Docket Nos.: STN 50-482
and STN 50-483

DEC 21 1982

APPLICANTS: Union Electric Company
Kansas Gas and Electric Company

FACILITIES: Callaway Plant, Unit 1
Wolf Creek Generating Station, Unit 1

SUBJECT: MINUTES OF DECEMBER 14, 1982 MEETING ON SNUPPS EQUIPMENT QUALIFICATION

On December 14, 1982 representatives from Union Electric (UE), Kansas Gas and Electric (KGE), NUTECH, Westinghouse, Bechtel and the SNUPPS' staff met with members of the Equipment Qualification Branch (EQB), Jon Hopkins, and myself. The purpose of this meeting was to have the applicants present an overview of their equipment qualification (EQ) program and to obtain guidance from the staff in areas where EQB felt the proposed submittals were deficient.

The meeting began with a presentation of the EQ criteria used, a review history of the SNUPPS' equipment qualification program, a proposed date for the EQ submittal, and the requested date for completion of the staff's audit. Next, Bob Yates from UE presented a discussion on the EQ for the balance of plant. Rodney Robinson of KGE then discussed the qualification of the equipment inside containment. The EQ program is the same for inside and outside containment.

The meeting ended with the EQB staff identifying areas where the proposed program was deficient or where insufficient information was provided. In addition, EQB provided guidance to the applicants concerning the information that should be contained in the submittal and additional types of EQ analyses that should be performed.

Enclosure 1 is a list of the attendees at the meeting. Enclosures 2 and 3 are a copy of the slides presented by the SNUPPS staff and a sample of the EQ check lists that will be used by the utilities.

151

Joseph J. Holonich, Project Manager
Licensing Branch No. 1
Division of Licensing

Enclosures:
As Stated

cc w/enclosures: See next page

OFFICE	DL:LB#1	DL:LB#1	DL:LB#1				
SURNAME	JHolonich:cw	GEdison	BJYoungblood				
DATE	12/20/82	12/21/82	12/21/82				

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OFFICE	DL:LB#1	DL:LB#1	DL:LB#1				
SURNAME	JHolonich:cw	GEdison	BJYoungblood				
DATE	12/20/82	12/21/82	12/21/82				

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Topeka, Kansas 66612

ENCLOSURE 1

List of Attendees
12/14/82

NRC Staff

J. B. Hopkins
A. S. Masciantonio
B. LaGrange
H. Garg
J. Holonich

Union Electric Staff

D. Wingbermuehle
B. Yates
A. Passwater

EQ Consultant

M. Allen

Westinghouse

A. Ball, Jr.

Kansas Gas & Electric Staff

D. Prichard
R. Robinson
G. Rathbun
O. Maynard
D. Walsh

Bechtel Power Corporation

D. Egan

NUTECH

M. Slosson

SNUPPS Staff

M. Fletcher

ATTACHMENT II (PG 1 OF 5) Rev. No. _____

SNUPPS

NUREG-0588

WESTINGHOUSE EQUIPMENT ENVIRONMENTAL QUALIFICATION INTERFACE EVALUATION CHECK SHEET

Equipment Description _____ Manufacturer/Model/Serial No. _____

EQDP _____

References: _____
(including test report, test procedure, test plan, etc.)

NUREG-0588 Requirements	Document Evaluation Acceptable Yes	No	N/A	Ref'n. Section or Page	Remarks
1.0 ESTABLISHMENT OF THE QUALIFICATION PARAMETERS FOR DBA					
1.1 Temperature and Pressure Conditions Inside Containment - LOCA/HELB a. Does time dependent test profile envelop plant specific temperature and pressure profiles?					
1.2 Temperature and Pressure Conditions Inside Containment - MSLB a. Does the time dependent test profile envelop plant specific temperature and pressure profiles?					
1.3 Effects of Chemical Spray a. Does the chemical concentration of the test solution envelop plant specific concentration?					
1.4 Radiation Conditions Inside and Outside Containment a. Is radiation qualification based on equipment qualified life plus most severe DBA for which equipment must remain functional?					
b. Has DBA environment been assumed to occur at end of equipment qualified life?					
c. Has beta radiation been addressed?					

NUREG-0588 Requirements	Document Evaluation Acceptable Yes	No	N/A	Ref'n. Section or Page	Remarks
d. For components exposed to recirculating sump fluids, was the recirculation fluid radiation contribution addressed?					
e. Have integrated doses below 10^4 rads been addressed?					
1.5 Environmental Conditions for Outside Containment					
a. Does time dependent test profile envelop plant specific temperature and pressure profiles?					
2.0 QUALIFICATION METHODS					
2.1 Selection of Methods					
a. Provide the basis (here or by reference) for the time interval required for equipment operability.					
b. If testing was performed, did the test demonstrate the operability of equipment for the time required in the environmental conditions resulting from the accident?					
c. For equipment that need not function to mitigate any accident, was it demonstrated that the equipment would not fail in a manner detrimental to plant safety?					
2.2 Qualification by Test					
a. Did test profile envelop LOCA/HELB service conditions (with margins)?					
b. Is the equipment above flood level or has the ability or necessity for submerged operation been demonstrated?					
c. Was caustic spray of the proper concentration employed at the proper time and duration during the test?					

NUREG-0588 Requirements	Document Evaluation Acceptable Yes	No	N/A	Ref'n. Section or Page	Remarks
d. Were extremes in power supply voltage and frequency applied during simulated event environmental testing?					
.0 MARGINS a. Were quantified margins applied to design parameters to assure enveloping of accident conditions?					
.0 QUALIFICATION DOCUMENTATION a. List the Bechtel issued mounting drawing. Is this consistent with the TEC installation/mounting requirements?					

Rev. 1

RAL DETERMINATION (Explanation Attached):

Check One: Interface Criteria Met _____

Not Met _____

esponsible Engineer _____ Date _____

esponsible Supervisor _____ Date _____

Rev. No. _____

WESTINGHOUSE
CHECK SHEET SUPPLEMENT

Component _____ Manufacturer _____ EQDP _____

This sheet will be utilized, as necessary, to provide supplemental remarks or information.

The Responsible Supervisor will ensure that the following information is included on this sheet: (1) Explanation of reasons for determining whether or not the equipment meets the interface criteria; (2) Summary of planned action if equipment does not meet the interface criteria.

Remarks/Information	Date	Initials

Rev. No. _____

CHECK SHEET SUPPLEMENT

Remarks/Information	Date	Initials

ATTACHMENT III (PG 1 OF 8) Rev. No. _____

SNUPPS

NUREG-0588

EQUIPMENT ENVIRONMENTAL QUALIFICATION EVALUATION CHECK SHEET

Equipment Description _____ Manufacturer/Model/Serial No. _____

Specification No. _____ Qualifier (Test Lab) _____

References: _____
(including test report, test procedure, test, plan, standards, etc.)

NUREG-0588 Requirements	Document Evaluation Acceptable Yes	No	N/A	Ref'n. Section or Page	Remarks
1.0 ESTABLISHMENT OF THE QUALIFICATION PARAMETERS FOR DBA					
1.1 Temperature and Pressure Conditions Inside Containment - LOCA/HELB					
a. Does time dependent test profile envelop plant specific temperature and pressure profiles?					
1.2 Temperature and Pressure Conditions Inside Containment - MSLB					
a. Does the time dependent test profile envelop plant specific temperature and pressure profiles?					
1.3 Effects of Chemical Spray					
a. Does the chemical concentration of the test solution envelop plant specific concentrations?					
1.4 Radiation Conditions Inside and Outside Containment					
a. Is radiation qualification based on equipment qualified life plus most severe DBA for which equipment must remain functional?					
b. Has DBA environment been assumed to occur at end of equipment qualified life?					
c. Has beta radiation been addressed?					
d. For components exposed to recirculating sump fluids, was the recirculation fluid radiation contribution addressed?					
e. Have integrated doses below 10^4 rads been addressed?					
1.5 Environmental Conditions for Outside Containment					
a. Does time dependent test profile envelop plant specific temperature and pressure profiles?					

NUREG-0588 Requirements	Document Evaluation Acceptable			Ref'n. Section or Page	Remarks
	Yes	No	N/A		
0 QUALIFICATION METHODS					
1 Selection of Methods					
a. Do qualification methods conform to IEEE 323-1974?					
b. Was testing of an identical component or a similar component (with supporting analysis) performed?					
c. If analysis was performed in lieu of testing, was it because of component size or state of the art limitations?					
d. If analysis was performed in lieu of testing, was partial type test data provided to support analytical assumptions and conclusions?					
e. Provide the basis (here or by reference) for the time interval required for equipment operability.					
f. If testing was performed, did the test demonstrate the operability of equipment for the time required in the environmental conditions resulting from the accident?					
g. For equipment that need not function to mitigate any accident, was it demonstrated that the equipment would not fail in a manner detrimental to plant safety?					
2 Qualification by Test					
a. Was acceptance criteria established before the test?					
b. Do the test procedures conform to IEEE 323-1974, Sect. 6.3?					
c. Did test profile envelop LOCA/HELB service conditions (with margin)?					
d. Is the equipment above flood level or has the ability or necessity for submerged operation been demonstrated?					
e. Was simulated accident temperature defined by thermocouples on or near the equipment?					
f. Were performance characteristics demonstrated before, during and after the test?					

NUREG-0588 Requirements	Document Evaluation Acceptable Yes	No	N/A	Ref'n. Section or Page	Remarks
g. Was caustic spray of the proper concentration employed at the proper time and duration during the test?					
h. Was operability status of equipment monitored continuously during testing? (For long term testing, discrete monitoring should be justified).					
i. Were extremes in power supply voltage and frequency applied?					
j. Was dust addressed where applicable?					
k. Are the mounting and interface requirements specified?					
2.3 Test Sequence a. Did test sequence conform fully to IEEE 323-1974, Sect. 6.3.3?					
b. Was same piece of equipment used throughout the sequence?					
c. Did the test simulate as closely as practicable the postulated accident environment?					
d. Was Co-60 or Cs-137 used as the gamma radiation source?					
2.4 Other Qualification Methods a. Was qualification by analysis or operating experience properly justified?					
3.0 MARGINS a. Were quantified margins applied to design parameters to assure enveloping of accident conditions?					
b. For equipment that must only perform for a short time, was the equipment demonstrated to remain functional in the accident environment for at least one hour in excess of the time assumed in the accident environment?					
4.0 AGING a. Have aging effects been included?					
b. Have the degrading influences in IEEE 323-1974, Sect. 6.3.3 - 6.3.5 been included?					
c. Have electrical and mechanical stresses due to cyclic operation of equipment been included?					

NUREG-0588 Requirements	Document Evaluation Acceptable			Ref'n. Section or Page	Remarks
	Yes	No	N/A		
d. Have known synergistic effects been included?					
e. Was Arrhenius method used for accelerated aging?					
f. Was another aging method used and justified?					
g. Were known phase changes and reactions addressed?					
h. Was aging acceleration rate and its basis described and justified?					
i. Was periodic surveillance testing under normal service conditions not utilized as an on-going qualification method?					
3.0 QUALIFICATION DOCUMENTATION					
a. Does qualification documentation verify that the equipment is qualified for its application and meets its specified performance requirements?					
b. Is the qualified life explicitly stated and is the basis of qualification explained?					
c. Is qualification data used to demonstrate equipment qualification pertinent to the application and organized in an auditable form?					
d. Does qualification documentation meet the guideline of IEEE 323-1974?					
e. If a certificate of conformance is submitted, is it accompanied by test data and information concerning the test program?					
f. Are maintenance requirements and component replacement intervals specified?					
g. List the Bechtel issued mounting drawing. Is this drawing consistent with the test mounting?					
h. Was the equipment (model) being qualified in the test report the same equipment (model) tested?					

FINAL DETERMINATION (Explanation Attached):

Check One: Criteria Met _____

Not Met _____

Responsible Engineer _____ Date _____

Responsible Supervisor _____ Date _____

Rev. No. _____

CHECK SHEET SUPPLEMENT

Component _____ Manufacturer _____ Specification _____

This sheet will be utilized, as necessary, to provide supplemental remarks or information.

The Responsible Supervisor will ensure that the following information is included on this sheet: (1) Explanation of reasons for determining whether or not the equipment meets the criteria; (2) Summary of planned action if equipment does not meet the criteria.

Remarks/Information	Date	Initials

Rev. No. _____

CHECK SHEET SUPPLEMENT

Remarks/Information	Date	Initials

Rev. No. _____

CHECK SHEET SUPPLEMENT
(QUALIFICATION CONTINGENCIES)

Component _____ Manufacturer _____ Specification _____

Qualified Life _____

Part Replacement Requirements:

Part Description	Maximum Specified Life

Remarks:

Reviewed:

_____ _____

Bechtel Date Utility Concurrence Date

SNUPPS E.Q.R.

EQUIPMENT EVALUATION WORKSHEET

SPEC. NO. _____ REV. NO. _____

ATTACHMENT NO. _____

EQUIPMENT DESCRIPTION	ABNORMAL OR ACCIDENT ENVIRONMENT				QUAL METHOD	COMMENTS
	PARAMETER	SEV T. LOC N	REQ'D	QUAL		
TYPE:	TEMP.					
	PRESS.					
MANUFACTURER:	RAD'N					
	REL. HUM.					
MODEL NO.:	SPRAY					
	SUBM.					
	AGING	QUALIFIED				
	QUALIFIED LIFE					

OPERABILITY

REQD.	DEMON.

ACCURACY

REQD.	DEMON.

QUALIFICATION CONTINGENCIES

EQUIPMENT IS NOT QUALIFIED

BECHTEL _____ DATE _____

UTILITY CONCURRENCE _____ DATE _____

EQUIPMENT IS QUALIFIED

BECHTEL _____ DATE _____

UTILITY CONCURRENCE _____ DATE _____

GPD 33314 6/82

PRESENTATION TO THE EQB

SNUPPS

INDEPENDENT REVIEW OF ENVIRONMENTAL

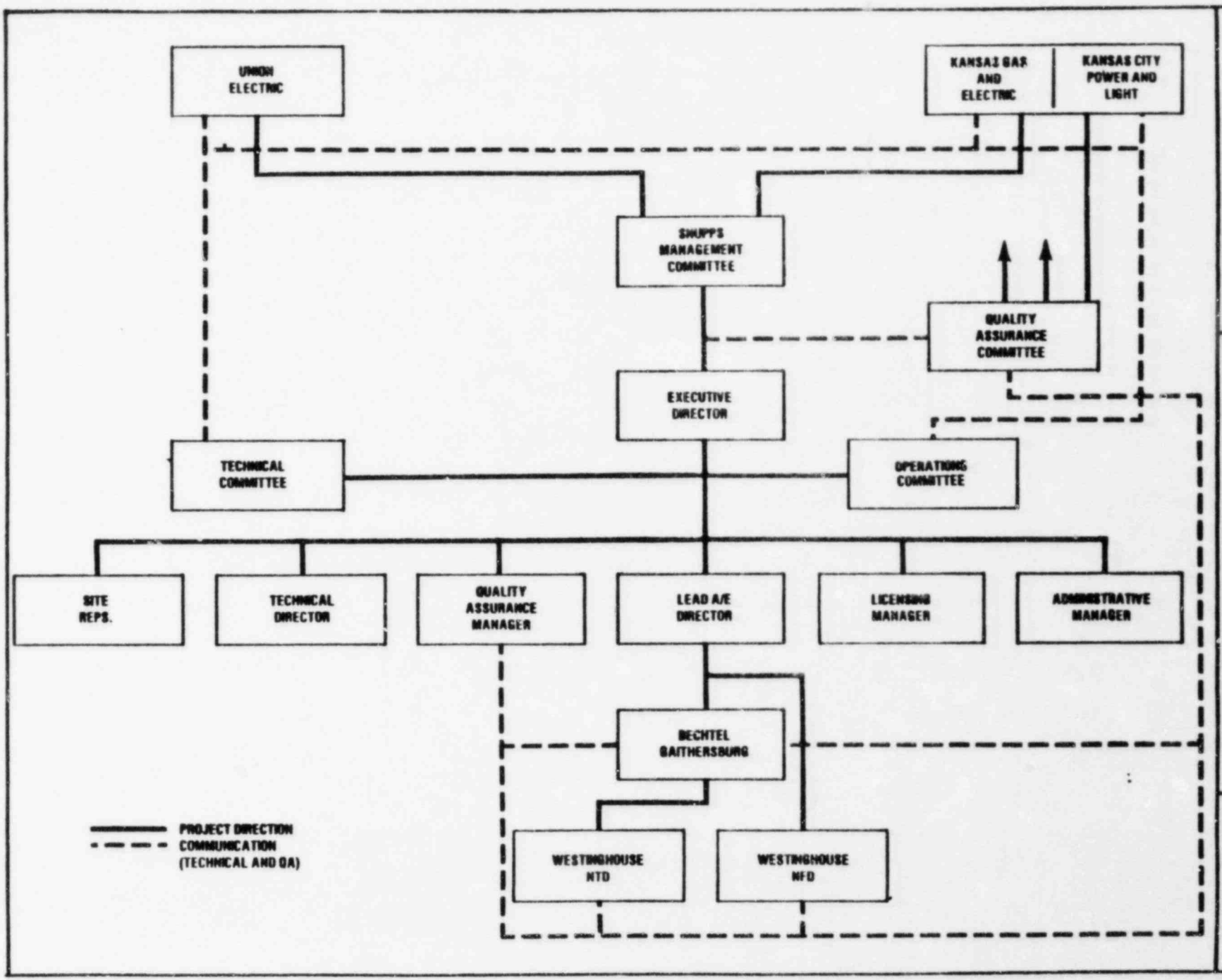
QUALIFICATION PROGRAMS

PURPOSE OF PRESENTATION

- PROVIDE SNUPPS BACKGROUND INFORMATION RELATIVE TO ENVIRONMENTAL QUALIFICATION
- PROVIDE A DESCRIPTION AND DISCUSSION OF THE INDEPENDENT REVIEW METHODOLOGY
- PROVIDE CURRENT STATUS AND SCHEDULE OF THE REVIEW
- PROVIDE A FORUM FOR DISCUSSION OF PROGRAM WITH EQB PERSONNEL

SNUPPS

- AEC nuclear plant standardization policies
- Utility group to design, purchase, and license a standard plant on a joint venture basis (Union Electric, Kansas Gas and Electric, Kansas City Power and Light, Northern States Power, Rochester Gas and Electric)
- Standard Power Block and Seismic Category I Structures (except ponds, dams, earthwork)
- Standardization is assured by the SNUPPS organization and design and procurement review process



SNUPPS
STANDARD QUALITY ASSURANCE MANUAL

TITLE
FIGURE A-2-1
SNUPPS PROJECT ORGANIZATION

SECT NO A-2
REV 5
PAGE 14 of 17

ENVIRONMENTAL QUALIFICATION CRITERIA FOR

SAFETY-RELATED ELECTRICAL EQUIPMENT

- SNUPPS COMMITTED TO IEEE-323-1974 FOR CALLAWAY AND WOLF CREEK

- NSSS - SUPPLIED EQUIPMENT QUALIFIED TO 323-74 IN ACCORDANCE WITH THE METHODOLOGY DESCRIBED IN WCAP 8587

- ARCHITECT ENGINEER - SUPPLIED EQUIPMENT QUALIFIED TO 323-74 UNDER PROCUREMENT SPECIFICATIONS

INDEPENDENT REVIEW HISTORY

- MID-1980 PLANT REVIEW GROUP FORMED

  Nutech as consultant

- PRINCIPAL TASKS:

  Verification of Class 1E equipment list

  Identification of harsh environment areas

  Review of qualification documentation

  Identification of concerns to be resolved

  Development of an EQ licensing submittal

- NSSS EQUIPMENT

  Users group

- BOP EQUIPMENT

  Lead A/E

SCOPE OF INDEPENDENT REVIEW

- EQUIPMENT LIST DEVELOPMENT

  FSAR, functions for containment heat removal, emergency reactor shutdown, reactor core cooling, containment isolation, core residual heat removal, prevention of significant release of radioactivity to the environment, electrical schematics

- NSSS QUALIFICATION PROGRAMS

  TEC initial review, Lead A/E interface checklist for SNUPPS use of NSSS equipment, SNUPPS review of documentation and checklists, Resolution of concerns

- BOP QUALIFICATION PROGRAMS

  Bechtel initial review with NUREG 0588 and SNUPPS checklists, SNUPPS review of documentation and checklists, Resolution of concerns

SCOPE OF INDEPENDENT REVIEW

- FIELD VERIFICATION

  Utility programs established, Traceable link between installed and tested equipment, Verification of special installation requirements, Verification of installation of gaskets, seals, protective covers

- QUALIFICATION FILES

  All documents supporting qualification of Class 1E equipment

- CURRENT STATUS OF INDEPENDENT REVIEW

- DETAILED DISCUSSION OF NSSS/BOP REVIEW

DISCUSSION WITH EQB PERSONNEL

- SPECIFIC TOPICS

  Ongoing maintenance of qualification

  Mechanical Equipment

  Mild Environment Equipment

  Advantages of combined audit

DEC 21 1982

MEETING SUMMARY

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L PDR
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NSIC

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