APPENDIX D
Lead Source Attribution Case Study

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JEWETT WHITE LEAD–SITE - STATEN ISLAND, NY

Area 1 = Residential; Area 2 = Jewett White Lead Facility/Mixed Use; Area 3 = Background

Site History: Lead substrates were stored and converted onsite into a product known as white-lead for paint pigments. The Jewett White Lead site consists of the historic footprint of the former Jewett White Lead Company facility and extent of contamination that includes a 1.07-acre parcel of land (2000-2012 Richmond Terrace) and 4.41-acre parcel of land (2015 Richmond Terrace). In 2009, EPA selected Port Richmond and adjoining neighborhoods as a nationally-designated Environmental Justice Showcase Community. This effort seeks to bring together governmental and non-governmental organizations and pools their collective resources and expertise on the best ways to achieve real results in communities.

Removal/Remedial Decision: A non-time-critical removal action of excavating lead-contaminated soil of a portion of the 2000-2012 Richmond Terrace parcel of the Jewett White former facility. Key lines of evidence including isotopic analysis concluded that the lead in soils

in the surrounding community was predominantly from other sources than the Jewett White Lead site.

Sampling Results:

Background samples were collected ¼ mile upwind along the road and grass patches. The background levels are higher on average than the samples collected closer to the site. However, statistically the lead content of the soils samples are the same at all depths.

Residential soil lead concentrations ranged from 11.4 ppm to 3,510 ppm.

Sampling Depth	Average Lead Concentration	Location
0 – 2”	778 ppm	Background
2 – 6”	792 ppm	Background
6 – 12”	352 ppm	Background
0 – 2”	549 ppm	Residential
0 – 2”	666 ppm	Near Area 2 (grass)
2 – 6”	663 ppm	Near Area 2 (grass)
6 – 12”	546 ppm	Near Area 2 (grass)
0 – 2 “	171 ppm	Road Grit
0 – 2”	1,039 ppm	Train Trestle

Soil samples were collected from the drip-line if lead-based paint was present on homes. The soil lead concentrations ranged from **2,340 ppm** to **3,510 ppm**.

Key Evidence Supporting EPA’s Decision:

Spatial Distribution

The geographic distribution of lead across the area. The concentration of lead would be elevated near the source of the release and decline as you move further from the source. There was no spatial distribution in the residential properties. Elevated lead levels were associated with lead-based paint.

Background Results

The average background concentrations and the concentrations detected in a six block area surrounding the site are similar.

Lead-Based Paint on Homes

Highest levels detected were found in the drip line of the homes. Lead-based paint was detected at most of homes.

Urban Soil Studies

Studies in several urban areas have similar lead concentrations as the Jewett White Lead Site.

Elemental Correlation

Strong relationship observed between lead and other metals in on-site samples. Different relationships observed in off-site samples. Barium/lead ratio for on-site samples is considerably higher than in off-site samples. Manganese/lead ratio exists in on-site samples and not in off-site samples.

Lead Isotope Ratios ("fingerprinting")

The lead in the background and residential property samples are different from the lead on the Jewett White samples. The results appear that the lead in the background and community is predominantly from other environmental sources and not the site. The off-site lead fingerprint is similar to urban lead fingerprinting typically seen in the industrialized North East US.