## KLEINFELDER

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September 20, 2007

Mr. Michael MacCabe, P.E. New York State Department of Environmental Conservation Division of Environmental Remediation Remedial Bureau B, 12<sup>th</sup> Floor 625 Broadway Albany, New York 12233-7016

Re: Supplemental Investigation Work Plan

Former Mobil Service Station No. 17-EMW (17-EMW) 304 Columbia Street Brooklyn, New York NYSDEC Case Nos. 89-04339, 05-02047

Dear Mr. MacCabe:

On behalf of Exxon Mobil Corporation (ExxonMobil), Kleinfelder East, Inc. (Kleinfelder), is submitting this Supplemental Investigation Work Plan (SIWP) to the New York State Department of Environmental Conservation (NYSDEC) as part of the continuing investigative and remedial activities associated with Former Mobil Service Station No. 17-EMW (17-EMW) located at 304 Columbia Street in Brooklyn, New York (Site). The activities described in this SIWP are proposed to provide additional horizontal and vertical delineation of potential soil and groundwater impact on and off Site.

#### SITE BACKGROUND INFORMATION

The following sections summarize the Site location and description, geology and hydrogeology.

#### Site Location and Description

The Site is located in Kings County on a triangular lot bound by Columbia Street to the east, Woodhull Street to the north, and Hamilton Avenue to the southwest. The Site is directly adjacent to the Brooklyn Battery Tunnel to the southwest (along Hamilton Avenue). Adjacent properties include residential properties containing basements and buildings with basements housing both commercial and residential dwellings located east of the Site on the north side of Woodhull Street (Figure 2).

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The Site is a former Mobil service station currently operating as Al's Auto Repair facility. The Site consists of a single-story, concrete block building with three service bays located in the northeast portion of the property. The underground storage tanks (USTs) and dispenser islands were removed during divestment activities in April 1997. An above-ground storage tank containing used oil is located to the east of the service station building.

#### Geology/Hydrogeology

Subsurface material encountered during previous on-site soil boring/monitoring well installations consisted of primarily well-sorted very fine- to medium-grained sand, silt, and trace gravel. Fill material consisting of very fine- to fine-grained sand intermixed with gravel, brick, and concrete, as well as copper trolley car tracks, was encountered between 0 to 5 feet below grade (fbg). Native deposits underlying the fill material consisted predominantly of fine- to medium-grained sand with gravel from 8 to 12 fbg. Fine-grained sand with silt was encountered at depths of 12 to 14 fbg.

## INVESTIGATION WORK PLAN

A soil and groundwater investigation as detailed in the following sections is proposed. The additional soil and groundwater delineation will allow for further evaluation of current on- and off-site soil and groundwater conditions.

#### **Geophysical Survey**

A geophysical survey of the Site was completed by NAEVA Geophysics, Inc. of Congers, New York, (NAEVA) on August 18, 2007. The purpose of the survey was to locate potential subsurface infrastructure, such as USTs, due to the recent findings of liquid-phase hydrocarbon (LPH) in monitoring well MW-16.

The geophysical survey was conducted by utilizing a Fisher TW-6 Pipe and Cable Locator, Radiodetection RD600 and RD433HCTx-2/PDL utility locators, a Dynatel 2250 Cable Locator and a Sensors and Software Smart Cart ground penetrating radar (GPR) system with a 250 MHz antenna.

NAEVA completed numerous transects across the Site using the GPR and utility locating equipment to determine the location of possible subsurface structures. NAEVA marked the locations of subsurface utility lines and possible subsurface metallic anomalies (MDAs) detected beneath the Site. No definitive UST fields were located; however two MDAs were detected in the northwest corner of the property in the vicinity of SB-9. These MDAs will be investigated during the soil boring pre-clearing activities.

### Soil/Groundwater Investigation

To evaluate current soil and groundwater quality, the installation of eight soil borings (SB-9 through SB-16) is proposed. Six of the eight borings will be installed on Site and two soil borings will be installed off Site. Three of the borings will be completed as monitoring wells. The proposed on-site boring (SB-9) will be completed as a monitoring well (MW-19) to replace former monitoring well MW-6A which was previously destroyed. The proposed off-site borings (SB-15 and SB-16) will be completed as monitoring wells MW-20 and MW-21 in order to further delineate the extent of current hydrocarbon impact off Site. The proposed soil boring/monitoring well locations are illustrated on Figure 2. The findings of the geophysical survey indicate that the proposed off-site boring locations can not be moved if refusal is met

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due to the numerous subsurface utilities located in the sidewalk. The soil and groundwater investigation plan consists of the following:

- Advancement of eight soil borings to approximately 22 fbg. The soil borings will be hand or vacuum cleared to approximately 5 to 8 fbg. Hand auger samples will be collected from land surface to the termination depths of the hand or vacuum clearing. Subsequent continuous 2-foot, spilt-spoon soil samples will be collected to the terminal depths of the borings. Soil samples will be physically characterized and qualitatively screened for the presence of volatile organic compounds (VOCs) with a photoionization detector (PID). Drill cuttings produced will be contained on Site in properly labeled United States Department of Transportation (USDOT) approved 55-gallon drums and properly disposed of at an off-site facility.
- Collection of at least one soil sample from each soil boring to be submitted to a New York State Department of Health (NYSDOH) approved laboratory for analysis of VOCs via United States Environmental Protection Agency (USEPA) Method 8260B. Soil samples exhibiting high PID screening values or visual staining will be submitted for laboratory analysis, or in the absence of any PID response or visual staining, the sample which is located immediately above the watertable interface. In addition, a composite soil sample will be collected and analyzed for soil oxygen demand and soil pH.
- Installation of a 2-inch diameter schedule 40 polyvinyl chloride (PVC) monitoring well in soil boring locations SB-9, SB-15 and SB-16. The monitoring wells will be constructed of 7 feet of PVC riser and 15 feet of 0.01-inch machine-slotted screen, with the screen zone extending from approximately 8 to 22 fbg. The annular space of the borings surrounding the screened portion of the well will be filled with a washed sand filter pack to 2 feet above the top of the well screen. Above the sand will be a 2-foot thick bentonite seal followed by grout. The well will be capped with a locking "j-plug" and completed at grade within an 8-inch diameter road box surrounded by a 2-foot by 2-foot concrete pad.
- Collection of a groundwater sample from each boring to be submitted to a NYSDOH approved laboratory for analysis of benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl tertiary-butyl ether (MTBE) via USEPA Method 8260. Groundwater samples will be collected with a disposable polyethylene bailer following evacuation of three to five well volumes from each well via submersible pump.
- Survey top of well casing elevations of both existing and newly installed well.
- Perform one synoptic round of monitoring well liquid-level gauging.

The above-stated activities will commence within 90 days following receipt of written approval from the NYSDEC. The findings of the investigation will be included in a Subsurface Investigation Report, to be submitted to the NYSDEC within 90 days following completion of the above-stated field work.

Please provide written approval of the SIWP at your earliest convenience, along with the standard New York City Department of Transportation letter required to obtain permits. If you have any questions regarding the investigation, please contact the undersigned at (631) 218-0612.

Very truly yours,

Kleinfelder East, Inc.

Dennis G. Shin, P.E. Senior Project Manager Patrick J. Condon Project Hydrogeologist

Attachment

Copy: Kenneth J. Drake, Exxon Mobil Corporation

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