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Mr. Theodore S. Sherr  
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U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555

**Reference: Comments on the March 2000 Draft Version of NUREG-1520  
'Standard Review Plan for the Review of a License Application  
for a Fuel Cycle Facility': Chapter 11 - Management Measures**

Dear Mr. Sherr:

The Nuclear Energy Institute (NEI)<sup>1</sup> and its industry members have reviewed the March 2000 revision of draft Standard Review Plan (SRP) Chapter 11 entitled 'Management Measures'. Time has not permitted a comprehensive clause-by-clause review of this latest revision, but we have attempted to identify any significant, outstanding issues of concern. We have examined how the staff has addressed issues raised by NEI in its letter to you dated November 5, 1999 on the previous version of Chapter 11 (May 1999). We have also taken into consideration discussions that took place at the February 9-10, 2000 NRC Public Meeting (*Comment Resolution on Part 70 Standard Review Plan*).

NEI appreciates the opportunity to have been able to review the March 2000 revisions to draft NUREG-1520 chapters. We are encouraged by the ongoing

Mr. Theodore S. Sherr

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<sup>1</sup> NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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resolution of industry concerns and with other improvements that have been made to this guidance document. We look forward to working with you and your staff at the upcoming April 18-19, 2000 NRC Public Meeting on NUREG-1520 to continue these discussions.

Please feel free to contact me should you have any questions concerning the proposed improvements in the attachment to this letter.

Sincerely,

Felix M. Killar, Jr.  
Director, Material Licensees and Nuclear Insurance

c. Mr. Marvin S. Fertel  
Dr. William F. Kane, Director NMSS

**REVIEW OF MARCH 2000 REVISION OF NUREG-1520**  
**CHAPTER 11: MANAGEMENT MEASURES**

**General Comments:**

Chapter 11 requires major revisions. It remains highly prescriptive in terms of the amount of detailed information that is required in the license application. Improvements have been made to the May 1999 version (e.g. limited acceptance of licensee commitments, removal of some prescriptive references, corrected usage of ISA and ISA Summary terms) and one section has been shortened and simplified (§11.4.3.5 '*Audits & Assessments*'). The prescriptiveness of the design base reconstitution for existing facilities has been relaxed (§11.4.3.1(6)) to require the licensee to have available a current design basis for the facility. Chapter 11, however, remains extremely wordy and information in the '*Areas of Review*' section is unnecessarily and confusingly repeated in the '*Acceptance Criteria*' and '*Evaluation Findings*' sections. There is little consistency between Chapter 11 and the other SRP chapters. Chapter 11 mandates application of NQA-1 to IROFS associated with high-consequence events, continues to use reactor terminology, and uses §70.4 terms erroneously. Were this chapter edited to conform to the other SRP chapters and the repetitive language removed, it could be significantly shortened without losing any of its substantive content.

**Outstanding Issues of Concern**

- Chapter Structure and Repetitiveness:  
The biggest problems with this chapter are its length and the demands for highly detailed information. Other SRP chapters succinctly identify the '*Areas of Review*' and then develop more detailed '*Acceptance Criteria*' for each. Then, the '*Evaluation Findings*' briefly state whether the objectives of the chapter have been met. However, in Chapter 11, each of these three sections repeats in gory, and unnecessarily detailed language, the same information. The '*Review Procedures*' hardly address how the review of management measures is to be performed -- but instead again repeats acceptance criteria. By repeating so much information amongst these sections, there have developed serious disconnects amongst the sections -- for example, acceptance criteria for an '*Area of Review*' are missing, the '*Evaluation Findings*' makes statements on issues that were never reviewed (or for which there are no acceptance criteria), etc. NEI suggests that this chapter be restructured:
  - Make brief statements of what the applicant must address in '*Areas of Review*'
  - place essentially all of the information requirement needs into '*Acceptance Criteria*'

- follow the advice given in the SRP Introduction to accept an applicant's commitments as an acceptable way to meet an objective (see NEI's recommendations in November 1999 letter)
  - check for consistency between '*Areas of Review*' and '*Acceptance Criteria*'
  - cut out the duplicate text in '*Review Procedures*'. Limit this section only to review procedures
- *Inconsistent revisions*: the revision does attempt to incorporate some of industry's recommendations made in November 1999. For example, sentences have occasionally been inserted to direct the reviewer to consider an applicant's commitments to a principle or standard, but the following guidance has not been re-written in terms of such commitments. Terminology corrections are inconsistently made (e.g. IROFS now generally replaces SSC, but there are still many references to 'safety features', 'safety controls', 'controls', 'systems important to safety', etc.) 'Ensure' has generally been replaced by 'provide reasonable assurance', but many examples have slipped through the editing.
- *Reactor Terminology*: references to reactor terminology remain: Systems Approach to Training (SAT) (learning objectives, fitness-for-duty, mastery of learning objectives, etc.), human-systems interfaces, unplanned outages, NQA-1, employee testing & re-testing, etc. still remain
- *Incorrect 10 CFR 70 Terminology*: new terms have sprung up analogous to the *items-relied-on-for-safety* term defined in §70.4:
  - *documents relied on for safety*
  - *operating procedures relied on for safety*
  - *configurations relied on for safety*
  - *codes/computerized data relied on for safety*
  - *services relied on for safety*
  - *organizations performing relied on for safety*
  - *processes relied on for safety*

What are the definitions of all of these new terms? In the absence of definitions, different reviewers may develop inconsistent expectations for their use in a license application.

- *Quality Assurance Elements*: the QA section is essentially unchanged from the earlier revision. NQA-1 is the standard against which QA will be judged (mandatory for high-consequence IROFS, grading permitted for intermediate-consequence IROFS) regardless of the results of the ISA. We reiterate our belief that separate treatment of QA elements (as a separate management measure) is unnecessary. As explained in NEI's comment letter of November 5, 1999, QA applies to, and is inextricably interwoven into, all of the management measures. We strongly recommend that the QA elements section of Chapter 11 be completely

written in terms of commitments, rather than in terms of prescriptive requirements for highly detailed information

- ***Worker Training and Qualification***: SAT is arbitrarily deemed the standard against which worker training programs are to be judged. Any deviations from SAT must be justified by the applicant (see, for example, §11.5.2.3: "...*the rigor and formality of a systematic approach to training...may be graded to correspond to the hazard potential of the facility...*"). Setting SAT as the acceptable benchmark of performance is unacceptable and flies in the face of the new risk-informed regulatory approach for fuel cycle facility regulation.
- ***Technical Editing***: This chapter is poorly written. The March 2000 revisions are especially mixed up and little effort has been made to make them consistent with statements in the earlier revisions. Ch. 11 will be very confusing to a novice NRC reviewer. A good technical editing is needed -- both to make this chapter look like the other SRP chapters (format, structure, content) and to make it understandable.

### **Specific Concerns:**

- ***§11.1***: acronyms should be defined following their first use in the chapter (e.g. IROFS defined in line 2 rather than in paragraph 2)
- ***§11.1***: replace '*ensure*' by '*provide reasonable assurance*' in accordance with the December 1999 SRM guidance -- here and throughout the chapter, except where rule citations are made
- ***§11.1***: the definition of the term '*available and reliable*' in the 2<sup>nd</sup> sentence does not agree with definition in §70.4
- ***§11.1***: the definition of '*management measure*' in the 1<sup>st</sup> paragraph does not agree with definition in §70.4. Why are incident investigations, records management components missing from this discussion?
- ***§11.1***: the last sentence of paragraph 1 is repeated in last sentence of paragraph 2. Delete.
- ***§11.3.1***:
  - (i) 3<sup>rd</sup> sentence: doesn't CM also apply to IROFS?
  - (ii) In point (2) the last sentence directs a '*review procedure*' (not an '*Area of Review*') and should be discussed in §11.5.
  - (iii) In point (6) the qualifying language "*[Existing Facilities Only]*" that occurs elsewhere throughout Chapter 11 when discussing design reconstitution is missing. Chapter sub-titles should be uniform throughout the SRP.
- ***§11.3.2 (Maintenance)***:
  - (i) '*maintenance*' categorizes maintenance activities as "*corrective*", "*preventive*", "*surveillance/monitoring*" and "*functional testing*". Most maintenance organizations would combine "*preventive*" and "*surveillance/monitoring*". Preventive maintenance includes condition inspection and monitoring activities in addition to periodic refurbishment or replacement of components. It would

also be more appropriate to list the order as "surveillance/monitoring", "preventive", "functional testing" and lastly "corrective". If you emphasize the first three, then you minimize "corrective maintenance". Since the objective is to provide reasonable assurance of the availability and reliability of the IROFS, "corrective maintenance" should be listed last. Of course, correction of known deficiencies will be top priority regardless of the listing order.

- (ii) correct the 1<sup>st</sup> sentence grammar "*...examine the applicant's commitments to inspect, calibrate and maintain IROFS to a level commensurate...*"
- (iii) 3<sup>rd</sup> sentence: unnecessary sentence appropriate to Chapter 3 ('ISA') only. The 5<sup>th</sup> sentence, 2<sup>nd</sup> half -- again an inappropriate sentence for this chapter talking about the ISA
- (iv) Points (1) - (4) outline acceptance criteria that should be deleted from §11.3.2. Just list the four areas (as was done in the last 1999 version of SRP Ch. 11)
- (v) Point (1) (a)&(b) '*failures*' is incorrect term. Correct §70.4 term is '*unacceptable performance deficiencies*' as the IROFS may not have actually failed in operation. Rather, during a test-on-demand of the IROFS an unacceptable performance deficiency may have been detected.
- §11.3.3 ('*Training and Qualifications*'):
  - (i) "Training and Qualifications" is very detailed and should be compared with other sections addressing "training, testing, re-testing and qualification of personnel." Key words needing clarification are "Trainee selection", "development of learning objectives as the bases for training", "evaluation of trainee mastery of learning objectives", and "evaluation of training effectiveness". Bottom line, the SRP expectations are: established training goals, formal training plans, designated trainers, post training testing with acceptance criteria, and management oversight of performance after training. This is a step/order of magnitude change from current facility practices and the SRP personnel training and qualification expectations are far exceed what is necessary. For example, the SRP expects a clear linkage between "Training and Qualification" changes to "Configuration Management" to '*...ensure that design changes are accounted for in the training*'. On the job training '*...should be conducted by designated personnel who are competent in the program standards and methods of conducting the training. Completion of OJT should be by actual task performance...*'
  - (ii) 1<sup>st</sup> sentence: there is no 10 CFR 70 requirement that personnel be '*re-tested*'. This is a SAT term that is not needed. Delete, as was done in §11.4.3.4(10).

- (iii) 2<sup>nd</sup> sentence: there must be no requirement for a plant operator to know how to '*design, construct modify or decommission*' a facility'. Safe operation, yes, but plant design, no. Delete references to '*re-testing*'
- (iv) 3<sup>rd</sup> sentence: there is no need for the applicant to limit activities relied on for safety those individuals listed in this sentence. Replace the sentence: "...*this should include the training, testing and qualification of personnel who perform activities relied on for safety...*"
- (v) delete SAT reference in the list of objectives (job analysis, learning objectives, etc.)
- §11.3.4 ('Procedures'):
  - (i) The basic procedure system infrastructure requirements in the SRP are not an issue, but there may be expectation gaps. The words '*method for verifying and validating procedures before use*', '*method and schedule for periodically re-verifying and revalidating procedures*' and '*method for ensuring that ... personnel are qualified to use the latest procedures*' are examples of potential expectation gaps. Though the content requirements for procedures does not appear overly prescriptive, SRP expectations appear higher than for existing licensees. For example, the '*general acceptance criterion applicable to all maintenance functions*' is detailed in a paragraph that requires written procedures for steps (a) through (j) and replacement parts must comply with 10 CFR Part 21. Also note the allowance for temporary procedure changes is very restricted and temporary changes do not involve a change to the ISA. This guidance can be interpreted to mean that if there is a temporary procedure change or proposed improvement that conflicts with detail in an ISA, then the ISA must be revised and approved first.
  - (ii) Item (2): delete '*human-system interface*' -- this term was deleted from earlier versions of the SRP
  - (iii) Paragraph 2: insert '*application*' after '*license*' (2 instances). Delete the phrase '*...for low-risk processes, since this aspect is addressed by the inspection function...*' They may not be reviewed for more risk-significant processes. Delete
  - (iv) Paragraph 2, 2<sup>nd</sup> sentence: Sentence should be consistent with terminology in 10 CFR 70.64 and that used in SRP §11.4.3.1, paragraph 2). It should read "*...for new licenses or new processes at existing facilities...*"
  - (v) 3<sup>rd</sup> sentence: presumption that MOX hazards are high and equivalent to those for a commercial reactor are unfounded. MOX guidance and procedures should be akin to those for uranium fuel cycle facilities, with appropriate provisions for

- added hazards associated with plutonium. Talking of '*...site visits...*' is again a 'Review Procedure' that should not be included in 'Areas of Review,' but rather in §11.5
- (vi) section outlines six areas to be reviewed -- expressed in terms of commitments -- but then solicits information on methods. Which is it -- commitments or methods? These 6 areas are far too detailed for this §11.3.4; detailed requirements should be left to 'Acceptance Criteria' section. Item (6), second clause, is a training issue that should be discussed under §11.3.3
- §11.3.5 ('Audits and Assessments'):
    - (i) 1<sup>st</sup> sentence: '*levels*' implies differing degrees of comprehensiveness, rigor or thoroughness. Replace by '*types*' as an '*audit activity*' is neither higher nor lower in importance than an '*assessment activity*'. Replace last part of sentence to read more easily: "*...effectiveness of the activities that provide reasonable assurance of the availability and reliability of IROFS...*"
    - (ii) item (7) is a commitment that should be moved to §11.3.6
  - §11.3.6 ('Incident Investigations'):
    - (i) 1<sup>st</sup> sentence: delete '*procedures*'. The SRP does not direct reviews of actual procedures. Commitments to write procedures & to have them in place or policies governing procedures -- yes.
    - (ii) 2<sup>nd</sup> sentence: '*investigating teams*' is too prescriptive and should be replaced by "*...processes to investigate abnormal events...*". Chapter 11 acknowledges as much in §11.4.3.6 (1) where it states "*...depending on the complexity and severity of the event, an individual may be all that is required to conduct the evaluation...*" Consistency between §11.3.6 and §11.4.3.6 is needed.
    - (iii) NEI recommended changing "*...root causes...*" to "*...root causes and generic implications...*". This change has been made to some sections of Ch. 11 (e.g. §11.4.3.6), but not all. Consistency throughout the SRP is needed.
    - (iv) This section could be simplified to read: "*...Incident investigations will begin within 48 hours of an abnormal event, or sooner, depending on the safety significance of the event. The failure log for IROFS should be reviewed as part of the investigation...*"
  - §11.3.7 ('Records Management'):
    - (i) Point (1): for consistency with 10 CFR 70 may replace '*...and records of their failure...*' by the '*...§70.62((a)(3) log of their failures...*' Again, the §70.4 term '*unacceptable performance deficiency*' should be used here.
  - §11.3.8 ('Other QA Elements'):

- (i) 1<sup>st</sup> paragraph: delete. This information is cited in §11.4.1. Redundant here, especially as no regulatory citations are given for the other management measures. Consistency needed.
- (ii) 1<sup>st</sup> sentence, paragraph 2: delete the last half of the sentence ('...and should examine it in terms of the Acceptance Criteria of this section...'). Redundant. Stated earlier that the areas of review will all be examined in terms of Acceptance Criteria. Consistency. The second-to-last sentence (' fundamental to this effort...identified in the ISA Summary...') is totally redundant and provides no new information -- delete it to reduce extra words & simplify the chapter.
- (iii) Paragraph 2, last sentence: would not QA elements also apply to the FHA?
- (iv) Paragraph 3: Only the first 2 sentences should be kept. The last 2 just repeat information contained in the ISA (Chapter 3) -- redundant. The 3<sup>rd</sup> sentence incorrectly states that IROFS are only treated by QA and maintenance. Why just these 2 management measures?
- (v) 1<sup>st</sup> & 2<sup>nd</sup> sentences, paragraph 4: totally irrelevant sentence. The SRP does not apply to QA that a customer may demand. Delete both.
- (vi) 3<sup>rd</sup> sentence: correct the grammar to read: "...the focus of the review of QA elements is limited to..." Delete the words in parenthesis -- redundant.
- (vii) Paragraph 5, last sentence: Why are not other management measures of interest e.g. training?
- §11.4.1 ('Regulatory Requirements'):
  - (i) 4<sup>th</sup> paragraph: regulatory citation is not really applicable to Chapter 11. Delete
  - (ii) 5<sup>th</sup> paragraph: for completeness revise to read "...and minimize danger to life or property is specified..."
  - (iii) 7<sup>th</sup> paragraph: incident reporting is not really covered by management measures and the citation is not really needed.
- §11.4.2 ('Regulatory Guidance'):
  - (i) inclusion of the reference to NUREG-120 incorrectly suggests that nuclear power plant training requirements are applicable to fuel cycle facilities. Delete.
- §11.4.3 ('Regulatory Requirements'):
  - (i) Section (1):
    - "...management measures to be included in the CM function..." is not an area of review specified in §11.3.1. If it is not to be reviewed, why state it as an acceptance criterion?
    - What does '...scope of the IROFS...' mean? Item (a) tells the applicant to enumerate what IROFS will be included in CM, but the last sentence of the paragraph tells the

applicant that all IROFS in the ISA Summary are to be included. Why include (a)?

- Paragraph 2, 3<sup>rd</sup> sentence: to allow for updates to the ISA at existing facilities, add the words: '*...after an ISA is completed or updated, and IROFS are identified...*'. Delete "*...or the ISA...*" for high-risk accident sequences are defined in the ISA Summary.
- Paragraph 3 (new paragraph in March revision), 1<sup>st</sup> sentence: this sentence seems to be out of place. It bears no relation to the topic under discussion and is unrelated to the preceding or following sentences. Editing problem?
- Paragraph 3, 2<sup>nd</sup> sentence: appears redundant ('*...IROFS to be listed under CM are clearly defined in the ISA Summary along with the assignment of any grades or quality levels...*') as the last sentence in Paragraph 1 already states that "*...the IROFS under CM should include all those IROFS as defined by the ISA Summary...*". It just repeats the last sentence of paragraph 1. Delete it. What is an "*IROFS quality level*"?

(ii) Section (3) [last 3 sentences are new to this revision]

- '*documents...relied on for safety*': is an undefined term.
- '*operating procedures relied on for safety*': is an undefined term.
- '*system modification documents*' might better be referred to as '*§70.72 facility change documentation*'
- last sentence implies that CM will necessitate establishment of facility database(s). Some guidance on NRC expectations for such databases might be appropriate here.

(iii) Section (4):

- Delete '*strict*' in 1<sup>st</sup> sentence as too restrictive and could also apply to non-safety significant issues. (Placement of a fire extinguisher 8" off the floor (physical configuration) instead of 12" (design requirement) should not be considered a failure of the CM system due to the low safety significance of the discrepancy. In other words, CM policy should be consistent with the Part 70 risk-informed, performance-based philosophy
- 2<sup>nd</sup> sentence: '*configurations relied on for safety*': is an undefined term. Do you mean geometry control as a NCS measure?

- 2<sup>nd</sup> sentence: '*document control center*' and records management is better considered under §11.4.3.7
  - 3<sup>rd</sup> sentence: revise to be consistent with §11.3.1: '*...reasonable assurance that the ISA and ISA Summary are systematically reviewed...*'
  - last sentence: to assist the reviewer in understanding what '*documents outside the ISA*' means, addition of an example may help: '*...and that all documents outside the ISA (e.g. operating procedures, process safety information, management measures, etc.) that are affected by ...*'
- (iv) Section (5):
- 1<sup>st</sup> sentence: to reflect the applicant's commitment and future assessments, modify sentence: "*...of the CM functions will be conducted...*"
  - 2<sup>nd</sup> sentence (new addition): the parenthesis ('*system walkdowns*') makes this sentence unnecessarily prescriptive. Assessment activities may not necessarily require system walkdowns. Delete the parentheses.
- (v) Section (6):
- delete '*walkdowns*' as overly prescriptive.
- **§11.4.3.2 ('Maintenance')**: §11.3.2 ('Areas of Review') stated that the reviewer would examine an applicant's commitments to maintenance. However, this entire §11.4.3.2 ignores commitments in Sections (1) & (2). Consistency is lacking. (See NEI's November 1999 letter for a re-casting of this chapter in terms of licensee commitments).
- (i) Section (1):
- 1<sup>st</sup> sentence: delete the first clause ('*...for IROFS identified in the ISA Summary...*') for it has been stated many times previously that these management measures apply to IROFS identified in the ISA Summary.
  - 3<sup>rd</sup> sentence: this sentence does not apply to surveillance/monitoring and should be deleted. In a general way it explains how to use the results of a maintenance program. Delete it
  - 4<sup>th</sup> sentence: this sentence addresses records management and the topic is better addressed in §11.4.3.7 Delete for simplicity & consistency.
- (ii) Section (2):
- 1<sup>st</sup> sentence: rewrite in terms of commitments: "*...applicant commits to plan and implement repairs on IROFS...*". Consistent with terms in §70.4, replace '*...identified failures of IROFS...*' with '*...identified*

*unacceptable performance deficiencies...*" as we are interested not just in identified failures, but in identifying potential failures.

- Section (2) last sentence: this sentence pertains to Functional Testing and should be located to Section (4). [This same sentence is unnecessarily repeated in Section (3) as well.]
- (iii) Section (3):
- 1<sup>st</sup> sentence: '*unplanned outages*' is an inappropriate term for Part 70 facilities
  - 5<sup>th</sup> sentence: this sentence pertains to Functional Testing and should be located to Section (4)
  - last sentence: this sentence addresses records management and the topic is better addressed in §11.4.3.7 Delete for simplicity & consistency.
- (iv) Section (4):
- for clarity, indent the two paragraphs containing the example
  - example, 3<sup>rd</sup> sentence: '*safety control*' should be '*IROFS*'.
  - Example, 1<sup>st</sup> sentence, paragraph 2: instead of '*subject to* NRC review', recommend '*for NRC review*'. i.e. the records will be maintained at the facility for possible NRC inspection.
  - Paragraph 3 is out of place. It addresses administrative controls and one can not functionally test an '*activity relied on for safety*' or the person performing the activity. This is, rather, addressed in §11.4.3.3.
- (v) Editorial note: some separation (e.g. a few blank lines) should be provided between paragraphs 4 & 5. Paragraphs 5-7 provide acceptance criteria (work control methods) that apply to all maintenance measures and not just to Functional Testing
- paragraph 5, sentence 1: insert '*adequate*' before '*description*' (the description has to be at least '*adequate*' to be acceptable.)
  - paragraph 5, sentence 2: suggest adding to the end of this sentence: "...*and for which the applicant should commit to prepare written procedures...*"
  - paragraph 5, 3<sup>rd</sup> sentence: item (d) -- replace '*safety control*' by '*IROFS*'
  - paragraph 5, 4<sup>th</sup> sentence: this sentence is out of place and should be included in §11.4.3.4 Delete it.
  - paragraph 6: for consistency with the 4 components of the maintenance management measure, replace '*calibration activities*' by '*surveillance/monitoring*'

- paragraph 6, 1<sup>st</sup> sentence: this sentence is a statement of the obvious. It adds no clarity to the review and should, therefore, be deleted.
- §11.4.3.3 ('Training and Qualification'): the employee training and qualification section still builds very extensively on the SAT used for nuclear reactor employees. Such a comprehensive program is not needed for fuel cycle facilities -- overkill and overly prescriptive -- unless mandated for certain positions by the facility's ISA. The absence of SAT training has certainly not impeded the demonstrably safe operation of fuel cycle facilities throughout the last 30 years.
  - (i) 2<sup>nd</sup> sentence: for consistency in SRP language replace '*regulatory review criteria*' by '*regulatory acceptance criteria*'. This is the Regulatory Acceptance Criteria section of Chapter 11.
  - (ii) Paragraph 2: training of plant personnel is important, but their training need not extend to being able to '*design, construct or decommission*' the facility. These are specialized functions that operators and plant personnel do not need to be able to perform. Delete these terms.
  - (iii) Section (1), Criterion 7: '*fitness for intended duty*' is only applicable to strategic special nuclear material licensees and not to other Part 70 licensees. Delete this prescriptive term
  - (iv) Section (3), paragraph 2, sentence 2: add text "*verifying the activities relied on for safety specified in...*"
  - (v) Section (4): this section simply repeats guidance on issues already addressed in paragraph 3 and 5 and is not necessary. Furthermore, it implies the need for very comprehensive SAT employee training procedures. Delete this paragraph.
  - (vi) Section (6): just say simply that workers shall be tested on what they have been taught!
  - (vii) Section (7) 1<sup>st</sup> sentence: "*...required by the ISA Summary are fully...*"
  - (viii) Section (8) 1<sup>st</sup> sentence: "*...is acceptable if it provides reasonable assurance that the training conveys required skills and knowledge...*" Training can never hope to impart all skills as there will always be a circumstance or emergency condition, for which the operator will have to rely on experience, common sense or instinct.
  - (ix) Section (9):
    - 1<sup>st</sup> sentence: insert a period after '*regulations*'
    - to require the training of construction personnel appears unnecessary and overly prescriptive, especially before possession of SNM is authorized. NRC regulations applicable to construction personnel for a fuel cycle facility (which are referenced) need to be detailed if they are assigned such safety importance.

- the five training and qualification requirements give minimal credit for an individual's experience. Use of the conditional '*should*' is an improvement. However, we maintain that the exact educational requirements and qualifications for plant personnel should be the responsibility of the licensee, so long as the trainee can demonstrate capability to perform job tasks in a safe, prudent and responsible manner. Recommend deletion of these requirements.
- §11.4.3.4 ('Procedures'):
  - (i) §11.3.4 states 2 Areas of Review: operating procedures and management control procedures. And yet acceptance criteria are provided for far more than just these 2 areas (e.g. maintenance, emergency, etc.). There is an absence of internal consistency. Either the Areas of Review or the Acceptance Criteria need to be changed for consistency
  - (ii) the title of this section does not agree with that in §11.3.4. Delete the words '*development and implementation*' for consistency in the SRP
  - (iii) Section (2), (m): hazardous chemicals do not always result from SNM operations. Suggest use of the term '*...hazardous chemicals incident to SNM operations...*'. This language would cover hazardous chemicals added to, generated by or segregated/recovered/recycled from the processing of SNM.
  - (iv) Section (2), last sentence [new addition in this revision]: the content of this sentence is repeated in Paragraph 4(a). Is it necessary? It should, in any case be stated more clearly: "*...Safety limits and controls (such as mass limits, moderator exclusion, independent sampling requirements, etc.) should be clearly identified in operator procedures...*" Recommend deletion of this repetitiveness..
  - (v) Section (3), 2<sup>nd</sup> sentence: should read "*...Management control procedures exist to direct...*":
  - (vi) Section (6): procedures other than operating and management control procedures are not '*Areas for Review*'. This section (6) should, therefore, be deleted for SRP consistency.
  - (vii) Section (7): '*system*' should be clarified to be an '*IROFS*'.
  - (viii) Section (8), 6<sup>th</sup> sentence: '*controls*' should be replaced by '*IROFS*' and the sentence re-written to read in part "*...and IROFS identified in the ISA Summary are specified...*"

- (ix) Section (11): '*Maintenance procedures*' is not a type of procedure that is to be reviewed under this section (just Operating Procedures and Management Control Procedures). The substance of this entire section should be relocated to §11.4.3.2. The entire section is overly prescriptive and is probably not even needed in §11.4.3.2. Item (c) suggests a grading in maintenance procedures (what is the difference between '*normal maintenance procedures*' and '*comprehensive maintenance procedures*'? In (c)(v) we object to the 10 CFR 21 reference, (See earlier comment). In (c)(v) the term '*human-systems interface*' should be deleted. NRC & industry agreed to remove this term in earlier versions of Chapter 11).
- (x) Section (12): this is very detailed -- unnecessarily so -- and should be simplified
- §11.4.3.5 ('Audits and Assessments'):
  - (i) 1<sup>st</sup> sentence: replace '*regulatory review criteria*' by '*regulatory acceptance criteria*' for SRP consistency
  - (ii) Section (1): inconsistency with Areas of Review' (§11.3.5). the structure of A&A should also be examined
  - (iii) Section (4): '*off-site groups or individuals*' is overly prescriptive, especially if the A&A is not of a critical safety issue. Replace with '*...appropriately qualified personnel...*'
  - (iv) Sections (4) & (6) could easily be merged -- they address complementary issues
- §11.4.3.6 ('Incident Investigations'): This is a particularly egregious chapter. It is so repetitive that it becomes confusing to the reader. It must be re-written into one commitment section and one policy/procedure section. Redundant and repetitious language must be deleted.
  - (i) Paragraph 4 should be revised: "*...formal policy and procedures in place...investigation that include the following elements:...*"
  - (ii) Procedures Discussion: to be consistent with the language in paragraph (§11.4.3.6, sentence 2) and in Item (5), replace
    - Item 1: '*investigating team*' by '*investigating personnel*'
    - Item 2: "*...person who would lead the investigation and those of any other participants; the scope of the investigators' authority and...*".
    - Item 3: "*...assurance of the investigators' authority*"
  - (iii) Procedures Discussion: to be consistent with the language in paragraph (§11.4.3.6, sentence 1), modify Item (5) to

- read: "...*approach to determine the root cause(s) and generic implications of the problem...*"
- (iv) Procedures Discussion Item (7): this item seems redundant and just repeats the content of point (2) on p.11.0-21 in §11.4.3.6, If the applicant has already made a commitment to track and monitor corrective actions, item (7) would seem to be unnecessary
  - (v) Commitment Discussion (p. 11.0-22): How do these commitments differ from those on p. 11.0-21? Shouldn't they be combined into a single commitment section for simplicity and clarity?
  - (vi) Commitment Discussion (p. 11.0-22): Item (1) is identical to Item (1) in the Procedures Discussion. Redundant -- delete.
  - (vii) Commitment Discussion (p. 11.0-22): Item (2) is identical to Item (2) in the Procedures Discussion. Redundant -- delete.
  - (viii) Commitment Discussion (p. 11.0-22): Item (3) contains material that is already addressed in Commitment (1) on p.11.0-21. The new requirement (note: '*will*', and not '*should*') -- that both a process expert and a root-cause investigator conduct any investigation -- contradicts the statement in §11.4.3.6, paragraph 1 that states that "...[one] individual may be all that is required to conduct the evaluation..." Redundant -- delete. The new requirement in this section can be added to §11.4.3.6, Paragraph 1 as a clause: "...The investigator(s), who should have experience in facility processes and root cause investigation, will be independent..." Delete the references to 'teams'.
  - (ix) Commitment Discussion (p. 11.0-23): Item (4) repeats the commitment made in Item (1) on p.11.0-21. Delete this item (4)
  - (x) Commitment Discussion (p. 11.0-23): Item (5) repeats the commitment made in Item (1) on p.11.0-21 and item (3) on p.11.0-22. Delete this item (5)
  - (xi) Commitment Discussion (p. 11.0-23): Item (6) (which is incorrectly numbered as '1') repeats the commitment made in Item (5) in the Procedures Discussion on p.11.0-22. For consistency, the language used in Item (1) on p.11.0-21 ("*...root cause(s) and generic implications...*") should be used. Delete this item (6)
  - (xii) Commitment Discussion (p. 11.0-23): Item (7) repeats the commitment made in Item (4) on p.11.0-22. Delete this item (4)

- (xiii) Commitment Discussion (p. 11.0-23): Item (8) could be merged into commitment #2 on p.11.0-21 to read: '*...The applicant commits to undertake corrective actions within a reasonable period of time to resolve findings from abnormal event investigations and to monitor and document such corrective actions through completion; and...*' Delete this item (8)
- §11.4.3.7 ('Records Management'):
  - (i) Item (5): Why are H&S records afforded special attention? H&S was consistently deleted from §11.3.8 and the prior revision of Chapter 11 (in §11.7.4.3). It should also be deleted here.
  - (ii) Last paragraph (p. 11.0-24): '*computer codes/computerized data relied on for safety*' is an undefined term.
- §11.4.3.8 ('Other QA Elements'): the NQA-1 program continues to set the threshold against which QA elements are assessed. Application of the full NQA-1 requirements to IROFS associated with high-consequence events is required, regardless of the results of the ISA. This presumptiveness does not reflect risk-informed regulation.
  - (i) for consistency with 10 CFR 70.4 the term '*QA elements*', rather than just '*QA*' should be used throughout §11.4.3.8
  - (ii) Paragraph 2, 1<sup>st</sup> sentence: '*controls relied on for safety*' is an undefined term. What does the clause "*...and the related controls that are relied on for safety...*" mean -- controls applied to IROFS? This sentence should probably be re-written as "*...The ISA Summary should identify the IROFS and the degree of their importance to safety.*"
  - (iii) Paragraph 2, 2<sup>nd</sup> sentence [new sentence]: poorly and confusingly expressed. Re-write sentence to read: "*...The number and choice of QA elements to be applied to an IROFS, as well as the grading of such QA elements proportional to the importance to safety of the IROFS, should be determined by the applicant...*"
  - (iv) Paragraph 3 is totally redundant. Content is expressed earlier in §11.4.3.8 and in Chapter 3 ('ISA'). The statement that the risk importance of an IROFS is established by its maintenance requirements, is incorrect. Delete this paragraph.
  - (v) Paragraph 4, 1<sup>st</sup> sentence: (twice) '*QA elements*'
  - (vi) QA element attribute (1): the phrase '*...organizations performing activities relied on for safety...*' is confusing. Individuals perform such activities. How does an organization perform them? Clarify.

- (vii) QA element attribute (2), 3<sup>rd</sup> sentence: this sentence leads the reviewer to the incorrect impression that it is only QA elements that provide the reasonable assurance that IROFS will be available and reliable when needed. In fact, all of the management measures combined provide the necessary assurance that this goal is met. Re-write this sentence: "*...The QA elements should be well documented, planned, implemented and maintained to provide reasonable assurance that, together with the other management measures, IROFS will be available and reliable when needed...*"
- (viii) QA element attribute (4): '*services relied on for safety*' is an undefined term
- (ix) QA element attribute (7): '*services relied on for safety*' is an undefined term
- (x) QA element attribute (8): the intent of this attribute is unclear -- identifying and controlling IROFS. "*...provisions are made to ensure that incorrect or defective equipment is not used as IROFS...*"?
- §11.5('Review Procedures'): §11.5.2 ('Safety Evaluation') totally ignores the stated purpose of this section of the chapter -- that is, to spell out review procedures for assessing the license application documents. Rather than telling how the review is to be done, who is to do it, what documents are to be used, what site visits may be warranted, etc., §11.5.2 repeats the content of the 'Areas of Review' and the 'Acceptance Criteria' for each of the QA elements. This is totally unnecessary. The 'Review Procedures' in every other SRP chapter are brief and succinctly stated -- without repeating what should be examined by the reviewer. For example, the last paragraph of each section in §11.5.2 is identical and need only be presented once in the introductory comments to §11.5.2. This entire §11.5.2 must be shortened to a single page.
  - (i) §11.5.2.1(1), 3<sup>rd</sup> sentence: '*...interfaces with external organizations and functions...*' is stated. The meaning is unclear. Does this refer, perhaps, to Memoranda of Understanding with off-site emergency response organizations?
  - (ii) §11.5.2.1(4), 1<sup>st</sup> sentence: '*configurations relied on for safety*' is an undefined term
  - (iii) §11.5.2.1(5), 4<sup>th</sup> & 5<sup>th</sup> sentences: these sentences do not outline a review procedure.
  - (iv) §11.5.2.2, 1<sup>st</sup> sentence: This states nothing new and should be deleted. Such instructions were given in the introduction to the entire SRP.
  - (v) §11.5.2.3, 1<sup>st</sup> sentence: the implication that the SRP sets SAT as the benchmark against which an applicant's

worker training and qualification program will be judged is unacceptably prescriptive. Delete the references to SAT

- (vi) §11.5.2.4, 1<sup>st</sup> sentence: this sentence repeats what was stated in the introduction to §11.5.2. Delete as redundant
  - (vii) §11.5.2.4, Item (1): '*controls*' should be '*IROFS*'
  - (viii) §11.5.2.4, Item (2): '*procedures important to safety*' is an undefined term
  - (ix) §11.5.2.4, Item (3): '*non-crucial operating procedures*' is an undefined term. Replace '*controls*' by '*IROFS*'
  - (x) §11.5.2.4, Item (4): delete the term '*review team*' as discussed in §11.4.3.4, §11.4.3.6 and §11.4.3.7. Consistency needed.
  - (xi) §11.5.2.5, Item, 1<sup>st</sup> sentence: this sentence repeats what was stated in the introduction to §11.5.2. Delete as redundant
  - (xii) §11.5.2.6, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence: this sentence says nothing new. Instructions for additional information were already given in the introduction to §11.5.2 and need not be repeated here again. Delete.
  - (xiii) §11.5.2.8, 5<sup>th</sup> sentence: why should not QA elements also be coordinated with the other, but unnamed, management measures?
  - (xiv) §11.5.2.8, 4<sup>th</sup> paragraph: there are only 11 chapters of NUREG-1520, not 15 as stated. (Note: NUREG-1718 has 15 chapters)
  - (xv) §11.5.2.6, 5<sup>th</sup> paragraph, 1<sup>st</sup> sentence: for consistency in chapter 11, the sentence should read: "*...QA elements will provide reasonable assurance that IROFS will be available and reliable when needed...*" Management measure are not intended to simply assure that IROFS will perform their safety functions "in an acceptable manner"
- **§11.6 ('Evaluation Findings')**: §11.6 is far too long and repeats too many of the acceptance criteria in §11.4. The SRP should consider composing one, albeit long, paragraph of '*evaluation finding*' text that assesses the acceptability of an applicant's management measures as a whole. This would reduce the volume of the SER to a more manageable size without detracting from the importance of the observations and findings. There is, for example, no point in requiring for each management measure a separate statement of "*...[Insert a summary statement of what was evaluated and why the reviewer finds the submittal acceptable.]...*". Once is enough.
    - (i) §11.6, Paragraph 1, 2<sup>nd</sup> sentence: the clause "*...prepared for the entire application...*" should be deleted. It is very

- clear from the introduction of the SRP that a single SER will be written for the application. Insert a period after 'SER' and delete the balance of the sentence
- (ii) §11.6.1, Paragraph 2, 1<sup>st</sup> sentence: '*systems important to safety*' is an undefined term
  - (iii) §11.6.1, Paragraph 2, 2<sup>nd</sup> sentence: '*systems important to safety*' is an undefined term. '*Ensure*' should be replaced by '*provide reasonable assurance*'. '*Between*' is grammatically incorrect and should be replaced by '*among*'. The 4 items on page 11.0-34 should be deleted and replaced by only the names of the four components of CM
  - (iv) §11.6.1, Paragraph 2, Item (4), 1<sup>st</sup> sentence: '*strict*' is an inappropriate choice of word. See earlier comment under §11.4.3.1(4)
  - (v) §11.6.1, Paragraph 2, Item (4), 2<sup>nd</sup> sentence: '*systems important to safety*' is an undefined term
  - (vi) §11.6.2, Paragraph 1, 1<sup>st</sup> sentence: the words '*...and management measures for IROFS...*' is redundant as maintenance is already a management measure. The sentence implies that there are management measures for the management measures.
  - (vii) §11.6.2, Paragraph 2: the implication that '*...surveillance activities... ensure the validity of the ISA...*' is erroneous. Management measures as a whole ensure the achievement of this goal.
  - (viii) §11.6.2, Paragraph 3, item (3): the statement that '*...maintenance...links IROFS requiring maintenance to the ISA Summary...*' is unclear. What is the intended meaning? There was no acceptance criterion in §11.4 that addressed this issue (and so can it really have been 'evaluated')?
  - (ix) §11.6.2, Paragraph 3, item (4): reference to '*reliability goals*' is inappropriate. Part 70 licensees do not have established formal '*reliability goals*'. There was no acceptance criterion in §11.4 that addressed reliability goals (and so can it really have been 'evaluated')?
  - (x) §11.6.2, Paragraph 3, item (6): the observation that the licensee will maintain "*...detailed records of all surveillance, inspections [etc.]...*" is overly prescriptive. What level of 'detail' is expected? Records enumerated in 10 CFR 70.62(a)(3) for IROFS unacceptable performance deficiencies should be adequate. Additional detail may not be warranted.

- (xi) §11.6.3, Paragraph 1, item (3): the third criterion "...and (3) is acceptable..." is redundant. If something satisfies the regulatory requirements (item 1) and the SRP acceptance criteria (item 2), it must, by default, be acceptable. Delete this third criterion (for consistency with other statements in this §11.6). If there are further criteria that must be satisfied to achieve acceptability, they should be clearly enumerated.
  - (xii) §11.6.3, Paragraph 2: specifying that workers must be instructed in the design, construction and decommissioning of a facility is inappropriate. See discussion of this issue under comments for §11.11.4.3.3.(1). Delete these three terms.
  - (xiii) §11.6.4: correct to read: '*...described a suitably detailed...*'
  - (xiv) §11.6.5, Paragraph 1, 1<sup>st</sup> sentence: this sentence reads as if the reviewers have already looked at the applicant's audits and assessments. Clarify this sentence by adding the following words: "*...described its audits an assessments commitment...*," or "*...described its audits an assessments program...*'
  - (xv) §11.6.5, Paragraph 1, 2<sup>nd</sup> sentence: Clarify this sentence: "*...the applicant's plan for conducting audits and assessments ...*'
  - (xvi) §11.6.5, Paragraph 2: delete the numbers in parentheses to improve sentence flow (consistent, e.g. with last paragraph of §11.6.1): "*...reasonable assurance of protection of the health and safety of the public and workers and the environment...*"
  - (xvii) §11.6.6, Paragraph 1, 1<sup>st</sup> sentence, item (3): replace "*...for ensuring...*" by "*...for providing reasonable assurance of...*"
  - (xviii) §11.6.6, Paragraph 2: delete '*of*'
  - (xix) §11.6.7: why does this statement just focus on H&S records? As noted earlier, narrowly defined references to H&S were deleted from the SRP
  - (xx) §11.6.8, Item (3): [section incorrectly numbered as '*§11.6.1*']: '*processes relied on for safety*' is an undefined term
  - (xxi) §11.6.6, last paragraph: '*provide*' should be '*provides*'
- §11.7 ('References'): references (4) and (16) are identical. Delete one of them. Reference 19 is inapplicable to fuel cycle facilities and should not be cited; it provides training for nuclear power plant operators.
  - Appendix A ('Checklist for Procedures'): '*Management Control Procedures*' should also include procedures for '*industrial safety*' and '*nuclear materials management*' as was suggested by industry. Note that the

- 'Areas of Review' clearly identified 2 types of procedures (operating procedures, management control procedures). Procedures stated in items (3) and (4) are, therefore, inapplicable. Emergency procedures are discussed in SRP Chapter 9 and the procedures in item (3) are encompassed under '*operating procedures*'. Make the Appendix agree with the SRP sections and delete Appendix items (3) and (4).
- Appendix B ('Records'): we again recommend consistency with terminology within the SRP. For example:
    - (i) Item (4): '*...radiation protection records...*'
    - (ii) Item (5): '*...nuclear criticality safety control...*' [3 instances]
    - (iii) Item (5): '*... records pertaining to nuclear criticality safety analyses...*' is encompassed under example (2) in section 5.0. Delete.
    - (iv) Item (6): '*...records pertaining to chemical process safety inspections...*' [confer the title of SRP Chapter 6]
    - (v) Item (10): decommissioning records, site characterization criteria and final survey data are records that will not be maintained during the operating phase of the facility. Delete.
    - (vi) Item (11.2): there is again a lack of correspondence between the items reviewed and the requested records. For example, no records for Functional Testing?
    - (vii) Item (11.4): there is again a lack of correspondence between the items reviewed and the requested records. For example, no records on operating procedures?