Chapter 12: Hazardous Materials

A. INTRODUCTION

This chapter provides an assessment of whether the proposed project would result in significant adverse impacts from increased exposure of people and/or the environment to hazardous substances in soil or groundwater. An evaluation also is made regarding the future of the site in the No Action condition. Based on this evaluation, the proposed project is not anticipated to result in significant adverse impacts with respect to hazardous substances.

Any hazardous materials in buildings to be demolished would be handled and removed in accordance with all applicable regulations and would thus avoid any significant adverse impacts. Further, any storage tanks or contaminants in the soil would be handled according to a site-specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) to avoid adverse impacts to construction workers, the surrounding community, and future site occupants. The RAP and CHASP were approved by the New York City Department of Environmental Protection (DEP) on September 24, 2009.

B. PHASE I ENVIRONMENTAL SITE ASSESSMENT

A Phase I Environmental Site Assessment (ESA) for the project site was conducted by Environ International Corporation between May and July 2001. Environmental Health Investigations, Inc. conducted another Phase I ESA for the project site between April and June 2004. Each assessment included a site visit, interviews with persons knowledgeable about the site, a records review, and examination of historic maps. The ESA was conducted to assess current and past uses of the site and surrounding area that may have resulted in hazardous materials being present at the site.

The project site consists of an approximately 11-acre parcel including 264 to 316 Kent Avenue, which is situated between the East River, South 5th Street, and Grand Street in the Williamsburg section of Brooklyn, New York and a lot at 329 Kent Avenue, which is located between South 3rd and South 4th Streets and was formerly used as a parking lot. The buildings on the site were built between approximately 1853 and 1960 and have a total gross floor area of approximately 889,000 square feet (sf).

The subject property is located in a mixed-use area of Williamsburg. Nearby properties include Radiac Research, a hazardous and radioactive waste storage, treatment, and disposal facility. Shallow groundwater at the site is anticipated to flow to the west towards the East River. Fill material, comprised of sand and silty sand containing concrete brick, wood, and other debris, is present throughout the site to a depth of up to 30 feet below grade. Due to the potential of contaminants in fill material in urban settings, fill was identified as a potential environmental concern during redevelopment of the site.

The site was developed for sugar refining operations in the 1850s and operated as such until manufacturing ceased in 2004. The northern portion of the site housed a research laboratory, fuel oil tank farm, raw sugar warehouse, wash house, storage tanks for sugar liquor, and office space.

The central section housed boilers and turbines used to generate heat and electricity for the plant operations and buildings. The southern portion housed office, packaging, and warehousing operations. A tanker truck washing station, located between the central and southern sections of the project site (along South 3rd Street), was identified as a potential environmental concern due to the potential of contaminants entering the subsurface during the washing operations. Raw materials used at the facility included sugar liquor, processing aids (i.e., diatomaceous earth, decolorizing resin, and pH adjustment chemicals), and additives (i.e., maltodextrin, cornstarch, and cinnamon).

The facility contained two 200,754-gallon No. 6 fuel underground storage tanks (USTs). The two USTs ("tank farm") were regulated by the New York State Department of Environmental Conservation (NYSDEC) as a Major Oil Storage Facility (MOSF). As part of the MOSF permit, the facility currently conducts monthly well gauging and annual ground monitoring from four wells. Monitoring data indicates separate phase product has not been measured and no contaminants were detected above NYSDEC standards. Visible staining was observed on the ground surface in the vicinity of the tank farm. Four additional former USTs (one 1,000-gallon gasoline, two 3,000-gallon diesel fuel, and one 1,500-gallon of unknown contents) were used at the site. While no closure documentation was available, these smaller USTs were removed or closed-in-place between 1948 and 1989. Several aboveground storage tanks (ASTs), including one 274-gallon diesel fuel, two 275-gallon waste oil, and one 560-gallon sodium hydroxide tanks, were used at the facility. The ASTs were removed in February 2009.

Non-hazardous wastes generated at the facility included general refuse (garbage), used oils, oily rags, used absorbent pads, cardboard, and paper. Hazardous wastes generated included laboratory chemicals and lead paint from facility renovations.

Earth Tech Inc. conducted an asbestos survey of the facility in 1998, and in May 2004 Precision Environmental conducted a limited assessment of potential asbestos-containing materials. Asbestos-containing materials were identified throughout the facility despite various asbestos abatement projects that were undertaken at the facility since the 1980s. Additional survey and abatement would be required to remove all asbestos-containing materials prior to demolition of the buildings and redevelopment of the project site.

Based upon the regulatory database search and local records review, six petroleum spills associated with the project site were reported to NYSDEC. The spills ranged in volume from 5 to 126 gallons. All of the spills have since been closed by NYSDEC. The storage tanks at the project site were identified on NYSDEC UST, chemical bulk storage, and MOSF databases. Radiac Research was identified on the treatment, storage, and disposal facility (TSDF) database. Excluding the Radiac Research facility, none of the other surrounding facilities identified in the database search posed a potential concern with respect to impact to soil or groundwater at the project site.

C. PHASE II ENVIRONMENTAL INVESTIGATIONS

Subsurface investigations were conducted at the project site in 2004. The investigations included the collection of soil and groundwater samples to determine subsurface soil and groundwater quality.

A Phase II Environmental Site Assessment was completed by Nova Consulting and Engineering, LLC in June 2004 to investigate the area of the tank farm and truck washing area. Soil samples were collected from nine borings for laboratory analysis of volatile organic compounds (VOCs) and semi volatile organic compounds (SVOCs). Samples analyzed for VOCs were detected at

low concentrations below NYSDEC-recommended soil cleanup objectives (RSCOs). Samples analyzed for SVOCs contained concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and phenanthrene above NYSDEC RSCOs. The SVOCs detected were attributed to the presence of historic fill material.

A Phase III Environmental Site Assessment was completed by Nova Consulting and Engineering, LLC in June 2004 to investigate the former raw sugar warehouse (historic coal storage area), the main warehouse (Building 36), and other locations throughout the site. Soil samples were collected from 16 borings for laboratory analysis of VOCs, SVOCs, and metals. Low concentrations of VOCs were detected in the soil samples, including acetone, benzene, Freon, toluene, and 1,2,4-trimethylbenzene, all at levels well below the NYSDEC RSCOs. Samples analyzed for SVOCs contained concentrations benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and phenanthrene above the NYSDEC RSCOs. Metals were detected in the soil samples, including cadmium, chromium, and mercury in the NYSDEC RSCOs. The SVOCs and metals detected in the soil samples were attributed to the presence of historic fill material. One groundwater sample was collected from a well installed northeast of the tank farm, which was analyzed for VOCs and SVOCs. The groundwater sample contained low levels of trichloroethylene, bis(2-ethylhexyl)phthalate, and di-n-butyl phthalate below the NYSDEC groundwater standards. No other VOCs or SVOCs were detected in the groundwater sample.

On October 15, 2008, a DEP comment letter indicated additional soil and groundwater investigations were required. On October 30, 2008, AKRF submitted to DEP a Sampling Protocol and Health and Safety Plan (HASP) for review and approval. The protocol included procedures to characterize soil and groundwater at the project site in accordance with DEP protocols.

In November 2008, a Phase II Environmental Site Assessment was completed by AKRF in accordance with the Sampling Protocol and HASP. The scope included the collection and laboratory analysis of 20 soil samples and six groundwater samples to determine whether current or former on- or off-site activities have adversely affected the subject property, and if any special handling requirements will be needed during development. Boring depths ranged from 5 to 25 feet below the sub-grade floor of the industrial complex, and 20 to 35 feet below grade beneath the parking area. Groundwater was encountered at approximately 6 to 8 feet below the sub-grade floor of the site buildings, at approximately 12 feet below grade near the fuel tank area, and at approximately 20 to 25 feet below grade in the parking lot.

Field screening of soil during sample collection indicated that organic vapors were detected with the photoionization detector (PID) and a petroleum-like odor was observed in soil samples collected from 6 to 12 feet below grade next to the former Boiler House. The PID readings ranged from 0.2 parts per million (ppm) at 6 feet below grade to 14.8 ppm at 12 feet below grade. On November 10, 2008, a spill (#0809044) was reported to NYSDEC based on the observation. There was no evidence of contamination (PID readings, odors, or staining) observed in soil samples collected from the remaining borings.

VOCs, including acetone, carbon disulfide, MEK, methylene chloride, and toluene were detected in 18 of the 20 samples. The concentrations of acetone in SB-3 (4-6) and SB-3(10-12) exceeded NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046 RSCOs, but were well below the NYSDEC 6 NYCRR Part 375 Remedial Program Soil Cleanup Objectives (SCOs) for Residential Use. The remaining detected VOCs were below TAGM

RSCOs and Part 375 SCOs. Based on the distribution and levels detected, and the lack of any significant evidence of contamination during the field screening activities, the VOCs are attributable to the urban fill and not a release or spill.

Twenty-one SVOCs were detected, with one to seven SVOCs exceeding their respective TAGM RSCOs or Part 375 SCOs in 14 samples. All of the SVOCs detected were PAHs consistent with the observed urban fill. SVOC results in soil samples collected from SB-7, where evidence of petroleum contamination was documented during field screening, were consistent with the SVOC detections throughout the site, and only contained one compound (dibenz(a,h)anthracene) that was just above the TAGM RSCOs. Naphthalene, which is a compound typically detected in a petroleum release, was not detected in soil samples collected from SB-7.

Twenty-three metals were detected, with one to ten metals exceeding their respective TAGM RSCOs in each sample, and up to five metals exceeding their respective Part 375 SCOs in five samples. Between one and five metals (arsenic, calcium, lead, nickel, and magnesium) exceeded Eastern U.S. background levels in 11 samples. In particular, lead at a concentration of 17,900 ppm was detected in sample SB-3(10-12'). Five metals were detected at concentrations that exceeded NYSDEC's TAGM 4046 Eastern United States background levels in three samples. In particular, elevated lead and mercury were detected in two samples. However, all of the metals concentrations are likely attributable to urban fill material rather than to a release or spill.

Between one and ten pesticides (4,4'-DDD, 4,4'-DDT, beta-BHC, endosulfan sulfate, endrin, endrin ketone, gamma-chlordane, heptachlor epoxide, methoxychlor, and toxaphene) were detected in 11 of the 20 samples, but all at levels well below the TAGM RSCOs and Part 375 SCOs. PCBs were detected in five randomly located samples at low concentrations below the TAGM RSCOs and Part 375 SCOs.

Methyl ethyl ketone (MEK) was detected in SB-2 at a concentration that exceeded NYSDEC Class GA Ambient Water Quality Standards (drinking water standards). Cis 1,2-dichloroethylene (DCE), tetrachloroethene (PCE), and trichloroethene (TCE) were detected in groundwater sample SB-13 at concentrations of 5.5 parts per billion (ppb), 5.7 ppb, and 27 ppb, which exceeded the Class GA standard of 5 ppb for each compound. SB-2 was located on the northern end of the property, and SB-13 was located on the upgradient side of the parking lot, which is upgradient of the industrial complex. The absence of these VOCs in soil in the vicinity of the wells, and their location suggest these compounds are likely attributable to regional groundwater quality, i.e., affected by past industrial/manufacturing operations in the area. Acetone, which was detected in four of the six groundwater samples, was also detected in the trip blank and field blank and is likely an artifact of laboratory contamination and not related to site contamination.

Eight to 14 SVOCs were detected in sample SB-2, SB-5, SB-6, SB-7, and SB-13. Of these detections, 4-methylphenol, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl) phthalate, chrysene, and ideno(1,2,3-cd)pyrene exceeded their respective Class GA standard. The exceedances were detected in SB-5, SB-7, and SB-13. These compounds were detected in the fill materials. Small amounts of fill material can become entrained in the samples, which are not filtered, when agitated by the sampling process. Detected SVOCs may also be attributable to general groundwater quality in the area, which has a history of manufacturing. SVOCs were not detected in sample W-4. Naphthalene, which is typically detected in groundwater contamination due to a release of petroleum, was not detected in SB-7 where evidence of petroleum contamination was observed during field screening. The SVOC compounds and concentrations detected in groundwater at SB-7 were consistent with the site-

wide groundwater quality, indicating that the detections are associated with fill material and/or general groundwater quality in the area.

Twenty metals were detected, 13 at concentrations above Class GA standards in the total (unfiltered) samples. In the filtered samples (dissolved metals analysis), only iron, magnesium, manganese, and sodium were detected above their respective Class GA standards. These results suggest that most of the detections in the total metals analyses are due to suspended sediments in the samples. Since the site is in an area that may be tidally influenced, the magnesium, manganese and sodium detected above Class GA standards in the dissolved metals analyses (filtered samples) are likely attributable to the presence of brackish water. The remaining dissolved metals detected were below the Class GA standards and are typical of groundwater quality in New York City.

Delta-BHC and gamma-chlordane were detected in sample SB-2 at estimated concentrations that were below the laboratory reporting limit and well below the Class GA standards. Gamma-chlordane was also detected in the field blank. PCBs were not detected in the groundwater samples.

D. REMEDIAL ACTION PLAN

In August 2009, a Remedial Action Plan (RAP) was prepared by AKRF to outline general guidelines and measures for remediation and proper handling of soil during the redevelopment of the project site. Specifically, the RAP includes requirements for confirmatory sampling to document post-development subsurface conditions, soil disposal, pre-characterization soil sampling, tank removal procedures, measures to address petroleum spills, dust and vapor controls, air monitoring, contingency planning, installation of a site cap consisting of building cover, paving or two feet of clean fill, and installation of a vapor barrier below each building to prevent potential vapor intrusion. The RAP was approved by DEP on September 24, 2009. The RAP was designed to facilitate the remediation of different phases of the proposed project in any potential order while still protecting current and future neighbors and site occupants.

E. CONSTRUCTION HEALTH AND SAFETY PLAN

In August 2009, a Construction Phase Environmental Health and Safety Plan (CHASP) was prepared by AKRF to assign responsibilities, establish personnel protection standards and mandatory safety practices and procedures, and provide for contingencies that may arise during construction at the project site. The CHASP is intended to minimize health and safety risks resulting from the known and potential presence of hazardous materials on the site and outlines potential hazards, personal protective equipment, air monitoring, and health and safety plan soil sampling. The CHASP was approved by DEP on September 24, 2009. The CHASP was also designed to facilitate the remediation and construction of different phases of the proposed project in any potential order while still protecting current and future neighbors and site occupants.

F. THE FUTURE WITHOUT THE PROPOSED PROJECT

As described in Chapter 2, "Analytical Framework," most of the project site would be developed as-of-right with commercial and industrial uses, and the Refinery complex would remain vacant. Existing storage tanks and asbestos-containing materials would remain at the project site until it was redeveloped. Occupants and/or construction workers during future development or other excavation work would not necessarily be protected from exposure by means of a Restrictive Declaration, RAP, and CHASP. Thus, unlike the proposed project, there would be a lower

potential for disturbance of hazardous materials, but greater risk of exposure due to the lack of a RAP and CHASP. There would also be less extensive remediation of hazardous materials.

G. THE FUTURE WITH THE PROPOSED PROJECT

Based on the environmental studies conducted at the project site, it has been concluded that there would be no anticipated significant adverse impacts associated with the proposed project with respect to hazardous materials.

Hazardous materials would be appropriately addressed prior to or during the demolition of the on-site buildings, including abatement of identified asbestos-containing materials, which would be removed prior to demolition.

Site investigation activities did reveal the presence of semi-volatile organic compounds and metals in the site subsurface associated with historic fill material, but the presence of these compounds does not pose a significant adverse impact to human health or the environment.

Pursuant to the Restrictive Declaration recorded against the property, development activities, including any remediation, will be conducted in accordance with the DEP-approved RAP and CHASP under the oversight of DEP and/or the New York City Mayor's Office of Environmental Remediation (NYCOER). This would avoid any significant adverse impacts to construction workers, the surrounding community, and other site occupants. The RAP and CHASP outline procedures for removal of any storage tanks and management of excavated soil during the construction activities, and requirements for vapor controls and a site cap to prevent future exposure to future occupants of the project site.

Following development of the proposed project, future use of the project site would further be governed by the terms of the Restrictive Declaration. ✷