

CN90-003/CHANG

JAN 30 1990

Note to: J. Linehan

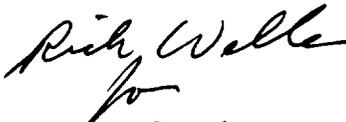
From: J. Bunting

Subject: Review of CNWRA Report, "Identification and Evaluation of
Regulatory and Institutional Uncertainties in 10 CFR Part 60"

At the request of P. Altomare, my staff has reviewed the subject CNWRA report with particular attention to the uncertainties related to the engineered barrier system. A copy of the review comments is enclosed.

We did not attempt to characterize the uncertainties. Some uncertainties are tied to related requirements specified by EPA Rule and therefore imply the existence of institutional uncertainty where requirements set by the NRC and EPA rules are not completely compatible.

A copy of the enclosed comments has been forwarded to P. Altomare for his consideration. Any questions related to the enclosed comments may be addressed to K. Chang (x20525).


J. Bunting

Enclosure:
As stated

cc: R. Weller
C. Interrante
J. Schiffgens
K. Chang
J. Pearring
P. Altomare

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PDR WASTE
WM-11 PDC

1. Definition of Anticipated and Unanticipated Processes and Events

Pages B-39, B-40, B-41 discusses "Anticipated and Unanticipated Processes and Events". The demonstration of compliance with the containment and release rate requirements of 10 CFR 60.113 is based on evaluations of performance for anticipated processes and events. However, APE's and UPE's are defined qualitatively as processes and events affecting the geologic setting. This definition appears to exclude those processes and events which will not affect geologic setting e.g. processes and events contributing to the failures of waste packages occurring inside of the waste packages.

In the EPA rule (Sect. 191.13), containment of wastes is required to limit the cumulative releases of radionuclides to the accessible environment for 10,000 years after disposal from all significant processes and events which may affect the disposal system. The term significant processes and events are defined numerically (rather than qualitatively as in 10 CFR 60) according to Table 1 (Appendix A) of the rule.

The scope of APE's and UPE's in Part 60 and significant processes and events in the EPA rule is different and, therefore, presents uncertainties in regulatory actions related to EBS performance determination. The discussion of pages B-39 to B-41 should address the relationship between the NRC and EPA rules.

2. Definition of High Level Waste (HLW) and Greater-than-Class C (GTCC) Waste

HLW is defined by source and GTCC waste is defined by radioactivity exceeding Class C wastes. Both definitions can create confusion for special cases. For example, spent fuel contains a certain amount of stable radionuclides and stable daughters of radioactive radionuclides. Some of these radionuclides are considered to be toxic and if present in high enough concentrations would be regulated under EPA rules for toxic wastes. 40 CFR 261.24, Table 1, includes a list of stable radionuclides which may be present in spent fuel; specifically arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. It is not clear what requirements should be applied to such mixed wastes.

The CNWRA report should discuss possible uncertainties arising from the above definition for HLW.

3. Design Criteria and Performance Requirements for Disposal of greater-than-Class C Waste

Notwithstanding the general applicability of Part 60 to waste types other than HLW which might be emplaced in a repository, as indicated in attached Table 1, some of the specific Part 60 waste package design and performance requirements are applicable only to HLW and are inapplicable to GTCC. For example, the waste package containment requirement of 60.113(a)(1)(ii)(A) is applicable only to HLW whereas the release rate requirement of 60.113(a)(1)(ii)(B) is applicable to both HLW and GTCC LLW. Further, Part 60.135 provides specific waste package design criteria for only HLW packages and specifies (see Part 60.135(d)) that waste package design criteria for waste types other than HLW will be addressed on an individual basis if and when they are proposed for disposal in a geologic repository.

In its present form, Part 60 is incongruous with respect to performance requirements for waste other than HLW and lacks specific waste package design and performance criteria for other than HLW packages. However, it does provide NRC and DOE the flexibility to tailor packages for wastes other than spent fuel and high-level waste on a case by case basis.

4. Lack of Regulatory Requirement Specifically for Gas Release

Rule 10 CFR 60 does not have requirements specifically addressing gas releases from the EBS and to the accessible environment. This may result in regulatory uncertainty in regard to whether it is reasonable to apply the same release requirement to radionuclides in gas form. For instance, before the failure of the waste package, any gas release from the waste form inside the container is expected to be trapped inside. If a container is breached due to some event, the gas trapped and accumulated over a long time period will be released in a relatively short time and may not satisfy the annual release rate requirement. Uncertainty related to gas release should be addressed by the report.

Another example is the carbon-14 release requirement. A possible pathway for the release of carbon-14 is the transport by diffusion and advection of carbon dioxide through fractured rock to the environment. This pathway bypasses the benefit of 1000 year groundwater travel time requirement. The long half life (5730 yr) of carbon-14 and its biologically active property (a portion of C-14 recycles through the food chain) allows the gas to yield a relatively large population dose per curie released. Its release rate is also very sensitive to waste package life. Uncertainty due to the lack of release rate requirement specifically for gas and particularly for carbon-14 should be addressed by the report.

5. Controlled Release Rate

Part 60.113(a)(1)(ii)(B) specifies that "the release rate of any radionuclide from the engineered barrier system following the containment period shall not exceed one part in 100,000 per year of the inventory of that radionuclide calculated to be present at 1,000 years following permanent closure, or such other fraction of the inventory as may be approved or specified by the Commission; provided that this requirement does not apply to any radionuclide which is released at a rate less than 0.1% of the calculated total release rate limit.." Uncertainties exist on the interpretation of this portion of the rule.

Only two interpretations, both based on radioactive decay alone, seem plausible: (1) the 10E-5 fraction implies a constant allowable release activity (or mass) of a given radionuclide after 1,000 years, i.e., a part in 100,000 of the amount present after 1,000 years of that species; (2) the 10E-5 fraction is an instantaneous fraction at any given time of the amount present. Of these, the first interpretation appears to be the intent of the Rule. However, questions still arise in regard to how this average release would be calculated. This requirement can be applied on a discrete year-to-year basis

or over some averaging time period. Short time periods of releases which by themselves exceed the $10E-5$ fraction can satisfy the requirement when averaged over longer time periods.

In addressing this, it is first necessary to appreciate that whether the engineered barrier system will meet this requirement in any particular year after the containment period, or a minimum of 300 years after permanent closure will be extremely difficult to assess through monitoring. Instead, determinations as to whether the engineered barrier system will meet this requirement of 300+ years hence will be made by performance assessments, because the large number of packages involved and the large spatial extent of the underground facility will involve considerations of the behavior of systems whose properties represent averages with respect to space and time. In light of these considerations, the real question is whether it is acceptable for such performance assessment calculations to show projected releases in excess of the $10E-5$ limit and, if so, for how long a period of time.

The NRC considers that the design of an EBS should be based on maintaining annual releases of radionuclides to less than $10E-5$ of the inventory of that radionuclide calculated to be present at 1000 years following permanent closure. We would consider averaging multiyear periods where releases exceed $10E-5$ per year with multiyear periods having lower release rates as an unacceptable approach. Such averaging is inconsistent with the intent of rule to include in the repository a system of engineered barriers in combination with an effective geologic system.

6. Cumulative Releases of Radionuclides

In Part 60.113(a)(1)(ii)(B), the release rate requirement of one part in 100,000 per year does not apply to any radionuclide released at a rate less than 0.1% of the calculated total release rate limit. However, the calculated total release rate limit shall be taken to be one part in 100,000 per year of the inventory of radioactive waste originally emplaced in the underground facility, that remains after 1,000 years of radioactive decay.

Part 191.18 requires that the sum of the fractions of projected releases and release limits for all radionuclides be less than one. Again, the release limits for individual radionuclides are specified in Table 1 of the EPA rule and are to be applied for 10,000 years.

Therefore, inconsistencies between the NRC and EPA containment requirements for radionuclide releases exist for individual radionuclide releases because the limits are different and because the cumulative releases are calculated by different ways.

7. Comparison of EPA and NRC Release Rate Requirements for Individual Radionuclides

A comparison of EPA and NRC release rate requirements for individual radionuclides would reveal that the release limits could differ by as much as 600 times. It is recommended that the implication of this on regulatory actions be addressed in the next update of the CNWRA report.

TABLE 1
PART 60 REQUIREMENTS
FOR WASTE FORM AND PACKING

Part 60 Requirement GTCC?	APPLICABLE TO:	
	HLW?	
60.111(a) Radiation Protection. Implicitly Yes requires packaging adequate for safe handling during waste emplacement.	Yes	
60.111(b) Retrievability. Maintain retrievability Yes up to 50 years after waste emplacement is initiated	Yes	
60.112 Overall System Performance. Releases of materials to environment must comply with such for TRU, standards as have been established by EPA	Yes (Part 191)	Yes (Part 191 Part 193 for others)
60.113(a)(1)(ii)(A) Containment. Containment to be "substantially complete" for 300-1,000 years.	Yes	No
60.113(a)(1)(ii)(B) Release Rate. Release rate of any radionuclide from engineered barrier system following the containment period is not to exceed 1 part in 100,000 per year of 1,000 year inventory.	Yes	Yes
60.113(c) Exceptions. Commission may approve or specify other objectives on a case by case basis.	Yes	Yes
60.113(c) Additional Requirements. Additional requirements may be found necessary for unanticipated processes and events.	Yes	Yes
60.135(a&b) HLW Package Design. List criteria for explosives, flammables, etc.	Yes	No
60.135(c) HLW Waste Form. Criteria for solidification, consolidation, etc.	Yes	No
60.135(d) Other Wastes. To be developed on an individual basis if and when proposed for repository disposal.	No	Yes
60.142 Design Testing. Requires in situ testing program during early stages of construction, including thermal interaction effects of waste packages, backfill, rock, and groundwater.	Yes	Yes
60.143 Monitoring and Testing Waste Packages. Monitoring to be continued as long as practical until permanent closure.	Yes	Yes

*B. Bordenick's
Review of previous comments
Rec'd 1/25/90*

DRAFT

COMMENTS ON CNWRA IDENTIFIED 10CFR60 REGULATORY AND INSTITUTIONAL UNCERTAINTIES

GENERAL COMMENTS

1. It would be useful if the uncertainties were numbered and presented with their rationale (and reference made to the RR/UN number and and regulatory citation) rather than as they occur by RR number or regulatory citation. This would avoid the duplication of uncertainty
2. In several cases the text states a resolution to the uncertainty which may be inappropriate or unfounded, i.e., opinion. The ongoing work to develop Technical Positions or rules should, however, remain in the discussion.
3. There is concern that the rational discussions do not recognize that there is "intentional" uncertainty, regulatory vagueness, flexibility, or otherwise less than specific language built into regulations. Such lack of specificity may be intended because of a lack of perfect knowledge or to provide the applicant some degree flexibility in meeting the regulations. In such cases, the policy underlying the regulatory requirement can often be achieved effectively in the light of particular circumstances that cannot be foreseen in detail. In some cases, this may result in the litigation of contentions but this must be weighed against establishing rigid requirements that in the actual case may not be best suited to implementation. Unless this factor is noted, there is the possibility that a perception will pervade that all these uncertainties are required to be resolved by rulemaking prior to the license hearing. Further, many of these uncertainties are dependent on obtaining more technical knowledge prior to their resolution and could be considered more as technical uncertainties than regulatory uncertainties; even though the uncertainty reduction may be by rulemaking. Accordingly it is felt that the report and/or rational statements should address this consideration.
4. It should be noted that the rules are intended to be generic. Where an uncertainty is specific to a particular site or design, it may be a technical rather than a regulatory uncertainty.

SPECIFIC COMMENTS

1. RR1/UN1¹ - Anticipated Processes and Events

Anticipated processes and events seem more appropriate for discussion under section 60.113.

The question of applicable time period would seem to be understood to be the performance time period for containment or EPA standard and not an uncertainty.

It is not clear why there is inconsistency in the statements related to anticipated and unanticipated processes and events, i.e., "reasonably likely to occur", "sufficiently credible", and "though evidenced during the Quaternary, are not likely to occur during the relevant time frame."

2. RR2/UN1 - Facilitate vs Not Prevent Waste Retrieval - 60.111(b)(1)

60.111(b)(3) implies a general time period, "about the same time to construct the geologic repository operations area and emplace the waste", over which waste should be retrieved. Accordingly, this would seem to be an implied design constraint with no uncertainty over the intent and therefore this uncertainty could be candidate for exclusion.

60.46(a)(i) would not be impacted as suggested since it is sensible in any case, i.e., whether to facilitate or not to reclude.

3. RR2/UN2 - Subject of Thermomechanical Response - 60.133(i)

There appears to be poor sentence structure, "--taking into account the predicted thermal and thermomechanical response of the host rock, and surrounding strata, groundwater system." I suggest a check with the technical staff as to what makes sense and whether there was a typographical error between drafts. The rationale should include additional information, if appropriate.

4. RR3/UN1 - Worker Safety, Mine Safety, Non-Radiological Safety - 60.133(e)(1)

Accepted as an uncertainty to be considered for clarification. However, it is noted that the commission is primarily concerned with radiological safety. Where an operation is "important to safety" a worker may be a part of that operation and worker safety to ensure the function is important in the design. Other worker areas that are not important to "radiological" safety would be expected to be covered under other agency regulations.

OK

5. RR4/UN2 - Design Radiation Dose For Accidents

The NRC dose criterion, Part 20, are for normal operation not accident conditions. The earlier record should be examined to clarify this uncertainty. The term "at all times" was intended to refer to - at any stage of licensed activity - without repeating, i.e., design to operate in accordance with part 20, design for retrieval in accordance with part 20. It was not intended to imply application to accident conditions. For additional understanding see the ANPR. This uncertainty is a candidate for exclusion.

(It has been suggested that an interpretive rule might be used to clarify all the items of this type that are marginal uncertainties)

6. RR4/UN3 Reference Clarification

No comment

7. RR50/UN1 - Preclusion of the use of Radioactive Tracers - 10CFR60.15

The statute is overriding though probably not intended to restrict the use of tracers by the requirement for retrieving all radioactive material. There is no uncertainty as far as NRC is concerned. If DOE proposes to use tracers, NRC will determine whether such use is necessary.

8. RR52/UN1 - Inconsistent Text 10CFR60.23

An inconsistency but not of significant impact; which might be mentioned in the rational.

9. RR55/UN1 - Milestone for Land Ownership and Control - 60.121(a)(1)

60.121 applies to construction and operation, not site characterization. Therefore this is not an uncertainty. The question is whether NRC should be concerned about land control prior to Construction Authorization.

10. RR61/UN1 - Omission of Subpart F from 10CFR60.31

Appendix F is covered under 60.137. It was intended that conduct of performance confirmation be specified by license conditions. (See NUREG 0804)

11. RR61/UN2 - Unpublished Subpart I

No Comment

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12. RR61/UN3 - Inconsistency between NRC supplemental information and 60.31(c) - inclusion of environmental cost etc

10CFR60.31 is boilerplate language reflecting the need for NEPA determinations. The grounds upon which the determination are to be made are defined by part 51.

13. RR70/UN1 - Substantially Increase the Difficulty of Retrieving - 60.46(a)(1)

See RR2 as to "facilatate" vs "not prevent". There it was noted that the requirement is "not prevent" and this is reference for application of 60.46(a)(1). No uncertainty. 14. RR71/UN1 - Record Archiving - 60.51(a)(2)(ii)

This is one of "many" requirements intentionally worded to provide flexibility, regulatory vagueness, or to otherwise avoid specificity that was not timely or beyond our capabilities.

This regulatory requirement may be considered to have intended "uncertainty".

The particular archives "that would likely be consulted" by potential human intruders may vary with the specific repository site and may change between now and the time the records are to be archived. Accordingly, some flexibility in the rule is acceptable. Also, it is possible not to be specific prior to construction authorization in accordance with 60.24(a) and not detrimentally affect repository performance. On the other hand identification of particular archives with others identified later may help the records handling process. The rule as written provides this flexibility and although there is a lack of "specificity" it is an uncertainty that may be desirable to maintain for the present.

15. RR73/UN3 - responsibility for public document room - 60.22(d)

The wording presents a minor problem, the intent is clear.

16. RR74/UN1 - detailed content of application in 10CFR60.21

This essentially is a statement for need of a Format and Content Guide and License Application Review Plan which are standard NRC documents to support the regulation. The regulatory language is typical of NRC's approach (see pg 131 10CFR70). Accordingly, the uncertainty rational should give the correct perspective so as to not be percieved as a proposed major "new" rulemaking initiative, or, is that what the CNWRA is suggesting?

- 17. RR74/UN2 - no criteria for accepting a License Application for Docketing - 60.21

The parent record is more appropriately 10CFR2.101(f)(3) or 60.24

10CFR60.24 provides qualification for completeness - "reasonably available"

The case law should be reviewed to see if NRC practice provide useful precedent in accepting applications for docketing, i.e., is this an uncertainty in view of past practice.

Note: the NWPA required "sufficiency" review will provide NRC a first review of technical adequacy.

- 18. RR80/UN1 - Applicability of 10CFR57 - 60.131(b)(9)

The uncertainty is not clear.

The basic concept is that NRC regulates radiological safety. When the worker, or MSHA, provisions are functionally important to safety they come under NRC, otherwise they are DOE's concern.

Under 10CFR60.131 the 10CFR, Chapter I, Subchapters D, E, and N, still apply, i.e., are accountable under the NRC rule.

He is saying there is an uncertainty as to whether there is an uncertainty. If such is the case then it properly is an uncertainty.

- 19. RR81/UN1 - Conveyances Used in Radioactive Waste Handling - 60.131(b)(10)

The rule has provision for not covering every aspect of design in 10CFR60.130. This should be included in the rational so as to convey the thought that this is not an uncertainty or problem requiring immediate action, unless, from the Centers point of view this is a major safety omission. *so what*

Don't agree with comment

- 20. RR88/UN2 - Explosion Suppression System - criteria - 60.131(b)(3)(iv)

There is a question as to whether explosion suppression systems would be considered technically worthy of specific attention in the rule. If not, then the provisions of 10CFR60.130 would be applicable and the uncertainty should be considered for exclusion. If they are to be included, then the rational should indicate why the omission is important. *OK*

- 21. RR90/UN3 - Utility Service Testing - 60.131(b)(5)

The uncertainty seems inappropriate. Utility Service would seem important to safety and require design for periodic testing under 60.131(b)(6). As to

worry

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actual testing (as opposed to design), relevant provisions are in 60.74(a)(4) and 60.43(a).

22. RR91/UN1 - Non-periodic Inspection, Testing and Maintenance - 60.131(b)(6)

The uncertainty/omission is not clear. Is an ability for rapidly isolating and repairing/replacing failed parts being asked for? Wouldn't design for periodic testing cover what is needed and, if not, wouldn't 60.130 handle it? OK

23. RR1001/UN1 - Anticipated Processes and Events - 60.112

This is a repeat, see comments on RR1/UN1, RR2000/UN3 and RR2000/UN4

24. RR1001/UN2 - Conform to EPA Standard - 60.112

No comment.

25. RR1001/UN3 - Methodologies for Determining Compliance with EPA Standard - 60.113(a)(1)(i)(A)

The distinction between regulatory and technical uncertainty is not clear. The requirement to meet the EPA Standard is clear, how to do it is unclear but would seem to be a technical uncertainty. The need to develop approved (rulemaking or otherwise public accepted) methodologies would also derive from reduction of uncertainty associated with: reasonable assurance; adequately investigated; adequately evaluated; and, similar stated uncertainties related to showing compliance with the EPA Standard. This then seems more of a technical approach to reduction of uncertainty than a statement of an uncertainty.

26. RR1002/UN1 - Substantially Complete Containment - 60.113(a)(1)(i)(A)

An argument has been made that the Commission intended no release and that the language was changed since it was understood that this may not be demonstrable. Accordingly, the uncertainty is not necessarily with the meaning of "substantial complete containment" but with what is demonstrable (refer to Statement of Considerations). In any event there is an "intended" uncertainty. Also, significant to the rational discussion would be the ongoing nature of the DOE program and their interpretation which has been questioned by NRC and therefore indicates a need for timely uncertainty reduction.

27. RR1003/UN3 - Solid Waste Form - 60.135(c)(1)

This uncertainty should be considered for exclusion since the Commission has approved spent fuel for disposal and gas generation within spent fuel is an accepted phenomena.

28. RR2000/UN1 - Fastest Path of Likely Radionuclide Travel -
60.113(a)(2) and 60.122(b)(7)

The uncertainty can be questions of "path" and "fastest" definition. However, a question again arises as to the distinction between regulatory and technical uncertainty. The argument might be made that "fastest path" is clear, but how to perform the analysis is a technical uncertainty of how to establish fastest pathway, therefore, this might be considered a technical uncertainty.

Consideration had previously been given to the question of the necessity of this requirement, which is also included in the definition of uncertainty. Since radionuclide pathways will have to be evaluated to determine compliance with the EPA Standard, and since the requirement under consideration is for prewaste-emplacment which has no direct bearing on meeting the EPA standard yet is a duplicative effort, there would appear to be a question of need.

29. RR2000/UN2 - Disturbed Zone - 60.113(a)(2) and 60.122(b)(7)

The discussion of circular logic in the rationale is not clear.

The rationale should include discussion of the language of the proposed rule on implementation of the EPA Standard.

30. RR2000/UN3 - Anticipated Processes and Events - 60.113(a)(1) and 60.112

The statement that - without definition DOE would have difficulty doing site characterization - should be eliminated since the SCP and SCA have been written.

The Parent citation was incorrect in the preliminary material

The NRC staff consideration of what was uncertain (Technical Position) should be considered for inclusion in the rationale.

This should be the primary reference to Anticipated processes and events rather than 60.112

The relevant time period for Anticipated Processes should be 10,000 years.

31. RR2000/UN4 - Unanticipated Processes and Events - 60.113(a)(2)

Question whether the parent record is correctly cited

The key problem is determining what is "sufficiently credible".

Consideration should be given to including the NRC discussion of unanticipated processes and events uncertainty (as contained in the proposed Technical Position) in the rationale.

Suggest eliminating statement concerning difficulty of DOE performing site characterization.

Unanticipated processes should not be linked to performance objectives as done in the last sentence

32. RR2001/UN2 Fastest Path etc

Similar to previous uncertainty. Duplication should be avoided.

33. RR2001/UN3 - Geologic Setting - 60.122(b)(1)

Why reference 60.122(b)(1) instead of (a)(1)

OK

34. RR2001/UN4 - Disturbed Zone

Repetitious.

35. RR2002/UN1 - Taking into Account the Degree of Resolution - 60.122(a)(2)(i)

This is considered an "intended" degree of uncertainty.

The language would seem to be clear in intent; to assess the extent to which an adverse condition that would affect performance could be present and undetected. What is an appropriate degree of resolution is uncertain and would be expected to be different in the technical investigations for each of the adverse conditions. Accordingly, a generic fix is unlikely, rather a specific uncertainty reduction for individual adverse conditions would be expected. The question again arises as to whether this is a regulatory uncertainty or a technical uncertainty. Regardless, the problem exist and, as noted above, would seem to imply the development of approved methodologies as uncertainty reduction, i.e., the development of methodologies to implement the EPA Standard.

OK
I think it is a Tech uncertainty

36. RR2002/UN2 - not to effect significantly - 60.122(a)(2)(iii)(A)

This is considered an "intended" degree of uncertainty.

The language means conditions which would potentially preclude meeting the performance standards.

OK

See #35 above.

37. RR2002/UN3 - Adequately Evaluated - 60.122(a)(2)(i)

This is considered an "intended" degree of uncertainty.

The requirement is intended to support "reasonable assurance" at a level of greater detail and this uncertainty is similar to that applied in "reasonable assurance." Why would reasonable assurance not also be considered an uncertainty?

OK

(See #35 above)

38. RR2002/UN4 - Not Likely to Underestimate Its Effect - 60.122(a)(2)(i)

(See #37 and #35 above)

OK

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39. RR2002/UN5 - Adequately Investigated - 60.122(a)(2)(i) OK
(See #35 above)

40. RR2002/UN17 - Inconsistency in Treatment of Combinations of Potentially Adverse Conditions - 60.21(c)(1)(ii)(C) and 60.122

Since the regulation does not "forbid combining such conditions", it is not clear where the inconsistency lies. *Do not agree*

41. RR2002/UN18 - Regional Groundwater Flow System - 60.122(c)(3)

Since the regional groundwater system of concern is that which affects the repository, why is there an uncertainty? *Do not agree*

42. RR2005/UN18

Repeat of #41

43. RR2009/UN18 - Sorption of Radionuclides - 60.122(c)(8) ✓

(To be discussed with technical staff, seems OK)

44. RR2016/UN18 - Evidence of - 60.122(c)(15)

There could be a question of interpretation here, however, 60.112 would still require the consideration of "implications which the evidence provide" such that there is a question of whether this uncertainty should be excluded. *UNCERTAINTY OF INFORMATION STILL AN UNCERTAINTY*

45. RR2017/UN18

Duplicate of #44

46. RR2017/UN19 - Extreme Erosion - 60.122(c)(16)

(See #35 and #37) ✓

47. RR2025/UN18 - Air-filled Pore Spaces - 60.122(c)(24)

It is suggested that the unsaturated zone rulemaking may provide useful information for the this uncertainty consideration. *Freelewart comment*

Suggest that the reference be checked.

48. RR3006/UN1 - Significant Information Implications - 60.10(b)

The Statement of Concerns discusses this uncertainty as no problem, i.e., this should be considered for exclusion

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49. RR3012/UN2 - Construction Problems - 60.72(b)(6)

60.51(a)(2) which states "that could impair the long-term isolation of emplaced waste" would seem to answer the uncertainty, i.e., why is there an uncertainty?

50. RR3012/UN3 - Anomalous Conditions - 60.72(b)(6)

(See #49 above)

51. RR3013/UN1 - Substantial Safety Hazard - 60.73(a)

The wording considered to be an uncertainty is directly from Section 206 of the Energy Reorganization Act and is also included in Part 21.

Clarification as to the meaning and, therefore, exclusion as an uncertainty, may be in the hearing records associated with Part 21.

52. RR3013/UN2 - Significant Deviation - 60.73(b)

It is noted that "Deviation" does not occur in Part 21. The record should be reviewed in that Part 60 was developed in parallel with Part 21 and a change in Part 21 may not have been picked up.