

Additional Notes Bullet #1 from NRC Status Table 11/13/14:

NRC staff requested the specific model of dosimeter used for background radiological gamma data at the air monitor stations.

Response (03/16/15):

Section 2.9.8.2 has been revised to include the specific model of dosimeter used for background gamma data at the air monitor stations.



2.9.8.32.9.8.2 Survey Measurements at Air Particulate Monitoring Stations

The PPMP baseline radiation monitoring program includes routine monitoring of direct radiation levels at the air monitoring stations.

Monitoring has been conducted by placing ~~the OSLDs~~ Inlight® Systems Dosimeters, provided by Landauer, Inc., quarterly at the air particulate monitoring sites (**Figure 2.9-2**). The monitors were located approximately 1 meter above ground level. They were exchanged with new monitors quarterly, and the exposed monitors were returned to the vendor for processing. These devices provide an integrated exposure for the period between annealing and processing.

The PPMP and operational monitoring plan has been designed to meet the criteria outlined in RG 4.14 (NRC 1980). As with air particulate and radon-220 monitoring, gamma monitoring began in the fourth quarter of 2011 and was completed in the fourth quarter of 2012 (five quarters of data). The proposed PPMP and operational monitoring program is shown in **Tables 2.9-41 and 5.7-1**.

The results of gamma measurements conducted at the air particulate monitoring stations (MAR-1 through MAR-5) for the fourth quarter of 2011 through the fourth quarter 2012 are presented in **Table 2.9-40**. The gross and net measurements for all sampling locations over the entire sampling period ranged from 19.9 to 40.9 (average of 33.3) and 4.5 to 14.5 (average of 8.0) mRems ambient dose equivalent, respectively. The range of the gross and net measurements for MAR-1 through MAR-4 was 19.9 through 40.9 (average of 33.8) and 4.6 to 14.5 (average of 8.5), respectively, compared to MAR-5 with a range of 20.9 through 38.1 (average of 31.8) and 4.5 to 7.7 (average of 6.2), respectively. The gamma laboratory records are provided in **Appendix V-3**.

The average background gamma level in the Western Great Plains has been reported to be 0.014 milli-Roentgens per hour (mR/hr; NRC 1979).

NRC RG 4.14 guidance recommends a combination of direct gamma radiation measurements and exposure measurements made with integrating devices (i.e., OSLDs) during the PPMP.

In addition to the environmental gamma monitors, NRC recommends that the background gamma radiation in the area of the facility be measured with a scintillometer. As per RG 4.14, CBR will perform PPMP gamma radiation measurements at 150-meter intervals as discussed above. Note that some alternate sampling locations may be employed as discussed in Section 2.9.6. These measurements will be made once prior to construction and be repeated for area disturbed by site preparation or construction.

2.9.9 Preoperational/Preconstruction Baseline Monitoring Program Summary

The MEA PPMP is summarized on **Table 2.9-41**. It should be noted that the baseline monitoring program did not include radon flux. Radon flux sampling is of use for conventional mills where tailings impoundments are required and must meet radon flux standards as required in 10 CFR 40 Appendix A. As the ISR method does not involve generation of conventional tailings impoundments, radon flux measurements are not applicable to ISR facilities. The remaining monitoring tasks and completion timelines are presented on **Figure 2.9-1**.