Appendix G

EKI - Additional Soil Characterization, August 20, 2010

ESA

Report of Results of Additional Soil Characterization

1010 to 1024 Morse Avenue
Sunnyvale, California

October 2010

Prepared By:

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EKI B00015.00

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5 October 2010

Mr. Manoochehr Kadkhodayan
Project Manager
City of Sunnyvale
650 West Olive Avenue
Sunnyvale, California 94086

Subject: Report of Results of Additional Site Characterization
1010 to 1024 Morse Avenue, Sunnyvale, California
(EKI B00015.00)

Dear Mr. Kadkhodayan:

Erler & Kalinowski, Inc. ("EKI") is pleased to present to the City of Sunnyvale ("City") this *Report of Results of Additional Site Characterization, 1010 to 1024 Morse Avenue, Sunnyvale, California*, dated October 2010. The report was prepared in accordance with our Agreement, dated 25 February 2010, the Amendment, dated 6 July 2010, and e-mail authorization for additional testing on 13 September 2010.

If you have any questions or need additional information regarding this report, please do not hesitate to call.

Very truly yours,

ERLER & KALINOWSKI, INC.

Bruce Castle

Bruce Castle, P.G.
Project Geologist

Michelle K. King, Ph.D.
Vice President

cc: Mark Rogge, City of Sunnyvale, Assistant Director of Public Works

REPORT OF
RESULTS OF ADDITIONAL SOIL CHARACTERIZATION

1010 to 1024 Morse Avenue, Sunnyvale, California

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1. EXECUTIVE SUMMARY

Erler & Kalinowski, Inc. ("EKI") is pleased to present to the City of Sunnyvale ("the City") this report of results of additional soil characterization at the Fair Oaks Industrial Complex ("FOIC") located at 1010 to 1024 Morse Avenue in Sunnyvale, California (herein referred to as the "Site"; see Figure 1). EKI's services were performed in accordance with our Agreement with the City, dated 25 February 2010, and an Amendment to the Agreement, dated 6 July 2010 (collectively, the "Agreement").

The Site comprises approximately 5.3 acres and has been owned by the City since approximately 1991. The Site is leased to a number of tenants for private industrial and commercial uses, and includes four wooden-framed, single-story, multi-tenant buildings (1010 to 1016 Morse Avenue), and one concrete tilt-up building (1020 and 1024 Morse Avenue) (see Figure 2). Current and past uses have included machine shops and metal fabrication. The Site was developed initially in the mid- to late-1970s, and was part of a larger orchard prior to its current development. The City intends to demolish the existing structures and redevelop the Site into a public park.

In accordance with the Agreement, in March 2010, EKI performed a reconnaissance-level Phase II subsurface investigation at the Site, and presented the results to the City in a draft report dated 7 April 2010. This screening-level soil sampling investigation by EKI identified the presence of lead and arsenic in shallow soil on the Site at concentrations above potentially relevant environmental regulatory screening criteria for unrestricted land use, and above typical background concentrations for South Bay Area soils. The presence of elevated lead and arsenic in soil on the Site appears to be due to the previous orchard use of the Site, e.g., possible application of lead-arsenate as a pesticide.

At the request of the City, in July 2010, EKI performed additional soil sampling to provide additional characterization of the extent of chemicals of concern, e.g., lead, arsenic, pesticides in soil on the Site. The primary purpose for the additional soil sampling was to provide additional data for use in the preparation of an engineering cost estimate for remediation of soils on the Site given the proposed future land use as a neighborhood park. The engineering cost estimate was provided to the City under separate cover. A summary of the results is presented below.

- Arsenic is generally present in the upper 6 inches of soil across the Site, beneath the baserock and structural fill, at concentrations above potentially relevant screening criteria for land use as a public park. Arsenic concentrations generally attenuate to background concentrations by 18 to 24 inches below the baserock and structural fill. Thus, remediation of the upper approximate 1 to 2 feet of soils on the Site would likely be required by the regulatory agencies for re-use of the Site as a public park.

- Lead was detected above its screening criterion of 80 milligrams per kilogram ("mg/kg") in roughly one-half of the composite samples collected from the upper 6 inches of soil on the Site. Lead concentrations generally attenuate to typical background concentrations by 18 to 24 inches below the baserock and structural fill.

- Chlorinated pesticide concentrations in all soil samples collected from the Site are below potentially relevant screening criteria for use of the Site as a public park.

- The results of the full depth Cell Composite soil samples, performed to simulate mixing or roto-tilling of the upper approximate 2 feet of soil (a potential remediation strategy), indicate that arsenic concentrations across much of the Site would not likely decrease to levels below average background arsenic concentrations (i.e., 10 to 12 mg/kg) following such mixing. Thus, roto-tilling or mixing of shallow soil on the site to reduce overall chemicals concentrations does not appear to be a viable remediation option for the Site given its intended land use.

- The structural fill under the buildings did not contain pesticides above the laboratory reporting limits and arsenic and lead were present at background concentrations.

- Results of the individual discrete soil sample concentrations were comparable to the depth-discrete composite samples indicating that significant dilution of chemical concentrations did not occur during the compositing process.

- The Waste Extraction Test ("WET") and Toxicity Characteristic Leaching Procedure ("TCLP") tests were performed on all soil samples that could potentially be classified as California or federal Resource Conservation and Recovery Act ("RCRA") Hazardous Waste, respectively, based on lead or arsenic concentrations. The lead and arsenic concentrations in the WET and TCLP extracts were all less than the California and RCRA regulatory levels indicating that impacted soil at the Site would not be classified as a hazardous waste if excavated.

- Samples of shallow soil collected beneath the concrete floor of three former machine shops on the Site did not contain petroleum hydrocarbons as gasoline or VOCs above the laboratory reporting limits. However, during removal of the building slabs at these locations and the several other machine shop locations on the Site, if impacted soil is discovered, the soil should be managed in accordance with applicable laws and regulations.

2. INTRODUCTION

In March 2010, EKI performed a reconnaissance-level Phase II subsurface investigation at the Site, and presented the results to the City in a draft report dated 7 April 2010. This screening-level soil sampling investigation by EKI identified the presence of lead and arsenic in shallow soil on the Site at concentrations above potentially relevant environmental regulatory screening criteria for unrestricted land use, and above typical background concentrations for South Bay Area soils. The presence of elevated lead and arsenic in soil on the Site appears to be due to the previous orchard use of the Site, e.g., possible application of lead-arsenate as a pesticide.

2.1. Proposed Objectives and Sampling Approach

At the request of the City, in July 2010, EKI performed additional soil sampling to better characterize the extent of chemicals of concern, e.g., lead, arsenic, pesticides in soil on the Site. The primary purpose for the additional soil sampling was to provide additional data for use in the preparation of an engineering cost estimate for remediation of soils on the Site given the proposed future land use as a neighborhood park. The objective of the additional sampling was to decrease the uncertainty in the remediation cost estimates under several potential remedial options.

To achieve the primary objectives, EKI performed the following:

- Collected soil samples from discrete depth intervals within the upper approximate 2 feet of soil from 31 sample grids (including the on-site buildings) placed across the Site to identify the vertical extent of chemicals of concern above potentially-relevant regulatory agency land use screening criteria;

- Collected soil samples from the structural fill under the five existing site buildings to screen for the presence of chemicals of concern in the structural fill layer;

- Collected composite soil samples from the upper 2 feet of soil as a whole from the 31 sample grids placed across the Site to attempt to simulate soil conditions across the Site under a hypothetical "soil mixing" or roto-tilling scenario, which could be implemented as part of site preparation for redevelopment or for remediation; and

- Collected discrete soil samples for analysis from below reported, recent machine shop use areas in the Site buildings.

As indicated above, the results of these investigations are being used to develop engineering cost estimates for remediation under soil excavation, capping, and roto-tilling scenarios. However, no regulatory agency is currently overseeing the investigation and cleanup of the Site. Therefore, EKI does not know which remedial options may be acceptable to the regulatory agencies.

This report of additional soil characterization is organized as follows:

Section 1 – Executive Summary
Section 2 – Introduction
Section 3 – Site Setting and Land Use History
Section 4 – Additional Soil Investigations and Results
Section 5 – Discussion of Results
Section 6 – References

2.2. Limitations and Exceptions of Additional Soil Investigation

The conclusions and recommendations presented herein are our professional opinion and are not a warranty or guaranty as to the presence, absence, or extent of contamination at the Site or of releases from or near the Site. The facts presented herein are based on available information obtained by EKI and represent existing conditions at the Site at the time the information was collected.

2.3. Report Reliance

This report was prepared pursuant to EKI's Agreement with the City, dated 25 February 2010, and the Amendment, dated 6 July 2010, and as such, is for the sole use and reliance of the City. Unless specifically authorized in writing in an agreement acceptable to EKI, the reliance on this report by any other entity or third party is not permitted or authorized. Reliance on the information contained in this report by any other entity or third party without written authorization by EKI does not make the third party a beneficiary to EKI's Agreement with the City. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at such third party's sole risk.

3. SITE SETTING

This section presents the Site setting and land use history of the Site based on information obtained by EKI.

3.1. Site Setting

The Site at 1010 to 1024 Morse Avenue is located on the east side of Morse Avenue, just north of East Weddell Drive and the Hetch-Hetchy aqueduct (see Figures 1 and 2). The Site is approximately 5.3 acres in size and is identified by the following Santa Clara County Assessor's Parcel Number: APN 110-14-202. The Site is bordered to the north and east by recently-constructed residential townhome units; to the northeast by Global Crossing, a communication technology company; to the south by the Hetch-Hetchy aqueduct; and to the west by Morse Avenue and multi-family residential across Morse Avenue.

The Site is relatively flat and lies at an elevation of approximately 24 feet above mean sea level (USGS Mountain View quadrangle, 1997). The regional ground surface in the vicinity of the Site slopes gently downward to the northeast.

Based on observations made by EKI during drilling and sampling on the Site in March 2010, the depth to first encountered groundwater on the Site ranges from approximately 9 to 12 feet below ground surface. Based on a review of available information for the Site and nearby properties, the direction of shallow groundwater flow is generally to the northeast.

3.2. Current Site Uses

The Site is currently occupied by five commercial/industrial buildings and surrounding paved parking areas and landscaping. Four of the buildings are wooden-framed, single story, multi-tenant structures each measuring approximately 17,000 square feet in size (1010, 1012, 1014, and 1016 Morse Avenue; see Figure 2). These buildings are divided into tenant suites ranging in size from approximately 400 to 2,000 square feet. The fifth Site building at 2020 and 2024 Morse Avenue is a concrete tilt-up office/manufacturing building, measuring approximately 17,000 square feet in size, and is currently occupied by two tenants.

The majority of the current tenants on the Site are commercial tenants, e.g., offices with light storage warehousing, with limited or no chemical use or storage. The majority of tenants have vacated the Site, given notification from the City regarding pending demolition and re-use of the Site as a neighborhood park. Several machine shop and metal fabrication tenants that use and store chemicals currently exist on the Site (as of early July 2010). These tenants are listed below; their locations shown on Figure 2:

- Numerical Advance Machining ("NAM") – 1012 Morse Avenue, Suite 16
- ExcelFab – 1020 Morse Avenue

Several machine shop tenants recently vacated the Site. These former tenants are listed below; their locations are also shown on Figure 2:

- Hoffman Machining – 1010 Morse Avenue, Suite 6
- R&R Machining – 1016 Morse Avenue, Suite 19
- James Machining – 1012 Morse Avenue, Suites 10 and 11.

As part of the additional soil investigation by EKI, soil boreholes were specifically placed in the former Hoffman Machining, R&R Machining, and James Machining tenant spaces to screen for the presence of typical machine shop chemicals, e.g., petroleum hydrocarbons and solvents that may have been released to soils during machine shop operations.

4. ADDITIONAL SOIL INVESTIGATIONS AND RESULTS

In early July 2010, EKI conducted additional sampling investigations at the Site consisting of the following:

- Collection of subsurface soil samples at 120 locations beneath parking areas and buildings on the Site (see Figure 2);
- Preparation of depth interval and full depth composite samples from 31 contiguous spatial cells (non-building and building grid cells), and submission of composite soil samples to the laboratory for pesticide, arsenic, and lead analysis;
- Collection and analysis of discrete soil samples from the shallowest depth interval (0 to 0.5 feet below baserock) for pesticides, arsenic, and lead to evaluate whether the compositing resulted in any potential "dilution" of chemical concentrations;
- Collection and analysis of discrete soil samples from beneath former machine shop tenant spaces at the Site; and
- Submittal of soil samples for analysis for soluble lead and arsenic, using the California WET and TCLP, for those samples that potentially exceed the state and federal hazardous waste criteria if the soil is excavated.

A discussion of the soil sampling methods, compositing schemes, and field observations is presented in Appendix A of this report. Tables 1A and 1B of this report presents the non-building and building grid soil sample compositing schemes and analytical protocols. Figure 2 depicts all sampling locations and the grid cell locations.

The soil samples collected by EKI were analyzed by K-Prime, Inc., ("K-Prime"), a State of California-certified analytical laboratory. The analytical results for soil samples for agricultural chemicals, i.e., pesticides, lead, and arsenic, are summarized in Table 2. The soil sample results are reported on a dry weight basis for direct comparison to potentially relevant regulatory screening criteria. Copies of the analytical laboratory reports for the soil samples provided by K-Prime are included on a CD in Appendix B.

As shown at the bottom of Table 2, the soil sample analytical results are compared to potentially relevant, current environmental regulatory screening levels, i.e., California Regional Water Quality Control Board ("RWQCB"), San Francisco Bay Region, Environmental Screening Levels ("ESLs") for residential land use (RWQCB, 2008), and California Human Health Screening Levels ("CHHSLs") for residential land use (Cal-EPA, 2005; 2009). The residential land use ESLs and CHHSLs are considered appropriate for evaluation of soil for use as a public park. The soil results for lead and arsenic in Table 1 are also compared to typical lead and arsenic concentrations in background soils in the South Bay Area (Scott, 1995).

The analytical results for the soil samples, and a discussion of the comparison of the analytical results to potentially relevant environmental regulatory screening criteria and typical background concentrations are presented below.

4.1. Non-Building Grid Composite Soil Samples

EKI collected discrete soil samples from a total of 94 boreholes advanced in 26 grids located outside of the building footprints on the Site. The discrete soil samples were composited to form 1) discrete depth composite soil samples, and 2) full depth composite soil samples. The analytical results for the non-building grid composite soil samples are presented below.

4.1.1. Non-Building Discrete Depth Soil Sample Compositing and Analytical Results

In each of the 26 non-building grids, two to four boreholes were advanced and discrete soil samples were collected from each borehole at four successive half-foot depth intervals from 0 to 2 feet below the bottom of the baserock ("bbr") or landscaping topsoil. The nomenclature created by EKI to identify the discrete depth intervals is as follows:

- B Depth: soil 0 to 0.5 feet bbr
- C Depth: soil 0.5 to 1 feet bbr
- D Depth: soil 1 to 1.5 feet bbr
- E Depth: soil 1.5 to 2 feet bbr

For each of the 26 non-building sampling grids, each of the discrete soil samples collected at the same depth interval in each of the four grid boreholes were composited (or mixed) by EKI personnel in the field to form a four-point composite soil sample that represented that particular depth interval for that particular grid (see Table 1).

The shallowest four-point composite samples from each grid (the B Depth composite soil samples) were analyzed for organochlorine pesticides using U.S. EPA Method 8081A, and total lead and arsenic using U.S. EPA Method 6020. The D and E Depth composite soil samples were not analyzed for pesticides, but were analyzed for total lead and arsenic. Based on the results from EKI's prior investigation at the Site, elevated arsenic concentrations likely extend to the C Depth (EKI, 2010). Therefore, the C Depth composite soil samples were not submitted to the analytical laboratory for analysis; however, they were incorporated into the full depth cell composites that included the 0 to 2 feet bbr depth range (see Section 4.1.2).

As shown in Table 2, 4,4'-DDE was detected in all B Depth composite soil samples; however, the reported concentrations were well below its potentially relevant screening criteria (see bottom of Table 2). More specifically, the maximum 4,4'-DDE was 0.303 milligrams per kilogram ("mg/kg"), which is less than the California Human Health Screening Level ("CHHSL") of 1.6 mg/kg. The compounds 4,4'-DDD and 4, 4'-DDT were detected in several composite soil samples, but also at concentrations well below their respective potentially relevant screening criteria.

Lead and arsenic were detected in all soil samples collected from the Site. As shown in Table 2, the highest concentrations of lead and arsenic were generally detected in the shallowest soil samples, e.g., from the B Depth (0-0.5 feet bbr). The maximum concentration of lead in B Depth composite soil samples was 190 mg/kg (sample C24-B Depth), which is greater than the residential CHHSL of 80 mg/kg. The maximum arsenic concentration in B Depth composite soil samples was 53.1 mg/kg (sample C3-B Depth). Risk-based screening criteria

(like the CHHSLs) for arsenic are typically less than naturally-occurring background concentrations of arsenic in soil. Therefore, arsenic concentrations are often compared with typical regional background concentrations. For the South Bay, 20 mg/kg arsenic was the maximum background arsenic concentration reported in a study by Scott (1995). Based on prior discussions with regulatory agency personnel, average background arsenic concentrations in the South Bay are typically 10 to 12 mg/kg.

As shown in Table 2 and graphically on Figure 3, arsenic concentrations in B Depth composite soil samples exceeded the background concentration of 20 mg/kg in 17 of the 26 non-building grid cells, and exceeded 15 mg/kg in 22 of the 26 non-building grid cells sampled.

As shown in Table 2 and graphically on Figures 4 and 5, generally lower concentrations of arsenic, e.g., below background concentrations, were detected in composite soil samples from the D and E depths.

4.1.2. Non-Building Full Depth Cell Composite Soil Sample Analytical Results

As discussed in Section 4, for each of the 26 non-building grids, one full depth "Cell Composite" sample was created by mixing each of the four full-depth soil cores, e.g., soil collected from 0 to 2 feet bbr, into one composite sample (see Table 1) intended to represent the concentration of chemicals of concern over that depth interval for that particular grid, under a hypothetical soil mixing or roto-tilling remediation scenario. The Cell Composite samples were analyzed for pesticides, lead, and arsenic. As shown in Table 2, pesticides were detected in the full depth Cell Composite samples; however, concentrations were well below their potentially relevant regulatory screening criteria.

The concentrations of lead in the 26 non-building Cell Composite soil samples ranged from 11.9 mg/kg to 95.8 mg/kg. The concentrations of arsenic in the 26 non-building Cell Comp soil samples ranged from 7.97 mg/kg to 30.5 mg/kg. Six of the 26 full depth Cell Composite soil samples contained concentrations of arsenic above the background concentration of 20 mg/kg (see Table 2 and Figure 6). In general, the data for the Cell Composite samples reflect overall average concentrations of the potential chemicals of concern from 0 to 2 feet bbr.

4.1.3. Discrete Soil Sample Analytical Results

In addition to the depth-composite and full cell composite soil samples described in Sections 4.1.1 and 4.1.2, five discrete soil samples were collected a depth of 0 to 0.5 feet bbr at the following borehole locations: C4A, C5B, C15B, C20C, and C30C (Figure 2). The purpose of these samples was to evaluate the consistency of the individual discrete samples with the depth-composite samples (e.g., whether the compositing resulted in any potential "dilution" of chemical concentrations). As shown by the results in Table 2, the concentrations in the individual discrete soil samples are similar to the concentrations in the depth-composite samples from the same grid (e.g., comparison of sample C4A to C4-B Depth, C5B to C5-B Depth, etc.). These results do not indicate that the process of compositing resulted in any significant dilution of chemical concentrations; if anything, the composite samples have higher concentrations than the individual discrete samples.

4.2. Building Grid Sample Compositing and Analytical Results

EKI collected discrete soil samples from a total of 26 boreholes advanced within the five (5) existing buildings on the Site. The discrete soil samples were composited to form (1) discrete depth composite soil samples, and (2) full depth composite soil samples. The analytical results for the building grid composite soil samples are presented below.

4.2.1. Building Discrete Depth Soil Sample Compositing and Analytical Results

In each of the 5 building grids, four to six boreholes were advanced and discrete soil samples were collected from each borehole from the structural fill layer, as well as at four successive half-foot depth intervals from 0 to 2 feet below the bottom of the fill layer/baserock. The nomenclature created by EKI to identify the discrete depth intervals is as follows:

- A Depth: structural fill or baserock layer below building slab
- B Depth: soil 0 to 0.5 feet bbr
- C Depth: soil 0.5 to 1 feet bbr
- D Depth: soil 1 to 1.5 feet bbr
- E Depth: soil 1.5 to 2 feet bbr.

For each of the 5 building grids, each of the discrete soil samples collected at the A Depth from each of the grid boreholes, e.g., soil samples of the structural fill, were composted by EKI personnel in the field to form a four- to six-point composite soil sample that represented the structural fill in that particular grid. Similar compositing was conducted on the other discrete-depth soil samples, e.g., B Depth, D Depth and E Depth (see Table 1).

The structural fill composite soil sample in each grid (the A Depth composite samples) as well as the B Depth composite samples (0 to 0.5 feet bbr) were analyzed for organochlorine pesticides, lead, and arsenic. The composite soil samples collected from the D and E depths were not analyzed for pesticides; however, the samples were analyzed for total lead and arsenic. The C Depth composite soil samples were not submitted to the analytical laboratory for analysis, but were incorporated into the full depth cell composites that included the 0 to 2 feet bbr depth range (see Section 4.2.2).

As shown in Table 2, pesticides were not detected in the five structural fill composite samples, e.g., the A Depth samples. Lead and arsenic were detected in the structural fill composite samples; however, the detected concentrations were below their respective screening criteria (see Table 2). For example, the maximum arsenic concentration was 13.7 mg/kg the structural fill sample from 1016 Morse Avenue building (sample B1016-A Depth).

Pesticides were detected in each of the five B Depth composite soil samples; however, the concentrations well below their respective potentially relevant screening criteria (see Table 2). Lead and arsenic were detected in the B Depth composite samples at maximum concentrations of 166 mg/kg and 39 mg/kg, respectively. In the B Depth composite samples,

arsenic was detected above the background concentration of 20 mg/kg in 4 of the 5 composite samples.

Generally lower concentrations of lead and arsenic were detected in the deeper D Depth and E Depth building grid composite soil samples (see Table 2, and Figures 3 through 5).

4.2.2. Building Cell Full Depth Composite Soil Sample Analytical Results

For each of the 5 building grids, one full depth "Cell Composite" sample was created by mixing each of the full-depth soil cores, e.g., soil from 0 to 2 feet bbr (B, D, and E Depths), into one composite sample (see Table 1) intended to represent the concentration of chemicals of concern over that depth interval under a hypothetical soil mixing or roto-tilling remediation scenario. The full depth compositing did not include the structural fill layer, e.g., A Depth, as it was assumed that the fill layer would be removed from the site as part of building demolition. As shown in Table 2, the concentrations of lead in the 5 building full depth Cell Composite soil samples ranged from 32 mg/kg to 48.9 mg/kg. The concentrations of arsenic in the 5 building Cell Composite soil samples ranged from 12.8 mg/kg to 19.7 mg/kg.

4.3. Machine Shop Soil Sample Analytical Results

One borehole was advanced through the concrete floor in each of three (3) former machine shop areas of the Site, as listed below, and as shown on Figure 2:

- Borehole C17B (former R&R Machining)
- Borehole C22C (former Hoffman Machining)
- Borehole C30D (former James Machining)

Two soil samples were collected from each borehole at the approximate 0 to 0.5 feet bbr, and at the approximate 1 to 1.5 feet bbr. During drilling, no obvious indications of chemical impacts to soil were noted in the soil samples retrieved from the boreholes.

Each of the six (6) discrete soil samples was submitted to K-Prime for analysis for the following:

- Total petroleum hydrocarbons quantified as gasoline using U.S. EPA Method 8015M, and
- Volatile organic compounds ("VOCs") using U.S. EPA Method 8260.

According to the analytical results (Appendix B), petroleum hydrocarbons and VOCs were not detected in any of the soil samples above their respective method reporting limits.

4.4. Results of Waste Extraction Test and Toxicity Characteristic Leaching Procedure for Lead and Arsenic

If lead or arsenic concentrations in a soil sample exceed 100 mg/kg or 50 mg/kg, it is possible that the soil could be classified as a federal RCRA hazardous waste or California (non-RCRA) hazardous waste, respectively, if the soil is excavated and disposed off-Site (a

possible remediation approach). The California WET is used to assess whether Site soils would be classified as a California hazardous waste if excavated; the TCLP is used to assess whether Site soils would be classified as a RCRA hazardous waste if excavated. EKI submitted all soil samples with total lead or arsenic concentrations greater than 50 mg/kg for analysis using the WET and with total lead greater than 100 mg/kg for analysis using the TCLP. All arsenic concentrations in the soil samples were less than 100 mg/kg. The analytical results for the WET and TCLP are shown in Table 3.

According to the analytical results, none of the soil samples submitted for analysis contained concentrations of lead or arsenic in extract above (a) the Soluble Threshold Limit Concentration ("STLC") for both lead and arsenic of 5 milligrams per liter ("mg/L") or (b) the RCRA regulatory level of 5 mg/L. Thus, on the basis of this analysis, the soil on the Site would not be considered a California hazardous waste or RCRA hazardous waste for lead or arsenic if removed from the Site for disposal.

5. DISCUSSION OF RESULTS

Based on the results of sampling, the following discussion of results is provided by EKI.

- Arsenic is generally present in the upper 6 inches of soil across the Site, beneath the baserock and structural fill, at concentrations above potentially relevant screening criteria for land use as a public park. Concentrations of arsenic in the upper six inches of soil exceed a background concentration of 20 mg/kg in 21 of 31 B Depth composite soil samples collected for analysis. Arsenic concentrations generally attenuate to background concentrations by 18 to 24 inches below the baserock and structural fill. Thus, remediation of the upper approximate 1 to 2 feet of soils on the Site would likely be required by the regulatory agencies for re-use of the Site as a public park.

- Lead was detected above its potentially relevant screening level of 80 mg/kg in roughly one-half of the composite samples collected from the upper 6 inches of soil on the Site, i.e., B Depth samples. Lead concentrations generally attenuate to typical background concentrations by 18 to 24 inches below the baserock and structural fill.

- Chlorinated pesticide concentrations in all soil samples collected from the Site are below potentially relevant screening criteria for use of the Site as a public park. Thus, organochlorine pesticides would not likely be the driving factor in the remediation of soils on the Site.

- The results of the full depth Cell Composite soil samples, performed to simulate mixing or roto-tilling of the upper approximate 2 feet of soil (a potential remediation strategy), indicate that arsenic concentrations across much of the Site would not likely decrease to levels below average background arsenic concentrations (i.e., 10 to 12 mg/kg) following such mixing. Thus, roto-tilling or mixing of shallow soil on the site to reduce overall chemicals concentrations does not appear to be a viable remediation option for the Site given its intended land use. Also, such remedial option may not be accepted by the regulatory agencies for this Site given the intended land use.

- The structural fill under the buildings did not contain pesticides above the laboratory reporting limits and arsenic and lead were present at background concentrations.

- Results of the individual discrete soil sample concentrations were comparable to the depth-discrete composite samples indicating that significant dilution of chemical concentrations did not occur during the compositing process.

- The results of the WET and TCLP tests performed on soil samples indicate that Site soils would not be classified as a California or RCRA Hazardous Waste, based on lead or arsenic concentrations, if removed from the Site.

- Samples of shallow soil collected beneath the concrete floor of three former machine shops on the Site did not contain petroleum hydrocarbons as gasoline or VOCs above the laboratory reporting limits. However, during removal of the building slabs at these

locations and the several other machine shop locations on the Site, if impacted soil is discovered, the soil should be managed in accordance with applicable laws and regulations.

6. REFERENCES

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TABLE 1A

NON-BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Cell	Sample Interval (ft bbr) (a)	Composite Components (b,c, d)						Depth Composite Name	Cell Composite Name (e)	Depth Composite Analyses
		C1A	C1B	C1C	C1D	--	--			
C1	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C1-Bdepth	C1-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C1-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C1-Edepth		As, Pb, moisture
		C3A	C3B	C3C	C3D	--	--			
C3	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C3-Bdepth	C3-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C3-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C3-Edepth		As, Pb, moisture
		C4A	C4B	C4D	--	--	--			
C4	0 - 0.5	C,D	C,D	C,D	--	--	--	C4-Bdepth	C4-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C4-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C4-Edepth		As, Pb, moisture
		C5A	C5B	C5C	--	--	--			
C5	0 - 0.5	C,D	C,D	C,D	--	--	--	C5-Bdepth	C5-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C5-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C5-Edepth		As, Pb, moisture
		C6A	C6B	C6C	C6D	--	--			
C6	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C6-Bdepth	C6-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C6-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C6-Edepth		As, Pb, moisture
		C7C	C7D	C12A	C12B	C12C	C12D			
C7C12	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C7C12-Bdepth	C7C12-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C7C12-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C7C12-Edepth		As, Pb, moisture

TABLE 1A

NON-BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Cell	Sample Interval (ft bbr) (a)	Composite Components (b,c, d)						Depth Composite Name	Cell Composite Name (e)	Depth Composite Analyses
		C8A	C8B	C8C	C8D	--	--			
C8	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C8-Bdepth	C8-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C8-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C8-Edepth		As, Pb, moisture
		C9A	C9D	--	--	--	--			
C9	0 - 0.5	C,D	C,D	--	--	--	--	C9-Bdepth	C9-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	--	--	--	--	--		--
	1 - 1.5	C,D	C,D	--	--	--	--	C9-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	--	--	--	--	C9-Edepth		As, Pb, moisture
		C10B	C10C	--	--	--	--			
C10	0 - 0.5	C,D	C,D	--	--	--	--	C10-Bdepth	C10-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	--	--	--	--	--		--
	1 - 1.5	C,D	C,D	--	--	--	--	C10-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	--	--	--	--	C10-Edepth		As, Pb, moisture
		C11A	C11B	C11C	C11D	--	--			
C11	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C11-Bdepth	C11-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C11-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C11-Edepth		As, Pb, moisture
		C13A	C13B	C13C	C13D	--	--			
C13	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C13-Bdepth	C13-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C13-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C13-Edepth		As, Pb, moisture
		C14A	C14B	C14C	C14D	--	--			
C14	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C14-Bdepth	C14-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C14-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C14-Edepth		As, Pb, moisture

TABLE 1A

NON-BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Cell	Sample Interval (ft bbr) (a)	Composite Components (b,c, d)						Depth Composite Name	Cell Composite Name (e)	Depth Composite Analyses
		C15B	C15C	C15D	--	--	--			
C15	0 - 0.5	C,**D**	C,D	C,D	--	--	--	C15-Bdepth	C15-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,**D**	C,D	C,D	--	--	--	C15-Ddepth		As, Pb, moisture
	1.5 - 2	C,**D**	C,D	C,D	--	--	--	C15-Edepth		As, Pb, moisture
		C16A	C16C	C16D	--	--	--			
C16	0 - 0.5	C,D	C,D	C,D	--	--	--	C16-Bdepth	C16-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C16-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C16-Edepth		As, Pb, moisture
		C17C	C17D	C22A	C22B	--	--			
C17C22	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C17C22-Bdepth	C17C22-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C17C22-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C17C22-Edepth		As, Pb, moisture
		C18C	C18D	C23A	C23B	--	--			
C18C23	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C18C23-Bdepth	C18C23-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C18C23-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C18C23-Edepth		As, Pb, moisture
		C19A	C19B	C19C	C19D	--	--			
C19	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C19-Bdepth	C19-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C19-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C19-Edepth		As, Pb, moisture
		C20B	C20C	C20D	--	--	--			
C20	0 - 0.5	C,D	C,**D**	C,D	--	--	--	C20-Bdepth	C20-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,**D**	C,D	--	--	--	C20-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,**D**	C,D	--	--	--	C20-Edepth		As, Pb, moisture

TABLE 1A

NON-BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Cell	Sample Interval (ft bbr) (a)	Composite Components (b,c, d)						Depth Composite Name	Cell Composite Name (e)	Depth Composite Analyses
		C21A	C21B	C21D	--	--	--			
C21	0 - 0.5	C,D	C,D	C,D	--	--	--	C21-Bdepth	C21-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C21-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C21-Edepth		As, Pb, moisture
		C24A	C24B	C24D	--	--	--			
C24	0 - 0.5	C,D	C,D	C,D	--	--	--	C24-Bdepth	C24-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C24-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C24-Edepth		As, Pb, moisture
		C25B	C25C	C25D	--	--	--			
C25	0 - 0.5	C,D	C,D	C,D	--	--	--	C25-Bdepth	C25-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C25-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C25-Edepth		As, Pb, moisture
		C26A	C26B	C26C	C26D	--	--			
C26	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C26-Bdepth	C26-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C26-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C26-Edepth		As, Pb, moisture
		C27A	C27B	C27C	C27D	--	--			
C27	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C27-Bdepth	C27-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C27-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C27-Edepth		As; Pb, moisture
		C28A	C28B	C28C	C28D	--	--			
C28	0 - 0.5	C,D	C,D	C,D	C,D	--	--	C28-Bdepth	C28-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	C28-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	C28-Edepth		As, Pb, moisture

TABLE 1A

NON-BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Cell	Sample Interval (ft bbr) (a)	Composite Components (b,c, d)						Depth Composite Name	Cell Composite Name (e)	Depth Composite Analyses
		C29A	C29C	C29D	--	--	--			
C29	0 - 0.5	C,D	C,D	C,D	--	--	--	C29-Bdepth	C29-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	--	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	--	--	--	C29-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	--	--	--	C29-Edepth		As, Pb, moisture
		C30B	C30C	--	--	--	--			
C30	0 - 0.5	C,D	C,**D**	--	--	--	--	C30-Bdepth	C30-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	--	--	--	--	--		--
	1 - 1.5	C,D	C,**D**	--	--	--	--	C30-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,**D**	--	--	--	--	C1-Edepth		As, Pb, moisture

Abbreviations:

As - arsenic

Pb - lead

OCP - organochlorine pesticides

ft bbr - feet below baserock

na - not available for composite sampling

Notes:

(a) Improvement thickness above the underlying soil (e.g., thickness of asphalt, concrete, baserock, or topsoil) is included in Table XX of Appendix YY.

(b) "C" indicates sample was only used in cell composite.

(c) "D" indicates sample was used in individual depth composites.

(d) Components marked with bolded ***"D"*** also collected as discreet samples and analyzed for As, Pb, OCPs, and moisture.

(e) All cell composites analyzed for As, Pb, OCPs and moisture.

TABLE 1B

BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Building	Sample Interval (ft bbr) (a)	Composite Components (b,c)						Depth Composite Name	Building Composite Name (d)	Depth Composite Analyses
		C21C	C22C	C22D	C23C	C23D	--			
1010	Baserock	D	na	D	D	D	--	B1010-Adepth	--	As, Pb, OCP, moisture
	0 - 0.5	C,D	C,D	C,D	C,D	D	--	B1010-Bdepth	B1010-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	C	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	D	--	B1010-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	D	--	B1010-Edepth		As, Pb, moisture
		C25A	C24C	C29B	C30A	C30D	--			
1012	Baserock	D	D	D	D	D	--	B1012-Adepth	--	As, Pb, OCP, moisture
	0 - 0.5	C,D	C,D	C,D	C,D	C,D	--	B1012-Bdepth	B1012-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	C	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	C,D	--	B1012-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	C,D	--	B1012-Edepth		As, Pb, moisture
		C4C	C9B	C9C	C10A	C15A	C20A			
1014	Baserock	D	D	D	D	na	D	B1014-Adepth	--	As, Pb, OCP, moisture
	0 - 0.5	C,D	C,D	C,D	C,D	C,D	C,D	B1014-Bdepth	B1014-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	C	C	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	C,D	C,D	B1014-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	C,D	C,D	B1014-Edepth		As, Pb, moisture
		C17A	C17B	C18A	C18B	--	--			
1016	Baserock	D	D	D	D	--	--	B1016-Adepth	--	As, Pb, OCP, moisture
	0 - 0.5	C,D	C,D	C,D	C,D	--	--	B1016-Bdepth	B1016-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	--	--	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	--	--	B1016-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	--	--	B1016-Edepth		As, Pb, moisture
		C2A	C2B	C2C	C2D	C7A	C7B			
1020 - 1024	Baserock	na	na	D	na	D	D	B102024-Adepth	--	As, Pb, OCP, moisture
	0 - 0.5	C,D	C,D	C,D	C,D	C,D	C,D	B102024-Bdepth	B102024-Cellcomp	As, Pb, OCP, moisture
	0.5 - 1	C	C	C	C	C	C	--		--
	1 - 1.5	C,D	C,D	C,D	C,D	C,D	C,D	B102024-Ddepth		As, Pb, moisture
	1.5 - 2	C,D	C,D	C,D	C,D	C,D	C,D	B102024-Edepth		As, Pb, moisture

TABLE 1B

BUILDING COMPOSITE SAMPLING AND ANALYTICAL PROTOCOL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Abbreviations:

As - arsenic
Pb - lead
OCP - organochlorine pesticides
ft bbr - feet below baserock
na - not available for composite sampling

Notes:

(a) Improvement thickness above underlying soil (e.g., thickness of asphalt, concrete, baserock, or topsoil) is included in Table XX of Appendix YY.
(b) "C" indicates sample was only used in cell composite.
(c) "D" indicates sample was used in individual depth composites.
(d) All cell composites analyzed for As, Pb, OCPs and moisture.

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FOR ORGANOCHLORINE PESTICIDES, LEAD, AND ARSENIC

Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

Sample Location	Sample ID	Sample Date	Sample Depth (ft bbr)	Analytical Results (mg/kg dry weight)(a)(b)					
				Pesticides				Selected Metals	
				4,4'-DDD	4,4'-DDE	4,4'-DDT	Other Pesticides	Lead	Arsenic
Cell Composites									
C1	C1-B DEPTH	7/14/2010	0 - 0.5	<0.013	0.231	<0.013	ND	**104**	**29.2**
	C1-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	9.88	8.57
	C1-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	9.46	5.81
	C1-CELL COMP	7/14/2010	0 - 2	<0.013	0.0495	<0.013	ND	37.5	16.8
C3	C3-B DEPTH	7/13/2010	0 - 0.5	<0.0128	0.217	<0.0128	ND	**122**	**53.1**
	C3-D DEPTH	7/13/2010	1 - 1.5	--	--	--	--	39	**21.9**
	C3-E DEPTH	7/13/2010	1.5 - 2	--	--	--	--	11.8	13.9
	C3-CELL COMP	7/13/2010	0 - 2	<0.0128	<0.0128	<0.0128	ND	45.1	**22.3**
C4	C4-B DEPTH	7/14/2010	0 - 0.5	<0.0125	0.302	<0.0125	ND	**82.4**	**28.4**
	C4-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	15.2	**20.2**
	C4-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	8.95	8.31
	C4-CELL COMP	7/14/2010	0 - 2	<0.0131	0.0374	<0.0131	ND	44.8	**24**
C5	C5-B DEPTH	7/14/2010	0 - 0.5	<0.012	0.157	<0.012	ND	**82.3**	**38.2**
	C5-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	8.58	15.8
	C5-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	7.81	9.21
	C5-CELL COMP	7/14/2010	0 - 2	<0.0123	0.0252	<0.0123	ND	43.3	**21.8**
C6	C6-B DEPTH	7/14/2010	0 - 0.5	<0.0126	0.0456	<0.0126	ND	57.1	**26.2**
	C6-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	8.68	7.13
	C6-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	8.87	6.52
	C6-CELL COMP	7/14/2010	0 - 2	<0.0134	<0.0134	<0.0134	ND	16.2	11.7
C7C12	C7C12-B DEPTH	7/15/2010	0 - 0.5	<0.0126	0.122	<0.0126	ND	72.1	**23.3**
	C7C12-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	**89.1**	**29.6**
	C7C12-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	42.3	16
	C7C12-CELL COMP	7/15/2010	0 - 2	<0.0127	0.105	<0.0127	ND	67.8	**23.9**
C8	C8-B DEPTH	7/13/2010	0 - 0.5	<0.0123	0.0812	<0.0123	ND	69	**34.4**
	C8-D DEPTH	7/13/2010	1 - 1.5	--	--	--	--	8.98	8.55
	C8-E DEPTH	7/13/2010	1.5 - 2	--	--	--	--	7.95	6.63
	C8-CELL COMP	7/13/2010	0 - 2	<0.0131	<0.0131	<0.0131	ND	26.4	13.8
C9	C9-B DEPTH	7/15/2010	0 - 0.5	<0.0126	0.0841	<0.0126	ND	61.7	**23**
	C9-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	19.2	14
	C9-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	10.1	8.81
	C9-CELL COMP	7/15/2010	0 - 2	<0.0128	<0.0128	<0.0128	ND	45.5	**20.9**
C10	C10-B DEPTH	7/14/2010	0 - 0.5	0.0179	0.215	<0.0118	ND	73.4	19.1
	C10-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	32.2	13.7
	C10-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	5.13	6.65
	C10-CELL COMP	7/14/2010	0 - 2	0.0132	0.1	<0.0117	ND	37.3	12.8
RWQCB Residential ESLs				***2.4***	***1.7***	***1.7***	***na***	***200***	***0.39***
Cal EPA Residential CHHSLs				***2.3***	***1.6***	***1.6***	***na***	***80***	***0.07***
Background Metals Concentrations (c)				***na***	***na***	***na***	***na***	***54***	***20***

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FOR ORGANOCHLORINE PESTICIDES, LEAD, AND ARSENIC

Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

Sample Location	Sample ID	Sample Date	Sample Depth (ft bbr)	Analytical Results (mg/kg dry weight)(a)(b)					
				Pesticides				Selected Metals	
				4,4'-DDD	4,4'-DDE	4,4'-DDT	Other Pesticides	Lead	Arsenic
Cell Composites									
C11	C11-B DEPTH	7/15/2010	0 - 0.5	<0.0129	0.171	<0.0129	ND	74	**29.9**
	C11-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	71.3	**23.3**
	C11-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	15.9	10.4
	C11-CELL COMP	7/15/2010	0 - 2	<0.0129	0.0201	<0.0129	ND	50.5	16.5
C13	C13-B DEPTH	7/14/2010	0 - 0.5	<0.0125	0.0881	<0.0125	ND	38.3	16.8
	C13-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	**112**	**40.5**
	C13-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	**102**	**44.1**
	C13-CELL COMP	7/14/2010	0 - 2	<0.0129	0.0425	<0.0129	ND	**95.8**	**30.5**
C14	C14-B DEPTH	7/15/2010	0 - 0.5	0.0148	0.289	<0.0124	ND	**120**	**28.4**
	C14-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	25.8	14.8
	C14-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	8.87	8.21
	C14-CELL COMP	7/15/2010	0 - 2	<0.0127	0.0239	<0.0127	ND	71	19.3
C15	C15-B DEPTH	7/15/2010	0 - 0.5	<0.0117	0.0644	<0.0117	ND	39.5	14
	C15-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	**99.1**	**20.4**
	C15-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	27.4	16.2
	C15-CELL COMP	7/15/2010	0 - 2	<0.0121	0.0357	<0.0121	ND	51.9	12.4
C16	C16-B DEPTH	7/15/2010	0 - 0.5	<0.0128	0.0566	<0.0128	ND	46.9	15.7
	C16-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	10.2	7.17
	C16-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	10.3	5.24
	C16-CELL COMP	7/15/2010	0 - 2	<0.0129	<0.0129	<0.0129	ND	22.7	9.4
C17C22	C17C22-B DEPTH	7/14/2010	0 - 0.5	<0.0117	0.0265	<0.0117	ND	24.8	11.2
	C17C22-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	15.6	9.02
	C17C22-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	7.99	6.01
	C17C22-CELL COMP	7/14/2010	0 - 2	<0.0118	<0.0118	<0.0118	ND	14	7.51
C18C23	C18C23-B DEPTH	7/14/2010	0 - 0.5	<0.0128	0.0182	<0.0128	ND	23.1	15.2
	C18C23-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	27.7	14.2
	C18C23-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	8.31	10.1
	C18C23-CELL COMP	7/14/2010	0 - 2	<0.0129	<0.0129	<0.0129	ND	22.5	12.5
C19	C19-B DEPTH	7/13/2010	0 - 0.5	<0.0129	0.156	<0.0129	ND	65.1	**24.2**
	C19-D DEPTH	7/13/2010	1 - 1.5	--	--	--	--	63.2	**22.3**
	C19-E DEPTH	7/13/2010	1.5 - 2	--	--	--	--	8.6	9.02
	C19-CELL COMP	7/13/2010	0 - 2	<0.013	0.0713	<0.013	ND	64.4	18.5
C20	C20-B DEPTH	7/14/2010	0 - 0.5	0.0192	0.303	<0.0121	ND	**90.7**	**23.4**
	C20-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	61.1	15.1
	C20-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	10.9	6.24
	C20-CELL COMP	7/14/2010	0 - 2	<0.012	0.0498	<0.012	ND	61	15
RWQCB Residential ESLs				***2.4***	***1.7***	***1.7***	***na***	***200***	***0.39***
Cal EPA Residential CHHSLs				***2.3***	***1.6***	***1.6***	***na***	***80***	***0.07***
Background Metals Concentrations (c)				***na***	***na***	***na***	***na***	***54***	***20***

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FOR ORGANOCHLORINE PESTICIDES, LEAD, AND ARSENIC

Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

				Analytical Results (mg/kg dry weight)(a)(b)					
				Pesticides				Selected Metals	
Sample Location	Sample ID	Sample Date	Sample Depth (ft bbr)	4,4'-DDD	4,4'-DDE	4,4'-DDT	Other Pesticides	Lead	Arsenic
Cell Composites									
C21	C21-B DEPTH	7/16/2010	0 - 0.5	<0.0131	0.0776	<0.0131	ND	60	17.3
	C21-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	18.1	7.76
	C21-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	9.83	5.43
	C21-CELL COMP	7/16/2010	0 - 2	<0.0133	0.019	<0.0133	ND	32.1	9.36
C24	C24-B DEPTH	7/16/2010	0 - 0.5	<0.0137	0.288	0.017	ND	**190**	**29.7**
	C24-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	41.8	12.7
	C24-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	8.2	6.9
	C24-CELL COMP	7/16/2010	0 - 2	<0.0132	0.0453	<0.0132	ND	36.1	11.5
C25	C25-B DEPTH	7/16/2010	0 - 0.5	<0.0122	0.099	<0.0122	ND	53.4	**20.1**
	C25-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	**80.5**	19.8
	C25-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	30.6	11.9
	C25-CELL COMP	7/16/2010	0 - 2	<0.0136	0.0762	<0.0136	ND	60.3	18.8
C26	C26-B DEPTH	7/16/2010	0 - 0.5	0.0162	0.143	<0.0141	ND	**129**	**22.5**
	C26-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	11	5.58
	C26-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	15.8	7.86
	C26-CELL COMP	7/16/2010	0 - 2	<0.0132	0.023	<0.0132	ND	21.4	8.25
C27	C27-B DEPTH	7/16/2010	0 - 0.5	<0.0139	0.101	<0.0139	ND	**135**	**21.8**
	C27-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	10	5.75
	C27-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	10.2	5.26
	C27-CELL COMP	7/16/2010	0 - 2	<0.0132	0.016	<0.0132	ND	25.2	10.2
C28	C28-B DEPTH	7/16/2010	0 - 0.5	<0.0138	0.114	<0.0138	ND	38.7	13
	C28-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	9.69	5.81
	C28-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	6.5	4.75
	C28-CELL COMP	7/16/2010	0 - 2	<0.0126	<0.0126	<0.0126	ND	11.9	7.97
C29	C29-B DEPTH	7/14/2010	0 - 0.5	<0.0128	0.0833	<0.0128	ND	43.8	13.3
	C29-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	6.38	5.79
	C29-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	6.28	5.11
	C29-CELL COMP	7/14/2010	0 - 2	<0.0126	<0.0126	<0.0126	ND	12.2	8.45
C30	C30-B DEPTH	7/15/2010	0 - 0.5	0.02	0.34	0.0358	ND	**97.2**	**25.5**
	C30-D DEPTH	7/15/2010	1 - 1.5	--	--	--	--	31	11.4
	C30-E DEPTH	7/15/2010	1.5 - 2	--	--	--	--	19.9	7.05
	C30-CELL COMP	7/15/2010	0 - 2	0.0171	0.251	0.0326	ND	72.4	17.9
Building Composites									
B1010	B1010-A DEPTH	7/16/2010		<0.0119	<0.0119	<0.0119	ND	4.99	10.3
	B1010-B DEPTH	7/16/2010	0 - 0.5	<0.013	0.193	<0.013	ND	**122**	**30.7**
	B1010-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	7.34	6.69
	B1010-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	7.09	6.3
	B1010-CELL COMP	7/16/2010	0 - 2	<0.0128	<0.0128	<0.0128	ND	42.6	14.7
RWQCB Residential ESLs				***2.4***	***1.7***	***1.7***	***na***	***200***	***0.39***
Cal EPA Residential CHHSLs				***2.3***	***1.6***	***1.6***	***na***	***80***	***0.07***
Background Metals Concentrations (c)				***na***	***na***	***na***	***na***	***54***	***20***

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FOR ORGANOCHLORINE PESTICIDES, LEAD, AND ARSENIC

Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

				Analytical Results (mg/kg dry weight)(a)(b)					
				Pesticides				Selected Metals	
Sample Location	Sample ID	Sample Date	Sample Depth (ft bbr)	4,4'-DDD	4,4'-DDE	4,4'-DDT	Other Pesticides	Lead	Arsenic
Building Composites									
B1012	B1012-A DEPTH	7/16/2010	Baserock	<0.0121	<0.0121	<0.0121	ND	4.64	9.03
	B1012-B DEPTH	7/16/2010	0 - 0.5	<0.0125	0.0716	<0.0125	ND	**86.3**	**23.4**
	B1012-D DEPTH	7/16/2010	1 - 1.5	--	--	--	--	6.78	13.6
	B1012-E DEPTH	7/16/2010	1.5 - 2	--	--	--	--	4.97	5.73
	B1012-CELL COMP	7/16/2010	0 - 2	<0.0120	21.4	<0.0120	ND	48.8	14
B1014	B1014-A DEPTH	7/14/2010	Baserock	<0.0125	<0.0125	<0.0125	ND	7.02	11.6
	B1014-B DEPTH	7/14/2010	0 - 0.5	<0.0127	0.086	<0.0127	ND	55.5	16.4
	B1014-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	**88.4**	**34.5**
	B1014-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	18.8	15.4
	B1014-CELL COMP	7/16/2010	0 - 2	0.0149	0.177	<0.0132	ND	48.9	19.7
B1016	B1016-A DEPTH	7/14/2010	Baserock	<0.0118	<0.0118	<0.0118	ND	8.69	13.7
	B1016-B DEPTH	7/14/2010	0 - 0.5	<0.0128	0.29	0.0153	ND	**166**	**39**
	B1016-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	8.96	7.35
	B1016-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	8.05	5.19
	B1016-CELL COMP	7/14/2010	0 - 2	<0.0127	0.0342	<0.0127	ND	40.2	12.8
B102024	B102024-A DEPTH	7/14/2010	Baserock	<0.0107	<0.0107	<0.0107	ND	5.27	5.81
	B102024-B DEPTH	7/14/2010	0 - 0.5	<0.013	0.0782	<0.013	ND	67.5	**30.9**
	B102024-D DEPTH	7/14/2010	1 - 1.5	--	--	--	--	16.5	11.8
	B102024-E DEPTH	7/14/2010	1.5 - 2	--	--	--	--	17.4	9.66
	B102024-CELL COMP	7/16/2010	0 - 2	<0.0127	0.0327	<0.0127	ND	32	15.7
Discrete Samples									
C4A	C4A-0.0-0.5	7/16/2010	0 - 0.5	<0.0122	<0.0122	<0.0122	ND	7.85	7.67
C5B	C5B-0.0-0.5	7/16/2010	0 - 0.5	<0.012	0.0757	<0.012	ND	67	**22.9**
C15B	C15B-0.0-0.5	7/16/2010	0 - 0.5	<0.0117	<0.0117	<0.0117	ND	36.2	9.98
C20C	C20C-0.0-0.5	7/16/2010	0 - 0.5	<0.0119	0.0394	<0.0119	ND	**94.7**	19.9
C30C	C30C-0.0-0.5	7/16/2010	0 - 0.5	<0.0116	0.197	0.013	ND	**138**	**24.1**
RWQCB Residential ESLs				***2.4***	***1.7***	***1.7***	***na***	***200***	***0.39***
Cal-EPA Residential CHHSLs				***2.3***	***1.6***	***1.6***	***na***	***80***	***0.07***
Background Metals Concentrations (c)				***na***	***na***	***na***	***na***	***54***	***20***

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FOR ORGANOCHLORINE PESTICIDES, LEAD, AND ARSENIC

Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

Abbreviations:

"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bbr - Feet below baserock
mg/kg - Milligrams per kilogram
na - not applicable
ND - not detected

Notes:

(a) Organochlorine pesticides analyzed using US EPA Method 3550/8081. Total Lead and arsenic analyzed using US EPA Method 3050B/6020A. Samples analyzed by K Prime, Inc. Santa Rosa, California.
(b) Bold value indicates detected concentration exceeds respective ESL or CHHSL. When background levels are greater than ESLs or CHHSLs (i.e., Arsenic), concentrations are bolded if they exceed background levels.
(c) Background concentrations shown are the maximum detections reported by Scott (1995).

References:

Cal-EPA CHHSLs: California EPA, Department of Toxic Substances Control, California Human Health Screening Levels ("CHHSLs"), Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, January 2005 (Table 1, Residential Land Use). Lead CHHSL updated in October 2009.

RWQCB Residential ESLs: California Regional Water Quality Control Board, Region 2, Environmental Screening Level ("ESL"), Interim Final, November 2007 (Updated May 2008), Table K-1, Direct Exposure Scenario for Residential Land Use.

Scott, C,M. 1995. Background Metal Concentrations in Soils in Northern Santa Clara County, California in: Recent Geological Studies in the San Francisco Bay Area, Pacific Section of the Society of Economic Paleontologists and Mineralogists, Volume 76.

TABLE 3
WASTE EXTRACTION TEST AND TOXICITY CHARACTERISTIC LEACHING PROCEDURE ANALYTICAL RESULTS FOR LEAD AND ARSENIC
Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

Sample ID	Sample Date	Sample Depth (ft bbr)	Analytical Results(a)(b)				
			Lead (mg/kg)	WET Lead (mg/L)	TCLP Lead (mg/L)	Arsenic (mg/kg)	WET Arsenic (mg/L)
Cell Composites							
C1-B DEPTH	7/14/2010	0-0.5	104	1.97	<0.005	29.2	--
C3-B DEPTH	7/13/2010	0-0.5	122	2.05	<0.005	53.1	1.67
C4-B DEPTH	7/14/2010	0-0.5	82.4	0.409	--	28.4	--
C5-B DEPTH	7/14/2010	0-0.5	82.3	1.52	--	38.2	--
C6-B DEPTH	7/14/2010	0-0.5	57.1	0.756	--	26.2	--
C7C12-B DEPTH	7/15/2010	0-0.5	72.1	1.31	--	23.3	--
C7C12-D DEPTH	7/15/2010	1-1.5	89.1	1.53	--	29.6	--
C8-B DEPTH	7/13/2010	0-0.5	69	1.25	--	34.4	--
C9-B DEPTH	7/15/2010	0-0.5	61.7	1.03	--	23	--
C10-B DEPTH	7/14/2010	0-0.5	73.4	1.29	--	19.1	--
C11-B DEPTH	7/15/2010	0-0.5	74	1.31	--	29.9	--
C11-D DEPTH	7/15/2010	1-1.5	71.3	1.16	--	23.3	--
C13-D DEPTH	7/14/2010	1-1.5	112	1.82	<0.005	40.5	--
C13-E DEPTH	7/14/2010	1.5-2	102	1.14	<0.005	44.1	--
C14-B DEPTH	7/15/2010	0-0.5	120	2.04	<0.005	28.4	--
C15-D DEPTH	7/15/2010	1-1.5	99.1	1.87	--	20.4	--
C19-B DEPTH	7/13/2010	0-0.5	65.1	1.06	--	24.2	--
C19-D DEPTH	7/13/2010	1-1.5	63.2	0.766	--	22.3	--
C20-B DEPTH	7/14/2010	0-0.5	90.7	1.67	--	23.4	--
C20-D DEPTH	7/14/2010	1-1.5	61.1	1.26	--	15.1	--
C21-B DEPTH	7/16/2010	0-0.5	60	0.95	--	17.3	--
C24-B DEPTH	7/16/2010	0-0.5	190	2.44	<0.005	29.7	--
C25-B DEPTH	7/16/2010	0-0.5	53.4	1.14	--	20.1	--
C25-D DEPTH	7/16/2010	1-1.5	80.5	1.9	--	19.8	--
C26-B DEPTH	7/16/2010	0-0.5	129	1.91	<0.005	22.5	--
C27-B DEPTH	7/16/2010	0-0.5	135	2.16	<0.005	21.8	--
C30-B DEPTH	7/15/2010	0-0.5	97.2	1.93	--	25.5	--
Building Composites							
B1010-B DEPTH	7/16/2010	0-0.5	122	3.29	<0.005	30.7	--
B1012-B DEPTH	7/16/2010	0-0.5	86.3	1.53	--	23.4	--
B1014-B DEPTH	7/14/2010	0-0.5	55.5	0.834	--	16.4	--
B1014-D DEPTH	7/14/2010	1-1.5	88.4	0.91	--	34.5	--
B1016-B DEPTH	7/14/2010	0-0.5	166	3.07	<0.005	39	--
B102024-B DEPTH	7/14/2010	0-0.5	67.5	1.21	--	30.9	--
Hazardous Waste Criteria							
Total Treshold Limit Concentration			***1,000***	***na***	***na***	***500***	***na***
Soluble Treshold Limit Concentration			***na***	***5***	***na***	***na***	***5***
RCRA Regulatory Level			***na***	***na***	***5***	***na***	***na***

TABLE 3
WASTE EXTRACTION TEST AND TOXICITY CHARACTERISTIC LEACHING PROCEDURE ANALYTICAL RESULTS FOR LEAD AND ARSENIC
Fair Oaks Industrial Complex, 1020 to 1024 Morse Avenue, Sunnyvale CA

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bbr - Feet below baserock
mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
na - not applicable
RCRA - Resource Conservation and Recovery Act
TCLP - Toxicity Characteristic Leaching Procedure
WET - Waste Extraction Test

Notes:
(a) Lead and Arsenic analyzed using US EPA Method 3050B/6020A. WET Lead and Arsenic analyzed using CA WET. TCLP Lead analyzed using EPA 1311. Samples analyzed by K Prime, Inc. Santa Rosa, California.
(b) Bold value indicates detected concentration exceeds respective Hazardous Waste Criterion.

References:
Hazardous Waste Criteria: Title 22, California Code of Regulations, section 66261.24, Table I - Maximum Concentration of Contaminants for the Toxicity Characteristic and Table II - List of Inorganic Persistent and Bioaccumulative Toxic Substances and Their Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC), (Register 2004, No. 23, Filed 6-3-2004).

Attachment A

Field Methods

A.1. FIELD METHODS

In early July 2010, EKI conducted additional sampling investigations at 1010 to 1024 Morse Avenue, Sunnyvale California ("Site") consisting of the following:

- Collection of subsurface soil samples at 120 locations beneath parking areas and buildings on site;
- Preparation of depth interval composite samples from 31 contiguous spatial cells; and
- Submission of composite soil samples to the laboratory for pesticide, arsenic, and lead analysis.

A discussion of the field investigation methods is presented below.

1.1. Preparation for Subsurface Investigations

In preparation for drilling and subsurface sampling, EKI personnel marked the proposed sample locations at the Site on 2 July 2010. At this time, some proposed sample locations inside of buildings were relocated to avoid working in tenant-occupied suites. Only two sample locations in Building 1020 (ExcelFab) were sited in an active tenant suite.

Because most sample locations were in paved parking areas or buildings, EKI contracted with Osborne's Concrete Coring to drill 4 to 5-inch diameter holes through the asphalt and concrete prior to subsurface soil sampling. The asphalt and concrete coring started on the afternoon of July 5th and continued through the end of July 6th.

To reduce the risk of encountering underground utilities during drilling and sampling operations, EKI notified Underground Services Alert ("USA") 48 hours prior to drilling, as required by law. Further, EKI contracted with Subdynamic Locating Services ("SLS"), a private underground utility locating service, to investigate for buried utilities. A two-man SLS crew worked with EKI on July 6th to mark utilities with spray paint both across the property and at all of the proposed drilling locations. Underground utilities were particularly common along the roadway between Building 1010 and 1016. Buried electrical and telecommunication lines were occasionally found inside buildings, necessitating the relocation of some proposed drilling locations.

1.2. Subsurface Investigation Methods

EKI retained RSI Drilling ("RSI"), a California-licensed drilling contractor, to advance the 120 boreholes. Of these, 18 boreholes were drilled with a hand auger and 112 were mechanically drilled using either a small track-mounted (Geoprobe 6620) or truck-mounted (Geoprobe 5400) direct push ("DP") drill rig. In terms of general location, 29 boreholes were located inside buildings and 91 outside in landscaping or paved parking areas.

Most of the soil samples collected with the drill rig were generally collected using a 2.5-inch diameter 1.5-foot long California-Modified split-spoon sampler driven without liners. Based on experience at other sites, the larger diameter split spoon sampler produces better soil core recovery than standard small diameter (1.5-inch diameter) DP sampling methods in coarse,

highly-compacted baserock or structural fill material. In order to collect a 2-foot interval of soil beneath the baserock/structural fill, two successive split spoon samples were generally driven.

Alternatively, a 3-inch diameter hand auger was used to collect samples when there were access limitations or the driller judged that underground utilities were too close to the proposed sampling location to utilize a drill rig.

In general, soil samples were collected into separate ziplock plastic bags and identified according to the following scheme:

- topsoil (present only in landscaped areas);
- Depth Interval A: baserock/structural fill;
- Depth Interval B: soil 0 to 0.5 feet below the bottom of the baserock/structural fill;
- Depth Interval C: soil 0.5 to 1 feet below the bottom of the baserock/structural fill;
- Depth Interval D: soil 1 to 1.5 feet below the bottom of the baserock/structural fill; and,
- Depth Interval E: soil 1.5 to 2 feet below the bottom of the baserock/structural fill.

These bagged samples were conveyed back to a temporary on-Site sample receiving facility that was used for the preparation of composites (described below).

For three boreholes located in former machine shops, i.e., C17B (R&R Machining), C22C (Hoffman Machining), and C30D (James Machining), soil samples for volatile organic compounds ("VOCs") and total petroleum hydrocarbons as gasoline ("TPH-g") analysis were handled differently. In these instances, samples were collected immediately upon opening the split spoon using Encore samplers ("Encores"). Six Encores were collected for each set of VOC and TPH-g samples. Encores were labeled and packed, three per bag, into an original Encore sampler bag, labeled with a unique sample ID, and immediately placed in an iced cooler for subsequent shipment via courier under chain-of-custody procedures to KPrime, Inc. in Santa Rosa, California ("KPrime"), a California-certified analytical laboratory.

The machine shop samples were analyzed by KPrime for the following constituents:

- VOCs using EPA Method 8260B;
- TPH-g using EPA Method 8015M; and
- Moisture content to allow sample concentrations to be converted to dry weight.

1.2.1. Subsurface Observations

The sequence of shallow soils was different beneath the footprint of the buildings than it was beneath the paved parking and landscaped areas. Beneath the concrete floor of the buildings, there was generally 2 to 6 inches of loose pea gravel underlain by an approximately 1-foot of compacted structural fill. The pea gravel was uniformly graded and appeared to be made of washed and screened rounded alluvial gravels. The structural fill consisted of gravel-sized clasts of yellow brown angularset in a well-graded mixture of similarly-colored sand, silt, and clay. The clasts recovered in the split spoon samples were as large as 2.5 inches in diameter.

The structural fill appeared to be quarry-run material from a bedrock source. Beneath the structural fill was 2 to 3 feet of dark gray brown to black silty clay (Bay Mud), which is considered in-place native material.

Beneath the parking areas there was generally 2 to 6 inches of light gray brown to tan baserock directly underlying the asphalt. In landscaped areas, approximately 1.5-feet of topsoil overlie the baserock. This baserock generally consisted of well-graded gravelly sand with silt and clay. The rounding of the gravel suggested that this was quarry-run material from an alluvial source. Bay Mud typically occurred beneath the baserock. However, in places the Bay Mud appeared to be interbedded and somewhat intermixed with reddish brown gravelly sands, some of which contained fragments of asphaltic material. This disturbed soil horizon was observed in boreholes along the eastern side of the Site suggesting that historic grading operations in this area may have mixed fill with locally derived native material, i.e., Bay Mud, to a depth of approximately 2 feet below the bottom of the baserock.

The thickness of these various improvements (i.e., asphalt, baserock, concrete, structural fill, topsoil, and soil fill) above the Bay Mud at each of the borehole locations are summarized in Table A-1.

1.2.2. Cell and Depth Composite Samples

The original sampling strategy involved dividing the Site into a 5 by 6 grid of 30 squares or "cells" each with horizontal dimensions of approximately 90-feet by 90-feet. Each cell was planned to have four sampling locations within it. Depth discrete composites were then to be made at four depth intervals (relative to ground surface) within each cell and these composites submitted to the laboratory for analysis. However, because of the thickness of pea gravel and structural fill beneath Site buildings and variations in the thickness of baserock beneath parking areas, depth intervals defined on the basis of depth below ground surface would result in composite samples with varying degrees of potential "dilution" by baserock or structural fill. As a result, the cell definition and depth compositing strategies were adjusted. Buildings were redefined as their own cells and some parking lot areas were combined into new cells that contained no building sample locations and sometimes only three sampling locations.

Based on the assumption that baserock, pea gravel, and structural fill were all unimpacted by pesticides, the depth discrete compositing scheme was adjusted to encompass four successive half-foot intervals below the bottom of the baserock or structural fill. For the building cells, a structural fill composite was also made and submitted for analysis to verify that this visually distinctive material was not impacted by pesticides, arsenic, and lead.

Using the revised cell definitions, composite samples were created by breaking up the clay-rich material of each individual sample with stainless steel sieves and graters. Equal sized increments of soil from each depth interval within each cell were then mixed into a final depth discrete composite sample. This approach was implemented for depth intervals A (buildings only), B, D, and E. In addition, equal increments from each depth interval (including depth interval C) and each sample were mixed into a final Cell Composite, which encompassed the entire soil core depth from 0 to 2 feet below the baserock.

Each of the composite soil samples were placed in 8-ounce glass jars, labeled with a unique sample IDs, placed in chilled ice chests for transport to KPrime under chain-of-custody procedures. The samples were selectively analyzed by KPrime for the following constituents:

- Organochlorine pesticides using EPA Method 8081;
- Arsenic and lead using EPA Method 6020; and
- Moisture content to allow sample concentrations to be converted to dry weight.

Tables 1A and 1B of the main report identify the individual samples used to create each of the composite samples and the analyses performed on each sample.

1.2.3. Backfill of Soil Boreholes and Investigation-Derived Wastes

All soil boreholes advanced on the Site were backfilled with cement grout to the total depth of the boreholes.

All drill cuttings and decontamination water were placed in 55-gallons metal drums which were labeled, sealed, and left on the Site in Suite 15, Building 1016. Upon final receipt of disposal characterization sampling results, the soil will be disposed of at an off-site permitted facility.

TABLE A-1
THICKNESS OF IMPROVEMENTS ABOVE SOIL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Borehole ID	Improvement Thickness (in)					Total Improvement Thickness	
	Concrete	Asphalt	Topsoil	Baserock or Structural Fill	Fill Soil	(in)	(ft)
C1A		3		6		9	0.75
C1B		3		3		6	0.50
C1C		3		3		6	0.50
C1D		4		6		10	0.83
C2A	6			12	6	24	2.00
C2B	6			6	12	24	2.00
C2C	6			6	12	24	2.00
C2D	6			12	6	24	2.00
C3A		3		6		9	0.75
C3B		3		12		15	1.25
C3C		3		9		12	1.00
C3D		3		9		12	1.00
C4A		3		9		12	1.00
C4B		6		4		10	0.83
C4C	6			10	4	20	1.67
C4D		3		6		9	0.75
C5A		3		8		11	0.92
C5B		3		6		9	0.75
C5C		3		2		5	0.42
~~C5D~~	~~6~~			~~10~~	~~2~~	~~18~~	~~1.50~~
C6A		4		6		10	0.83
C6B		3		3		6	0.50
C6C		4		12		16	1.33
C6D		3		3		6	0.50
C7A	6			12	6	24	2.00
C7B	6			12	6	24	2.00
C7C		3		3		6	0.50
C7D		3		3		6	0.50
C8A		3		9		12	1.00
C8B		3		9		12	1.00
C8C		3		6		9	0.75
C8D		3		3		6	0.50
C9A		3		8		11	0.92
C9B	6			10	2	18	1.50
C9C	6			10	2	18	1.50
C9D		3		9		12	1.00
C10A	6			10	2	18	1.50
C10B		3		0		3	0.25
C10C		3		2		5	0.42
~~C10D~~	~~6~~			~~18~~		~~24~~	~~2.00~~
C11A		3		3		6	0.50
C11B		3		3		6	0.50
C11C		3		3		6	0.50
C11D			18	6		24	2.00

TABLE A-1
THICKNESS OF IMPROVEMENTS ABOVE SOIL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Borehole ID	Improvement Thickness (in)					Total Improvement Thickness	
	Concrete	Asphalt	Topsoil	Baserock or Structural Fill	Fill Soil	(in)	(ft)
C12A		3		3		6	0.50
C12B		3		3		6	0.50
C12C		3		2		5	0.42
C12D		3		2		5	0.42
C13A		3		3		6	0.50
C13B		3		9		12	1.00
C13C		3		3		6	0.50
C13D		3		3		6	0.50
C14A		3		6		9	0.75
C14B		3		12		15	1.25
C14C		3		6		9	0.75
C14D		3		6		9	0.75
C15A	6			10	2	18	1.50
C15B		3		6		9	0.75
C15C		3		2		5	0.42
C15D		3		6		9	0.75
C16A			18	3		21	1.75
~~C16B~~	~~6~~					~~6~~	~~0.50~~
C16C		3		6		9	0.75
C16D		3		9		12	1.00
C17A	6			12	4	22	1.83
C17B	6			14	4	24	2.00
C17C		3		6		9	0.75
C17D		3		6		9	0.75
C18A	6			12	2	20	1.67
C18B	6			10	6	22	1.83
C18C		3		6		9	0.75
C18D		3		5		8	0.67
C19A		3		9		12	1.00
C19B		3		9		12	1.00
C19C		3		9		12	1.00
C19D		3		6		9	0.75
C20A	6			12	2	20	1.67
C20B		3		2		5	0.42
C20C		3		6		9	0.75
C20D		3		11		14	1.17
C21A		3		8		11	0.92
C21B		3		9		12	1.00
C21C	6			10	4	20	1.67
C21D			24	6		30	2.50
C22A		3		4		7	0.58
C22B		3		4		7	0.58
C22C	6			12	4	22	1.83
C22D	6			12	4	22	1.83

TABLE A-1
THICKNESS OF IMPROVEMENTS ABOVE SOIL

Fair Oaks Industrial Complex, 1010 to 1024 Morse Avenue, Sunnyvale, California

Borehole ID	Improvement Thickness (in)					Total Improvement Thickness	
	Concrete	Asphalt	Topsoil	Baserock or Structural Fill	Fill Soil	(in)	(ft)
C23A		3		4		7	0.58
C23B		3		3		6	0.50
C23C	6			12		18	1.50
C23D	6			10	4	20	1.67
C24A		3		9		12	1.00
C24B		3		12		15	1.25
C24C	6			12	3	21	1.75
C24D		3		6		9	0.75
C25A	6			16		22	1.83
C25B		3		8		11	0.92
C25C		3		2		5	0.42
C25D		3		3		6	0.50
C26A		3		3		6	0.50
C26B		3		12		15	1.25
C26C		3		6		9	0.75
C26D		3		6		9	0.75
C27A		3		9		12	1.00
C27B		3		10		13	1.08
C27C		3		6		9	0.75
C27D		3		6		9	0.75
C28A		3		12		15	1.25
C28B		3		18		21	1.75
C28C		3		6		9	0.75
C28D		3		6		9	0.75
C29A		6		12		18	1.50
C29B	6			9	6	21	1.75
C29C			6	6		12	1.00
C29D		3		3		6	0.50
C30A	6			16	2	24	2.00
C30B		3		2		5	0.42
C30C		3		6		9	0.75
C30D	6			12	2	20	1.67

Abbreviations:

in - inches

ft - feet

~~C16B~~ - borehole not used in composite sampling.

Reference: Google Earth Pro; Imagery date June 30, 2007.

Notes:

1. All locations are approximate.

N

0 1000 2000

(Approximate Scale in Feet)

Erler & Kalinowski, Inc.

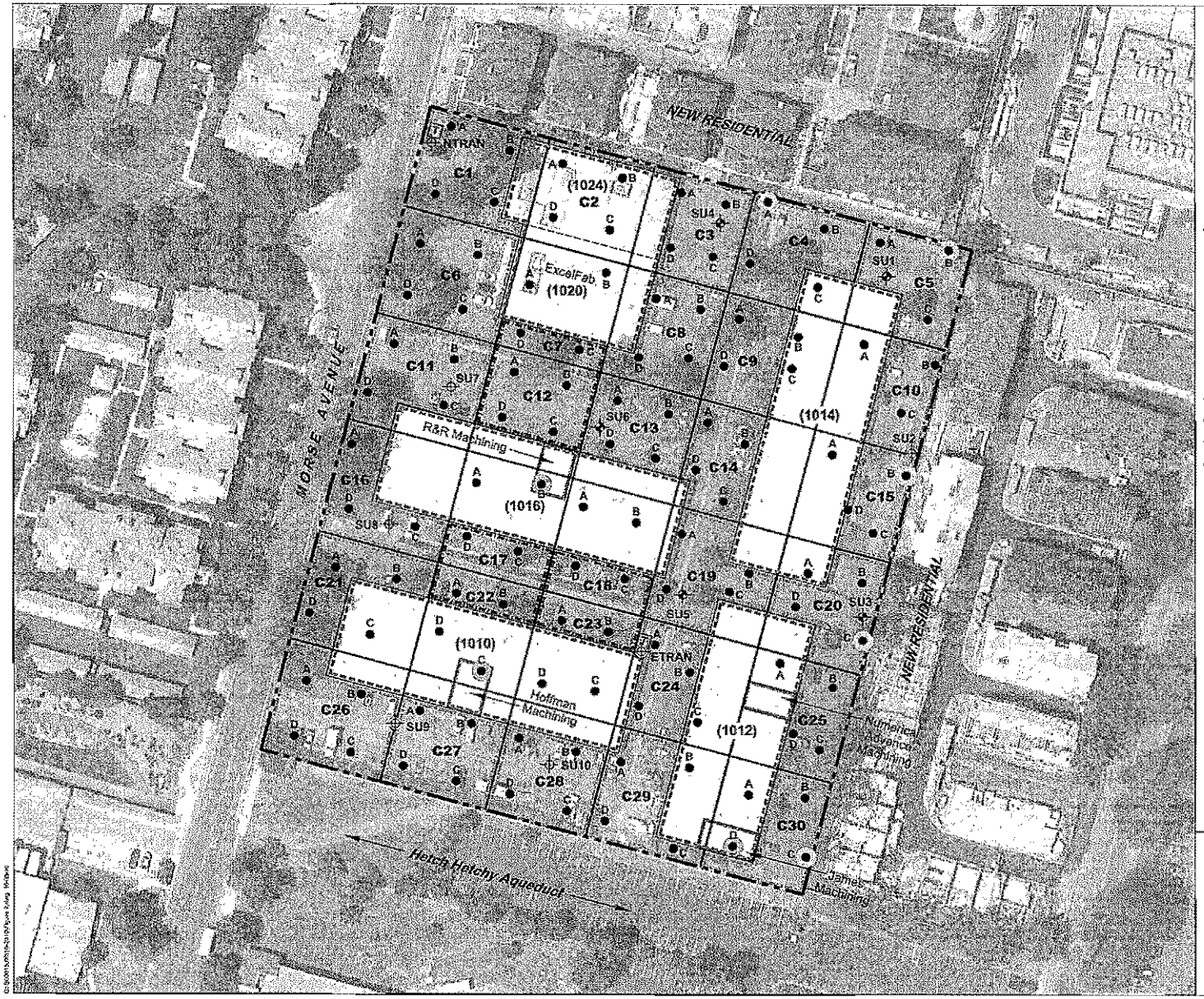
Site Location Map

1010 - 1024 Morse Avenue
Sunnyvale, CA

October 2010
EKI B00015.00

Figure 1

G:\B00015.00\10-2010\Figure 1.dwg 10-05-10



N

0 80 160

(Approximate Scale in Feet)

Legend:

- Approximate Site Boundary
- Soil and Grab Groundwater Sample Borehole (March 2010)
- Soil Sample Borehole (March 2010)
- A Soil Borehole (July 2010)
- Pad-Mounted Transformer
- (1010) Building Street Address
- C1 Cell Number
- Cell Boundary
- Building Composite
- Cell Composite
- Multiple Cell Composite
- Discrete Soil Sample
- Machine Shop Soil Sample

Notes:

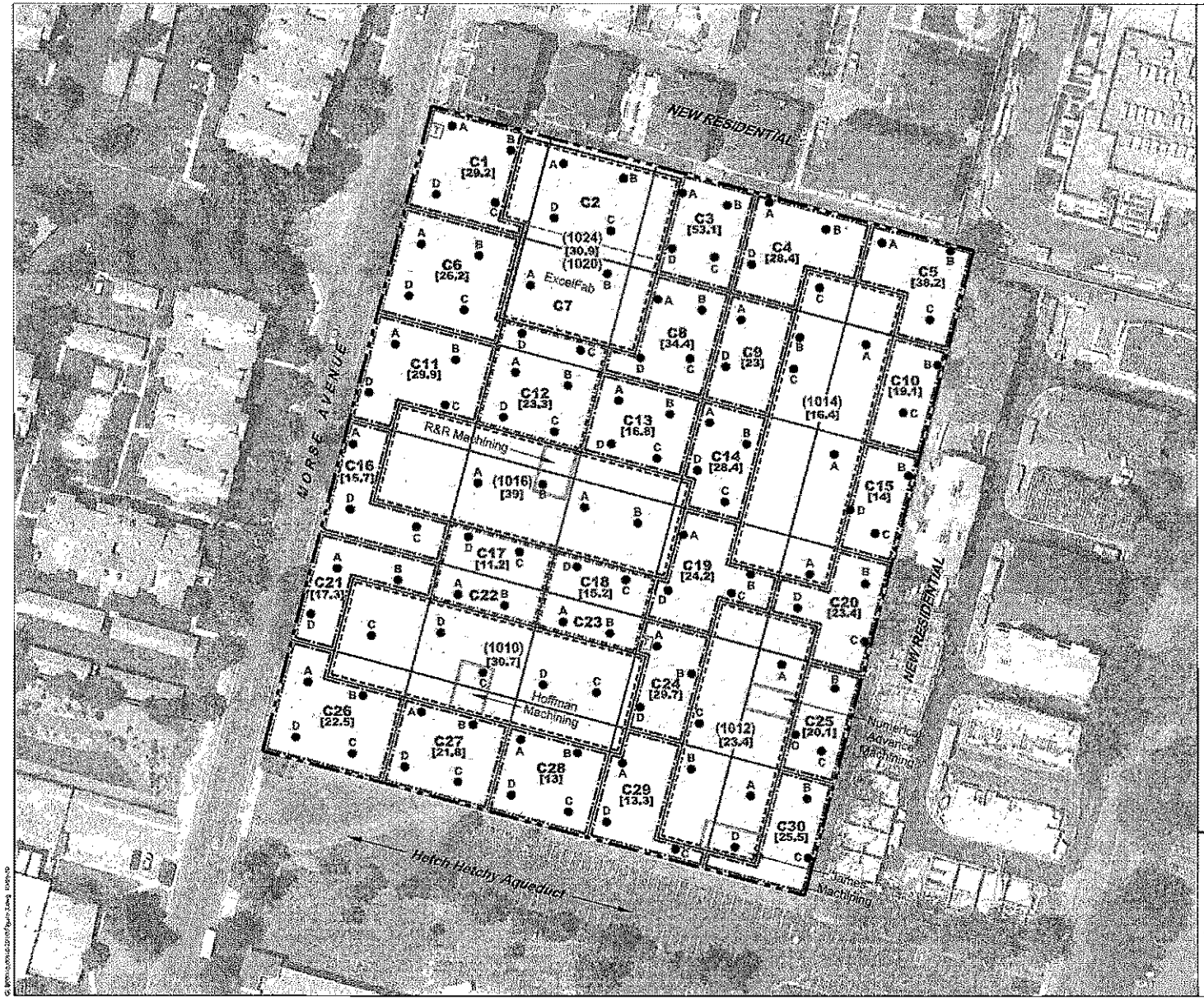
1. All locations are approximate.
2. Basemap source: Google Earth Pro; Imagery date 30 June 2007.

Erler & Kalinowski, Inc.

Approximate Soil Sample Locations

1010 - 1024 Morse Avenue
Sunnyvale, CA
October 2010
EKI B00015.00

Figure 2



N

0 80 160

(Approximate Scale in Feet)

Legend:

- Approximate Site Boundary
- A Soil Borehole (July 2010)
- Pad-Mounted Transformer
- (1010) Building Street Address
- C1 Cell Number
- [14] Arsenic Concentrations in Milligrams Per Kilogram (mg/kg)
- Cell Boundary
- Building Composite
- Cell Composite
- Multiple Cell Composite
- 5 - ≤10 mg/kg
- 10 - ≤15 mg/kg
- 15 - ≤20 mg/kg
- >20 mg/kg

Notes:

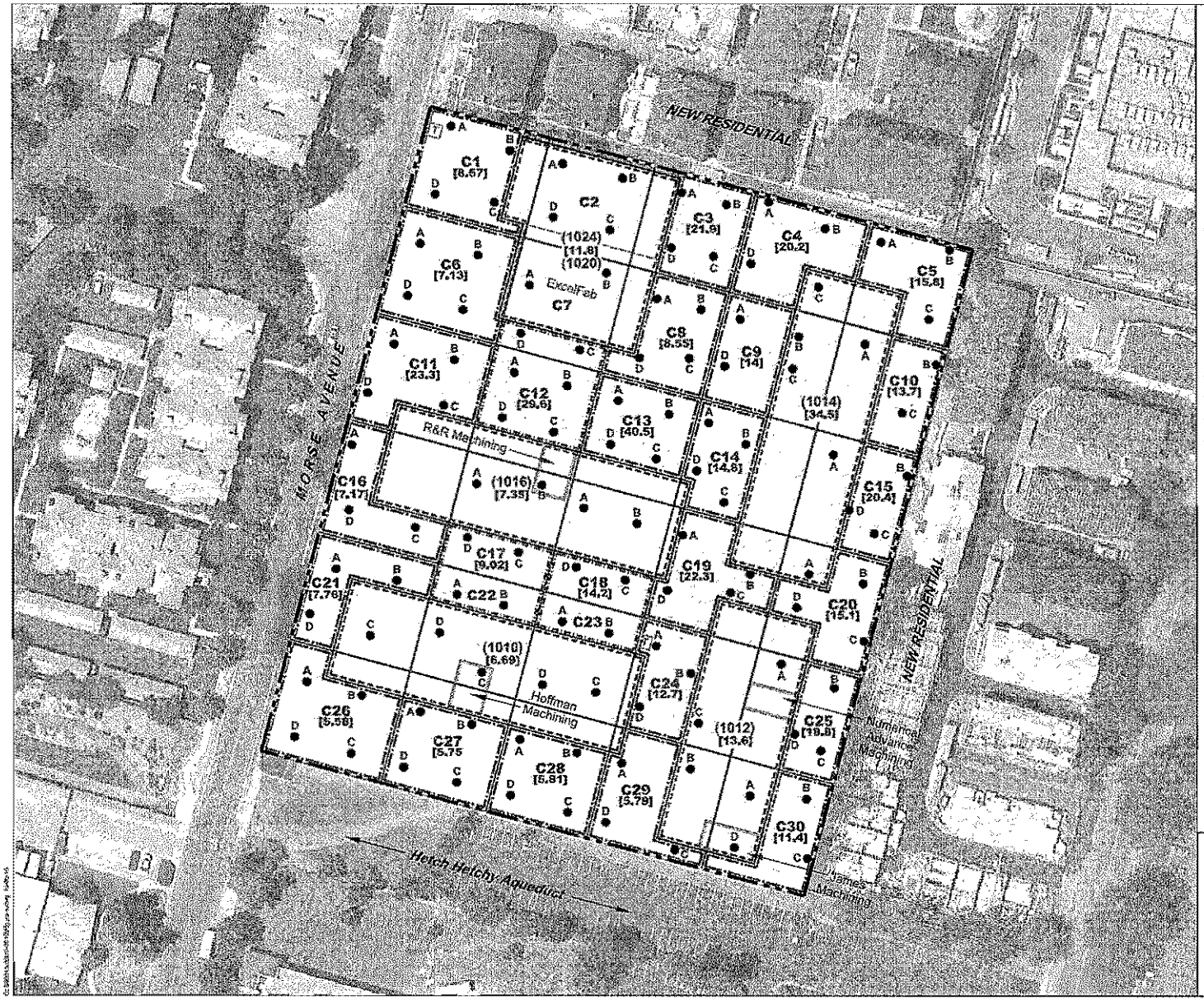
1. All locations are approximate.
2. Basemap source: Google Earth Pro; Imagery date 30 June 2007.

Erler & Kalinowski, Inc.

Arsenic Concentrations in Soil
0 - 0.5 Feet Below Baserock

1010 - 1024 Morse Avenue
Sunnyvale, CA
October 2010
EKI B00015.00

Figure 3



N

0 80 160

(Approximate Scale in Feet)

Legend:

- Approximate Site Boundary
- ●A Soil Borehole (July 2010)
- Pad-Mounted Transformer
- (1010) Building Street Address
- C1 Cell Number
- [13.7] Arsenic Concentrations in Milligrams Per Kilogram (mg/kg)
- Cell Boundary
- Building Composite
- Cell Composite
- Multiple Cell Composite
- 5 - ≤10 mg/kg
- 10 - ≤15 mg/kg
- 15 - ≤20 mg/kg
- >20 mg/kg

Notes:

1. All locations are approximate.
2. Basemap source: Google Earth Pro; Imagery date 30 June 2007.

Erler & Kalinowski, Inc.

Arsenic Concentrations in Soil
1 - 1.5 Feet Below Baserock

1010 - 1024 Morse Avenue
Sunnyvale, CA
October 2010
EKI B00015.00

Figure 4

N

0 80 160

(Approximate Scale In Feet)

Legend:

- Approximate Site Boundary
- ● A Soil Borehole (July 2010)
- T Pad-Mounted Transformer
- (1010) Building Street Address
- C1 Cell Number
- [20.4] Arsenic Concentrations in Milligrams Per Kilogram (mg/kg)
- Cell Boundary
- Building Composite
- Cell Composite
- Multiple Cell Composite
- 4 - ≤10 mg/kg
- 10 - ≤15 mg/kg
- 15 - ≤20 mg/kg
- >20 mg/kg

Notes:

1. All locations are approximate.
2. Basemap source: Google Earth Pro; Imagery date 30 June 2007.

Erler & Kalinowski, Inc.

Arsenic Concentrations in Soil
1.5 - 2 Feet Below Baserock

1010 - 1024 Morse Avenue
Sunnyvale, CA
October 2010
EKI B00015.00
Figure 5

N

0 80 160

(Approximate Scale In Feet)

Legend:

- Approximate Site Boundary
- A Soil Borehole (July 2010)
- T Pad-Mounted Transformer
- (1010) Building Street Address
- C1 Cell Number
- [19.7] Arsenic Concentrations in Milligrams Per Kilogram (mg/kg)
- Cell Boundary
- Building Composite
- Cell Composite
- Multiple Cell Composite
- <12 mg/kg
- 12 - 20 mg/kg
- >20 mg/kg

Notes:

1. All locations are approximate.
2. Basemap source: Google Earth Pro; Imagery date 30 June 2007.

Erler & Kalinowski, Inc.

Arsenic Concentrations in Soil
Cell Composites, 0 - 2 Feet Below Baserock

1010 - 1024 Morse Avenue
Sunnyvale, CA
October 2010
EKI B00015.00

Figure 6

Attachment B

CD of Analytical Data Reports Provided by K-Prime

NOTE:

Attachment B," a compilation of K-Prime Data Reports, is 248 pages long (25 MG). Therefore it has not been reproduced for this appendix item.

A copy of Attachment B is available at Sunnyvale City Hall, at the One-Stop Counter: 456 West Olive Avenue, 94086.