

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-206/86-20, 50-361/86-17, 50-362/86-17

Docket Nos. 50-206, 50-361, 50-362

License Nos. DPR-13, NPF-10, NPF-15

Licensee: Southern California Edison Company  
P. O. Box 800, 2244 Walnut Grove Avenue  
Rosemead, California 91770

Facility Name: San Onofre Units 1, 2 and 3

Inspection at: San Onofre, San Clemente, California

Inspection Conducted: May 5-9, 1986

Inspectors:	<u>PPNarbut</u> P. P. Narbut, Project Inspection	<u>6/7/86</u> Date Signed
	<u>Peter H. Phelan</u> P. Phelan, Reactor Inspector	<u>6/9/86</u> Date Signed
	<u>PPNarbut for</u> A. Toth, Reactor Inspector	<u>6/7/86</u> Date Signed
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Inspection Summary

Inspection on May 5-9, 1986 (Report Nos. 50-206/86-20, 50-361/86-17, 50-362/86-17)

Areas Inspected: Unannounced regional inspection of licensee activities in the areas of post trip review, onsite review committee, offsite review committee, battery surveillance, diesel generator (TDI) Part 21 reports, and site procedure generation. Inspection procedures 30703, 40700, 40701, 92700, 36100, 51051, 51053, 51055, 42700, and 93702 were utilized.

Results: Of the areas inspected, no violations or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Southern California Edison Company

\*H. E. Morgan, Station Manager  
\*M. Wharton, Deputy Station Manager  
\*R. W. Krieger, Operations Manager  
\*D. Shull, Maintenance Manager  
J. Reilly, Technical Manager  
\*W. G. Zintl, Compliance Manager  
\*J. Reeder, Operations Superintendent, Unit 1  
\*R. N. Santosuosso, Instrument and Control Supervisor  
\*C. A. Couser, Compliance Engineer  
\*B. Katz, Manager, Operations and Maintenance Support  
\*K. A. Slagle, Manager, Material and Administrative Services  
\*W. M. Lazear, QA Supervisor  
T. Herring, STA Supervisor  
J. F. Grosshart, QA Engineer  
S. W. McMahan, Manager, Maintenance Engineering and Services  
B. L. McGee, Supervisor, Site Procedures Group  
M. E. Freedman, Compliance Engineer  
G. T. Gibson, Compliance Supervisor  
F. Briggs, Supervisor, Station Technical  
J. Rudolph, NSSS Superintendent  
H. Merten, Assistant Maintenance Manager, Unit 1  
J. Mangum, Maintenance Engineer, Unit 1  
B. Mair, Maintenance Field Engineer  
D. Sheriton, Maintenance Manager, Unit 1  
D. Mentoya, Electrician  
M. Manely, Electrician Apprentice  
A. Schramm, Supervisor of Coordination  
W. McGhee, Coordination Supervisor  
D. Ziebell, Operations Procedures Group Supervisor  
T. Mackey, Compliance Supervisor  
L. Falcan, Supervisory Procedure Writer  
A. Melville, CDM Center Supervisor  
N. Bloom, Supervisor, Maintenance Procedures & Administrative Engineering

\*Denotes those individuals attending exit meeting of May 9, 1986.

### 2. Onsite Review Committee, Units 1 and 2/3

The inspector examined the activities of the licensee's Onsite Review Committee to verify that the licensee's program meets regulatory requirements and to determine if the safety related responsibilities are being adequately met.

The committee's responsibilities are defined in the facility license technical specifications section 6.5 which include a prescribed meeting frequency and quorum. The committee's responsibilities include

investigation of all violations of technical specifications, review of all reportable events, review of operations, and review of judgements concerning prolonged operation with equipment in bypass or trip. The Technical Specifications also require the committee's decisions to be in writing and written minutes of each meeting to be maintained.

a. Procedures

The inspector reviewed the licensee's procedure for the onsite committee; Site General Order S0123 GCO-1, Revision 0, dated April 24, 1985, entitled "Organization and Responsibilities of the Onsite Review Committee."

The procedure was found to acceptably implement the technical specification requirements. The procedure had strengths in that it provided a working definition for the term "potential nuclear safety hazard" and provided a standard agenda form which ensures all topics required by technical specifications are covered in the monthly or special meetings.

The procedure contained one apparent error in that paragraph IV.A.2. only required the Chairman and four members to establish a quorum; whereas the technical specification for Unit 1 required the Chairman and five members. The licensee explained, and the inspector verified, that the quorum requirement in the technical specification had been changed in November 1985 and that the technical specification quorum requirements had been met at meetings held since that time. Additionally, a revised superseding procedure was prepared and was in the approval process. The new procedure reflects the current requirements for a quorum. Based on the above, no violation of NRC requirements occurred and no further followup is deemed appropriate.

b. Records

The inspector examined a sample of the Onsite Review Committee (OSRC) meeting minutes. The minutes reviewed covered the period from September 1985 to March 1986 for Units 1, 2 and 3. The inspector noted that quorum requirements were met, that the required reviews were performed, that special meetings for appropriate topics were held (above and beyond the minimum requirements of the Technical Specifications) and that appropriate explanatory information was included as attachments to the minutes.

c. Observation

The inspector attended a special meeting of the OSRC held on May 8, 1986 to review the procedure and the engineering/safety evaluation for a special evolution pertaining to dewatering the lower refueling cavity of Unit 1. The evolution involved transferring highly contaminated water with suspended solids from the containment refueling cavity to a spent fuel pool cavity through a temporary transfer system designed for the evolution.

The inspector observed that the information presented to the OSRC was detailed, that the questioning by the committee members was pertinent and detailed, and that the conduct of the meeting was formal and in accordance with procedures. There appeared to be a healthy exchange of views and no reluctance to explore alternate ideas.

d. Other Areas

o Check Valve Noise

The November 21, 1985 water hammer event at Unit 1 and the resultant investigative actions pointed out an apparently improper evaluation of an abnormal condition by the licensee. In June 1985, prior to the November 21, 1985 event, the licensee became aware of and evaluated a rapping noise in the vicinity of the subsequently failed check valves. The licensee's followup investigation and actions in response to this noise were determined to be inappropriate and were the subject of a proposed violation as discussed in inspection report 50-206/86-07.

o OSRC Review of NRC Violations

Review of the OSRC minutes showed that the San Onofre OSRC formally addressed NRC violations cited against Technical Specifications as required. The review also showed that the OSRC does not formally review NRC violations cited against 10 CFR Appendix B criteria. Although this does not violate the specific wording of the administrative requirements of the Technical Specifications (section 6), the omission of these reviews appeared to be unnecessarily narrow.

The licensee pointed out that the knowledge of such non-technical specification violations was common and that the review of the adequacy of corrective actions was performed by the higher levels of management so that, in short, such violations did not suffer from lack of attention. At the exit interview licensee management stated that the inspectors comment would be considered. This item will be followed up in the normal course of periodic inspections in this area.

o OSRC Changes as a Result of the Event

The licensee described actions taken to strengthen the safety review process in their April 8, 1986 letter to the NRC. In regards to the OSRC, the licensee has entered into contract with an independent, operations-experienced consultant to provide oversight of the OSRC and to report to corporate management any issues of concern either technical or procedural.

e. Conclusion

The activities of the OSRC were found to meet regulatory requirements and appeared to be acceptably conducted.

3. Offsite Review Committee, Units 1 and 2/3

The inspector examined the activities of the offsite review committee for San Onofre, the Nuclear Safety Group (NSG), to verify that the licensee's program meets regulatory requirements.

The NSG responsibilities are defined in Section 6.5 of the facility operating licensee Technical Specifications which contains other specific requirements regarding the quorum, required records, meeting frequency and audits.

The inspector examined the licensee's procedure for the NSG, E&C 40-9-21 "Nuclear Safety Group Review Evaluation and Audit Responsibilities for SONGS." The inspector discussed the conduct of NSG responsibilities and reviewed records of meetings and issue reviews with the NSG Supervisor at the licensee's corporate offices.

The inspector noted that the NSG audits which are required to be "performed under the cognizance of the NSG" (per Technical Specifications) were performed by the onsite QA group. The scheduling and review of those audits, findings and corrective actions are reviewed by the NSG (and therefore are under the cognizance of the NSG).

The inspector noted that, although the requirements of the Technical Specification were formally fulfilled, the desirable direct involvement of the NSG as independent oversight of actual site conditions and practices appeared to be lost.

The licensee demonstrated that NSG members were, in fact, involved in a direct oversight through a surveillance program. The NSG surveillance program, which is beyond the requirements of the Technical Specifications, was reviewed by the inspector. The NSG had conducted eleven surveillances in the period from March 1985 to March 1986. The surveillances were generally multiple week efforts, which went into great depth and included direct observation of the conduct of work and operations as well as technical evaluations. At the exit interview, the inspector noted that, although the NSG surveillance program was an extensive effort, it was not required or described by a utility procedure. Licensee management noted the inspector's comment for consideration. The activities of the NSG will be examined in the future scheduled inspections.

In regards to the NSG involvement in the review of the OSRC findings on check valve noise, the licensee letter of April 8, 1986 stated that the NSG reviewers would be instructed on the need for an insightful questioning approach. Any further response to this question will be addressed by the licensee response to the proposed violation described in inspection report 50-206/86-07 regarding the inadequate investigation of check valve noise.

Conclusion: The activities of the NSG meet regulatory requirements and appear to be acceptably conducted.

#### 4. Abnormal Condition and Post-Trip Reviews

The inspector examined the licensee's system for dealing with abnormal conditions and post-trip reviews. These areas have come under increasing attention not only as a result of the November 21, 1985 water hammer event at San Onofre but also as a result of the February 1983 event at Salem. Pursuant to the 1983 event the NRC issued Generic Letter 83-28 dated July 8, 1983 which required licensees to respond to certain generic concerns, one of which was the area of post-trip review.

The generic letter responses were initially reviewed and review guidelines were issued by the NRC. The guidelines basically required that the licensee develop systematic safety assessment procedures that ensure certain specific criteria are met prior to restart from a trip. Those restart criteria were, in summary, that the root cause and sequence of events are understood, that near term corrective actions have been taken, that major safety systems are determined to have responded properly, and that a potential safety concern had not been identified. The guidelines further stated that, if any of the criteria were not met, then an independent assessment of the event should be performed by an independent body such as the OSRC. The guidelines specify the responsibility and authorities of personnel who perform the review and require, in short, management involvement (at the Shift Supervisor level) and STA involvement. The guidelines also require the licensee to issue procedures to implement the post-trip review requirements and to submit information regarding its post-trip review program and procedures.

On May 8 and 9, 1985 the NRC issued letters to San Onofre stating that the licensee's programs for post-trip review had been reviewed and found acceptable for Units 2/3 and Unit 1, respectively.

The licensee's current procedures for post-trip review were reviewed by the inspector. The procedure is S0123-0-25 revision 0, "Trip/Transient Review" issued November 22, 1985.

The procedure was found to meet the review guidelines discussed earlier in this section. It was noted, in discussion with licensee management, that SCE has also incorporated the suggestions of industry groups such as INPO into their post-trip review process. The inspector noted that the post-trip review procedure was well laid out and had a specific comprehensive multipage form for use in the post-trip review process. The procedure covers all points raised in the review guidelines and includes other very useful items such as a requirement to interview every person involved and to record their answers. It also requires that an entry be made suggesting training additions from any lessons learned from the event.

The post-trip review process and the recording of post-trip review information is ordinarily done on-shift by shift personnel and data is recorded by hand on the forms provided in the procedure. The inspector reviewed several post-trip review forms for previous reactor trips. The

information provided was found to be terse but indicated a review of the proper questions had been done and judgements made.

The licensee has supplemented the post trip review process with a second analysis of events called the "Station Incident Report". This is a study of the same events done in a more studied and complete fashion by offshift personnel and supervision and serves as a second studied analysis of the event, the corrective actions, and a hazards evaluation. The process is described by the licensee's procedure, S0123-V-2.27 "Station Incident Report (SIR)" Revision 2.

The SIR serves as the permanent record of the description and cause of the event and corrective actions to prevent recurrence. The SIR is the document forwarded to the OSRC for their monthly formal review of unit operations and events.

The inspector examined a number of SIR's and found the documents to be clearly written and comprehensive. The SIRs include sections which describe the event, the equipment and personnel behavior, reportability actions, cause analysis, similar incidents and proposed corrective action (including procedure, training, and equipment aspects). The SIR also includes a formal safety evaluation. Actions identified in the SIR are numbered and tracked by the licensee's computerized action item tracking system.

It was further noted by the inspector that the major organizational units at the site had their own documented policies for conducting and recording of results of investigations. For example, the maintenance group has a procedure (S0123-G-4) which is used to examine maintenance errors and record causes and corrective actions. These corollary investigations were found to be included with the SIRs when applicable.

Based on the above the inspector concluded that the licensee's established program for post-trip and abnormal condition reviews met regulatory requirements and was generally strong in terms of procedural adequacy and detail. However, an inspection conducted by the resident inspectors pursuant to the April 13, 1985 premature criticality event at Unit 3 identified the failure to properly document the post-trip review information required by procedures (Report No. 50-362/86-11; pending). The licensee's actions to resolve the identified procedural compliance problem will be followed pursuant to the Unit 3 report. Additionally, as was discussed in paragraph 2 of this report, the licensee's action in following up the abnormal condition of check valve noise in June of 1985 was found to be unacceptable as documented in the proposed violation in inspection report 50-206/86-07.

Subsequent to these matters, senior regional management visited the reactor site during the week of May 19, 1986. Interviews were conducted with management and working level individuals to assess attitudes towards the goals of safety and excellence. The interviewed SCE staff appeared to have a positive attitude toward ensuring that operations are conducted properly and safely.

## Conclusion

The licensee's program for abnormal condition and post-trip reviews meets regulatory requirements and appears to be acceptably defined in procedures. A weakness in implementation was identified in report 50-362/86-11 and will be followed pursuant to that report.

### 5. Procedures Development Program

#### a. Inspection Objective

An NRC Incident Investigation Team (IIT) identified several items relating to the November 20, 1985 water hammer incident, which appeared to involve weaknesses in various plant procedures. The licensee issued an investigation report regarding the event, and addressed planned corrective actions for the specific weaknesses. In Section 6.5.2 of that report, the licensee described a self-assessment of the program for development and improvement of procedures, along with plans for improvement of the procedures development program itself. The licensee also expressed an opinion that the program has, in general, effectively provided technically correct documents of acceptable quality. The licensee stated that the plant operating instructions were based upon ANSI-N18.7 and INPO documents. The objective of this inspection was to clarify the licensee reference to INPO criteria and to determine the extent to which recent human factors recommendations had been adopted in the SONGS procedures generation process.

#### b. Inspection Scope

During this inspection, the inspector reviewed the elements and basis for generation and changes to procedures, to assess implementation of criteria of ANSI-N18.7 and the degree of adoption of INPO recommendations issued between 1983-1985:

The inspector interviewed personnel and examined samples of procedures in the categories of operating instructions, alarm response procedures, abnormal operating procedures, and maintenance procedures. The inspector examined the following procedures, instructions and writers guides which are used by the licensee to generate operations, maintenance and surveillance instructions:

S01-14-24	Operations Procedure Group
S01-14-42	Responsible Use of Procedures
S0123-0-20	Use of Procedures
S0123-0-34	Distribution and Acknowledgement of Information
S0123-0-35	Review of Operational Occurrences
S0123-0-40	Operations Procedure Group Organization and Methods

S0123-VI-0.9 Documents, Authors Guide to the Preparation of Site Orders, Procedures and Instructions

S0123-VI-1.0 Documents, Review and Approval Process for Site Orders, Procedures and Instructions

S0123-VI-1.0.1 Documents - Temporary Change Notices (TCNs) Preparation, Review, Approval, Incorporation and Distribution

NGS-D-017 Independent Verification (Site Order)

S01-VI-1.0.4 Unit 1 Emergency Operating Instructions - Preparation, Revision, Validation

S0123-PF-1 Site Orders, Procedures, Instructions and Forms Linked Program

S01-14-31 Temporary Facility Modifications

S0123-VI-1-02 Annual/Biennial Review of Site Orders, Procedures and Instructions

S0123-VI-1.03 Methods of Handling Invalid Steps/Sections

S0123-VI-19.0 Implementation of Overtime Restrictions

S0123-VI-1.3 Guidelines for Completing the Unreviewed Safety Question and Environment Evaluation.

MPG-001 Maintenance Procedures Writer's Guide

QAP-N5.02 Coordination, Review and Approval by Quality Assurance Organization of Southern California Edison (SCE) Station Procedures

S0123-0-25 Post Trip/Transient Review

c. Findings and Observations

- (1) Organization: A Site Procedures Group (SPG) issued procedure guidance applicable to Units #1/2/3 and coordinated interdisciplinary review of procedures. The site quality assurance organization performs final review of new and revised procedures, including disposition of interdisciplinary review comments, and provides final approval of the procedure. The Unit #1 operations organization includes an Operations Procedures Group (OPG), staffed with personnel holding reactor operator licenses, who originate and review plant operations procedures, i.e., Operating Instructions (OI), Alarm Response Procedures (ARP), Abnormal Operating Instructions (AOI), and Emergency Operating Instructions (EOI). The Unit #1 Maintenance Procedure Group (MPG) also includes a procedures preparation group, that originates maintenance and surveillance

procedures. The Unit #2/3 organization's procedures work is also directed by the SPG, but differs from the Unit #1 activities.

- (2) Writer Guides: The SPG issued Site Procedure S0123-VI-1.0 and 1.0.4 which provide guidelines for format and content of the various types of plant operating/maintenance procedures. The document includes human factors/style considerations of NRC and INPO documents dating up to 1982; however, more recent INPO recommendations issued between 1983-1985 have not been incorporated, nor evaluated by SPG for incorporation, and were not available at the SPG offices. The SPG supervisor stated that there was no policy for SPG to obtain such documents, evaluate and incorporate results into revisions of the writers guide, nor require upgrading of existing procedures to revised writer's guide instructions. The SPG document attempts to provide both general and specific guidelines and yet recognize the autonomy of the Unit #1 and Unit #2/3 plants in different detailed approaches to procedures generation. The SPG thus does not appear to function as a strong driving force for uniformity at the site and continuing upgrade of procedures.

The OPG (Unit #1) issued plant procedure S01-14-24 which provides guidelines for format and content of plant operating department procedures. The document both references the SPG writer's guide and provides additional requirements and simplifying detail for procedure writers; it is a 73-page document issued in April 1985. The document addresses preparation, research, work flow-path definition, format and style consistent with many human factors recommendations of NRC and INPO guidelines. Some such recommendations have not been addressed, such as Annunciator Procedures (ref INPO-85-003) are not required to define methods to verify the alarm nor verify that expected automatic actions have in fact occurred. It appeared that INPO recommendations issued between 1983-1985 had not been incorporated nor evaluated by OPG for incorporation, nor were they available at the OPG offices. However, extensive SCE work has been done to upgrade Emergency Operating Instructions in accordance with Westinghouse Owners Group, NRC and INPO guidance, and the responsible coordinator for that work was in close proximity to OPG and maintained a significant reference library, including many but not all relevant guidance documents.

The OPG supervisor stated that there was no policy for OPG to obtain such documents, evaluate and incorporate results into revision of the OPG writer's guide, nor require upgrading of existing procedures to upgraded writer's guide instructions. He stated that an upgrade of an operating procedure may occur when it came up for annual/biennial review; he would then decide if that procedure should be left as is or revised; only in the event of revision would he expect the document to be recast into the format/style of the latest revision of the writer's guide. The OPG thus does not appear to function as a

strong driving force for continuing upgrade of procedures to increasing standards of adequacy.

The maintenance procedures group (MPG) (Unit #1) issued a procedures writer's guide MPG-001 which provides guidelines for format and content of maintenance and surveillance procedures. The document includes human factors/style considerations of NRC and INPO documents dating through 1985, including those of INPO-85-026. The INPO documents were not available at the MPG office, however, the MPG supervisor stated that the current writer's guide reflected results of an evaluation of an INPO report which had been routed through the MPG for information; (he could not retrieve any specific documentation of the review to identify the specific documents considered). The MPG supervisor stated that there was no policy for MPG to obtain such documents, evaluate and incorporate results into revision of the writer's guide, nor required upgrading of existing procedures to revised writer's guide instructions. The MPG thus appeared to function autonomously to upgrade existing procedures to increasing standards of performance, dependent upon management ad hoc initiative. This MPG appeared successful in upgrading the procedures writer's guide to be current with newer industry recommendations.

The operations department had, in 1985, conducted a major effort to upgrade Emergency Operating Instructions (EOI's), and had provided a writer's guide to NRC via an April 12, 1985 letter. The described procedure generation, verification and validation processes appeared to be reflected in EOI's reviewed by the inspector.

- (3) Procedure Preparation: The OPG and MPG files contain a "Procedure History File and a Next Revision File" for each procedure, in addition to the groups each having the FSAR, the Technical Specifications and other references available. The maintenance department also implements a request-for-assistance system where any employee may ask for consideration of action, including minor/major changes to procedures. The forms are logged/tracked/resolved, and keyed to the next revision file where applicable. The SPG and OPG writer's guides caution against removing any information from history files. These provisions assure retention/availability of information upon which prior procedure revisions were based, and are required to be referred to by procedure writers during the procedure revision process. It also assures that knowledge of prior commitments to NRC (and others) is retained so as to avoid inadvertent deletion of procedure provisions previously recognized as important.

The SPG, OPG, and MPG writer's guides each include requirements to identify and define requirements to conduct and document independent verification of activities conducted outside the control room which are important to safety, and a small sampling of procedures indicated that this element has been

included at appropriate points. The guides also stress the importance of using the "active" versus "passive" sense in instructional steps, defining interfaces with other procedures, and defining responsibilities and principal lead for activities involving more than one individual or organization. (These elements were in question in NRC Inspection Report 86-04, Paragraph 7-6, relating to air lock procedures. The licensee subsequently determined the problem to be absence of a governing procedure as opposed to inadequacy of an existing procedure.)

The MPG and OPG writer's guides include requirements for peer review prior to issuance to SPG for interdisciplinary formal review. Instructions for review/approval of procedures include checklists for reviewers of procedures, as does the Quality Assurance Department review/approval instruction. The checklists address format, style, logic, accuracy and walkdowns. The SPG/OPG guides include requirements to conduct and document a walkdown of the various types of procedures prior to approval. The MPG writer's guide provides for walkdown/field-checks prior to approval or during first-use.

The OPG guide and related operating/administrative procedures require that plant transients analyses include interview of personnel to determine adequacy of procedures used and recommended improvements, with documentation of recommendations on a tracking system which assures followup via the Next Revision File during annual/biennial reviews or more promptly.

The procedures controlling temporary modifications of facilities include specific checklist items to determine plant procedure changes required and associated training and accomplishment of these items prior to activation of the modification. Provisions for prompt procedure changes via Temporary Procedure Change Notices (TCNs) are included.

The process for interim changes to procedures (TCNs) appears consistent with ANSI-18.7 and Technical Specification requirements, including level of approval, time limits for expiration of non-permanent changes and final approvals of permanent changes. The TCN process allows substitution of corrected pages and full reissuance of procedures constrained by the requirement that the "intent" of the procedure is not altered; the administrative procedures appear to provide reasonable guidance/amplification of the term "intent". The TCN process provides for prompt issuance of changes under circumstances of immediate operator need.

Management has clearly expressed expectations regarding use of plant procedures. The instruction S01-14-42, "Responsible Use of Procedures," incorporates guidance as to the specific responsibilities of personnel who review the data in procedures/checklists that have been applied by plant staff, including responsibility to obtain resolution of "comments" and

check for return of the system to its proper configuration. For procedures implementation in progress at shift change, the instruction requires users to reverify prerequisites and precautions. Instructions are included to control transfer of data from field copies to the record copy of procedures during implementation. The instruction includes provisions for procedure users to request (Instruction Resolution Request-IRR) action on errors, additions or inadequacies in procedure. The IRR is forwarded to the procedure writer group and filed in the History File and Next Revision File for the procedure. A separate procedure (SO123-VI-1.0.3) provided instructions for procedure users who find invalid (cannot, should not, or need not be performed as written) steps or sections in a procedure due to various circumstances. Alternative annotations and approval levels are designated, and instructions for review provided for the designated approval authority. Provisions are included for obtaining and documenting telephone approvals/disapprovals, and for initiating a formal Temporary (Procedure) Change Notice (TCN).

The instructions for review and approval of procedures provides for a transmittal cover sheet with checklist entries required for checking against process drawings (P&IDs), verification against actual plant conditions, and disposition of existing temporary-facility-modification/temporary-change notices. A separate instruction is provided for evaluating procedures against requirements of 10 CFR 50.59; pointed examples are included to assist the reviewer, in addition to designation and training of specific personnel authorized to perform such reviews. Examples are illustrated via reference to actual experiences at operating power plants.

- (4) Procedures Developed: The procedures currently in place for plant operations and maintenance appear to encompass the areas described in Appendix A of Regulatory Guide 1.33. The format, content and style of these procedures generally appear to conform to that specified in the applicable SCE writer's guides. In some cases, the current revision of the procedure dates to early 1984 and the procedure has not yet been subjected to biennial review and upgrade to the latest revisions of the writer's guides. Some procedures have not fully implemented the style and certain human factors aspects of the current writer's guides. Examples involve Operating Instructions (OI) and Abnormal Operating Instructions (AOI). (For the following aspects the inspector identified specific procedure examples to the SCE Compliance and QA representatives):

- (a) NOTES that include action/step type instructions;
- (b) CAUTIONS that include action/step type instructions;
- (c) REFERENCES which do not identify specific parts of applicable Technical Specifications;

- (d) REFERENCES that include Technical Specifications appropriate to specific steps of a procedure, but not identified at those steps; and
- (e) STEPS in procedures which do not involve operator actions, but which may be appropriate as highlighted NOTES or CAUTIONS.

Procedures for response to annunciators do include: a replicate of each actual annunciator plate, set point for annunciator activation, initiating device identification, plant mode applicability, probable physical causes/of activation, recommended operator actions, and technical references (e.g., Technical Specifications, drawings, interfacing procedures). Additionally, general procedures have been implemented for response to annunciators, addressing operator actions for multiple alarms, and compensatory actions for unreliable, spurious, or inoperable annunciators.

The alarm procedures (and the writer's guide) do not incorporate identification of the preferred instruments/methods to verify alarm validity, nor do they require and identify for verification the automatic actions expected to occur, as recommended by INPO-85-003. The plant superintendent stated his intent to evaluate resources to upgrade the Abnormal Operating Instructions to incorporate these industry guidelines.

d. Conclusions

SCE management has demonstrated a commitment to increasing standards of adequacy for plant procedures, through organization, staffing, and policy support resulting in technically experienced staff trained for and dedicated to preparation and revision of procedures. However, management has apparently not been aware of the extent to which the SCE staff has and has not incorporated developing industry recommendations into the program. This may be attributed to the absence of formal expression of management expectations and absence of associated feedback of status, such as evaluation and action on INPO guidance issued since 1983. In the absence of such management expression, individual organizational elements have addressed such criteria non-uniformly and incompletely in SCE writer's guides. Additionally, the Site Procedures Group (SPG), which organizationally is the focal point for all site procedures, has not taken the lead to address this aspect either site wide or plant specific.

At the exit meeting, SCE representatives stated that SCE would evaluate the inspectors' findings and take action if appropriate.

No violations or deviations were identified. The licensee's evaluation of this area will be reviewed during a future inspection (Followup Item 50-206/86-20-01).

6. Transamerica DeLaval, Inc., (TDI) Diesel Generators

The inspector held discussions with supervisors and cognizant engineers responsible for, and reviewed documentation associated with, the installation, inspection, testing, and design adequacy for the TDI diesel generators (DSRV 20) installed at San Onofre Unit 1.

The licensee is a member of the TDI owner's group and as such is implementing the owner's group recommendations. The recommendations are in the form of two distinct phases:

Phase I: is the resolution of 16 core issues intended to serve as the bases for the licensing of plants during the period prior to the completion of Phase II.

Phase II: is the design review/quality revalidation (DR/QR) of a large set of important engine components to assure that their design and manufacture are adequate.

Unit 1 has presently completed Phase I of the owner's group recommendations. Phase II recommendations are complete for the number one diesel and should be complete for the number two diesel by June 13, 1986.

TDI has issued several 10 CFR 21 Potential Defect Reports for the Unit 1 diesel generators. Below is a comprehensive list identifying the item, problem, SCE's corrective action and status:

<u>NRC Open Item No.</u>	<u>TDI I.D. No.</u>	<u>Part 21 Issue Date</u>	<u>Problem</u>	<u>SCE Corrective Action</u>	<u>Status</u>
*86-20-02	102	9/19/80	Dowel counter bore in link rod may be too shallow.	Inspected and found zero clearance as required.	Closed
*86-20-03	103	12/16/80	Potential turbo-charger lube oil system defect.	Drip lubrication system was installed.	Closed
86-01-P	111	5/13/82	Capscrews holding the starting air valve assembly are too long.	Inspected capscrews and verify proper length.	Closed
*86-20-04	112	6/23/82	Improper material used in the coupling drive assembly manufactured by Koppers Co., Inc.	Coupling was manufactured by Faulk, which is exempt from subject 10 CFR 20.	Closed

86-02-P	114	7/20/83	High pressure fuel line possibly subject to rupture.	Line was inspected using a fiberoptic borescope, no draw seams were found.	Closed
86-04-P	117	9/21/83	Potential problem with the engine mounted fuel oil line.	Line was inspected for support and observed during operation. No deficiencies noted.	Closed
86-05-P	118	10/11/83	Potential problem with the engine mounted electrical cables.	Subject cables were replaced with properly rated cable (90C°).	Closed
86-06-P	119	11/16/83	Linear indications in the Engine Piston Skirt Castings.	Inspected 25% of piston assemblies as recommended. Found no indications.	Closed
86-07-P	120	1/9/84	Possible loose hubs on the overspeed governor and fuel transfer pump drive.	Both DGs were inspected. Drive coupling on DG 1 was tight, DG 2's was loose and subsequently, repaired.	Closed
86-08-P	121	2/15/84	Problem with turbo-charger thrust bearing lubrication during fast starts.	Revised DG test procedure as recommended. Will run auxiliary L.O. pump prior to fast start.	Closed
85-21-P	123	7/12/84	Possible surface imperfection with valve springs.	Inspection indicated that all springs were satisfactory.	Closed
*86-20-05	124	7/13/84	Potential problem with high pressure fuel injection pumps, delivery valve holder.	Fuel inspection equipment is inspected on refueling interval, and sent to vender every five years.	Closed

*86-20-06	---	3/10/86	Elastomer liner on foot valve of L.O. system disintegrated.	Due to system design, no corrective action was required.	Closed
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\* Note: Asterisked items have had NRC tracking numbers assigned with this report.

The licensee has taken effective and timely measures to address the many concerns associated with the TDI emergency diesel generators.

No violations or deviations were identified.

#### 7. Station Batteries

The inspector reviewed procedures which implemented the technical specification required surveillances for the 125-volt safety related batteries associated with Unit 1. The inspector verified that procedures exist for each part of technical specification section 4.4.D and that the maintenance procedures for the 125-volt batteries contained the required acceptance criteria where necessary and as noted in the battery technical manual. Battery maintenance and surveillance records for 1984-1986 period were reviewed for completeness and proper performance. The inspector witnessed the performance of a weekly battery surveillance on the number one battery and made observations as to the thoroughness and adherence to the procedure displayed by the technical personnel performing the task.

Based on the review of the above procedures and documents and physical inspection of the batteries, the inspector noted the following items:

- a. During a tour of the number one battery room, the inspector noted electrolyte seeping from the cover seam of several cells. Two patches of bubbled paint on the floor were observed (indicative of leaking electrolyte). The northeast end of the battery rack was corroded due to electrolyte reacting with the rack covering. In all, eleven examples of leaking electrolyte were observed. This condition was brought to the attention of the Unit 1 maintenance supervisor.

The inspector was informed that this was an identified condition. The licensee initially identified this concern, NCR S01-P-5226, in May of 1985, and at that time proposed applying a vendor recommended adhesive to the cover seam as a corrective action. The vendor performed a pressure test, MO 85052752000, of 1.0 p.s.i. to verify soundness of all cells. Approximately half of the cells failed this test. However, to date, no final corrective action has been initiated.

The batteries have successfully passed the required surveillances, most recently the 18 month load duty cycle test which demonstrates their ability to provide the current time profile required for accident conditions. However, the licensee stated and NRC technical

personnel concur that the leaking condition should not affect the functionality of the battery. The licensee's corrective action will be examined in a future inspection. (Followup Item 50-206/86-20-07)

- b. In reviewing the completed procedure S01-PE-82-193-1, Rev. 0; completed July 24, 1984, one concern was identified. The procedure was used for the preoperational test of the new number one batteries ability to satisfy the service load and overall capacity design requirements. To obtain a common reference point, the temperature of the battery must be accounted for when determining the discharge rate. IEEE 450-1980, Maintenance, Testing and Replacement of Large Lead Storage Batteries (referenced in the procedure), Section 6.3 reads, "Note that the test discharge current is equal to the rated discharge current divided by K, where K is the discharge current correction factor for the initial electrolyte temperature." Initially, cell temperature was 82°F. which corresponds to a K factor of 0.972. The test was run with a discharge current of 1240 +20, -0 amps. With the cell temperature correction, it would have been 1275 +20, -0 amps. As the discharge rate is increased, the batteries capacity is decreased. The minimum final acceptance criteria for this test was 105 volts or greater. The recorded final voltage was 105.2 volts. Had the cell temperature correction factor been applied, thereby increasing the discharge rate, the final voltage may have decreased below the acceptance criteria limit. A temperature correction factor was applied to the test, but only to the formula for computing battery capacity, not for the discharge rate.

As the test procedure appears to be in conflict with the accepted industrial standards for the capacity testing of large lead storage batteries, this item is unresolved and will be examined further in a future inspection (Unresolved Item 50-206/86-20-08). However, this condition does not impact on the batteries ability to satisfy the required emergency design loads. This was demonstrated by the successful completion of the recent 18 month battery load profile test.

#### 8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during this inspection is discussed in Paragraph 7 of this report.

#### 9. Exit Meeting

The inspectors met with licensee management representatives denoted in paragraph 1 on May 9, 1986. The scope of the inspection and the inspectors' findings as noted in this report were discussed.