



Facts About...

Chromium Ore Processing Residue (COPR) Site Initiative

Background and Site Location

The reduction of chrome bearing ores in the production of industrial grade chromium compounds results in a waste rich in metals contamination. This byproduct is variously referred to as chromite ore processing residue, chrome ore processing residual or chrome tailings; for the purposes of MDE reports these variants are referenced as COPR. There are numerous potential COPR storage/disposal sites scattered along the route 95 corridor from Prince George's County to Harford County. The majority of the potential sites are located within the Baltimore metropolitan area. Nineteen sites have been identified by MDE to have received COPR or to have documented COPR contamination. The COPR Site Initiative is designed to define all potential COPR storage/disposal sites and rank these sites as to their potential to impact human health and the environment.

Site History

The Allied Chemical Corporation site was located on a peninsula on the northeast shore of the Inner Harbor in the Fells Point section of the City of Baltimore, Maryland. The plant imported chromium ore (chromite), extracted the chromium and produced a variety of chromium-containing chemicals. Successive owners expanded the facility to its ultimate size and shape by filling adjacent portions of the Baltimore Harbor with various materials, including COPR tailings. The waste generated at the site has been used throughout the Baltimore Harbor area as fill material because it compacts well and has relatively great load-bearing strength.

The Maryland Port Administration was permitted to construct numerous cells within the Baltimore Harbor area wetlands to receive dredge spoil from channel maintenance. A dredge spoil disposal cell is a bermed area in the floodplain into which harbor dredge material was staged and dewatered. Included in the permit for wetlands construction MPA was allowed to accept clean granular inorganic fill material into these cells. It is suspected that "clean granular inorganic fill material" was used as a euphemism for "chromite ore processing residual."

The Baltimore Chrome Works plant operated from the 1800s until 1986 at the site in Fells Point. Until 1954, Mutual Chemical Company and its predecessors operated the plant. In 1954 the plant was acquired by Allied Chemical Company, which operated the plant until its closing in 1986. The plant refined chromium ore and produced industrial materials used in steel products, leather tanning, paint and miscellaneous other products. A byproduct of the refining process was a soil like residue generally identified as COPR. Beginning in 1916, much of the plant's COPR waste went to a plant owned facility in Dundalk for use as clean fill behind Baltimore Harbor bulkheads. In its latter years, 1967 to 1986, the plant produced on the order of 100,000 cubic yards of COPR per year. The Dundalk facility was sold to the Maryland Port Administration in 1967 and acceptance of COPR at the site ended in 1975. Allied Chemical is now part of the Honeywell Corporation.



In 1976 Allied began to investigate alternative disposal sites and innovative uses of the material. Two of the primary disposal locations were BFI's Solley Road and Hawkins Point Landfills. Corporate documents identified ten sites where COPR was disposed or used. Allied investigated forty-five sites for their potential use in the COPR disposal effort. It is unknown whether COPR was actually disposed of on any of the property or if any tests were made to assess disposal options.

At this time, wetlands permits were allocated for several areas in Baltimore Harbor. These permits were for the disposal of dredge spoil and clean inorganic fill material at Thoms Cove, East Alco Compensatory Storage Yard, Locust Point Terminal, and Dundalk Marine Terminal. Several additional permitted dredge spoil disposal areas that may have received COPR or COPR containing dredge spoil were Masonville, Spring Gardens, and Cox Creek disposal areas.

Environmental Investigations and Actions

Twenty sites have been identified as having been investigated for COPR contamination, listed as follows: Stansbury Park and Bauer Farm in Southeastern Baltimore County; Baltimore Harbor Tunnel, Baltimore City; 1400 Lancaster Street, Baltimore City; 2000 Race Street, Baltimore City; 801 Caroline Street, Baltimore City; Baltimore Chrome Works, Baltimore City; Baltimore Museum of Industry, Baltimore City; Dundalk Marine Terminal, Baltimore County; Hawkins Point, Baltimore City; Patapsco Water Treatment Plant, Baltimore County; and Solley Road Landfill, Anne Arundel County; Chevron Fairfield, Baltimore City; Eastalco Compensatory Storage Yard, Baltimore City; Maryland Shipbuilding, Baltimore City; Moorings at Canton, Baltimore City; Pier 8 Lancaster St. Baltimore City; and Thoms Cove and Leading Point Wetlands, Baltimore City.

Current Status

COPR, which contains hexavalent chromium (Cr(VI)) at concentrations typically in the range of thousands of milligrams/kilograms, was deposited as fill at sites surrounding Baltimore Harbor.

Planned or Potential Future Action

The objectives of the COPR Site Initiative are to:

- ◆ Identify historic disposal sites;
- ◆ Define populations that may be at risk from historic disposal practices;
- ◆ Estimate users and uses of groundwater in close proximity to the sites;
- ◆ Lay the groundwork for future investigations that will target identified risks.

The identification of groundwater users and uses is important because wastes may migrate to water bearing strata. Because COPR sites were not covered or lined with impermeable material, rainwater can infiltrate and react with waste materials and impact groundwater and/or nearby surface water bodies.

Forty-four sites need clearance under the COPR Site Initiative. MDE has ranked these sites based on the importance of investigation as determined by several factors including: populations within set radius of sites; groundwater use in proximity to sites; and potential for development or redevelopment in the area.

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