Former Goodman Brothers Steel Drum Company Investigation

Site Number: 224211
Call Out ID: 126830
18 Division Place
Brooklyn, New York 11222

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1.0 Introduction

EnviroTrac Ltd. (EnviroTrac) was retained by the New York State Department of Environmental Conservation (NYSDEC) under Contract No. C100902 to conduct a sub-surface investigation (soil, soil vapor) for the Former Goodman Brothers Steel Drum Company Site, NYSDEC Site No. 224211, 18 Division Place, Brooklyn, NY, herein referred to as the Site. This sub-surface investigation was conducted pursuant to the NYSDEC Standby Contractor Work Authorization (Call Out) Form received by EnviroTrac on July 27, 2016, which is included in **Appendix A**. The investigation was performed on the surrounding and adjacent streets to the Site. A United States Geological Survey (USGS) topographic map is included as **Figure 1** and a Site Plan with soil vapor point locations and surrounding area is presented as **Figure 2.** Photographic documentation of the investigation is provided in **Appendix B.**

2.0 Site Background

The Former Goodman Brothers Steel Drum Company (Goodman Brothers) was formerly located at 18 Division Place between Kingsland Avenue and Debevoise Avenue in Brooklyn, Kings County, NY (**Figure 1**). The Site consisted of a two (2) story, 11,438-square foot building which was utilized for industrial and manufacturing purposes and was built in 1920 (**Figure 2**). Goodman Brothers specialized in the re-conditioning and recycling of used steel drums that operated from 1909-2004.

EnviroTrac, under Call-Out ID 126830, was assigned to conduct a sub-surface investigation at the Site which included the installation of twelve (12) permanent soil vapor points for the analysis of volatile organic compounds (VOCs) and sidewalk restoration at locations determined by the NYSDEC. A soil vapor intrusion (SVI) sampling program will also be completed at selected residences in the neighborhood surrounding the Site in the winter of 2016. A summary of the work conducted at the Site to date is presented below.

3.0 Soil Vapor Point Installations

On August 22 and 23, 2016, EnviroTrac provided oversight for the installation of 12 soil vapor point installations (SG-211, SG-212, SB-213, SG-214, SG-215, SG-216, SG-217, SG-218, SG-219, SG-220, SG-221, and SG-222) on several streets surrounding the Site. **Figure 2** depicts the soil vapor point installation locations. Prior to installation, all underground utilities at and in the vicinity of the boring locations were marked using the one-call public utility notification process (NY 811). Additionally, USIC LLC. of Hauppauge, New York scanned the boring locations using a combination of toning equipment and ground penetrating radar (GPR) for the presence of underground utilities. The 12 boring locations were pre-cleared to a minimum of five (5) feet below grade (fbg) utilizing hand clearing equipment operated by Associated Environmental Services (Associated) of Hauppauge, New York. All drilling activities at the Site were performed by Associated via Geoprobe® direct push method.

Soils were screened during the soil vapor point installations. The soils were inspected for visual and olfactory indications of contamination and were also screened using a photo-ionization detector (PID) for the presence of VOCs. There were no PID readings recorded above 0.0 parts per million (ppm) at any of the soil sample locations. In general, soils consisted of medium to fine grained sand with some fill, cobbles, and gravel to the maximum explored depth of 8 fbg. Soil characterization is summarized in the geological boring logs provided in **Appendix C.**

Soil cuttings generated during the installation of the soil vapor points were placed into a 55-gallon drum. Following waste characterization sampling, the drum was removed by Metro Environmental Contracting Corporation (Metro) of Lindenhurst, New York for proper off-site disposal. A copy of the waste disposal manifest is provided in **Appendix D.**

The soil vapor points were installed and sampled according to the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October, 2006 (NYSDOH Soil Vapor Guidance). Six (6)-inch stainless steel Geoprobe® soil vapor implants connected to 1/4-inch diameter by approximately eight (8) feet long polyethylene tubing were installed at each soil vapor point location. Once the soil vapor implant was in place, #00 well gravel was used to backfill around the implant approximately 1-2 feet above the screen. A layer of bentonite was placed around the remainder of the soil vapor tubing to grade to seal off the infiltration of ambient air into the sample. Soil vapor point locations are depicted on **Figure 2**.

3.1 Soil Vapor Point Sampling

Soil vapor sampling was conducted by connecting the polyethylene tubing at grade, to a six (6) liter Summa Canister equipped with a one (1) hour flow regulator. A helium tracer gas was utilized prior to the sampling of the soil vapor points. The tracer gas was used to verify that the infiltration of ambient air was not occurring during sample collection. A two (2) quart enclosure was placed over the soil vapor points and the well tubing was placed through a drilled hole at the stop of the enclosure and sealed with modeling clay. The enclosure was then sealed at the ground surface with a polyurethane foam gasket. A tank containing Ultra High Purity (UHP) helium (99.999%) was connected to a side port of the enclosure and helium allowed to fill the enclosure.

Following the application of the tracer gas, approximately one (1) to three (3) volumes were purged from the soil vapor sampling point using a Gillian GilAir-3 air sample pump. A Dielectric MGD-2002 helium detector was used to check for the presence of the tracer gas in the purged soil vapor point; if less than 10% of the tracer gas was detected, the bentonite seal at the well was considered sufficient and a sample was collected. Following the collection of the soil vapor sample, the helium detector was reconnected to the tubing to check for the presence of the tracer gas in the soil vapor; if less than 10% of the tracer gas was detected, the sample was acceptable for analysis. No elevated

concentrations of helium were detected prior to, or following, the sample collection in the soil vapor points.

3.2 Soil Vapor Point Analytical Results

A total of fourteen (14) Summa Canisters and flow regulators were supplied by Test America of Knoxville, Tennessee. Twelve (12) soil vapor point samples, one (1) duplicate and one (1) ambient air sample were collected on August 24, 2016. The soil vapor samples were submitted to Test America for analysis of VOCs via EPA Method TO-15. A chain of custody form was completed to document sample possession. A summary of the VOC detections are presented as **Table 1** and shown on **Figure 3.** The laboratory reports are provided in **Appendix E.**

Based on the analytical results, several VOCs were detected in all of the air samples collected from the soil vapor points. The highest notable detection was of 1,1,2-trichlorotriflouroethene [62,000 micrograms per cubic meter (ug/m3)] at the SG-221 sampling location on Richardson Street, west of Kingsland Avenue. Tetrachloroethane was also present at the SG-221 location (1,000 ug/m3). Other notable detections were present in the sample collected from SG-219, also located on the East side of Kingsland Avenue on Richardson Street. 2,2,4-Trimethylpentane (2,100 ug/m3), Cyclohexane (570 ug/m3), and Hexane (920 ug/m3) were detected at the SG-219 location. There was the presence of several other VOCs in the remaining soil vapor point samples that were collected, however, they appeared to be low level detections.

A Data Usability Summary Report (DUSR) for the air analysis was conducted by Environmental Data Services, Inc. of Williamsburg, Virginia using guidance from the US EPA Region 2 validation Standard Operating Procedures, the US EPA National Functional Guidelines for Data Review, as well as professional judgment. According to the DUSR, no results were rejected. Any additional qualifications of the results from the validation have been incorporated to the summary data table which is summarized in **Table 1** and depicted on **Figure 3**. A copy of the DUSR is provided in **Appendix F.**

4.0 Sidewalk Restoration

Under the direction of the NYSDEC, EnviroTrac replaced select sidewalk flags in which the new soil vapor points were installed. The sidewalks containing SG-212, SG-216 and SG-218 on Kingsland Avenue, SG-213 on Beadel Street, and SG-221 on Richardson Street were replaced on September 6 and 7, 2016. Photographic documentation of the sidewalk restoration is provided in **Appendix B.**

5.0 Summary

A total of 12 soil vapor points were installed at the Site on August 22 and 23, 2016. A total of 12 soil vapor point samples, one (1) duplicate sample and one (1) ambient air sample were collected on August 24, 2016 and were analyzed for the presence of VOCs. Upon the completion of the sampling event, a total of five (5) sidewalk flags were replaced as per the direction of the NYSDEC. Sidewalk replacement took place on September 6 and 7, 2016.

Detections of several VOCs were present in all of the soil vapor points that were collected on August 24, 2016. The highest notable detection was of 1,1,2-trichlorotriflouroethene (62,000 ug/m3) in SG-221 located on Richardson Street, west of Kingsland Avenue. Other notable detections were present in the sample collected from SG-219, also located on the East side of Kingsland Avenue on Richardson Street.