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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ENVIRONMENTAL CLEANUP

17 January 2014

SUBJECT: Action Memorandum for Subarea II of the Fourth Avenue and Gambell Street Site, Anchorage, Municipality of Anchorage Borough, Alaska

FROM: Earl Liverman, Federal On-Scene Coordinator
Emergency Preparedness and Prevention Unit

THRU: Wally Moon, Unit Manager
Emergency Preparedness and Prevention Unit

TO: Chris D. Field, Manager
Emergency Management Program

I. PURPOSE

The purpose of this Action Memorandum is to document the decision to initiate the time-critical removal action described herein for Subarea II of the Fourth Avenue and Gambell Street Site located in Anchorage, Anchorage Borough, Alaska (Site). The proposed time-critical removal action is expected to be conducted by a potentially responsible party (PRP) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), with oversight by the U.S. Environmental Protection Agency (EPA).

The scope of the removal action is limited to reducing vapor intrusion of tetrachloroethylene (PCE), also known as perchloroethylene or tetrachloroethene, and its degradation products, trichlorothene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride (VC), from contaminated groundwater and soil through subsurface soils and into indoor air spaces of overlying single- and multi-family buildings located in Subarea II.

II. SITE CONDITIONS AND BACKGROUND

The CERCLIS ID No. is AKN001002925 and the Site ID is 10ME.

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A. Site Description

1. Removal site evaluation

Substantial environmental information exists about the Site. Numerous environmental investigations beginning in the mid-1990s show that soil, soil gas, and groundwater at

the Site are contaminated by PCE and its degradation products and that these volatile organic compounds (VOCs) may pose a chronic human health risk through inhalation of indoor air.

2. Physical location

The Site, also known as Alaska Real Estate Parking Lot, 717 East 4th Avenue, is located in downtown Anchorage (Figure 1 – Site Vicinity Map). The Site is bounded to the north by East 3rd Avenue, to the south by East 4th Avenue, to the west by Gambell Street, and to the east by Hyder Street. The latitude is 61.21926117 and the longitude is -149.87043762.

The Site covers approximately one acre and the immediate vicinity is generally flat at approximately 110 feet above mean sea level. The surrounding area has a gentle slope to the north towards the Ship Creek drainage at which point a steep drop-off in elevation occurs. The upper unconfined aquifer appears to flow generally toward the north to northeast and then switches to a more northwesterly direction near the base of the bluff until it flows into Ship Creek. The mean annual precipitation for Anchorage, Alaska, as measured at nearby Merrill Air Field from November 1997 to December 2008, is 14.78 inches.

3. Site characteristics

The Site is surrounded by commercial, retail, and residential activities. The Site is divided into two subareas - Subarea I and Subarea II - for this removal action (Figure 2 – Site Layout Map).

Subarea I is currently an undeveloped parking lot that was previously occupied by a variety of businesses, including C&K Sanitary Cleaners from 1968 to 1970 and NC Auto Services Center from 1976 to 1978. PCE is widely used for dry-cleaning fabrics and metal degreasing operations (EPA 2012). All buildings were removed from this sub-area by 1978. A communications tower/antennae located at the south east corner of this subarea is owned by Alaska Communications. The legal description for this one-half city block is Lot 8A, Lot 10, Lot 11, and Lot 12, Block 26A, East Addition. All of these lots are currently owned by the Fourth Avenue Gambell LLC.

Subarea II is currently used for single- and multi-family buildings. The legal description for this one-half city block is Lot 1, Lot 2, Lot 3, Lot 4, Lot 5, and Lot 6A, Block 26A, East Addition. Lots 1, 2, 3, and 4 and Lots 5 and 6A are owned by two separate persons. East 3rd Avenue and the former Alaska Native Hospital property, which is now vacant, are located to the north beyond the residential buildings.

4. Release or threatened release into the environment of a hazardous substance or pollutant or contaminant

The contaminants of concern are PCE and its degradation products TCE, cDCE, and VC. These VOCs are a hazardous substance or pollutant or contaminant as defined by sections 101(14) and 101(33) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended 42 U.S.C. § 9601(14) and (33).

Numerous environmental investigations have been performed to assess the nature and extent of site contamination, and to delineate vapor sources and assess the vapor intrusion (VI) pathway, including vapor intrusion source delineation and vapor intrusion pathway sampling. The investigations are summarized below.

1997 – Initial Site Characterization and Subsurface Investigation

In October 1997, Environmental Project Management, Inc. (EPMI) conducted an initial site characterization and subsurface investigation (EPMI 1997). The limited site investigation was performed on behalf of the Skinner Corporation, the property owner at the time. Activities included the excavation of test pits for soil sampling and the installation of three groundwater monitoring wells. Numerous subsurface features were identified, including hydraulic hoists, sumps; underground storage tanks (USTs), a wooden crib, and an underground piping network. Analysis of soils sampled close to the top of the crib revealed the presence of PCE and cDCE, as well as other VOCs at concentrations in excess of Alaska Department of Environmental Conservation (ADEC) soil cleanup levels. PCE concentrations in soil and groundwater samples collected from one monitoring well showed 2,200 micrograms per kilograms (µg/Kg) and 4,250 micrograms per liter (µg/L), respectively.

2004 – Phase II Environmental Site Assessment

A Phase II Environmental Site Assessment (ESA) was conducted in August 2004 by BGES, Inc. (BGES) (BGES 2004a). The ESA was performed on behalf of Paul Maney who was an original partner in the Fourth Avenue Gambell LLC, the property owner at the time. The ESA included the excavation of six test pits for soil sampling and the removal of five hydraulic lifts, two hydraulic USTs, and two heating oil USTs. The test pit soil samples revealed numerous locations with PCE concentrations ranging from 1,730 to 4,200 µg/Kg, which exceeded the then current ADEC PCE soil cleanup level of 30.0 µg/Kg.

BGES returned to the Site on behalf of Paul Maney in October 2004 to collect an additional groundwater sample from a previously unknown monitoring well (BGES 2004b). The PCE concentration of 2,280 µg/L exceeded the ADEC groundwater cleanup level of 5.0 µg/L. Other VOCs were not detected.

2005 – Phase II Environmental Site Assessment

BGES conducted additional soil and groundwater investigations on behalf of Paul Maney in March and April 2005 (BGES 2005). Three soil borings were advanced and were completed as groundwater monitoring wells. PCE was detected in all of the soil samples ranging from 542 to 79,500 µg/Kg. PCE was also detected in all of the groundwater samples ranging from 70.7 to 1,790 µg/L.

2007 – Additional Phase II Environmental Site Assessment

Further site characterization was conducted by BGES on behalf of Paul Maney in 2007 (BGES 2007). Five additional soil borings were advanced and three borings were completed as groundwater monitoring wells. The PCE concentrations detected in soil samples ranged from 359 to 821,000 µg/Kg, and the PCE concentrations detected in groundwater samples ranged from 5.1 to 822 µg/L.

2008 – Site Characterization

Oasis Environmental, Inc. (Oasis) conducted an investigation on behalf of the ADEC in July 2008 (Oasis 2008). The off-Site investigation included advancing and sampling six soil borings and sampling four groundwater monitoring wells. Soil sampling near the location of the former C&K Cleaners indicated PCE-contaminated soil begins at the ground surface and extends approximately 40 feet below ground surface to the groundwater interface. The PCE concentration detected in soil samples ranged from 260 to 54,000 µg/kg. The highest PCE concentrations were detected north/northeast of the C&K Cleaners property on the northern adjacent residential properties. Groundwater PCE concentrations in three monitoring wells northeast of the former C&K Cleaners location ranged between 290 and 1,600 µg/L. One upgradient temporary groundwater monitoring well was sampled with no detectable concentration of PCE.

2009 – Oasis Additional Site Characterization

Oasis conducted additional site characterization activities on behalf of the ADEC in March and May 2009 with the inclusion of vapor intrusion assessments at four residential buildings located north of Subarea I (Oasis 2009). The assessments included the collection of soil gas samples and outdoor air samples outside each building and the collection of either indoor air or crawl space air samples. PCE was present in soil gas at concentrations exceeding the then current ADEC target soil gas level of 41 $\mu g/m^3$ at all four residences for both sampling events. PCE soil gas levels ranged from 17 to 13,000 $\mu g/m^3$. In addition, indoor air or crawl space air analytical results showed that PCE also was present above the then current ADEC indoor air target level of 4.1 $\mu g/m^3$ at all four residences for both sampling events, except for the South Duplex in June 2009. PCE indoor/crawl space air levels ranged from non-detect to 170 $\mu g/m^3$.

2010 – Oasis Vapor Intrusion Assessment

Oasis conducted additional site characterization activities at the four residential buildings assessed in 2009 to further assess the VI pathway on behalf of the ADEC in February and May 2010 (Oasis 2010a). Consent for access was denied at a fifth building (744 E. 3rd Avenue). During each event, soil gas samples were collected adjacent to each residence from permanent soil gas monitoring points. Indoor air samples were collected at the two western residences, while crawl space air samples were collected at the two eastern residences. Outdoor air samples also were collected. A passive soil gas survey of a four-block area also was performed to understand the distribution of contamination. Analytical results from the two field assessments indicated that PCE was present in soil gas at concentrations exceeding the then current ADEC residential soil gas target level of 41 $\mu g/m^3$ at four residences for both sampling events with the exception of the North Duplex in February 2010. TCE and VC were detected in the North Duplex during one sampling event. In addition, indoor air or crawl space air analytical results showed that PCE also was present above the ADEC residential indoor air target level of 4.1 $\mu g/m^3$ at all four residences for both sampling events. These findings indicate that PCE is present in the residences above risk-based target levels likely as the result of vapor intrusion. Outdoor air PCE concentrations ranged from 0.26 to 2.3 $\mu g/m^3$. Passive soil gas sampling showed that elevated PCE concentrations occur around the former C&K Cleaners and extend to the four residences where vapor intrusion assessments have occurred. These elevated PCE concentrations are assumed to represent vadose-zone contamination. The passive soil gas data also appear to delineate a groundwater plume moving northeast from the source area.

2011 – E&E Preliminary Assessment

Ecology and Environment, Inc. (E&E) conducted a Preliminary Assessment (PA) on behalf of the EPA in October 2011 (E&E 2011). The PA was based on a review of existing Site information, receptor information within the range of the Site's influence, and regional characteristics. The PA report discussed the Site's history; summarized previous work completed by the ADEC, identified sources of hazardous substances at the Site, and summarized the Site visit conducted during July 2011. The PA concluded that documentation was clear regarding contamination being present at the Site, as well as its migration northeast toward Ship Creek.

2011 – Oasis Site Characterization

Oasis conducted off-site characterization activities at adjacent Block 26B, East Addition Subdivision on behalf of the ADEC during April, May, and November 2011 (Oasis 2012). The investigation included advancing and sampling four soil borings, installing and sampling four existing groundwater monitoring wells, and installing nine soil gas monitoring points. PCE and its breakdown compounds such as TCE were not detected in soil samples collected as part of this investigation. Ground water samples from each borehole were analyzed, and PCE was the only VOC detected and was present in only one groundwater sample at 0.24 µg/L. Soil gas samples did not indicate the presence of VOCs in soil gas at concentrations above their respective ADEC soil gas target levels.

July 2012 – E&E Site Inspection

E&E conducted a Site Inspection (SI) on behalf of the EPA in 2012 (E&E 2012). The SI included surface and subsurface soil sampling, groundwater sampling, sediment sampling, outdoor and indoor air sampling, and passive soil gas sampling. Thirty-one surface soil samples were collected. TCE was detected in one surface soil sample at 11 µg/kg, while the highest PCE surface soil concentration was 200 µg/kg. One hundred and twenty-one subsurface soil samples were collected. PCE was detected in 38 of 60 on-Site and 16 of 52 off-site subsurface soil samples. The highest on-site PCE concentration was 56,000 µg/kg and the highest off-site concentration was 330 µg/kg. Groundwater samples were collected from six on-site monitoring wells and five off-site monitoring wells. PCE was detected in five of the six on-site samples with PCE concentrations ranging between 7.8 and 1,600 µg/L. Both 1,2-dichloropropane and methylcyclohexane were detected only in one well at 6.4 µg/L and 9.8 µg/L, respectively. PCE was detected in three of the five off-site samples at concentrations ranging between 72 and 8,500 µg/L. TCE was detected in only one sample at 6 µg/L. Nine sediment samples were collected from nearby Ship Creek, and analytical results indicate that no VOCs were detected. One on-site and six off-site outdoor ambient air samples were collected, and only toluene was detected at a significant concentration (11 µg/m^3 in an off-site sample) with respect to background concentrations. Twelve indoor ambient air samples were collected. PCE was only detected in the samples collected from residences in Subarea II of the site, with concentrations ranging from 1.0 to 66 µg/m^3. Nine passive soil gas samples were collected. 1,2,4 Trimethylbenzene and o-xylene were detected in one sample at 1.6 µg/m^3 and 1.71 µg/m^3, respectively. Chloroform was detected in one sample at 91.35 µg/m^3. M,p-xylenes and toluene were detected in all samples with concentrations ranging from 1.22 to 2.42 µg/m^3 and 3.83 to 7.01 µg/m^3, respectively. PCE was detected in seven samples ranging from 3.9 to 14.01 µg/m^3.

A summary of the 2009, 2010, and 2012 indoor air PCE sampling results, along with the 2012 groundwater PCE sampling results is shown in Figure 3.

5. NPL Status

The Fourth Avenue and Gambell Street Site has a preliminary Hazard Ranking System score greater than 28.5. Thus the Site is potentially eligible for the National Priorities List (NPL); however, it has not been proposed for the NPL.

6. Maps, pictures, and other graphic representations

Figure 1 depicts the Site vicinity, Figure 2 depicts the Site layout, and Figure 3 is a summary of the indoor air PCE sampling results and the groundwater PCE sampling results.

B. Other Actions to Date

1. Previous actions

The PCE indoor air concentrations in the samples collected from the crawl space locations at the North Duplex and South Duplex in March 2009 exceeded the then current ADEC indoor air target level of 4.1 $\mu g/m^3$ (Oasis 2009). The property owner installed a sub-membrane depressurization (SMD) system at each of the duplexes between March and June 2009 to reduce PCE vapor intrusion into the buildings (Oasis 2010b). ADEC continued to monitor the crawl space air at both of these duplex locations during vapor intrusion sampling events performed in June 2009, February 2010, and May 2010. The June 2009 crawl space results for the South Duplex were below the ADEC residential indoor air target level but all remaining crawl space sample results from the duplexes have been above the ADEC indoor air target level of 4.1 $\mu g/m^3$ for PCE. Note that the residential indoor air target level for PCE of 4.1 $\mu g/m^3$ was revised in 2012 to 42 $\mu g/m^3$ (ADEC 2012).

The June 2009, February 2010, and May 2010 air sample results prompted ADEC and Oasis staff to perform a site inspection of the SMD systems for the North Duplex and South Duplex during November 2010 (Oasis 2010b). The North Duplex inspection revealed several penetrations through the membrane liner used to seal the crawl space, and the South Duplex inspection could not be completed due to access restrictions to the crawl space. The inspection report recommended upgrading the SMD systems; however, it is not known whether any improvements were made and/or whether the depressurization systems are operating.

2. Current actions

There are no government or known private cleanup activities that are currently being performed at the Site.

C. State and Local Authorities' Roles

1. State and local actions to date

A focused feasibility study (FS) was prepared by ERM on behalf of the ADEC in June 2013 (ERM 2013). The purpose of the FS is to evaluate remedial alternatives for addressing the contaminated soil and groundwater at the Site. The preliminary draft FS has not been finalized.

ADEC requested EPA's assistance with mitigating the migration of PCE and other chlorinated VOC vapors from the subsurface into overlying buildings at Subarea II of the Site, and supports the recommended removal action described herein (Lindren, 2014).

2. Potential for continued State/local response

ADEC will provide oversight of implementation of a maintenance, monitoring, and repair (MM&R) plan managed by the property owners, and will ensure that institutional controls are implemented to minimize the potential for human exposure to contamination by limiting resource use.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

The current conditions at this Site meet the following factors which indicate that the Site is a threat to the public health or welfare or the environment and a removal action is appropriate under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

A. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [300.415(b)(2)(i)]

The data from numerous environmental investigations shows that the chemical vapor intrusion pathway is complete; PCE and other VOCs in contaminated soil and groundwater take the form of a vapor and migrate upwards toward the ground surface and into overlying buildings through gaps and cracks in foundation slabs or basements or crawl spaces. The overlying buildings in Subarea II include three single-family buildings and two multi-family buildings. The indoor air concentrations measured during five sampling events in these buildings exceeded EPA's resident air noncarcinogenic Regional Screening Level (RSL) of 4.2 $\mu g/m^3$ and resident air carcinogenic RSL of 9.4 $\mu g/m^3$ for PCE during one or more of the sampling events. Additionally, all buildings are suspected to overlie the ADEC groundwater target level for residential groundwater of 58 µg/L. The indoor air concentration of PCE was measured only once at the third single-family building, and the sampling result was non-detect. However, this building is included as a precautionary measure because it overlies the groundwater plume where PCE concentrations are suspected to exceed the ADEC groundwater screening level. The indoor air sampling PCE results and the groundwater PCE sampling results are shown in Figure 3.

PCE and other chlorinated VOC vapors may pose potential long-term chronic cancer and noncancer risks to the health of residents, workers, and other overlying building occupants through inhalation of indoor air that has been affected by vapors emitted from subsurface contaminated soil and groundwater. Such effects are dependent upon the concentration of the vapors in a person's breathing space and the amount of time a person is exposed to the vapors.

B. The availability of other appropriate federal or state response mechanisms to respond to the release [300.415(b)(2)(vii)]

ADEC requested EPA's assistance with mitigating the migration of PCE and other chlorinated VOC vapors from the subsurface into overlying buildings at Subarea II of the Site. There are no known other appropriate federal or state response mechanisms capable of providing the appropriate resources in the prompt manner needed to address the potential human health risks associated with the hazardous substance described herein.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to the public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The proposed action is intended to prevent entry of PCE and other chlorinated VOC vapors into the buildings. The action is not intended to address the subsurface source of the contaminant vapors (i.e., contaminated soil or groundwater).

1. Proposed action description

Work to be performed includes

- Prepare work plans, including a sampling and analysis plan, quality assurance project plan, and a site-specific health and safety plan subject to EPA review and approval that describes the technical approach for completing all project-related tasks.

- Assist EPA in coordinating with property owners and tenants for consent for access and to arrange field activities to minimize disruptions and inconveniences to property owners, tenants, and neighbors.

- Assist EPA with performing a site inspection of the existing three single-family buildings and two multi-family buildings to evaluate the condition and layout of the buildings for the retrofit design and construction of a chlorinated vapor intrusion mitigation system in each building.

- At each building, install a passive vapor intrusion barrier system (with the ability to become active) designed to prevent vapor intrusion into the building (e.g., high density polyethylene geomembranes, spray-on cure-in-place membranes, or

composite membranes) and combine with installation of a passive sub-slab pressurization system (i.e., a system relying solely on the convective flow of air upward in the vent to draw air from beneath the vapor barrier). Utility conduits (e.g., buried electric power distribution lines, buried telephone lines, sanitary sewers, etc.) to the interior of buildings must also be sealed thereby reducing the potential for VI along the conduit to the interior of the building. Conduct initial verification of the VI intrusion mitigation system at each building at the time of installation.

- Develop a MM&R plan subject to EPA review and approval to ensure that the VI intrusion mitigation systems are properly maintained and sustainable over the long-term (i.e., the life of the building or the duration of the vapor source). The MM&R plan will include requirements for inspection and maintenance of system components, indoor air sampling for the VOC contaminants of concern, and reporting.

Best Management Practices

Temporary Best Management Practices will be implemented during removal activities to protect workers and the public from short-term installation impacts.

Post Removal Site Controls and Institutional Controls

ADEC will provide oversight of implementation of MM&R plans managed by the property owners, and will ensure that environmental covenants restricting the disturbance of contaminated soil and use of groundwater are provided by the property owners.

2. Contribution to remedial performance

The proposed removal action will not impede future actions based upon available information.

3. Engineering Evaluation/Cost Analysis

An Engineering Evaluation/Cost Analysis is not required because this removal action is a time-critical action.

4. Applicable or relevant and appropriate requirements

The NCP requires that removal actions attain Applicable or Relevant and Appropriate Requirements (ARARs) under federal or state environment or facility siting laws, to the extent practicable. (40 CFR § 300.415[j]). In determining whether compliance with ARARs is practicable, the EPA may consider the scope of the removal action and the urgency of the situation. (40 CFR § 415[j]). The scope of the removal action proposed in this Action Memorandum is limited.

Prior to 2012, the ADEC residential indoor air target level for PCE of 4.1 $\mu g/m^3$ was revised to 42 $\mu g/m^3$. For this removal action, the EPA selected the more conservative resident air noncarcinogenic RSL of 4.2 $\mu g/m^3$ to provide for prompt risk reduction through early action pending completion of the focused FS. Site-specific cleanup levels will be determined as part of the overall remedial approach.

There are no Federal ARARs identified for the Site."

5. Project schedule

The removal action activities are expected to start and be completed during the second quarter of the Fiscal Year 2014.

B. Estimated Costs

The proposed time-critical removal action is expected to be performed by the PRP with oversight by the EPA. However, if the PRP is unwilling or unable to do so, and EPA were to undertake implementation of the work described in the action memorandum with its own resources, the total project ceiling, if approved, will be $330,000. Of this, as much as $250,000 will be funded from the Regional removal allowance.

Regional Removal Allowance Costs (ERRS)	$250,000
Other Extramural Costs (START)	$25,000
Contingency (20%)	$55,000
Total Removal Project Ceiling[1]	$330,000

[1] EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Liable parties may be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay in action or no action at Subarea II would increase the actual or potential indoor air vapor intrusion threats to the public health and/or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

Refer to attached confidential enforcement addendum.

XI. RECOMMENDATION

This decision document represents the selected removal action for Subarea II of the Fourth Avenue and Gambell Street Site located in Anchorage, Anchorage Borough, Alaska, developed in accordance with CERCLA as amended, and is consistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP section 300.415(b) criteria for a removal action and I request your approval of the recommended removal action. The recommended removal action is expected to be conducted by the PRP with oversight of EPA. However, if the PRP is unwilling or unable to fund or conduct the recommended removal action, and EPA must undertake all removal action work, the total project ceiling is currently estimated to be $330,000. Of this, as much as $250,000 would come from the Regional removal allowance.

X. APPROVAL/DISAPPROVAL

By the approval which appears below, EPA selects the removal action for the Site as set forth in the recommendations contained in this Action Memorandum.

Approve: _____

Chris D. Field, Manager
Emergency Management Program

Disapprove: _____

Chris D. Field, Manager
Emergency Management Program

Effective date of this Decision: _____

ATTACHMENTS

- References
- Figures

- Enforcement Addendum

REFERENCES

ADEC (State of Alaska). October 2012. State of Alaska Department of Environmental Conservation, Division of Spill Prevention and Response Contaminated Sites Program. *Vapor Intrusion Guidance for Contaminated Sites.*

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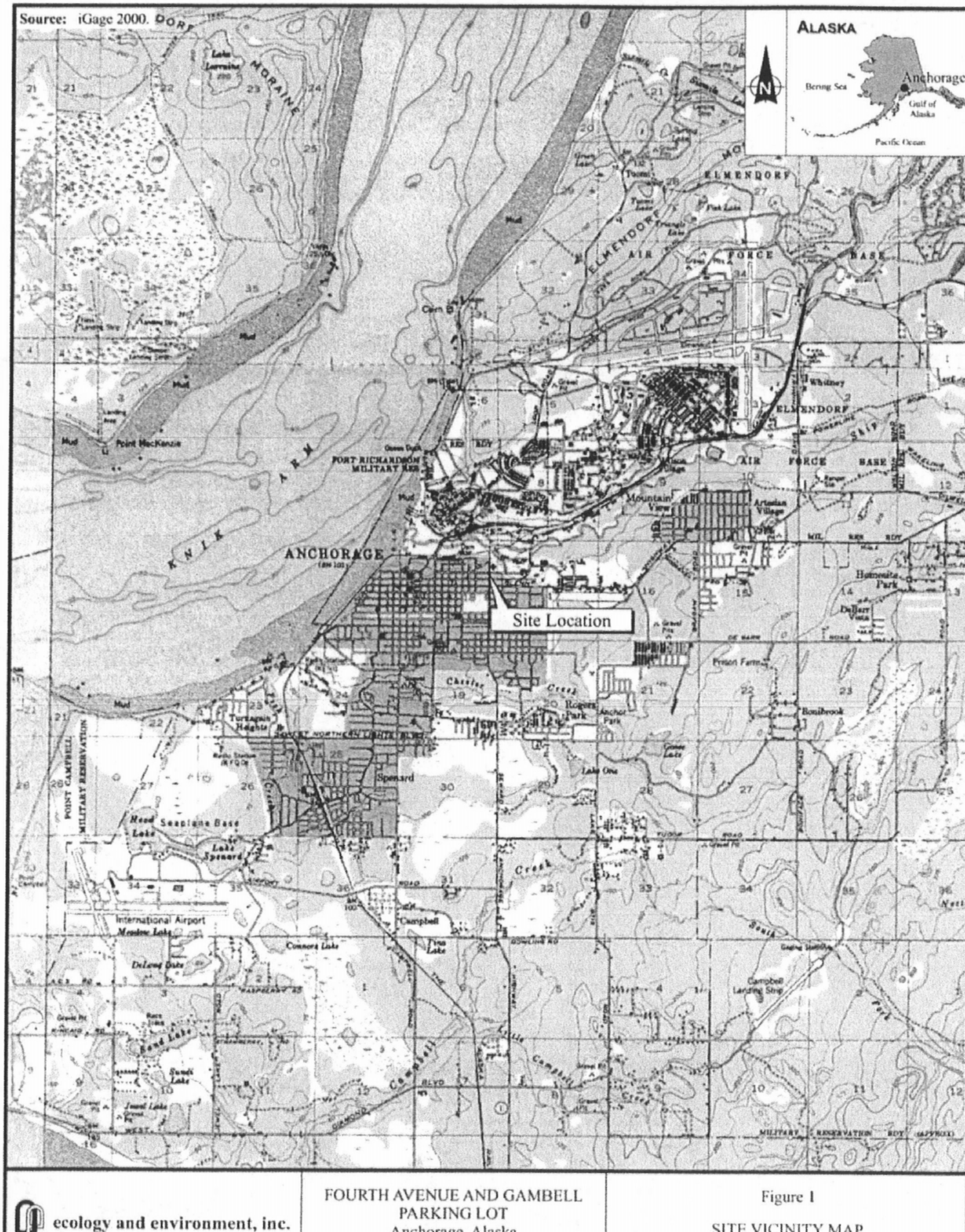
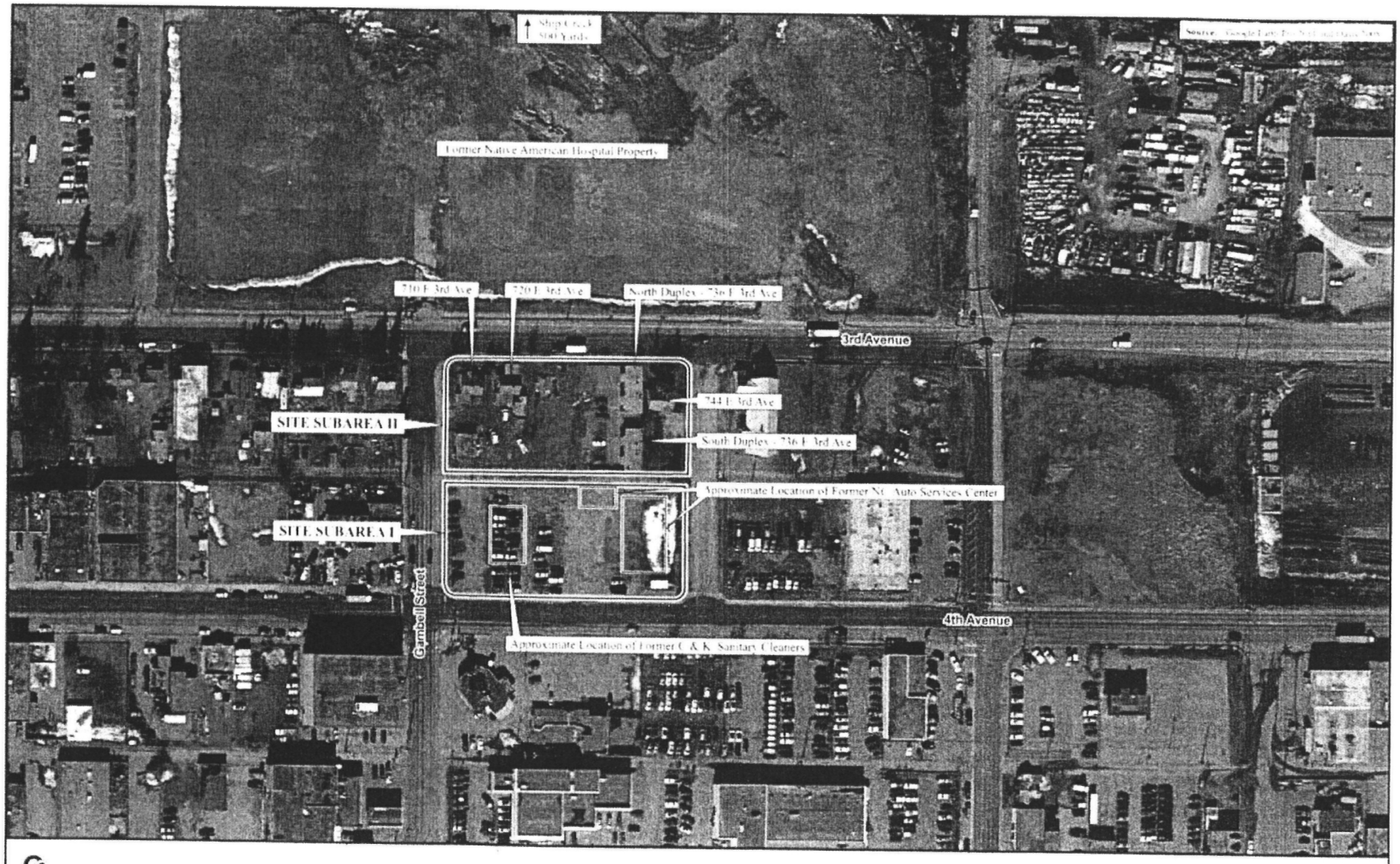


ecology and environment, inc.
Global Environmental Specialists
Seattle, Washington

FOURTH AVENUE AND GAMBELL PARKING LOT Anchorage, Alaska	Figure 1 SITE VICINITY MAP		
0 .5 1 Approximate Scale in Miles	Date: 9-6-13	Drawn by: AES	10:START-3\11040001\fig 1



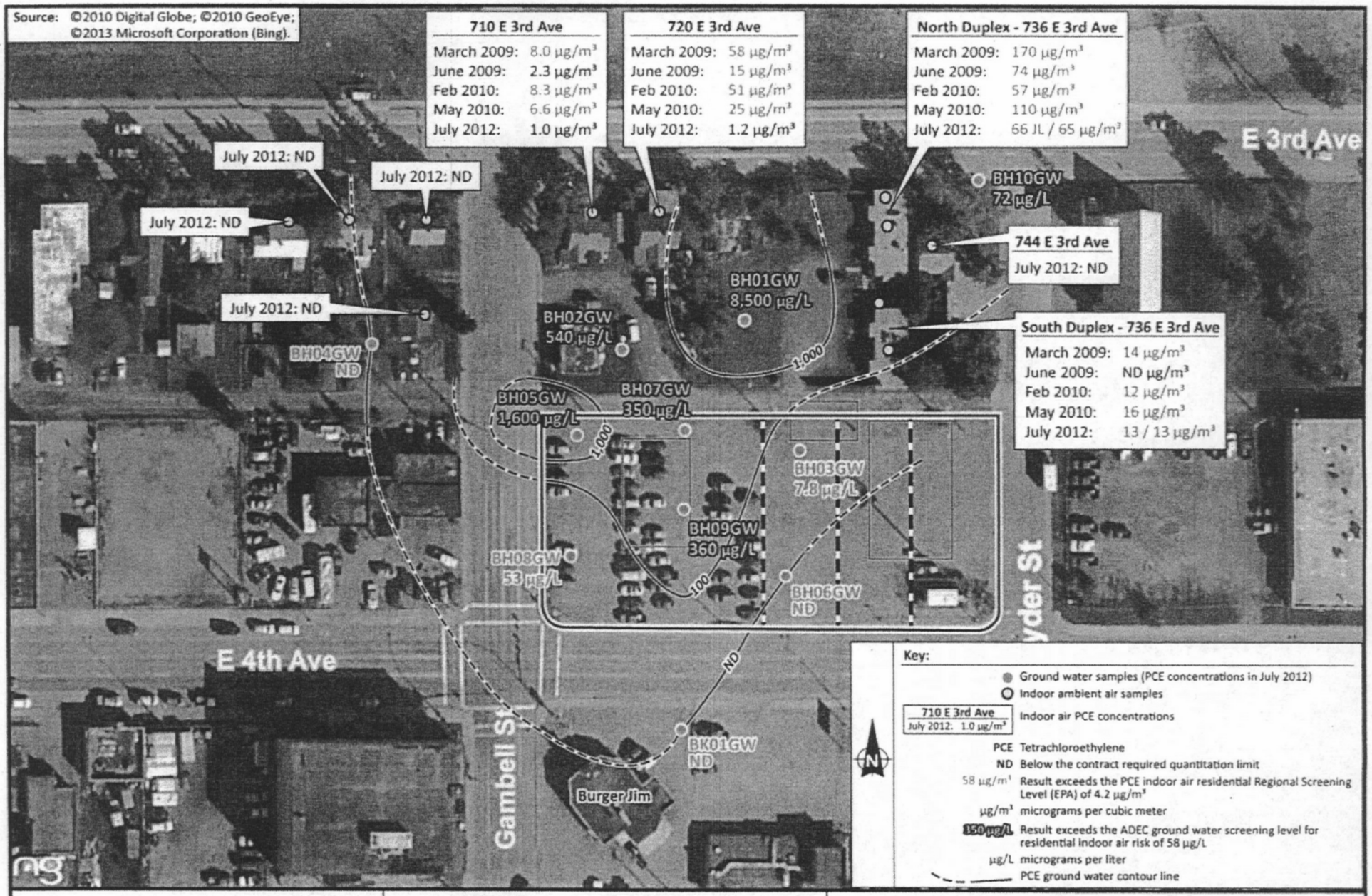
ecology and environment, inc.

FOURTH AVENUE AND GAMBELL PARKING LOT
Anchorage, Alaska

Figure 2
SITE LAYOUT MAP

Date
2/26/13

Drawn by
AES



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Seattle, Washington

FOURTH AVENUE AND GAMBELL PARKING LOT
Anchorage, Alaska

0 50 100
Approximate Scale in Feet

Figure 3
SUMMARY OF RECENT INDOOR AIR AND GROUND WATER SAMPLING RESULTS

Date:	Drawn by:	
12/12/13	AES	10:START-IV\11040001\fig 3