

June 30, 2015

Paul J. Bembia, Director
West Valley Site Management Program
New York State Energy Research and Development Authority
9030-B Route 219
West Valley, NY 14171-9500

SUBJECT: RESPONSE TO REQUEST TO REVIEW AND COMMENT ON THE DRAFT
REPORT TITLED, "AN AERIAL RADIOLOGICAL SURVEY OF THE WESTERN
NEW YORK NUCLEAR SERVICE CENTER"

Dear Mr. Bembia,

On May 15th you asked that the U.S. Nuclear Regulatory Commission (NRC), along with other regulatory agencies, review a draft of a report titled, "An Aerial Radiological Survey of the Western New York Nuclear Service Center" and provide comments for the New York State Energy and Research Development Authority's (NYSERDA's) and the U.S. Department of Energy's (DOE's) consideration before the report is finalized and made publicly available. The draft report that you provided us was not dated but was marked "FOR CUSTOMER REVIEW ONLY." Enclosed are our comments on this draft report.

Because the draft report is not final, and you requested that our comments not be made public at this time, we will not make the letter or the enclosure publicly available. If you have any questions, please contact Ms. Amy Snyder, Project Manager for West Valley. She can be reached at 415-6822 or amy.snyder@nrc.gov.

Sincerely,

/RA/

Michael A. Norato, Ph.D., Chief
Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket Number: 050-00201
License Number: CSF-1

Enclosure: as stated
CC w/Enclosure: BBower, DOE-WV, PGiardina, EPA, TRice, NYSDEC

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OFC	DUWP	DUWP	DUWP	DUWP	OGC (NLO)	DUWP
NAME	ASnyder	CHolston	MNorato	CMcKenney	SClark	ASnyder
DATE	6/17/15	6/18/15	6 /22/15	6/19/15	6/29/15	6/30/15

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**U.S. NUCLEAR REGULATORY COMMISSION'S
COMMENTS ON THE DRAFT REPORT TITLED,
“AN AERIAL RADIOLOGICAL SURVEY OF
THE WESTERN NEW YORK NUCLEAR SERVICE CENTER”**

Comment 1: The U.S. Nuclear Regulatory Commission (the NRC) concludes that the 2014 aerial radiation survey appears to be complete with respect to the discussion of the technology and the methodology used to collect the data and process the information. NRC believes that the comparison in the aerial survey report between the previous mappings of the Cs-prong to the current study is sufficient basis to conclude that the current study was not significantly biased; there appears to be relatively good agreement of the spatial distribution and magnitude of the radiation levels associated with the Cs-prong. The procedures to account for background (to include Cs-137 fall-out), elevation effects, the orientation of canyon walls, and other features are well-described and appear to be technically sound.

Comment 2: On page 27, the draft report states that “from the data set, it is not possible to determine the source of the observed cesium signature in the Flood Plain 3 Anomaly; more specifically, it cannot be determined whether the anomaly is due to migration of contamination downstream from the WNYNSC, is from global fallout from past nuclear testing, or originates from some other source.” We suggest that the report focus on the most likely source of contamination in question rather than trying to precisely determine the source of contamination which may not be possible. We believe that such a discussion in the report is important, especially regarding the contamination in Flood Plain 3 that was not identified in previous aerial radiation surveys.

Comment 3: Figure 24 in the report shows concentrations of radionuclides in the sediments of the stream system (e.g. at the confluence of the relevant streams) have been reduced more than can be explained by radiological decay; that contamination must end up somewhere else in the system. Although the observation of offsite contamination may be a “new” result from the current survey, there has been offsite contamination for quite some time as documented in various studies and reports. Therefore, we suggest that the report not imply that the current observations of offsite contamination are surprising. We suggest that the report contain a brief discussion of historical activities and the likelihood of their influence on the results of the aerial radiation survey to provide an explanation of the most likely source of the contamination in question. For example, consideration of the following topics maybe helpful in this regard:

- Former Operations of the Reprocessing Plant: The streambed sediments, suspended sediments, water and biota of the creek system downstream of the Western New York Nuclear Service Center (WNYNSC) have been sampled on numerous occasions starting as early as the late 1960's. This should be discussed in relation to the aerial radiation survey results. Much of the sampling was completed by various State or governmental agencies. The results show increases in concentrations of a number of radionuclides

Enclosure

attributed to operation of the former reprocessing plant activities. Peak concentrations were generally around 1969 and were mainly the result of planned releases from the wastewater lagoons. Though concentrations were elevated above background they were not in violation of Atomic Energy Agency limits and standards at the time. In addition, there is a series of reports by Onishi et al., completed from 1977 to 1982 (NUREG/CR-1387 and NUREG/CR-2425), that documents extensive characterization of the stream system in order to collect data to validate a sediment and radionuclide transport model. In those reports, samples were collected for Cs-137, for example, and some off-site sediment samples exceeded 100 pCi/g Cs-137. Some samples taken at the mouth of Cattaraugus Creek where it enters into Lake Erie exceeded a concentration of 100 pCi/g Cs-137.

- Other Nuclear Licensed Facilities in Cattaraugus County: There are a number of licensed nuclear facilities in vicinity. A discussion of how these facilities could or could not have potentially impacted environmental radiation levels reported in the aerial radiation survey and why (or why not) should be discussed.
- The West Valley Demonstration Project Act Site Activities: The discharge history of planned and unplanned radiological releases as a result of U.S. Department of Energy-West Valley Demonstration Project Act (DOE-WVDP Act) activities as compared to that of the reprocessing plant when it was operational and as compared to those of the State Disposal Area (SDA) and the potential relationships to the aerial radiation survey results should be discussed. The overall order of magnitude of the amount of material and their levels of radioactivity in discharges among the reprocessing plant, the SDA, and the DOE-WVDP Act activities should be compared against those resulting from reprocessing operations.
- Erosion Physics: The nature of erosion physics with regard to fall-out concentrations of Cs-137 in stream beds versus flood plains should be considered and insights should be discussed with respect to the aerial radiation survey results in Flood Plain 3. The Flood Plain 3 anomaly is identified as being 2-4 standard deviations above background; there is only a 0.01% to 5% chance that the anomaly is explained by variation in fall-out concentrations.

Comment 4: We suggest that the report better identify in the text and in a figure the location of where the area of elevated Cs-137 concentrations in Flood Plain 3.

Comment 5: We suggest that an examination of the area in question in Flood Plain 3 be performed to determine the current land use and the results be reflected in the report.

Comment 6: As discussed at the June 9, 2015 teleconference call among New York State Energy and Research Development Authority's (NYSERDA), NRC, the Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation (NYSDEC) and DOE-WVDP, the NRC anticipates that NYSERDA will perform a dose assessment and explain the results in terms of public dose compliance, for example, 100 mrem/yr TEDE all pathways (10 CFR 20.1301(a) & 20.1302), 10 mrem/yr

(10 CFR 20.1101 (d) and 10 CFR 20.1301(e)) requiring compliance with the provisions of the U.S. Environmental Protection Agency's generally applicable environmental radiation standards in 40 CFR part 190). Without prohibitions on land use in the area in question (Flood Plain 3), receptor scenarios consistent with the environmental conditions and topography should be considered. In addition, NYSERDA should perform a site-specific dose assessment to demonstrate that it is in compliance with standards for offsite releases. The NRC anticipates that NYSERDA will either provide its assessment to NRC or have it available for inspection, ideally before the final aerial radiation survey report is published or its results are discussed publicly.

The NRC suggests that the aerial radiation survey results should be put into context with respect to public health and safety and discussed either in the Aerial Radiation Survey Report or through another means at the same time the Aerial Radiation Survey Report is made public. In addition, NRC suggests that the discussion of the aerial radiation survey results should also address: 1) how the estimated concentrations (if estimates are used for the dose assessment), actual soil concentrations (if collected and analyzed), or both compare to the current Derived Concentration Guideline Levels (DCGLs) in the Phase I Decommissioning Plan; 2) whether the scenarios used to determine the DCGLs in the Phase I Decommissioning Plan are still appropriate; and 3) any planned follow-on actions and the objectives of the proposed actions. Two examples to consider are: 1) soil and sediment samples will be taken offsite to confirm that the concentrations of Cs-137 are below levels that will ensure the regulatory public dose limit is being met and 2) soil samples will be taken in known areas of Cs-137 contamination at the WVDP premises for quality assurance to verify that the Cs-137 results derived from the aerial radiation survey are reliable.