

Beta Shielding on Air Particulate Filters

Pete Bailey
Florida Power & Light

ABSTRACT

During a routine NRC Inspection of the REMP at FPL's Turkey Point Plant (approx. 24 miles S. of Miami), the inspector observed layers of material on the particulate filters. We discussed how the quantity of material varies with season, humidity, etc., and the 'type' of material varies with location (black tire soot in the city, beige dust in the rural areas). The inspector inquired about our understanding of the material as it relates to possible effects to gross beta counting. Self-shielding, so to speak. "We get about the same results (over past 20 years) for a site with or without 'stuff' " wasn't a satisfactory answer.

An assessment was performed. The deposited soot material is assumed to be a shield over the beta emitting nuclides. Compare the area-density stopping-power to the energies of expected beta emitters. Results: For the nuclides associated with power plant airborne emissions, in a worst case situation only Nb-95 would be affected. Nb-95 is a very minor, to non-existent, part of the mix. The assessment was presented to the NRC inspector a month or so later during an inspection of the St. Lucie REMP. The assessment appeared satisfactory, there has been no further questions concerning this issue.