

EXECUTIVE SUMMARY

OBG | Baker Environmental Solutions Joint Venture (OBG | Baker) has prepared this Supplemental Site Investigation Report to present the supplemental investigation activities and associated findings. The scope of work for the supplemental investigation was based on the results from the Phase II Site Investigation completed in early 2024, as well as information obtained during a recent review of historical files by the Department.

To complete the supplemental investigation field activities in an efficient and timely manner, site preparation activities were completed both at project onset and prior to the comprehensive groundwater sampling activities. The initial site preparation activities included using heavy equipment to clear pathways through the dense weeds to the wells and borings and again to clear pathways to the wells after a historic snowfall in December 2024.

The focus of the supplemental investigation included three areas, Lampe Marina Area, Industrial North Area, and the Industrial South Area – East Region. A series of 16 soil borings were advanced in the Lampe Marina parking lot and campground areas to evaluate potential off-site contamination documented nearby on site. Four soil borings were advanced in the Industrial North Area to evaluate reported historical contamination along the rail lines coming/leaving the site with two additional borings also advanced to evaluate data gaps between wells MW-13 and MW-37. Five soil borings were advanced in the Industrial South Area - East Region where a recent review of historical documents by the Department illuded that there may have been waste disposed in this area.

Lampe Marina Area Soil Investigation

A total of 21 soil samples were collected from 16 soil borings in the Lampe Marina Area with 15 of the samples exhibiting benzene detections and six of the borings exhibiting concentrations above criteria. All Volatile Organic Compound (VOC) criteria exceedances were observed in soils in the northern half of the Lampe Marina investigation area. Several Semivolatile VOCs (SVOCs) were detected in all but one sample with PAHs (Polycyclic Aromatic Hydrocarbons, a common contaminant artifact of coke production) being the most detected subgroup of SVOCs to exceed criteria in the soil samples. Consistent with benzene, PAHs exceeded criteria in most of the soil samples from the northern half of the Lampe Marina investigation area. Several metals also were detected in the soil samples with limited criteria exceedances including thallium, arsenic, manganese, and chromium.

The identification of manmade material at depth (e.g., waste cloth) in the on-site and off-site Lampe Marina Area soils supports the conclusion that the geographic limits of the former Erie Coke facility were continually and methodically expanded outward toward, and at, the lakeshore with fill material, operational wastes, and other wastes during its more than one hundred years of operation. It is likely that this same practice took place with previous property owners to Erie Coke.

Industrial North Area Soil Investigation

A total of nine soil samples were collected from six soil borings and one well boring in Industrial North Area. Several soil samples exhibited VOC (primarily benzene) and SVOC (primarily PAHs) concentrations above criteria. Although several metals also were detected in soil from this area,

there were limited metals criteria exceedances including arsenic, chromium, lead, manganese, selenium, and thallium. The elevated VOC and SVOC soil concentrations with varying identified subsurface wastes (e.g., white fibers, white powder, wood) indicates that there are multiple waste streams contributing to the overall detrimental effects of groundwater quality in this area.

The contamination observed in soil in the vicinity of wells MW-13 and MW-45 in the Industrial North Area is believed to have two sources at a minimum. One source being the wastes and fill material used to continually fill in low areas and extend the shoreline to expand Erie Coke's historical operational area. The other source is believed to be from poor housekeeping of railcars, equipment, and/or trucks along the various rail spurs in this, and other areas, on site.

Industrial South Area – East Region Soil Investigation

Five soil borings were advanced, and seven soil samples were collected from this area. VOC detections were sporadic with only two samples exhibiting a VOC (benzene) concentration above criteria. Several SVOCs were detected in most of the soil samples from this area with only three samples exhibiting SVOC criteria exceedances. Most SVOC criteria exceedances were limited to PAHs (primarily naphthalene). Several metals also were detected in this area with limited criteria exceedances including manganese, arsenic and thallium.

Consistent with the Lampe Marina and Industrial North Areas, the contaminant impact observed in this area does not appear to have one contaminant source. Contaminant impact and depth in one boring (primarily PAHs) was not consistent with the impact and depth observed in another boring from this area (primarily benzene).

Groundwater Investigation

A meeting between the Department and OBG | Baker took place after completing the soil boring activities to discuss the appropriate number of supplemental investigation monitoring wells. It was agreed that seven shallow overburden groundwater monitoring wells would be installed during this phase of the investigation with six of the wells (MW-39 through MW-44) installed in the Lampe Marina area and one well (MW-45) installed in the Industrial North Area.

A comprehensive groundwater sampling event of all 58 wells on and off site was completed in December 2024. VOCs were detected in approximately 65% of the groundwater monitoring wells with VOC criteria exceedances in over 50% of the wells. It should be noted that the high percentage of impacted wells is expected as wells were located based on a biased approach

ES-3

toward contaminated areas. Benzene was the most prevalent VOC to exceed criteria (over 50% of the wells) with many well samples being several orders of magnitude over criteria. This was anticipated as benzene is typically the primary VOC in concentrated byproducts, air emissions, and wastewater from the coke production process. The areas with the most elevated benzene concentrations include Lampe Marina Area, Industrial North Area, and the generalized Tank Farm Area and appear to be independent of each other. Benzene concentrations in these areas ranged from over one to five orders of magnitude above criteria.

At least one SVOC analyte was detected in approximately 75% of the groundwater monitoring wells with SVOC criteria exceedances (primarily PAHs) in approximately 45% of the wells. Notable

SVOC criteria exceedances included naphthalene in 24 wells and biphenyl in 23 wells and also can be attributed to the coke production process.

The strategic placement and sampling of soil borings and groundwater monitoring wells from this investigation were successful in delineating the contaminant impact in the Lampe Marina parking lot. Wells MW-39, MW-40, and MW-41 are impacted with VOCs (primarily benzene) and SVOCs (primarily PAHs) above criteria. This is to be expected as associated soil borings have shown that waste material has crossed the property boundary. Soil borings closer to the campground area are clean of waste.

MW-13 in the Industrial North Area is the most contaminated well on site with respect to VOCs and is also the most concerning. Documented manmade contamination at depths above and below the water table (continual source), its close proximity to the lakeshore, and consecutive increases in benzene levels throughout 2024 (60% from January to December 2024; 374,000 ug/L to 629,000 ug/L) are the foundation of the concern. A flat hydraulic gradient indicates minimal groundwater flow towards Lake Erie through the area of MW-13. However, due to the contaminant proximity to the lake, it is one of the areas that should be addressed first in a remediation plan.

Isoconcentration mapping of VOCs and SVOCs conveyed that each of the most impacted areas on site are independent of each other and are not a result of an expanding plume migration (excluding within the Tank Farm Area itself). Each of these larger impacted areas are a composite of a number of smaller individual source areas contributing to the overall poor groundwater quality beneath the site that could potentially migrate toward the Lake Erie shoreline.

Recommendations for further investigation work at the site include continued quarterly monitoring of select groundwater wells (including Dense Non-Aqueous Phase Liquid [DNAPL] monitoring), installation of a new deep well (MW-13D) nested with MW-13 in the Industrial North Area, installation of a shallow well adjacent to both SB-224 and SB-225 in the Industrial South Area – East Region, and biannual sediment sampling along the shoreline of Lake Erie adjacent to MW-13 and also in the Tank Farm Area.