

SUPPLEMENTAL INFORMATION FOR THE SAB/RAC FOR 7/27/11

Provided by Ms. Kathryn K. Snead, MARSSIM Workgroup Chair

The MARSSIM Workgroup considered these additional possible updates to MARSSIM for Revision 2:

1) Multiple Surfaces and Other Guidance Found in 1505/1507

Surveying multiple surfaces as one survey unit and other improvements to the MARSSIM methodology can be found in NUREGs-1505 and 1507 (such as Appendix J in 1505). Need to assess NUREGs-1505 and 1507 for possible improvements and incorporate into MARSSIM.

Importance: High **Difficulty:** Med

2) Equipment and Measurement Methods Updates

MARSSIM Chapters 6, 7, and Apx H need updating to reflect the current state of technology.

Importance: High **Difficulty:** High

3) Quality Assurance

The language in MARLAP is directed towards laboratory measurements. Field QC measurement analogs should be identified and discussed in this section of MARSSIM. This section should also discuss the use of **performance indicators** to assist in controlling the quality of the measurement results.

Importance: High **Difficulty:** Medium

4) Historical Site Assessment (HSA) versus Initial Assessment (IA)

The IA is sometimes considered more extensive than an HSA. MARSSIM, Rev.2, should revisit the extent of the HSA to determine if additional actions can be undertaken in the HSA. If so, what should they be?

Importance: Undetermined **Difficulty:** Undetermined

5) MARSSIM and the Subsurface

The workgroup needs to revise MARSSIM to make interface with subsurface clear (i.e., the document needs to clearly state and delineate where MARSSIM ends and MARSAS [if ever developed] would begin – just as was done with MARSSIM & MARSAME).

Importance: High **Difficulty:** Low

6) Smears for Building Surfaces

MARSAME included a discussion on the use of smears. Should this be incorporated into MARSSIM?

Importance: High **Difficulty:** High (Possible Policy Issues)

7) Emergency Response Surveys for Building Surfaces and Surface Soils

The EPA's Liberty Radiation Exercise didn't fully incorporate or use MARSSIM. Since MARSSIM's scope is ideally suited for incorporating into a post RDD or IND response, Rev. 2 may be the time to incorporate a Section specifically addressing how it could be used for emergency responses

Importance: Medium **Difficulty:** Medium

8) Scoping and Characterization

The difference between the two types of surveys is poorly understood in MARSSIM. Need to revise MARSSIM to clarify the difference between scoping and characterization.

Importance: High **Difficulty:** Medium

9) Hard-to-Scan Radionuclides

More guidance is needed for implementing MARSSIM for hard-to-measure radionuclides such as carbon-14 and tritium. What do you do for a Final Status Survey when you CAN'T scan something?

Importance: High **Difficulty:** High

10) Checklist or Outline for Survey Plan/Report

Suggestion was to make this Checklist or Outline like NRC's Guidance for Decommissioning Plan. Provide a standard list of recommended info for planning and reporting of MARSSIM surveys.

Importance: High **Difficulty:** Medium

11) Implementing Sign Test with Background Present

An alternate method of implementing surveys where background is present is to come up with a well characterized background number, and subtract it from EACH measurement, and then use the Sign Test, as opposed to using the Wilcoxon Rank Sum Test as suggested in MARSSIM.

While this method isn't incorrect, it is LESS POWERFUL than the suggested method.

Workgroup will revise MARSSIM by providing an alternate statistical approach and make available in Table 2.3. Text will also be developed that acknowledges this alternate method but will warn of the possible loss of power inherent in doing so.

Importance: Low **Difficulty:** Low

12) Additional Illustrative Examples using Exception Values

The examples in MARSSIM use default values which have been interpreted by users as hard-and-fast guidance values. MARSSIM, Rev. 2, will incorporate additional illustrative examples using exception values to illustrate additional flexibility inherent in the document.

Importance: High **Difficulty:** High

NOTE: This is Ms. Kathryn Snead's best guess (not a consensus answer) as to what current sections the following proposed revisions would affect (some re-organization and re-numbering is expected as well). All revisions: Roadmap, Chapter 2, Glossary, References

1. **Updated treatment of measurement uncertainty:** MARLAP introduced the concept of performing a full uncertainty analysis for measurements, in keeping with new ISO and NIST recommendations, and MARSAME followed suit. Need to revise MARSSIM to incorporate a full uncertainty analysis for measurements, especially in the calculation of Scan-MDCs. (Sections 4.7 and 4.9, Sections 6, 7, 8, and 9, Appendix N)
2. **Updated measurement methods:** MARSAME introduced the concept of scan-only surveys. Need to revise MARSSIM to incorporate scan-only surveys. (Section 4.7 and 5, 8 and 9)

3. **Scenario B (“assumed to pass until proven otherwise”)**: In MARSAME, Scenario B is treated as an equal option to Scenario A; whereas in MARSSIM, Scenario A is considered the preferred method. Need to revise MARSSIM to consider both Scenarios equal. (Sections 4 and 5, 8 and 9)
4. **Increased emphasis on regulator interface during survey design**: Too many regulators are indicating that they do not get enough input on the design of the survey before the survey is implemented. Need to revise MARSSIM to add a new section further emphasizing the importance of getting regulatory buy-off on the survey design, and possible other steps in the survey framework, before implementation. (Sections 3.6-3.9, 4, and 5)
5. **User comments (“lessons learned”)**: Includes: Glossary review, updating references, and QA sections of MARSSIM that were added after the final peer review, and a few other miscellaneous updates. Also includes addressing some additional suggested changes generated during a public “Request for MARSSIM Revision Input” period. (All Sections)
6. **Definitions/terms consistent with related documents**: In MARSSIM classification is a term that means two different things; whereas in MARSAME, the term categorization was introduced to mean the decision between impacted and non-impacted. Need to revise MARSSIM to use the term categorization consistent with MARSAME. This is only one example of inconsistent terms between the three MAR- series documents. (All Sections)
7. **Better discussion of “hotspots” and UMTRCA standards**: In the current implementation of MARSSIM, different radionuclides can result in different area factors. Need to revise MARSSIM to add guidance for choosing an area factor when different radionuclides are present. MARSSIM does not address UMTRCA standards, which appears to be an omission from the original document. (Sections 4 and 5)