RADON FLUX - TAILINGS IMPOUNDMENTS (Cotter Annual Env Report CY2007, Section 4 – Solids Management, p. 4-33 to 34)

The annual NESHAP Radon Flux Measurements of the Primary Impoundment were performed in accordance with requirements of 40 Code of Federal Regulations (CFR) 61.250, Subpart W. Radon flux measurements were conducted during July of 2007 and again in October 2007 for the Secondary Impoundment. These measurements were made utilizing Large Area Activated Charcoal Canisters (LAAC), 40 CFR, Part 61, Method 115, Appendix B. The measurement is made by placing the canister in direct contact with the material surface. Radon emission is collected by absorption on the activated charcoal, which is then analyzed using gamma spectroscopy of the progeny.

Canisters were deployed for twenty-four (24) hours in two (2) batches, one hundred (100) in soil covered areas and one hundred (100) in the tailings beach area of the Primary Impoundment. Likewise, canisters were deployed in the Secondary Impoundment Solid Waste Area (SWA) for the two (2) sampling events. The areas monitored included: covered 51.79 acres and uncovered (tailings beach and iron precipitate) 29.3 acres areas. Uncovered areas were approximately three (3) times the 2006 acreage.

Radon Flux measurements for the Primary and Secondary Impoundments were conducted in July 2007 with the resulting flux of fourteen **(14)** compared to the 2006 flux of six point one **(6.1) pCi/m2-s** versus the NESHAPS standard of twenty **(20) pCi/m2-s** for the Primary Impoundment. For the Secondary Impoundment, the July 2007 sampling indicated a reading of twenty-three point four **(23.4) pCi/m2-s.** A contractor was hired to cover the Solid Waste Area of the Secondary Impoundment and another set of readings were taken in October 2007 which resulted in a flux of fourteen **(14) pCi/m2-s** versus the NESHAPS standard of twenty **(20) pCi/m2-s.** The mean flux for the uncovered areas was 22.5 pCi/m2-s (0.40 Bq/m2-s), which was twice the 2006 flux of 10.8 pCi/ m2-s (0.1 Bq/m2-s). Figure 4-19 displays the 1999-2007 results.

Figure 4-19
Average Calculated Mean Radon Flux
for the Primary and Secondary Impoundment
1999-2007