



1st St - Denton Pl - 4th Ave 2-Block Area - Summary of Contamination

This 2-block area, covering 219 1st Street (PS 372's Annex), 221 1st Street (Third Avenue Yard), 21 Denton Place (parking lot), 294 4th Avenue (car wash) and 272 4th Avenue (new residential building), indicates the presence of separate, overlapping contaminant footprints with distinct sub-surface relationships.

On the southern and western portions, a widespread petroleum and PCB signature is documented. This footprint is anchored by the Con Edison 3rd Ave Yard (221 1st St), which historically housed at least 18 underground storage tanks and significant electrical utility infrastructure. This petroleum background closely mirrors the sub-surface conditions across 1st Street at the 294 4th Avenue current car wash and former auto repair and service shop, where underground gasoline tanks and a BTEX vapor profile are also documented.

Because the PS 372 Annex (219 1st St)—across from the 3rd Avenue Yard and 294 4th Avenue—is impacted by petroleum-related VOC vapors but contains no internal source of its own, regulatory testing via helium tracers suggests these vapors are migrating laterally from these neighboring upgradient properties.

Concurrently, a separate environmental footprint cuts across the block's eastern and northern segments. A distinct chlorinated volatile organic compound (CVOC) plume—dominated by Trichloroethene (TCE)—is centered at 294 4th Avenue, where it peaks at 515 $\mu\text{g}/\text{m}^3$ in soil vapor. This

chemical signature appears to operate independently of the regional Con Edison petroleum footprint. Soil vapor data suggests this chlorinated solvent plume radiates outward toward the west, closely correlating with the elevated TCE vapor hotspots ($1,980 \mu\text{g}/\text{m}^3$) currently under investigation at 21 Denton Place and historical mitigation efforts at 272 4th Avenue.

Taken together, the data outlines a hypothesis: the block acts as a dual-source system where historical utility fleet operations drive a localized petroleum vapor problem from the south, while historical commercial automotive degreasing drives a separate solvent vapor plume from the north to the west.

Site By Site Summary of Contamination

Con Ed 3rd Ave Yard

Primary Contaminant

Petroleum Hydrocarbons (Total BTEX & LNAPL): Petroleum is the most pervasive, high-concentration impact on the property. The text notes "elevated concentrations of VOCs (total BTEX) and PAHs" in the shallow groundwater, historically leaking into the subsurface as LNAPL (Light Non-Aqueous Phase Liquid / free-phase floating product). The LNAPL is explicitly described as a mixture of "weathered gasoline, diesel, and kerosene."

Secondary Contaminant

PCBs (Polychlorinated Biphenyls) & Lead: PCBs represent the site's primary hazardous waste profile. The text details a massive cleanup in the Former Employee Parking Lot and a central "sealed service box" containing heavy PCB contamination that required thousands of cubic yards of soil excavation, classifying a portion of it as strictly hazardous waste alongside elevated concentrations of lead.

Likely Site Use Most Closely Linked to the Contamination

The contaminants are explicitly linked to the site's long-term utility infrastructure and fleet operations by Con Edison:

For the Petroleum: Massive fleet refueling, vehicle maintenance, and fuel distribution. This is evidenced by the "South UST Area," "Former North UST Area," and "Former Employee Parking Lot," which collectively housed at least 18 underground storage tanks (USTs) dedicated to storing and dispensing gasoline and diesel fuel.

For the PCBs: Electrical power transmission and utility operations. The contamination found in the underground concrete service box (which housed "electrical relay cables") and the adjacent cable storage yards directly points to historical electrical utility equipment (like old transformers or cooled cabling) managed at the yard.

294 4th Ave Car Wash

From the early 1920s through the 1940s, 294 4th Avenue was operated as a heavy industrial metal refinery by Fulton Smelting & Refining Works, Inc., before being used as a scrap metal facility with four gasoline storage tanks in the 1950s. Since the late 1970s, the site has been consistently utilized for automotive commercial uses, including auto body repair, transmission services, and car wash operations.

Primary Contaminant:

Heavy Metals & Hazardous Lead (The Smelting Legacy)

The Data: The soil testing revealed extreme, hazardous levels of heavy metals deep in the ground, directly correlating to the historic metal smelting operations.

The Key Chemicals:

Lead: Hit 12,200 mg/kg in deep soil, compared to the threshold of 400 mg/kg. The soil is legally classified as characteristically hazardous waste because the lead is highly leachable.

Other Metals: Massive exceedances of Copper (1,600 mg/kg), Zinc (5,740 mg/kg), Cadmium (12.5 mg/kg), and Mercury (5.64 mg/kg) populate the site.

Secondary Contaminant:

Chlorinated Solvents / CVOCs (The Auto & Smelting Vapors)

The Data: The sub-slab soil vapor testing beneath the concrete floor indicates a highly active chlorinated solvent vapor profile. Because these chemicals were detected in both the deep soil and the soil vapor, the engineers note that an on-site source likely exists (historically used for industrial parts degreasing).

The Key Chemicals: Trichloroethene (TCE) is the primary driver here, peaking at 515 $\mu\text{g}/\text{m}^3$ in soil vapor compared to the threshold of 60 $\mu\text{g}/\text{m}^3$. Tetrachloroethene (PCE) and BTEX (petroleum aromatics from the gas tanks/auto repair) are also present in the vapor mix.

The Petroleum (BTEX) Background: The data notes that petroleum aromatics (Benzene, Toluene, Ethylbenzene, and Xylenes) match the site's history of housing four gasoline tanks and operating as an auto repair facility.

272 4th Ave

Site's Historic Use:

Historical uses of the site include an early 1900s bottle-dealing facility, a stone yard, a machine shop, a wood and metal finishing facility, and a long history of neighborhood auto repair garages and fueling stations.

Primary Contaminant:

Chlorinated Volatile Organic Compounds (CVOCs)

The Data: Tetrachloroethylene (PCE at 1,270 $\mu\text{g}/\text{m}^3$ sub-slab) and Trichloroethylene (TCE at 109 $\mu\text{g}/\text{m}^3$ sub-slab).

The Trigger: Both chemicals explicitly triggered a mandatory "Mitigate" action under the NYSDOH Soil Vapor/Indoor Air Decision Matrices, requiring the installation of an active Sub-Slab Depressurization System (SSDS).

Secondary Contaminant:

Major Chemical Type 2: Petroleum Volatile Organic Compounds (VOCs / BTEX)

The Data: 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Benzene, and Total Xylenes exceeding standards across soil, groundwater, and soil vapor.

The Trigger: Directly drove the physical excavation of gross source material down to 15–20 feet, the

discovery/removal of 8 underground storage tanks (USTs), and required an active oxygen injection groundwater treatment program to address NYSDEC Spill No. 2005727.

21 Denton Place

The site history explicitly states that 21 Denton Place was historically just residential homes and a parking lot. It has no history of internal manufacturing. This points to being directly contaminated by the operations of the adjacent property--294 4th Ave--and its historical use as the Fulton Smelting and Refining Works.

Primary Contaminant: Hazardous Lead Hotspots (Deep Soil)

The Data: The deepest layer of this site 10 - 12 feet below ground surface contains extreme, hazardous concentrations of lead that require deep over-excavation.

The Key Chemicals: Lead peaked at 15,300 parts per million when sampled from one boring, compared to the restricted-residential of 400 parts per million. A report classifies these as EPA "D008 Hazardous Lead" zones.

Secondary Contaminant: Chlorinated Solvents / CVOCs (TCE)

The Data: The rear courtyard contains an active, localized shallow soil and soil vapor hotspot for trichloroethylene (TCE).

The Key Chemicals: TCE in the shallow soil hit 3,900 parts per billion, and the corresponding soil vapor right above it peaked at 1,980 $\mu\text{g}/\text{m}^3$. This vapor reading is 33 times the NYSDOH mandatory mitigation ceiling of 60 $\mu\text{g}/\text{m}^3$, requiring a Soil Vapor Extraction system to pull the gas out of the dirt.