

HEALTH CONSULTATION

BRADLEY JUNCTION SITE

BRADLEY, POLK COUNTY, FLORIDA

Prepared by:

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Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

The Environmental Protection Agency Region IV has requested that the Agency for Toxic Substances and Disease Registry (ATSDR) review and comment on environmental sampling results from Bradley Junction, Florida, to determine whether levels of contamination represent a public health concern.

Bradley Junction is in Polk County, Florida, where there is public concern over the potential health effects from a phosphate mining and chemical industry presence in the community. ATSDR has provided several health consultations [1,2,3] and an exposure investigation [4] as part of an ongoing assessment of the public health impact of the phosphate industry on area residents.

This health consultation addresses surface soil and private well water data from residential properties in Bradley Junction. Community representatives assisted with the selection of six homes where sampling would be conducted. The homes were chosen based on their close proximity to where strip mining activities have occurred in the past [5]. Homes in the area are connected to a public water distribution system. The private wells are primarily used for irrigation, car washing, and for other non-potable uses [5].

The soil and well samples were analyzed for pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), extractable organics, metals, and radiochemicals [6]. Surface soil and well sampling results for the VOCs, pesticides, extractable organics, PCBs, and metals were either below or slightly above detection limits for the analytical method employed. The one exception was a private well sample (sample location 006PW) that contained 140 parts per billion of lead [6].

The surface soil and well water samples were analyzed for several radionuclides. The sampling results for all the water samples were below the detection limit. ATSDR reviewed the soil results to determine the potential health threat to residents who may inhale or ingest the soil. The results of this review are discussed below.

Discussion

The chemicals that exceeded method detection limits in the surface soil were evaluated under an oral exposure scenario. Contaminant levels were compared to ATSDR residential screening guidance values to determine if further evaluation was necessary. All of the compounds were found to be well below applicable screening values and did not warrant further evaluation.

The well sampling data were also assessed using ATSDR screening guidance to determine if further evaluation was required. The

initial screening was very conservative; it utilized standard default values used to assess drinking water. The citizens have public water and do not use the wells as a source of drinking water, cooking, or showering. However, even applying these very conservative standard exposure default values for oral consumption, such as 1 liter per day (child) and 2 liters per day (adult), only one well required further evaluation. That well contained 140 parts per billion lead. Because the well is used only for irrigation and other non-drinking purposes, the exposure would be limited to dermal and/or incidental ingestion of the well water. Such exposures would be insignificant and would not result in a dose sufficient to raise blood lead levels in exposed residents.

ATSDR assessed the radiochemical results for soil and determined that the levels of radioactive material exhibited in the soil samples are at background concentrations. There was nothing to suggest that phosphate slag has impacted the soils sampled. The National Research Council has determined that no health effects would be expected from exposure to background concentrations of radiation.

Conclusions

Based on the information provided, the Agency for Toxic Substances and Disease Registry concludes the following:

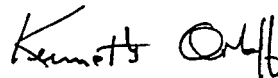
1. The surface soil sample results do not show any contamination at levels of health concern.
2. The well sampling data do not indicate a health concern for residents using the water for non-potable purposes. The well that contained 140 parts per billion lead would be unacceptable as a source of drinking water.

Recommendation

1. Ensure that the well containing elevated lead is not used as a drinking water source. The well water can continue to be used for car washing, irrigation, and other purposes that don't result in ingestion of the water.



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References

1. Agency for Toxic Substances and Disease Registry. Health consultation for the Florida Phosphate Industry, Polk County, Florida. Atlanta: US Department of Health and Human Services, Public Health Service, 1994 May 25.
2. Agency for Toxic Substances and Disease Registry. Health consultation for the Florida Phosphate Industry, Polk County, Florida. Atlanta: US Department of Health and Human Services, Public Health Service, 1995 Aug 8.
3. Agency for Toxic Substances and Disease Registry. Health consultation for the Florida Phosphate Industry, Polk County, Florida. Atlanta: US Department of Health and Human Services, Public Health Service, 1995 Apr 18.
4. Agency for Toxic Substances and Disease Registry. Exposure investigation for the Florida Phosphate Industry, Polk County, Florida. Atlanta: US Department of Health and Human Services, Public Health Service, 1996 Oct 8.
5. Phone conversation with Galo Jackson, EPA Region IV on June 17, 1997.
6. Environmental Protection Agency Region IV. Results of soil and well water samples collected from the Bradley Junction residential area in Bradley, Florida. 1997 Feb.