

**From:** [Kauffman, Laurie](#)  
**To:** [Van Nortwick, James W. \(GE Corporate\)](#)  
**Subject:** REQUEST FOR ADDITIONAL INFORMATION REGARDING FINAL STATUS SURVEY PLAN FOR THE FORMER UNITED NUCLEAR CORPORATION NAVAL PRODUCTS SITE IN NEW HAVEN, CT  
**Date:** Tuesday, April 21, 2020 11:22:00 AM  
**Attachments:** [image004.png](#)

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Dear Mr. Van Nortwick:

This is in reference to Final Status Survey Plan, letter dated March 11, 2020, [Agencywide Documents Access and Management System (ADAMS) Accession Number ML20078J548] for the Former UNC Naval Products Facility in New Haven, CT. In order to continue our review, we need the following additional information:

1. It is true that the Atomic Energy Commission (AEC) (now NRC) had 'released' the site on April 22, 1976, utilizing Regulatory Guide 1.86 criteria, and the NRC had initiated a program in the 1990s to ensure that facilities formerly licensed through the AEC and/or early NRC had been terminated in accordance with the NRC's current (1990s) release criteria for unrestricted use. However, because the cleanup at this site has been extraordinarily lengthy, several additional areas of the site had been identified as suspect and reinvestigated, and, as of March 2019, the cleanup plan has significantly changed and includes the deconstruction of the 3H/6H building, slab removal, and the evaluation, excavation, and removal of any contaminated soil, the NRC considers the entire site to be suspect. The NRC will re-release the site after the we determine that the entire site meets the release criteria for unrestricted use. In Section 1.1, the first sentence of paragraph 4, of the final status survey plan (FSSP) states that, "The majority of the areas that were remediated and evaluated met the criteria for unrestricted radiological release." This statement refers to the 'release' of the site in 1976 by the AEC, prior to the re-investigation in the 1990's, please consider modifying this sentence to reflect the precise interpretation.
  - a. Section 3.4 of the final status survey plan (FSSP) identifies areas of the site that are categorized as non-impacted and were reported as "clean" in the 2018 Remedial Action Completion Report (RACR). The NRC understands that several areas of the site have previously received significant investigation and the resulting data from some of these investigations are intended to support final status survey decisions. However, it is unclear if these data satisfy current project data quality objectives (DQOs) and if there are potential data gaps that should be addressed in the FSSP. Please provide detailed DQOs and describe how the data satisfies any potential data gaps that should be addressed in the FSSP. Also, to a non-technical individual, the word "clean" connotes not radiologically impacted. Please rephrase the statement to support the technical context of this cleanup project.
  - b. Section 3.4 As part of the radiation site survey and investigation (RSSI) process, the entirety of the subject site starts as an impacted Class 1 area, as recommended by MARSSIM. Throughout the phases of the RSSI process, the site is portioned into survey units (SUs) and classification is reduced based on supporting evidence. Area classifications can be fluid until the FSS, and should not downgraded during the FSS. Your FSSP does not provide justification, or reference appropriate supporting documents, of the non-impacted designation

of the areas identified in Section 3.4. Please provide justification, or reference appropriate supporting documents, of the non-impacted designation of the areas.

- c. Section 3.4.1 of the FSSP states that core bores in the footprint area of the former building 9H (offices), 10H (hot waste processing), 11H (metallurgy laboratory) had been sampled and analyzed. The previous service provider reported the highest activity to be 3.25 picoCuries per gram (pCi/g) total uranium, which is less than the DCGLw of 435 pCi/g. In this section, you stated that the area was disposed as “clean” in the 2018 RACR. As discussed above, please rephrase the word “clean” and clearly state if soil samples might be collected and analyzed as a result of the gamma walk-over survey.
  - d. Section 3.4.2 of the FSSP states that the Argyle Street Sewer is a non-impacted area. However, the Argyle Street Sewer was considered as impacted. For your consideration, I have included two documents that indicate that Argyle Street Sewer was considered impacted. (Oak Ridge Institute for Science and Education (ORISE), Final Report-Radiological Scoping Survey of Buildings 3H and 6H at the Former UNC H-Tract Facility, New Haven, Connecticut (CT), letter dated February 13, 1997 (ADAMS Accession No.: ML110120443) and UNC Characterization Plan and Decommissioning Plan, dated August 14, 1998 (ML12069A047).)
2. The South Utility Trench extends to the East of Building 6H, as indicated in Figure 4-1 of the RACR and provided below. However, the FSSP does not address this section of the trench. Please include this portion of the trench within the study boundaries.



3. Section 4.3 indicates that a z-score will be determined for each data point collected during the gamma walkover survey. However, this section is titled Sample Collection. Section 4.1 states that the post-processed gamma survey data will be binned and graphically presented based on a multiple of background. Additionally, the investigation level presented in each section are different (gamma response greater than 4 times background in Section 4.1, and areas with a z-score greater than 3 in section 4.3). Please clarify the application of the z-score in Section 4.3, and address the discrepancy between investigation levels presented in Section 4.1 and 4.3. Also, clarify how the scan data assessment methods are intended to identify areas of elevated activity.
4. MARSSIM guidance states that the actual scan minimum detectable concentration ( $MDC_{Scan, Actual}$ ) must be less than the required scan MDC ( $MDC_{Scan, Required}$ ) for Class 1 SUs. The  $MDC_{Scan, Required}$  is typically based on the DCGL for an elevated area of contamination (i.e. the  $DCGL_{EMC}$ ). The FSSP does not present area factors, therefore, the MDC is the DCGL for total uranium. The

FSSP should demonstrate that the selected instrumentation is capable of detecting contaminant concentrations at or below the  $DCGL_w$ . NUREG-1507 presents an industry and regulatory accepted methodology for determining scan sensitivities of typical field instruments. Additionally, the NUREG-1507 scan MDC paradigm is based on the surveyor monitoring the audio output of the instrument and making real-time decisions related to the presence of contamination. This paradigm is not applicable when investigation decisions are based solely on post-processed GIS scan data. The scan data assessment methods discussed in the previous comment do not demonstrate that the selected instrumentation and scan procedure will be sufficient to identify discrete locations of contamination at concentrations equal to the  $DCGL_w$ . Please provide information related to scan sensitivity of the instrumentation selected for gamma walkover surveys.

5. The FSSP does not address actions for areas above the  $DCGL_w$ . Section 4.4 discusses the application of the Sign test and states "Note that if all the samples are less than the  $DCGL_w$  no further evaluation is required as the survey unit will always pass the Sign test." Without an elevated measurement comparison, the previous statement must always be true for the SU to pass. In other words, without a  $DCGL_{EMC}$  the  $DCGL_w$  is treated as a not-to-exceed value, such that all measurements must be less than the  $DCGL_w$ . The reviewer assumes that if a single measurement exceeds the  $DCGL_w$ , the SU will fail and additional actions will be taken. Please revise the plan to address the potential for individual measurements to exceed the  $DCGL_w$  and the alternative actions.
6. The column labeled "Direct Measurement" in Table 3 is unclear. The term "direct measurement" is a surface activity measurement (in units of  $dpm/100\text{ cm}^2$ ), that would be collected with a hand-held alpha and/or beta detector. The acronym table lists the unit  $dpm/100\text{ cm}^2$ , but no reference to these measurements are presented in the body of the plan. If surface activity measurements are to be performed as part of the FSS, then the collection, assessment, and acceptability of these data should be specified in the plan (i.e. there are no DQOs supporting surface activity measurements). Please provide supporting information in the body of the plan.
7. Section 2.2.2. states, "Due to analysis methodology limitation, when gamma spectroscopy was used to quantify the total U, the U-234 was estimated as 27 times the U-235 concentration." Please include the reference for this statement.
8. In Section 2.2.3, the FSSP discusses a 20 foot buffer surrounding Building 3H/6H footprint and Section 3.2.1 discusses a 10 foot buffer surrounding Building 3H/6H footprint. Additionally, the buffer area is identified as a Class 1 in Table 1 and a Class 1 or 2 in Table 2. The text in Section 3.2 states the buffer area will be a Class 2. Please resolve the inconsistencies in the plan.

We will continue our review upon receipt of this information.

In order to continue prompt review of your application, we request that you submit your response within 30 calendar days from the date of this email.

An electronic version of the NRC's regulations is available on the NRC Web Site at: [www.nrc.gov](http://www.nrc.gov). Additional information regarding use of radioactive materials may be obtained on the NRC Web Site at: <http://www.nrc.gov/materials/miau/mat-toolkits.html>. This site also provides the link to the toolbox for updated information on the revised regulations for naturally-occurring and accelerator-produced radioactive materials (NARM).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at: <http://www.nrc.gov/reading-rm/adams.html>. Please be aware that you may request that certain portions of your submittal to NRC be withheld from public disclosure as proprietary information. To do this, you must execute an affidavit as specified in 10 CFR 2.390. You must list all portions that you wish to be held proprietary, along with your reasoning as to why that is appropriate. While it is allowable, please refrain from submitting proprietary information in support of a license unless necessary. Keep in mind that all NRC licenses are considered to be in the public domain, and therefore may be viewed by any member of the public who requests to see them.

If you have any questions regarding this request for additional information, please contact me at 610-337-5323 or via electronic mail at [Laurie.Kauffman@nrc.gov](mailto:Laurie.Kauffman@nrc.gov).

Thank you for your cooperation.

Sincerely,

A rectangular box containing a handwritten signature in cursive script that reads "Laurie Kauffman".

Laurie A. Kauffman, Health Physicist  
Decommissioning, ISFSI, and Reactor HP Branch  
Division of Nuclear Materials Safety, Region I