

**From:** [Amy Snyder](#)  
**To:** [Amy C. Hazelhoff](#)  
**Cc:** [Shaun Anderson](#); [Greg Chapman](#); [Karen Pinkston](#); [Louis Caponi \(He/Him\)](#); [David Hills](#); [Bill Lin](#)  
**Subject:** Zion Confirmatory Survey Extent of Condition  
**Date:** Friday, August 11, 2023 11:18:00 AM  
**Attachments:** [FINAL\\_Summer-converted\\_using\\_Microsoft\\_print\\_PDF.pdf](#)  
[image001.png](#)

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Hi Amy,

Based on the risk-informed survey evaluation criteria developed prior to the 2023 Zion Confirmatory Survey (ML23221A243, attached), NRC staff have assessed the factors discussed using the available confirmatory surface data and other information. One concern that staff currently have is that whether detectable particles may still be present in portions of the site that were not scanned at 100% with discrete radioactive particles (DRP) data quality objectives (DQOs), particularly at or near the Southeastern portion of the site.

Given:

- the pattern of DRPs and activated material found and removed since 2020
- the results of the 2023 Zion Confirmatory Survey at or near the South portion of the property surrounding several survey units that were not hand scanned using the ZS Survey Plan DQOs or included in the scope of the confirmatory surveys (SU 10221 and 10211) (See maps below) and
- the past rail waste loading activities that occurred at the south end of the site

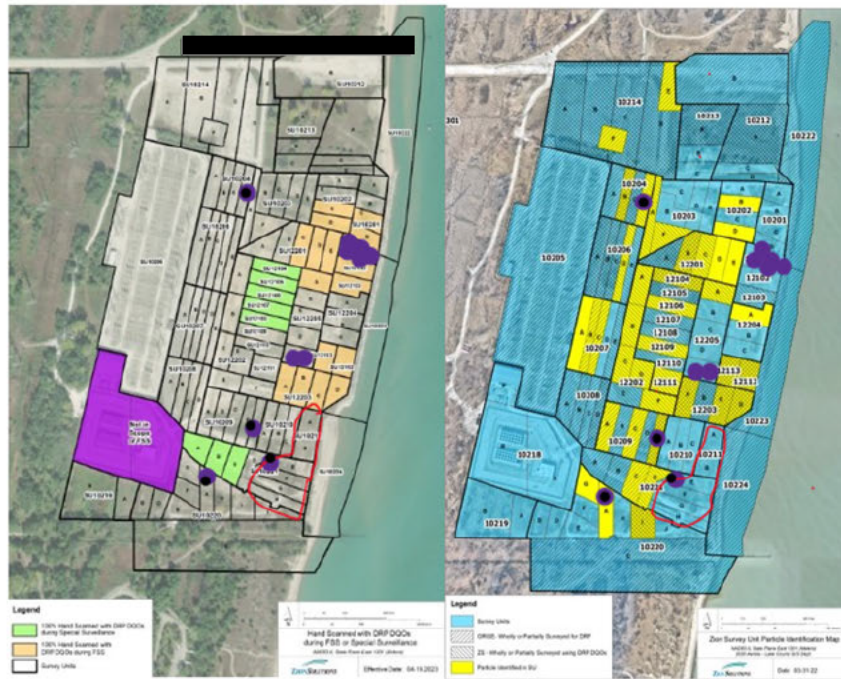
an evaluation of extent of condition for the Southeastern portion of the site is needed consistent with the ZS Confirmatory Survey Criteria (see page 11, column 3 of the ZS Confirmatory Survey Criteria attached).

One approach for the evaluation of the extent of condition that would be acceptable to the NRC: To ensure that cross contamination of DRPs in SU 10221 and 10211 did not occur as a result of rail loading of waste at or near the south rail loading area, hand scanning SUs 10221 E,F,G,& H and 10211 A&B at 100% coverage to ensure that there are no gaps in the extent of condition to identify and remove DRPs could be done.

Additionally:

A sample collected from SU 12101 had Eu-152 at 5.19 pCi/g. There are no Derived Concentration Guideline Levels (DCGLs) for EU-152 in soil only for concrete in the power block. Staff have a concern whether Eu-152 should be a radionuclide of concern (ROC) for soil in this, and possibly adjacent, survey units.

Green and orange areas: hand-scanned with DRP DQOs



Yellow areas: DRPs found either on surface or at depth (<1 ft)

An evaluation of the extent of condition for the Eu-152 is also needed consistent with the ZS Confirmatory Survey Criteria (see page 11, column 3 of the ZS Confirmatory Survey Criteria attached). An acceptable approach to address this concern would be to evaluate the gamma spectroscopy results for FSS survey samples collected in the survey unit, and adjacent survey units, to see if detectable Eu isotopes were present and, if so, whether the data is consistent with the insignificant radionuclide contributor criteria.

We expect to get the last remaining DRP sample results back next week sometime and will evaluate those to determine if they are DRPs of concern with respect to dose. The DRPs which we do not have gamma scan results back yet **are identified on the map** as purple dots with black circles in them (SU 10209D, SU10221E, SU1022A, and SU10204D) and were considered by staff in the pattern of DPRs found since 2020. Also, soil sample results for radionuclides of concern (ROCs) are expected back by the end of August. We will evaluate the data once they are received.

Please let us know your plans to address the two extent of condition needs and provide an estimate of when you will be able to respond.

If you have any questions or request a clarification call, please contact me.

Thank you.

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