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ANDREW M. CUOMO
Governor

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President and CEO

August 24, 2016

Mr. Matthew R. Meyer, Acting Chief
Materials Decommissioning Branch
Division of Decommissioning Uranium Recovery
And Waste Programs
Office of Nuclear Material Safety
And Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: *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, Rev. 0,* dated August 22, 2016

Dear Mr. Meyer:

NYSERDA is submitting 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. 0,* dated August 22, 2016, accompanying references and appendices, and a matrix in response to your comments.

Please contact me or Andrea Mellon at 716-942-9960 extension 4900 or 4054, respectively, if you have any questions.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM

Paul J. Bembia, Director

PJB/amd

PJB/16amd024.amd

New York State Energy Research and Development Authority

Albany
17 Columbia Circle, Albany, NY 12203-6399
(P) 1-866-NYSERDA | (F) 518-862-1091
nyserda.ny.gov | info@nyserda.ny.gov

Buffalo
726 Exchange Street
Suite 821
Buffalo, NY
14210-1484
(P) 716-842-1522
(F) 716-842-0156

New York City
1359 Broadway
19th Floor
New York, NY
10018-7842
(P) 212-971-5342
(F) 518-862-1091

West Valley Site
Management Program
9030-B Route 219
West Valley, NY
14171-9500
(P) 716-942-9960
(F) 716-942-9961

Attachments:

1. *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, Rev. 0,* dated August 22, 2016.
2. References 1-19.
3. Appendices A-I.
4. NYSERDA Responses to NRC Audit Comments on the Draft West Valley Soil Sampling and Dose Assessment Report, Dated 8/23/2016
5. Remote Sensing Laboratory GIS Project files

Reference:

1. Letter, Matthew R. Meyer, NRC, to Paul J. Bembia, NYSERDA, "Regulatory Audit Report – Review of Offsite Characterization and Public Dose Assessment Documentation and Processes for the Western New York Nuclear Service Center in Follow Up to the Aerial Gamma Radiation Survey Conducted in 2014 (CSF-1, Docket Number: 050-00201 Cost Activity Code: L53127)," dated July 14, 2016.

cc: J. A. Dean, NYSERDA-Albany (w/o att.) Janice.Dean@nyserda.ny.gov
A. L. Mellon, NYSERDA-WV (w/o att.) Andrea.Mellon@nyserda.ny.gov
N. C. Shaw, NYSERDA-Albany (w/o att.) Noah.Shaw@nyserda.ny.gov
A. Snyder, NRC, (w/att.) Amy.Snyder@nrc.gov
B. C. Bower, DOE-WVDP, (w/o att.) Bryan.Bower@wv.doe.gov
DOESupporstaff@wv.doe.gov (w/o att.)
File: #30004-0210 (w/att.)

NYSERDA Responses to NRC Audit Comments on the Draft West Valley Soil Sampling and Dose Assessment Report Dated 8/23/2016

No.	NRC Comment	Resolution of Comment
1	Provide documented data quality objectives for field measurements and analytical measurements.	Section 4.0, Data Quality Objectives, of the August 22, 2016 *Radiological Survey and Dose Assessment Report for the Western New York Nuclear Service Center and Off-Site Areas*, and Section A.6.1, Data Quality Objectives, to the *Quality Assurance Project Plan*, were updated to include detailed language addressing the data quality objectives for field and analytical measurements.
2	Provide documented data quality assessment methods and results for field measurements and analytical measurements.	See resolution information above. In addition, Appendix E, *Field Sample and Instrument Checks,* has been updated to include a *Project Data Quality Parameter Crosswalk Table* that assesses field and laboratory data quality.
3	Clarify how results for radionuclides besides Cs-137 were recorded and evaluated.	All surface samples were analyzed for gross alpha, gross beta and gamma spectroscopy (all gamma emitters, including Cs-137). In addition, expanded analysis from each sub-area were collected and include radionuclide specific results for Am-241, C-14, I-129, Np-237, Pu-238, Pu-239/240, Pu-241, Sr-90, Tc-99, U-232, U-233/234, U-235/236, U-238, H-3, Th-229, Th-230, Th-232, Ra-226 and Ra-228.
4	For each sample area, explain how uncertainty was considered in the conclusions regarding health and safety risk.	Uncertainty was evaluated for sample areas and all field and analytical measurements met the acceptance criteria identified in the *Quality Assurance Project Plan* and *the GEL Laboratory Quality Assurance Plan*. An assessment of the criteria is also found in the *Project Data Quality Parameter Crosswalk Table* located in Appendix E. Finally, regarding the conclusions reached for each sample area regarding health and safety risk, multiple survey and data collection efforts were implemented to independently calculate dose values that support these conclusions. These efforts include: • Comparison of the aerial radiation survey data results to background aerial radiation survey results. • Follow-up gamma walkover and tissue equivalent surveys completed for each area to determine if any elevated locations were within an area, and to calculate the dose rates at each location. • Soil sample collection at either the elevated locations or at random locations determined based on the size of the sampling area.

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No.	NRC Comment	Resolution of Comment
		- In addition, sample collection and analysis at multiple depths to evaluate the potential for contamination at depth. - Detailed radionuclide analysis were completed for a minimum of 20 percent of each area. • Background soil sample collection representative of the sample areas to remove contributions from the naturally occurring radionuclides and other environmental background constituents. • Collection of detailed current land use information from the individual property owners to support the dose assessment. • Calculation of a current land use dose assessment using the soil data, area geology and land use information. • Calculation of a conservative reasonably foreseeable future land use dose assessment. • Calculation of a dose for consumption of fish. The multiple survey and data collection efforts implemented for each area support the conclusion that the each of the sampling areas do not pose a health and safety risk.
5	Additional information addressing the fish ingestion pathway and other pathways that may be important to potential receptors in the area based on reasonably foreseeable future land use.	An annual radiation dose for Areas 1, 2, and 3 from the consumption of fish has been included in the August 22, 2016 *Radiological Survey and Dose Assessment Report for the Western New York Nuclear Service Center and Off-site Areas* (see Sections 7.1.5, 7.2.5 and 7.3.5).
6	Information on how land use survey and geographical data helped informed development of site-specific exposure scenarios for use in the dose assessment.	Detailed land use survey information is provided for Areas 1, 2 and 3 in Appendix D. In addition, an On-Site RESidual RADioactive material (RESRAD 7.0 Computer Code) dose assessment for Areas 1, 2 and 3 was calculated using the most conservative reasonably foreseeable future land use of a Resident Farmer (except as noted for Sub-area 2.1).

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7	Provide rationale for selection of Am-241 or Pu-239 (alpha-emitting), and Sr-90 (beta emitting) to represent the most limiting alpha- and beta-emitting radionuclides (e.g., other alpha-emitting radionuclides have lower Phase 1 U.S. Department of Energy's West Valley Demonstration Project Phase 1 Decommissioning Plan clean-up values or derived-concentration guideline levels).	The rationale for using Am-241 and Pu-239 as the most limiting alpha-emitting radionuclides and Sr-90 as the most limiting beta radionuclides is included on Page ES-3 of the Executive Summary.
8	Provide clarification on approach used to identify areas of concern for the purpose of conducting walkover surveys including use of 300 to 3000 ft range (see Section 3.1 of Draft report).	Section 3.1 of the August 22, 2016 *Radiological Survey and Dose Assessment Report for the Western New York Nuclear Service Center and Off-site Areas,* details the criteria used by the Remote Sensing Laboratory (RSL) to delineate the specific areas where follow-up sampling was warranted. One of the criterion used was to determine the boundaries of areas where there was evidence to support the Cs-137 and anthropogenic spectral signatures. For these areas, the distance between overlapping or in proximity areas was determined by RSL to be less than or equal to 300 feet. In addition, overlapping areas of concern were grouped together to the extent possible and gamma walkover surveys, tissue equivalent surveys, and soil sampling activities extended to beyond the delineated grouped area to ensure that the entire area of concern was evaluated.
9	RESRAD-OFFSITE input files associated with Appendix H used for dose assessment.	A complete set of the RESRAD-OFFSITE Input files is included in Attachment H.
10	GIS Project file containing Remote Sensing Laboratory data, and shape files used to delineate areas of concern.	The Remote Sensing Laboratory GIS Project files are enclosed as a separate CD in this submittal.

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No.	NRC Comment	Resolution of Comment
11	Spreadsheet of data linking Appendix F of the draft report coordinates and Appendix B of the draft report sampling results.	In Appendix F, the global positioning system coordinates for each sampling location have been added to the Excel spreadsheet containing the sample identification information.