

RESPONSE TO COHEN AND SMITH

Dear Editors:

WE ARE pleased to respond to the letter from Jerry Cohen and Craig Smith concerning our article (Suchanek et al. 1996) describing measurements of radionuclides in marine biota from the Farallon Islands Nuclear Waste Dump Site (FINWDS) and from a comparison site also in the Pacific Ocean off the north coast of California. Several years ago Cohen and Smith published some calculations concerning quantities of radionuclides in the FINWDS that included some comparisons to natural quantities of ^{226}Ra , ^{238}U , and ^{40}K in sea water (Cohen and Smith 1980; Cohen and Smith 1982). Since the quantities of these naturally-occurring radionuclides in an "estimated volume of Farallon dump site water column" (10,000 km³) were much larger than the amount of actinides disposed at the FINWDS, they concluded from ingestion dose factors that there was no possible risk associated with this disposal. They further concluded that there was no scientific reason and a waste of public resource to do any studies of actinides in biota near the FINWDS. The "Davis study" which they discredited refers to reports by W. J. Davis (1980a, 1980b), but not to our research.

Cohen and Smith's analysis was quite simplistic. They did not do any pathway analysis for actinide transfer to biota. Their analysis is of interest. However, we do not agree that their calculations are sufficient to preclude the potential usefulness of actual empirical data. The primary results of our study were clearly reported: "There were no statistically significant differences in radionuclide concentration observed in samples from the Farallon Islands compared to reference samples from Point Arena, CA." We don't agree that we made "tortured efforts to draw significance from assessment of obscure radionuclides and their ratios." Those "obscure" radionuclides that we studied were ^{137}Cs and the important man-made actinides ^{238}Pu , ^{239}Pu , and ^{241}Am . We reported our data clearly and showed that the doses to people on a diet of fish from these sources would be very small compared to natural background ("~1.5% of typical annual doses").

Our research is not a political statement as Cohen and Smith contend. We believe that empirical studies of this type are

important for improving our understanding of the environmental behavior of actinide radionuclides.

THOMAS H. SUCHANEK

*Division of Environmental Studies
University of California, Davis 95616*

OTTO G. RAABE

*Institute for Toxicology and Environmental Health
University of California, Davis 95616*

MANUEL C. LAGUNAS-SOLAR

*Crocker Nuclear Laboratory
University of California, Davis 95616*

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