

NYSERDA Responses to the Comments from Sylvia Patterson on the Field Sampling and Dose Assessment Plan Dated October 1, 2015

- 1) **SNI Comment - The "RSL criteria" that were used to map the areas of high radioactivity are a bit ambiguous. There are two RSL criteria shown as 7(a) and 7(b) on page 6, and both of these had to be met before an area was mapped and considered worthy of follow-up sampling. However, the bottom of page 6 says that RSL required that a "third criterion" also had to be met before an area was mapped and considered worthy of follow-up sampling. According to this third criterion, high-radioactivity locations had to be clustered together in order to be counted. Therefore, I would like to see a map of all the high-radioactivity locations that had been found on any SNI properties, regardless of whether they were clustered together.**

NYSERDA Response – As requested, we are providing the attachment named Map 1 that shows the complete Cesium Extraction and Anthropogenic Extraction data sets for the area surveyed on the Cattaraugus Territory. We also note that the highest levels identified on the Cattaraugus Territory are two to four standard deviations above background, which is just above the background radiation level. None of the areas identified on the Cattaraugus Territory have high levels of radioactivity. In regard to the areas identified for follow-up sampling, you are correct that RSL's screening criteria recommended follow-up soil sampling in areas where the Cs extraction showed above-background results "in close proximity" to areas where the anthropogenic extraction showed above-background results, and where such areas were clustered together. In applying the first two criteria, RSL identified all areas where the above-background areas for the two data sets intersect each other, or are within 30 feet of each other. In response to an NRC comment received in mid-October on the revised Field Sampling and Dose Assessment Plan, NYSERDA had further discussions with RSL in regard to the application of the first two screening criteria. As a result, we have expanded the application of the first two criteria to include areas where the two data sets intersect each other, or where the above-background areas for the two data sets *are within 300 feet* of each other. These areas are shown in the attachment named Map 2. As also recommended by NRC, the areas identified for follow-up sampling that are immediately adjacent to each other have been combined to form larger areas, and these larger areas will be surveyed and sampled. As such, the areas to be surveyed and sampled on the Cattaraugus Territory have been expanded. The attachments named Map 3 and Map 4 show the revised boundaries of the areas proposed to be surveyed and sampled on the Cattaraugus Territory.

- 2) **SNI Comment - Page 16 talks about collecting background samples from the SNI Cattaraugus Territory. Five of these background sample locations would be within the Cattaraugus Creek Valley, "representing similar soil and stream sediment locations," while five more background sample locations would be outside the creek valley. If this were my property, I'd be a bit concerned about the possibility that the sample locations within the Cattaraugus Creek valley, "representing similar soil and stream sediment locations," had been contaminated by past radioactive effluents from the West Valley site. It's probably negligible and not an issue because the creek is flushed so often by relatively clean rainfall and runoff, but if it turned out that the samples collected from the five "background" locations within the valley were all higher in radioactivity than the samples collected from the five locations outside the valley, I'm very concerned that these don't represent background.**

NYSERDA Response - There are several issues that complicate the selection of background areas for the soil samples collected on the Cattaraugus Territory. Ideally, background samples would be composed of the same type of soil or sediment as the areas that are the focus of the sampling program, since these

soils and sediments would have a certain level of naturally occurring radioactive minerals and chemical constituents. This may be particularly important in the downstream areas of Cattaraugus Creek, since there are several black shale units that outcrop in this area, and these black shales can have naturally occurring uranium concentrations that are up to ten times higher than the gray shales in upstream areas. As you noted, however, it is also possible that stream sediments in the downstream areas could be impacted by historical site operations, although the locations that were selected within the stream valley are not in areas that the aerial survey identified with above background readings. To address the possibility that the in-valley locations could be impacted by historical site operations, a second set of background samples is being collected outside of the Cattaraugus Creek valley. The two data sets will be evaluated for similarities and differences of naturally occurring and man-made radionuclides before determining whether one or both data sets can or should be used for background comparisons. NYSERDA is also considering collecting some background samples along Clear Creek, which drains the back shale areas but would not be potentially impacted by historical site operations.

- 3) SNI Comment - Page 17 talks about the walkover survey methodology (10(a)(i)) and says that results will be mapped in four different categories (0-4000 counts per minute, 4001-8000 CPM, 8001-12001 CPM, and >12000 CPM). I would like the table that shows the actual count rate (for example, 6438 CPM) for each count rate data point.**

NYSERDA Response – NYSERDA will provide you with this data.

- 4) SNI Comment - Pages 18-19 talk about sample analysis that will generate results in picocuries per gram, and pages 27-28 talk about the dose assessment methodology that will convert these sample analysis results into health risks. It's not clear whether all of the sample analysis results (in picocuries per gram) will be made available, or whether the plan is just to release the final health-risk results. I would like to see the sample analysis results (in picocuries per gram) for each and every sample collected on my property.**

NYSERDA Response – NYSERDA will provide you with the sample analysis results in picocuries per gram for every sample collected on the Cattaraugus Territory of the Seneca Nation before any of the data are made public. This information, and all of the other sample analysis results, will be included in a Companion Report that will be publicly available when all of the sampling, analysis and dose assessment work is complete.