December 28, 2000

MEMORANDUM TO: Cynthia A. Carpenter, Chief
Generic Issues, Environmental, Financial
and Rulemaking Branch
Division of Regulatory Improvement Programs

FROM: Timothy A. Reed, Senior Project Manager**/Signed by S.West for**
Generic Issues, Environmental, Financial
and Rulemaking Branch
Division of Regulatory Improvement Programs

SUBJECT: SUMMARY OF DECEMBER 13, 2000 PUBLIC MEETING ON PILOT ACTIVITIES TO SUPPORT RISK-INFORMING PART 50 OPTION 2

On December 13, 2000, representatives of the NRC staff, the Nuclear Energy Institute (NEI), and other stakeholders met in Rockville, Maryland. The purpose of this meeting was primarily to discuss the status of pilot activities to support the rulemaking effort to risk-inform the special treatment requirements (RIP50 Option 2). Additional issues associated with RIP50 Option 2 were discussed as described below. A list of the meeting participants is given in the attachment.

General Pilot Activities

The status and progress of the owners group pilot activities are being driven by the South Texas exemption review status. According to the owners group representatives, the open items in the draft South Texas Project (STP) exemption safety evaluation (SE) have made it impossible to date for the owners groups to reasonably assess the potential costs and benefits associated with piloting Option 2. The owners group activities will be piloting the NEI categorization and treatment guidance. In general, the lead pilot plants for each owners group pilot effort want to pilot a full scope of applicable special treatment requirements for the selected systems. This is contingent on what the staff approves for STP and the associated exemption conditions. The pilots have not decided what is the scope of plant systems for which they will request exemptions from the special treatment requirements (i.e., just the selected piloted systems, the entire plant, or something in between). It was indicated that the issues associated with selective implementation need to be resolved before that decision can be made. It was noted that it has been a major communication challenge to disseminate the STP exemption to the rest of the industry due to the amount of information and the associated complexity.

Currently there are more than six pilot plants when tabulated on a docket basis (assuming all the owners groups activities continue to be funded). NEI will identify the specific number of pilots in a letter to the staff. The industry indicated that it is essential to have fee waivers for these pilots. The staff indicated that the initial fee waiver was for 6 dockets, but it would pursue

extending that approval to a few additional dockets in order to support pilot activities for RIP50 Option 2 after it receives NEI's letter.

It was noted that there may be potential spinoffs that could result from the pilot plant activities. An example that has been identified is an ongoing effort to develop two ASME code cases applicable to 10 CFR 50.55a (one case addressing the categorization of pressure boundary components, and the other case addressing the revised treatment). These risk-informed code cases appear to have potential application as Option 1 approaches regardless of the success of Option 2.

The status of the individual owners group activities are summarized below. The B&W owners group is not planning any option 2 pilots.

Status of WOG pilot activities

A representative for the Westinghouse Owners Group (WOG) provided a description and status of WOG pilot activities to support Option 2. In June 2000, the WOG approved an exploratory effort to scope out what it would take to pilot a couple of systems at a couple of Westinghouse plants. Surry Unit 1 (an older Westinghouse 3-loop design) and Wolf Creek (a newer Westinghouse 4-loop design) were identified as potential pilot plants to support the WOG effort. The PRAs for both of the pilot plants have been through the peer review process. To date, the principal focus of the WOG pilot effort has been to identify, up front, the potential costs (associated with a program to maintain functionality of the re-categorized components) and benefits (costs averted due to removal of the special treatment requirements) of implementing Option 2. Both pilot plants assembled multi-disciplinary teams to explore these costs and benefits. The chemical and volume control system (CVCS) and the feedwater system (FW) were selected as candidate systems to test the NEI categorization and treatment methodology for Surry. CVCS is viewed as a system that should have a significant number of components categorized as RISC-3 while FW is viewed as a system that should have components categorized as RISC-2. The containment spray system (CS) and the service water system (SW) were selected as candidate systems for Wolf Creek with CS viewed as a system that should have a significant number of components categorized as RISC-3 and SW viewed as a system that should have components categorized as RISC-2.

It was commented that implementing Option 2 will involve a substantial investment. Even the initial pilot efforts to identify the costs and benefits of changing treatment (i.e., changing data bases, drawings, specifications, procedures, etc.) on the components assuming categorization per the NEI guidance has proven to be a difficult and resource-intensive task. This is because it is difficult to separate out the "treatments" and associated costs that are imposed by each special treatment rule and because costs are not tabulated in this fashion. More importantly, given the open items in the draft South Texas SE, to date it has not been possible for the pilots to estimate the revised costs under Option 2 since the staff has neither established the relief it will grant for the key special treatment regulations such as 10 CFR 50.55a (ASME Code requirements), 10 CFR 50.49 (equipment qualification), and 10 CFR Part 100 (seismic qualification), nor the details of a program for maintaining functionality.

The WOG remains cautiously optimistic that pilot activities can move forward, but this will largely be a function of the resolution of the STP open items. The WOG estimated that it would take about 10-12 months for the WOG pilots to complete the next phase of the pilot effort

(if it is approved by the full WOG in February 2001). The next phase would be to apply the NEI categorization and treatment guideline to the two selected systems. The WOG pilots are willing to accommodate NRC interaction in this phase of the pilot activity.

Status of BWROG pilot activities

The BWROG representative indicated that many of the same issues discussed for the WOG pilot status apply also to the status of BWROG pilot activities. Quad Cities (older BWR with a smaller Q list) is the pilot for the BWROG effort. The Quad Cities PRA has been through the peer review process. The current phase of the pilot activity is coming to completion. Its objective was principally to identify the costs and benefits of piloting Option 2. The systems identified for piloting at Quad Cities are low pressure core spray (should have components categorized as RISC-3), feedwater (should have components categorized as RISC-2), and standby gas treatment (RISC-3 system). Similar to the WOG effort, the BWROG also has experienced difficulty sorting out the specific costs associated with individual treatment practices and, due to the current draft STP SER open items, the BWROG pilot was not able to identify the costs and benefits of piloting Option 2. The BWROG representative expressed some concern whether the full BWROG (in January 2001) would approve the next phase of funding for the pilot activity given that the principal objective of the current activity was not achieved (determining costs and benefits of piloting Option 2). If the next phase of funding is approved in January, the BWROG estimated that it could complete the categorization and treatment for the three systems by the third quarter of 2001 and have an exemption request to the staff by the end of 2001. The BWROG pilot is willing to support NRC interaction for the upcoming phase.

Status of CEOG Pilot Activities

The CEOG has just approved an authorization to proceed with an initial pilot activity. San Onofre and Palo Verde have been identified as the pilot plants. They are currently trying to identify systems to pilot. Each plant would pilot the NEI guidance on one system. Currently no schedule is set. The CEOG is closely watching the progress on STP and is waiting to see how the STP SE open items are resolved before undertaking a significant effort to move forward. The CEOG pilot activity could start in the first or second quarter of 2001.

Development and Review of RIP50 Option 2 Guidance

NEI indicated that they have revised the treatment and categorization guideline and that it is being reviewed by the industry task force. The revision to the guideline addresses comments that the staff has provided to date. NEI expects to submit the revised guideline to the staff by mid-January 2001. Additionally, NEI expects to respond to the request for information on the NEI peer review guideline (NEI 00-02) and provide the sub-tier criteria for PWRs at the same time. The staff and NEI discussed whether it was constructive for the staff to provide its written comments on the treatment portion of the NEI guideline at this point in time (i.e., the comments that had been provided verbally in previous meetings with NEI). Given that the guideline has been revised, and considering NEI's familiarity with the draft STP SE, it was agreed that the most efficient approach is for the staff to hold the treatment comments. If any of the comments are still relevant to the revised guideline, the staff will provide them to NEI as part of the second round of staff comments.

February Workshop on Key Issues Affecting RIP50 Option 2

Industry is receptive to the idea of a workshop in February 2001 to discuss the key issues that affect development and implementation of the Option 2 regulatory framework. The staff has reserved the TWFN auditorium for the afternoon of February 21, 2001 and all day on February 22 for the workshop. Many of the issues discussed in the next section would be discussed in the workshop. The staff indicated that it would publish a Federal Register notice announcing the workshop. NEI is to let the staff know if there are any major conflicts with the dates suggested, in which case the staff will need to find a different venue for the workshop. The industry suggested that the staff invite senior level management or even a Commissioner (perhaps for a keynote speech) to participate in the workshop.

Discussion of Some Key Issues

The staff and industry discussed several of the key issues which affect both the pilot activities and more generally the development and implementation of Option 2. A discussion of some of the key points follows.

Revised 4 box chart diagram

The industry developed its implementing guidance based on its understanding of the original 4-box diagram (i.e., visual device used to illustrate the definitions of RISC-1, RISC-2, RISC-3, RISC-4 and the supporting discussion of how SSCs are categorized into the various boxes) and expressed concern that the staff appears to have fundamentally changed the Option 2 approach when it revised the 4-box diagram (discussed in SECY-00-194). The staff indicated that the intent is simply to ensure that there is not a loss of a design basis function for any SSCs that are subject to special treatment requirements, and which are subsequently re-categorized as low safety significant (i.e, Option 2 is not changing the design basis, it is only reducing the level of assurance for assuring design basis functions that are low safety significant). Under the original 4-box definition, important to safety SSCs could be categorized as low safety significant (i.e., RISC-4) and not be subject to treatment requirements. The staff is concerned that there may be design basis functions associated with these SSCs, and if so, whether this would result in a loss of design basis functionality. It is not the intent of the revised 4-box diagram to have Option 2 licensees applying treatment to SSCs categorized as RISC-3 that do not have design basis functions. The staff indicated that this was a good issue for discussion for the workshop to sort out what, if any, “design basis” functions could slip through the cracks via the original 4-box interpretation or to potentially identify a better solution to the problem if the revised approach does not work.

Change Control/Prior Review

The industry noted that it has significant concerns associated with the staff’s change control approach as described in the STP draft SE. The staff noted that recent progress had been made for incorporating flexibility into the change control process for the STP exemption by using an approach that parallels the “reduction in effectiveness” type approaches used within 10 CFR 50.54. The staff also noted that while the STP exemption would set a precedent for the Option 2 pilot exemptions, the change control process for 50.69 could be different. The central issue is how to control changes to the categorization process such that the basis for the staff’s approval for granting the exemption is not undermined. The industry is advocating

utilizing the currently available change control mechanisms. NEI commented that a different change control approach should be developed only if it is shown that the available options do not work. NEI believes that 10 CFR 50.59 and the commitment change control process can work for this situation.

NEI indicated that although it was a noble goal to structure the Option 2 regulatory framework such that there would be no prior NRC review, they have concluded that there must be some form of prior review for Option 2. NEI is developing the industry guidance to implement a prior review type of regulatory framework for Option 2. With a prior review type of approach, NEI wants some of the prescriptive detail (including Appendix T) to be removed from the regulatory framework. The staff indicated that it is not wedded to a “no prior review approach” and is working to develop a framework that is the most effective and efficient approach for all parties to utilize.

10 CFR 50.55a

To risk-inform the special treatment requirements of 10 CFR 50.55a, the ASME and industry (including NRC which is involved on the committees developing these code cases) are developing two risk-informed code cases for the repair and replacement of ASME Code components. One code case addresses the categorization of pressure boundary components (PRAs often do not explicitly model the pressure boundary), and the other code case addresses the revised treatment (e.g., replacement with a commercial component and the associated requirements). NEI indicated that it was reviewing its revised categorization and treatment guideline against the ASME code cases for consistency. It was also noted that even if Option 2 is not successful, that these code cases could have application as Option 1 approaches.

EQ/Seismic Qualification/IEEE-279

These regulations are key areas where, from the industry’s perspective, there exists significant potential cost benefits and where open items exist in the draft STP SE. NEI indicated that its revised guideline is consistent with STP’s positions on many of the issues associated with these special treatment requirements. It was also noted that the resolution of the issues associated with these regulations is key to determining industry’s continued support for Option 2.

Categorization/Large Late Release

The industry expressed concern with what it interprets as use of a large late release criteria in the Option 2 categorization methodology (arising from the discussions on the draft STP SER). Industry indicated that issues concerning late release had been discussed during the development of RG 1.174 and it was decided, at that time, that large early release frequency (LERF) and core damage frequency (CDF) were adequate metrics for risk. The staff indicated that it was not the intent to have a metric for late release, but instead to consider the implications of late releases and the associated containment failures as part of the defense in depth cornerstone (i.e., part of the qualitative considerations of the expert panel). Industry indicated that to qualitatively consider late release would cause SSCs to tend to be considered significant due to the “bi-stable” nature of the expert panel’s qualitative judgments (i.e., when in doubt, call it safety significant) even though the risk contribution may be insignificant. The staff indicated that perhaps sound generic arguments (for not including this consideration in the

generic approach) could be made to support development of the NEI categorization guidance, with possible exceptions for certain containment types.

Part 54

The industry expressed concern regarding Part 54 and the potential for it to become a roadblock to licensees pursuing Option 2 if it is not risk-informed as part of the Option 2 effort. Industry believes that the scope of Part 54 and its aging management requirements may remove some of the benefits for Option 2 particularly for the situation where licensees pursue license renewal first, and then elect to pursue Option 2 after the license is extended. The staff agreed that it would be a good issue to discuss at the February workshop, and that it would probably be constructive, if feasible, to have a separate meeting on the topic prior to the workshop. The staff reiterated its intent for there to be a smooth transition from Option 2 to license renewal or vice versa.

Attachment: As stated

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NRC/NEI Meeting

Discussion of Initial NRC Observations Regarding NEI 00-02

October 18, 2000

Name	Affiliation	E-mail	Phone
Joe Williams	NRC/NRR/DLPM	jfw1@nrc.gov	(301)415-1470
Bill Burchill	Commonwealth Edison	william.burchill@exeloncorp.com	(630)663-2684
Doug True	ERIN	detrue@erineng.com	(925)943-7077
Biff Bradley	NEI	reb@nei.org	(202)739-8083
Adrian Heymer	NEI	aph@nei.org	(202)739-8094
Dave Bucheit	Dominion Generation	dave_bucheit@dom.com	(804)273-2264
Mike Markley	NRC/ACRS	mtm@nrc.gov	(301)415-6885
Asimios Malliakos	NRC/RES	dcm2@nrc.gov	(301)415-6458
Deann Raleigh	LIS	draleigh@nus.com	(301)251-2558
Steve West	NRC/NRR/DRIP	ksw@nrc.gov	(301)415-1220
Stu Magruder	NRC/NRR/DRIP	slm1@nrc.gov	(301)414-3139
Roger Huston	LIS	Roger@licensingsupport.com	(703)671-9738
Tim Reed	NRC/NRR/DRIP	tar@nrc.gov	(301)415-1462
Eileen McKenna	NRC/NRR/DRIP	emm@nrc.gov	(301)415-2189
Mike Cheok	NRC/NRR/DSSA	mcc2@nrc.gov	(301)415-8380
Altheia Wyche	Bechtel SERCH Licensing	awyche@bechtel.com	(301)228-6401
Parviz Moieni	SCE	moienip@songs.sce.com	(949)368-9349
Stanley Levinson	FTI	slevinson@framatech.com	(804)832-2768
Tony Pietrangelo	NEI	arp@nei.org	(202)739-8081
Barry Sloane	Westinghouse	sloanebd@westinghouse.com	(412)374-4047
Glen Schinzel	STPNOC	geschinzel@stpegs.com	(361)972-7854
Thomas Bergman	NRC/EDO	tab@nrc.gov	(301)415-1725

Attachment 1

Michael Knapik	McGraw-Hill	mknap@mh.com	(201)383-2167
David Finnicum	Westinghouse	david.finnicum@us.westinghouse.com	(860)285-3926
Goutam Bagchi	NRC/DE	grb1@nrc.gov	(301)415-3298
John Gaertner	EPRI	jgaertner@epri.com	(704)547-6169
Sean Peters	NRC	sep@nrc.gov	(610)337-5112
Mohammed Shuaibi	NRC/NRR	mas4@nrc.gov	(301)415-2859
Duncan Brewer	Duke Power	hdbrewer@duke-energy.com	(704)382-7409
Joe Golla	NRC/NRR/DRIP	jag2@nrc.gov	(301)415-1002
Ken Balkey	Westinghouse	balkeykr@westinghouse.com	(412)374-4633