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Results of a Survey of Residential Home Heating Fuel and Stove Type and Use in the Shiprock Area of the Navajo Nation

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By Joseph E. Bunnell[1] and Linda V. Garcia[2]

Background and Context

For many Navajo people, coal provides an affordable and convenient means of home heating. However, coal combustion results in the formation and mobilization of materials that are known risk factors for respiratory and other diseases (Yohe and Blodgett 1947; Finkelman 1993; Xu and others 1994). The level of respiratory morbidity among the Navajo people is higher than can be explained by usual epidemiological risk factors. The Shiprock area of the Navajo Nation is somewhat unique in that atmospheric thermal inversions trap air pollution low to the ground, especially in winter (Brown and others, 1996). There are two large mine mouth coal-fired power plants located in the vicinity, with a third plant in the planning stages. Both of the existing power plants are exempt from regulation under the U.S. Environmental Protection Agency 1990 Amendments to the Clean Air Act due to their age.

The purpose of this survey was to assess the fuel and stove type and use, and document other household characteristics that might be related to the exposure of potentially toxic coal combustion products. A total of 137 surveys were conducted in English and Navajo to ascertain and document fuel usage and the type, size and conditions of heating stoves used in both traditional and modern homes. Results have been presented to the community at the Shiprock Chapter in the Navajo language. To increase public awareness, ways to properly use and store coal and to improve stove function and ventilation were also shared.

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Yohe, G.R., and Blodgett, E.O., 1947, Reaction of coal with oxygen in the presence of aqueous sodium hydroxide – effect of methylation with dimethyl sulfate: Journal of the American Chemical Society, v. 69, p. 2644-2648.

Table 1. Tabulated responses to the survey instrument for all 137 participants.

Table 2. Explanations of coded responses presented in Table 1.