

**Pre-Submittal Audit Table for Draft Final Status Survey Final Report Volume 2, Chapter 1 – Reuse Soil and Off-site Borrow Material Overview
(License No. SNM-00033, Docket No. 070-00036)**

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Pg 8-9, Section 2.2	Reuse Material Screening Action Level	The RML was set at 2,000 cpm, 4,000 cpm, 12,000 cpm, 25,000 cpm and then lowered back to 4,000 cpm. Section 2.2 states that the RSO assessed radiological survey data, but it does not discuss the details of why the RSO authorized the changes to the RML in each instance and what the data showed.	Discuss the radiological survey data in Section 2.2 supporting the decisions to change the RML. Should also state what the RML correlates to with respect to contamination levels.			
All	Revision numbers are needed when referencing procedures.	Many procedures have been revised at the site. Some of the revisions were based on issues identified during the implementation of a specific procedure. Appendix A is helpful, but the document should also include which procedure revision was used in each mention to ensure the NRC an adequate survey was completed. In some cases a revision is cited but not in all instances. For example, page 3 cites HDP-PR-FSS-710 (Revision 4), but subsequent citations of this procedure do not specify a revision.	Update document to include the correct revision of the procedures used to survey the reuse piles in each instance where the procedures are cited. Or, if a specific revision should be assumed after it is cited previously in the document, then note this rule in the document.			
Page 11, Section 3.3	Use of MIL is one of the acceptable approaches for determining compliance, but not the only acceptable approach.	Section 3.3 states that "NRC reached a conclusion that the reuse stockpiles would only be suitable for use as backfill when evaluating against the Uniform DCGLw criteria if the evaluation of the analytical results included the application of a Modified Investigation Level (MIL) for Tc-99 (ML15279A066)." However, the staff proposed alternative options to using the MIL (e.g., mixing and showing that the soil was homogeneous).	Revise this paragraph to state that the MIL was one of the acceptable approaches discussed as opposed to the only acceptable approach. Note: comparing composite sample data to the MIL demonstrates that there are no "hot spots" or elevated contamination levels greater than the DCGL. However, statistical tests (SIGN, WRS, etc.) should only be considering the DCGL, not the MIL.			

Commented [PL1]: Greg – do you mean the SIGN or WRS test here? This comment was a little confusing to me. Is there something in the text of the document that is misleading and suggests they will use the MIL in other statistical tests? We might need to provide more details here.

GCC: That is correct...the statistical tests should only be utilizing the DCGLs, not the MIL. I'm only clarifying here, I didn't see anything specific in the text that makes me think they're planning something different but they seem to put lots of consideration into the MIL.

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Page 12-13, Section 4.0	Decision to use Approach 1 versus Approach 2 versus Approach 3.	<p>Section 4.0 states "Approach 1 was used when the box counter (or equivalent) was utilized. Approaches 2 and 3 were used when the box counter was not used, or the box counter did not have adequate sensitivity such that the Minimum Detectable Concentration (MDC) was greater than the applicable DCGLw." Page 13 states that "Prior to the implementation of Approach 2 the soil for Reuse Stockpile 5 and Reuse Stockpile 6 was processed through the box counter."</p> <p>If the box counter was available for Stockpile 5 and Stockpile 6, why wasn't Approach 1 used? Did it not have adequate sensitivity.</p> <p>Also, Approach 3 is never described.</p>	<p>On page 13, discuss why Approach 1 was not used for Stockpile 5 and Stockpile 6 if the box counter was available.</p> <p>Include a description of Approach 3, delete reference to it on page 12, or explain why it was not used?</p>			
13	The <u>manner in which samples were taken (e.g., volume over which the samples are taken is not indicated)</u> .	<p>Approach 1 includes a composite sample, consisting of four aliquots collected at random. Approach 2 includes a collection and laboratory analysis of 14 systematic samples from a lift. <u>However, the details of how these samples were taken is not articulated.</u></p>	<p>Please include more details about the volume of soil from which the four aliquots are taken in Approach 1. Are they taken from a truckload?</p> <p>For Approach 2, what volume of soil is in a lift? Are the samples taken before or after the soil is transferred to a truck? Is a lift volume the same as a truckload? Were any of the lifts/truckloads of waste diverted due to sampling?</p>			

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Section 3.0 and Section 4.0, Page 13	The decision criteria at each step within survey approaches and the subsequent decisions could be presented in more detail.	<p>The document mentions the DCGLs and the MIL, but it does not contain details on how the data results are assimilated and reviewed to make decisions regarding whether to divert waste or use it in a specific stratum.</p> <p>Approach 1 includes the following step – “Prior to excavation, areas to be excavated are surveyed by gamma walk over survey in accordance with HDP-PR-HP-601 and areas of potential reuse soil area identified.” Approach 2 also has a step where GWS is performed. Please elaborate in these steps on how the RML was applied. For example, how waste with rates higher than the RML was separated?</p> <p>Approach 1 includes the following step – “Dependent on the results of the gamma scan survey and/or laboratory analysis of the composite sample, the pile will then be consolidated to the appropriate stockpile.” Please elaborate on this step and how sample results influence decisions.</p> <p>For example, during resolution of the report for Stockpile 4-7, Westinghouse indicated that “for all reuse soil stockpiles, Westinghouse will always reserve an entire stockpile for the Excavation Stratum or Surface Stratum if any truckload fails the Uniform SOF or Uniform Tc-99 MIL.” However, this is not indicated in the description of the survey methodologies.</p>	<p>Please include more details on how the decision criteria are applied in Section 4. For example, how is soil which exceeds the RML or soil that exceeds criteria for the box counter handled? Also, which laboratory sample results would result in which action (e.g., diversion, or restriction to a specific stratum)? How does failing the UNIFORM SOF or the Tc-99 MIL impact whether waste is diverted or which stratum the soil will be restricted to when used as backfill?</p> <p><u>In subsequent Chapters of Vol. 2 include a figure (flow chart) for how decisions were made and articulates better how waste was decided to be diverted.</u></p>			

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	It is unclear how soil volumes which are intended for a specific stratum are controlled/tracked so they are placed in the correct specific stratum.	In the review of the report for reuse Stockpile 4-7, the NRC commented on the same issue. Westinghouse indicated as part of the resolution table that "The stockpiles are separated by physical barriers and labeled. When a stockpile is chosen as backfill, work package HDP-WP-ENG-802, <i>Backfill and Site Restoration</i> governs the use and placement of the soil. A combination of worker briefings, Management Observations, and civil survey of the placement is used to ensure proper placement of the soil."	Please refer to these procedures and how soil which are intended for a specific stratum are controlled/tracked in Vol 2 Chap 1. If these details are to be presented in Vol 3, Chap 1, please indicate so.			
	Details about how to calculate the weighted average SOF per Stockpile are missing from Vol 2, Chap 1.	During resolution of the report on Stockpiles 4-7, Westinghouse committed to include example calculations in addition to discussions of how the weighted average SOF is calculated. Westinghouse also clarified that any SU that receives soil from a reuse stockpile will receive the entire reuse soil pile dose. Section 2.1 states that "The methodology utilized to incorporate the dose impact from reuse soil is discussed in detail in FSSFR Volume 3, Chapter 1." It seems appropriate to discuss how an SOF from a Stockpile will be applied to a particular Survey Unit, but the method for calculating the SOF for an individual Stockpile should be contained in Vol 2, Chap 1.	Please include a generic example calculation in addition to discussions of how the weighted average SOF is calculated in Vol 2, Chap 1.			
Page 15	Typo in the last sentence in 4.5.1 Typo in last sentence in section 4.5.3	The volume of Reuse Stockpile 1 and Reuse Stockpile 2 that was not processed through the S3 and was diverted to Reuse Stockpile 9 for future survey is estimated to be approximately 1,043 cyd.	Please correct typo in these sentences.			

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		The volume of Reuse Stockpile 4 and Reuse Stockpile 7 not processed through the S3 was diverted to Reuse Stockpile 9 for future survey and was estimated to be approximately 1,091 cyd.				
	Vol 2 Chap 1 does not discuss the assumed distribution of data for Stockpiles.	During resolution of the report on Stockpile 4-7, Westinghouse committed to confirming whether the data is normally distributed, or to present the data as log-normally distributed before generating summary statistics.	While specific data would not be expected in Vol 2, Chap 1, a general discussion of what statistical analysis will be done on the data for each stockpile should be included in Vol 2, Chap 1. <u>Clarify if statistical tests show data is normally distributed with > 95% confidence.</u>			
General	Report may not contain all the "Information to be Submitted" acceptance criteria in NUREG-1757, Vol 2, Rev 1 Section 4.5.2.	Westinghouse should review their submittal against the "information to be submitted" criteria in NUREG-1757, Vol 2, Rev 1, Section 4.5.2 and describe where the required information will be found if it is not necessarily in this Volume or Chapter.	Some of the "information" should be put into this chapter (e.g., overview of the results, methods used to determine # of samples, justification for the statistical values utilized, drawings/maps/layouts, etc.). A paragraph in the intro to describe the required information and where it is located would be helpful.			
Section 3	The insignificant radionuclides of concern are not discussed.	The treatment of insignificant radionuclides Np, Pu, and Am should be discussed.	Include a discussion of the treatment of insignificant radionuclides.			
Section 4 (4.6?)	The background exposure rates/count rates in the areas where the soil scans were performed is not discussed.	It'd be helpful to briefly discuss the background count/exposure rates in the areas where scanning was performed so we can better understand the sensitivity of the methods utilized.	Include in the discussion what background was encountered/what sensitivity was established.			