



NUCLEAR ENERGY INSTITUTE

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Rules and Directives
Felix M. Killar, Jr.
DIRECTOR
Nuclear Generation Division
Direct Line 202.739.8126
Internet fmk@nei.org

October 10, 2000

Mr. David L. Meyer
Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

REFERENCE: Request for Comments on the Draft Report "Standard Review Plan for the Review of DOE Plans for Achieving Regulatory Compliance at Sites with Contaminated Ground Water Under Title I of the Uranium Mill Tailings Radiation Control Act" (NUREG-1724, published June 2000)

Dear Mr. Meyer:

The Nuclear Energy Institute (NEI)¹ is submitting the following comments on the June 2000 draft version of NUREG-1724. This Standard Review Plan (SRP) provides guidance to the staff in evaluating the adequacy of programs proposed by the DOE for achieving regulatory compliance at Title I sites that have contaminated ground water. Ground Water Corrective Action Plans, which include characterization of the site's hydrogeology and ground water contaminants, the corrective action and monitoring plans and the Long-Term Surveillance Plan, are to be submitted by the DOE for NRC concurrence. The SRP also provides guidance for development of water quality restoration standards that differ from those promulgated by the Environmental Protection Agency (EPA) in 40 CFR 192.

¹ 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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Att: W. Ford (WHF)



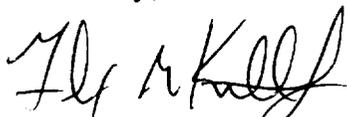
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NEI generally finds the SRP to be comprehensive and consistent with regulatory requirements. It offers the DOE flexibility in the development of corrective action programs and recommends, but does not mandate, compliance with various cited industry standards in the conduct of various assessment activities. The supplemental guidance on assessing the principal components of a public health and environmental risk assessment to develop alternate concentration limits for contaminants that are higher than those specified in 40 CFR 192 is well presented. NEI is particularly pleased with the relative absence of prescriptiveness in this guidance document.

Certain sections of NUREG-1724 appear, however, to be unnecessarily prescriptive (notably chapter 4) and several inconsistencies have been identified in the guidance for development of alternate concentration limits. These concerns, as well as additional suggestions of an editorial nature to improve the guidance, are presented in the Attachment to this letter.

NEI appreciates the opportunity to comment on what we believe to be a generally well-written and thorough document. We should be pleased to discuss these comments and to respond to any questions that the NRC may have.

Sincerely,

A handwritten signature in black ink, appearing to read 'Felix M. Killar, Jr.', written in a cursive style.

Felix M. Killar, Jr.
Attachment

**COMMENTS OF THE
NUCLEAR ENERGY INSTITUTE
ON
'STANDARD REVIEW PLAN FOR THE REVIEW OF DOE PLANS FOR
ACHIEVING REGULATORY COMPLIANCE AT SITES WITH
CONTAMINATED GROUND WATER UNDER TITLE I OF THE URANIUM
MILL TAILINGS RADIATION CONTROL ACT'
(DRAFT NUREG-1724)**

1. General Comments

We recommend inclusion of appropriate regulatory citations to 40 CFR 192 in each Acceptance Criteria section. Such citations are useful both to the DOE and NRC staff reviewer in understanding which regulatory requirements support or justify specific acceptance criteria.

Inconsistent usage of terminology is a problem in the SRP. Terms defined and used in 40 CFR 192 should also be used consistently throughout the SRP. For example, '*hazardous constituents*' should be replaced by '*constituents of concern*', '*background concentration limits*' should be correctly referred to as '*the concentrations of constituents of concern in background water quality*' and '*maximum concentration limits*' should only be called '*concentration limits*'.

The 'Review Procedures' sections of each chapter should be written to permit the DOE to cross-reference material. For example, the guidance for establishing an Alternate Concentration Limit (ACL) for a contaminant (SRP Chapter 3.0) seeks considerable hydrological and ground water quality data that was previously developed in the Site Characterization study (SRP Chapter 1.0).

2. Chapter 1.0 ('Site Characterization')

- (§1.1, p. 1-1): presentation of some general information on the geological and topographic setting of the site would also be useful
- (§1.2, p. 1-2, item (2)): "...*assertions in the application that are used to demonstrate regulatory compliance...*" As regulatory compliance can not be demonstrated at the time of program application submission, we suggest replacement of "used" by "proposed"
- (§1.3, p. 1-2, item (1)(a)(i)): Knowledge of the relative quantities of leaching solutions and chemicals and their relative quantities in mill wastes is information that will be next to impossible to know. Historical records of facility operations may be impossible to find or access. We suggest shortening this sentence to read: "*A list of the known leaching solutions and chemicals used in the milling process.*"

- (§1.3, p. 1-2, item (1)(a)(ii)): Knowledge of the quantities of waste generated and the chronology of waste management practices is, similarly, information that will likely never have been recorded. Quantities of solid waste can be estimated by looking at the site today, but knowledge of quantities of liquid waste will never be known. We suggest simplifying this sentence to read (in part): “... *types of retaining structures used and any available information on the quantities of liquid and solid wastes generated and any waste management practices*”
- (§1.3, p. 1-3, item (1)(c)): Suggest replacing ‘rainfall’ by ‘precipitation’ to account for any moisture contributed from snow or hail. The sentence in this item (c) could be interpreted to read that meteorological data are only needed to project water infiltration through a disposal cell. Infiltration is strongly dependent on the hydrologic properties of the waste byproduct material and the underlying vadose zone and surface aquifer(s).
- (§1.3, p. 1-4, item (2)(a)(iii)): There would appear to be some missing (or extraneous) words at the end of the last sentence: “...*beyond the vertical projection of the boundary, of the land by the government*” What is the role of the government?
- (§1.3, p. 1-5, item (2)(b)): Requiring compliance with 10 CFR 40 standards is too broad. Many standards in Part 40 Appendix A do not apply to ground water issues. We suggest modifying this sentence to read: “... *evaluating compliance with appropriate standards established...*”
- (§1.3, p. 1-6 & 1-8, item (3)(a) and 3(d)): We do not understand why the SRP introduces two terms for the same topic: “constituents of concern” and “hazardous constituents.” Both terms address the requirement of 40 CFR 192.02(c)(1) to identify contaminants that may have to be remediated if their concentrations exceed Appendix I, alternate concentration limits or Supplemental Standards. We discourage use of the term ‘hazardous’ (which is never used in the regulations) in favor of the term ‘listed constituents’ (190.02(c)(1)) or simply ‘constituents of concern’ (SRP (§1.3, item (3)(a))). Whether or not a contaminant is deemed to be ‘hazardous’ to the public or environment will, to a large extent, depend upon its residual concentration. Low concentrations of many constituents of concern in SRP Table 1-1 in water may fulfill beneficial roles. We recommend that items 3(a) and 3(d) be combined.
- (§1.3, p. 1-10, item (3)(g)(i)): An understanding of the contaminant attenuation mechanism is useful for developing selecting a remedial plan. However, the requirement in the last sentence for laboratory equilibria experiments seems somewhat prescriptive, especially if data from comparable Title I sites could be

used. The comprehensiveness of the recommended program in this section, may constitute 'overkill'.

- (§1.4, p. 1-11, ¶5): Replace 'rainfall' by 'precipitation' for consistency.
- (§1.4, p. 1-12, ¶5): Recommend against usage of the term 'hazardous constituents'

3. Chapter 2.0 ('Ground-Water Protection Standards')

- (§2.1, p.2-1): For consistency with §1.0, replace '*hazardous constituent*' in the first sentence by '*constituent of concern*'. To facilitate reference to the applicable regulation (40 CFR 192.02(c)(3)), which uses the term 'concentration limits', we suggest modifying the first sentence to read, in part: "*Ground water protection standards (or concentration limits) are established...*" This term is used throughout the balance of Chapter 2.0.
- (§2.1, p.2-1, item (1)): For consistency with §1.0, replace '*hazardous constituents*' in the first sentence by '*constituents of concern*'.
- (§2.1, p.2-1, item (3)): For consistency with §1.0, replace '*hazardous constituent*' in the first sentence by '*constituent of concern*'. Grammatical correction: "either" implies a choice from two options. As item (3) presents four options, use of "either" is not correct. Recommend revising the introductory sentence to read: "*Ground water protection standards for constituents of concern may be established as:*"
- (§2.1, p.2-1, item 3(a)): 40 CFR 192(c)(3)(i)(A) does not refer to background concentration limits. 'Limits' are not established for background water quality, but rather the background concentrations of constituents of concern must be established. We suggest use of the rule language and title section (a) as "*Background concentrations of constituents of concern*". The additional sentence in this section (a) could read: "*Background concentrations of constituents of concern in the groundwater must be documented in accordance with 40 CFR 192.02(c)(3)(i)(A).*"
- (§2.1, p.2-1, item (3)(b)): The language for Item (b) may need to be clarified to state the obvious that the maximum concentration limits in Table 1 only apply to constituents of concern that are, in fact, listed in Table 1. Concentration limits for other constituents of concern must be developed by other alternate methods. For consistency with §1.0, replace '*hazardous constituent*' by '*constituent of concern*'.
- (§2.2, p.2-1, item (1)): Use of the term "verification" for review of the DOE's contaminant characterization is too all-encompassing. 'Verification' often implies collection and chemical analysis of duplicate samples. This, obviously,

is not the intent of the SRP. The staff must, instead, confirm with a reasonable degree of assurance that the DOE has collected a sufficient number of representative samples and used defensible analytical and QA/QC procedures to identify all constituents of concern.. We suggest revising the first sentence to read: “...*Examine and confirm the adequacy of the DOE’s program to identify constituents of concern in the groundwater at the point of compliance.*”

- (§2.3, p.2-2, item (3)): For consistency with §1.0, replace ‘*hazardous constituent*’ in the first sentence by ‘*constituent of concern*’.
- (§2.3, p.2-2, item (3(a))): Consistent with our comment on page 2-1, change the heading of section (a) to read: “*Background ground water concentrations of constituents of concern.*” Replace ‘*hazardous constituent*’ in the accompanying sentence by ‘*constituent of concern*’.
- (§2.3, p.2-2, item (3(b))): For consistency with the Rule language, which does not use the term “Maximum Concentration Limits”, but rather just the term “Concentration Limits”. The heading for section (b) should be replaced to read “*Concentration Limits for Constituents of Concern*” Change the accompanying sentence to read (in part): “*Concentration limits may be established for each constituent of concern identified in...*”
- (§2.3, p.2-2, section entitled “Alternate Concentration Limits”): For clarity and continuity with the following paragraph in which the acronym “ACL” is used, we suggest defining the acronym in the title so as to read: “*Alternate Concentration Limits (ACL)*”. We recommend modifying the last two sentences of the ACL paragraph by adding the underlined text: “*Factors to be considered in developing an ACL are outlined in 40 CFR 192.02(c)(3)(ii)(B)(1 and 2). Guidance on the conduct of a hazard assessment to establish an ACL is outlined in Section 3.0 of this SRP.*”
- (§2.3, p.2-3, section entitled “Supplemental Standards”): Grammatical correction in the first sentence: “...standards are detailed...”. Again for clarity, we would suggest adding the following underlined text to the second sentence of this section: “*Supplemental standards may be applied in place of concentration limits or ACLs for constituents of concern when it is...*”
- (§2.3, p.2-3, section entitled “Supplemental Standards”, item (b)): third line, delete the comma.
- (§2.3, p.2-3, section entitled “Supplemental Standards”, item (d)): this criterion is included in 40 CFR 192.21, but perhaps need not be included in a discussion of ground water remediation planning (unless of course, the building is the source term for ground water contamination). Perhaps item (d) could be deleted?

- (§2.3, p.2-3, section entitled “Supplemental Standards”, final sentence): Some explanation as to when Supplemental Standards can be applied as clean-up goals should, we believe, be provided. We suggest revision of the last sentence with the underlined text: “*When one or more of the foregoing criteria apply, Supplemental Standards for constituents of concern may be developed consistent with the remedial alternative that comes as close to meeting the otherwise applicable concentration limit under 40 CFR 192.02(c)(3)...*”
- (§2.4, p.2-4, ¶3): (i) for consistency replace ‘hazardous constituent’ in the first sentence by ‘constituent of concern’, (ii) “...has established acceptable concentration limits and cleanup standards.” Are these not the same? Suggest revising to read: “has established acceptable concentration limits as cleanup goals” (iii) third sentence is incorrect. Statistical methods were not used to establish concentration limits. The sentence should read, we think: “Acceptable statistical methods have been used to establish the concentrations of constituents of concern in the background ground water.”
- (§2.4, p.2-4, ¶4): (i) for consistency replace ‘hazardous constituents’ in the first sentence by ‘constituents of concern’, (ii) the ‘compliance period’ was not included as an ‘Area of Review’ in this Chapter 2 and no Acceptance Criteria were provided. Thus, we do not believe this topic should be addressed in the Evaluation Findings.

4. Chapter 3.0 (‘Hazard Assessment for Alternate Concentration Limits’)

- Chapter 3 provides the staff with guidance on how to assess the safety of site cleanup standards proposed by the DOE that are less stringent than those in 40 CFR 192 Table 1. The outline of a public health and environmental impact assessment is very verbose. Much of the background material it seeks has already been developed in the SRP Chapter 1 (‘Site Characterization’) and need not be repeated here. The SRP should permit the cross-referencing of such information. Why ACLs might be proposed (e.g. remote location of the site and low likelihood of any human contact, technical difficulty in meeting the Table 1 standards, etc.) should be noted for the staff reviewer. Two editorial comments that apply throughout this chapter: (i) replace ‘hazardous constituent’ in the first sentence by ‘constituent of concern’, and (ii) continue use of the acronym “ACL” that was introduced in §2.3.
- (§3.1, Page 3-1, ¶1): Delete the 2nd sentence as it simply repeats the content of the first sentence, albeit in a converse sense.
- (§3.1, Page 3-1, item (1): to logically lead the staff reviewer into the proposal to develop an ACL, item (6) might best be presented as item (1). That is, it

- would introduce the reviewer into a discussion of why an ACL is needed.
- (§3.2, Page 3-1, items (1) & (2): (i) this information was developed in SRP chapter 1 and need not be repeated here. Simply cross-reference it. (ii) suggest combining items (a) and (b) to read: “...*term has: (a) been characterized in sufficient detail to provide a defensible estimate...*”
 - (§3.2, Page 3-2, item (5): in the 4th line start a new sentence: “...*the point of exposure. There will be no...*”
 - (§3.3, Page 3-2, item (2): suggest defining the POE acronym in the title of this item (2) to read: “(2) *The point of exposure (POE) is identified.*”
 - (§3.3 Page 3-3, item (2), ¶1: spelling error in line 4: should be “exposure”
 - (§3.2 Page 3-2, items (3) & (4): (i) the information in these two items has all been developed previously as part of the Site Characterization and should not be requested again. Cross-reference it. (ii) ¶3: as noted earlier, information on the quantities of waste, milled-ore compositions and waste management practices is unlikely to be available, (iii) ¶5: in the last sentence, the phrase “POE” should be inserted to identify the point at which exposures will be considered.
 - (§3.3, Page 3-5, item (5), ¶2 & ¶6 on page 3-5): (i) to the last sentence in each paragraph should be added some clarification that it is the concentrations of constituents of concern at the POE(s) that must be demonstrated to be safe and not necessarily the concentrations at the POC. The first half of the sentence in ¶2 on page 3-4 states the issue correctly.
 - (§3.3, Page 3-6, item (5), ¶4 & ¶5): delete the word “maximum” from the term “concentration limits” to be consistent with the Rule language.
 - (§3.3, Page 3-8, item (6), ¶3): the term “alternate goals” is somewhat confusing. There is only one goal and that it to remediate the groundwater quality to the approved concentration limit, ACL or Supplemental Standard. Perhaps the intent of this sentence is examination of alternate remediation approaches?
 - (§3.4, Page 3-9, ¶3, item (a)): for clarity the sentence could be revised as follows: “(a) identification of maximum concentrations of constituents of concern at the POC which, at the POE, do not constitute a public health and safety of environmental hazard...”

5. Chapter 4.0 (‘Ground-Water Corrective Action and Compliance Monitoring Plans’)

- General comments: (i) replace ‘*hazardous constituent*’ by ‘*constituent of concern*’ throughout, (ii) replace ‘*maximum concentration limits*’ by ‘*concentration limits of 40 CFR 192 Table 1*’, (iii) use the acronym “ACL” that was introduced in

§2.3.

- (§4.2, Page 4-1, ¶1): the regulatory citation seems to be in error. 40 CFR 192.03 does not address corrective action plans. The correct citation should be 40 CFR 192.12(c).
- (§4.2, Page 4-1, item (2)): the term '*minimum performance goals*' is not defined in the rule. Does the NRC expect the DOE to outline a series of 'milestones' against which to monitor achievement of the groundwater cleanup standards? The DOE should, in any case, outline the compliance monitoring program structure.
- (§4.3, Page 4-4, item (c)): delete the word 'either' (implies only 2 alternatives when four are presented, and insert the word 'where' after "...*supplemental standards and where natural flushing...*")
- (§4.3, Page 4-4, item (e)): incorrect numbering sequence. Renumber as "(d)"
- (§4.3, Page 4-5, item (2)): insert additional text to read: "...*pumping rates, if applicable, are sustainable...*" to address the case in which pumping is not used in the remediation program.
- (§4.3, Page 4-5, item (5a)): QA generally applied to a process. Suggest rewording this item to read: "...*quality assurance applied to the collection, handling and analysis of ground water samples...*"
- (§4.3, Page 4-6, item (6)): This section on the design of surface impoundments is unnecessarily detailed and could be simplified. For example, the SRP could state that the impoundment should be consistent with the design criteria for a uranium recovery impoundment as stated in 10 CFR 40, Appendix A, Criterion 5A(1).
- (§4.4, Page 4-9, ¶1): delete the comma in the first line of the first sentence.
- (§4.4, Page 4-9, ¶4): there is an inconsistency between the Acceptance Criteria and the last sentence of ¶3. §4.3 item (5) allows the use of indicator constituents of concern, whereas §4.4 states that all constituents of concern shall be analyzed. The DOE may analyze all constituents of concern less frequently than selected indicator constituents of concern. Suggest revising this sentence to read: "...*The DOE will sample and analyze groundwater from the point of compliance to monitor achievement of the groundwater restoration goals for constituents of concern.*"

6. Chapter 5.0 ('Long-Term Surveillance Plan')

- (§5.1, Page 5-1): the numbering sequence in this section is erroneous
- (§5.1, Page 5-1, item (2)): the expression of this sentence should be improved to read: "...*the locations of background water quality sampling points (and aquifer*

- completions), points of compliance and, if applicable, points of exposure.”*
- (§5.2, Page 5-1): first sentence is incorrect. Ground water standards will have been set previously at the time the corrective action program was developed and approved. All that the reviewer can do now is confirm that these previously agreed-upon restoration goals are incorporated into the Long Term Surveillance Plan and used as the basis to compare monitoring program results
 - (§5.3, Page 5-1, item (1)): clarify the text to read: “...*Background water quality sampling points, points of compliance...*”
 - (§5.3, Page 5-1, item (2)): the first clause in the first sentence should be deleted. Whether or not leakage has occurred from the impoundment, ground water samples will be collected and monitored. Revise the sentence to read: “*Appropriate ground water parameters should be monitored and detection (or action level) concentrations established that will provide early warning of leakage...*”
 - (§5.4, Page 5-2): this sentence could be read in a manner that would indicate incompleteness. Numerical values for ACLs and Supplementary Standards are not specified in 40 CFR 192. We suggest revising the language to read: “...*confirm that constituents of concern will remain below the relevant standards either stated in Table 1 or established in accordance with provisions in 40 CFR 192...*”