

Health Assessment for

COLEMAN-EVANS WOOD PRESERVING SITE

WHITEHOUSE, FLORIDA

CERCLIS NO. FLD991279894

AUGUST 21, 1989

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
Agency for Toxic Substances and Disease Registry

SUMMARY

The Coleman Evans Wood Preserving Site is an 11-acre National Priorities List site located in Whitehouse, Duval County, Florida, approximately 8 miles west of Jacksonville. The site is an active wood treatment facility which began operating in 1954 and uses fuel oil and pentachlorophenol (PCP) in the treatment process. There are two areas of the site that show the greatest contamination, the western section containing the treatment facilities and the eastern section which served as a landfill/waste pit. The contamination is generally within the upper 10 feet of the surface with the highest concentrations coinciding with the water table. However, PCP has been detected to depths of 35 feet in the landfill area. Off-site surface soil, water, and sediments are also contaminated with PCP. The contamination of the surface water and sediment extends several hundred feet along a drainage ditch which runs through a residential area. The surficial soil contamination appears consistent with surface water runoff patterns. The residences in the area receive water from private wells and it was estimated there were 180 private wells serving approximately 1,000 people within a 1-mile radius. The results of groundwater analyses indicated the PCP contamination is limited to the surficial aquifer. Monitoring well and private well data did not indicate groundwater contamination by PCP or metals in the deeper aquifer. This site is of potential public health concern because of the migration of PCP off-site by surface water runoff and the potential for contaminating the aquifer used for domestic purposes by area residents. The Record of Decision (ROD) adequately addresses the public health concerns of this site by source removal and groundwater treatment.

BACKGROUND

The Coleman Evans Wood Preserving Company (Coleman Evans) began the pressure treatment of wood in 1954. The process used at this facility involves steaming, drying, and pressure soaking the wood in a pressure chamber using PCP and No. 2 fuel oil as the preservative. Process wastewater was treated with caustic soda and aluminum sulfate, filtered through a sand filter and discharged into a drainage ditch. The sludge was placed into 2 unlined lagoons, approximately 100 by 50 feet, in the southern portion of the site. This practice continued until 1970, afterwards the sludge was placed into storage tanks. The wastewater treatment also changed in 1970, the new process was a chlorination and lime precipitation. In 1980-1981, Coleman Evans installed a closed loop steaming system with zero discharge to decrease the amount of treatment necessary for the process wastewater. The closed loop system has the capacity to store approximately 2,000 gallon of waste. The estimated quantity of hazardous wastes produced per year is 5,000 gallons.

In late 1980 Federal and State agencies conducted soil and groundwater investigations. An air monitoring study was conducted by the Environmental Protection Agency (EPA) in 1982 and in 1983 another well installation and sampling program was begun by a contractor. The contents of the two unlined sludge pits were partially removed in an emergency removal action in July 1985.

A. SITE VISIT

ATSDR conducted a visit to the residential and light industrial area surrounding Coleman Evans Wood Preserving facility in 1984.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

A. ON-SITE CONTAMINATION

The Remedial Investigation (RI), conducted in mid-1985 indicated the site is contaminated with PCP, oil and grease, and metals. The metals, copper and chromium, were detected in soil samples at concentrations of 12 and 15 mg/kg, respectively. These concentrations are similar to background concentrations found in the southeastern United States. The soil samples, taken mainly from the southern portion of the site, were contaminated with PCP at concentrations generally less than 1,000 mg/kg. The samples taken from the sludge pits had PCP concentrations up to 2,000 mg/kg. Soil borings taken near the sludge pit area indicated oil and grease contamination at concentrations between 19,000 and 38,000 mg/kg.

Results of the groundwater monitoring indicate the shallow aquifer is contaminated with PCP up to 4,900 ug/l. Other contaminants detected were phenol, toluene, chromium, and lead. Lead exceeded the water quality standards in only one monitoring well. The concentration was reported to be 105 ug/l. Samples from the deeper aquifer were not contaminated by compounds from the site.

The surface water samples collected during a storm event indicated that surface water runoff was contaminated with PCP. The samples were collected in a drainage ditch before entering the site and after leaving the site. The concentrations detected entering the site were approximately 10 ug/l and the concentrations exiting the site were in excess of 1,000 ug/l.

Polychlorinated-dibenzodioxins and polychlorinated-dibenzofurans are also contaminants associated with PCP preparations. Several samples were analyzed for these contaminants; however, the results indicated they were not detected.

Air monitoring on-site did not indicate the presence of volatile organic compounds (VOC's) or other contaminated dusts/particulates.

B. OFF-SITE CONTAMINATION

The surficial soils, sediments and surface water off-site are contaminated with PCP. The surficial soil contamination extends approximately 200 feet off-site, while sediment and surface water contamination extends approximately 400 feet. The concentrations in the soils and sediments of the drainage areas ranged from 100 mg/kg up to approximately 500 mg/kg.

C. PHYSICAL HAZARDS

The site is an active site and by the nature of the activities there are physical hazards present. However, because it is an active wood treatment facility, only plant authorized personnel familiar with the site (and associated hazards) would be expected to be on-site. The site is fenced only along Celery Avenue and the railroad right-of-way. There is an earthen berm between the former pit area and the residential area but access is not restricted.

DEMOGRAPHICS OF POPULATION NEAR SITE

Coleman Evans is located in Whitehouse, Duval County, Florida. The area surrounding the site is primarily residential and light industrial. The area outside a 1-mile radius is primarily rural. Whitehouse does not have a municipal water supply; therefore, the residents depend upon private wells for their domestic water supply. It was estimated there are 180 wells within a 1-mile radius. Typically, the residential wells are drilled to depths greater than 80 feet and into the deeper Floridian (Ocala Limestone) aquifer. The closest residences are within 200 feet of the site.

EVALUATION

A. SITE CHARACTERIZATION

1. Environmental Media

The site and surrounding area were adequately sampled. No further information is required at this time.

2. Land Use and Demographics

No further information is required at this time.

3. Quality Assurance and Quality Control

It was assumed that the analytical data has been reviewed by the EPA and has met their acceptability criteria. The conclusions in this Health Assessment were based on the information received. The accuracy of these conclusions is determined by the completeness and reliability of that information.

B. ENVIRONMENTAL PATHWAYS

The soils on-site are contaminated with PCP to varying depths. Generally, the contamination is limited to the upper few feet of soil; however, in the sludge pits area, PCP was detected at a depth of 35 feet. The alternative chosen in the ROD addresses the PCP contamination by excavating the soils containing more than 10 mg/kg, destroying the PCP by incineration, then returning the soil to the excavated areas. The off-site areas to be excavated include soils and sediments from the drainage ditches and surrounding areas having PCP contamination. Further information concerning the organic content of the soils was made available during the remedial design phase. After evaluating the new information, EPA increased the concentration which necessitates excavation from 10 to 25 mg/kg.

The aquifer system beneath the site is comprised of three units: the water table zone, the semi-confining unit, and the limestone unit. The limestone unit supplies the area with potable water, and the results from the RI indicated it was uncontaminated. There were 13 private wells sampled and the results indicated no organic compounds were detected except for methylene chloride, which was identified as a laboratory contaminant. The RI indicated the water table zone was contaminated in the areas coinciding with soil contamination. The chosen alternative involves dewatering of the area. While this is necessary for the excavation activities, it also provides for the removal of the contaminated groundwater. The ROD also provides for the groundwater to be treated as necessary to reduce the PCP concentrations below 1 ug/l and other contaminants (if found) to their appropriate cleanup concentrations. These cleanup concentrations are standards in the EPA drinking water regulations (maximum contaminant level) or the EPA Water Quality Criteria. A non-detectable level will be assigned to those compounds for which no standard exists. The treated water will be discharged to an on-site drainage ditch.

The analytical results from air monitoring performed during the RI indicated that VOC's and/or contaminated particulates were not of public health concern at that time. However, during the excavation of contaminated soils, appropriate dust control measures should be implemented to prevent re-entrainment of dusts, etc.

The RI indicated some area residents had gardens. There was no information available concerning food chain analyses or garden soil analyses.

C. HUMAN EXPOSURE PATHWAYS

The highest PCP concentrations are found in the soils on-site and located in areas still involved with plant activity. Because the site is still active, the workers may be exposed to the contamination through dermal contact, inhalation, and inadvertent ingestion. Residents may also be exposed through these pathways by off-site contamination present in the drainage fields soils and sediments in the ditches or by trespassing on-site.

The groundwater in the water table zone is contaminated; however, it is not used for domestic purposes. Secondary ingestion exposure may occur if the contaminated groundwater is used for gardening, irrigation, or other purposes. The groundwater aquifer used to supply area residents with drinking water has not been shown to be contaminated.

PUBLIC HEALTH IMPLICATION

The workers carrying out the day-to-day activities on the more contaminated portions of the site may receive exposures that are of public health concern. Also of concern are the remedial workers who may be exposed to PCP if they are not wearing the proper personal protective equipment. Prior to site remediation, continued contact with the maximum concentrations of PCP found in off-site soils or sediments may result in exposures leading to increased body burdens and localized irritation.

PCP is readily absorbed following oral, dermal, or inhalation exposure. It is distributed throughout the body, although it accumulates in the liver, kidneys, brain, spleen, and fat. PCP is not readily metabolized but is excreted unchanged in the urine and to a lesser degree in the feces. Exposure to PCP in the highly contaminated areas on-site and off-site (or in the handling of PCP solutions and preparations during facility operations) may cause localized irritation, systemic effects, and in some people, allergic reactions. Manifestations of PCP poisoning may include fever, gastrointestinal distress, and weight loss. It is not considered to be carcinogenic.

CONCLUSIONS AND RECOMMENDATIONS

Based on the information reviewed, ATSDR has concluded that this site is of potential health concern because of the potential risk to human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse health effects. As noted in the Environmental Pathways and Human Exposure Pathways Sections above, human exposure to PCP may occur via ingestion, inhalation, and/or dermal contact. However, as was previously indicated, implementation of proper protective measures and adherence to appropriate work-related standards and regulations should minimize the probability of potential health concerns for present employees and remedial workers. Area residents should avoid the soils, sediments and surface waters in the drainage areas around the site. The ROD addresses the concerns for the residents by providing for the removal and destruction of the off-site PCP contaminated soil and the treatment of the contaminated groundwater.

The recommendations are as follows:

1. Restrict access to the site, especially the more contaminated areas.
2. Provide proper safety training and protective equipment to remedial workers as well as current employees at the facility.
3. Area residents should not use the contaminated areas for gardening or other activities which may involve soil contact or use the contaminated groundwater from the shallow aquifer for any purpose.
4. In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act as amended, the Coleman Evans Wood Preserving Company site has been evaluated for appropriate follow-up with respect to health effects studies. Inasmuch as there is no extant documentation or indication in the information or data reviewed for this Health Assessment that exposure to PCP in groundwater, soils, or sediment is currently occurring or has occurred in the past, this site is not being considered for follow-up health studies at this time. However, if data becomes available suggesting that human exposure to significant levels of hazardous substances is currently occurring or has occurred in the past, ATSDR will reevaluate this site for any indicated follow-up.

PREPARER OF REPORT

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