

December 13, 2023

Ms. Cynthia S. Barr  
Project Manager and Senior Risk Analyst  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

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ADD: Cynthia Barr, Sarah Achten, Mary Neely

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**Subject:** NEI Comments on Draft DUWP-ISG-02, Radiological Survey and Dose Modeling of the Subsurface to Support License Termination

**Project Number: 689**

Dear Ms. Barr:

On behalf of the nuclear industry, NEI<sup>1</sup> is pleased to offer comments on NRC's draft interim staff guidance on subsurface radiological investigations, DUWP ISG-02, dated October 2023. We believe that this document will be helpful in the design and conduct of subsurface radiological surveys performed in support of license termination. Our comments are provided in the attachment to this letter.

If you have any questions, please do not hesitate to contact me at [bsm@nei.org](mailto:bsm@nei.org).

Sincerely,



**Bruce Montgomery**  
Director, Decommissioning and Used Fuel

Attachment

CC: Jane Marshall, NMSS, DUWP  
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<sup>1</sup> The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

NEI Comments on Draft DUWP-ISG-02, RADIOLOGICAL SURVEY AND DOSE MODELING OF THE SUBSURFACE TO SUPPORT LICENSE TERMINATION

#	Section/page	Comment
1	2.2, page 2-6	<p>The draft ISG includes the statement:                      “For this guidance, all open excavations and process-related substructures are presumed to be impacted...”</p> <p>NEI suggests that additional clarification is warranted here. For open land areas and other structures impacted from plant related airborne releases, only the surface would be considered an impacted Class 3 area. Subgrade surfaces should be considered non-impacted unless shown to be impacted in the HSA. Further, even Class 2 and Class 3 excavations with no history of spills could likewise be considered either non-impacted or a lower classification than the surface.</p>
2	2.6.1, page 2-34	<p>The draft ISG includes the statement:                      “Off-site borrow sources are likely categorized as non-impacted, so would not fall under any class-specific guideline. The licensee is, therefore, required to determine if a MARSSIM/ MARSAME-like approach is appropriate or some other process is necessary to establish off-site borrow MAC. These MAC are necessary to verify the borrow site has not been unacceptably impacted by site operations or by operations from other unaffiliated sites that could also deposit radiological materials (e.g., naturally occurring radioactive materials from a coal-fired plant).”</p> <p>NEI is strongly opposed to this provision. NEI believes that in the case of borrow sources from sites with no past radiological work history, all dose from NORM or Cs-137 should be considered background radiation and not subject to NRC or licensee control. This would impose an unjustified burden, and licensees should not be required to sample and account for background radiological material from these borrow sources.</p>
3	3.3, pages 3-14 through 3-26	<p>Although the Subsection 3.3 discussion relating to risk significant subsurface parameters notes that laboratory or experimental support to derive site-specific distribution coefficient values is not always necessary, the guidance on sensitivity of <math>K_d</math> to geochemical parameters, soil type and groundwater chemistry appears to default to the need for extensive site-specific analytical data in order to defend selection of input parameters. The use of subjective qualifiers such as “sparse or of low quality” in reference to determination of acceptable reference data is not helpful. The description of physical parameters at individual sites that have the potential to affect nuclide-specific distribution coefficients appears to be almost infinitely variable and even includes the consideration of seasonal variations. If it is the intent of the NRC to default to site specific analyses in order to remove all uncertainty from the selection of <math>K_d</math> values, then the staff should make it clear to licensees</p>

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		that it is not practical for licensees to defend $K_d$ values (and possibly other risk-significant parameters) without site-specific analytical data.
4	Section 4	The draft ISG contains guidance on the various methods that can be used to calculate the dose from contamination in groundwater and the groundwater monitoring approaches that can be used to include the dose impact of groundwater contamination in showing compliance with the site release criteria. NEI agrees with the multiple references in the document that a graded approach can be used to determine what portions of the ISG guidance are applicable for a particular site.
5	4.2, page 4-2	There are several statements in the draft ISG that the maximum radionuclide concentration in a groundwater contamination plume should be used in calculating the dose from groundwater contamination. NEI believes this would be an overly conservative approach at some sites as the postulated future drinking water well on the site would draw groundwater from a large capture zone area and that this capture zone may include multiple monitoring wells for a site that has an extensive monitoring well network which has gathered a great deal of radionuclide concentration and hydrogeologic data. An approach to average the radionuclide concentrations for the wells within this capture zone radius of each individual survey unit has been approved by the NRC in the past and should be added to the ISG as an acceptable approach for compliance groundwater monitoring. In line with the graded approach discussed in Comment 4 above, the approach of using the maximum concentration site-wide should be retained as it may be appropriate for a site with little or no groundwater contamination and/or a limited monitoring well network.
6	4.2.1, page 4-5	<p>The draft ISG contains the statement “<i>Considering seasonal or other short-term variations in results, maximum residual radioactivity over a multi-year period should be used as input for dose calculation for existing contamination of groundwater contamination.</i>”</p> <p>It is likely that natural attenuation will reduce the concentrations of radionuclides in groundwater, even in cases where remediation has been required. The ISG should state that if the licensee has seasonal monitoring well data that shows that radionuclide concentrations have been trending downward over multiple years, the licensee should be able to use concentrations that are measured closer to the time of site release in calculating the dose due to groundwater rather than maximum values that occur earlier in the decommissioning.</p>