August 29, 2003

MEMORANDUM TO: Thomas H. Boyce, Section Chief
Technical Specification Section
Reactor Operations Branch
Division of Inspection Program Management, NRR

FROM: Kerri Kavanagh, Senior Reactor Engineer ***/RA/***
Technical Specifications Section
Reactor Operations Branch
Division of Inspection Program Management, NRR

SUBJECT: SUMMARY OF WORKSHOP ON GENERIC LETTER (GL) 91-18, GUIDANCE ON OPERABILITY, DEGRADED AND NONCONFORMANCE ISSUES

On August 14, 2003, the Technical Specification Section staff sponsored a workshop on a forthcoming revision to Generic Letter (GL) 91-18. The purpose of the workshop was to gather information from inspectors, licensees, the public, and other stakeholders on areas in the existing guidance that can be clarified. A copy of the agenda (Attachment 1) and a list of participants (Attachment 2) is attached. The staff also requested comments on a set of topic questions issued with the meeting announcement. Responses received prior to the workshop are included in Attachment 3. These comments will be considered in the revision to GL 91-18.

Generic Letter 91-18 was issued on November 7, 1991 and provided licensees with two NRC inspection manual sections on resolution of degraded and nonconforming conditions and on operability. On October 8, 1997, Revision 1 of GL 91-18 was issued to update the discussion of the role of the 10 CFR 50.59 evaluation process in the resolution of degraded and nonconforming conditions.

The current effort to revise GL 91-18 is an attempt to clarify and update the generic letter versus major revision. The staff opened the meeting by presenting possible changes and issues for discussion. The possible changes include:

1. combining the two inspection manual sections into one document;

2. incorporating other existing inspection manual technical guidance where appropriate;

3. adding discussion of the revised 50.59, the maintenance rule, approved risk-informed technical specifications, and other appropriate regulatory changes.

Morning and afternoon breakout sessions were held for participants to discuss their views, experience, and concerns on the following topics:

1. Definition of operable but degraded
2. Support system operability (Technical Specification (TS) and non-TS equipment)
3. Operational leakage
4. Component reliability and its relationship to operability
5. Other topics determined by the participants.

Attachment 4 presents the key points from each breakout session which will be considered by the staff in the revision to GL 91-18. The staff anticipates that a draft revision of GL 91-18 will be issued for public comment by mid January 2004.

Attachments: As stated

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Operability Workshop

U.S. Nuclear Regulatory Commission
Two White Flint North Building
Auditorium
11545 Rockville Pike
Rockville, Maryland 20852

August 14, 2003

Objective
To discuss and receive preliminary input on the guidance for operability, degraded, and nonconformance issues (GL 91-18).

Background
Over the next few months USNRC will be revising existing guidance to give inspectors direction when reviewing licensee activities directed at either resolving degraded and nonconforming conditions or determining operability in conformance with their technical specifications, and other licensing basis requirements. This guidance will discuss timing, scope, documentation and other aspects of operability determinations whether prepared in support of maintenance activities or as part of licensee actions in response to identification of degraded and nonconforming conditions that might affect operability.

Typically USNRC seeks review and comment of draft guidance after initial formulation. In this case, USNRC wants early participation from a range of contributors on issues, concerns, and suggestions based on operational and other experience before the draft revised guidance is prepared. This workshop will not be the only opportunity to review and comment. Before finalization of the guidance, USNRC will have a period for formal review and comment.

Participants
USNRC headquarters and regional staff, licensees, and other interested or affected persons. The workshop is open to the public. All participants are encouraged to ask questions and contribute by providing comments.

Meeting Process
Andrew Walker will serve as the primary facilitator for the workshop. His role is to ensure the objective of the workshop is met by keeping participants and discussion focused on the agenda and the schedule. The workshop agenda has been designed to be informative and interactive where possible.

The focus of the morning plenary session is to provide all participants with the information needed for productive breakout sessions. Following a welcome and opening remarks by Bruce Boger, Director of the Division of Inspection Program Management, and an overview of the day by the facilitator, a Q&A session where participants will be able to ask clarifying questions of an expert panel knowledgeable about relevant aspects of the proposed guidance. This opening session will serve as a foundation for the remainder of the workshop.

During the plenary session participants will be able to select breakout sessions they are most interested in attending. This is the heart of the workshop where participants will be able to comment and recommend input to the proposed guidance. Based on comments already received, some breakout session topical areas have been pre-selected. However, in the afternoon there will be a separate breakout for other topics that have not been covered in the pre-selected breakouts. At the beginning of the workshop the facilitator will explain the process and operational logistics of the breakout sessions. Every effort will be made for participants to have maximum opportunity to contribute.

Agenda

8:00 – 8:30 Register – Participants sign-in and collect name badges and notebooks.

Plenary Session

8:30 – 8:45 Remarks — Bruce Boger, Director, Division of Inspection Program Management

8:45 – 9:00 Introduction — Andrew Walker, facilitator

9:00 – 10:30 Question and answer session — USNRC expert panel

- Terence Chan, Section Chief, Materials and Chemical Engineering Branch, Office of Nuclear Reactor Regulation
- Kerri Kavanagh, Senior Reactor Engineer, Office of Nuclear Reactor Regulation
- Jim Luehman, Deputy Director, Office of Enforcement
- Eileen McKenna, Senior Reactor Engineer, Office of Nuclear Reactor Regulation
- Wayne Scott, Senior Operations Engineer, Office of Nuclear Reactor Regulation

10:30 – 10:45 Break

Morning Breakout Sessions

10:45 – 12:15
- Topic 1 — Definition of operable but degraded
- Topic 2 — Support system operability (TS and non-TS equipment)
- Topic 3 — Operational Leakage
- Topic 4 — Component reliability and its relationship to operability

12:15 – 1:15 Lunch

Afternoon Breakout Sessions

1:15 – 2:45	Topic 1	Definition of operable but degraded
	Topic 2	Support system operability (TS and non-TS equipment)
	Topic 3	Operational Leakage
	Topic 5	Other topics determined by participants
2:45 – 3:00	Break	

Closeout Plenary Session

3:00 – 3:45	Summary reports from breakout sessions	Facilitators
3:45 – 4:00	Closing remarks	Dr. William Beckner, Chief, Reactor Operations Branch
4:00	Adjourn	

Operability Workshop Attendance
(Final registration)
August 14, 2003 TWFN Auditorium

Name	**Organization**
Steve Alexander	NRR/IEPB
James Andrachek	Westinghouse Electric Co
Curt Angstadt	Perry NPP
Matt Antony	Monticello
Myron Baird	Energy Northwest - Columbia
Scott Barber	Region I
Bill Beckner	NRR/IROB
Coy Blair	NPPD - Cooper
Bruce Boger	NRR/DIPM
Tom Boyce	NRR/IROB
Biff Bradley	NEI
Don Brindle	Exelon Corporation
Bruce Burgess	Region III
Barry Burmeister	Entergy (South)
Steve Burton	Region III
Dennis Buschbaum	Comanche Peak
Tom Byrne	OPPD - Fort Calhoun
Patricia Campbell	Winston & Strawn
Christopher Carey	TVA - Sequoyah
Mark Caruso	NRR/SPSB
Nancy Chapman	Bechtel SERCH
Angela Chu	NRR/IROB
Jim Crossman	Dominion - North Anna
Charles Dougherty	Pacific Gas & Electric - Diablo Canyon
Andrew Eckhart	Southern California Edison - SONGS
William Etheridge	D C Cook

Attachment 2

Name	Organization
John Fair	NRR/DE
Rich Faix	FPL Energy - Seabrook
Chuck Feist	Comanche Peak
Mark Flaherty	Rochester Gas & Electric - Ginna
Carey Fleming	Winston & Strawn
Rudy Forgensi	Rochester Gas & Electric - Ginna
Scott Freeman	Region II
John Galembush	Westinghouse Electric Co.
Bob Giardina	NRR/IROB
Kevin Greaves	FP&L - Turkey Point NPP
Kim Green	ISL
Glenn Griffin	Entergy
Larry Grime	AcroServices
Tom Grozan	Pacific Gas & Electric - Diablo Canyon
Paul Gunter	NIRS
Craig Harbuck	NRR/IROB
Paul Harden	Nuclear Management Co. - Palisades
Tom Hardy	Rochester Gas & Electric - Ginna
John Hayes	NRR/SPSB
Pete Hearn	NRR/IROB
Sam Hernandez	NRR/IROB
Leslie Hill	NRR/IROB
Donald Hoffman	TSTF/RITSTF
Phil Holzman	STAR, Inc
Bill Horin	Winston & Strawn
Lois James	NRR/IIPB
Bill Jones	Region IV
Kerri Kavanagh	NRR/IROB

Name	Organization
Gregory Kent	Duke Energy
James Kilpatrick	Calvert Cliffs NPP
Jon Kirkwood	Calvert Cliffs NPP
Mike Krupa	Entergy
Tommy Le	NRR/IROB
Peter LeBlond	LeBlond and Associates
Stanley Levinson	Framatome ANP
David Lochbaum	Union of Concerned Scientists
Ray Lorson	Region I
James Luehman	OE
Dennis Lundy	TVA - Sequoyah
Bruce MacKissock	Monticello
Stewart Magruder	NRR/IROB
Fred Mashburn	Tennessee Valley Authority
Michael Matheson	Cooper Nuclear Station
Eileen McKenna	NRR/RPRP
John Meyers	Cooper Nuclear Station
Tom Milton	Southern Nuclear Company
Jim Morris	South Texas Project
Randy Musser	Region II
Douglas Neve	Monticello
Larry Nicholson	Duke Energy - Oconee
Mike O'Keefe	Seabrook Station
Alan Okorn	Perry NPP
James Owens	Grand Gulf
Randy Patrick	Davis Besse
Kenneth Petersen	Wolf Creek NPP
Leila Peterson	WPI

Name	Organization
Tony Pietrangelo	NEI
Rick Plasse	Entergy Northeast - FitzPatrick
Deann Raleigh	Scientech
Bill Reckley	NRR/DLPM
Jim Riccio	Greenpeace
Drew Richards	South Texas Project
Don Rickard	AmerenUE - Callaway
Jim Riley	NEI
Vincent Rubano	FP&L - St. Lucie NPP
Ken Russell	Perry NPP
Gabe Salamon	PSEG Nuclear
Pedro Salas	TVA - Sequoyah
Gerhard Samide	Westinghouse Electric Company
Richard Scheide	Entergy (South)
Mike Schoppman	NEI
Carl Schulten	NRR/IROB
Wayne Scott	NRR/IEPB
Patrick Simpson	Exelon Corporation
Balwant Singal	Bechtel Power Corp
Rob Sisk	Westinghouse Electric Co.
Glenn Stewart	Exelon Corporation
Jack Stringfellow	Southern Nuclear Company
Martin Stutzke	NRR/SPSB
Getachew Tesfaye	Constellation Energy
Brian Thomas	PSEG Nuclear
Steve Tipps	Southern Nuclear - Hatch
Bob Tjader	NRR/IROB
Mike Tschiltz	NRR/SPSB

Name	Organization
Edward Turko	Dominion - Surry
Donald Vogt	Palo Verde NPP
Andrew Walker	WPI
Harold Walker	NRR/SPSB
Butch Wardlaw	WPI
Edward Weinkam	Nuclear Management Co
Blake Welling	Region I
Phil Wengloski	Constellation Energy Generation Grp
Len Wert	Region II
James Wicks	Nuclear Management Co. - Palisades
Evelyn Wight	WPI
Ron Williams	Entergy (South)
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George Wrobel	Rochester Gas and Electric
John Yadusky	Progress Energy
B. Doug McKinney	Southern Nuclear Company
Thomas C. Poindexter	Winston & Strawn
Jim D. Smith	TVA - Sequoyah
Charles (Jeff) Thomas	Duke Energy - McGuire
O. C. Vidal	SNC
Steve La Vie	NRR/SPSB

Comments Received on Topic Questions for Operability Workshop

1. Can a degraded SSC ever be determined operable? If so, what are the requirements for an operable but degraded determination? What is the distinction between operable but degraded and inoperable?

A. *Fundamentally, the answer to this question has to be "yes". The realm of degraded but operable is where the Corrective Action Process operates. As a practical licensing matter, the current TS definition of Operable states "Capable of performing its specified functions,…" An interpretation that resulted in an alternative meaning of "Any loss of Full Qualification" would not be consistent with the current TS.*

The existing guidance contained in Sections 5.2 and 5.3 of Generic Letter 91-18 (11/91) provide a good discussion of the distinction between:

Installed capability/final design
Full Qualification
Required/specified function

This discussion could be reformatted and made clearer. However, the answer to Topic Question #1 already exists in Sections 5.2 and 5.3.

More clarity could be provided to the critical concept of "Reasonable Expectation of Operability". (See Question #2 below.)

B. *Yes. Components/systems must be capable of automatically performing their safety function. If engineering judgment is used as the basis for operability, more frequent testing of the affected component(s) may be necessary to provide needed level of confidence that further degradation is not occurring. Likewise, increased monitoring of critical parameters may be necessary in order to identify further degradation where testing may not be feasible. The "degraded but operable" determination should include enough information to determine at what point the operability determination should be revised.*

If a component/system is incapable of performing its safety function automatically in its current degraded state, it is inoperable.

C. *Yes. GL 91-18 provides guidance on the requirements for determining degraded but operable. In simple terms, if the SSC can perform it's safety function in the degraded state, it should be determined to be operable, but degraded. If it can't perform the safety function, it is inoperable. For example, an EDG could have a non-Q part installed that has been evaluated as capable of supporting operation for the entire mission period following an accident. Often a loss of seismic qualification is evaluated with the installed component being evaluated as capable of supporting SSC operation during and following a seismic event. Loss of electrical separation is another example. Small leaks are common on operable SSCs. SSC must be evaluated as capable of performing its design function during an accident with reasonable assurance. If it is not reasonable then the SSC is inoperable.*

D. NUGEQ: Yes. Existing Operable/Operability guidance in the NRC inspection manual is relatively clear and provides reasonable guidance regarding the distinction between operable but degraded and inoperable, including consideration of specific equipment or system values specified in TS action statements. With some caveats (discussed in the inspection manual but not here), the operability standard is reasonable assurance that the component or system is capable of performing "specified functions" (i.e., safety functions as specified in the current licensing basis).

Additional clarification may be needed in selective areas and should be provided in the revised guidance. The "judgment" and "necessary support systems" guidance currently contained in 6.12 Support System Operability is one example. The judgment discussion in Section 6.12 could be more broadly applied, particularly when plant or equipment operating conditions or configurations during a specified interval are less restrictive than those assumed when the TS system or support system design bases were established. For example, actual plant loads and ultimate heat sink temperatures during some specified interval rather than design basis assumptions may be used when evaluating the operability of a cooling water system.

E. *Yes, guidance for declaring a degraded SSC operable is a major Generic Letter 91-18 function. For example, the generic letter states a degraded SSC has some loss of quality or functional capability. The 'Operable/Operability,' Section 5.2, 'Full Qualification' provides guidance on the degraded threshold: "The loss of conservatism not taken credit for in safety analyses and not committed to by the licensee to satisfy licensing requirements does not require a system to be declared inoperable. All other losses of quality or margins are subject to an operability determination and corrective action."*

It may be beneficial to clarify that the Generic Letter 91-18 degradation threshold is the loss of conservatism credited in the safety analyses or committed to in the licensing basis. Note that the existing reliability guidance discussed below should also be an example of degradation situations that should trigger an operability determination.

2. Where is guidance inconsistent with regard to definitions of operability; including supporting terms such as functional, available, reliable, or degraded?

A. *Once the discussion in sections 5.2 and 5.3 of Generic Letter 91-18 is well understood. There is little or no confusion regarding the meaning if these terms. The distinction between "Unavailable for monitoring" and the treatment of an OOS SSC in a 10 CFR 50.65 a(4) assessment is already discussed in Regulatory Guide 1.182. (Section 11.3.2.7 of Numarc 93-01) This discussion could be repeated in a revised GL 91-18. However, the term "Reasonable Expectation of Operability" is used throughout GL 91-18. This concept focuses on how certain one is of an SSC's continued ability to deliver the Specified Functions during design accident conditions. Additional guidance could be provided, along with examples of when a REOO exists and when it would not. The issue of the treatment of degradations in reliability are currently captured with this concept. That is, a licensee may be declaring an SSC Operable using a non-conservative understanding of REOO, thus allowing interim operation with a severely degraded SSC.*

B. *Guidance clearly allows the use of operating experience and engineering judgment to provide the needed reasonable assurance of operability. NRC inspectors and management are apparently expecting absolute assurance of operability of the component/system based on reactions to operability determinations that provide the technical information and basis for the reasonable assurance. The guidance given and implementation of the guidance are inconsistent with each other.*

"Functional" and "available" provided needed information to assess safety impact of the degraded condition, but cannot be relied upon as a basis for operability in and of themselves. "Reliable" and "Degraded" are normally supporting terms used in operability determinations.

C. *There is confusion for some TS equipment when some surveillance requirements can not be satisfied. For example, is RHR inoperable when the TS high point "not full" alarm is inoperable. The system is also verified to be full via manually venting one per month. In addition, there needs to be better guidance with respect to code Class 1,2,3 component pressure boundary leakage, specifically with respect to heat exchanger tube leaks. Typically there is no structural consequence of small tube leaks or tube to tube sheet leaks. The way 91-18 is currently written, these components must be declared inoperable, and there is no means to perform an op eval to say they are operable. For pipe leaks, there is guidance. For heat exchangers, we should just need to be able to show that the system can perform it's safety function with the leak, and a qualitative assessment of structural integrity should be adequate.*

D. *NUGEQ: Section 6.10, <u>Environmental Qualification</u>, establishes an unnecessary distinction between 10 CFR 50.49 (EQ) equipment and other SSCs. This 'EQ specific' operability guidance should be deleted to assure consistency with the 91-18 operability guidance applicable to all other SSCs. The NRC guidance regarding operability and degraded & nonconforming conditions should make clear that the enforcement, operability, and JCO guidance in Generic Letter 88-07, "Environmental Qualification of Electrical Equipment" and its enclosure "Modified Enforcement Policy For EQ Requirements" no longer applies. The guidance in these documents applied to violations of 10 CFR 50.49 which related to the November 30, 1985 deadline and clearly does not apply to any violations occurring after 1988. As stated in the modified policy document:*

"This enforcement policy applies to violations of the EQ rule identified after November 30, 1985 which relate back to action or lack of action before the deadline. Violations which occurred after November 30, 1985 (either as a result of plant modifications or because the plant was licensed after November 30, 1985) will be considered for enforcement action under the normal Enforcement Policy of 10 CFR Part 2, Appendix C. <u>In addition, EQ violations which are identified after the NRC's last first-round inspection, in approximately mid-1988, will also be considered under the normal Enforcement Policy</u> (emphasis added)."

E. *Various guidance documents use different but similar or related terms. Some examples are:*

Specified safety function (Generic Letter 91-18)
Safety function (Generic Letter 91-18)
Specified function (Generic Letter 91-18)
Key safety function NUMARC 93-01, Section 11
Shutdown key safety functions NUMARC 91-06, Section 4
Design bases function NEI 96-07, Rev. 1
UFSAR-described design function – NEI 96-07, Rev. 1

The list can be reduced by two terms with a clear statement that specified safety function, specified function and safety function are all the same. Operability determinations should focus on safety functions that are specified in the licensing basis as implied by the existing specified function(s) definition.

3. If you remove a hazard barrier that is considered a support system but is not in tech specs, what analysis is needed to maintain the supported system operable?

A. *This question is somewhat confusing, as RIS 2001-09 stated that the supported component should be declared Inoperable. If what is intended by this question is a query regarding the need for clarification of the terms "Required" and "Necessary", then I would say "yes". However, the discussion currently contained in Section 6.11 of GL 91-18 is reasonably clear. That is, currently, the only way to remove a hazard barrier from service and maintain the Supported SSC Operable is to demonstrate that the functions performed by the hazard barrier are not "Required", not "Necessary", or neither "Required" nor "Necessary".*

The existing standard of the performance of a Specified Function is that a "Reasonable Expectation of Operability" exists, which is in need of clarification. (See Question #2 above.) However, the existing standard for the performance of a "Support Function" is simply "capable of performing…". Little or no additional guidance has been provided. Therefore clarity could be provided on the meaning of this phrase. (Contained in STS definition of Operable.)

B. *If the support system is required to consider the supported system operable. The ability of the support system to perform its safety function must be addressed in similar fashion.*

C. *If you remove a hazard barrier that is a support system, you need to do one of the following:*

Place the plant in a mode/condition such that the barrier would not be challenged.

Provide an appropriate compensatory action to ensure the design basis of the supported equipment would continue to be met (either at all times, or such that the barrier can be restored prior to being challenged).

D. *NUGEQ: Guidance on the control of hazard barriers, including operability analysis considerations, is provided by Regulatory Issue Summary 2001-09, "Control of Hazard Barriers". The NUGEQ agrees with the guidance provided in the RIS as clarified and amplified in a series of questions and answers submitted by the NUGEQ to the NRC (see May 16, 2003, NUGEQ letter from William Horin to William D. Beckner). In the*

responding June 23, 2003, letter the NRC concluded that the questions and answers appeared to be consistent with the RIS intentions. The NUGEQ recommends that the RIS guidance and NUGEQ clarifications be included in the revised operability guidance.

The RIS states that the planned removal of hazard barriers is permitted for maintenance, design change implementation, or as part of compensatory measures in response to a discovered degraded or nonconforming condition. Licensees must continue to comply with the plant technical specifications, particularly the operability provisions applicable to the protected equipment. The RIS indicates that the operability guidance in Inspection Manual Part 9900 – "Operable/Operability: Ensuring the Functional Capability of a System or Component" can be used to evaluate the operability of such protected equipment. Further, the operability criteria are the same for planned (e.g., in support of maintenance) barrier removal and discovered barrier degradation & nonconforming conditions.

The type of "supported system" operability analysis that would be needed will be hazard barrier dependent. Examples of hazards and the related considerations that might be part of the analysis include:

Fire - fire watch

Internal Missile - equivalent missile protection

MELB – flooding

HELB - flooding, pipe whip, jet impingement and steam/pressure conditions on structures/equipment

Hurricane - external missile protection, flooding, or event is not credible based on time of year

Accident Radiation - effect of increased dose to equipment/personnel

4. Are there ever situations where the reliability of a SSC should impact the determination of operability? Explain.

A. *Presuming clarification has been provided on "Reasonable Expectation of Operability" (See comments above.), then I would say "No". Operability currently allows interim operation with a degraded component, provided its "Specified Functions" can still be performed (REOO). This provides the flexibility for the Corrective Action program to restore Full Qualification "promptly, in accordance with Criterion XVI. In other words, typically SSCs are designed and constructed more robustly than truly required. Therefore, SSC degradations that result in a loss of Full Qualification, but remain capable of performing their "Specified Functions" should be judged "Operable". Again, the existing discussion of Sections 5.2 and 5.3 is crucial, in my opinion, to this understanding.*

B. *Yes. When engineering judgment is relied upon for operability, a basis for reliability should be included in the operability determination. This may result in additional compensatory measures involving monitoring and/or testing.*

C. *Possibly. Currently, GL 91-18 does not allow the use of Probabilistic Risk Assessment (PRA). However, if the postulated failure of a degraded SSC could be shown to have a minimal impact on Core Damage Frequency, then it should be concluded that the SSC*

is still operable. "Minimal" would need to be defined, possibly similarly to that used in NEI 96-07, Rev. 1, or, since the degraded condition is typically relatively short-term (<18 months), a higher level of "minimum" could be developed. The SSC should be capable (with reasonable assurance) of performing function for the credited mission time.

D. *NUGEQ: We do not believe that quantitative reliability considerations should be part of an operability determination. Qualitative reliability considerations are presently integral to a determination that there is 'reasonable assurance' that the component or system is capable of performing the "specified function(s)". NUGEQ recommends that the Section 3.3 discussion of 'Specified Function(s)' be revised to reflect the above comment.*

E. *Yes, SSC reliability is a very important consideration in operability determination. SSCs may have reduced capability that remains at the current time above the credited value, but if that reduced capability indicates an expectation that needed safety functions are at significantly increased risk that they will not be accomplished, the SSC should be considered inoperable.*

A reliability reduction that calls into question the ability of a SSC to perform its safety function should trigger an operability determination per 'Operable/Operability' Section 4.0, Background.

Although reliability reductions should not require quantification, the 10 CFR 50.59 criteria related to accident frequency and malfunction likelihood can serve to indicate reliability reductions that require comprehensive analysis and may require compensatory actions. Personnel using engineering judgment can often be confident a reduction in reliability is less than the 10 CFR 50.59 permitted increases without quantification.

5. Please describe any cases where you have had questions about operational leakage? What were the conditions? What guidance did you use for making these determinations? What was the outcome? (Examples (a) Tech specs require zero pressure boundary leakage but also allow certain amounts of identified and unidentified leakage; (b) ASME code requirements (GL 90-05) regarding Class 1, 2, and 3 piping; and (c) steam generator leakage.)

A. *Only suggestion would be to combine and clarify the existing guidance of Sections 6.14, 6.15, and Generic Letter 90-05.*

C. *a) We had a situation of a leak in a vent connection on the portion of the safety injection system suction line that is common to both SI pumps. The line is Class 2. In accordance with GL 91-18, Enclosure 2, Section 6.15, Operational Leakage, both trains of SI were declared inoperable and a plant shutdown was begun. (The leak was repaired before the shutdown was completed.)*

b) We had a situation where there was a pinhole leak in a Class 3, moderate energy fire protection line. The guidance of GL 91-18, Enclosure 3, Section 6.15, Operational Leakage, last paragraph, was determined to be out of date with respect to Class 3 moderate energy piping. The GL states that GL 90-05 can be used to show the piping is operable until relief is obtained from the NRC. However, ASME Code Case N513 has been approved for use by incorporation into 10 CFR 50.55(a) and provides actions to

take to show operability and monitor the leak until it can be repaired. NRC "approval" is not required. Therefore, Code Case N513 was used in lieu of GL 90-05. (Note: Use of GL 90-05 is also referenced in Section 6.14, Flaw Evaluation.)

c) An additional concern: Installing a rubber patch over the hole to preclude having to deal with the leakage of the water onto the floor or other equipment (housekeeping concern) has been viewed by the NRC as a non-approved "repair" and therefore not allowed. Licensees should be allowed to temporarily patch (not repair) the leak for housekeeping purposes if desired.

d) See response to question 2. Acceptable limits for steam generator leakage is the only example of allowable HX tube leaks. This should be expanded to all HX's.

e) SRV main seat and pilot valve leakage has been evaluated as being acceptable with an op eval.

Additional Comments:

1. Clarify with examples the existing concept of "Reasonable Expectation of Operability". I believe this would be very beneficial and would also resolve the questions regarding reliability while merely clarifying existing guidance, not generating new guidance.

2. Clarify the standard for Support Functions/SSCs and when they are "capable of performing…".

3. The discussion regarding the presumption of the occurrence of Design Basis Accidents or events could be expanded. That is, for a SSC to be Operable, it must be "Capable of performing its specified functions,…" (Operable definition). Generic Letter 91-18 clarifies this simple requirement to include the caveat that the functions must be performed when required (i.e. the DBA). However, this caveat is not currently well articulated in GL 91-18. It is indirectly stated in sections 3.3 ("perform as designed..") and indirectly stated in Sections 6.2 and 6.3. The most direct statement regarding this presumption is in Section 6.9 regarding use of PRAs. ("The inherent assumption is that the occurrence conditions or event exists and that the safety function can be performed.") The simple statement of Section 6.9 should be made a more central part of the guidance.

4. Upon discovery of leakage from a Class 1, 2, or 3 component pressure boundary (i.e., pipe wall, valve body, pump casing, etc.) the licensee should declare the component inoperable. The only exception is for Class 3 moderate energy piping as discussed in Generic Letter 90-05. For Class 3 moderate energy piping, the licensee may treat the system containing the through-wall flaw(s), evaluated and found to meet the acceptance criteria in Generic Letter 90-05, as operable until relief is obtained from the NRC.

   The question relates to the sentence "The only exception is for Class 3 moderate energy piping as discussed in Generic Letter 90-05." Is the exception that a licensee does not have to declare the component inoperable (referencing the first sentence stated above) or is the exception stated in the subsequent sentence in that the component may be evaluated and found to be OPERABLE (or operable) but degraded (with the request for relief following the determination of OPERABILITY/operability)?

Additionally, we want to make sure that it is the component, not the system, that needs to be declared inoperable, thus permitting us to evaluate whether the operational leakage affects the OPERABILITY of the system in which the component is found. Or does this mean that operational leakage automatically drives you to declare the system inoperable regardless of what component in the system has the operational leakage (e.g., a branch line that does not impact the system's ability to accomplish its intended safety function?

5. When determining if a degraded condition could result in a increase in off-site doses, is it acceptable to use information from RG 1.183 (Alternative Radiological Source Terms For Evaluating Design Basis Accidents At Nuclear Power Reactors) to demonstrate that doses do not exceed regulatory limits, even if the plant has not received a licence amendment to use alternate source term under 10 CFR 50.67?

6. Is a design related parameter restriction associated with a completed Operability Determination (for example, a reduction in the maximum allowed cooling water temperature to safety related heat exchangers) considered a "Compensatory Measure" (CM) and thus require performance of a 10 CFR 50.59? There are strongly held opinions/viewpoints on both sides of the fence at our station. One perspective is that a parameter restriction is within the existing design envelope and also is <u>not</u> an "action" to be taken; therefore, it is not a CM. The other perspective is that such a restriction is still a "change" from the viewpoint of 10 CFR 50.59 rules and thus a 50.59 is needed and it is a CM.

   Additional clarification on specifics/examples of what constitutes a Compensatory Measure would be very beneficial for the industry.

7. **Background**: A system is out of service for planned maintenance and an unanticipated nonconforming condition is found on a component within the system. The "fix" from Engineering is to REWORK the nonconforming component; thus no 10 CFR 50.59 is required. Operations, for sound personnel safety reasons, wants to return the system to service/operable status "as-is" and to REWORK the nonconforming condition during a later outage when plant conditions are more conducive to safe worker conditions. Operations requests an evaluation to use the component/system for an interim time period "as-is".

   Question: Since the component/system is out-of-service at the time this request is made by Operations, is an Operability Determination the "proper" process to use since the SSC is already out-of-service/inoperable? If the OD process is not used, what process is used? How do other utilities handle this type of situation from a process perspective?

8. Are there any specific standards/expectations related to "acceptable" use of engineering judgment when performing Operability Determinations? Additional clarification within GL 91-18 would be helpful in this regard. Do any plants have any standards in this area?

9. "Should the operability guidance be limited to "discovered" degraded or nonconforming conditions or can it also be applied to other situations (e.g., reductions in functional capability in support of maintenance)?"

   The NUGEQ believes that the operability guidance can and should be applied to situations other than "discovered" conditions, particularly reductions in functional

capability than may occur in support of maintenance. Such an approach is consistent with existing regulatory guidance, including Regulatory Issue Summary 2001-09, “Control of Hazard Barriers” which indicates that the operability guidance contained in Inspection Manual Part 9900 – “Operable/Operability” can be applied to planned barrier removal in support of maintenance. Further, the RIS 2001-09 guidance is consistent with 10 CFR 50.65(a)(4), RG 1.182, Section 11 of NUMARC 93-01, 10 CFR 50.59, RG 1.187, NEI 96-07, Revision 1, Generic Letter (GL) 91-18, and GL 91-18, Revision 1.

The general rules/actions that would apply for reductions in functional capability in support of maintenance are:

(1) Licensees must continue to comply with the plant technical specifications, particularly the operability provisions.

(2) The risk associated with the maintenance activity must be controlled and managed in accordance with 10 CFR 50.65(a)(4).

(3) The reduction in functional capability must be evaluated per 10 CFR 50.59 if it is expected to be in effect for more than 90 days during power operations.

An EQ-related example is as follows:

A Licensee is pursuing removing the Tech. Spec ‘link’ between the ECCS Pumps and the ECCS Pump room coolers (i.e., a support system), during maintenance on an ECCS pump room cooler. The Licensee has previously concluded that once the ECCS Pump room coolers are taken out of Service (OOS) for maintenance, the ECCS pumps (i.e., Containment Spray, LPSI and HPSI) are declared ‘inoperable’. This is because the ECCS Pump room post–accident temperature will be significantly higher (projected to be 150°F), without the coolers than the design /qualified temperature (130F) of the pumps/motors with the coolers, if an accident were to occur. The motors are presently 50.49 qualified to 130°F.

Utilizing ‘operability’ criteria, an ECCS pump room cooler can be taken out of service for maintenance without declaring the affected ECCS pump inoperable. An ‘operability’ evaluation is performed for the ECCS motor and other required components in the room (pumps, switches, relays, electronics, etc,) and determines that the required equipment is ‘operable’ at the 150F post–accident temperature.

10. "Does the NRC's inspection program explicitly include review of how licensees implement the guidance of Generic Letter 91-18? (Does the NRC formally review licensee justification for continuing operations using Generic Letter 91-18?)"

11. "Some of the performance indicators in the Reactor Oversight Process are affected by Generic Letter 91-18. For example, if two licensees are each faced with the exact same condition and one licensee opts to immediately shut down the reactor to correct the degradation and the second licensee pencils it away via Generic Letter 91-18, the first reactor will appear "worse" in PI space even though it is the safer plant. How does the NRC plan to fix its ROP to prevent it from reporting the exact opposite of the true risk/performance status of reactors?

12. Using GL 91-18 for planned activities.

13. Including additional guidance or examples for substituting manual for automatic.

14. Revising the current Generic Letter 91-18 issue specific sections such as pipe support requirements, EQ and ASME to make it clear that a licensee could commit to using Generic Letter 91-18 without also committing to all the documents discussed in the generic letter.

15. Scope of SSCs Subjected to Operability Determinations – An Operator's Perspective

From a plant operator's perspective, GL 91-18 is confusing in that it applies the term "operable" to structures, systems, and components (SSC) that do not have operability. It accomplishes this by taking a term specific to the plant's Technical Specifications and applying it to the full spectrum of SSCs in the plant design basis that are subject to evaluation of degraded and non-conforming conditions. In doing so, SSCs with no Technical Specification operability requirements are judged by operators for operability.

As an example, the non-safety service water pumps are typically included in a plant's design basis/USAR and, as such, are within the "scope" of SSCs defined by GL 91-18 (NRC Inspection Manual Part 9900, Enclosure 1 and 2, Section 1.0, sub-section viii) for degraded and non-conforming conditions. Should one of these pumps degrade under the current GL 91-18 requirements and scope, that degradation would be evaluated to assess the pump's "operability". In that these pumps are not included in the plant's Technical Specifications, they in fact have no operability requirements. Upon being notified of the degraded condition of the pump, operators are required to make an operability determination of a pump that, though it has design requirements to fulfill, has no operability requirements. Should the degradation make the pump incapable of fulfilling its design requirements, the operator would declare the pump inoperable with no required action statement to define the necessary actions for this condition. As a further consequence, most plants have a formal process to produce a detailed and documented evaluation of a condition that results in an operability recommendation. The broad use of the term "operable" creates a scope of SSCs unnecessarily subjected to this responsive and resource intensive process – resources that could be better used to improve plant safety.

While the evaluation of degraded and non-conforming conditions may continue to be performed for a broader scope of SSCs, the use of operability determinations should be restricted to only those SSCs that have "operability". The guidance in GL 91-18 should be revised to be clear that only when a degraded or non-conforming condition affects an SSC with operability requirements, the operability of the affected SSC be determined. When a condition affects an SSC with no operability requirements, the condition is evaluated for impact on safe operation – but not "operability". I would suggest that the use of the term "operable" be restricted to a discussion of a subset of SSCs that have operability and upon which operability determinations are performed.

Questions

Should the term "operability" be applied to SSCs that are not included in Technical Specifications?

What SSCs should be included in the scope of degraded/non-conforming condition process? of the Operability Determination process?

Should plant operators determine the operability of SSCs that do not normally have operability associated with them (e.g. not in Technical Specifications)?

NRC Workshop on Generic Letter 91-18 Guidance, August 14, 2003

NEI Comments

CONTENTS:

I. Introduction

The following comments have been prepared in response to NRC meeting announcement, "Forthc oming Workshop on Generic Letter (GL) 91-18, Guidance on Operability and Associated Issues," July 1, 2003.

To meet the due date for comments (August 7) specified in the meeting announcement, NEI comments have been prepared without benefit of industry peer review. They are offered as working comments for use at the August 14 Workshop.

II. Response to 5 topic questions in NRC meeting announcement

1. Can a degraded SSC ever be determined operable?

Yes, if the structure, system, or component (SSC) is capable of performing identifiable "specified functions" assuming a design basis accident (DBA). To be considered operable, a SSC does not have to be "fully qualified" in terms of its design and licensing bases as long as the licensee can demonstrate functionality. For example, demonstration of functionality could rely on compensatory action to supplement existing margin.

If so, what are the requirements for an operable but degraded determination?

A reasonable expectation of operability, i.e., functionality given a DBA challenge.

What is the distinction between operable but degraded and inoperable?

The SSC is either "capable" or "not capable" of performing a specified function. Sections 5.2 and 5.3 of the NRC Inspection Manual Chapter 9900 on Operable/Operability contain the baseline discussion of relevant terminology.

2. Where is guidance inconsistent with regard to definitions of operability; including supporting terms such as functional, available, reliable, or degraded?

The NRC has done this to some extent in the work leading up to and following publication of revised guidance for comment on September 13, 2001. NRC is now looking for confirmatory

information and additional information from industry attendees at the workshop scheduled for August 14, 2003. Attendees at the workshop are expected to be prepared to point out specific sections, paragraphs, and sentences that could be revised to improve clarity. The starting point is the language in NRC Inspection Manual Chapter 9900 on Operable/Operability, Sections 5.2 and 5.3.

It may be feasible to combine the two Inspection Manual chapters (one on Operable/Operability, and one on Resolution of Degraded and Nonconforming Conditions) into one chapter that is internally consistent with respect to the definition and use of key terms. The new chapter (or chapters) would need to cross-reference and be consistent with other guidance documents that pertain to the determination of operability.

3. If you remove a hazard barrier that is considered a support system but is not in tech specs, what analysis is needed to maintain the supported system operable?

Regulatory Issue Summary (RIS) 2001-09 on control of hazard barriers, Standard Technical Specification (STS) guidance on support systems, risk management guidance, and any other relevant guidance should be used to demonstrate that affected SSCs are capable of performing "specified functions." For example: (a) compensatory action alone could be used to provide an equivalent hazard barrier, or (b) risk management techniques could be used to show that operation with the degraded (or nonconforming) barrier satisfies practical risk-informed decisionmaking criteria.

Generic Letter 91-18 should be updated to be consistent with RIS 2001-09 and the Regulatory Guide series on risk-informed decisionmaking (Regulatory Guides 1.174 – 1.178).

The process for making a barrier operability determination should be the same for all conditions, i.e., "planned evolutions" as well as "discovered conditions" should be evaluated using the same process.

Barrier operability is also part of Risk-Informed Technical Specification (RITS) Initiative 7, "Impact of Non Technical Specification Design Features on Operability Requirements."

For additional detail, refer to comments provided by the Nuclear Utility Group on Equipment Qualification (NUGEQ).

4. Are there ever situations where the reliability of a SSC should impact the determination of operability? Explain.

The standard is "reasonable expectation of operability" under well defined conditions. Qualitative reliability is embodied in this concept. Near-term compensatory action and pending long-term corrective action are factors also. See Inspection Manual Chapter 9900 on Operability, Sections 5.2 and 5.3.

In addition, risk-assessment techniques should be permitted in the determination of operability. The expected frequencies of DBAs, initial condition values, single failures, and other factors are germane to operability determinations.

5. Please describe any cases where you have had questions about operational leakage? What were the conditions? What guidance did you use for making these determinations? What was the outcome? (Examples (a) Tech specs require zero pressure boundary leakage but also allow certain amounts of identified and unidentified leakage; (b) ASME code requirements (GL 90-05) regarding Class 1, 2, and 3 piping, and (c) steam generator leakage.)

STS Bases stipulate that seal, gasket, and steam-generator tube leakage are not considered RCS pressure boundary leakage. NRC should clarify that this statement applies to heat-exchanger tube leakage in general.

Unidentified leakage should not be considered pressure-boundary leakage, pending completion of a timely engineering evaluation.

II Additional Comments on Technical Guidance in NRC Inspection Manual Chapter 9900:

Operable/Operability: Ensuring the Functional Capability of a System or Component

Resolution of Degraded and Nonconforming Conditions

Current guidance is fundamentally sound

Generic Letter 91-18, Rev. 1

Standard Technical Specifications (NUREG 1430-1434 series)

NEI Guidelines (10 CFR 50.59, design basis, FSAR update, and commitment management)

Licensee corrective action programs

NRC Regulatory Guides

NRC Generic Correspondence

Licensee training programs

Current guidance should be reformatted and updated

Consider consolidating the “operability” guidance and the “degraded and nonconforming” guidance into a single guidance document.

Explicitly define the scope of the “Generic Letter 91-18 Process.”

Issue the revised guidance using a Generic Letter rather than changing to a RIS format.

Incorporate a “background” section that describes the historical development of guidance on operability determinations and guidance on resolution of degraded and nonconforming conditions.

Incorporate a “references” sections that lists all the inter-related guidance documents.

Eliminate outdated information. Take this opportunity to “cancel” outdated generic correspondence and other outdated guidance.

Identify and define key terms, for example:

“specified function”

“full qualification”

“installed capability”

“operable” and “operability”

“compensatory action”

“reasonable expectation of operability”

The term “justification for continued operation” (JCO) should not be used in the context of degraded and nonconforming conditions. It should be reserved for special cases in which a plant might be justified in operating outside its license (e.g., contrary to a Technical Specification).

Ensure consistent use of terminology throughout related guidelines.

Incorporate new information since 1997 for Generic Letter 91-18, and since 1991 for Operable/Operability guidance:

10 CFR 50.59

maintenance rule (10 CFR 50.65)

Standard Technical Specifications (STS)

Reactor Oversight Process (ROP)

risk-management concepts

Consider the use of probabilistic safety assessments and risk management programs to help determine operability and resolve degraded/nonconforming conditions.

<u>NRC & Industry coordinate to establish clear expectations with respect to:</u>

Resolution of degraded and nonconforming conditions

Consistent definition and interpretation of key terms (e.g., operable, operability, … .)

<u>Use periodic workshops to maintain an up-to-date GL 91-18 process:</u>

The GL 91-18 process is one of the more important licensing processes at an operating commercial nuclear plant. NRC should maximize industry participation in revising the process and keeping it up to date.

NRC Headquarters Workshops, NRC Regional Workshops, and industry workshops and white papers can be used to compile practical experience in implementing the GL 91-18 process. Lessons learned in field situations can be used to further refine associated guidelines.

Identify concerns about the application of NRC guidance in specific circumstances, for example:

What examples would NRC cite as inadequate Operable/Operability assessments?

5. Comments on current NRC guidance

Inspection Manual (IM) guidance on Operable/Operability, Section 6.4, “Operability during TS Surveillances and Preventive Maintenance.”

The last sentence of the second paragraph states “If retesting to establish operability is not possible or practical because of safety concerns, analysis or other means should be used to demonstrate operability.” This statement should be reconciled with STS Bases SR 3.0.1, which indicates that, in certain situations, “ … the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.”

Inspection Manual (IM) guidance on Operable/Operability, Section 6.6, “Missed Technical Specification Surveillance”

Update this section to incorporate TSTF Traveler 358 and the corresponding notice of CLIIP availability.

Inspection Manual (IM) guidance on Operable/Operability, Section 6.12, “Support System Operability”

Update this section to incorporate new STS provisions for support systems (LCO 3.0.6) and the associated Safety Function Determination Program (STS Administrative Controls 5.5.15).

Inspection Manual (IM) guidance on Operable/Operability, Section 6.14, “Flaw Evaluation”

Update this section to incorporate relevant sections of the STS.

Inspection Manual (IM) guidance on Operable/Operability, Section 6.15, “Operational Leakage”

Limit the scope of this section to Class 1 systems. Guidance for Class 2 and 3 components should be moved elsewhere.

Inspection Manual (IM) guidance on Resolution of Degraded and Nonconforming Conditions, Section 4.8, “Final Corrective Action”

Update this section to be consistent with revised 10 CFR 50.59, for example delete the acronym “USQ” (unreviewed safety question).

General Comment

Incorporate examples into GL 91-18 guidance using a format similar to NUREG-1022 event reporting guidelines) or NEI 96-07 (guidelines for 50.59 implementation). Experience from actual cases can help readers understand the guidance.

IV. References (in chronological order)

NRC Generic Letter 79-27, “Operability Testing Of Relief And Safety Relief Valves,” July 16, 1979.

NRC Generic Letter 80-30, “Clarification Of The Term "Operable" As It Applies To Single Failure Criterion For Safety Systems Required By TS,” April 10, 1980.

NRC Generic Letter 81-06, “Periodic Updating of Final Safety Analysis Reports (FSARs),” February 26, 1981.

NRC Inspection Manual, Part 9900: Technical Guidance, “Standard Technical Specifications,” May 12, 1986.

NRC Generic Letter 87-09, “Sections 3.0 And 4.0 of Standard Tech Specs on Limiting Conditions for Operation and Surveillance Requirements,” June 4, 1987.

NRC Memorandum, T. Murley to Regional Administrators, “Guidance on Action to be Taken Following Discovery of Potentially Nonconforming Equipment,” July 19, 1989.

NRC Memorandum, T. Murley to Regional Administrators, “Temporary Waivers of Compliance,” February 22, 1990.

NRC Generic Letter 90-05, “Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping,” June 15, 1990.

NRC Memorandum, D. Crutchfield to Distribution, “Licensee Actions for Resolution of Degraded and non-conforming Conditions: Request for comments,” July 13, 1990.

NRC Inspection Manual, Part 9900: Technical Guidance, “Operable/Operability – Ensuring the Functional Capability of a System or Component,” October 31, 1991.

NRC Generic Letter 91-18, “Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability,” November 7, 1991.

NUMARC Letter to NRC, T. Tipton to J. Partlow, comments on NRC Generic Letter 91-18, October 7, 1992.

NRC Letter to NUMARC, J. Partlow to T. Tipton, response to 10/7/92 NUMARC comment letter on Generic Letter 91-18, November 2, 1992.

NRC Inspection Manual, Part 9900: Technical Guidance, “Resolution of Degraded and Nonconforming Conditions,” October 8, 1997.

NRC Generic Letter 91-18, Revision 1, “Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions,” October 8, 1997.

NEI 98-03, Revision 1, Guidelines for Updating Final Safety Analysis Reports,” June 1999.

Federal Register, 64 FR 38551, Final Rule, “Requirements for Managing the Effectiveness of Maintenance at Nuclear Power Plants,” July 19, 1999.

NEI 99-04, “Guidelines for Managing NRC Commitment Changes,” July 1999.

NRC Regulatory Guide 1.181, “Content of the Updated Final Safety Analysis Report in accordance with 10 CFR 50.71(3),” September 1999.

Federal Register, 64 FR 53582, Final Rule, “Changes, Tests, and Experiments,” October 4, 1999.

NRC Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants,” May 2000.

NRC Regulatory Issue Summary 2000-17, “Managing Regulatory Commitments Made by Power Reactor Licensees to the NRC Staff,” September 21, 2000.

NRC NUREG-1022, Revision 2, “Event Reporting Guidelines 10 CFR 50.72 and 50.73,” October 2000.

NEI 96-07, Revision 1, Guidelines for 10 CFR 50.59 Implementation,” November 2000.

NRC Regulatory Guide 1.187, “Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments,” November 2000.

NRC Regulatory Guide 1.186, “Guidance and Examples of Identifying 10 CFR 50.2 Design Bases,” December 2000.

NEI 97-04, Revision 1, “Design Basis Program Guidelines,” February 2001.

NRC Regulatory Issue Summary 2001-09, “Control of Hazard Barriers,” April 2, 2001.

NRC NUREG series 1430-1434, Standard Technical Specifications, Revision 2, April 2001 (NUREG-1430 was used for the purpose of these Talking Points).

NRC Inspection Manual, Part 9900: Technical Guidance, “Resolution of Degraded and Nonconforming Conditions,” draft revision, August 2001 (comparative text shows substantive changes made to October 8, 1997 version from Generic Letter 91-18, Revision 1).

Federal Register, 66 FR 47700, “Proposed Generic Communication: Resolution of Degraded and Nonconforming Conditions; (‘Generic Letter 91-18 Process’),” September 13, 2001.

Industry TSTF-358, “Missed Surveillance Requirements,” Revision 6, September 14, 2001.

Federal Register, 66 FR 49714, “Notice of Availability of Model Application Concerning Technical Specification Improvement to Modify Requirements Regarding Missed Surveillances Using the Consolidated Line Item Improvement Process,” September 28, 2001.

NRC Regulatory Guide 1.174, Revision 1, “An Approach for using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” November 2002

NRC Memorandum (Kavanagh to Magruder), “Forthcoming Workshop on Generic Letter (GL) 91-18, Guidance on Operability and Associated Issues,” July 1, 2003

Breakout Sessions Summaries

Definition of Operable but Degraded

Session 1

- Expectations for timeliness of operability determinations. Group would like more guidance or maybe less restriction on how long the shift manager has to gather the information to support a prompt determination of operability. Current guidance discusses 24 hours and time based on the safety significance of the component, which can be confusing.
- Examples of reasonable expectations of operability. Group would like examples of what should the shift manager or the engineer responsible for the operability determination look for in assuring that you have a reasonable expectation of operability.
- Clarify the meaning of safety functions, specified function and specified safety function.
- Drop the definition of little operability (versus the big "O") for non technical specification related equipment and just used the term functionality. Provide more clarification on this issue too.
- Expand the current flow chart on degraded components to include operability determinations. Provide examples on its use.
- Extent of condition reviews (aggregate assessment or aggregate review). This terminology is not in GL 91-18 but is being floated around the industry as of late. Group would like clarification as to what type of aggregate review needs to be resolves, i.e., how far do you go down the line?
- Threshold on the scope of GL 91-18. Group would like a threshold on what equipment/systems need operability determinations.

Session 2

- Consistency. Group felt that using examples in whatever guidance documents are issued would be very helpful. NUREG-1022 (Event Reporting Guidelines 10 CFR 50.72 and 50.73 Revision 2) would be a good model to look at with respect to revision GL 91-18.
- Definitions of scope for operable but degraded versus nonconforming. Group felt that the GL could just use simple one-liners with amplifying discussion, loss of quality and function effects and how it affects operability.
- Timeliness of operability determinations. NRC needs to provide some information about what they need for documentation and maybe some guidance on the time in order to make the determination versus extending the LCO time.
- Definition of specified function with respect to the current licensing basis. Needs to be clarified.

Support System Operability (TS and non-TS equipment)

Sessions 1 and 2 combined

- Use of the small “o”. Group believes that the definition of operability, the capital “O” for operability should be restricted solely to those things in technical specifications. The revision should clearly only call those things outside of technical specifications functional or capable of performing some function.
- Snubbers. Discussion of current activities under TSTF 372 to address this issue.
- Hazard barriers. Discussion of current activities under RITSTF Initiative 7a (TSTF-427) to address this issue.
- GL 91-18 Section 6.12. Group agreed that this section needed to have consistency between the terms necessary and required, that there was some misunderstanding about what the actual application of those were in different conditions, and whether or not there was always a consistent interpretation on behalf of the industry and the NRC.
- Support system LCOs in technical specifications. Group looked at this issue with regard to the improved technical specifications acknowledging that some licensees still have support system LCOs in their technical specifications. Group would like guidance to be consistent with the way people are doing business since the current wording in Section 6.12 could easily take someone in a direction that is inconsistent with the way it was intended to utilize for those support system LCOs inside of technical specifications.
- Alternate temporary systems. Group would like criteria for determining acceptability of alternate temporary systems. Examples should be provided which should include the type of evaluation and what needs to be considered in the evaluation.
- Technical specification operability versus functionality and licensing basis. Clarification is needed in this area.
- Risk informed initiatives. Group wanted to ensure an integration of the risk informed initiatives, as appropriate, recognizing that risk does not determine operability, however, risk is a part of the consideration of the acceptability of the degraded condition of the support system.
- Licensee knowledge of support systems. Group believes that GL 91-18 currently addresses that licensees should be knowledgeable of what support systems are necessary for technical specification LCOs to be met or to be operable. However, the group does not believe that the GL requires a list to be maintained or to be provided to the NRC.
- Integration of technical specifications and the maintenance rule. Group recognizes that there needs to be a coordination with the support system considerations as to how they impact technical specification LCOs. Additional comment made regarding the use of operability as it relates to maintenance as a criterion for determining availability of support systems.

Operational Leakage

Session 1

- GL 91-18 Sections 6.14 and 6.15. Sections 6.14 and 6.15 are inconsistent with the approved technical specifications (current licensing basis) for flaws and leakages. Clarification is needed as to whether operability is defined with respect to technical specifications or to the overall operability design basis.
- Generic 90-05 (Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping). GL 91-18 is outdated with respect to its use of GL 90-05. There are alternative code cases for Class 3 piping, specifically N-513, which provides an alternative means of dealing with flaws and leakage separate from GL 90-05. GL 91-18 should recognize the fact that future code cases can provide alternative means also.
- Housekeeping versus non-code repairs. There needs to be some clarification between structural evaluations and housekeeping. For example, if a flaw or leak is structurally ok, i.e., it is operable with respect to technical specifications, then the flaw or leak should be handled under the corrective action process. Code inoperability does not necessarily mean technical specification inoperability.
- Compensatory actions. Can a licensee use compensatory actions to restore operability without a relief request with regards to operational leakage? Requiring a relief request does not seem to be the best use of NRC and industry resources.

Session 2

- Class 1 piping. Group thought that section 6.15 of GL 91-18 needed to a separate section for Class 1 leakage from Class 2 and 3 leakage.
- 10 CFR 50.55a. Revision to GL 91-18 should recognize approved code cases and reference 10 CFR 50.55a.
- Non-code repairs. Clarification is needed to discuss when NRC approval is required for non-code repairs of class components, especially Class 3 components.
- Heat exchanger leakage. GL 91-18 needs to address what licensees need to do with heat exchanger leakage, especially Class 2 heat exchangers, where leakage is across the interconnecting system boundary with no boundary leakage to the environment.
- Pressure boundary leakage. Given pressure boundary leakage, the GL should clarify what needs to be declared inoperable.
- Isolable leakage. GL 91-18 needs to explain that if you can isolate a component that is leaking, and it is reasonable to do so, isolating the component is a reasonable compensatory measure without further implications.

Component Reliability and its Relationship to Operability

- Increasing failure rates. GL 91-18 should discuss what a licensee should do with components with increasing failure rates. One suggestion was to push the component into the Corrective Action Program or Maintenance Rule.
- Extent of condition review. GL 91-18 should discuss the extent of condition review with regards to common mode failure risk. Does a licensee need to look at all other similar components in operability determination space or is it best to treat those under the Corrective Action Program/
- Mission time. GL 91-18 should clarify what is meant by mission time. What is required to reconstruct the mission time.
- 10 CFR 50.59. The potential application of 50.59 with regard to reliability issues should be addressed. Specifically, there are questions in 50.59 that deal with malfunction likelihood and accident frequency that are potentially related. Other issues to be included are negligible criteria and engineering judgement. There is also situation where a licensee could fail to meet 50.59 criteria and still be operable.
- Manual actions. GL 91-18 should reference other guidance that deals with manual actions replacing automatic actions.
- Performance indicators. Group had a concern with different performance indicators on system reliability issues. Particularly, there was a desire for consistency or prioritization for the programs to help provide some additional guidance on performance indicators.
- Summary. Group did not fully support quantification relative to reliability issues, but supported a qualitative approach to reliability issues in operability determination space.

Other Topics Determined by Participants

- Compensatory measures. Group thought there should be more explanation as to what a compensatory measure is, especially when you have to transition into 50.59. Clarify a true compensatory measure versus monitoring.
- Combining the two GL attachments. Group thought that combining the two GL attachments has a lot of merit. Should also include existing guidance on hazard removal evaluations into GL 91-18. Need to be careful not to make document too cumbersome by incorporating to much guidance with too many entry points.
- Timeliness. How timely is timely? Would examples to help explain timely be worthwhile to the industry, and if it is useful would the industry be willing to provide those examples to be included?
- Evaluation of compensatory measures. Rev. 1 of the GL has sentence that now says “A licensee may decide to implement a compensatory measure as an interim step to restore operability or to otherwise enhance the capability of SSCs until the final corrective action is complete.” The group discussed the word restore and decided that clarification of the whole paragraph would be useful.