

PRELIMINARY
Health
Assessment
for

SHIELDALLOY CORPORATION

NEWFIELD BOROUGH, GLOUCESTER COUNTY, NEW JERSEY

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Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

PRELIMINARY HEALTH ASSESSMENT
SHIELDALLOY CORPORATION
GLOUCESTER COUNTY
NEWFIELD BOROUGH, NEW JERSEY
November 15, 1988

Prepared by:
Office of Health Assessment
Agency for Toxic Substances and Disease Registry (ATSDR)

Background

The Shieldalloy Corporation site is listed by the U.S. Environmental Protection Agency (EPA) on the National Priorities List (NPL). The approximately 62-acre site is an active specialty plant making chromium alloy products. Past disposal practices have resulted in extensive chromium contamination of the groundwater. At present, wastes are treated for removal of chromium prior to discharge into the Hudson's Branch Tributary of the Maurice River.

The facility is fenced.

The following documents were provided to ATSDR for review: Site Inspection Report, December 12, 1979; Hazard Ranking System Package, June 10, 1983; and the draft Camp/Dresser/McKee FPC Final Report Technical Document Review, May 20, 1988. These documents form the basis of this preliminary health assessment.

Environmental Contamination and Physical Hazards

On-site contamination consists of hexavalent chromium (55 ppm) in groundwater; and chromium in sludge (20 percent). Off-site contamination consists of hexavalent chromium in groundwater (33 ppm) and surface water (35 ppm), and trichloroethylene (3 ppm) in surface water. The trichloroethylene may not be site related. Low level radioactive wastes have been reported to be on-site, but no supporting documentation was presented. The Company is licensed by the Nuclear Regulatory Commission.

There are slag piles and other wastes on-site, posing a potential physical hazard to workers and visitors to the site.

Potential Environmental and Exposure Pathways

The environmental pathways of concern are migration of groundwater off-site and on-site material that could become airborne or be transported off-site via surface water runoff. The human exposure pathways of concern are ingestion of groundwater, ingestion and dermal contact with surface water, soils, and sludges by workers

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on-site; ingestion and dermal contact with off-site groundwater, surface water, and sediments, inhalation of contaminated airborne particulates on- and off-site, and ingestion of contaminated fish from impacted surface waters.

Demographics

The closest residence is located less than 0.2 mile from the site. Within a two-mile radius of the site there are approximately 56,000 people. There are private wells within one mile, and a municipal well within 400 feet.

Evaluation and Discussion

Private and municipal wells in the vicinity of the site have been shown to be contaminated. The local population relies almost exclusively on groundwater as a source of domestic water. Area surface waters are used for swimming and fishing and these waters are contaminated. In 1970, a private well, and in 1972, a Shieldalloy well on-site, were closed by the State due to chromium contamination. There is a municipal well slightly less than one mile from the site which may be adversely impacted in the future. Even though the waste stream is now treated before discharge, there have been numerous instances since 1979 where the treatment system has not operated properly.

ATSDR has prepared, or will prepare, Toxicological Profiles on the site contaminants noted above.

Conclusions and Recommendations

Based on the available information, this site is considered to be of potential public health concern because of the risk to human health caused by the possibility of exposure to hazardous substances via groundwater, surface water, soils, sludges, airborne particulate, and ingestion of contaminated fish. Additional sampling of off-site soils, sediments, and biota should be performed. It was not clear that the extent of groundwater contamination at all groundwater use receptor points had been determined. Since groundwater contamination in at least two such points has been documented since 1972, and the fact that the treatment system did not function as anticipated, additional demographic information, such as identification of those affected, should be collected. In addition, any areas of radioactive contamination should be identified. Posting of the site with warning signs may be an appropriate public health preventive measure.

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Further environmental characterization and sampling of the site and impacted off-site areas during the Remedial Investigation and Feasibility Study (RI/FS) should be designed to address the environmental and human exposure pathways discussed above. When additional information and data become available, e.g., the completed RI/FS, such material will form the basis for further assessment by ATSDR at a later date.