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Subject:	[External_Sender] NYSERDA Responses to Clarification Call with NRC on February 15, 2018
Date:	Thursday, February 22, 2018 8:44:37 AM

Per NRC's email request of February 15, 2018, NYSERDA is providing additional clarification to support the "Radiological Survey and Dose Assessment Report For the Western New York Nuclear Service Center and Off-Site Areas In Follow Up to Aerial Gamma Radiation Survey Conducted in 2014, Rev. 1," dated November 18, 2016.

I. As stated in Section 3.1 of the referenced report (see Pages 3-4), NYSERDA consulted extensively with the National Nuclear Security Administration's Remote Sensing Laboratory (RSL) on the identification of specific areas that warranted follow-up measurements based on the results of the 2014 Aerial Radiation Survey. RSL has extensive knowledge and experience in evaluating aerial survey methods and datasets to ensure that all pertinent sample locations and features are identified for follow-up measurement. In this case, RSL identified and applied four criteria that resulted in the delineation of specific areas that they believed warranted further evaluation for elevated radionuclides in the soil. These are the areas where the ground-level measurements of ambient radiation and soil sample collection were completed by NYSERDA's contractor.

These criteria were:

1. Areas where the cesium-137 (Cs-137) spectral signature was greater than two standard deviations above background. This threshold (30 counts per second) is slightly above background and the sensitive detection limits for these measurement and analysis methods. This screening criterion on its own could result in false negatives given the relatively small variance in the extraction algorithm for Cs-137, and may be indicated in the spectral data though not strongly within the photopeak.

2. Areas where the anthropogenic-sources spectral signature was greater than two standard deviations above background. This threshold (1000 counts per second) is slightly above background and is sensitive to statistical fluctuations in the high-energy count rate where only naturally occurring isotopes are present. This screening criterion on its own could result in false positives due to the relatively large variance in the spectral signature and could produce false positives if used to look for a specific isotope (Cs-137).

3. Areas where Criteria 1 and 2 were found to exist together or in proximity (i.e., less than or equal to 300 feet), the Cs-137 spectral signature was retained for the area requiring follow-up investigation, and the anthropogenic-sourced area was used as a confirmatory check of the Cs-137 data. This approach allowed a reduction in the statistical variance of the anthropogenic-sourced spectral signature by specifically accounting for Cs-137, which minimized the statistical fluctuations due to the high-energy count rates where naturally occurring isotopes were present.

4. Utilizing the expert knowledge of the scientists from the RSL, manual filtering techniques

were applied to the dataset to remove relatively small, randomly located spots that, based upon RSL's extensive experience, represented statistical noise. This process further refined candidate areas for follow-up investigation.

In addition, NYSERDA added Sub-Area 4.3, which was not initially identified by the RSL due to a search error in their GIS processing methodology (Cs-137 spectral signature areas that were wholly contained within a larger anthropogenic polygon were not initially identified in the screening process). The search tool was corrected, and this area was identified as a candidate area for follow-up investigation.

Based on the criteria identified above, five main areas were selected for survey, sampling, and dose assessment.

II. Also, as discussed during the clarification call on February 15, 2018, there are transcription errors in the GPS coordinates listed for Sample Locations 3.1.13 and 4.3BR4 in Appendix F. Please use the Sample Location Data Sheets (Appendix E) for the correct GPS coordinates.

Please let me know if you have any questions related to this email.

Thank you,
Andrea Mellon

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