



NYSERDA

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August 3, 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
Matthew.Meyer@nrc.gov

SUBJECT: Response to NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING ACTIVITIES ON THE WESTERN NEW YORK NUCLEAR SERVICE CENTER RETAINED PREMISES

Dear Mr. Meyer:

In response to your June 14, 2016, Request for Additional Information Regarding Activities on the Western New York Nuclear Service Center Retained Premises, NYSERDA is transmitting the attached response. In accordance with the July 27, 2016 email from Ms. Amy Snyder of your staff, NRC approved an August 3, 2016 submittal date for this response.

The controlled plans and procedures referenced in the attached response are available upon request.

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

Attachment:

1. *NYSERDA RESPONSE TO NRC'S REQUEST FOR ADDITIONAL INFORMATION*

PJB/16amd020.amd

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NYSERDA RESPONSE TO NRC'S REQUEST FOR ADDITIONAL INFORMATION

For areas on the New York Energy Research and Development Authority (NYSERDA) retained premises, excluding the State-licensed Disposal Area (SDA) and the U.S. Department of Energy (DOE)-West Valley Demonstration Project (WVDP) premises —

Radiological Status of NYSERDA Retained Premises:

- 1. Identify and describe the process that NYSERDA has in place to determine the radiological status of these areas before NYSERDA allows activities to be performed in these areas.**

NYSERDA uses a Work Planning and Control Process (as described in NYSERDA's Work Planning and Control Plan, PRG-500) to evaluate and authorize all NYSERDA-managed work activities at the Western New York Nuclear Service Center. NYSERDA's work planning and control process uses a graded approach. Level 1 work planning documentation is the most stringent and requires a high level of detail in the work planning process and in work control documents and is used for non-routine work activities where the potential exposure to radiological or chemical hazards is unknown or above Occupational Health and Safety Administration (OSHA) or NYSERDA's administrative control limits. Level 2 work requires detailed work control documents and is used for routine work activities where the potential exposure to radiological or chemical hazards is known and is below OSHA or NYSERDA's administrative control limits. Level 3 work involves simple or routine tasks that require less detailed planning and work control documents. It is through the work planning and control process that determinations are made as to whether a proposed work activity (because of the nature of the work activity or its location) requires the development of work control documents such as detailed procedures, Job Hazard Assessments, Industrial Work Permits, Radiation Safety Evaluations, or Radiation Work Permits.

NYSERDA is not presently authorizing work in areas of the Retained Premises that may have radiological contamination in excess of natural background or fallout levels due to an ongoing review of the 10 CFR Part 50 License and its supporting documents. Work will continue to be restricted in these areas until the license review is complete and a determination is made in regard to the need to amend and update the 10 CFR Part 50 License. As described below, areas of the Center that have a potential for such radioactive contamination have been identified on a "Restricted Areas Map" (Attachment 1), and this map is used as part of the work authorization process in the Work Planning and Control process.

- 2. Does the process differ for work involving soil or sediment disturbance?**

At the present time, NYSERDA is not authorizing any work activities in areas that may have radioactive contamination above background or fallout levels, regardless of whether soil or

sediment disturbance is involved. NYSERDA's Work Planning and Control Process is followed for every action on the Retained Premises.

3. What types of information are used in the process to determine the radiological status of the NYSERDA Retained Premises?

Information used by NYSERDA to identify areas of the site that may have radiological contamination in excess of natural background or fallout levels includes information on the location of historical site operations, locations of past and present planned and unplanned releases of radioactive material to the environment, radiological survey and soil sampling data and information, and information on key environmental transport pathways. In developing its overall understanding of site radiological conditions in regard to evaluating potential work activities on the non-SDA portions of the Retained Premises, NYSERDA regularly references several sources that provide particularly relevant information, including, but not limited to:

- i. **Aerial Radiological Survey of the Western New York Nuclear Service Center** - This report provides information that shows areas of the Retained Premises with Cs-137 concentrations that may be above background levels;
- ii. **West Valley Demonstration Project Annual Site Environmental Reports** (prepared annually by the WVDP since 1982) - These reports identify WVDP operational discharge locations where radioactive materials enter creeks that flow from the WVDP Premises to the Retained Premises. The reports also identify surface water discharge locations and groundwater seep locations where radioactive material from the Sr-90 groundwater plume discharges from the WVDP Premises to the Retained Premises;
- iii. **Draft 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** - This document provides soil sampling data that confirms the presence of radioactive materials in concentrations above background at certain locations within the Retained Premises;
- iv. **West Valley Demonstration Project Terrestrial Background Study for Task Order 5, Rev.1** - This document provides soil background information for areas on the Retained Premises that were used as background locations for comparison with the soil sampling data in item iii above;
- v. **2010 Final Environmental Impact Statement for the Decommissioning and/or Long-Term Stewardship at the WVDP and the Western New York Nuclear Service Center (and support documents)** - These documents provide summaries of

historical operations at the Center, groundwater and surface water flow directions, and discharge locations;

- vi. **Quarterly West Valley Demonstration Project Groundwater Trend Analysis Reports** - These reports show radiological and chemical monitoring results and trends for locations on the WVDP Premises that could impact the Retained Premises;
- vii. **2010 and 2015 LiDAR topographic maps** - The LiDAR topographic maps identify areas along Buttermilk Creek that would be within the flood plain of the creek, and subject to impacts from radiological discharges from the site.

NYSERDA used this information to develop a "Restricted Areas Map" (Attachment 1) which is used in NYSERDA's Work Planning and Control process. This information provides for an initial identification of areas that may contain radioactive contamination at levels above background or fallout levels. This same information is also used to identify those areas of the Retained Premises where the above-referenced data indicates the basis for no reasonable expectation for residual radioactivity in excess of background or fallout levels.

NYSERDA will also prepare a decommissioning plan for the Retained Premises of the Center, along with a Historical Site Assessment, Characterization Sampling and Analysis Plan and Final Status Survey Plan using the approach identified in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG 1575. These documents will lay out the formal process for identifying and addressing the impacted, potentially impacted and non-impacted areas of the Retained Premises of the Center and will provide for NYSERDA's compliance demonstration for the Retained Premises with the decommissioning criteria identified by the NRC. The reference documents identified above will also be used in the preparation of the Historical Site Assessment.

a. If data is used, describe how data quality and data uncertainty are addressed?

All sources listed in Sections (i)-(vii) above have data quality requirements and processes that are described in the individual reports. In terms of uncertainty, the majority of the restricted area map boundaries are drawn conservatively using multiple sources of information (for example, the areas of "Potential Radiological Contamination" shown on the Restricted Areas Map were identified using the 2014 Aerial Radiation Survey, in combination with knowledge of historic site operations, potential transport pathways and discharge locations, and the LiDAR topographic survey information).

b. If historical site assessments or historical information is used in its process, identify what was used and explain how it was used. Also, identify whether NYSERDA addresses in its process changes in conditions since the information was obtained or the site was last

sampled (i.e., substances may have been released, migration may have spread the contamination, additional waste disposal may now be present, waste transportation pathways may have cut through the site, or decontamination may have been performed) and whether such changes were assessed.

Please see above response to Question 3 for a description of the historical information NYSERDA relies upon in assessing the radiological status of the Retained Premises. In regard to changing conditions, the 2014 aerial radiation survey provides a very recent and complete data set in regard to radiological conditions for the entire Western New York Nuclear Service Center. The site transport pathways have been studied extensively by many agencies over many years, including NYSERDA, DOE, the Nuclear Regulatory Commission (NRC), the United States Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC) and are well characterized and routinely monitored. Site environmental monitoring data have been collected over many years, and are regularly updated (monthly, quarterly, semiannually or annually) to identify current conditions, seasonal changes, and longer-term trends. This extensive environmental monitoring program and long historic record allow changes in site conditions or transport pathways to be detected and flagged, and would allow NYSERDA to update the restricted areas map or work planning process if needed.

- c. If radiological criteria are used (levels, concentrations, activity) to identify the radiological status of the areas or environmental media (i.e., impacted, non-impacted, or radiologically contaminated or not radiologically contaminated), identify what they are and how they were used. If radiological criteria are not used, then explain what is used and the level of confidence NYSERDA has in ensuring radiological safety?**

As discussed in above Response 3a, factors considered in identifying the Restricted Area map boundaries include knowledge of historical site operations, areas identified in the 2014 Aerial Radiation Survey as having above-background concentrations of Cs-137, known and potential WVDP and North Plateau Plume discharge locations, knowledge of key transport pathways, environmental monitoring results, and site topography that would limit the transport of radioactive materials to certain areas. NYSERDA used this data and information to identify areas that may contain radioactive contamination at levels above background or fallout levels. This same information shows there is no reasonable expectation for residual radioactivity in excess of background or fallout levels in the remainder of the Retained Premises of the Center.

- 4. Identify how NYSERDA documents the radiological status of the retained premises. Where can this information be found?**

NYSERDA used the information identified in the response to Question 3 to develop a "Restricted Areas Map" (Attachment 1), which is used in the work planning and control

process. This map identifies the areas of the Retained Premises that may have radiological contamination above background or fallout levels. This same information is also used to identify those areas of the Retained Premises where data suggests there is no reasonable expectation for residual radioactivity in excess of background or fallout levels. The relevant information can be found in the reports for each monitoring, characterization, or data collection activity identified in Response 3. These reports are kept and filed in the NYSERDA Central Files or Reference Collection and are subject to the New York State Freedom of Information Law.

5. Identify and describe the process that NYSERDA has in place to determine whether radiological controls are required to perform activities in these areas.

In July 2012, NYSERDA completed the development of a Radiation Protection Program (RPP) for the non-SDA, non-WVDP portions of the Western New York Nuclear Service Center. The program was prepared to provide a structured process for the review and approval of work activities that will be conducted on the non-SDA, non-WVDP portions of the Center where Part 50-Licensed radioactive materials are or may be present.

The Retained Premises Radiation Protection Program was developed under the guidance and approval of a Radiation Safety Committee and is implemented under the oversight of a qualified Radiation Safety Officer. This Radiation Protection Program provides the structured process for the evaluation of radiological hazards and identification of radiological work controls for activities in areas of the Retained Premises that may contain radioactive materials in excess of background or fallout levels. As described above in NYSERDA's responses to Questions 1 and 3, NYSERDA is not presently authorizing any work activities in areas of the non-SDA, non-WVDP portions of the Center that may have Part 50 regulated radioactive material in excess of background or fallout levels.

NYSERDA staff discussed the Retained Premises Radiation Protection Program (which was developed to meet the requirements of 10 CFR Part 20 Standards for Protection Against Radiation), with NRC staff during conference calls in early 2011, and completed and submitted the Program to the NRC in July 2012 (ML12261A265). During the March 2011 conference calls, NRC stated that NRC understood that NYSERDA was developing the Retained Premises Radiation Protection Program out of an abundance of caution, and that NRC had no objections to NYSERDA establishing an RPP as a framework for the review of Retained Premises work activities. NRC also acknowledged that it was not formally requiring this program, and as such, NRC's review and approval of the program was not necessary prior to implementation. NRC did not review or provide NYSERDA with any feedback on the Radiation Protection Program for the Retained Premises of the Center at the time of the submittal.

6. What is the radiological status of the NYSERDA retained premises? Has NYSERDA identified specific areas and associated environmental media on the NYSERDA retained premises that are:

- a. radiological-impacted or contaminated,
- b. potentially radiologically impacted or contaminated, or
- c. non-impacted?

The information referenced in the response to Question 3 has allowed NYSERDA to identify areas on the Retained Premises that have radioactive contamination at levels above background or fallout levels, areas on the Retained Premises that may contain radioactive contamination at levels above background or fallout levels, and areas on the Retained Premises where there is no reasonable expectation for residual radioactivity in excess of background or fallout levels. As described above, this information was used to prepare the Restricted Areas Map, and is used in the Work Planning and Control process.

7. How does NYSERDA identify the areas on the retained premises that are impacted or contaminated or potentially contaminated on the NYSERDA retained premises?

As described in the response to Question 3, NYSERDA used several sources of information to develop a "Restricted Areas Map" (Attachment 1), which is used in the work planning and control process:

- i. **Aerial Radiological Survey of the Western New York Nuclear Service Center** - This report provides information that shows areas of the Retained Premises with Cs-137 concentrations that may be above background levels;
- ii. **West Valley Demonstration Project Annual Site Environmental Reports** (prepared annually by the WVDP since 1982) - These reports identify WVDP operational discharge locations where radioactive materials enter creeks that flow from the WVDP Premises to the Retained Premises. The reports also identify surface water discharge locations and groundwater seep locations where radioactive material from the Sr-90 groundwater plume discharges from the WVDP Premises to the Retained Premises;
- iii. **The Draft 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** - This document provides soil sampling data that confirms the presence of radioactive materials in concentrations above background at certain locations within the Retained Premises;
- iv. **West Valley Demonstration Project Terrestrial Background Study for Task Order 5, Rev.1** - This document provides soil background information for areas on the

Retained Premises that were used as background locations for comparison with the soil sampling data in Item iii above;

- v. **The 2010 Final Environmental Impact Statement for the Decommissioning and/or Long-Term Stewardship at the WVDP and the Western New York Nuclear Service Center (and support documents)** - These documents provide summaries of historical operations at the Center, groundwater and surface water flow directions, and discharge locations;
- vi. **Quarterly West Valley Demonstration Project Groundwater Trend Analysis Reports** - These reports show radiological and chemical monitoring results and trends for locations on the WVDP Premises that could impact the Retained Premises;
- vii. **2010 and 2015 LiDAR topographic maps** - The LiDAR topographic maps identify areas along Buttermilk Creek that would be within the flood plain of the creek, and subject to being impacts from radiological discharges from the site.

Nature of Work on the NYSERDA Retained Premises:

- 8. **Areas on the NYSERDA retained premises involving disturbance of environmental media or materials:**
 - a. **Identify the radiological status of these areas where the work or activities were performed and whether radiological controls were required per NYSERDA's radiological control program under CSF-1.¹**

No work is being authorized or conducted in restricted areas on the Retained Premises, so radiological controls are not required for any work activities performed on the Retained Premises. NYSERDA and DOE have hired a contractor to perform "Phase 1 Studies" to address issues identified in the 2010 FEIS, and inform the preparation of a Probabilistic Performance Assessment, which in turn will inform the Supplemental Environmental Impact Statement for ultimate decommissioning of the site. Phase 1 Study field activities are presently being conducted only in areas of the Center that are outside of the restricted areas identified on the NYSERDA Restricted Areas map. Phase 1 Studies field activities are not being conducted in restricted areas on the Retained Premises. Because the Phase 1 Studies contractor is not allowed to conduct work in restricted areas, they have identified alternative approaches for obtaining critical information needed for the Phase 1 Studies (for

¹ During a telephone call with Amy Snyder, Senior Project Manager, Materials Decommissioning Branch, Nuclear Regulatory Commission, on July 26, 2016, Ms. Snyder clarified that Question 8 was limited in time to the period of time during which Phase One studies have been conducted (i.e., since October 2015). NYSERDA's answer to Question 8 addresses this time period.

example, identifying “analog gullies” (gullies in non-restricted areas with similar characteristics to critical site gullies) that can be sampled and studied to provide the needed data.

b. Did NYSERDA perform an evaluation and document its results for the work or activities that have already occurred?

Although NYSERDA has not authorized Phase 1 Studies work activities in areas of the Retained Premises that may have radiological contamination, Radiation Safety Evaluations were conducted for the initial Phase 1 Studies activities in the unrestricted areas that involved disturbance of environmental media or materials. These include:

- Radiation Safety Evaluation 2015-001 - Field Sampling of Materials for Radiometric Dating and other similar sampling.
- Radiation Safety Evaluation 2015-004 - Trenching and Sampling at the Abandoned Meander Area “Race Track.”

9. For anticipated work and activities on the NYSERDA retained premises:

a. Identify the work and activities and the physical locations that are anticipated to be performed that will involve disturbance of environmental media or materials.

The work activities presently planned on the Retained Premises that will involve soil disturbance are the Phase 1 Studies activities. These work activities are being conducted only in non-restricted areas. This work is being conducted by the Phase 1 Studies Erosion Working Group, and includes field activities for Erosion Studies 1 and 2, as follows:

Study 1 - Terrain Analysis, Age Dating, and Paleoclimate – The terrain analysis and dating phase of investigations will create geologic, geographic, and temporal contexts for other information, past and future, to decrease erosion prediction uncertainty. Current work activities involve near-surface studies using small, mobile equipment. Work includes shallow trenching and the collection of geologic information, C-14 samples and Optically Stimulated Luminescence (OSL) samples.

Study 2 - Recent Erosion and Deposition Processes - The specific studies include the collection of hydrologic parameters, which include storm depth, duration, and frequency parameters, and soil-infiltration capacities, erodibility parameters, soil/till-particle sizes and bulk densities and gully geomorphic parameters. Data is being collected using small, mobile equipment to allow the measurement of in-situ geologic and hydrologic parameters.

These Phase 1 Studies work activities are being conducted on the east side of Buttermilk Creek and in limited areas of the west side of Buttermilk Creek. None of these work activities are being conducted in areas of the Retained Premises that may contain

radioactive contamination at levels in excess of background or fallout levels as identified on the NYSERDA Restricted Areas Map.

The only other work NYSERDA presently envisions on the Retained Premises is routine grass cutting and fence repair activities that do not involve the disturbance of environmental media or materials.

- b. Identify when this work and activities are anticipated to be performed. If NYSERDA is unable to identify the schedule at this time, please contact the NRC within 30 business days before the activity or work is performed.**

The Phase 1 Studies work activities identified in Question 9a are presently underway. Work activities are generally conducted Monday through Thursday, during office hours. Severe weather will curtail field activities for the duration of the weather event. A detailed schedule of work activities is provided to NYSERDA and DOE on a weekly basis, as determined by the progression of the work activities and the availability of team members. NYSERDA and DOE are briefed on work activities for the coming week by the end of the previous week.

The Erosion Working Group plans to continue trenching, collecting samples for age-dating, and conducting measurements of soil properties through the month of September. After September, activities will shift to backfilling of trenches and site restoration prior to winter. Certain trenches that may be reexamined next field season will be securely cordoned with posts, rope, and signage. Work that involves disturbance of soils will be concluded by early November in anticipation of the approaching winter.

Attachment 1 - Restricted Areas Map

