concentrations of radium-226 developed by Myrick et al. (1983), shown in Table 1. If a single default value were adopted for the nation as a whole, EPA could adopt either a central value (the arithmetic or geometric mean of approximately 1 pCi/g of radium-226) or the maximum value reported for all samples analyzed (4.2 pCi/g). Adding a 5 pCi/g concentration cutoff to these background values would result in an overall threshold for reporting purposes of either 6 pCi/g or 9.2 pCi/g of radium226. Alternatively, site owners or operators could use the background values for their specific State (again, central or upper end values are candidates). If a site were located in a State not covered by the Myrick et al. data, background values could be estimated by averaging values reported for adjacent States.

Compared to the proposal and the first alternative discussed above, this alternative would result in more uniform treatment of diffuse naturally occurring radioactive material. The distinction created above between land disturbance incidental to extraction and other activities that may occur at extraction, beneficiation, and/or mineral processing sites would be lost. Instead, the excavation, movement, dumping, stockpiling, and disposal of any kind of diffuse naturally occurring radioactive material handled at any kind of site would qualify for a reporting exemption if it was below the concentration cutoff.

State	# of Samples analyzed	Range of values (pCi/ g)	Arithmetic mean (pCi/g)	Geometric mean (pCi/g)
Alabama	8	0.47–1.4	0.82	0.77
Alaska	6	0.43-0.92	0.65	0.64
Arizona	6	0.23–2.0	0.95	0.70
California	3	0.24–1.3	0.77	0.62
Colorado	32	0.48–3.4	1.4	1.3
Delaware	2	1.1–1.2	1.2	1.2
Florida	11	0.25–2.3	0.84	0.67
Georgia	9	0.46–1.6	0.88	0.81
Idaho	12	0.64–1.6	1.1	1.1
Illinois	7	0.65–1.2	0.97	0.95
Indiana	2	1.0–1.1	1.1	1.1
Kansas	6	0.34–1.4	0.97	0.86
Kentucky	13	0.81–4.2	1.5	1.4
Louisiana	2	0.58–0.84	0.71	0.70
Maryland	6	0.49–1.2	0.72	0.69
Michigan	10	0.46–2.0	1.1	0.95
Mississippi	3	0.77–1.6	1.2	1.2
Missouri	10	0.31–1.4	1.1	1.0
Nevada	6	0.89–2.0	1.5	1.5
New Jersey	24	0.24–1.4	0.87	0.78
New Mexico	13	0.72–2.7	1.5	1.5
New York	6	0.48–1.2	0.85	0.81
North Carolina	8	0.48–1.2	0.78	0.74
Ohio	12	0.81–2.5	1.5	1.4
Oregon	8	0.24–2.1	0.82	0.68
Pennsylvania	33	0.46–2.4	1.2	1.1
Tennessee	10	0.65–1.4	1.1	1.0
Texas	10	0.54–1.4	0.89	0.85
Utah	32	0.53–1.9	1.3	1.2
Virginia	13	0.60–1.1	0.85	0.83
West Virginia	11	0.78–1.6	1.3	1.2
Wyoming	13	0.65–1.7	1.0	1.0
U.S. Average	327	0.23-4.2	1.1	1.0

Source: Myrick, T.E., B.A. Berven, and F.F. Haywood, "Determination of Concentrations of Selected Radionuclides in Surface Soil in the U.S.," Health Physics, Vol. 45, No. 3 (September), pp. 631–642, 1983.

EPA also believes that the use of such a concentration cutoff would be more protective than the proposed exemptions. Under this approach, all sites excavating and/or handling diffuse naturally occurring radioactive materials (e.g., all mining, beneficiation, and mineral processing sites and all sites that handle coal and coal ash) would be required to evaluate the radionuclide concentration of those materials. Release reports then could be required not only from those sites in mining sectors that commonly extract and handle materials with elevated radionuclide concentrations, as in the

proposed exemptions, but also other types of mining sites that happen to be extracting and handling raw materials with unusually high concentrations of radionuclides. At the same time, EPA recognizes that there may be instances when continued releases below some concentration cutoff (and thus exempt from CERCLA section 103 and EPCRA section 304 reporting requirements) could pose a threat, by resulting in the long-term build up of elevated levels of radioactivity in the environment.

Finally, the Agency recognizes that this approach would impose a greater burden on individual site owners or operators than the proposed approach, since facilities would have to determine concentrations relative to background, as well as releases relative to the RQs if the concentration cutoff is exceeded. However, determining radionuclide concentrations of the materials being extracted and/or handled at a site should be much simpler than estimating total releases into the environment (concentrations likely would be determined anyway when estimating releases relative to the RQs), and burdens associated with determining background levels can be reduced