D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

I. Problem ID

Discovered Time/Date: 15:00 02/12/2001 Occurred Time/Date: __/__/____

Unit Affected: 0

Status at Time Discovered	Unit 1	Unit 2
Mode	1	1
% Power		

Unit Status Remarks:

System(s) Affected: CNTMT CONTAINMENT BUILDING STRUCTURE

Affected Equipment

Equipment ID No.	Comp. Code	Manufacturer

Location of Problem - Bldg: Column Line: Elev:

Location Remarks:

Brief Condition Description:

ODEs for Missile Shield over Reactor Cavity documented in CRs 00299044 and CR P-99-06123 (U1/U2) were based on rebar yield strength of 60 ksi. Specified bar strength is now thought to be 40 ksi based on review of material certs.

Detailed Condition Description:

- DESCRIPTION OF CONDITION

During the efforts to restart each unit, Operability Determination Evaluations were completed for various containment structural elements. These ODEs were documented in CRs 00299044 and CR P-99-06123 for Unit 1 and 2, respectively. These ODEs included acknowledgement of increased subcompartment pressures resulting from recent reruns of the TMD (Containment Short Term Pressure Analysis) based on reconstituted inputs (flow areas and volumes). One of the structural elements addressed in these ODEs was the Missile Shield Cover over the Reactor Cavity of each unit. The ODEs for each unit provided a basis for operability of the missile shield blocks which included reliance on a 1989 vintage calculation, DC-D-3195-195-SC (Evaluation of Structural Components for RTP LOCA Pressures).

As part of the effort to recover containment structures to within design basis, calculations are underway for various containment structural elements, including the reactor missile shields. These calculations are being performed in parallel with efforts to re-examine and refine the TMD analysis, to reduce the subcompartment pressures (the pressures which the containment structures must withstand).

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During a review of inputs associated with a calculation for the missile shields, it was identified that the rebar yield strength used as input in calculation DC-D-3195-195-SC may not be correct. This calculation utilized a bar yield strength of 60 ksi. The 60 ksi value appears to have been based on a material designation on rebar bend sheets (All Steel Grade A615-60), which was taken as 60 ksi grade steel. In contrast to this, review of material receipt records indicates that the as-tested rebar yield strength is consistently in the 52 - 55 ksi range, which indicates that the rebar is probably 40 ksi rebar, not 60 ksi rebar. Therefore, it appears that calculation DC-D-3195-195-SC used a non-conservative input. Report NED-2000-527-REP (Structural Adequacy Eval

uation of Containment Structures Affected By New Westinghoue TMD Analyses), section C.2.2 also relied on 60 ksi rebar. The ODEs for CRs 00299044 and P-99-06123 also made use of the 60 ksi rebar to justify operability of the reactor missile shield. In each of the ODEs, the results of calculation DC-D-3195-195-SC were utilized with new/higher subcompartment pressures (79.2 psi versus 54.3 psi). The design margin of 1.53 from calculation DC-D-3195-195-SC was then ratioed to determine a new margin of 1.53/(79.2/54.2) = 1.05. This margin would be reduced when the impact of the reduced rebar strength is considered.

- IMPACT STATEMENT
Although the decreased rebar strength reduces the capacity/margin in the missile shields structure, the assessment of cognizant structural engineering personnel is that the reactor missile shield for each unit is still operable. This is based on the following:

1) Review of material receipt information for rebar designated for the missile shields indicates that the "as-tested" rebar yield strength is 54.6 ksi on average for Unit 2 (Unit 1 is slightly higher).

2) Based on ongoing refined structural analysis of the missile shields to date, it appears that the margin will continue to exceed 1.0 (in other words, the reduction in rebar strength is offset by refinements to the methodology used to analyze the structural capacity of the missile shields).

3) Refinement of the TMD analysis which are ongoing by Westinghouse are expected, based on scoping TMD runs to date, to achieve reductions in the reactor cavity pressure from 79.2 psi to 40 - 50 psi. These refinements in the analysis relate to: a) reduction in the RCS break size based on structural analysis of the RCS piping and supports (to refine/reduce the mass energy release into the subcompartments which ultimately reduces pressure), b) refinement of assumptions on flow areas between subcompartments (which affect vent area and thus subcompartment pressure), and c)refinement

s in the TMD model itself (increasing number of nodes). These refinements are purely analysis modifications, and do not rely upon physical changes to the plant. Thus, when these analyses are completed over the next few weeks/months, they are fully expected to show that the 79.2 psi pressure was due to overly conservative assumptions and inputs for the TMD analysis, and a much lower pressure is more realistic.

- REQUIREMENT NOT COMPLIED WITH OR REGULATORY REPORTING REQUIREMENT
Input used for 1989 vintage calculation was apparently in error. Calculation inputs are to be verified.

- SUSPECTED CAUSE OR SOURCE OF THE CONDITION
Suspected error in inputs for calculation DC-D-3195-195-SC on rebar yield strength. Confusing marking on rebar bend sheets may have led to confusion that the rebar yield strength was 60 ksi.

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- CORRECTIVE ACTIONS TAKEN
Initiated CR to cue additional research to confirm the rebar strength, and to update the basis for operability of each units missile shield. Refinements to the calculations and TMD analyses will continue as planned.

- RECOMMENDED CLASSIFICATION AND OWNER
CAT 3. Structural Design (DES)

Method Used to Discover Problem
Review of inputs for calculation being performed by vendor.

Restart Code: Restart Approved: No

Other Components/Systems and Areas Affected: Unknown

Industry Impacted N

Immediate Corrective Actions:

Telephoned STA Supervisor to inform him of condition, and of the need to update the two referenced ODEs.

Problem Found While Working with Document No.:
Calculation DC-D-3195-195-SC
ODE for CR 00299044
ODE for CR P-99-06123
Report NED-2000-527-REP

Action Request No:

Phone Extension: 5501

	Indiv	Team	Group	Date:
Problem Identified By:	SCHOEPFP	HAFERD	NED	02/12/2001
Problem Entered By:	SCHOEPFP	HAFERD	NED	02/12/2001

Supervisor Approval

Approved: Yes Detection Code: Self-Identified

Supervisor Comments:

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Indiv		Team	Group	Date:
Reviewed By:	SCHOEPFP	HAFERD	NED	02/12/2001

II. Operations Review

Add'l Info. Required: No

SR/OD Equipment Affected: Yes

Reportability:

SSC Reqd In Current Mode: Yes

Past Operability Concern: No

T.S.A.S. Entered:

SSC Affected
CNTMT

T.S.A.S. Reference

T.S.A.S. Reference #	Unit

Status: Closed

	Indiv or Due Date	Team	Group	Date
Ready For Approval:	ETHERIDGEW	MOULD	OPS	03/01/2001
Approved By:	ETHERIDGEW	MOULD	OPS	03/01/2001

SSC Operability - For Identified Condition: Operable

Engineering Support Requested: Yes
Open Items Log Entry Completed:
Mode Constraint: No

Mode	Mode Constraint Description	Unit Affected

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Systems

Code	Description
CNTMT	Containment

Operations Reviewer Comments:

1. If OPERABLE, state basis for reasonable assurance for SSC to perform its specified function (if necessary consult OPR procedure, T.S. bases, SAR, surveillance tests etc.):
Although the decreased rebar strength reduces the capacity/margin in the missile shields structure, the assessment of cognizant structural engineering personnel is that the reactor missile shield for each unit is still operable. This is based on the following:

1) Review of material receipt information for rebar designated for the missile shields indicates that the "as-tested" rebar yield strength is 54.6 ksi on average for Unit 2 (Unit 1 is slightly higher).

2) Based on ongoing refined structural analysis of the missile shields to date, it appears that the margin will continue to exceed 1.0 (in other words, the reduction in rebar strength is offset by refinements to the methodology used to analyze the structural capacity of the missile shields).

3) Refinement of the TMD analysis which are ongoing by Westinghouse are expected, based on scoping TMD runs to date, to achieve reductions in the reactor cavity pressure from 79.2 psi to 40 - 50 psi. These refinements in the analysis relate to: a) reduction in the RCS break size based on structural analysis of the RCS piping and supports (to refine/reduce the mass energy release into the subcompartments which ultimately reduces pressure), b) refinement of assumptions on flow areas between subcompartments (which affect vent area and thus subcompartment pressure), and c)refinements in the TMD model itself (increasing number of nodes). These refinements are purely analysis modifications, and do not rely upon physical changes to the plant. Thus, when these analyses are completed over the next few weeks/months, they are fully expected to show that the 79.2 psi pressure was due to overly conservative assumptions and inputs for the TMD analysis, and a much lower pressure is more realistic.
According to the FSAR the missile barrier was designed

to take a rod ejection seventy two times greater than postulated and CNMT can withstand ten times the design leakage of 5 square feet. With this it would take a catastrophic failure that opens a fifty square foot hole in the barrier to challenge operability of the ice condenser.
Based on the above informatiom there is reasonable assurance that the missile shields and therefore the ice condenser remain operable. However and ODE is requested to validate the above information and all associated existing calculations. LCJ 02-12-01

2. If INOPERABLE, state what is inoperable and why, justify mode constraint assigned, state notifications and actions performed:
N/A

3. If recommending past operability evaluation for reportability determination, discuss basis for recommendation:
N/A

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4. If additional engineering support is requested briefly describe here what and why support is needed and basis for time determination (provide detailed specifics in operability notification section):
The above analysis needs to be validated and existing calculations updated to known conditions. Basis for time frame is PMP-7030.OPR.001

5. If additional information was gathered to perform operability determination state by whom provided (by title) and by what method:
N/A

6. Comments: additional information, updates and revisions should be placed in chronological order:
N/A

Operability Type: ODE

Responsible Group: NED

Significance:

Due Date: 02/13/2001

Operability Concerns / Questions:

The assumptions and calculations used to give reasonable assurance of operability need to be validated and all associated calculations updated and validated to ensure operability of containment structure.

Operability Notification Comments:

Prompt Reportable:

NRC ENS Notification:

Non-ENS Notification:

Licensing Contact Made:

Licensing Contact:

	Personnel Contact	Contacted By	Date	Time
NRC				
OPS Duty Supervisor				
Plant Manager				
State of Michigan				
NRC Resident Insp.				

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Prompt Reportability Comments:

Mode Constraint Released

No: No
Unit 1: No
Unit 2: No
Overall Released: No

OD Issue Complete

No: Yes
Unit 1: No
Unit 2: No
Overall Released: No

Comments:

III. Screening

Is the Problem Significant? N Action Category: 3

Other Comments:

Other Report Nos: LIR

Event Codes: C1g1 Operability Issues
ZHP Human Performance Issue

Screening Remarks:

CAT 3 for extent of condition. Determine usage of erroneous early calc. RCL needs to review Condition Evaluation.

****

Re-assignment:
Non-conformance was inappropriaely screened at time of assignment. Non-conformance review was assigned to NED and should have been assigned to DES per conversation with b.kovorik on 3/15/01. Non-conformence transfer by abt/CAD per bk 3/15/01.

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Assignments

Activity	Req.	Grp	Status	Due Date	Concur
Condition Evaluation	Yes	DES	ReadyForRCL	03/30/2001	CAP
Current Operability	Yes	NED	Closed	02/13/2001	
Past Operability	No		Closed		
Reportability	Yes	RCL	Closed	03/15/2001	
Approval	Yes	DES	Screened		
Maintenance Rule	No				
PII	Yes	CAP			
Non-Conformance	Yes	DES		03/30/2001	

	Indiv or Due Date	Team	Group	Date
Screened By:	TAYLORA	ECAPMGMT	CAP	03/15/2001

IV. Operability

Operability:

Responsible Group: NED Status: Closed

Operable: D

ODE Appl. Unit: 0

ODE Appl. Mode1-4

Operability Type:

Executive Summary:

As part of the Unit 1 and Unit 2 restart effort, it was determined that certain of the containment internal structures could not demonstrate compliance with the factors of safety given in the UFSAR for specific design basis load combinations. As a result of this condition, operability evaluations were performed for both Unit's containment structures that demonstrated functional capability of those structures. Corrective actions associated with these operability evaluations required the reconstitution of design basis capability of these structures following restart.

As part of this reconstitution effort, regeneration of calculations for the different structural elements are ongoing. Associated with this effort is the validation of the inputs for the calculations.

During a review of inputs associated with an ongoing calculation for the reactor missile shields, it was identified that the rebar yield strength used as input in calculation DC-D-3195-195-SC (performed in support of the Reduced Temperature and Pressure (RTP) rerating for Unit 1) may not be correct. This calculation utilized a bar yield strength of 60 ksi. Further research identified that the correct rebar grade should be 40, corresponding to a minimum yield value of 40 ksi. Therefore, it appears that calculation DC-D-3195-195-SC used a non-conservative input. Report NED-2000-527-REP (Structural Adequacy Evaluation of Containment Structures Affected By New

Westinghoue TMD Analyses), section C.2.2 also relied on 60 ksi rebar. The ODEs for CRs 00299044 (Unit 1) and P-99-06123 (Unit 2) also made use of the 60 ksi rebar to justify operability of the reactor missile shield. In each of the ODEs, the results of calculation DC-D-3195-195-SC were utilized with new/higher subcompartment pressures (79.2 psi versus 54.3 psi). The design margin (capability/actual) of 1.53 from calculation DC-D-3195-195-SC was then ratioed to determine a new margin of 1.53/(79.2/54.2) = 1.05. This margin would be reduced

when a reduction in strength of the rebar is considered.

Given the apparent reduced strength of the reinforcing bar utilized in the missile shield blocks, and the margin of 1.05 calculated in the previous ODEs for CRs 0029904 and 99-06123, the basis for the operability of the Missile Shield Blocks of each unit needs to be revisited.

This operability evaluation concludes that the containment missile blocks are capable of withstanding the accident pressures without loss of function, considering the reduced strength of the rebar apparently utilized during construction.

Comments:

TITLE:

Operability Evaluation for Unit 1 and 2 Reactor Missile Shields

REFERENCES:

1. CR 01043058 (ODEs for Missile Shields were based on 60 ksi rebar)

SECTION 1, DESCRIPTION:

(For references listed in the report, refer to Section 10 of this ODE, Supporting Documentation)

As part of the Unit 1 and Unit 2 restart effort, it was determined that certain of the containment internal structures could not demonstrate compliance with the factors of safety given in the UFSAR for specific design basis load combinations. As a result of this condition, operability evaluations were performed for both Unit's containment structures that demonstrated functional capability of those structures. Corrective actions associated with these operability evaluations required the reconstitution of design basis capability of these structures following restart.

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non-conservative input. Report NED-2000-527-REP (Structural Adequacy Evaluation of Containment Structures Affected By New Westinghoue TMD Analyses), section C.2.2 also relied on 60 ksi rebar. The ODEs for CRs 00299044 (Unit 1) and P-99-06123 (Unit 2) also made use of the 60 ksi rebar to justify operability of the reactor missile shield. In each of the ODEs, the results of calculation DC-D-3195-195-SC were utilized with new/higher subcompartment pressures (79.2 psi versus 54.3 psi). The design margin (capability/actual) of 1.53 from calculation DC-D-3195-195-SC was then ratioed to determine a new margin of 1.53/(79.2/54.2) = 1.05. This margin would be reduced when a reduction in strength of the rebar is considered.

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SECTION 2, COMPONENTS:

The affected components are the reactor cavity missile shield blocks for Unit 1 and Unit 2 Containment System.

SECTION 3, EXTENT OF CONDITION:

The condition described in CR 01043058 impacts the reactor missile shield blocks of each unit. The specific condition involves the use of a rebar strength of 60 ksi in a supporting calculation for the missile shield blocks. In contrast, a reinforcing steel value of 40 ksi is described in UFSAR Section 5.2.2.5 (Structural Materials). This 60 ksi strength value was then propagated to the ODEs performed for CRs 00299044 and 99-06123. In reviewing these two ODEs, there were no other structures (besides the missile shields) where a rebar strength greater than 40 ksi was utilized. Therefore, the condition is limited to the reactor missile shield blocks of each unit.

SECTION 4, AFFECTED SAFETY FUNCTIONS:

The containment system is designed to ensure that acceptable limits for leakage to the

environment of radioactive materials are not exceeded even in the improbable event of a gross rupture of a reactor coolant system pipe. In addition, the concrete walls of the containment serve as a biological radiation shield for both normal and accident conditions.

The containment interior is divided into three volumes, a lower volume which houses the reactor and Reactor Coolant System, an intermediate volume housing the energy absorbing ice bed in which steam is condensed and an upper volume which accommodates the air displaced from the other two volumes during a loss of coolant accident. The interior structures which form the boundaries between the upper and lower volumes are referred to as the divider barrier. The missile shield of each unit is part of the divider barrier. The divider barrier is required to be intact to ensure the mass and energy released from a line break in the lower volume is directed through the ice condenser and that bypass of the ice condenser (from the lower compartment to the upper compartment) is limited to analyzed values.

The missile shield is also designed to withstand and dissipate the kinetic energy associated with the ejection of a control rod.

SECTION 5, TECHNICAL SPECIFICATION REQUIREMENTS IMPACTED

Technical Specification 3.6.1.1 requires that Primary CONTAINMENT INTEGRITY be maintained in Modes 1 through 4.

Technical Specification 3.6.1.6 requires that the structural integrity of the containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6. Specification 4.6.1.6 states that the structural integrity of the containment structure and steel liner shall be determined in accordance with 10-CFR50 Appendix J Option B and Regulatory Guide 1.163, dated September, 1995.

Technical Specifications 3.6.5.5 requires that the personnel access doors and equipment hatches between the upper and lower compartments be operable in Modes 1 through 4.

Technical

Specification 3.6.5 requires that the ICE CONDENSER be maintained OPERABLE in Modes 1 through 4

BASES 3/4.6.1.6 (Containment Vessel Structural Integrity) states that the limitation ensures that the structural integrity of the containment steel vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that (1) the steel liner remains leak tight and (2) the concrete surrounding the steel liner remains capable of providing external missile protection for the steel liner and radiation shielding in the event of a LOCA. A visual inspection in
conjunction with Type A leakage tests is sufficient to demonstrate this capability.

Section 5.2 of the Technical Specifications describes that the reactor containment building is a steel lined, reinforced concrete building of cylindrical shape, with a dome roof and having the following design features:

Nominal inside diameter = 115 feet
Nominal inside height = 160 feet
Minimum thickness of concrete walls = 3'6"
Minimum thickness of concrete roof = 2'6"
Minimum thickness of concrete floor pad = 10 feet
Nominal thickness of steel liner, sides and dome = 3/8 inch
Nominal thickness of steel liner, bottom = 1/4 inch
Net free volume = 1,240,000 cubic feet

Section 5.2.2 of the Technical Specifications states that the reactor containment building is designed and shall be maintained in accordance with the original design provisions contained in Section 5.2.2 of the FSAR.

Section 5.2.3 of the Technical Specifications states that the penetrations through the reactor containment building are designed and shall be maintained in accordance with the original design provisions contained in Section 5.4 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

Based on the discussion in Section 8 of this operability evaluation, the above referenced Technical Specifications and Bases will

not be impacted by the identified conditions.

SECTION 6, OTHER DESIGN/LICENSING BASIS IMPACTED:

Chapter 5 of the UFSAR describes the missile block functions.

Chapter 5, "Containment System" defines the functional requirements for the containment and its physical construction. Section 5.2.1 contains the design criteria for containment. The loads applied are identified in 5.2.2, "Design Load Criteria". This section also identifies the design basis load combinations and describes the function of the divider barrier. It also describes the analysis methodology used for some of the structures. Section 5.2.2.5, "Structural Materials" identifies the concrete compressive design strength as 3500 psi and the reinforcing steel tensile strength as 40,000 psi. Section 5.3 "Ice Condenser" describes the design basis and methodology for the ice condenser.

UFSAR Table 5.1-1 and Chapter 14 (14.2.6.1.1.6) address the role of the missile shield in occurrences involving the control rod housing. UFSAR Section 14.2.1.1.6 describes the following:

"If circumferential failure of a rod travel housing should occur, the broken-off section of the housing would be ejected vertically because the driving force is vertical and the position indicator coil stack assembly and the drive shaft would tend to guide the broken-off piece upwards during its travel. Travel is limited by the missile shield, thereby limiting the projectile acceleration. When the projectile reaches the missile shield it would partially penetrate the shield and dissipate its kinetic energy. The water jet from the break would continue to push the broken-off piece against the missile shield. If the broken-off piece of the rod travel housing were short enough to clear the break when fully ejected, it would rebound after impact with the missile shield. The top end plates of the position indicator coil stack assemblies would prevent the broken piece from directly hitting the rod travel housing of a second drive

mechanism. Even if a direct hit by the rebounding piece were to occur, the low kinetic energy of the rebounding projectile would not be expected to cause significant damage."

SECTION 7, OPERABILITY RECOMMENDATION

The missile shields for each unit are determined to be OPERABLE but Degraded for all operational modes. The missile shields are considered degraded due to their failure to fully meet the required factors of safety (design allowances), as currently described in the UFSAR. The analytical evaluation results in a factor of safety greater than 1.0, without crediting the effects of reduced TMD pressures, expected to be realized through ongoing analyses. This factor of safety ensures that the stresses in the SSCs will remain within allowable limits of the applicable codes and standards. Failure to demonstrate compliance with all factored load cases represents a loss of functional capability as described in PMP 7030.OPR.001. (See definition under "Non-Conforming Item" on Page 5 of the referenced procedure.)

No compensatory measures are required to support this operability conclusion. A corrective action has been initiated to this effect in accordance with Step 2.1.7 of OPR.001, Rev.4, Attachment 5.

SECTION 8, BASIS FOR OPERABILITY CONCLUSION:

BACKGROUND:

During the recent efforts to restart each unit, Operability Determination Evaluations were completed for various

containment structural elements. These ODEs were documented in CRs 00299044 and CR P-99-06123 for Unit 1 and 2, respectively. These ODEs included acknowledgement of increased subcompartment pressures resulting from recently performed TMD Analysis (Containment Short Term Pressure Analysis). The increased subcompartment pressures of the TMD analysis were based on reconstituted inputs (flow areas and volumes). One of the structural elements addressed in these ODEs was the Missile Shield Cover over the Reactor Cavity of each unit. The ODEs for each unit provided a basis for

operability of the missile shield blocks, which included reliance on a 1989 vintage calculation, DC-D-3195-195-SC (Evaluation of Structural Components for RTP LOCA Pressures).

As part of the effort to confirm the containment structures to be within design basis, calculations are underway for various containment structural elements, including the reactor missile shields. These calculations are being performed in parallel with efforts to re-examine and refine the TMD analysis, to reduce the subcompartment pressures (the pressures which the containment structures must withstand).

During a review of inputs associated with an ongoing calculation for the reactor missile shields, it was identified that the rebar yield strength used as input in calculation DC-D-3195-195-SC may not be correct. This calculation utilized a bar yield strength of 60 ksi. The 60 ksi value appears to have been based on a material designation on rebar bend sheets ("All Steel Grade A615-60"), which was taken as 60 ksi grade steel. In contrast to this, review of material receipt records (which include Certified Material Test Reports - CMTR) indicates that the as-tested rebar yield strength is consistently in the 50 - 55 ksi range. Additionally, these test reports identify the material as Grade 40 rebar, which indicates that the rebar is 40 ksi rebar, not 60 ksi rebar. Therefore, it appears that calculation DC-D-3195-195-SC used a non-conservative input. Report NED-2000-527-REP (Structural Adequacy Evaluation of Containment Structures Affected By New Westinghoue TMD Analyses), section C.2.2 also relied on 60 ksi rebar (from calculation DC-D-3195-195-SC). The ODEs for CRs 00299044 and P-99-06123 made use of Report NED-2000-527-REP to justify operability of the reactor missile shield. The results of calculation DC-D-3195-195-SC indicated that the design margin (factor of safety) for the missile shield blocks was 1.53. This margin was based on an upper reactor cavity pressure of 54.3 psi.

The recent TMD analysis indicated that the upper cavity pressure was now at a value of 79.2 psi. The design margin of 1.53 from calculation DC-D-3195-195-SC was then ratioed to determine a new margin of 1.53/(79.2/54.2) = 1.05. This margin would be reduced when a reduction in strength of the rebar is considered.

Given the apparent reduced strength of the reinforcing bar utilized in the missile shield blocks, and the margin of 1.05 calculated in the previous ODEs for CRs 0029904 and 99-06123, the basis for the operability of the Missile Shield Blocks of each unit needs to be revisited.

EVALUATION:

The basis for determination of operability is based on ongoing structural evaluations in combination with ongoing reanalysis of the Containment Short Term Pressure Distribution (TMD) analysis.

Load Combinations

The evaluations were not performed by reviewing the structural capacity in comparison to a reduced design criteria. Instead, one load combination case within the design basis was selected as the primary case which provided the most general consideration of the loads that are postulated within the design basis. This load combination can be shown to provide an adequate representation of the loads expected on the structure and provides assurance that the structure will

fulfill its design function.

The UFSAR describes an analytical method which is based on the load factor approach to ultimate strength design in ACI 318-1963. The ACI Code addresses classic structural loading of dead loads and live loads and provides a methodology to address wind and earthquake loads. However, it does not specifically address nuclear plant issues such as accident (i.e., blowdown) loads, OBE vs. SSE, etc. As a result, the load factors in the UFSAR do not directly correspond to factors in the ACI code. There are a number of structural load combinations defined in the UFSAR, but three accident load combinations generally provide a bounding set.

These combinations

are:

(LC1) 1.5 P + DL + T
(LC2) 1.25 P + 1.25 OBE + DL + T
(LC3) 1.0 P + 1.0 SSE + DL + T

Where P = Accident Pressurization Loading
DL = Dead Load
T = Temperature Load
OBE = Operating Basis Earthquake
SSE = Safe Shutdown Earthquake

For the purposes of this evaluation, Load Combination 3 (LC3) was considered the bounding case. This load combination includes the full magnitude of each load component but does not utilize additional load factors. LC1 and LC2 increase the magnitude of the individual load components but do not include all potential loads. Any of the three equations may be limiting depending on which load component is dominant. However, only LC3 utilizes inputs from all considered loads, and based on the structural element under consideration, was determined to be the bounding load case. Therefore, it was the load combination that was utilized for this evaluation. For each of the three load cases considered, the T term was considered to be not applicable. The term T considers the temperature rise through the structural element and its associated stresses. Due to the extremely short term nature of the applied accident pressure load (maximum delta P), the materials of construction of the missile blocks (4 ft thick concrete and rebar), and the fact that concrete is an effective insulating material, the temperature change across the missile block will be negligible.

The pressurization loads were developed using conservative methodology (short term containment pressure response and predicted mass and energy release analyses) that will result in over-prediction of pressures. The mass release assumptions and pressure response models are industry standard approaches which are acknowledged to provide a conservative over-prediction of pressures.

Missile Shield Cover over the Reactor Cavity

Functionality Requirements: The Missile Shield Cover over the Reactor Cavity consists of four 4 feet thick reinforced

concrete removable blocks that during operation of the plant are tied down to the operating deck with 36 bolts. It may also be defined as the part of the operating deck that is directly above the reactor cavity, and, as such, has functionality requirements similar to that of the operating deck. The currently calculated margins for the structural analysis of the missile shields are summarized as follows (Ref. 5):

* The ultimate moment capacity of the missile shield is 10,525 k-ft using rebar yield strength of 50.6 ksi, and 11,262 k-ft using rebar yield strength of 54.6 ksi. Both of these capacities utilize a conservative as-built concrete compressive strength of 4424 psi. The rebar yield values were obtained from the CMTRs for the Unit 1 and Unit 2 rebar. The value of 50.6 ksi was the lowest yield value for all of the heats tested. The value of 54.6 ksi represents the average value of the tested rebar for Unit 2. The average value for the Unit 1 rebar was 54.8 ksi. The as-built concrete compressive strength of 4424 psi was obtained from correspondence associated with regulatory evaluations performed on the restart ODEs.

* For the load combination of DL + P + SSE, with P = 79.2 psi, the moment demand on the missile shield is 10,429 k-ft. This evaluation also assumes that the Dead Load (DL) can be taken as 1.0, since the as-built configuration of the missile blocks are known. The seismic response for the Safe Shutdown Earthquake (SSE) determined to be 0.18g: 2/3 of the peak horizontal floor response calculated using the response spectrum method and modal data described in Section 7.4 of Calculation No. SD-991008-001.

* The margin (capacity/demand) is 10,525 / 10,429 = 1.009 using rebar yield of 50.6 ksi, and 11262 / 10429 = 1.080 using rebar yield of 54.6 ksi.

Additionally, refinement of the TMD analysis (which are ongoing by Westinghouse) are expected, based on TMD scoping runs to date, to achieve reductions in the reactor cavity pressure from the

currently predicted 79.2. The following summarizes the current status of this effort (Ref. 4).
:
"Over the last couple of years, Westinghouse reanalyzed the containment subcompartments at Donald C. Cook to include the effects of as-built plant data. Reference 1 documents the reactor cavity re-analysis. As is seen from this reference it was determined that the peak differential pressure acting across the missile shield is 79.2 psi. This is a conservatively calculated differential pressure, as was illustrated in Reference 2.

Westinghouse is in the process of investigating the analytical benefits of:
(1) refining the TMD nodalization to better represent the flow patterns within the reactor cavity,
(2) determining the largest credible break size near the reactor vessel nozzle weld and the associated mass and energy releases, and
(3) increasing the flow area out of the upper reactor cavity with consideration of refinements of the walk down information.

The current licensed reactor cavity analysis assumes that 75% of the break flow discharges to the upper reactor cavity and the loop compartments, with the remaining 25% entering the reactor vessel annulus. No detail of the reactor vessel annulus is included in the current model. However, of the 25% that enters the reactor vessel annulus, based upon relative areas, 63% of it is assumed to enter the upper reactor cavity. Based upon review of the geometry of this region, a more detailed TMD nodalization model that accounts for flow into the reactor vessel annulus, and the corresponding flow out of the reactor vessel annulus to the upper reactor cavity, lower reactor cavity, the other inspection regions, the other pipe penetrations and the other inspection plugs, would be more representative, and would reduce the over-conservatism in the current calculation.

The current licensing basis analysis assumes a break size equivalent to the area of the cross-sectional area of a reactor coolant pipe. For example,

for the cold leg break, a break size of 4.12 ft2 (593 in2) is currently used. Based upon review of work done in the late 70s and estimates of the piping and vessel motion, with consideration of the pipe and sleeve arrangement, this break size can be reduced. Westinghouse is in the process of investigating the verification of the size of the maximum credible break by considering cavity pressurization loads, internal vessel reaction loads, and piping loads, applied to a specific Donald C.

Cook loop piping model with consideration of the pipe and sleeve arrangement. Preliminary indications are that the break size will end up between 350 in2 to 450 in2.

AEP conducted walkdowns in 1999 and 2000, reduced the data, and supplied a flow area out of the upper reactor cavity directly to the loop compartments of 128.3 square feet, which was reduced from the prior basis of 175 square feet. This revised area was used in the current analysis that results in a differential pressure of 79.2 psi across the missile shield. Since that time, further walkdowns have been performed. AEP is reviewing all the data, and the assumptions utilized in reducing the data, including the expected behavior of the ductwork, such as collapse and deformation during the postulated event. The objective is to recoup as much of the original basis of 175 square feet as reasonably possible. The current preliminary indication is that the flow area out of the upper reactor cavity directly to the loop compartments is approximately 160.0 ft2.

Westinghouse has assessed the expected impact of all three of these analytical improvements based upon preliminary break size determinations, flow area calculations, SATAN-V computer runs, TMD computer runs, and engineering estimates. Considering the range in input from best-expected to worst-expected, the differential pressure across the missile shield is anticipated to fall within the range of 45.8 psi to 64.1 psi. Both of these are considerably below the

current analysis value of 79.2 psi."

In summary, the anticipated results of the TMD analysis will increase the margin (factor of safety) of the missile shields, which by current structural evaluation, exceeds 1.0 (1.009 to 1.079).

CONCLUSION

Based on the results of this evaluation, and the supporting references, the Unit 1 and 2 Reactor Missile Shield Blocks, which are part of the Containment divider barrier are determined to be OPERABLE but Degraded in all operational modes based on the failure of these structural elements to meet the design basis criteria and values currently depicted in the UFSAR.

SECTION 9, RECOMMENDED CORRECTIVE ACTION:

Corrective actions for the degraded condition are already addressed as Corrective Actions 3 and 4 in the actions section of condition report CR 00299044. Corrective Actions 3 and 4 are flagged as ODE related to appropriately track the degraded condition to closure. Corrective Action 3 is in place to appropriately track the update of the design and licensing basis to reflect the changes in methodology, margins, and strengths of structural elements. This action will allow for the full restoration of qualification for the containment structures following reconstitution of the supporting calculations. Corrective Action 4 is in place to appropriately track the revision/reconstitution of the supporting calculations for containment structures. Completion of these calculations, together with the other identified corrective actions will restore the containment structures to their full qualification.

The restoration of full qualification will be accomplished by updating the UFSAR to reflect the new design basis, or performing modifications to the structural elements to restore full compliance with existing design basis requirements.

SECTION 10, SUPPORTING DOCUMENTATION:

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

1. CR 99-06123 (Certain structural calculations are apparently missing)
2. CR 00299044 (Unit 1 Containment Structure requires Operability

Determination)
3. Report NED-2000-527-REP (Structural Adequacy Evaluation of Containment Structures Affected by New Westinghouse TMD Analysis)
4. Letter AEP-01-015 from William R. Rice of Westinghouse Electric Corporation, dated February 13, 2001, Effect of Break Size & Flow Area on the Reactor Cavity TMD Analysis
5. Letter 00Q4186-LSC-005 from S. Anagnostis of Stevenson & Associates, dated February 13, 2001, Missile Shield Analysis - Effects of Reduced Rebar Strength
6. DIT-B-01954-00 (As-Built Reinforcing Bar and Concrete Strength for Analysis of Unit 1 and 2 Containment Missile Shields)

System(s):

	Indiv or Due Date	Team	Group	Date
Accepted By:	LEONARDP	SCHOEPFP	NED	02/13/2001
Approval Assigned To:	SCHOEPFP	SCHOEPFP	NED	02/13/2001
Checked By Assigned To:	LEONARDP	SCHOEPFP	NED	02/13/2001
Assigned To:	LEONARDP	SCHOEPFP	NED	02/13/2001
Ready for Checked By:	LEONARDP	SCHOEPFP	NED	02/13/2001
Checked By:	FISHERT	VAZQUEZS	ESY	02/13/2001
Cross Discipline Rev By:	HOSKINSM	FINISSIM	ENP	02/13/2001
Approved By:	KOSHARS	KOSHARS	OPS	02/13/2001
Evaluated By:	OROURKEB	CRANER	RCL	02/14/2001
Due Date:	02/13/2001			

Past Operability:

Responsible Group: Status:

Operable:

Operability Type:

Comments:

	Indiv or Due Date	Team	Group	Date
No current Signatures for this section.				

V. Reportability/Investigation

Responsible Group: RCL Status: Closed

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

Problem Reportable: N

Reportable Per:

Comments:

Background
As part of the Unit 1 and Unit 2 restart effort, it was determined that certain of the containment internal structures could not demonstrate compliance with the factors of safety given in the UFSAR for specific design basis load combinations. As a result of this condition, operability evaluations were performed for both Unit's containment structures that demonstrated functional capability of those structures. Corrective actions associated with these operability evaluations required the reconstitution of design basis capability of these structures following restart. As part of this reconstitution effort, regeneration of calculations for the different structural elements are ongoing. Associated with this effort is the validation of the inputs for the calculations.

During a review of inputs associated with an ongoing calculation for the reactor missile shields, it was identified that the rebar yield strength used as input in calculation DC-D-3195-195-SC (performed in support of the Reduced Temperature and Pressure (RTP) rerating for Unit 1) may not be correct. This calculation utilized a bar yield strength of 60 ksi. The 60 ksi value appears to have been based on a material designation on rebar bend sheets ("All Steel Grade A615-60"), which was taken to mean 60 ksi grade steel. In contrast to this, review of material receipt records, Certified Material Test Reports (CMTR) indicates that the as-tested rebar yield strength is consistently in the 50 - 55 ksi range. Additionally, these same CMTRs state that the bar material is Grade 40. This indicates that the rebar is probably 40 ksi rebar, not 60 ksi rebar. Therefore, it appears that calculation DC-D-3195-195-SC used a non-conservative input. Report NED-2000-527-REP (Structural Adequacy Evaluation of Containment Structures Affected By New Westinghoue TMD Analyses), section C.2.2 also relied on 60 ksi rebar. The ODEs for CRs 00299044 (Unit 1) and P-99-06123 (Unit 2) also made use of the 60 ksi

rebar to justify operability of the reactor missile shield. In each of the ODEs, the results of calculation DC-D-3195-195-SC were utilized with new/higher subcompartment pressures (79.2 psi versus 54.3 psi). The design margin (capability/actual) of 1.53 from calculation DC-D-3195-195-SC was then ratioed to determine a new margin of 1.53/(79.2/54.2) = 1.05. This margin would be reduced when a reduction in strength of the rebar is considered. Given the apparent reduced strength of the reinforcing bar utilized in the missile shield blocks, and the margin of 1.05 calculated in the previous ODEs for CRs 0029904 and 99-06123, the basis for the operability of the Missile Shield Blocks of each unit needs to be revisited.

Review Action Taken
The CR information was reviewed against reporting requirements for 10CFR50.72, 10CFR50.73, and plant reporting procedures, PMP 7030.001.001, "Prompt NRC Notification" and PMP 7030.001.002, "Licensee Event Reports, Special and Routine Reporting."

Engineering performed an operability evaluation for the identified condition. Results of the evaluation concluded that the missile shields for each unit are OPERABLE but Degraded for all operational modes. The missile shields are considered degraded due to their failure to fully meet the required factors of safety (design allowances), as currently described in the UFSAR. The analytical evaluation results in a factor of safety greater than 1.0, without crediting the effects of reduced TMD pressures, expected to be realized through ongoing analyses. This factor of safety ensures that the stresses in the SSCs will remain within allowable limits of the applicable codes and standards. Failure to demonstrate compliance with all factored load cases represents a loss of functional capability as described in PMP 7030.OPR.001. (See definition under "Non-Conforming Item" on Page 5 of the referenced

procedure.) No compensatory measures are required to support this operability conclusion.

Conclusion
Based on the above, this condition is not reportable.

B. O'Rourke 2-14-01

	Indiv or Due Date	Team	Group	Date
Assigned To:			RCL	02/13/2001
Ready For Approval:	OROURKEB	CRANER	RCL	02/14/2001
Approval Assigned To:	CRANER	CRANER	RCL	02/14/2001
Approved By:	CRANER	CRANER	RCL	02/15/2001
Due Date:	03/15/2001			

Investigation Report:

Responsible Group:

Investigator:

Investigation Report Due:	__/__/____
Event Notification Due:	__/__/____
Internal Report Due:	__/__/____
Detailed Report to Station Mgr:	__/__/____
Detailed Report to Regulator:	__/__/____

Reportability Requirement:

VI. Non-Conformance Evaluation

Responsible Group: DES

Status: Closed

Non-Conformance Eval Required: Yes

Non-Conformance Exists: Yes

Non-Conformance Disposition: UAI

Interim Disp.: No

Comments:
This condition report documents the use of an inaccurate design input in calculation DC-D-3195-195-SC. This

calculation utilized a specified rebar strength of 60 ksi for the reactor missile shield blocks. Based on review of certified material test reports, the actual specified strength is 40 ksi. Calculation DC-D-3195-195-SC is in restricted status in NDM/NDIS.

The UFSAR Section 5.2.2.5, under "Reinforcing Steel - Material and Specification" describes that reinforcing steel has a minimum yield strength of 40,000 psi (40 ksi). Since the as-built configuration of the plant is such that the missile shield blocks contain 40 ksi rebar, the missile shield blocks are not non-conforming (ie., they contain rebar of the intended strength). Calculation DC-D-3195-195-SC with an inaccurate input will be dispositioned via actions specified in the investigation and actions section of this CR. Therefore, relative to this condition, the missile shield blocks should be dispositioned "Use As Is".

As a point of information, the missile shield blocks for each unit remain under ODEs, for other conditions unrelated to issue of rebar strength. See CRs 99-6123 and 00299044 for detailed information.

	Indiv or Due Date	Team	Group	Date
Due Date:	03/30/2001			
Accepted By:	SCHOEPFP	SCHOEPFP	DES	03/26/2001
Assigned To:	SCHOEPFP	KOVARIKB	DES	03/26/2001
Ready For Approval:	SCHOEPFP	SCHOEPFP	DES	03/26/2001
Approval Assigned To:	KOVARIKB	KOVARIKB	DES	03/26/2001
Approved By:	KOVARIKB	KOVARIKB	DES	03/27/2001

VII. Condition Evaluation

Responsible Group: DES Status: ReadyForRCL

Rework Required N
System(s) Affected: CNTMT CONTAINMENT BUILDING STRUCTURE

Affected Equipment

Equipment ID No.	Comp. Code	Manufacturer

Event	Cause	Primary	Cause Description	Group(s)
ZHP	M2a	Y	Misapplication or interpretation of design inputs	DES

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

Condition Evaluation:

DESCRIPTION OF CONDITION

Briefly, this CR documents a condition where a non-conservative input value, specified rebar strength, was used in a 1989 vintage calculation (DC-D-3195-195-SC, Evaluation of Structural Components for RTP LOCA Pressures) which documented the acceptability of the reactor missile shield blocks (and other structural elements) for reduced temperature and pressure (RTP) conditions for the RCS. This calculation utilized a rebar strength for the reactor missile blocks of 60 ksi. Based on recent review of certified material test records, the actual rebar strength is approximately slightly above 50 ksi, indicating the rebar was 40 ksi instead of 60ksi specified strength. The results of this calculation were relied upon in the preparation of two Operability Determination Evaluations (00299044 and CR P-99-06123 for Unit 1 and 2, respectively) prepared during the restart of each unit in 2000. The need to develop ODEs were based on a series of conditions including missing or deficient calculations, non-conforming conditions in the containment structures and revisions to TMD (containment short term pressure analysis) pressures. Upon discovery of this condition, a new ODE was performed as part of CR 01043058, to document that the missile shield blocks are still operable.

Additionally, from a historical perspective, the results of calculation DC-D-3195-195-SC were utilized, in part, as the basis for a submittal to the NRC (AEP:NRC:1067C) to support operation of Unit 1 at Reduced Temperature and Pressure. This letter communicated to the NRC that, "analyses have been completed and have confirmed the adequacy of the containment subcompartments for the RTP conditions. The acceptance criteria used in the evaluation of the containment subcompartment structural elements subjected to the RTP conditions are those of Section 5.2.2.3 of the updated UFSAR titled, "Containment Design Stress Criteria."" Although the missile shield blocks continue to

meet operability criteria as noted above, with the reduced rebar strength of 40 ksi, the margins of UFSAR Section 5.2.2.3 of the UFSAR are not met. The equations of Section 5.2.2.3 require a margin of 1.5P (1.5 x subcompartment differential pressure). As noted in the ODE prepared for this CR, a margin of slightly > 1.0P is realized when the actual rebar strength of approximately 50 ksi is used.

INVESTIGATION

Investigation of this condition consisted of a review of calculation DC-D-3195-195-SC, review of rebar material test records which have been assembled to support development of calculations to release the aforementioned ODEs, and review of the ODEs for CRs 00299044 and 99-6123. The preparer of the calculation DC-D-3195-195-SC is no longer with the company, nor is the approving manager. From a review of the attachments to this calculation, it appears that specified rebar strength of 60 ksi rebar was assumed based on markings on the rebar bend sheets (attached to the calculation). These bend sheets are annotated with "(All Steel Grade A615-60)". The "-60" was apparently taken as the specified rebar strength. In contrast to this, review of material receipt records indicates that the as-tested rebar yield strength is consistently in the 52 - 55 ksi range, which indicates that the rebar is probably 40 ksi rebar, not 60 ksi rebar.

Calculation DC-D-3195-195-SC is currently restricted in NDM and the containment structures are currently operable based on the noted ODEs. Calculations are presently being developed to replace DC-D-3195-195-SC and other containment structural calculations. Therefore, the primary consideration of this CR is to ensure that the contents of DC-D-3195-195-SC, to the extent relied upon for the ODEs, and the ODEs themselves, remain valid. Toward this end, the contents of calculation DC-D-3195-195-SC were reviewed. It was determined that within this calculation, the material properties correspond to specified values in most

cases. Besides the noted case where a value of 60 ksi rebar was used, it was also determined that a concrete compressive strength value of in excess of 6000 psi were used in several places to evaluate the anchors for the missile shield blocks. While a compressive strength value of >6000 psi is well above the specified value of 3500 psi, such values are substantiated by actual cylinder test records, and are therefore permissible for an operability evaluation. The ODEs for CRs 00299044 and 99-6123 were reviewed. The basis with regard to material strength for the ODEs conclusion of operabilility was reviewed for the impacted structures (containment shell, crane wall, steam generator enclosures, pressurizer enclosure, operating deck, primary shield wall, missile shields, bulkhead, lower reactor cavity, slab between reactor cavity and loop subcompartment, ice condenser slab and columns, fan-accumulator room slab and steam generator supports). The discussion for the missile shield blocks is the one of only two structures where other than 40 ksi bar strength is credited in the ODE (the other structure includes portions of the steam generator enclosures, where 60 ksi bar was used for the steam generator replacement project, which is well documented. As-built concrete strengths were used for evaluation of several structures as noted above, however, the strengths used correspond to documented values based on review of concrete cylinder test records. Therefore, there is reasonable assurance that the basis for operability per the ODEs for CRs 99-6123 and 00299044 remain valid.

APPARENT CAUSE

Based on review of calculation DC-D-3195-195-SC, including attached rebar bend sheets, the apparent cause for this condition is misapplication or interpretation of design inputs related to the specified strength of reinforcing bar for the reactor missile shield blocks.

HUMAN PERFORMANCE

The inappropriate act was misinterpretation of available design information by

design engineers (preparer and reviewer of calculation DC-D-3195-195-SC) in the structural design section of nuclear design engineering. The preparer misinterpreted a marking on a rebar bend sheet of "A615-60" as an indication that rebar specified strength was 60 ksi. Review of the actual material certs would have led the individual to the conclusion that the rebar was 40 ksi specified strength instead of 60 ksi. The reviewer of the calculation did not apparently challenge the input. This activity was performed to the calculation procedure which is based on ANSI N45.2 which requires selection of appropriate inputs, and verification of these inputs.

The apparent cause is misapplication or interpretation of design inputs related to the specified strength of reinforcing bar for the reactor missile shield blocks. The performance of calculations is a routine task for engineers within design engineering. Therefore, the individuals were presumably familiar with expectations for selection of proper inputs and verification of such inputs.

The error should have been prevented by a questioning attitude and rigorous verification of inputs. Since the UFSAR states that rebar strength is 40 ksi specified strength, the individuals should have questioned their conclusion that the bar for this one structural component was 60 ksi instead of the 40 ksi referenced in the UFSAR. Review of actual material test records would have refuted the conclusion that the bar strength was 60 ksi.

EXTENT OF CONDITION

Extent of condition was addressed with respect to the two aforementioned ODEs in the INVESTIGATION section of

this CR. To summarize, the primary concern is whether calculation DC-D-3195-195-SC contains other inappropriate inputs, which were used for the noted ODEs. Review of the calculation and ODE contents provides reasonable assurance that the bases for Operability remains valid. A query was also conducted of ECAP for other CRs written against calculation DC-D-

3195-195-SC. Five other CRs were noted. These included the following CRs:

99-5961 - calculation DC-D-3195-195-SC calculated load factors using ACI-349, which is not a design basis code).
99-5976 - calculation DC-D-3195-195-SC used actual tested strengths of concrete (up to 6392 psi corresponding to 90-day cylinder test data).
99-5984 - calculation DC-D-3195-195-SC used for evaluation of structures for RTP did not specifically evaluate the liner.
99-5992 - calculation DC-D-3195-195-SC did not consider uncertainty associated with concrete cylinder test data.

Calculation DC-D-3195-195-SC remains on restricted status, because of its age, and as a result of these issues.

SAFETY SIGNIFICANCE

Given that the missile shield blocks were shown to be operable when appropriate inputs were used, this event had no nuclear safety significance. However, it should be noted that the missile shield blocks have a margin only slightly above 1.0P (< 1.0P would be inoperable). There was no personnel or radiological safety significance associated with this condition.

OPERABILITY DETERMINATION
An Operability Determination was performed and may be found in the Operability Section of this CR. The missile shield blocks remain operable.

REGULATORY REPORTING

Although this condition resulted in a submittal to the NRC (AEP:NRC:1067C) which was less than accurate, since this did not result in a condition with significant safety implications (i.e., the missile shield blocks continue to be operable), it is the opinion of the evaluator that this condition is not reportable under 10CFR50.9 (Completeness and Accuracy of Information). Regulatory Affairs is assigned responsibility to concur with this determination (assigned to concur with this evaluation in ECAP).

As a point of information, it has been previously documented that the containment structures were outside their design basis, which was documented in LER 2000-003 (Containment Internal Structures Do Not

Meet Design Load Margins).

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

MAINTENANCE RULE IMPACT

The missile shield blocks remain capable of performing their design function. Therefore, there is no impact on the maintenance rule.

NON-CONFORMANCE EVALUATION

A Non-Conformance Evaluation was completed and may be found in the Non-Conformance section.

CORRECTIVE ACTIONS

A corrective action is included for preparation of a new calculation or calculation revision to document return to full qualification status of the missile shield blocks. This action overlaps a portion of CRA # 7 for CR 99-6123 (and CRA #4 for CR 00299044), which are also ODE related to track the revision/reconstitution of the supporting calculations for containment structures. These include the calculations for the reactor missile shield blocks.

MANAGER QUESTIONS

Evaluation meets format and content requirements for assigned category? Yes - CAT 3 template followed.

Event Screening Committee comments addressed or determined to be NA? ESC comments were "CAT 3 for extent of condition. RCL review for reportability." Extent of condition was addressed. RCL is an assigned concurrence group.

Regulatory significance adequately addressed? Yes - position presented that condition is not reportable.

Safety impact addressed? Yes - no safety impact.

Outside agency notification considered? Yes - not required.

CR appropriately classified considering above? Yes - CAT 3 is appropriate (potential safety significance/reportability)

Appropriate personnel involved? Yes - NESD is appropriate for containment structures issues. RCL to review.

Extent of condition/related conditions addressed or determined to be NA? Yes - ODEs for containment operability reviewed for continued reasonable assurance of operability.

If CR contains a non-conformance evaluation, Maintenance Rule or an operability determination, then appropriate reviews or evaluations completed? NCE completed. MT rule review not required or

appropriate.

Mode constraint or operability evaluations completed, Operations Reviewer comments addressed or constraints set? ODE previously completed.

Actions associated with work control items flagged and entered? NA - no work control items

Prescribed actions resulting from evaluation are accepted in ECAP by the assigned group? Yes

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

Indiv or Due Date		Team	Group	Date
Accepted By:	SCHOEPFP	KOVARIKB	DES	02/13/2001
Assigned To:	SCHOEPFP	KOVARIKB	DES	02/13/2001
Due Date:	03/30/2001			
Ready For Approval:	KOVARIKB	KOVARIKB	DES	03/27/2001
Approval Assigned To:	KOVARIKB	KOVARIKB	DES	03/27/2001
Approved By:	KOVARIKB	KOVARIKB	DES	03/27/2001

VIII. Actions

Action: 1

Resp Group:	ESY	Status:	Closed
Orig Group:	NED	Event Code:	C1g1
Prop CAC:	B3a	Cause Code:	YYY

Prescribed Action:

DESCRIPTION OF CORRECTIVE ACTION:

This action is entered to document that no compensatory actions are required to support the conclusions of the operability evaluation. This CRA is entered in accordance with step 2.1.7 of OPR.001, Rev. 4, Attachment 5.

CONCURRENCE RECEIVED FROM: Paul Leonard, ENSM

NEGOTIATED DUE DATE: N/A

	Indiv or Due Date	Team	Group	Date
Assigned To:	LEONARDP	SCHOEPFP	NED	02/13/2001
Ready For Approval:	LEONARDP	SCHOEPFP	NED	02/13/2001
Approval Assigned To:	SCHOEPFP	SCHOEPFP	NED	02/13/2001
Approved By:	LEONARDP	SCHOEPFP	NED	02/13/2001

General:

Outage:

Other Tracking Processes

Type	Number	Text	Revision No.	Status

System(s)/Document(s)

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

System(s)/Document(s)	Description
CNTMT	CONTAINMENT BUILDING STRUCTURE

Action Taken: Actual CAC: B3a Status: Closed
Due Date: 05/13/2001

No action required. See prescribed action for details.

	Indiv or Due Date	Team	Group	Date
Due Date:	05/13/2001			
Accepted By:	LEONARDP	MCCLELLANDJ	ESY	02/13/2001
Assigned To:	LEONARDP	MCCLELLANDJ	ESY	02/13/2001
Ready For Approval:	LEONARDP	MCCLELLANDJ	ESY	02/15/2001
Approval Assigned To:	MCCLELLANDJ	MCCLELLANDJ	ESY	02/15/2001
Approved By:	LEONARDP	MCCLELLANDJ	ESY	02/15/2001
Evaluated By:	ETHERIDGEW	MOULD	OPS	03/06/2001

NPM Reference

AR # JO # JOA #

AR Associated: No

OD Related: Yes Mode Constraint:

Unit Affected: 0

Action: 2

Resp Group:	DES	Status:	Closed
Orig Group:	DES	Event Code:	C1g1
Prop CAC:	B3a	Cause Code:	YYY

Prescribed Action:

DESCRIPTION OF CORRECTIVE ACTION:
Prepare a new calculation or calculation revision to document return to full qualification status of the missile shield blocks. This action overlaps a portion of CRA # 7 for CR 99-6123 (and CRA #4 for CR 00299044), which are also ODE related to track the revision/reconstitution of the supporting calculations for containment structures. These include the calculations for the reactor missile shield blocks.

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

CONCURRENCE RECEIVED FROM:
DES/Kovarik

NEGOTIATED DUE DATE:
9/30/01

	Indiv or Due Date	Team	Group	Date
Ready For Approval:	KOVARIKB	KOVARIKB	DES	03/27/2001
Approval Assigned To:	KOVARIKB	KOVARIKB	DES	03/27/2001
Approved By:	KOVARIKB	KOVARIKB	DES	03/27/2001

General:

Outage:

Other Tracking Processes

Type	Number	Text	Revision No.	Status

System(s)/Document(s)

System(s)/Document(s)	Decsription

Action Taken:

Actual CAC:
Due Date: 06/06/2001

Status: Open

	Indiv or Due Date	Team	Group	Date
Accepted By:	KOVARIKB	KOVARIKB	DES	03/27/2001
Assigned To:	LEININGERW	KOVARIKB	DES	03/27/2001
Due Date:	06/06/2001			

NPM Reference

AR # JO # JOA #

AR Associated: No

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

OD Related: Yes Mode Constraint:

Unit Affected: 0

IX. Overall Approval

Responsible Group: DES Status: Screened

	Indiv or Due Date	Team	Group	Date
Assigned To:			DES	02/13/2001

Closure Document Type	Closure Document No

Supplemental Concurrences - These do not affect ECAP closure.

Concurrences Associated with External Committments:

	Indiv	Team	Group	Date
Concurred By:				

X. Attachments

Maintenance Rule

No Maintenance Rule for this ECAP

Performance Improvement International:

No PII for this ECAP.

Remarks

No Remarks for this ECAP

D.C. Cook
Electronic Corrective Action Program

Condition Report: 01043058
Current Status: Screened
Action Category: 3

End of the Document for ECAP No: 01043058
The status of this ECAP is: Screened
The duration of this ECAP was: 31 days