



Bulletin No. 6

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Moose Pass and Crown Point Chemical Exposure
Interim Health Hazard Assessment

The Division of Public Health was asked on March 7, 1986 to assist in the investigation of the exposure of Crown Point and Moose Pass residents to chemicals vented from an Alaska Railroad tank car March 1-3, 1986. We have directed our efforts in two major areas. First, to investigate health effects, both acute and long-term, that are expected or could possibly be expected from exposure to chemicals found in laboratory tests or in tank car ingredients. Second, to obtain expert opinion from the chemical company and from independent chemists and toxicologists on possible chemical reactants, intermediates, by-products, and end-products that might have been formed during the chemical reaction in the tank car.

We have worked closely with the Department of Environmental Conservation (DEC), to obtain information on the exact chemicals contained in the tank car before the problem began, results of laboratory tests on environmental samples taken in Crown Point and Moose Pass, and results of laboratory tests on samples from the tank car taken on March 17. At this time, all information necessary to complete our health risk assessment is not available. A final report will not be released until all requested data are provided in writing by the company and by the laboratories performing sample analyses. The following recommendations can be made based upon information obtained up to this time.

The major exposure of residents was to formaldehyde and trimethylamine. Both chemicals are widely used; their toxicity to humans has been thoroughly studied. Both are known to be extremely irritating to the eyes, skin, and respiratory tract. Symptoms experienced by residents are consistent with exposure to these two chemicals. Exposure was relatively brief (hours to days) and at relatively low levels. Both chemicals are reactive, of low molecular weight, and do not persist in the human body or environment. Because of their reactivity and short half-life in the body, measuring these chemicals in blood, urine, or stool to assess adverse health effects is of no use. No long-term adverse health effects will result from the exposure to formaldehyde and trimethylamine; neither are known mutagens, teratogens, or carcinogens.

Trimethylamine was detected in samples taken from the tank car on March 17. Environmental samples at Crown Point and Moose Pass have never detected alkylamines (including trimethylamine) in homes, snow, water, or food. Because the human nose is extraordinarily sensitive, it is possible to smell trimethylamine when it is present at concentrations below those at which it can be measured by available laboratory equipment. All samples tested have shown levels less than 5 parts per million. Human studies have failed to demonstrate toxic effects after prolonged exposure to 5 parts per million. Environmental air samples taken shortly after the incident in early March detected formaldehyde in homes in Crown Point. More recent samples have been below the level of detection with available laboratory equipment.

Formaldehyde and trimethylamine will not persist in the environment, will not bioaccumulate, will not enter the food chain, and will not cause human health problems if present at these very low levels in water or food.

To date, all experts are in general agreement that other toxic or hazardous chemicals probably were not formed during the chemical reaction in the tank car. Final determination and evaluation will be made after all requested data are reviewed and evaluated thoroughly.

1. Symptoms experienced by Crown Point and Moose Pass residents are due to acute exposure to formaldehyde and trimethylamine.
2. Levels of formaldehyde and trimethylamine will continue to fall and will disappear completely.
3. No long-term adverse human health effects will result from the exposure to formaldehyde and trimethylamine.
4. It is unlikely that any other toxic or hazardous chemicals were formed during the reaction. Final determination awaits review of additional data.