Consumers Power Company  
ATTN: Mr. James W. Cook  
Vice President  
Midland Project  
1945 West Parnall Road  
Jackson, MI 49201

M. Smith CPCO  
R. White CPCO  
Don Miller CPCO  
J. M. [unclear] CPCO  
J. R. [unclear] CPCO  
B. [unclear] CPCO  
J. [unclear] CPCO

December 11, 1982  
Three Subjects  
1. Completion of procedures / suits  
before [unclear]  
2. Grouting on BUST  
3. [unclear] (Removal of Suits)

Gentlemen:

During our inspection of December 20-22, 1982, our inspector was requested to review and authorize 46 prioritized separate work activities in accordance with the NRC/CPCo Work Authorization Procedure of August 12, 1982. During this review of the initial ten items, our inspector concluded that he was being asked: (a) to review drawings and procedures which personnel had not previously looked at before giving to him, let alone reviewed for adequacy; (b) to review revisions of drawings that personnel knew were being revised; (c) to review drawings which apparently were not ready for construction to begin because all the details were not worked out yet; and (d) to approve activities on the premise that the inspector's concerns will be incorporated during the construction of the activity.

12/29  
12/29  
12/29  
12/29  
12/29  
12/29  
12/29  
12/29  
12/29  
12/29

These conclusions were based upon reviewing the following activities:

a. SWPS deep-seated benchmarks - Drawing C-2004, Revision 1

- (1) The strap spacing for holding the benchmark riser pipes rigid during underpinning was not delineated on the drawing. Subsequently, Bechtel Field Engineering indicated that revision 2 of the drawing was ~~being~~ being issued ~~out~~ which picked this up.

(2) Four out of the six benchmarks appeared to be located in the permanent underpinning wall. Personnel were asked if any thought went into protecting the riser pipes either during installation or while actually digging the underpinning walls. The cognizant field engineer stated, "I have no idea."

(3) The top locations (elevations) of the benchmarks were not clearly delineated on the drawing.

(4) There was no provision on the drawing to ensure that during coring of the bottom SWPS slabs the hole would not blow in, i.e., remove underlying soil from the structure. Personnel indicated that they were planning to install a standpipe before coring all the way through the floor, but no actual details had been worked out to date.

(5) Four of the benchmarks were to be read off the floor of the pumphouse. The inspector was informed that the next revision of the drawing would illustrate all readings ~~was~~ would be read off the walls of the pump structure.

- b. SWPS construction dewatering - Drawing C-1320, Revision 1, C-1320-1, Revision 1 and C-1321, Revision 0;



- (1) The drawings illustrated two gradations of filter sand to be used in the dewatering well construction. However, they did not indicate which filter sand gradation went into which well.
- (2) There was no method specified to install the filter sand in the smaller interior dewatering wells.
- (3) Notes on the drawings indicated to install a standpipe before coring all the way through the bottom slab to balance the hydraulic pressure. However, the notes did not indicate that to balance the hydraulic pressure, a column of water inside the standpipe greater than the water level outside the structure must be maintained.

c. SWPS to CWIS hydraulic seal - Drawing C-2038, Revision 0

- (1) The drawing indicated that installation is "Q". However, there <sup>was</sup> a handwritten note on the drawing contrary to this indicating that only the inspection of the work be "Q". The inspector requested to see an official FCN, DCN, FCR, etc. that changes the drawing, not an informal note.

d. FIVP four point jacking - Drawing C-1494, Revision 2

- (1) Notes on the drawing indicated not to exceed 1820 kips for each unit, they also indicated that if shims at any location become loose, further jacking shall stop and the RSE notified. They go on to say that shim tightness shall be checked to determine whether shims come loose or not during jacking. The notes fail to document the main purpose of the proof load test; to determine if the as-built temporary supports can support the entire weight of the FIVP. If liftoff of all four corners does not occur, we have no assurance that we are supporting the entire weight of the FIVP.

In summary, the NRC will not continue to serve as a consultant to CPCo management. Remaining work activities will be reviewed and approved by CPCo management prior to issuance to the NRC for authorization. It is your responsibility to ensure that in the future all information provided to the NRC is complete and reviewed.

R. F. Warnick, Acting Director  
Office of Special Cases

## B. Significant Issues

### 4. Mechanical

During a ~~inspection~~ inspection conducted on April 21-23, 1982 by a Region II inspector, findings were found related to "Q" hangers not meeting the most recent drawings prior to turnover for Quality Control (Q.C.) inspection. (QC Inspection Report SN-329/82-07, SN-330/82-07) ~~the inspection~~ ~~of the hangers~~ ~~was~~ ~~the~~ ~~result~~ ~~of~~ ~~this~~ ~~finding~~ ~~see~~ a large number of deficiencies were uncovered during <sup>QC</sup> hanger inspection.

In response to the inspector's finding the licensee performed an over inspection and determined that a large percentage of rejectable hangers were not <sup>identified</sup> ~~found~~ during a Q.C. inspection.

A <sup>to the licensee</sup> report was made for a 100% reinspection of all hangers installed in CY 1980, and a sample reinspection of hangers installed in CY 1981. In a letter dated September 30, 1982, CPO advised a reinspection of 100% of hangers installed in CY 1980 and a sample reinspection of hangers installed during January 1, 1982.

Inspection conducted during the month of

October, 1982 has found additional problems related to the installation and inspection of hangers in the Diesel Generator Building. The concern involves hangers that are built to seismic category one standards, but are considered "non-Q" by system designation. Consumers has taken exception to Reg Guide 1.29 titled "Seismic Design Classification", which delineates requirements for non Q systems which could impact safety related systems during a seismic event. A letter from NRC region III has been sent to NRR requesting resolution.

18/14

## c. Construction Status

### 1. Mechanical

As of the date of this report a significant amount of small and large bore piping has been completed at the Midland Site. The bulk of present ongoing work <sup>activities</sup> involve hangers and instrument impulse line installation. Mechanical construction status is estimated to be approximately — percent completed.

1/14/84

2. Construction Status

3.0 Soils

Remedial soils activities performed by the licensee thus far in 1982 involve:

- (a) ~~installation~~ permanent dewatering wells
- (b) ~~construction~~ temporary auxiliary building  
dewatering wells
- (c) ~~construction~~ freeze-wall around  
auxiliary building
- (d) ~~construction~~ auxiliary building underpinning  
access shafts to EL. 609
- (e) modification work of overhead  
temporary FMP support structure
- (f) ~~construction~~ auxiliary building <sup>in preparation</sup> instrumentation. ~~for water~~

### c. Construction Status

The licensee QA group has ~~been~~ performed an audit of the on site Zack Co ~~and~~ Training and Documentation functions during October 1982. The audit report is not finalized, but the licensee indicated there were some "minor" findings. The Zack ~~Co~~ Co. has retained a mechanical engineer (P.E) as a Project Field Engineer on site and upgraded other staff positions.

The specifications for inspecting HVAC duct work has been modified to include a provision for rigorously testing with ~~air pass~~ differential ~~air~~ pressure those isolated portions of duct work that have either rejectable or uninspectable welds that cannot be repaired without extensive rework. If the ~~welds~~ questionable welds maintain integrity throughout the pressure testing it is planned to make an acceptable engineer disposition based on the test. (5)

9. Consumers Power Co. QA is performing a 100% overinspection on all on going welder qualification in accordance with an established and approved inspection plan. The individual performing the inspection must be certified by AWS as a qualified welding inspector



## 14A.I.29 GASEOUS WASTE MANAGEMENT SYSTEM

## 1. Purpose

To demonstrate the operability of the gaseous waste management system.

## 2. Prerequisites

- 2.1 Construction activities complete on items to be tested
- 2.2 Appropriate system instrumentation calibrated and operational
- 2.3 Appropriate power sources available
- 2.4 Source of cooling water available for required components
- 2.5 Control logic and alarm circuitry functional checks complete

## 3. Test Method

- 3.1 Demonstrate gaseous waste management flowpaths.
- 3.2 Demonstrate proper operation and capacity of the air compressors and the gaseous waste system
- 3.3 Test the isolation valves between the nitrogen gas supply header and the radwaste gas tanks as follows:
  - a. The two isolation valves in the flowpath to the radwaste gas surge tank will be demonstrated to respond to the proper actuating logic and to close as designed.
  - b. Demonstrate that the manual valves in the flowpaths to the radwaste gas decay tanks and the radwaste gas compressors are capable of isolating this flowpath.
- 3.4 Demonstrate the proper operation of the radwaste gas compressor interlock.
- 3.5 Demonstrate the proper operation of the combustible gas analysis system.

## 4. Acceptance Criteria

- ~~4.1 The radwaste gas compressors shall meet their design capacity.~~

## 14A.1.28 CONTAINMENT COMBUSTIBLE GAS CONTROL SYSTEM

## 1. Purpose

To demonstrate proper operation of the hydrogen monitoring system, the hydrogen recombiner system, and the hydrogen purge system.

## 2. Prerequisites

- 2.1 Construction activities completed on items to be tested
- 2.2 Appropriate system instrumentation calibrated and operational
- 2.3 Appropriate power sources available
- 2.4 Control logic and alarm circuitry functional checks complete

## 3. Test Method

- 3.1 Demonstrate proper operation of the hydrogen purge ~~fan~~ SYSTEM.
- 3.2 Demonstrate hydrogen purge flowpath.
- 3.3 Demonstrate proper operation of the hydrogen recombiner.
- 3.4 Demonstrate proper operation of the hydrogen monitoring system.
- 3.5 Demonstrate redundancy and electrical independence.

## 4. Acceptance Criteria

- 4.1 The containment combustible gas control system operates as specified in Subsection 6.2.5.

3.6 FOR APPLICABLE SYSTEMS, DEMONSTRATE PROPER SYSTEM COMPONENT RESPONSE FOLLOWING RECEIPT OF SIMULATED ESFAS SIGNALS.

5.7 DEMONSTRATE THE PROPER OPERATION OF THE COMBUSTIBLE GAS CONTROL SYSTEM DURING POST-LOCA CONDITIONS BY EXTRAPOLATING TEST RESULTS AT AMBIENT CONDITIONS TO POST-LOCA CONDITIONS.

Q Approximately 25% of all HVAC<sup>⑥</sup>  
quality items have been accepted  
by the licensee.

5 miscellaneous

a. A. Formation of Office of Special Cases

In July, 1982 the Regional Administrator formed the Office of Special Cases (OSC) and assigned Mr R. F. Uarnic as the Acting Director. This office has full responsibility for inspection activities at the Midland and Zimmer nuclear facilities.

Under the direction of the Acting Director, OSC, the Midland Section was formed consisting of a Section Chief, two Regional Based Inspectors, a Senior Resident Inspector, a Resident Inspector, and a full time Resident Secretary.

The majority of inspection effort conducted by the Midland Section was related to the soils remedial work.

On August 14, 1982, all soils remedial

work was stopped until a mechanism was developed that ensured prior authorization by Region II was obtained before work was started. This action was documented in a Confirmatory Action letter dated August 12, 1982 and CPL's Stop Work Order FSW-24. The Stop Work Order was released ~~upon~~ when the NRC/EPCo Work Authorization Procedure was approved and implemented. There have been no further instances of soils remedial work being started without prior staff authorization.

B. Upgrade of Soils Remedial Work Quality Effort

After several meetings (denoted in section D) the Midland Section determined that the following activities had to be implemented prior to the start of any major soils remedial work:

1. All QC personnel ~~shall~~<sup>must</sup> be qualified and certified to Consumers Power Company standards.
2. All personnel involved in the remedial soils work shall have participated in ~~the~~ upgraded training activities, ~~described by item (4) in the subject letter.~~
3. A complete master list of all commitments made regarding remedial soils work shall be in place prior to starting work. ~~To reduce any unnecessary delays that would impact on the project, we will accept a partial list that would identify all commitments made on specific work activities planned for the first 90 days of work with a followup master list for all remaining remedial work to be issued within 90 days from the start of work.~~
4. The third party independent assessment team shall be in place prior to start of work on pier 12, and functioning prior to the major underpinning work.

at

The Midland Section reviewed the licensee's effort regarding QC qualifications and Certification and determined the effort to be unacceptable. All remedial soils QC personnel were decertified and a stop work was placed on all soils remedial work. A Confirmatory Action Letter, <sup>regarding these actions</sup> was issued on September 29, 1982.

at

The licensee subsequently developed a new QC regualification program which was reviewed by the Midland Section.

The Stop Work was conditionally lifted  
on October 29, 1982. The staff is  
continuing to observe the QC. requalification  
activities.

3  
D. Communications

1 a. Enforcement Meetings

Name

2 b. Management Meetings

August 8<sup>th</sup>, 1982, Meeting with CPO Managers regarding soils remedial work taking place without prior staff authorization. Considered a potential violation of a Board Order

August 26, 1982  
and  
September 2, 1982

CPO  
Meeting between Senior  
~~CPO~~ Management, D.  
Eisenhut, T. and J.G. Keppler  
to discuss NRC's concerns  
with Midland and possible  
recommended solutions.

September 8, 1982, Meeting with CPO management, NRC, and Region III to discuss Consumer's draft proposal for a third party independent assessment. No conclusions reached. Licensee was advised to submit their proposal formally.

September 15, 1982 Meeting between Region III and CPO lawyers to establish when NRC investigation of GAP Allegations would be completed.



September 28, 1982 - - - - -

October 29, 1982 Meeting in Ann Arbor  
Michigan between  
~~Bechtel~~ Region III, Region IV  
and Bechtel management  
to discuss NRL concerns  
with Bechtel performance  
and recommended solutions

2. Public Meetings

August 5, 1982, Meeting <sup>in Midland Michigan</sup> between Region III and CPO Management to discuss disagreements regarding the Systematic Assessment of Licensee Performance (SALP) report and CPO's May 17, 1982 response to this report.

September 29, 1982, Meeting in Midland Michigan between Region III and CPO management regarding the requalification and certification of all Bechtel QC personnel at Midland.

October 25, 1982, Meeting in Bethesda, MD between IVAR, Region III, CPO management, and CPO contract personnel to discuss third party independent assessment.

---

linear cycle  
the time

CONSUMERS POWER COMPANY  
**RECEIVED**  
MAR 19 1979

FIELD QUALITY ASSURANCE  
MIDLAND, MICHIGAN

Consumers Power Company  
P.O. Box 1963  
Midland, MI 48640

Attention: J.L. Corley

*Sharpe*  
Bechtel Power Corporation

Post Office Box 2167  
Midland, Michigan 48640



March 14, 1979

Job 7220 Midland Project  
CPCo NCRs M-01-4-9-009  
M-01-4-9-018  
M-01-4-9-026  
LAD: 743 Action Item: 580/596/613

Dear Mr. Corley:

The subject NCRs concern cable installed over the sharp edges of tray sections and wire ways. To resolve these concerns the following actions were taken:

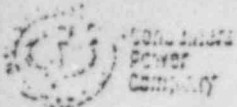
- 1) The four sections of cable tray referenced in the subject NCR M-01-4-9-009 where tray edge guards were not installed have been corrected. These guards that were installed when cable was pulled, however, were apparently removed subsequent to cable pulling.  
  
Cable tray sections identified in CPCo NCRs M-01-4-9-018 and M-01-4-9-026 will be corrected by 3/16/79.
- 2) Field supervision has been directed to caution personnel as to the requirements for the guards and that prior authorization is required for their removal.
- 3) All Electrical Quality Control Engineers have received additional training (documented in QCFM-5777, dated 2/26/79) in cable installation, emphasizing the use of edge protectors in tray or over other sharp edges whenever it is being pulled out of the raceway. The QCEs were instructed to add E-42 sheet 2 (7) as inspection criteria for activity 2.5 until it is incorporated into Rev. 4 of PQCI E-4.0.

This letter is considered to be a complete response to the subject NCR. If further assistance and/or clarification is necessary, please contact the writer.

Very truly yours,  
*L. A. Dreisbach*  
L. A. Dreisbach  
Project Quality Assurance Engineer

X JLC	
DRK	
RGW	
PAK	B-
X ELS	
GE	

LAD/RCH/bjc



# NONCONFORMANCE REPORT

INDUSTRIAL, ENGINEERING AND CONSTRUCTION - QUALITY ASSURANCE DEPARTMENT

PAGE 1 OF 2

4. PROJECT NAME: Midland 1 & 2		7. NONCONFORMING PART NO: Cable LAB2311C and LAB4309C		3. IDENTIFYING PART NAME: Multi Conductor Cables		1. WORK SERIAL NO: M-01-7-9-009	
5. SERIAL NUMBER: NA		10. DES. COMPLETION YES: NA		11. AREA/LOC. OF NO: Elevation 614'-0" Auxiliary Building		2. DATE: 2-2-79	
						3. DATE OF REV: NA	
						4. FILE NO: 16.3.4 16.3.6	
12. "AS IS" NONCONFORMING CONDITION VERSUS "AS RECEIVED" CONDITION WITH REF: Paragraph 7, E-42 Sheet 2, Rev 7 requires protection be provided where a cable presses against sharp edges. Contrary to the above, eleven cables including LAB2311C cross over the top of tray section IAKA07 going to IAKA08 and over IAKA03 going to LAJMO9 and eleven cables including LAB4309C cross over the top of tray section LAJB07 going to LAJB08 and over LAJB07 going to LAJCO1 without being protected from sharp edges of the tray section.						5. DESCRIPTION ACTION CORR: LADreisbach	
13. RECOMMENDATION FOR PART NO: Provide protection between cables and tray sections in four areas noted above.						DEPT COPY: WLBardclay DBMiller WRBird WMoring TCCooke JFNewgen JLCorley RASimonek RHermeston DATaggart SHHowell DRJohnson GSKeeley BWMarguglio PAMartinez JMilandin	
14. DESIGN/PROJECT ENG. DISPOSITIONS REQUIRED <input type="checkbox"/> NOT REQUIRED <input checked="" type="checkbox"/>							
16. BOLD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> FORM, LOCATION & TYPE OF BOLD TAGS APPLIED: NA							
15. IS SPECIES SA PROVIDED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, ENTER VERIFICATION REF: NA							
15. DOES THIS AFFECT R-RISK REF: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				17. IS IT REPORTABLE PER 70.55(*): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
18. IS IT REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				19. IF YES, DATE & TIME OF REPORT TO ENG: NA			
20. IF YES, WHO MADE REPORT TO ENG: NA				21. IF YES, NAME OF ENG OFFICIAL TO WHOM REPORTED: NA			
22. NOT APPROVED BY: <i>Eugene L Jones</i>		23. WHEN THIS REPORT BY: 2-16-79		24. APPROVED BY SIGNATURE/DATE: <i>Paul Skermer</i> 2-2-79			
25. PART OR DISPOSITION, VERIFICATION & COMPLETION DATE:							
7. DESIGN/PROJECT ENG. AUTH. DESP.: NA		17. P.O. DES. AUTH. DESP.:		18. PROJECT ENG. AUTH. DESP.:		19. DES. OF ENG. AUTH. FOR WORK:	
8. FABRICATOR, DES. AUTH. DESP.:		11. DES. OF TEST MOUNT ACTIVITY, CONDITION: NA		12. FOR WALKER MTD - PLS. SUPP. DES. AUTH. DESP.:		13. QA AUTH. DES. TO EQUIPMENT DESP.:	
9. METHOD OF PART OR VERIFICATION:							
16. IF P.O. DES. FOR PART OR DISPOSITIONS COMPLETION:		18. DES. VERIFYING PART OR BOLD TAG REMOVAL DATE:		17. WORK FINISHED BY DATE: (PART & PROCESS OR COMPLETE)			



Consumers  
Power  
Company

# NONCONFORMANCE REPORT

## PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT  
M-01-4-9-009  
NCR SERIAL NUMBER:

18. CA ASSIGNMENT OF ROOT CAUSE(S):

To be determined.

19. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

20. PROCESS CA DERIVED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSTALLATION

OTHER

21. CA RECOMMENDATION FOR PROCESS CA:

It is recommended that electricians involved in cable installation be made aware of requirement to protect cables where contact is made or could be made with sharp edges. It is further recommended that Bechtel QC revise PQCI E-4.0, Activity 2.5 to include as an inspection criteria E-42, sheet 2 (7).

22. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED BY MAJOR & DATE OF COMPLETION:

23. METHOD OF PROCESS CA VERIFICATION:

24. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA FOLLOWING COMPLETION:

25. PROCESS CA COMPLETION VERIFIED BY/DATE:



# NONCONFORMANCE REPORT

PROJECTS, ENGINEERING AND CONSTRUCTION  
QUALITY ASSURANCE DEPARTMENT

PAGE 1 OF 2

6. PROJECT NAME: Midland 1 & 2		7. DISCREPANCY PART NO: Cable Tray 2AFB09		8. DISCREPANCY PART NAME: Cable Tray		1. SHEET NUMBER: M-OT-4-3-018	
9. SERIAL NUMBER: NA		10. ORIG. CONTRACT NO: NA		11. AREA/LOC. OF IS: Elev 646'-0" Lower Cable Spreading Room		2. DATE: 2-20-79	
12. "AS IS" DISCREPANCY CONDITION VS "AS ORDERED" CONDITION WITH REFS:  Paragraph 7, E-42 Sheet 2, Rev 7 requires protection be provided where a cable presses against sharp edges.  Contrary to the above, multiple cables cross over the top of cable tray section 2AFB09 going into 2AW021 without being protected from sharp edges of the tray section.						3. DATE OF REPT: NA	
						4. FILE NO: 16.3.4. 16.3.6	
13. CA RECOMMENDATION FOR THIS CA:  Provide protection between cables and tray sections as noted above.						5. DISTRIBUTION ACTION COPY:  LADreisbach	
						INFO COPY: WLB Barclay DB Miller WRB Bird WGMoring TCCooke JFNNewgen JLCorley RASimanek RHermeton DATaggart SHHowell DRJohnson GSKeeley BWMarguglio PAMartinez IMilandin	
14. DESIGN/PROJECT ENG. DISPOSITION REQUIRED <input type="checkbox"/> NOT REQUIRED <input checked="" type="checkbox"/>							
16. HOLD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NUMBER, LOCATION & DATE OF HOLD TAGS APPLIED: NA							
15. IS PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, ENTER JUSTIFICATION BELOW:							
18. DOES IT AFFECT 4-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				17. IS NO ENDORSABLE PER 50.55(+): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
19. IS NO ENDORSABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				19. IF YES, DATE & TIME OF REPORT TO UFG: NA			
20. IF YES, WHO MADE REPORT TO UFG: NA				21. IF YES, NAME OF UFG OFFICIAL TO WHOM REPORTED: NA			
22. RECOMMENDED BY: <i>John A. Jones</i>		23. WORKING COPY REQUIRED BY: 3-6-79		24. APPROVED BY (SIGNATURE/DATE): <i>Paul Geyer 2-21-79</i>			
25. PART CA DISPOSITION, VERIFICATION & COMPLETION DATE:							
26. DESIGN PROJECT ENG. AUTH. DESP.: NA		27. PO ENG. AUTH. DESP.: NA		28. PROJECT ENG. AUTH. DESP.: NA		29. ENG. OF DES. AUTH. (OR UFG):	
30. FAB/CONST. ENG. AUTH. DESP.: NA		31. ENG. OF TEST GROUP AGENCY, CONDITIONS: NA		32. PER PART 10 - PER. APP. ENG. AUTH. DESP.: NA		33. QA AUTH. ENG. IS COMPLIMENT DESP.:	
34. METHOD OF PART CA VERIFICATION:							
35. ENG. OF UFG. DESP. FOR PART I/A SIGNATURE/COMPLETION:		36. ENG. VERIFYING PART I/A & HOLD TAG REMOVAL DATE:		37. TAGS REMOVED BY/DATE: (PART & HOLDING CA ENDORSED)			



Consumers  
Power  
Company

# NONCONFORMANCE REPORT

## PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT  
M-01-4-9-013  
FORM SERIAL NUMBER:

PAGE 2 of 2

18. CA ASSIGNMENT OF ROOT CAUSE(S):

To be determined.

19. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ENG. RESPONSIBLE FOR PROCESS CA):

20. PROCESS CA DERIVED FROM:

DESIGN  FABRICATION  CONSTRUCTION  PROCUREMENT  INSPECTION   
OTHER

21. CA ASSIGNMENT FOR PROCESS CA:

It is recommended that the Electrical Superintendent direct the Foremen to install cable tray softener as the cables are being routed to provide protection while the cable is being installed as well as after installation.  
It is further recommended that Bechtel QC conduct a training class for all inspectors and that sheet 2(7) of E-42 be immediately included in Activity 2.5 of PQCI E-4.0.

22. PROCESS CA TO BE DONE BY ENG(S) DERIVED BY BLOCK NO. & DATE OF COMPLETION:

23. METHOD OF PROCESS CA VERIFICATION:

24. I/O. OF I/O. RESPONSIBLE FOR PROCESS CA IMPLEMENTATION:

25. PROCESS CA \*ADDITIONAL COMMENTS (IF/WHEN):





CONFORMERS  
Power  
Company

# NONCONFORMANCE REPORT

PROJECTS, ENGINEERING AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT

6. PROJECT NAME: Midland 1 & 2		7. DISCREPANCY PART NO: Cable Tray 2AFD05		8. DISCREPANCY PART NAME: Cable Tray		1. JOB SERIAL NO: N-01-6-8-026	
9. SERIAL NUMBER: NA		10. ORG. COMPLETION NO: NA		11. AREA/LOC. OF NO: Elev 646 -0 Lower Cable Spreading Room		2. DATE: 2-26-79	
12. "AS IS" DISCREPANCY CONDITION VERSUS "AS ORDERED" CONDITION WITH REFS:  Paragraph 7, E-42 Sheet 2, Rev 7 requires protection be provided where a cable presses against sharp edges.  Contrary to the above, multiple cables cross over the top of cable tray section 2AFD05 going into wireway 2AWW037 without being protected from sharp edges of the tray section.						3. DATE OF REV: NA	
						4. FILE NO: 16.3.4 16.3.6	
13. "AS RECOMMENDED FOR PART NO":  Provide protection between cables and tray section as noted above.						5. DISTRIBUTION ACTION COPY:  LADreisbach	
						6. COPY: WLBarclay JMLlandin WRBird DEMiller TCCooke WGMoring JLCorley JFNwgen RHermeston RASimanek SHHowell DATaggart DRJohnson GSKeeley BWMarguglio PAMartinez	
DESIGN/PROJECT ENG. DISPOSITION REQUIRED <input type="checkbox"/> NOT REQUIRED <input checked="" type="checkbox"/>							
14. FIELD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> EDGES, LOCATION & TYPE OF FIELD TAGS APPLIED: NA							
15. IS PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, OTHER JUSTIFICATION BELOW:							
16. DOES IT AFFECT 4-UNIT TEST: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				17. IS IT REPORTABLE PER 10.55(*): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
18. IS IT REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				19. IF YES, DATE & TIME OF REPORT TO JRC: NA			
20. IF YES, WHO MADE REPORT TO JRC: NA				21. IF YES, NAME OF JRC OFFICIAL TO WHOM REPORTED: NA			
22. NOT INITIALED BY: <i>Edwin H Jones</i>		23. VALIDATION DATE REPORTED BY: 3-13-79		24. SUPERVISOR'S SIGNATURE/DATE: <i>Paul Zuper 2-27-79</i>			
25. PART/CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:							
26. DESIGN/PROJECT ENG. ACHV. DESP.: NA		27. P/O ENG. ACHV. DESP.: NA		28. REQUIREMENT ENG. ACHV. DESP.: NV		29. ENG. OF ENG. DESP. FOR JRC:	
30. FAB/CONST. ENG. ACHV. DESP.: NA		31. ENG. OF TEST GROUP ACHV. COMPLETION: NA		32. PER PART NO - P/O. DESP. ACHV. DESP.: NA		33. QA ACHV. DESP. TO COMPLETE DESP.:	
34. NOTES OF PART CA VERIFICATION:							
35. ENG. OF ENG. DESP. FOR PART I/A INITIATING COMPLETION:		36. ENG. VERIFYING PART I/A & ALL TAG REMOVAL DATE:			37. JRC FILES #/DATE: (PART & PROCESS CA NUMBER):		



Consumers  
Power  
Company

# NONCONFORMANCE REPORT

## PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT  
N-01-4-9-026  
NCR SERIAL NUMBER:

PAGE 2 OF 2

18. CA ASSESSMENT OF ROOT CAUSE(S):

To be determined.

19. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

20. PROCESS CA DERIVED FROM:

DESIGN

FABRICATION

INSTALLATION

PROCUREMENT

OPERATION

OTHER

21. CA RECOMMENDATION FOR PROCESS CA:

It is recommended that immediate action be taken to have cable tray softener installed on all areas of cable trays that now have cables crossing sharp edges. Action should be taken to have softener installed as the cables are being routed.

It is further recommended that Bechtel QC reinspect all cable installations to be certain no cables are exposed to possible damage from sharp edges.

22. PROCESS CA TO BE TAKEN BY ORG(S) CITED IN BLOCK #1 & DATE OF COMPLETION:

23. METHOD OF PROCESS CA VERIFICATION:

24. SIG. OF IND. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

25. PROCESS CA COMPLETION VERIFIED BY DATE:

# QUALITY CONTROL INSTRUCTION

JOB NO. 7220

1. MASTER QC INSTRUCTION NO.

E-4.0

2. PROJECT QC INSTRUCTION NO.

7220/E-4.0

ACT NO.	ACTIVITY DESCRIPTION	5. INSPECTION CRITERIA	6. INSP ACT. CODE	7. SUPPLEM REC
2.5	Verify that the cable is protected from physical damage whenever it is pulled out of the raceway and that the area of cable contact with conduit ends is adequately protected by padding, insulated bushing, end bells or similiar devices.	E-42 Sh.12(5) Sh.10(15)	I(V)	
2.6	Verify that the cable is installed in the correct vias as specified on the scheme cable card (i.e. highlight each pulled via on front of card).	Cable Card	I(V)	

# QUALITY CONTROL INSTRUCTION

JOB NO. 7220

1. MASTER QC INSTRUCTION NO.

E-4.0

2. PROJECT QC INSTRUCTION NO.

7220/E-4.0

ACT NO.	ACTIVITY DESCRIPTION	INSPECTION CRITERIA	INSP ACT. CODE	SUPPLEMENTAR RECORD
2.5 	Verify that the cable is protected from physical damage whenever it is pulled out of the raceway and that the area of cable contact with conduit ends is adequately protected by padding, insulated bushing, end bells or similiar devices.	E-42 Sh.12(5) Sh.10(15) Sh. 2 (7)	I (V)	
2.6	Verify that the cable is installed in the correct vias as specified on the scheme cable card (i.e. highlight each pulled via on front of card).	Cable Card	I (V)	

*E-42 (Q)  
Sh. 2 (7) Recd.*

This drawing and the design it covers are the property of BECHTEL. They are merely loaned and on the borrower's express agreement that they shall not be reproduced, copied, loaned, exhibited, or used except in the limited way and private use permitted by the lender to the borrower.

4. Mounting heights or elevations of raceways as indicated on the plans pertain to the bottom unless otherwise noted.
5. All hardware for hangers and supports for raceways shall be galvanized or cadmium plated.
6. In general, for conduits and tray, bolted type supports shall be used. When welding is necessary the finished weld and uncovered metal shall be painted with zinc rich paint as protection against corrosion. Touch up materials used inside reactor building shall be Ameron's Dimecote No. 6, Ameron E-Z or equal-color gray.
7. At any point where a cable presses against sharp edges of an opening, protection to the cable shall be provided between the cable and the edge.
8. Wall and floor penetrations for conduit and cable tray are not indicated on the drawings.
9. Installation of the conduit system for the nuclear instrumentation system will be as follows: a pull box sized per Drawing E46 shall be installed in the conduit system at each interval where  $A + B = 100$  where "A" is 1/3 of the total number of degrees of the conduit bends and "B" is the total length of running feet since the last pull box.

9A The touch up coating repair of welded areas may be done by the same individual doing the welding operation except in the containment building, which must be done per Specification A-41(Q).

9B. MOUNTING HEIGHT FOR WALL MTG DISTRIBUTION PANELS WILL BE 6'-0" MAX TO TOP OF PANEL



No.	DATE	REVISIONS	BY	CHK	DESIGN SUPV	ENG'R	APPR
1	2-6-78	REV. NOTE 6, ADDED NOTE 32	DPM	CJD	EP	VMT	RLC/low
2	12-2-77	REVISED NOTE 9	CO	ENB	TH	VMT	RLC/low
3	7-30-76	REVISED NOTE 9	RLH	TH	TH	VMT	RLC/low
4	9-20-74	REVISED AS INDICATED	EP	RKF	RKF	low	RLC/low
5	2-27-79	ADDED NOTE 9B NOTE 9A WAS 10	PPP	JW	RLH	TH	RLC/low
6	10-22-76	REVISED NOTE 6	SP	RLH	TH	VMT	RLC/low

SCALE	DESIGNED	DRAWN	CHIEF ENGR
ORIGIN	MIDLAND PLANT UNITS 1 AND 2 CONSUMERS POWER COMPANY CONDUIT AND TRAY NOTES, SYMBOLS AND DETAILS		JOB No. 7220 DRAWING No. E-42(Q) sh 2 REV. 8



A-G-122673  
 "A" SIZE



Consumers  
Power  
Company

QA5-0

# ORAL COMMUNICATIONS RECORD

PROJECTS, ENGINEERING  
AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT

CHRON. FILE NO 0.4.2

PAGE 1 OF 3

DATE OF COMMUNICATION 8/28 & 8/29/79

QA-PERC PERSONNEL PARTICIPATING PRKyncr

*Paul Kyncr*

TIME OF COMMUNICATION 4:30 PM & 8:00 AM

OTHER PARTY(S) GEMaxwell, USNRC

PREPARED BY *Paul Kyncr*

PROJECTS AND/OR SUBJECTS DISCUSSED Midland Project Inspection of 8/21-8/23/79 Re: Color Coding of Electrical Cable

SUMMARY OF CONVERSATION Mr Maxwell was called 8/28/79 to provide him further information regarding a condition he found while on an inspection tour August 21-23, 1979 at the Midland Nuclear Site.

A green safety related cable that had been inspected and accepted for proper termination was found with red marker tags at each end. These termination inspections had occurred a month apart and been performed by the same inspector.

An investigation was initiated to answer the following questions:

1. Why or how did the mismarking occur?
2. How many of the same type problems exist?
3. Are the instructions clear enough so that people who are responsible for terminations are aware of the requirements?
4. Does the inspector have a vision problem?
5. What are the inspector's qualifications and experience?
6. What about other inspections performed by this inspector?
7. Was this an isolated condition?

The investigation produced the following:

1. The cable number is composed of a coded scheme. Each character has a significant meaning (described in Drawing 7220 E-28). The first character in the code is the unit number, ie, Unit 1 or Unit 2 or common "0". The second character designates the safety channel, ie, A, B, C, D, E, N. The third character is the voltage rating of the cable, ie, A = 600 - 18000 volt system; B = 200 - 600 volt system; C = Communication; D = DC, etc.

## 1. (Contd)

It is possible that the clerk making up the marker tag interposed the second and third character and instead of using the second character to make up the colored tag from, the clerk used the third.

For example, if the cable #2BA0610A was mkstaken for 2AB0610A then a green cable would end up with a red marking on both ends.

2. Prior to the NRC inspection, 104 CPCo QA overinspections were performed and no similar problems were found.

After the NRC inspection, Bechtel QC performed the following reinspections:

- a. Twenty-five (25) reinspections of terminations that had been inspected (by the inspector making the error) during the same time period that the first error was made. No similar errors found.
- b. Twenty-five (25) reinspections of terminations that had been inspected (by the inspector making the error) during the same time period that the second error was made. No similar errors found.
- c. Twenty-five (25) reinspections of terminations that had been inspected (by the inspector making the error) recently. No similar errors found.
- d. One hundred (100) random reinspections of terminations made by other inspectors. No similar errors found.

CPCo QA inspected 400 terminations for the color problem. Bechtel Field Engineering checked all tags (approximately 7000 cable ends) that have been made up and not yet installed. No color problem was found.

Six hundred seventy five (675) cable terminations out of a total of 20,000 (1200 Q) terminations were reinspected and no similar problem was detected.

Also, of approximately 27,000 individual cable tags (either installed or to be installed) 7,675 were checked which constitutes approximately 25% and no color errors were detected.

3. A review of the Quality Control Instruction, Field Instruction and the engineering requirements was made and it was decided to change each of these to make the color coding more clear.
4. The inspector passed his vision test prior to the missed inspection and, after the discovery of the error by the NRC inspector, vision was not contributory to the problem.
5. The inspector had worked for Daniels prior to coming to work for Bechtel. He worked as an assistant field engineer for Daniels where he was involved in safety related cable color coding of a slightly different style. He was trained by Bechtel and certified as a Level I inspector to ANSI 45.2.6. He had worked two weeks after certification prior to making the first error.
6. Twenty (20) complete reinspections were performed of previously inspected installations that had been inspected by the inspector making the error and no further problems were found.
7. Investigation of the physical conditions of the cable installations revealed that the correct cable was routed to the correct terminals as required by Engineering Drawings and, therefore, no problem existed relative to plant safety.

CPCo has determined that this is an isolated problem relating to the mismarking of one cable involving one inspector making two identical inspection misses on an item that has no adverse safety impact.

In a subsequent Telecon 8/29/79 between GFMaxwell and PRKyner, Mr Maxwell stated that he would carry this item as an unresolved item instead of an infraction, provided that a 100% reinspection will be performed for correct color coding for every termination that this inspector accepted. This was agreed to by CPCo.

NOT SO

CC WRBird  
TCCooke  
JLCorley  
LADreisbach  
GSKeeley  
BWMarguglic  
DBMiller





# QUALITY CONTROL INSTRUCTION

JOB NO. 7220

1. MASTER QC INSTRUCTION NO.	E-5.0	REV
2. PROJECT QC INSTRUCTION NO.	7220-E-5.0	5

ACT NO	ACTIVITY DESCRIPTION	5. INSPECTION CRITERIA	6. INSP ACT. CODE	7. SUPPLEMENTARY RECORD
	<u>FINAL INSPECTION ACTIVITIES</u> :			
3.9	Verify the correct assembly of special terminations. (i.e., multi-pin connectors triax and coax plugs, stress cones). Also, verify that the application of insulating materials over bare lugs or splice sleeves is in accordance with the engineering requirements.	FPE-7.000 7.0	I(V)	
3.10	Verify that permanent cable markers of the approved type, carrying the correct cable ID, and correct color strip for that redundant channel has been properly installed on the cable close to the end of outer jacket with the cable identity easily discernible.	E-47(5.1.2) FPE-7.000 5.1	I(V)	
3.11	Verify that the cable or jumper is supported using approved cable ties and the minimum installed cable bend radius is not violated.	FPE-7.000 6.6 FPE-4.000 6.7 E-42 Sh.7 (4h)	I(V)	
3.12	Review all Discrepancy Reports to assure that the required corrections have been completed by rework without violating any of the original design documents in accordance with SF/PSF G-6.1. Record the total number of Discrepancy Report pages on the IR.	NONE		
3.13	Review the listed "Open NCR's" in Act/Task 1.3, and assure that they no longer affect the scoped work as shown in Block 6 of the IR.	NONE	R	

*Proposed Instruction*

**UNCONTROLLED**  
**Information Only**

# QUALITY CONTROL INSTRUCTION

E-5.0

JOB NO. 7220

2. PROJECT QC INSTRUCTION NO.

7220/E-5.0

ACT NO.	4. ACTIVITY DESCRIPTION	5. INSPECTION CRITERIA	6. INSP ACT. CODE	7. SUPPLEMENTAL RECORD
<u>FINAL INSPECTION ACTIVITIES</u>				
9	Verify the correct assembly of special terminations. (i.e., multi-pin connectors triax and coax plugs, stress cones). Also, verify that the application of insulating materials over bare lugs or splice sleeves is in accordance with the engineering requirements.	FPE-7.000 7.0	I(V)	
10	Verify that permanent cable markers of the approved type, carrying the correct cable ID have been properly installed on the cable close to the end of outer jacket with the cable identity easily discernible.	FPE-7.000 5.1	I(V)	
11	Verify that the cable or jumper is supported using approved cable ties and the minimum installed cable bend radius is not violated.	FPE-7.000 6.6 FPE-4.000 6.7 E-42 Sh.7 (4h)	I(V)	
12	Review all Discrepancy Reports to assure that the required corrections have been completed by rework without violating any of the original design documents in accordance with SF/PSP G-6.1. Record the total number of Discrepancy Report pages on the IR.	NONE		
13	Review the listed "Open NCR's" in Act/Task 1.3, and assure that they no longer affect the scoped work as shown in Block 6 of the IR.	NONE	R	

*Existing Instruction*

**UNCONTROLLED**  
Information Only

Proposed  
instruction

1.0 PURPOSE

This document provides the techniques and requirements for the termination of all scheduled electrical cables.

2.0 SCOPE

The contents of this procedure will discuss personnel responsibilities, types of tools to be used, techniques for various types of connections. It applies to all schedule power, control, and instrument cables installed at the Midland Power Plant, Units 1 & 2.

3.0 REFERENCE

- FIE-1.300 Electrical Field Construction personnel and Q.C. Coordination.
- FIG-6.121 Calibration-Electrical termination tool.
- FPE-1.000 Raceway, cable and termination documentation control procedure.

4.0 RESPONSIBILITIES

- 4.1 The electrical superintendent is responsible for insuring that the procedure is implemented.
- 4.2 The electrical superintendent is responsible for providing tooling described in this procedure. The electrical superintendent shall further coordinate the calibration of crimping tools as necessary.
- 4.3 The electrical termination engineer shall be responsible for insuring that sufficient termination material is available for continuity of work and shall verify the terminations during or after completion to insure compliance with this procedure.

5.0 TERMINATION CARDS AND CALIBRATION TOOLS

- 5.1 Termination cards will be issued to a termination foreman as required.

At the time of connection, the temporary cable marker shall be removed and the permanent color-coded cable marker, for color-coded cables, shall be attached to the cable at the point of the outer jacket removal. Only one color band on the marker is required to be visible. The marker shall be placed in a position to be clearly visible. Non-Q cable markers do not require color coding.

Upon completion of the termination and prior to returning the termination card control the craftsman shall sign his name to the card and write down the number of the calibrated tool used if applicable.

CONTROLLED

Information Only



1.0 PURPOSE

This document provides the techniques and requirements for the termination of all scheduled electrical cables.

2.0 SCOPE

The contents of this procedure will discuss personnel responsibilities, types of tools to be used, techniques for various types of connections. It applies to all scheduled power, control, and instrument cables installed at the Midland Power Plant, Units 1 and 2.

Existing instruction  
(Rev 4 in routing)

3.0 REFERENCE

- FIE-1.300 Electrical Field Construction personnel and Q.C. Coordination
- FIG-6.121 Calibration-Electrical termination tool.
- FPE-1.000 Raceway, Cable and termination Documentation control procedure.

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- 4.1 The electrical superintendent is responsible for insuring that the procedure is implemented.
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5.0 TERMINATION CARDS AND CALIBRATION TOOLS

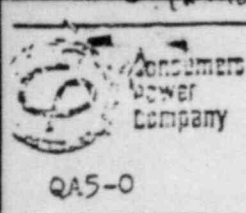
- 5.1 Termination cards will be issued to a termination foreman as required.

At the time of connection, the temporary cable marker shall be removed and the permanent cable marker attached to the cable at the point of the outer jacket removal, and in a position where it is clearly visible.

Upon completion of the termination and prior to returning the termination card to card control the craftsman shall sign his name to the card and write down the number of the calibrated tool used if applicable.

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Information Only



# ORAL COMMUNICATIONS RECORD

PROJECTS, ENGINEERING AND CONSTRUCTION - QUALITY ASSURANCE DEPARTMENT

CHECK FILE NO Serial 11065

PAGE 1 OF 2

QA5-0

DATE OF CONVERSATION 3/31/81

QA-PLAC PERSONNEL PARTICIPATING WBird, DEHorn, RChirzel, NRamanujan

TIME OF CONVERSATION 12:30 PM

OTHER PARTY(S) CCWilliams, CBovd, RCKnop, RLandsman, RLSuessard

PREPARED BY WBBird of NRC

PRINT	ROUTE
	DMT <u>D</u>
	CHK <u>D</u>
	HPI <u>D</u>
	SKT
✓	DEH
	FILE: <u>0.4.2</u> ✓

SUBJECTS AND/OR STUDIES DISCUSSED CONSUMERS POWER COMPANY

SOIL BORINGS

**RECEIVED**  
APR 06 1981

**FIELD QUALITY ASSURANCE**  
MICHIGAN

TEXT OF CONVERSATION

I returned Mr Williams 12:00 phone call in which he stated it was urgent that I call him back within the next 15 minutes. I placed a conference call such that Site QA could participate and I also asked N Ramanujam to join us.

1. Mr Williams painted a picture wherein if the NRC had not come to the site Wednesday we would have been deficient in having identified all the actions necessary to be put in place prior to the start of the borings. It is their perception that CPCo was ready to go Wednesday if they (NRC) hadn't been there and there would have been problems.

2. I responded that such a scenario was absolutely incorrect. Consumers Power recognizes the need to start the borings as soon as possible in order to support both Consumers and NRC's interests in having the results available for the soils bearing but that we fully recognize the necessity to accomplish the borings under an appropriate QA program. My management is fully supportive of the conservative approach that QA has been taking to assure that all elements are in place, and they concur with not starting any borings until we (QA) say we are ready. We had just received the detailed procedures (for which most of the comments were generated) at the same time as NRC had the opportunity to look at them, and there was no way work

0.4.2

ould have started until those procedures were reviewed and approved by QA. I stated that I felt the characterization that work would have started prior to our being completely ready was an inaccurate perception on NRC's part.

3. Mr Spessard then stated that his feelings echo Mr Williams. They don't share the view that all the technical requirements would have been identified by CCo. They hoped that whatever work we perform will be done in conformance with procedures and will be under control. It is their belief that if we had started work without Mr Landsman's input, we would have been found in noncompliance.

A discussion was then held concerning when we would be starting work and how we could give the NRC 12-24 hours notification. The final conclusion was that we would only have to notify (by telephone) Mr Williams when we did start the borings.

WRB/lr

CC: JWCook  
RCBauman  
MADietrich  
~~DEM~~  
GSKeeley  
BWMarguglio  
DEMiller  
NRamanujam  
DMTurnbull  
File: 0.4.9.20

KJB  
(blue black)

TO: ROY WELLS  
FROM: ED JONES *E. Jones*  
DATE: JUNE 22, 1983  
RE: FINAL REPORT ON CABLE REINSPECTION

Distributicr:

- WRBird, P-14-418A
- Bruce Burgess -USNRC
- Ron Cook - USNRC
- MLCurland - Midland
- MADietrich - Bechtel-Midland
- BTFoote - Bechtel-Midland
- WJFriedrich - Midland
- Ron Gardner - USNRC
- RCHollar - Bechtel-AA
- John Milandin - Midland
- DBMiller - Midland
- John Rutgers - Midland
- DATaggart - Midland

JC- (UNRECORDED) 17645

Bechtel Associates Professional Corporation

Inter-office Memorandum

043842

To J.A. Rutgers

Date September 30, 1981

Subject Midland Plant Units 1 and 2  
Bechtel Job 7220  
MPQAD Technical Reviews

From L.H. Curtis  
Of Engineering

Copies to D. Anderson N. Eidsmoe  
K. Bailey E. Hughes  
P. Corcoran E. Rumbaugh  
M. Dietrich

At Ann Arbor

During the September 28, 1981 weekly Group Supervisor meeting, the Group Supervisors again requested that something be done to limit the amount of technical and administrative reviews (i.e., non-QA program) being performed by Midland Project Quality Assurance Department (MPQAD) personnel.

Frequently, specifications and other engineering documents are delayed unnecessarily, and considerable engineering manhours and senior people's time are spent resolving nit-picking comments from MPQAD, on what we believe are other than Quality Assurance program elements. There seems to be a ~~quest for undefined goodness~~ rather than whether or not we are following EDPs.

I agreed with the Group Supervisors that I would take the matter up with you, as we have been unsuccessful at the working level in getting this problem under control. I believe that a project policy statement must be made on this matter. Please advise me on this subject.

*L.H. Curtis*  
L.H. Curtis

LHC/db

Written Response Requested: No  
Com Use: N/A



## FINAL REPORT ON CABLE REINSPECTION

As of October 1982, approximately 1524 Class IE electrical cables had been overinspected by MPQAD for all activities on PQCI/PIPRs except those requiring In-Process Inspection. In October 1982, the company decided to reinspect all remaining Class IE Cables for all inspection activities on PQCI/PIPRs except those that require In-Process Inspection. An anonymous allegation, as expressed in a TV interview viewed by MPQAD personnel, was also taken into account in the planned reinspection. Additional inspection criteria relating to cable coding were added. All personnel assigned to participate in the reinspection received documented training on the additional reinspection criteria relating to cable coding (Enclosure 1). Also, a special team reinspected the 1534 cables, previously overinspected, for cable coding problems. This reinspection and the reinspection of the balance of the cables on the coding question went beyond the scope of the allegation (Improper Substitution).

There are 9,092 Class IE cables installed including 405 cables that are deleted-but-installed. Of this total, 1,534 were overinspected prior to 10/20/82 and later reinspected for coding problems, 7,558 were fully reinspected after 10/20/82. Drawing E-37(Q) Revision 63 indicates there are 893 Class IE cables remaining to be installed.

This report will consist of three parts. Part I will address all cables inspected after 10/20/82 as a full scope reinspection and will contain all nonconforming conditions found, except those pertaining to cable code or deficiencies in the temporary or permanent installed tags. Part II will address only the cable code nonconformances and deficiencies found in all 9,092 Class IE cables installed. Part III contains Project Engineering's planned disposition of all nonconforming conditions concerned with cable routing and cable code deficiencies.

### PART I

During the period 10/20/82 - 5/19/83, a team, under the direction of Danny Cochran, performed full scope reinspections of 7,558 Class IE cables that had not been overinspected prior to 10/20/82. This reinspection resulted in Nonconformance Reports summarized below (excluding cable code and permanent or temporary cable marker nonconformances reported under Part II):

<u>NCR NUMBER</u>	<u>NO. OF CABLES</u>	<u>NONCONFORMING CONDITION</u>
M01-9-2-162	19	Cables not routed in accordance with Design Drawing E-37(Q).
M01-9-2-193	479	Cables not routed in accordance with Design Drawing E-37(Q).
M01-9-2-147	12	Cables not routed in accordance with Design Drawing E-37(Q).
M01-9-2-148	3	Cables not routed in accordance with Design Drawing E-37(Q).
M01-9-2-153	26	Cables not routed in accordance with Design Drawing E-37(Q).
M01-9-2-170	36	Cables not routed in accordance with Design Drawing E-37(Q).
	5	Cables exceed maximum airlined distance allowed by Drawing E-42(Q).
M01-9-3-134	1	FCR E-3148 incorporated into Design Drawing E-37(Q) and shows 1 via numbered incorrectly.
M01-9-3-021	129	Raceway sections not identified and marked as required by Drawing E-42(Q).
M01-9-3-093	121	Cables exceed maximum airlined distance allowed by Drawing E-42(Q).
M01-9-3-107	26	Cables not protected by conduit bushings as required by Drawing E-42(Q)
M01-9-3-081	26	Cables do not meet separation requirements of Drawing E-47(Q).
M01-9-3-096	1	Cable does not meet separation requirements of Drawing E-47(Q).
M01-9-3-148	1	Cable identified with two Safety Channel Colors contrary to the requirements of FIE-3.500.
M01-9-3-120	8	Condition of flexible conduits does not meet the requirements of Drawing E-42(Q).
M01-9-3-109	11	Cables are not protected as required by FIE-4.100 and Drawing E-42(Q).
M01-9-3-142	1	Cable is not protected as required by Drawing E-42(Q).
M01-9-3-155	12	Cables are not supported properly by Kellems Grips as required by Drawing E-42(Q).

<u>NCR NUMBER</u>	<u>NO. OF CABLES</u>	<u>NONCONFORMING CONDITION</u>
M01-9-3-118	1	Cable violates minimum bend radius requirements of FPE-4.000.
M01-9-3-119	1	Cable violates minimum bend radius requirements of FPE-4.000.
M01-9-2-157	1	Cable violates requirements of Drawing E-28. There are two cables with the same scheme number.
M01-9-3-039	1	Cable violates requirements of Drawing E-28. There are two cables with the same scheme number.

## PART II

During the period 10/20/82 - 5/19/83, all 9,092 Class IE cables, including 405 cables that are delted-but-installed, were checked for correct cable code per Design Drawing E-37(Q). This inspection resulted in the Nonconformance Reports summarized below:

<u>NCR NUMBER</u>	<u>NO. OF CABLES</u>	<u>NONCONFORMING CONDITION</u>
M01-9-2-145	4	Cables installed are Code B01 (No. 14 AWG/3 Conductor). Drawing E-37(Q) requires Code B03 (No. 10AW/3 Conductor).
M01-9-3-039	1	Cable installed is Code B21 (No. 14 AWG/2 Conductor). Drawing E-37(Q) requires Code B24 (No. 14 AWG/5 Conductor).
M01-9-3-133	1	Cable installed is Code B25 (No. 14 AWG/7 Conductor). Drawing E-37(Q) requires Code B26 (No. 14 AWG/9 Conductor).
M01-9-2-184	1	Cable installed is Code B21 (No. 14 AWG/2 Conductor). Drawing E-37(Q) requires Code B31 (No. 10 AWG/2 Conductor).
M01-9-2-190	1	Cable installed is Code I07 (No. 16 w/Twst Shld Pr). Drawing E-37(Q) requires Code I01 (No. 14 w/Twst Shld Pr).
M01-9-3-149	1	Cable installed is Code B28/I04 (No. 14 AWG w/Shld/6 Conductor). Drawing E-37(Q) requires Code B25 (No. 14 AWG/7 Conductor).
M01-9-3-022	154	Installed cables are not permanently marked at each end with correct information required by Drawing E-47(Q).

<u>NCR NUMBER</u>	<u>NO. OF CABLES</u>	<u>NONCONFORMING CONDITION</u>
M01-9-2-156	1	Cable has a permanent color-coded cable marker with a green band on it. FPE-7.000 states that for this identified cable, the band should be red.
M01-9-2-159	2	Cables are installed properly, but the permanent cable markers were switched. This indicates wrong cable codes and termination violations.

### PART III

Enclosure #2 addresses all NCRs generated that involve cable routing or cable code nonconforming conditions and indicates the expected disposition that will be provided in detail, with justification, for each NCR.

Enclosure #3 addresses all NCRs and provides information on how Project Engineering will justify each nonconforming condition.

Enclosure #4 addresses only those NCRs that are shown on Enclosure #3 as "Unique Case" with no potential generic concern.

ELJones  
6/22/83

INSTALL PRIOR TO PULL  
TEMPORARY

INSTALL AT TIME OF TERMINATION  
PERMANENT

FROM 2A05 TO 2B23  
2AB2319D B33  
SCHEME CABLE NO. CODE

ROCKBESTOS FIREWALL III 600V 4/C 10AWG

FROM 2A05 TO 2B23  
2AB2317D B33  
SCHEME CABLE NO. CODE

For all cable inspections and over-inspections accomplished prior to 10/20/82 the PQCI requirements were satisfied by checking the temporary tags installed prior to the cable pull for:

- From and to locations
- Cable Scheme Number
- Cable Code

For all cable reinspections accomplished after 10/20/82 and with a special team checking cable code only for all cables overinspected prior to 10/20/82. The cable jacket information was compared to cable information in Drawing E-38, as well as the temporary tags installed, was used to determine:

- From and to locations
- Cable Scheme Number
- Cable Code

CODE	CONT	C - CABLE	DESCRIPTION
B33	1		600V CONTROL CABLE, 4/C #10AWG
B33	2		CAN BE USED IN CLASS 1E APPLICATIONS

EXTRACTED FROM DWG. E-38

ENCLOSURE #1

TABLE OVERNIGHT	REWORK: AS BUILT UNACCEPTABLE				AS BUILT ACCEPTABLE				MEMO TO ANN ARBOR	TOTAL				
	NCR	REV.	RECEIVED	SEPARATION GROUP	VOLTAGE LEVEL	SEGREGATION	CABLE SIZE	CONSTRUCTION ERROR			DCP	DRAWING ERROR	CONSTRUCTION ERROR	NCR ERROR
101-9-2-193	11	6/16/83			90			56	28	64	241			479
101-9-2-190	0	1/6/83			1									1
101-9-2-181	0	1/6/83			1									1
101-9-2-170	2	6/16/83		11		4				4	22			41
101-9-2-162	1	6/16/83							1	3	15			19
101-9-2-153	2	6/16/83				8				2	16			26
101-9-2-148	0	11/18/82								2	1			3
101-9-2-147	0	11/18/82		2						9	1			12
101-9-2-145	0	11/18/82				4								4
101-9-3-039	0					1								1
101-9-3-149	0	5/11/83				1								1
101-9-3-133	0	5/11/83				1								1
TOTALS				103	9	68	29	84	296					589

NCR	REV	NO POTENTIAL BENEFIT										MILITARY				CALCULATED MILITARY LOSS			
		COVERED BY ANALYSIS	WRAPPING	APPROXIMATE	AT LINDS	CONSTRUCTION	UNSAFE	SEPARATION	BE BARRI	NO CON	TOTAL	NO CON	TOTAL	NO CON	TOTAL	NO CON	TOTAL		
M01-9-2-193	11	46	4	41	62	36			189	128	162		290						
M01-9-2-190	0												1						
M01-9-2-184	0												1						
M01-9-2-170	2	7		4	6			17	11	13		24							
M01-9-2-162	1	4	3	1		2		10		9		9							
M01-9-2-153	2			16	8	2		26											
M01-9-2-148	0	1		1				2		1			1						
M01-9-2-147	0					1		1	2	9		11							
M01-9-2-145	0											4	4						
M01-9-2-039	0											1	1						
M01-9-3-149	0											1	1						
M01-9-3-133	0											1	1						
TOTAL		59	7	63	76	41		245	141	194	9	344							

"UNIQUE CASE" ANALYSIS

DCP  
 DRAWING  
 ERROR  
 NCR ERROR-NO  
 NON-COFORM.

NCR	REV.	DCP	DRAWING ERROR	NCR ERROR-NO NON-COFORM.
M01-9-2-193	11		36	
M01-9-2-162	1		2	
M01-9-2-153	2		2	
M01-9-2-147	0		1	
TOTAL	—		41	



236 B  
MISC

CDC has done another  
re-hack - Therefore most  
of the ready to close items  
may not really be ready to  
close. It gives an idea  
what the list looks like.