

NPL Site Narrative for Barber Orchard

BARBER ORCHARD Waynesville, North Carolina

Conditions at Proposal (January 11, 2001): The Barber Orchard site is located along U.S. Highway 74 in Waynesville, Haywood County, North Carolina. The property is about 400 acres in size and was used as a commercial apple from about 1908 to 1988; a portion of the property is still used to grow apples. Part of the orchard has been developed into a residential community. Throughout its operational years, various pesticide mixtures containing DDT, hexachlorocyclohexane (BHC), endrin, and/or dieldrin, as well as arsenic, lead, and other hazardous substances, were applied to the orchard to control insects and rodents. Pesticides and related metals from spills, leaks, and improper disposal of pesticide-contaminated containers, as well as from product application, have been detected in soils and ground water throughout the site. The site is being proposed to the NPL because pesticide-related contamination is present in residential soils and in private drinking water wells.

The mixing of pesticides reportedly occurred in one central mixing area. This area is located at the intersection of three properties off Winesap Lane. The mixing area consisted of two 500-gallon concrete tanks. Occasional spills of the pesticide mixture allegedly occurred in this area. Diluted pesticides were transported from the mixing area to locations throughout the orchard via an underground pipeline system that was buried to a depth of about 1 foot below land surface. The pipeline system was pressurized at 800 pounds per square inch, and was about 2 to 2.5 inches in diameter. At various locations, the orchard employees would connect a flexible hose and nozzle to the pipeline to apply pesticides to the apple trees. During the winter months, the pipes reportedly would freeze, causing them to rupture and leak. The pipes were routinely flushed to prevent clogging, and any pesticide mixture present in the pipes was allowed to flow onto the ground. All pesticides were reportedly stored in a packing house. Pesticides were purchased from a supplier in South Carolina in 50-gallon drums and 50-pound bags. Once empty, the drums were reportedly returned to the supplier and the bags were burned.

Development of the orchard into residential homes started about 1988. Most of the homes were built from 1993 to 1994. Contamination at the site was discovered after a resident requested sampling of a private drinking water well in January 1999. Analytical results of the well water indicated the presence of alpha, delta, and gamma BHC. As a result, the North Carolina Department of Environment and Natural Resources, Division of Water Quality (DWQ) conducted more extensive ground water sampling. About 88 wells were sampled by the DWQ. Of the 88 wells, 34 contained total BHC above the DWQ ground water standard of 0.019 parts per billion (ppb). Also, the North Carolina Department of Agriculture collected soil samples from 16 properties in the former orchard, 10 of which contained levels of pesticides and lead above their respective North Carolina Inactive Hazardous Sites program soil remediation goals.

In June 1999, the EPA Region 4 Science and Ecosystem Support Division (SESD) collected soil samples from 55 locations (53 of which were residential properties). Of the soil samples collected, 35 locations contained arsenic above 20 parts per million (ppm), and 25 of those were above 40 ppm. SESD also collected 55 ground water samples from private wells. Of the 55 wells sampled, 21 contained concentrations of pesticides including alpha-BHC, beta-BHC, and gamma-BHC above health-based benchmarks. Two wells contained lindane (gamma-BHC) at concentrations above the maximum contaminant level (MCL) of 0.2 ppb, one well contained lead above the MCL of 15 ppb, and bottled water

was supplied to one residence with lindane above the MCL (0.2 ppb) and EPA Region 4 removal action limit (2 ppb). Twenty-two additional wells contained detectable levels of pesticides. As a result, EPA initiated a time-critical removal action at the Barber Orchard subdivision. Soil excavation was conducted at 28 residences. During the June 1999 sampling and subsequent sampling associated with the removal action, pipes from the underground pipeline system were observed on residential properties. In many areas, the pipes are protruding from the ground, and liquid was observed leaking from one of the pipes. A sample collected from sediment in one of the pipes contained arsenic (2,460,000 ppb) and lead (6,970,000 ppb). Also during removal actions, pesticide residue in powder form was noted in the former central mixing area, discarded bottles containing liquid pesticide mixtures were found and disposed off site, and a second dump area containing discarded pesticide containers was discovered. The removal action was completed in August 2000.

Status (September 2001): EPA is considering various alternatives for this site.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at [ATSDR - ToxFAQs](http://www.atsdr.cdc.gov/toxfaqs/index.asp) (<http://www.atsdr.cdc.gov/toxfaqs/index.asp>) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.