TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

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DEC 12 1986

U.S. Nuclear Regulatory Commission
Region II
ATTN: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - OPERABILITY "LOOK BACK"

As reflected in the letter from Gary Z. Zech to S. A. White dated November 10, 1986, TVA committed to provide a submittal addressing our plans to review past out-of-tolerance occurrences to ensure reliability of technical specification equipment. This commitment was tied to discussion of the tracking and trending program recently implemented at Sequoyah and NRC concerns that this program will not presently identify potential operability concerns resulting from repetitive equipment failures which have occurred in the past.

Enclosed is TVA's submittal outlining our plans for conducting an operability review ("look back") for safety-related equipment. The effort will focus on identification of operability concerns and evaluation of adequacy of prescribed corrective actions. Output from this review will ensure all identified conditions have no effect on safe operation of the plant.

If you have any questions, please get in touch with M. R. Harding at 615/870-6422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley

R. Gridley, Director
Nuclear Safety and Licensing

Enclosure
cc: See page 2

Dr. J. Nelson Grace

DEC 12 1986

cc (Enclosure):
Mr. Carl Stahle, Sequoyah Project Manager
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20814

Mr. G. G. Zech
Director, TVA Projects
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE

I. ISSUE

In the NRC Region II SALP report for Sequoyah Nuclear Plant performance over the timeframe of March 1, 1984 through May 31, 1985, an NRC concern was identified regarding adequacy of corrective actions and lack of timely resolution to identified deficiencies at Sequoyah. Early in 1986, under NRC Inspection Report 50-327, -328/85-45, NRC identified a violation (45-06) involving adequacy and timeliness of corrective actions taken by Sequoyah to address UHI level switch failures. NRC considered that corrective actions taken to address repetitive UHI level switch and isolation valve response time failures had been inadequate (designated action and timeliness of action) to ensure continued operability. As a result, past overall system operability was placed in question and the possible generic implications of the situation were questioned by NRC. Additionally Inspection Report 50-327, -328/86-37 raised similar questions relating specifically to repetitive out-of-tolerance conditions, inadequate documentation of evaluation of the deficiencies, and programmatic problems associated with compliance instruments.

The concerns over adequacy of preexisting mechanisms for future identification/resolution of operability problems were addressed by a program recently implemented at Sequoyah. A formal tracking and trending program was developed as discussed in Sequoyah Nuclear Performance Plan, Revision 1, and was addressed in a supplemental response to violation 85-45-06. This program provides for identification of repetitive component failures, performance of timely evaluations, escalation of findings as appropriate, recommendation of appropriate corrective actions, and tracking of these actions to resolution. As the database for this program is just being established--i.e., the database does not include component performance data before implementation of the program--NRC has expressed concern regarding potential operability questions resulting from past repetitive component failures which under previous mechanisms might not have been identified or adequately addressed to ensure continued operability. To address this concern, TVA committed to conduct a review of past operability problems. Sequoyah's plans for this review are being provided in this submittal as requested by NRC. The project described under this submittal reflects a preimplementative perspective and may be adjusted/revised as determined appropriate during implementation.

II. DISCUSSION OF ISSUE

Before formulation of the previously identified tracking and trending program at Sequoyah, other mechanisms existed to detect, document, resolve, and evaluate repetitive equipment deficiencies; e.g., surveillance package performance and review for CAQs, various formal methods for documenting CAQs (identified under administrative procedures), experience review evaluation of NRC IE Notices and Bulletins, specific program trending (Section XI pump and valve test trending), etc.

These preexisting mechanisms identified the repetitive failures of the UHI level switches and initiated corrective actions, although the adequacy of the evaluation/corrective actions was questioned by NRC. While some areas for improvement in trending and implementation of corrective actions were identified through investigation of the UHI situation, it is not believed that the specific deficiencies identified for UHI level switches are indicative of widespread operability concerns. Rather, it is believed that prescribed methods need to be better employed and implemented to ensure consistency and comprehensiveness of evaluations and to ensure that mechanisms for escalation of problems to appropriate management levels be better defined.

To appropriately address remaining concerns, clear identification and separation of the issues must be established. The root cause, inadequacy of preexisting mechanisms to fully and appropriately address component failures (tracking and trending), was addressed through the previously identified tracking and trending program instituted for present and future use at Sequoyah. The issue remaining is the potential result of the previous inadequacies; i.e., were the inadequacies such that pervasive operability concerns exist at this time.

An operability concern may be considered to include unacceptable reliability of a safety-related component such that required safety function capability cannot be assumed. Unacceptable reliability must be determined from evaluation of required and exhibited performance. Periodic surveillance testing ensures that the performance required of safety-related components is verified as-left. It is sometimes expected that a component which is tested at the beginning of a surveillance interval and verified to achieve specified performance could experience some wear/drift over the surveillance interval. The specified requirements and intervals are established such that even allowing for expected rates of wear/drift, the component would be able to achieve the required performance when called upon to do so. The validity of the expectations is substantiated by as-found surveillance testing, i.e., the component exhibited performance, as-found, meets or exceeds the required performance even if some wear/drift has occurred. Desired performance levels, more stringent than the required levels, are sometimes administratively imposed upon safety-related equipment at Sequoyah; they serve as a "trigger" for initiating preemptive action well in advance of any operability concerns, but are not normally indicative of unacceptable reliability. Unacceptable reliability would be indicated if excessive or accelerated wear/drift is occurring in components such the required performance is repeatedly not met as-found; in this case, operability during the surveillance interval becomes questionable. It is for the purposes of identifying the lack of such operability (in safety-related equipment) that the TVA operability review project described in this submittal is being implemented.

III. SEQUOYAH RESPONSE

As previously discussed, Sequoyah has enhanced preexisting operability identification/evaluation mechanisms by implementing a tracking and trending program. This program will provide capability for identification of repetitive component deficiencies from component performance data now being input to the database. As this does not provide a "look back" at past equipment performance and to specifically address SALP report concerns regarding adequacy and timeliness of corrective actions for the period of March 1, 1984 through May 31, 1985, Sequoyah initiated and completed a review of the potentially reportable occurrences (PRO) database for equipment failures which occurred between January 1984 and December 1985. Ten items were identified for required additional action before restart.

To fully address continuing NRC concerns regarding the generic implications of both the SALP review and the inadequacies perceived in the past handling of the UHI component deficiencies, an extensive "look back" or operability review will be conducted. The review effort will establish a high confidence level that past repetitive failures constituting operability concerns were identified and are being appropriately addressed.

The operability review project will be comprised of two basic review efforts which will provide input to the overall operability review project. The first effort will consist of identification, review, and documentation of maintenance-related PROs under specific "cause codes." It will cover the timeframe from licensing to present and use the plant PRO database. The data available from the review of the PRO database will provide a high confidence level in identification of repetitive component failures associated with safety-related equipment, even accounting for possible inconsistencies in reporting of component failures. To further supplement this exhaustive review, interviews will be held with as many lead engineers, Senior Reactor Operators (SROs), and key supervisory personnel as practical to identify any additional operability concerns. The interviews are an additional measure to supplement the PRO review and thereby even further increase the confidence level of the review process. The compilation of data from these two segments of the project will provide an extensive database of safety-related equipment/system deficiencies.

Overviews of the PRO review and interview segments of this project are provided as follows in sections A and B. The results of these two efforts will provide data input to the overall review which is discussed in section C. The project manager is responsible for ensuring the project output under the overall review will constitute a fully evaluated, documented and auditable operability review effort. Project procedures were therefore developed under his direction to facilitate that end. While guidelines for project implementation of the PRO review and interview input segments were administratively established under such procedures, it is expected that deviation from these guidelines may in

some cases be deemed appropriate by the project manager. Such deviation will be verified by the project manager to not reduce the effectiveness of the overall review effort. The overall review project, as described in section C, provides the focus for the review effort and will be fully implemented in accordance with a prescribed project procedure. This procedure may be altered or revised by the project manager as deemed appropriate during the overall review effort. The output of the overall project evaluation will ensure the adequacy of the review effort and that each item identified is properly dispositioned.

A. PRO REVIEW

This project consists of a systematic and comprehensive review of maintenance related Potential Reportable Occurrences (PROs) with "cause codes" specified to identify equipment operability problems. PROs are written (per plant Standard Practice procedure) to provide a means for evaluation and documentation of various events which include failure of safety-related equipment to exhibit required performance, e.g., failure to meet technical specification acceptance criteria during testing. Corrective actions are specified for each PRO written, based upon investigation and evaluation of the individual occurrence. All PROs are tracked under the plant PRO database, and original PROs are stored in permanent record storage.

This review, utilizing the PRO database, is intended to identify any potential continuing operability problems. The data collected under the PRO review will provide input to the evaluation performed under the direction of the Technical Assessment Section, as part of the overall review effort. The data will be used to assess the adequacy of previously specified corrective actions (from both individual incident and collective trend perspectives) and to identify any additional actions that are necessary to justify continued operation. The data from the PRO review project will be documented and maintained.

Review of the PRO database under this project will be implemented and controlled under procedural guidelines. The procedure was developed by the Technical Assessment Section of the Plant Operations Review Staff (PORS) and issued under memorandum from the plant manager. The procedure was generated to facilitate the collection and documentation of data during the review. The provided guidelines are all-inclusive, which is not to indicate the same level of detail is necessary for all reviews. While more detailed reviews and evaluations during the data generating process may be helpful, the PRO review segment is depended upon primarily to generate input for the evaluations to be performed under the overall review effort (section C). To facilitate consistency of the review, the project procedure defines the scope and purpose of the review project and then provides instructions for the review and documentation of resulting evaluations. This review will overlap and include the periods for which any previous PRO reviews were conducted. A copy of the project procedure is provided for reference as attachment 1.

B. Equipment Operability Interview

As part of the operability review project, interviews will be conducted among unit supervisors, SROs, and SC-4 (senior level) engineers in the Maintenance, Operations and Technical Support, and Plant Operations Review Staff organizations. The interviews performed under this project are intended to provide a method to "tap" the experience and knowledge of key plant personnel as a supplemental source for identifying conditions which might make the operability of safety-related equipment questionable. The experience level of personnel to be interviewed should yield meaningful indications and a wide scope of "vision" over areas addressed both by themselves individually or by their subordinates.

A procedure was developed by the Technical Assessment Section of the PORS for integration into the overall operability review project similarly as discussed for the PRO review effort (section A). The procedure, issued under memorandum from the plant manager, provides the scope, purpose, and applicability of the interview project.

The purpose of the procedure is, as for the PRO review procedure, to facilitate collection and documentation of information obtained under this review effort. The procedural guidelines are all-inclusive for providing guidance in both conduct and documentation of the interviews. They are not, however, meant to restrict flexibility in completion of the documentation packages as deemed appropriate. While any additional information/evaluation may be helpful, the documentation packages generated under this interview process are primarily intended to provide input to the overall review effort (section C). A copy of the Equipment Operability Interview procedure is provided for reference as attachment 2.

C. OPERABILITY REVIEW

The purpose of this portion of the review effort is to utilize all data collected under the PRO Review and Equipment Operability Interview projects (as discussed in sections A and B) for completion of the safety-related equipment operability evaluation. The review will systematically evaluate operability of safety-related equipment. As part of this effort, associated potential operability concerns will be identified, evaluated individually and collectively, assessed for adequacy of existing or recommended corrective actions, and Justification for Continued Operation (JCOs) prepared as necessary to support restart of Sequoyah units 1 and 2. The effort will generate full documentation of the evaluations performed and the basis for all determinations.

A procedure to implement and control this portion of the operability review was developed by the Technical Assessment Section of PORS, under the direction/review of the Technical Assessment Section supervisor serving as the project manager. Input from both the PRO review and equipment operability interview projects will be meshed to form the full project database. For overall review and evaluation, two major categories are identified for evaluation--equipment evaluation and system evaluation. Identified equipment deficiencies will be evaluated individually, and all information for a specific component or piece of equipment will be evaluated collectively. Equipment evaluation will ensure that individual pieces of safety-related equipment can perform their intended safety-related function. Additionally, all input for each system will be utilized to assess overall system operability when viewed collectively. System evaluation will ensure that interactions of individual component deficiencies are properly evaluated and addressed for determination of overall system operability. Both equipment and system data packages will be generated for evaluation. Instructions are provided to establish methodology for evaluation to ensure consistency and adequacy of the review, evaluation and documentation efforts. Provisions for full documentation of the data packages, evaluation plans and efforts, and a format for JCOs are contained in attachments to the procedure. A final report will be issued for each data package evaluated, and it will document the scope of the evaluation and all conclusions and recommendations. The final report will be subject to an independent review. A copy of the draft overall operability review procedure is provided for reference as attachment 3.

IV. SUMMARY

A comprehensive and exhaustive "look back" effort is being initiated by Sequoyah to establish a high confidence level that operability concerns have been identified and are being appropriately addressed to justify continued operation. Input to this operability review project will consist of previously identified operability concerns identified under the PRO review and all concerns identified through interviews with experienced plant personnel. These two input methods should provide a comprehensive cross-matrix of component and system deficiencies. The specific project is being implemented such that at least two levels of deficiency review/evaluation are conducted, both by experienced plant personnel. Reviews will be overlapping, and therefore in more depth, as deficiencies will be reviewed individually and collectively from both equipment and system perspectives. Compilation, review, and evaluation of data collected under this project will be complete before restart and determination made that corrective actions were adequate to ensure all identified conditions have no affect on safe operation of the plant.

November 26, 1986

B. M. Patterson
Sequoyah Nuclear Plant

Subject: REVIEW OF PRO HISTORY FILES TO ENSURE OPERABILITY OF PLANT SAFETY RELATED EQUIPMENT

A verbal commitment has been made to the NRC to have a program which will give a high level of confidence with respect to safety system operability. The PRO history review is a part of the overall program.

The attached procedure is provided to ensure that the review is performed and documented in a consistent manner. The information requested is necessary to complete the overall program, therefore, completeness and accuracy is essential.

Make every effort to complete this review by December 12, 1986. If the review is not complete at that time provide me with an update on its status.

For further information contact Michael E. Frye at extention 6767.

P. R. Wallace

JHS:MEF:RAF
Attachment
cc (Attachment):
RIMS: MR 4N 72A-C
L. S. Bryant, ONP, POB-2, Sequoyah
H. D. Elkins, ONP, POB-2, Sequoyah
Tom Kontovich, ONP, POB-2, Sequoyah
C. W. LaFever, ONP, POB-2, Sequoyah
R. V. Pierce, ONP, POB-2, Sequoyah
M. A. Skarzinski, ONP, POB-2, Sequoyah

0195R

PRO REVIEW PROGRAM

SCOPE:

All PROs which were written because of equipment deficiencies will be evaluated under this program. These are identified by cause codes "B" (Design, Manufacturing, Construction/Installation) and "E" (component failure).

OBJECTIVE:

Identify equipment operability problems using the PRO data base as a historical trend. The program will ensure that past corrective actions taken have prevented reoccurrence and that any projected actions are appropriate and properly scheduled. Additionally, recommendations can be made where actions do not appear to be adequate.

INSTRUCTIONS:

1.0 Obtain a computer print out of all PROs, associated with the individual section, that are identified with equipment operability. The PROs written after 1984 can be automatically sorted by cause codes "B" and "E"; however, those before that time will have to be hand sorted by the sections.

2.0 To ensure the review is consistent and to allow for the final overall evaluation, the PROs must be evaluated in the following manner.

2.1 All applicable PROs will be included under this review. Data from previous PRO reviews may be used but must be recorded in this program using the proper format.

2.2 Sort the PROs into groups by system/Manufacturer and model/ failure mode.
Examples of this would be.
A. System 68/model No. Barton 764/calibration drift
B. System 31C/model No. Tufline Fig 067/valve binding
C. System 82/model No. GM-EMD 8410219/pump failed

2.3 All PROs associated with equipment deficiencies must be reviewed and documented by inclusion on a PRO Review Sheet (ATTACHMENT A).

2.4 Attachment A is written to be self explanatory; however, the following information is given for clarification.

A. Item 3: Provides information necessary to identify the sort group.
B. Item 4: Should include the complete PRO number and the unique TVA identifier for each item in the sort group. If more space is needed than provided use an attached sheet with all the required information and clearly designate the section 4 and alphabetic character (i.e. 4.M). Document in the 4.L location that an additional list is attached.

C. ITEM 5: Provide enough information to clearly identify the deficiency being evaluated.

D. ITEM 6 & 7: Three spaces are provided to document different corrective actions which have been specified and taken. If more space is needed use an attached sheet that is clearly labeled (i.e. 6 or 7.D) Document in 6 or 7 (that additional actions are identified on an attachment).

E. ITEM 8: Add additional corrective action(s) date columns on the sheet if needed and the document tracking that action.

F. ITEM 9: A history search (i.e. SI performances and MRs) can be used to document the effectiveness of corrective actions. If other methods are used clearly state the method and why it ensures operability.

G. ITEM 10: Indicate which actions are proposed by past PROs and which are recommendations of the reviewer. Use the format specified in 2.4.D for additional actions.

H. ITEM 11: Add additional corrective action due date columns to sheet as necessary.

I. ITEM 12: If conclusive justification can not be provided in this section supply as much information as possible. Use the format specified in 2.4.D for additional action.

3.0 Divide reviews by system number in separate clearly labeled folders. Assemble the folders for all systems for your entire organization and transmit them to the Supervisor of the Plant Operations Review Staff (Assessment Section).

ATTACHMENT A

PRO REVIEW

1. MAINTENANCE GROUP: _____

2. REVIEWER: _____

3. SYSTEM: _____

   MANUFACTURER/MODEL NO: _____ / _____

4. PRO NO(S)/EQUIPMENT IDENTIFIER:

A. _____ / _____	E. _____ / _____	I. _____ / _____
B. _____ / _____	F. _____ / _____	J. _____ / _____
C. _____ / _____	G. _____ / _____	K. _____ / _____
D. _____ / _____	H. _____ / _____	L. _____ / _____

5. EQUIPMENT DEFICIENCY REFERENCED IN THE RELATED PRO(s):

_____
_____
_____
_____

6. CORRECTIVE ACTION(S) SPECIFIED TO RESOLVE DEFICIENCY:

A. _____
_____
B. _____
_____
C. _____
_____

7. CORRECTIVE ACTION(S) TAKEN TO RESOLVE DEFICIENCY:

A. _____
_____
B. _____
_____
C. _____
_____

8. DATE CORRECTIVE ACTION(S) COMPLETE:

A. _____
B. _____
C. _____

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : Those listed

FROM : P. R. Wallace, Plant Manager, ONP, POB-2, Sequoyah Nuclear Plant

DATE :

SUBJECT: SEQUOYAH NUCLEAR PLANT - EQUIPMENT OPERABILITY ISSUES INTERVIEWS

Please distribute a copy of this memorandum and attachment to each SC-4, SRO and key supervisor in your section. They will be interviewed about equipment operability issues in accordance with the attachment. These interviews are part of our action plan to which we have made a NRC commitment. Each individual should review the letter and attachment and be prepared for an interview as scheduled by the section supervisor. Interviews should start October 23, 1986, and should be completed no later than November 7, 1986.

Background

In recent months questions have been raised with respect to the identification and correction of conditions which degrade the operability of plant safety equipment. A few examples are:

1. Upper Head Injection:

   Repeated out of tolerances on the level switches, and failure to meet the response time tolerances on the isolation valves has caused the overall system operability to be in question.

2. Essential Raw Cooling Water (ERCW) Pump Testing:

   Testing was being performed on the ERCW Pumps using methods not prescribed in the procedure. This caused the surveillance to be inadequate and thereby challenged the pumps operability.

3. Containment Sump Level Transmitters:

   Repeated problems with calibration drift has caused a historical trend which indicates an unreliability for post accident monitoring.

Each of the conditions given as an example has one thing in common; plant personnel were aware of their existence and no actions, or ineffective actions, were taken to make corrections. I, and my management staff are committed to identifying any conditions which could cause the operability of safety-related equipment to be in question. Once identified, we are equally committed to determining long term solutions that will result in an overall positive result for both plant operation and the personnel who are required to maintain operability of equipment. I am requesting each of you to openly and whole heartedly support this effort.

2

Those listed

SEQUOYAH NUCLEAR PLANT - EQUIPMENT OPERABILITY ISSUES INTERVIEWS

PROGRAM

Starting on October 23, 1986, interviews will be conducted by the section supervisors of the Maintenance, Operations and Technical Support and the Plant Operations Review Staff. They will be interviewing each manager, SRO, and SC-4 engineer in their respective section. These interviews will be structured to ensure consistent results and each person to be interviewed is requested to be prepared. The following are some suggestions to assist in the preparation.

1. Review past logs and system files for open or reccurring problems.
2. Mentally review systems and equipment under your cognizance.
3. Discuss systems with technical and professional associates.

Each of you is responsible for ensuring that each person within your organization, as required, is interviewed. You may delegate the interview to your section supervisors, however, you must conduct the interview of the supervisors reporting directly to you. You must include your input into the interview process during this session.

Thank you for your support of this effort.

P. R. Wallace

L. M. Nobles, ONP, POB-2, Sequoyah
B. M. Patterson, ONP, POB-1, Sequoyah
J. H. Sullivan, ONP, SB-2, Sequoyah

JHS:MEF:ATR
Attachment: Equipment Operability Interview
cc (Attachment):
RIMS, MR4 72A-C
J. M. Anthony, ONP, POB-2, Sequoyah
H. D. Elkins, ONP, POB-2, Sequoyah
R. W. Fortenberry, ONP, O&PS-4, Sequoyah
R. V. Pierce, ONP, POB-2, Sequoyah
M. A. Skarzinski, ONP, POB-2, Sequoyah

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SCOPE

As part of the equipment operability assurance program, interviews will be performed in the Maintenance, Operations and Technical Support and Plant Operating Review Staff. Personnel to be interviewed will be unit supervisors, SROs and SC-4 engineers. The interviews are "structured" to cover plant-safety related equipment. The managers who will perform the interviews will meet to discuss their format and intent, to ensure that the interviews are consistent and properly conducted.

OBJECTIVES

The objective of the interview is to identify conditions in the plant which might make the operability of safety related equipment questionable. The conditions will be documented and investigated to determine if further actions are required.

GENERAL INSTRUCTIONS

1: The start and completion dates should reflect interviews that were started but not completed on the same day. The manager should reschedule the interview on another day if he determines the interviewees are not prepared or if further information is needed to properly document conditions identified.

2: Use the Condition Log to document clearly identified items at the end of the interview session. During the session record indications of possible conditions on the Indications Log. This will allow indications to be identified and documented during the interview without disrupting the flow with all the details required for the Condition Log. The Conditions Log will be numbered by the supervisor's initials followed by a sequential number (example, JMA-001)

3: The interviewer may wish to use a secretary who can take shorthand. This will reduce the time required to record each indication identified and allow for the flow of uninterrupted information.

4: When all interviews are complete the section supervisor will present to the plant manager, under seperate cover, the results of each interview performed. The package will include the cover sheet, the Indications Log(s) and the sequentially numbered Conditions Log(s). The Conditions Log(s) should be complete, with the exception of the disposition section.

5: The interviewer should stress the benefit that will be provided to the plant by the identification and resolution of problems. And that the individual will benefit directly as he/she maintains the system. Additionally, assure the persons being interviewed that we <u>really</u> want to know. Ensure each individual is aware that, even if they think everyone knows about the problem, we want to address it.

6: Initate PROs, CARs, DRs, WRs, etc. as appropriate for any condition identified that warrants them.

SPECIFIC INSTRUCTIONS

Complete the Equipment Operability Interview by completing the attached sheets. Any spaces not used should have an N/A inserted. Steps 1.0-4.0 should be completed before the interview begins.

EQUIPMENT OPERABILITY INTERVIEW

COVER SHEET

Start Date _____
Complete Date _____

1.0 Name of Interviewer(s)

_____/_____ _____/_____
Name Extension Name Extension

2.0 Section:

_____

3.0 Names of Interviewees (No more than 4 persons to be interviewed simultaneously)

_____/_____
Name Extension
_____/_____
Name Extension
_____/_____
Name Extension
_____/_____
Name Extension

4.0 List all safety-related systems or equipment either directly under or previously directly under the cognizance of those being interviewed

_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____

5.0 Discuss the different functions normally performed by those interviewed:
(Check off each item inturn)

_____ A. Performance (monitoring performance of tests)
_____ B. Reviewing data in surveillance and maintenance procedures
_____ C. Investigating plant off normal events
_____ D. Writing and planning work requests

EQUIPMENT OPERABILITY INTERVIEW

D Diesel Generators

___ 1.0 Fuel oil system
___ 2.0 Start air system
___ 3.0 Failure to start
___ 4.0 Failure to load
___ 5.0 PM program
___ 6.0 Mechanical failures
___ 7.0 Lube oil contamination
___ 8.0 Lube oil control
___ 9.0 Control room status
___ 10.0 Local controls
___ 11.0 Cooling supply
___ 12.0 Governor control
___ 13.0 Generator controls

E. Piping

___ 1.0 Leaks
___ 2.0 Insulation
___ 3.0 Heat trace
___ 4.0 Errosion
___ 5.0 Configurations (valves, turns, restrictors)
___ 6.0 Corrosion
___ 7.0 Welding
___ 8.0 Cracks (SCC)
___ 9.0 Snubbers/hangers
___ 10.0 Supports

F. Auxiliary/Control Power

___ 1.0 Shutdown Boards
___ 2.0 Breaker Problems
___ 3.0 Relay Problems
___ 4.0 Cables
___ 5.0 Transformers
___ 6.0 Inverters
___ 7.0 Vital Batteries
___ 8.0 Vital Battery Boards

G. Miscellaneous

___ 1.0 Computer Software
___ 2.0 Incore Monitoring
___ 3.0 Fuel Handling Equipment
___ 4.0 Solid State Logic

EQUIPMENT OPERABILITY INTERVIEW

No. _____

CONDITIONS LOG

COGNIZANT INDIVIDUAL_____

SYSTEM/EQUIPMENT_____
APPLICABLE INSTRUCTIONS_____
OUTSTANDING ECN/DCR/SCR/PRO/CAR etc._____

CONDITION DESCRIPTION:

HISTORY OF CONDITION:

RECOMENDATIONS:

DISPOSITION OF CONDITION:

_____
Interviewer

Page _____ of _____
Attach Additional Sheets as Required

0157R

DRAFT

December 3, 1986

P. R. Wallace
Sequoyah Nuclear Plant

Subject: REVIEW OF DATA COLLECTED UNDER THE ENGINEER INTERVIEW AND PRO REVIEW PROCCESSES

The attached program guideline has been written to perform a thorough and documented review of all data collected by the "Engineer Interview" and "PRO Review" process. The program is presented to you for your review and approval.
Please signify your review by signing the concurrence space provided and distributing.

For further information please contact Michael E. Frye extension 6767.

J. H. Sullivan

MEF:FAF
Attachment
cc (Attachment) RIMS MR 4N 72A-C
L. M. Nobles, POB-2, Sequoyah
B. M. Patterson, POB-2, Sequoyah

Concurred with:_____
P. R. Wallace

DRAFT

OPERABILITY REVIEW GUIDELINES

1.0 SCOPE:

This procedure provides guidelines to evaluate all data collected under the Engineer Interview and the PRO review programs. The Interview phase of this program includes, to the extent practical, all active SC-4 Engineers, Managers and SROs in the Plant Maintenance, Operations & Technical Support, and Plant Operations Review Staff. The PRO review includes all PROs in the history files which are associated with Plant Maintenance that address equipment operability problems (cause codes B&E in the PRO Data Base - manufacturer/installation errors and equipment failure).

An evaluation will be performed to determine if the equipment conditions identified in the interviews and reviews is an unresolved Operability concern.This program will be completed before unit startup.

2.0 OBJECTIVE:

The objective of this review is to ensure that plant safety related systems and the associated attendant equipment are operable. This will include an assessment of corrective actions, proposed corrective actions, time tables, and administrative controls identified in the interview reviews. All equipment evaluated will be placed in one of the following catagories.

A. Non safety related equipment with recommendations for long term evaluation (can close out in this program).

B. Safety related equipment where all corrective actions necessary have been taken with no further action necessary (close out).

C. Safety related equipment where all corrective actions have been specified but not implemented. The implementation time frame is either acceptable or a revised implementation date is recommended (possible JCO needed).

D. Safety related equipment where no corrective action has been specified. Corrective actions and an implementation schedule will be recommended (possible JCO needed).

This procedure provides guidelines and may be revised at the direction of the Project Manager. Forms similar to those attached may be utilized in lieu of the exact forms.

DRAFT

3.0. DOCUMENTATION AND PREPARATION:

3.1.1. Maintain all original forms in the Engineer Interviews and Pro reviews in the format as specified in the references above. Make copies for the different sort catagories.

3.1.2. Obtain all the Engineer, SRO, and Manager interview packages that were required by this program.

3.1.3. Prepare the documentation of the receipt of the condition logs using an attachment G. Ensure that each condition from each section has a sequential condition number.

3.1.4. Make a listing below of all persons who were interviewed along with their job function (i.e., John Doe, Instrument Engineer). Add extra sheets if needed. Document all sheets used with page ___of___.

SECTION_____ SECTION_____

	NAME / TITLE		NAME / TITLE
A.	_____/_____	A.	_____/_____
B.	_____/_____	B.	_____/_____
C.	_____/_____	C.	_____/_____
D.	_____/_____	D.	_____/_____
E.	_____/_____	E.	_____/_____
F.	_____/_____	F.	_____/_____
G.	_____/_____	G.	_____/_____
H.	_____/_____	H.	_____/_____
I.	_____/_____	I.	_____/_____
J.	_____/_____	J.	_____/_____
K.	_____/_____	K.	_____/_____
L.	_____/_____	L.	_____/_____
M.	_____/_____	M.	_____/_____
N.	_____/_____	N.	_____/_____
O.	_____/_____	O.	_____/_____
P.	_____/_____	P.	_____/_____
Q.	_____/_____	Q.	_____/_____
R.	_____/_____	R.	_____/_____
S.	_____/_____	S.	_____/_____
T.	_____/_____	T.	_____/_____
U.	_____/_____	U.	_____/_____
V.	_____/_____	V.	_____/_____
W.	_____/_____	W.	_____/_____
X.	_____/_____	X.	_____/_____
Y.	_____/_____	Y.	_____/_____
Z.	_____/_____	Z.	_____/_____

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3.1.5. By review of individual section rosters verify that each person which was required to receive an interview was interviewed. If all required persons were not interviewed, perform the interview and add their name to the roster or provide justification in the following sections why the interview is not possible or necessary. N/A the sections if all persons were interviewed. USE EXTRA SHEETS IF NECESSARY. Document all sheets used with page ___of ___. List individual, title, and section.

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

I. _____

J. _____

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3.1.6 Seperate the Interview condition logs by the individual condition specified. Record total number of condition logs _____ total number of conditions _____.

3.2. Obtain all PRO Review Packages from the individual sections. List total number of PROs Reviewed _____.

3.3. Prepare the data available for review in the following manner:

3.3.1. Separate all items associated with a system (i.e., system 3 for all PRO reviews and all system 3 items from the interview process). Place all system related items into a separate folder with an attachment A with the appropriate sections completed and stapled to the inside front cover.

3.3.2. Search the Pro review items and Interview condition logs for individual equipment with the same manufacturer and model number. Prepare separate packages for this equipment where it shows up as common in more than one system. Place an attachment B with the appropriate sections completed on the inside front cover.

4.0 EVALUATION:

A. Ground Rules for evaluation:

- Record all references used during the evaluation, along with the information gained from the reference. Space is provided on evaluation attachment C.

- Interviews with the plant staff can be very useful to substantiate a conclusion where other circumstantial evidence exists. However, this cannot be used unsupported as the basis of a final determination. It is important to maintain accurate records of interviews if used as substantiation. Interviews will be recorded on attachment D.

- The following sources, as a minimum, must be considered when performing the evaluation.

- Technical Specifications

- Final Safety Analysis Report

- Plant as constructed Drawings

- QA History Records.

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- Documentation is extremely important for a program of this type. Do not allow long time lapses between resource gathering and documentation. Forms are provided as attachments C and D to this procedure for documentation. These shall be used and maintained as part of the documentation package.

- At all times the evaluators will be alert for conditions adverse to Quality (CAQ). Use AI-12 as a reference. Report PROs identified under this program in accordance with SQA-84.

4.1 The data packages will be assigned individually to a lead engineer. The lead engineer will sign the attachment A or B for the package evaluated by entry and provide a start date. If for some reason during the evaluation phase the lead engineer is changed he/she will enter the stop date. When the new lead engineer is assigned they will sign and enter a start date in the spaces provided. The evaluation completed by will be signed by the lead engineer who is in charge of the package when the final report is issued.

4.2 Evaluation of the system data packages will be performed with the following objectives.

A. Provide a high confidence level that interactions between the individual equipment problems identified has not caused the plant to operate in an unsafe condition.

B. Provide documentation that corrective actions associated with the individual equipment identified will ensure future operability. If the equipment is being evaluated in one of the cross system Manufacturer/model number packages then document that in this package.

C. Where no corrective actions have been taken or no program/documentation exists to ensure continued operability, recommendations will be made.

D. Make determinations with respect to what actions are necessary prior to restart of the units. Additionally, a Justification for Continued Operation (JCO) will be provided as directed by the Project Manager. These JCOs will be reviewed by PORC under the cover of a USQD prepared in accordance with SQA-110. Each JCO will be prepared using the format specified in attachment E.

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4.3 Evaluation of the Manufacturer/model number data package will be performed with the following objectives.

A. Items B, C and D of section 5.2 are appropriate for this evaluation.

B. In addition these items should be evaluated for generic failure under 10 CFR 21. This should be completed in accordance with SQA-94. A SQA-94 evaluation sheet will be part of each data package.

4.4 INSTRUCTIONS:

4.4.1 The first function of the lead engineer is to establish a documentation package and become familiar with each type of documentation form, its intent and proper use. He/she will be solely responsible for the proper maintenance of the documentation package. A copy of this instruction should be maintained in the documentation package.

4.4.2 Evaluate the information contained in the data package. Make an initial plan which will contain a listing of items to be reviewed. This does not have to be a greatly detailed plan, but should show the proper starting direction for your evaluation. Record the initial plan on an Attachment F and get concurrence with the Project Manager or his designee before starting work. At any point during the evaluation a new attachment F can be requested. Each Attachment F will be maintained as part of the documentation package.

4.4.3 During the evaluation if the plans of the most current Attachment F become unuseable consult with the program director before continuing.

4.4.4 Tracking of all PRO and condition logs will be provided under this program on the plant computer.

5.0 FINAL REPORT:

5.1 A final report will be issued for each package evaluated. It will document the scope of the evaluation, and all conclusions and recommendations. The exact format of the report will be developed by the Project Manager.

5.2 The final report will be subjected to an independant reviewer process. The reviewer will evaluate the conclusions and recommendations with respect to the documentation package. Therefore, the documentation package will be required to be complete to allow for this review.

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5.3 The independant reviewer will, on a random basis, evaluate the original sources referenced in the documentation package. He/she will document this evaluation. The review will be documented on attachment H and be attached to the report.

5.4 The project will be closed by a report or series of reports that will include the disposition of all items. Each item should be placed in a specific category (A,B,C or D) as defined in step 2.0. These reports will contain all required tracking information to ensure closure of all open issues.

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ATTACHMENT A

System NO. _____

Total No. of PRO Review Sheets _____

Total No. of Interview Condition Logs _____

COMMENTS: _____

_____

_____

_____

_____

_____

_____

_____

_____

Package Prepared By _____/_____

NOTE: Each Lead Engineer who works on evaluation of this package must sign and date both the start and stop dates.

_____/_____/_____
NAME Date Started Date Stopped

_____/_____/_____
NAME Date Started Date Stopped

_____/_____/_____
NAME Date Started Date Stopped

Package Evaluated By: _____/_____/_____
NAME Date Started Date Stopped

Evaluation Completed By: _____/_____
SIGNATURE DATE

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ATTACHMENT B

EQUIPMENT NOMENCLATURE _____

MANUFACTURER _____

MODEL NO. _____

TOTAL NO. OF PRO Review Sheets _____

TOTAL NO. OF INTERVIEW CONDITION LOGS _____

COMMENTS: _____

_____

_____

_____

_____

_____

Package Prepared By _____ / _____

NOTE: Each lead engineer who works on evaluation of this package must sign and date both start and stop dates.

Package Evaluated By _____ / _____ / _____
NAME Date Started Date Stopped

_____ / _____ / _____
NAME Date Started Date Stopped

_____ / _____ / _____
NAME Date Started Date Stopped

_____ / _____ / _____
NAME Date Started Date Stopped

Evaluation Completed By _____ / _____
SIGNATURE DATE

SYSTEN_____

or

EQUIPMENT NOMENCLATURE_____

ATTACHMENT C

SOURCE REVIEW DOCUMENTATION

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- In each section fill in the source identification and who the review was performed by. In the space provided record the information gained from the source. If more space is needed mark through the next source identifier and continue. Add sheets as necessary. Document all sheets used with page ___of ___.

Source Identifier_____Reviewed By_____/_____

_____

_____

_____

_____

Source Identifier_____Reviewed By_____/_____

_____

_____

_____

_____

Source Identifier _____Reviewed By_____/_____

_____

_____

_____

_____

SYSTEM_____
or
EQUIPMENT NOMENCLATURE_____

ATTACHMENT D

INDIVIDUAL INTERVIEW DOCUMENTATION

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- When interviewing individuals ensure that all information collected is recorded as quickly as possible along with how it pertains to the overall evaluation in the space provided. If more space is needed mark through the next individual identifier and continue. Document all sheets used with page___of ___.

  NOTE: This is a professional engineering evaluation and no coercion is acceptable.

INDIVIDUAL_____INTERVIEWED BY_____/_____

INDIVIDUAL_____INTERVIEWED BY_____/_____

INDIVIDUAL_____REVIEWED BY_____/_____

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ATTACHMENT E

JCO FORMAT

1.0 DESCRIPTION OF ADVERSE CONDITION:

Provide all information on the item that causes the the adverse condition.

Identify that the condition was identified by the operability evaluation and provide the evidence which documents the condition.

2.0 OPERATIONS, LIMITATIONS/ACTIONS:

Clearly state any special conditions which must be met in order to justify continued operations. Include controls in place to ensure the conditions are met.

Any special conditions referenced in this section are the responsibility of the preparer to both implement and to ensure they are cleared after final resolution.

3.0 JUSTIFICATION FOR CONTINUED OPERATION:

Engineering judgment may be used to provide justification; however, it must be based on clearly stated principles and/ or producable data.

4.0 CORRECTIVE ACTIONS:

Actions which are necessary to return the equipment to full compliance with all plant guidelines (reference any DCR/ECN that is pending).

Prepared By_____/_____

Reviewed By_____/_____

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ATTACHMENT F

EVALUATION PLAN

1.0 Provide a written description of steps to be taken in a sequential order

2.0 Provide a listing of references identified:

Prepared by _____/_____

Reviewed by _____/_____

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ATTACHMENT G

SECTION _____

NUMBER OF PERSONS INTERVIEWED _____

NUMBER OF CONDITIONS RECEIVED _____

CONDITION NO.	PERSON INVOLVED	CONDITION

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ATTACHMENT II

INDEPENDENT REVIEW

PERSON PERFORMING REVIEW: _____

REPORT BEING REVIEWED: _____

USE THE FOLLOWING CHECK LIST:

1.0. All items from the data package are addressed Yes ☐ No ☐

If No explain: _____

_____

2.0. A conclusion/recommendation exists for each item. Yes ☐ No ☐

If No explain: _____

_____

3.0 All conclusions/recommendations have been evaluated with respect to the documentation package. They are properly documented.
Yes ☐ No ☐

If NO explain: _____

_____

4.0 The following original documentation was selected and evaluated.

A	_____	I	_____	Q	_____
B	_____	J	_____	R	_____
C	_____	K	_____	S	_____
D	_____	L	_____	T	_____
E	_____	M	_____	U	_____
F	_____	N	_____	V	_____
G	_____	O	_____	W	_____
H	_____	P	_____	X	_____

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5.0 The original documentation is properly represented in the documentation package Yes ☐ No ☐

If No explain: _____

_____

6.0 The report has been evaluated for accuracy and is acceptable
Yes ☐ No ☐

If No explain: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Review completed by: _____ / _____
Date

PROJECT MANAGER: _____ / _____