

In 1986, Northwestern University conducted a comprehensive morbidity study of past and present workers at a chemical plant in southwestern Illinois who had been engaged in the production of PCP (the subject of this paper) as well as lower chlorinated phenols, and esters of chlorphenoxy acids. This plant was also a major producer of polychlorinated biphenyls (PCBs). The purpose of this study was to determine if workers who had been engaged in the production of PCP, chlorinated phenols, and chlorphenoxy acid esters suffered any long-term health effects as a result of their past exposure to these compounds and their CDD and CDF contaminants. The primary hypotheses of this study were that exposures to these compounds may be associated with chloracne, liver dysfunction, disorders of porphyrin metabolism, neurobehavioral disturbances, disorders of lipid metabolism, and peripheral neuropathy.

This paper presents the results of the analyses of these primary hypotheses for the group of workers who had ever been engaged in the production of PCP (Ever PCP). We also present the results of analyses for the subgroup of these workers who produced PCP but did not produce lower chlorinated phenols or esters of chlorphenoxy acids (Only PCP), as well as the respective subgroups of workers with chloracne (Ever PCP chloracne and Only PCP chloracne). The results of analyses for the other exposure subgroups and secondary hypotheses will be presented in subsequent papers.

METHODS AND MATERIALS

Plant History and Process Description

The chemical plant whose employees were examined in this study produced pentachlorophenol from 1938 to 1978. In 1986, at the time of the survey, the plant used more than 75 raw materials to produce 22