

August 1, 2000

MEMORANDUM

TO: A. Dennis McBride, M.D., M.P.H.
State Health Director

FROM: Luanne K. Williams, Pharm.D., Toxicologist
Medical Evaluation and Risk Assessment Unit
Occupational and Environmental Epidemiology Branch
North Carolina Division of Public Health
North Carolina Department of Health and Human Services

SUBJECT: Risk Assessment of Soil Sample Results Collected at the Fountain FEMA Trailer Park in Rocky Mount, North Carolina on July 27, 2000

I am writing in response to your request for a risk assessment of the soil sample results collected at the Fountain FEMA Trailer Park in Rocky Mount, North Carolina on July 27, 2000. A total of eight soil samples were collected from the trailer park in response to a site visit conducted by the Occupational and Environmental Epidemiology Branch (OEEB) on July 26, 2000. During the site visit, it was discovered that coal ash was applied to the soil several years ago and covered with additional soil. However, since this time, some of the topsoil had been removed possibly from the movement of the trailers or erosion and coal ash appeared to be exposed in certain areas of the park. Certain metals can be concentrated in coal ash. Because of the potential exposure of adult and child residents to the metals that may be present in the coal ash, the OEEB conducted soil sampling to determine the potential risk to the residents.

The eight soil samples were collected from within the trailer park in areas where the coal ash appeared to be most visible and in areas where children were reported to play by parents and children on the day of the sampling. Using appropriate chain of custody procedures, the soil samples were carried to the North Carolina Department of Health and Human Services State Laboratory of Public Health in Raleigh, North Carolina. The soil sampling results were faxed to OEEB on July 31, 2000. The soil sampling results were then compared to US EPA Region 9 Preliminary Remediation Goals (PRG) (October 1, 1999) or soil levels that are used as risk-based tools for evaluating and cleaning up contaminated sites. These preliminary remediation goals (or soil levels) were derived using standard US EPA equations, recommended doses, and exposure routes (i.e, adult and child resident ingestion of soil, adult and child resident skin contact with soil, and adult and child resident inhalation of soil). Daily contact (including ingestion, skin contact, and inhalation) with soil at the US EPA PRG soil metal levels listed in Table 1 over a lifetime (30 to 70 years) is not likely to result in adverse health effects. The soil metal levels reported for all eight locations are approximately equal to or less than the recommended US EPA PRG soil levels as shown in Table 1. Therefore, daily contact

with the eight areas sampled for 30 to 70 years would not be expected to result in adverse health effects for adult or child residents that may come into contact with the soil in the areas sampled. Please do not hesitate to call me if you have any questions at 919-715-6429.

Table 1. Comparison of July 27, 2000 Metal Soil Sampling Results at Fountain FEMA Trailer Park in Rocky Mount to the Recommended US EPA Region 9 Soil Levels

<u>Metals</u>	<u>Soil Concentrations Reported at Park at Eight Locations Sampled (mg/kg) *</u>								<u>Recommended US EPA Region 9 Soil Levels (mg/kg)</u>
	Sample Locations								
	1	2	3	4	5	6	7	8	
Arsenic	25**	14	<4	16	<4	<4	<4	<4	22 ***
Barium	217	88	57	79	73	38	<6	59	5,400
Cadmium	<4	10	<4	<4	<4	<4	<4	<4	37
Chromium	31**	26	22	18	8	6	<4	10	30 (Chromium VI)
Lead	27	18	10	20	6	4	<4	8	400
Mercury	.24	<.10	<.10	<.10	<.10	<.10	<.10	<.10	6.1 (methyl mercury)
Selenium	23	4	4	10	<2	4	<2	4	390

*Sample locations were as follows:

- Sample 1 – on east berm towards the middle approximately 25% up the berm
- Sample 2 – in the edge of the yard near road and driveway of 356 Libba Lane
- Sample 3 – on inside lane of road at intersection near home of Stevens and Kimberly Lane
- Sample 4 – from center of lot 208 where travel trailer had been placed
- Sample 5 – from playground area between road and sand area
- Sample 6 – from area next to basketball court
- Sample 7 – sand area of playground
- Sample 8 – from edge of road at 204 Galina

**Arsenic concentration of 25 mg/kg is approximately equal to the recommended level of 22 mg/kg. There is no significant difference in these two levels. Chromium concentration of 31 mg/kg is approximately equal to the recommended level of 30 mg/kg. There is no significant difference in these two levels.

***The noncancer PRG is reported as the recommended PRG because the cancer PRG is typically below the naturally-occurring soil levels found nationwide. The average naturally-occurring arsenic soil level nationwide is approximately 5 mg/kg (Shacklette and Hansford, "Element Concentrations in Soils and Other Surficial Material of the Conterminous United States", USGS Professional Paper 1270, 1984). The noncancer PRG is the PRG that is routinely chosen by US EPA.