
Questions from the Fernald Public Meeting

On October 22nd, 2008, a public meeting was held at the Fernald Preserve Visitor Center (the site of the former Fernald Feed Materials Production Center). The purpose of this meeting was to discuss a NIOSH-funded study that was completed by researchers at the University of Cincinnati by Dr. Susan Pinney and Dr. Richard Hornung. The completed study estimated radon exposure levels among workers who were employed at Fernald during the time of production, 1952-1988. This meeting was held to allow former Fernald workers to hear more about the study and to ask questions about the study.

Many questions were asked at this meeting. Below are the questions that were asked at the meeting. If you have additional questions, you may call 1-800-CDC-INFO (800-232-4636).

Q: Did you only estimate radon exposure in this study?

A: Yes

Q: Are you looking at how the radon exposure may have affected our health?

A: No, but NIOSH is conducting a study that looks at the causes of death among Fernald workers and their levels of radon exposure. That study should be completed in 2010.

Q: Should I be concerned that I still have radon in my body?

A: No, radon leaves the body in a matter of seconds or minutes. The reason radon is a health concern, is because it is a type of radiation. When radon is breathed in, it can damage the cells in the lungs. Over time, this damage may cause lung cancer.

Q: Can radon exposure cause skin cancer?

A: Some studies have suggested a weak association between radon and skin cancer; the main health concern associated with radon exposure is lung cancer.

Q: Are there any effects of low, moderate, or high amounts of radiation on the male reproductive organs?

A: We do not know for sure whether radon exposure itself affects male fertility, but we think that it is unlikely. Human studies have not been done to answer this question. Most studies of radon have reported health effects in the lungs, which is where people are most likely exposed.

Other kinds of ionizing radiation may affect male reproductive health, though it depends on how long, how much, and the kind of radiation a man is exposed to. Some studies show exposure to high levels of certain types of radiation may affect how sperm are made and whether they are healthy. Exposure to very high levels of radiation like those from a nuclear accident can stop sperm from being made for many years or permanently. It's not clear if exposure to low levels of radiation affect male fertility. Some researchers have found exposure to low levels of certain types of radiation over time can affect whether healthy sperm can be made.

For more information:

NIOSH publication No. 96-132: The effects of workplace hazards on male reproductive health <http://www.cdc.gov/NIOSH/malrepro.html>
Health Physics Society website: Radiation effects on sperm and egg <http://www.radiationanswers.org/radiation-and-me/radiation-reproduction/egg-sperm.html>

Mayo Clinic website: Male infertility causes <http://www.mayoclinic.com/health/male-infertility/DS01038/DSECTION=causes>

American Cancer Society website: Effects of radiation therapy http://www.cancer.org/docroot/ETO/content/ETO_1_4X_Side_Effects_of_Radiation_Therapy.asp

Sheiner, E. et al. (2003) Effects of Occupational Exposures on Male Fertility: Literature Review. *Industrial Health*. 41:52-66. Available online at http://www.jniosh.go.jp/en/indu_hel/pdf/IH41_09.pdf

Q: Where can I go for medical screening or to be tested for health problems?

A: There are three medical screening programs available to former Fernald workers:

1. Fernald Worker Medical Monitoring Program (FWMMP)

To learn more, call 513-870-0900

2. Building Trades National Medical Screening Program

To learn more, visit <http://www.btmed.org> or call 800-866-9663

3. Worker Health Protection Program (WHPP)

To learn more, visit <http://www.worker-health.org> or call 513-367-1333

Q: Do tests at the Fernald Worker Medical Monitoring Program (FWMMP) test for lung cancer?

A: A chest x-ray is one part of the yearly FWMMP examinations, as well as screening for symptoms for lung cancer. The other medical screening programs available to former Fernald workers also include a chest x-ray.

Q: There were lots of dust storms at the site, and waste would be blown into the air. How did you include this in your estimate?

A: We did not include this in our estimate.

Q: Can you better explain how wind speed and direction may have affected radon levels?

A: Radon concentrations are a function of ventilation—the more moving air, the less radon. Calmer winds at night allow radon levels to increase relative to day time.

Direction of wind was important because workers at locations that were downwind of the two sources would have had higher exposures than those upwind of the sources.

Q: There were radiation monitors at the site that would register and sound when radon levels were too high. Were former workers being exposed to radon when this happened?

A: We cannot answer this question, because the records we looked at did not indicate there were radon monitors at the site during 1952-1988.

Q: When the waste pits were excavated, they were open to the air – could former workers have been exposed to radon more during this time?

A: Yes, if the waste pits contained waste contaminated with radon-emitting isotopes. However, the radon emanating from the waste pits would be negligible compared to that from the K-65 silos or the Q-11 hoppers. Hot raffinates (high radium content materials) were not dumped in the pits but in the silos.

Q: Were workers more exposed to radon when the silos (K-65 and Q-11) were being emptied?

A: Yes, it is possible that workers who were emptying the silos may have been exposed to more radon because they were very close to the source (the silos). However, there were more engineering controls, personal protective equipment, and radiological monitoring in place during the site clean-up.

Q: I was a former worker who worked at plant 2/3. What does this study mean to me?

A: If you worked in plant 2/3 prior to 1959, you would have had higher radon exposures than those working farther away from the Q-11 silo, which was located in the center of the facility, near plant 2/3.

Q: Who provided the roster, sampling reports, and the exposure records for this study to be done?

A: Some records were obtained through NIOSH and a partial roster kept at the Oak Ridge Associate Universities (ORAU). Sampling reports were obtained from the site record archive. Other records were obtained from the federal records repository in Atlanta, Georgia.

Q: Can you explain the amount of time between completing this study and informing us about the findings?

A: The process for having a study published often takes a bit of time. After completing this study, the findings were reviewed by scientific peers. The study findings were then submitted to a scientific journal, which involved further review by the journal editors. The study was published online in January 2008 and in print form in September 2008.

Q: How did the questionnaires help figure out where people worked?

A: The questionnaires provided us with several types of information about the location of workers on the site (where workers worked). First, we asked a direct question about the location of work, specific to each “job” listed on the plant roster file. Second, we asked specific questions about work tasks, and work with certain types of equipment, which would allow us to link workers to the location of the equipment or process. We also used information from plant records and labor unions to link persons with a specific job title and department to certain locations at the plant site.

Q: How did you factor in people who moved around a lot at the facility (e.g. maintenance workers)?

A: We first identified those job titles that involved moving from one location to another within the facility. We then used the questionnaire responses from Fernald workers in those job titles to determine a pattern of work locations for each job title, for each calendar year. Our general approach was to determine if there were several specific locations, or whether the worker moved around within the production (controlled) area, or within the area of all of the main buildings at the site, or within the entire site (including the waste pits, and water and sewage treatment). We then developed a set (or group) of locations for each of the job titles that involved moving around between different locations. In calculating radon exposure estimates, each location in the set was weighted for the estimated proportion of time spent in that location.

Q: There was an area next to the analytical lab that was restricted, near the area where you showed high levels of radon. This area was not talked about in your presentation; could this be a source of high radon or high doses of radiation?

A: Our analysis focused on the K-65 silos and the Q-11 silos, the two sources of radon we found. The K-65 silos were located on the west side of the site, and the Q-11 silos were located in the center of the site, near the production area. We are not aware of any source of radon around the lab.

Q: You said you estimated radon exposure among all workers at Fernald during the time of production. I would like to know what my radon exposure estimate was. How can I get it?

A: You may find out your radon exposure estimate by making a “Freedom of Information Act (FOIA)” request; this allows us to release your records to you.

You can place a FOIA request by calling (404) 639-7270. To learn more about this process, visit: <http://www.cdc.gov/od/foia/>

