

NJDEP Technical Guidance Document Review Form

Document: *"FSPM Chapter 12 - Radiological Assessment"*

Comment Period: July 26, 2023 to September 8, 2023

NJDEP Committee Chairperson: Crystal Pirozek

Comment #	Page	Section	Subsection	COMMENTS	RESPONSE
1	1	TOC		The following groups of words appear to need spaces between them: 12.7.1 "Identify Contaminants" 12.8.1 "and Vertical" 12.10.1 "Area Classification" 12.10.5 "Class 1 Areas" 12.10.6 "Determining Sample" 12.10.7 "Coverage Fractions" 12.10.9 "Determining Compliance," 12.10.11 "Status Survey"	Formating and reviewed and corrected if needed.
2	General			There is a lot of good information but should this subject /chapter be addressed in a stand alone technical guidance document with proper stakeholder input - the sampling of radioactive material is something most LSRPs are not equipped to handle and/or rarely if ever encounter, and they will need to reach out to a radiological expert health physicist. That probably needs to be discussed (both in the document and internally).	This is not a new chapter in the NJ Field Sampling Procedures Manual and minimal changes have been made. Full stakeholder review was conducted on the chapter and LSRPs/DEP staff that are experienced in this type of sampling have been consulted. The primary guidance document this Chapter relies on is the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) available at https://www.epa.gov/radiation/multi-agency-radiation-survey-and-site-investigation-manual-marssim. The MARSSIM Workgroup is an ongoing, collaborative effort to bring consistency to the methods and processes used to demonstrate compliance with federal and state radiation regulations. Workgroup members represent the four federal entities that have the primary responsibility for managing radioactive materials: Department of Defense (DOD), Department of Energy (DOE), Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC). Its review and revision includes extensive stakeholder review and involvement, including opportunity for public input. Revision 2 is currently underway, after which NJDEP may reopen revision to this Chapter to reflect the best, current guidance. In addition, MARSSIM is a required reference in N.J.A.C. 7:28-12.

3	General			There should be a brief / general discussion of radiation in construction materials. Most notably, the Clean Fill guidance acknowledges that gravel from granite quarries of northern NJ is radioactive. There should be some discussion about how to handle this and/or there should be carve-out for those situations (like a parking lot covered with crushed stone from a granite quarry in northern NJ).	Added to Section 12.2 "The following industries have the potential to produce, transfer, distribute, sell, lease, receive, acquire, own, transport, store, dispose, possess, or use TENORM or other anthropogenic radioactive material contamination: historical use of radioactive materials (current or former radioactive materials licensee); large groundwater users such as water treatment facilities and paper/pulp facilities; paint and pigment manufacturing; metal foundry facilities; fertilizer plants; optical glass facilities; ceramics manufacturing; aircraft manufactures; munitions and armament manufactures; scrap metal recycling; zirconium manufacturing/use; oil and gas production, refining, and storage; electricity generation; cement and concrete product manufacture; radiopharmaceutical manufacturing; and geothermal energy production." Also linked the additional guidance available.
4	2	12.1		The word "Program" should be removed from Contaminated Site Remediation and Redevelopment Program	Agreed to change
5	2	12.1		Spell out MARSSIM	Agreed to change
6	2	12.2		Glossary not included for review or are you referring to the MARSSIM Glossary? Confusing	Changed text and added link to clarify this refers to the FSPM Glossary.
7	2	12.2		When defining TENORM, include transportation of NORM when defining human activities.	Concurrent with Comment response #3, added to Section 12.2 "The following industries have the potential to produce, transfer, distribute, sell, lease, receive, acquire, own, transport, store, dispose, possess, or use TENORM or other anthropogenic radioactive material contamination: historical use of radioactive materials (current or former radioactive materials licensee); large groundwater users such as water treatment facilities and paper/pulp facilities; paint and pigment manufacturing; metal foundry facilities; fertilizer plants; optical glass facilities; ceramics manufacturing; aircraft manufactures; munitions and armament manufactures; scrap metal recycling; zirconium manufacturing/use; oil and gas production, refining, and storage; electricity generation; cement and concrete product manufacture; radiopharmaceutical manufacturing; and geothermal energy production."
8	2	12.2		Cite source of the TENORM definition. Also suggest to expand the TENORM description and why it is the sole focus of this document. Also, suggest adding the definition for NORM. Is Site Remediation concerned with NORM?	Added reference to N.J.A.C. 7:28-1.4. NORM undisturbed in its natural location is not applicable to this guidance. If either concentrated, or human activities increase the likelihood of exposure to NORM, then it would be considered TENORM by NJ's regulatory definition, and the regulations at 7:28-4 and 12 would become applicable. The second paragraph of section 12.2 intends to explain why TENORM is the focus of the guidance document. The following was added: "The guidance in FSPM 12 and MARSSIM are applicable to any radioactive material contamination/investigation."
9	2	12.2		Remove the period at the end of the section title.	Agreed to change
10	2	12.3		CCNJ/SRIN recommend spelling out "NARM".	Replaced acronym with "naturally-occurring or accelerator-produced radioactive material"

11	2	12.3		Suggest listing out what radionuclides are "certain special nuclear material".	Added "Specific categories of radioactive material listed in item 1 are defined in the FSPM Glossary at https://www.nj.gov/dep/srp/guidance/fspm/manual_edition/2022/fspm_glossary.pdf ."
12	3	12.3		The text in the last paragraph should read, "land areas and buildings with any contaminated..." and is missing a closing paranthetical.	Agreed to change
13	3	12.4		For text reading "should request approval," and "should provide copies," the "shoulds" should be changed to "must" or "shall."	Changed to must. It is stated in N.J.A.C. 7:26C- 2.3(a)(3)(i)(4) that prior approval is required for a site that is suspected or known to be contaminated with anthropogenic radionuclide contamination of any media.
14	3	12.4		NJAC should be N.J.A.C.	Agreed to change
15	3	12.4		"Upon completion of the site investigation or remedial investigation, the site investigation or remedial investigation workplan should then be included with the corresponding site investigation or remedial investigation report developed in accordance with the reporting requirements per NJAC 7:26E and submitted through the NJDEP online portal (https://www.nj.gov/dep/online/) for official submission to SRP...." NJAC should be "N.J.A.C."; SRP should be CSRRP	Agreed to change
16	3	12.4		Does BER-REAS require site investigations or remedial investigations workplans? If so, change "recommended" to "shall" or "must"	Changed to must. It is stated in N.J.A.C. 7:26C- 2.3(a)(3)(i)(4) that prior approval is required for a site that is suspected or known to be contaminated with anthropogenic radionuclide contamination of any media.
17	3	12.4		Define when BER_REAS approvals are required.	It is stated in N.J.A.C. 7:26C- 2.3(a)(3)(i)(4) that prior approval is required for a site that is suspected or known to be contaminated with anthropogenic radionuclide contamination of any media.
18	3	12.4		Are workplans a requirement of BER-REAS or just a recommended best practice?	It is stated in N.J.A.C. 7:26C- 2.3(a)(3)(i)(4) that prior approval is required for a site that is suspected or known to be contaminated with anthropogenic radionuclide contamination of any media.
19	4	12.4		Third paragraph - Sections should be Section's	Agreed to change
20	4	12.4		Clickable link for REAS is broken due to period at end.	Fixed link
21	4	12.4		The website link for BER-REAS is returning a "404 error". Check the link noted in the doc in the 3rd paragraph on page 4: https://www.state.nj.us/dep/rpp/reas/reas_main.htm .	Fixed link
22	4	12.4		Link (https://www.state.nj.us/dep/rpp/reas/reas_main.htm) is bad	Fixed link

23	4	12.4		3rd paragraph contains a dead link: "Any questions regarding this chapter should be directed to the NJDEP, Bureau of Environmental Radiation (BER) at (609) 984-5400 or through the Bureau of Environmental Radiation's Radiological and Environmental Assessment Sections web site at https://www.state.nj.us/dep/rpp/reas/reas_main.htm . A list of references can be found at the end of this chapter. For definitions and acronyms, consult the following:"	Fixed link
24	4	12.5		MARSSIM first defined in paragraph 3 - move to page 2, Section 12.1	Agreed to change
25	4	12.5		The paragraph starting, "Comparison of..." seems either incomplete or looking to reference Figure 12.1, which was already referenced earlier. May need to be deleted.	Sentence deleted
26	5	12.6		Short explanation of three steps of HSA 1) identify the candidate site by some or all of the following: address, block and lot, latitude and longitude, physical descriptors (back of property, near pond, etc.) 2) perform a preliminary investigation of the site noting current and previous property owner(s), prior use of the site, etc. 3) visit or inspect the site and make note of current use, locate potential contamination, etc.	Removed the steps and linked PA document specific MARSSIM chapter for reference
27	5	12.6		Provide a citation for the definition of "site".	Added that the definition of site is from Marssim
28	6	12.7	1	A correlation coefficient "closer to one than to zero" allows for a lot of interpretation. 0.51 is closer to one than zero, but would likely not be considered an adequate correlation. Replace "The correlation coefficient should be calculated as well to see if it lies nearer to one than to zero." with "A correlation coefficient of greater than 0.8 is ideal, but the department will consider other values on a case-by-case basis."	Agreed to change
29	6-7	12.7	1	Are there requirements of suggestions for the evaluation of the "linear pattern" of the scatter plot, correlation coefficient, and/or curve test? At minimum, suggest to reference criteria from MARSSIM.	A specific reference is provided
30	6	12.7	2	Last paragraph: DCGLmod should just be "DCGL" since it is preceded by modified.	Agreed to change
31	7	12.7	4	NUREG-5849 is a draft report for comment, and not an official publication from the NRC. If choosing to leave this in anyway, the full title is NUREG/ CR -5849.	Agreed to change. Added "MARSSIM Section 8.2, Data Quality Assessment, also provides methods of assessing surveys (including background reference areas)." to replace "If it is desirable to determine background before the final status survey, NUREG 5849, Manual for Conducting Radiological Surveys in Support of License Termination, Section 2.3.1 may be consulted, which discusses the number of samples needed and how to determine if they are representative." since the commenter accurately indicated the reference publication was not a final report.

32	7	12.7	5	When performing a survey, what are the personal protective equipment requirements relative to this section? Alternatively, should we default to Chapter 13 for the full requirements? (BER REAS will reassess if there is a better reference).	Added text to 12.7 about PPE
33	8	12.8		"e.g." should have a comma after it	Agreed to change
34	9	12.8	1	Second bullet should read, "...should not typically exceed 1 m intervals." and "...where the scanning MDC is insufficient or not determined."	Agreed to change
35	9	12.8	1	Add colon - end of 2nd paragraph	Agreed to change
36	9	12.8	1	Table 12.1 - Suggest adding revision numbers or years associated with the analytical methods.	Table updated with years
37	9	12.8	1	Second full paragraph on page before Table 12.1 references the OQAs Part III, should include a link to the lab cert website page where that can be found: https://dep.nj.gov/dsr/oqa/laboratory-certification-programs/	This section was revised referer to new DataMiner report.
38	9	12.8	1	Incomplete sentence when referencing soil thickness of core samples.	Agreed to change
39	9	12.8	1	In table 12.1, Common Methods for Radiological Analysis are listed. Can additional methods be utilized, or only the methods specified within this table?	Typically, the programs require OQA certified labs in which case they would be certified for one of the methods listed in the table.
40	9	12.8	1	Remove "Core samples may be homogenized or composite sampled...or not determined" and replace with "Homogenization is not needed or recommended, especially at depths greater than 1 m due to sample dilution" - condenses the paragraph	Changed text to make more clear
41	9	12.8	1	CCNJ/SRIN recommend fixing the second solid bullet as follows (in bold): • Core samples may be homogenized or composite sampled over a soil thickness that is consistent with assumptions made in the dose assessment (the Vertical Extent modeled/assumed), however, should not typically exceeding 1 m intervals as .	Agreed to change
42	10	12.8	3	Add "or if any need to be added"	Agreed to change
43	11	12.10		Third paragraph - remove the comma after "possible."	Agreed to change
44	11	12.10	2	DCGLw= derived concentration guideline level	Agreed to change

45	12	12.10	2	Paragraph starting with "The NJDEP," fifth line, the σ s should have the "s" as a subscript.	Agreed to change
46	13-14	12.10	5	Could a link be provided within the regulations to showcase the exact calculations utilized to create the value points within table 12.2's Outdoor Area Dose Factors, please?	Added link to Marssim that describes the calculations
47	18	12.10	6	Second paragraph - remove comma after "biased."	Agreed to change
48	19	12.10	8	Last paragraph: NJEP should be NJDEP.	Agreed to change
49	19	12.10	8	Last paragraph: add a hyphen between CR 7021. "NUREG/CR-7021"	Agreed to change
50	19	12.10	8	Last paragraph typo - NJEP should be NJDEP	Agreed to change
51	19	12.10	8	When the MARSSIM guidance on subsurface contamination is available for comment, will this update these regulations? Could the MARSSIM guidance be disseminated to our attention as well, please?	Yes, this guidance will be reevaluated once a final version of MARSSIM rev 2 or other subsurface guidance is finalized.
52	19	12.10	9	The MARSSIM guidance is referenced for determining compliance. Could a link to that standard or a reference from the compliance requirements be inserted into this document for ease, please?	MARSSIM guidance is linked in section 12.1 at the beginning of this chapter.
53	20	12.10	10	Typo noted for sentence: Limit the need for excavation 'or' avoid the requirement for a deed restriction.	Added "and"
54	20	12.10	10	This might be done to limit the need for excavation and to avoid...	Added "and"
55	20	12.10	10	CCNJ/SRIN recommend fixing the sentence as follows (in bold): This might be done to limit the need for excavation and avoid the requirement for a deed restriction to maintain the cover.	Added "and"