

## Harvey Nichols on Sampling for Plutonium at Rocky Flats

Interview by LeRoy Moore and Robert Del Tredici of Dr. Harvey Nichols, April 27, 1998  
(*Interviewers comments and questions are in italics; Nichols' remarks are in standard text.*)

*Nichols was commissioned by ERDA to sample pollen at RF, to see if airborne pine pollen was transporting radioactive particles. He refers to work done in 1975:*

“The first interesting thing—the unexpected thing—was that using our standard techniques, we were getting plenty of pine pollen and other pollen in the spring and the summer. But we were able to get hold of the filters from some of their air samples: the air samples that are around the boundary fence, supposedly to warn people of dire events. They were sufficiently helpful at the plant, that they said, ‘We’ll give you some materials. You can clip off some square inches, look at this stuff, and see what pollen is there,’ and so forth. We found, to our real surprise, that there was effectively no pine pollen in these filtered materials. At the same time that we were getting plenty of pine pollen on our simple sticky slides or other equipment. So, the conclusion I drew—and wrote up in my first report—was that the equipment out there was not suited to efficiently and effectively sample very lightweight airborne particles, such as pollen.”

*Because of the size or the because of the weight?*

“The size, the slow sampling, and the fact that they are not easily captured. If you’ve got the wrong sort of powered-filter equipment—it was basically mis-designed. It wasn’t designed at all for taking in small, lightweight, slowly settling, easily airborne samples. I said, you can draw the conclusion, therefore, there might be a bias against such materials, including airborne radionuclides in this officially approved equipment that was standard, I think, throughout the industry.”

*He describe the air samplers placed around the perimeter at RF. They had a roof on them, which meant they’d miss a great deal of pollen or other airborne material. Also, they were fixed in relation to wind, not “isokinetic,” or able to turn into the wind as well as to increase the intake speed according to the wind speed, being thus better able to capture samples of whatever is moving in the air. Harvey informed them of what he regarded as shortcomings of their sampling method; they did nothing, in fact poked fun at him in public meetings. They never improved their equipment. Here’s Harvey again:*

“There has never been an alarm from any of these airborne samplers that are outside the fence. They have never shown that there’s been a really dangerous level of emission from the plant, in all the four, four-and-a-half decades—whatever it was—that they ran.”

*He continued the work in the winter, collecting snow samples. He collected in filters particles from 5 microns (micrometers) down to 0.5, or half a micron, found that these larger particles that were radioactive decreased in number as one moved east from the*

*903 Pad area toward Indiana St. But the story with smaller particles was quite different:*

“The ones that passed through the coarser filter and were stopped by the finest filter—the .5 to .05 micrometers—the numbers of those did not alter as we went from the hot spot out to Indiana Street; over a distance of almost three miles. As I wrote this up in the report, I said: There’s a clear implication that, though the heavier particles are falling out into gravity, the finest particles that we’re recording are being windblown not only to Indiana Street but, presumably, beyond that.”

*Indiana Street is, of course, a north-south road that runs along the eastern, downwind edge of the Rocky Flats site.*

“The tiny particles will never settle out but will continue to move with the air indefinitely, like pieces of cork floating in water.”

“Snow scavenges fine particles from the air and brings them to the ground. The snow was hot, and we couldn’t work out why. . . . What we now know, of course – and they weren’t telling us at the time – is that they were routinely emitting, out of their stacks, stuff passing through their HEPA filters that would allow just these sized particles to get out there. And I have that on record.”

*He refers to a public meeting in about 1987 where this exchange occurred:*

“I said to the Rockwell people: ‘By the way,’ I said, ‘Do you admit that you emit tiny amounts of plutonium out through you stacks as part of your routine operation?’”

“And they said, ‘Yes.’ I said, ‘And do you regard that as dangerous?’”

“And they said, ‘Yes.’”

*He goes on to talk about the fact that when the state started sampling, they used the same type of equipment that had been used at Rocky Flats, and they set up their air monitors in the same area, so that their results and the site results tended to be identical.*