Part 5 -

Distribution

ECase	WJohnston
HDenton	KCornell
HBerkson	TRehm
PPAS	RMinogue
DEisenhut	GCunningham
SHanauer	SAggarwal
RVollmer	RSB R/F
H. Thompson	RSB Subject File
PCheck	FOrr R/F
BSnyder	EDO R/F
FOrr	Central File
GMazetis	BCapra (11384)
BSheron	SCavanaugh (11384)
TSpeis	PBrandenberg (11384)
RMattson	AMarchese
WDircks	

MAR 1 2 1982

MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Bradford
Commissioner Ahearne
Commissioner Roberts

FROM: William J. Dircks, Executive Director for Operations

SUBJECT: RESPONSE TO COMMISSION REQUEST, JANUARY 8, 1982
CHILK MEMO- ITEM C

Enclosed is the response to the Commission's request of January 8, 1982, that the staff provide a discussion of the capability of power plants to go to cold shutdown on safety grade equipment.

(Signed) William J. Dircks

William J, Dircks
Executive Director for Operations

Enclosure:
As Stated

cc: SECY
OPE
OGC

CONTACT: Frank Orr, NRR
X27591

*See previous sheet for concurrences and dates

NRR:DIR
HDenton
3/ /82

EDO
WDircks
2/ /82

XA
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OFFICE	*DSI:RSB	*DSI:RSB	*DSI:RSB	*DSI:RS:AD	* DSI:DIR	*ENG:DIR	CRR:DEP:DIR
NAME	FOrr/bg	GMazetis	BSheron	TSpeis	RMattson	RVollmer	ECase
DATE	2/25/82	2/25/82	2/25/82	2/25/82	2/25/82	2/25/82	2/ /82

FORM 318 (10-80) NRCM 0240

OFFICIAL RECORD COPY

SUMMARY OF THE CAPABILITY OF POWER REACTORS TO GO TO COLD SHUTDOWN ON SAFETY GRADE EQUIPMENT

Pursuant to the Commission's request of January 8, 1982, the following information summarizes our present understanding of which power reactors do or do not have the capability to go to cold shutdown on safety grade equipment. To the extent possible we have also provided a summary of the specific equipment that would have to be upgraded in order to allow individual plants to achieve cold shutdown with only safety grade equipment. We also relate the answer to the Unresolved Safety Issue on Decay Heat Removal Reliability, Task A-45.

We have general and specific knowledge about the capability of operating reactors licensed after January 1, 1979 to go to cold shutdown. Prior to that time there was no regulatory requirement to be able to reach cold shutdown using safety grade equipment. It is generally true that plants from the era do not have the capability to go to cold shutdown using only safety grade equipment. However, we do not know the specific capabilities or limitations of individual plants from that era. For recent plants, we have more specific knowledge, as described below.

On February 16, 1978, after several years of formulation, Branch Technical Position RSB 5-1 was approved by the Regulatory Requirements Review Committee (RRRC) for implementation. RSB 5-1 requires nuclear plants to have the capability to achieve and maintain cold shutdown using only safety grade equipment, i.e., equipment satisfying General Design Criteria 1 through 5. Included in RSB 5-1 is an implementation plan and schedule, dividing power reactors into the three classes described in the following paragraphs:

Class 3 plants were defined as those receiving an OL before January 1, 1979 (i.e., prior to RSB 5-1). Requirements for achieving cold shutdown (cooldown,

depressurization, natural circulation, boration) had not been developed for these plants; rather, in their licensing review, "hot shutdown" had been considered to be a sufficient requirement for all normal, abnormal, and accident modes. The RRRC approved a scheme whereby the extent of backfit of these plants to comply with the RSB 5-1 requirements was to be based on a combined I&E and Division of Operating Reactors (DOR) review of related plant features. A limited review of about 10 plants was initiated by DOR prior to the TMI accident, but was discontinued as a result of redirected priorities following the accident. This study was never resumed, presumably because it was felt to be included with post-TMI generic actions associated with assuring reliable decay heat removal (TMI Action Plan Item II.E.3, especially subtask five on Regulatory Guide 1.139 Guidance for Residual Heat Removal to Achieve and Maintain Cold Shutdown".)

Class 2 plants were defined as those whose CP application was docketed prior to RSB 5-1 but whose OL was sufficiently far off (after January, 1979) to justify some equipment upgrading. For shutdown equipment in this class of plants, the term "safety grade" was interpreted to mean "qualified to service environment." Certain control and motive functions were allowed to be performed locally by operator action if they were feasible and necessary to correct single failures of either safety or non-safety grade equipment. The shutdown equipment for plants in this class had to be seismically qualified and operable with or without off-site power. All plants licensed since February, 1978 have been reviewed by the Reactor Systems Branch in accordance with the Class 2 implementation requirements of RSB 5-1 and the SERs so state this licensing basis.

Class 1 plants were defined as those whose CP application was docketed after RSB 5-1 (January, 1978). They are to achieve full compliance with RSB 5-1. To date no plants in this class have been reviewed. Presently proposed Regulatory Guide 1.139 also addresses cold shutdown requirements and presumably will apply to these newer plants. A principal difference in application between this Regulatory Guide and RSB 5-1 is that the guide would require demonstration of equipment qualification for a cold shutdown capability after design basis accidents, whereas RSB 5-1, as we have applied it, does not. There is a substantial difference in the "service environment" between these two positions. To date, the proposed R.G. 1.139 has not been implemented as a licensing requirement. While we do not know how many plants would actually meet R.G. 1.139 requirements, we would expect that most would not.

In summary, plants licensed since February 1978 have been routinely reviewed to ensure the capability to achieve and maintain cold shutdown conditions under non-accident conditions using safety grade equipment (consistent with the implementation flexibility in RSB 5-1 for Class 2 plants with the special interpretation of the service environment for "safety grade" equipment described above). To fully answer the question raised by the Commission would require that information requests be issued to each licensee, and staff resources be allocated to review the material they eventually supply.

In general, we would expect that plants would have to upgrade some equipment and procedures involved in shutdown. Examples of the equipment that are most likely to be affected include (depending on specific plant design and whether local manual action is justified):

for PWRs -

PORVs & Block Valves (controls, motive operators, motive source)

Auxiliary Pressurizer Spray (redundancy, controls, motive operators, motive source)

Cold Leg Accumulator Isolation Valves (controls, motor operators)

RHR Hot Leg Suction Path (redundancy, controls, motor operators, power sources)

Atmospheric Dump Valves (controls, operators, motive source)

Auxiliary Feedwater Supply (adequate SSE source)

Letdown, Charging (redundancy, controls, operator, motive sources)

Air Supplies for any of the Above Equipment

Power Supplies to any of the Above Equipment,

for BWRs -

Air Supplies

In the longer term, Task Action Plan A-45, "Shutdown Decay Heat Removal Requirements," provides for evaluation for shutdown cooling requirements for existing and future light water reactors. The overall purpose of Task A-45 is to evaluate the adequacy of current licensing requirements to ensure that failure to remove shutdown decay heat does not pose an unacceptable risk. If the Commission were to decide to require qualification of equipment necessary for achieving cold shutdown prior to completion of A-45, then the staff would have to develop some implementation guidance to speak to more detailed questions such as how rapidly and with what reliance on operator action.

KIRKPATRICK, LOCKHART, HILL, CHRISTOPHER & PHILLIPS

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April 5, 1982

FREEDOM OF INFORMATION ACT REQUEST
FOIA-82-176
Rec'd 4-5-82

(BY HAND)

J. M. Felton, Director
Division of Rules and Records
Office of Administration
U.S. Nuclear Regulatory Commission
7735 Old Georgetown Road
Bethesda, Maryland 20814

Re: Freedom of Information Act Request

Dear Mr. Felton:

Pursuant to the Freedom of Information Act, as amended (5 U.S.C. § 522), and the rules of the Nuclear Regulatory Commission ("NRC") issued thereunder (10 C.F.R. § 9.3 et seq.), we request copies of the following written materials:

1. All documents, reports, records, studies, memoranda, data, correspondence, analyses and any other written material utilized in developing the standard definitions for safety classification terms. These terms are set forth in a memorandum from Mr. Harold Denton, Director, Office of Nuclear Reactor Regulation, dated November 20, 1981. Such written materials should include, but not be limited to, a memorandum from Mr. Thomas Murley to Mr. Denton dated October 13, 1981.

2. All documents, reports, correspondence, studies, memoranda, analyses and any other written materials prepared by or for the NRC which comment on the adequacy and consistency of the standard definitions for safety classification terms set forth in the above request. Without limiting the scope of this request, but merely to assist the NRC in its search, the written material that we are requesting may include the following items set forth in Mr. Denton's memorandum of November 20, 1981:

   a. All written materials developed as a result of a review of Regulatory Guides, Standard Review Plans and applicable portions of the regulations upon which they are based, conducted for the purpose of determining what consistency exists in the applications of safety classification terminology.

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b. All written materials developed as a result of discussions among cognizant NRR, RES (Standards Development), and ELD representatives regarding proper interpretation and application of safety classification terms, including any written materials considering or describing alternative standard definitions of such terms.

c. All written materials developed as a result of consultation with the cognizant ACRS subcommittee regarding standard definitions for safety classification terms as well as all written materials resulting from consideration of this matter by the full ACRS.

3. All documents, reports, studies, memoranda, data, correspondence, analyses and any other written material utilized in developing a proposed rule regarding the "Applicability of Appendix B to Appendix A (Part 50)." Without limiting the scope of this request, such written materials should include:

a) All written materials relating to the proposed rule prepared or received by Messrs. Francis Nolan, William Belke, Steve Richardson and Walter Haass;

b) A document or documents prepared by or for the NRC related to TMI Action Plan Item I.F.1 entitled "Quality Assurance - Expand QA List."

c) All expanded QA lists developed by the NRC for special plants such as TMI-1 restart, Zion 1 and 2, Indian Point 2 and 3.

4. All documents, reports, studies, memoranda, correspondence, analyses or other written materials regarding Unresolved Safety Issue A-47. Without limiting the scope of this request, such written material should include:

a) All written materials relating to Unresolved Safety Issue A-47 prepared or received by A. Szukiewicz, D. Basdekas, C. Rossi, J. Conran, F. Orr, J. Beard, and M. Chirmal;

b) All written materials relating to meetings held on July 20, 1981 with EG&G, Batelle Northwest and Lawrence Livermore Laboratory regarding A-47 issues;

c) All written materials relating to meetings held on July 9 and November 4 and 5, 1981 with ORNL and Sandia regarding A-47 and related research activities.

5. All documents, reports, records, studies, memoranda, data, correspondence, analyses and any other written materials prepared by or for the NRC since January 1, 1980 regarding Generic Unresolved Safety Issue A-17 and TMI Action Plan Item II. C. 3 ("Systems Interation"). Without limiting the scope of this request, such written materials should include:

a) All written materials relating to Unresolved Safety Issue A-17, or relating to the issue of systems interaction, that were prepared or received by F. Coffman, P. Norian, J. Conran, and F. Rowsome;

b) All written materials related to a San Onofre Systems Interaction Study;

c) All written materials related to a meeting conducted on April 1, 1981 with the Atomic Industrial Forum involving systems interactions issues;

d) All written material revising or updating a letter report dated June 25, 1981 summarizing the PRAB/DST approach to systems interaction. Such revisions or updates may include but should not be limited to, comments from the Atomic Industrial Forum and the NRC Staff;

e) All written materials related to technical assistance provided by Sandia on the issue of "Importance Ranking of Systems Interaction," such assistance having been authorized on June 24, 1981;

f) All written material related to technical assistance provided by Brookhaven National Laboratory, Lawrence Livermore Laboratory and Pacific Northwest Laboratory on the issue of "Systems Interaction Evaluation of Selected LWRs," such assistance having been authorized on July 20, 1981.

6. All documents, reports, records, studies, memoranda, data, correspondence, analyses and any other written materials prepared by or for the NRC since January 1, 1980 related to TMI Action Plan Item II. F. 5 ("Classification of Instrumentation, Control, and Electrical Equipment"). Without limiting the scope of this request, the written material should include:

a) All written material regarding TMI Action Plan Item II. F. 5 prepared or received by E. Weiss, C. Rossi or M. Madeiros;

b) A draft of a standard designated IEEE P-827 and all staff comments thereto.

7. All documents, reports, records, studies, memoranda, data, correspondence, analyses and any other written materials prepared by or for the NRC since January 1, 1980 related to the adequacy of the single failure criterion in the analysis of transients, accidents, and normal operation.

8. All documents, reports, records, studies, memoranda, data, correspondence, analyses and any other written materials prepared by or for the NRC since January 1, 1980 related to the conditions and circumstances under which a single failure of a passive component in a fluid system should be considered in designing a safety system against a single failure.

We expect to receive your response to this request within ten (10) working days.

We will pay search and copying fees as set out in the NRC's regulations. If the search and copying fees to be incurred are expected to exceed $200.00, please notify the undersigned before this sum is exceeded.

In the event that access is denied to any part of the requested materials, please identify and describe the withheld or deleted material in detail and specify the statutory basis for the denial, as well as your reasons for believing that an exemption applies. We also request that your description of the deleted or withheld material include the title of the material, a description of its essence, the identity of its author, and the identities of any parties that have received copies or have had access to such materials. Please separately state your reasons for not invoking your discretionary powers to release the allegedly exempt materials.

Sincerely yours,

Christopher M. McMurray