



Chairman Mark MacDonald
Legislative Committee on Administrative Rules
c/o Legislative Council
115 State Street
Drawer 33
Montpelier, Vermont 05633

September 21, 2009

Re: Legislative Committee on Administrative Rules ("LCAR") September 15, 2009
Hearing on the Vermont Department of Health Radiological Health Rule

Dear Chairman MacDonald

As requested, I write to follow-up on a question asked by Representative Milkey during the September 15th LCAR meeting. Representative Milkey's question concerned a statement made by Dr. William Irwin regarding trace amounts of Cobalt-60 detected in the Connecticut River.

I would first like to explain that Cobalt-60 is a by-product of nuclear power generation: it is not a "fission product" or a part of the nuclear fuel as may have been reported in the press. Cobalt is a naturally occurring element that is found in the alloy steels or metals that house the reactor as well as in the metals that form the associated piping. Cobalt-60 forms when the naturally occurring Cobalt is irradiated and a portion of the Cobalt becomes "Activated." The Cobalt-60 found in our sampling program consists of microscopic particles found in the reactor water. Some of these particles "plate-out" on hot surfaces and others remain in suspension and are removed during the reactor water demineralization or filtering process. Again, Cobalt-60 is not a "Fission Product" or part of the nuclear fuel.

In September of 1983, plant personnel were conducting an augmented sampling program that revealed trace amounts of Cobalt-60 in the North Storm Drain Outfall sediments. These trace amounts were less than 0.1% of the limit set by the NRC in 10 C.F.R. § 50 Appendix I and therefore posed no health or safety threat to the public or the workers at Vermont Yankee. The identification of, and reporting of this event was made to the NRC on October 12, 1983. Sampling of this area of the river has continued since that time. The source of the Cobalt-60 was determined to be the Turbine Building Roof ventilation system.

In 1993, the Turbine Building Roof ventilation system was re-routed such that the air is now exhausted solely through the plant ventilation system, which is monitored and exits through the plant stack. This change minimizes the potential that additional Cobalt-60 particles would be deposited in the river. Nevertheless, we continued to monitor the area as part of normal plant operations.

In 1997, one sediment sample collected from the storm drain outfall area as part of normal monitoring identified a higher concentration of Cobalt-60. This Cobalt-60 sample would have been deposited prior to 1993. The discovery of this higher level triggered a report to the NRC, dated August 8, 1997. The report concluded that while the concentration of Cobalt-60 discovered in the sample required notification to the NRC, these concentration levels were very low and well below the level that could pose a health threat to the public. This report to the NRC garnered some local press at the time.

Review of the last eight years of Vermont Yankee survey results reveals only two years, 2002 and 2006, in which even trace amounts of Cobalt-60 were measured in the sediment. These trace amounts were barely detectable and well below any reporting requirements but were included in our annual effluent release reports.

Both Vermont Yankee and the Vermont Department of Health, through their independent sampling program, have very specific and comprehensive environmental monitoring programs and reports that are issued every year. The results of Vermont Yankee and the Vermont Department of Health's monitoring programs are detailed in publicly available reports. The fact that these trace amounts would be found one year and not another, as described above, is explained by the small number of contaminated particles being present in the sediment, the very low levels of radiation involved, and the fact that we use sampling to ensure that our monitoring is comprehensive in terms of the area covered and substances monitored.

If you should have any additional questions please don't hesitate to ask.

Sincerely,

A handwritten signature in black ink, reading "David K. McElwee". The signature is fluid and cursive, with the first name "David" being the most prominent.

David K. McElwee

State Regulatory Affairs Engineer