PORT OF OAKLAND

May 5, 2015

RECEIVED
By Alameda County Environmental Health 3:16 pm, May 06, 2015

Mr. Keith Nowell
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Transmittal of Technical Memoranda –
Evaluation of Nickel Concentrations in Groundwater and
Habitat Evaluation of Drainage Ditches
Information Requested by Department of Environmental Health
related to the Oakland Maintenance Center Site, 1100 Airport Drive
Oakland, California
(Site#: RO00000414 – MOIA, United Airlines)

Dear Mr. Nowell:

Please find attached the above-referenced technical memoranda prepared by BASELINE Environmental Consulting, and URS Corporation providing information requested by the Alameda County Environmental Health Care Services Agency, Department of Environmental Health (Alameda County) related to the Oakland Maintenance Center Site during our conference call on March 26, 2015.

Port staff requests that Alameda County close this site. However, if Alameda County is unable to close this site, Port staff request that Alameda County close USTs MF 25/26 Area, and authorize the Port to properly destroy existing monitoring wells (30 total),

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached documents or reports are true and correct to the best of my knowledge.

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Please feel free to contact me at the Port of Oakland at (510) 627-1184 if you have any questions.

Sincerely,

Douglas Herman
Environmental Scientist
Port of Oakland

Enclosures: "Evaluation of Nickel Concentrations in Groundwater," dated May 5, 2015, *BASELINE Environmental*

"Habitat Evaluation of Drainage Ditches," May 1, 2015, *URS Corporation*

Cc: Lydia Huang, Baseline
Steve Leach, URS Corporation

BASELINE ENVIRONMENTAL CONSULTING

TECHNICAL MEMORANDUM

Date: 5 May 2015 **Job No.:** 12315-20.02330

To: Keith Nowell and Dilan Roe, Alameda County Health Care Agency, Department of Environmental Health

From: Lydia Huang, P.E. No. 43995

Subject: **Evaluation of Nickel Concentrations in Groundwater, Oakland Maintenance Center Site, 1100 Airport Drive, Oakland, California (Toxic Leaks Case RO0000414)**

The Port of Oakland ("Port") submitted a request for No Further Action for the Oakland Maintenance Center ("OMC") Site, located at 1100 Airport Drive at the Oakland International Airport, in October 2012 to Alameda County Environmental Health ("ACEH").[1] In response to comments and requests from the ACEH, BASELINE submitted three technical memoranda, dated 7 February 2014, 9 May 2014, and 14 November 2014, on behalf of the Port to support the request for No Further Action. This fourth technical memorandum was prepared in response to ACEH email dated 5 March 2015, which originally directed the Port to evaluate "plume stability" at the OMC Site; in a conference call between the Port and ACEH on 26 March 2015, it was mutually agreed that instead of evaluating "plume stability" (as there does not appear to be a discernible plume at the Site), the Port would evaluate the potential sources of nickel to groundwater and evaluate the nature of the habitat in the storm water drainages ditches adjacent to the Site. This technical memorandum presents an evaluation of the potential sources of nickel to groundwater at the OMC Site.

Nickel concentrations in groundwater at the OMC Site appear generally higher than those found in nearby areas of the airport. The two possible sources of nickel to the groundwater at the OMC Site are releases from former airplane maintenance operations and/or leaching from the soils/materials used to fill the area before the current facilities were constructed. This memorandum examines these two potential sources.

POTENTIAL SOURCES OF NICKEL TO GROUNDWATER

Fill as Source of Nickel

The entire South Field of the Oakland International Airport was originally either tidal marsh or shallow waters of San Francisco Bay. Filling to construct the South Field began in 1955 and the South Field became operational in 1962. Portions of the South Field that were not

[1] No Further Action was requested in the report titled, *Final Report, Closure Documentation for the Former Oakland Maintenance Center (OMC), Oakland International Airport, 1100 Airport Drive, Oakland, California*, prepared by URS Corporation and dated 31 October 2012.

immediately needed were initially only partially filled. As need arose, additional fill was imported to these partially filled areas to allow for construction of new facilities. The source of materials used to complete filling the different areas varied. The Port has nickel analytical data from soil and groundwater samples collected from both the OMC Site and the adjacent Federal Express ("FedEx") site (Figure 1). The filling history and information available about the sources of fill are discussed below.

The facilities on the OMC Site were constructed in 1971. The OMC Site appeared partially filled in a May 1971 aerial photograph and final filling and grading in progress can be seen on an October 1971 aerial photograph (Figures 2 and 3). By August 1972, the entire OMC facility had been completed (Figure 4). A historical report titled, *Fill and Development of the Oakland Airport, 1927 to 1989,* by Paul Sorensen and dated 21 July 1989, indicates that between 1962 and 1971, fill for numerous projects at the airport accepted random fill materials on an "as-available" basis. A map that accompanied this report indicates "Misc. Fill" as having been placed at the OMC Site.

The current Federal Express ("FedEx") facility is located just west of the OMC Site (Figure 1). The aerial photographs show that final filling occurred later at the FedEx and the Sorensen report and map indicate that filling consisted of "Dry Fill" placed between 1972 and 1974.

Since there is evidence that the historical sources of fill placed at the FedEx site is different from that placed at the OMC Site, and the Port has soil and groundwater analytical data from both sites, a comparison of the nickel concentrations in the soil and groundwater from the two sites was conducted.

Attachment A contains excerpts from two investigation reports that have been conducted at the FedEx site with maps showing sample locations and metals analytical data from soil and groundwater samples. The reports were prepared by Bureau Veritas in September 2007 and Ninyo & More in November 2008. Groundwater concentrations of dissolved nickel from samples collected at the FedEx site were found to range from less than the laboratory reporting limit of 5 µg/l to 38 µg/l.[2] Even without statistical evaluation, nickel groundwater concentrations on the FedEx site appear to be lower than those found on the OMC Site as summarized in Table 1.

The nickel concentrations in soil samples collected from the two sites were subjected to two-sample hypothesis testing to determine if the soil concentrations at the two sites appear to be from the same population using the Wilcoxon-Mann-Whitney test. This test is

[2] Several groundwater samples from the Ninyo & Moore report were inadvertently not filtered and the reported nickel concentrations were higher than 38 µg/l.

available in the ProUCL software (version 5.0) made available by the U.S. Environmental Protection Agency. The Wilcoxon-Mann-Whitney test is a nonparametric test which does not assume any form for the population distributions (e.g., does not assume a normal or log normal data distribution). In general, the Wilcoxon-Mann-Whitney test ranks all the values of the two data sets from low to high regardless of which group each value belongs, and assigns a rank to each value; the smallest value gets a rank of 1 and the largest number gets a rank of *n*, where *n* is the total number of values in the two groups.

In statistical hypothesis testing, one first chooses a *null hypothesis* and an *alternative hypothesis*. For example, the null hypothesis could be that the nickel concentrations in the soil at the OMC Site is less than or equal to those at the FedEx site, and the alternative hypothesis would be that the concentrations at the OMC Site are greater than the FedEx site. The Wilcoxon-Mann-Whitney test calculates a p-value, the significance level of the test, which is the probability of observing a difference at least as large as that exhibited by the data sets if the null hypothesis is true. If the calculated p-value is less than the chosen level of significance, often chosen as 0.01 or 0.05, then the null hypothesis should be rejected.[3] Alternatively, if the calculated p-value is greater than the chosen level of significance, then the null hypothesis should not be rejected.

There are 124 and 166 data values for nickel concentrations in soil from the OMC and FedEx sites, respectively. These data are tabulated in Attachment B, the basic statistics on the data sets are provided in Table 2, and the histograms of the data sets are shown in Figure 5. The basic statistics indicate that the nickel concentrations on the OMC Site appear somewhat higher and more variable than the data from the FedEx site. The histograms show that both distributions are highly skewed to the right, with the OMC data set being more highly skewed. Figure 6 contains normal quantile-quantile plots and box plots of both sets of data. The plots illustrate that the OMC and FedEx data have somewhat different shapes, indicating that they are not likely from the same population.

The Wilcoxon-Mann-Whitney test was initially evaluated using the following null and alternative hypotheses:

Null Hypothesis (H_o): Nickel in soil concentrations on the OMC Site is less than or equal to the concentrations on the FedEx site.

Alternate Hypothesis (H_a): Nickel in soil concentrations on the OMC Site is greater than the concentrations on the FedEx site.

[3] The level of significance, alpha (α), is the probability of a Type I Error, or the probability that the null hypothesis is rejected when in fact it is true.

The output of the Wilcoxon-Mann-Whitney test from ProUCL is provided in Attachment C. Using a level of significance of 0.01 as the criterion, the calculated p-value was $9.1x10^{-4}$, which is less than 0.01. As the p-value is less than the chosen level of significance of 0.01 for the test, the null hypothesis should be rejected. The Wilcoxon-Mann-Whitney test result indicates that the null hypothesis that the nickel in soil concentrations at the OMC is less than or equal to those on the FedEx site should be rejected.[4]

Historical Operations as Source of Nickel

The OMC facility was originally constructed around 1971. The hangar building and surrounding operational areas have always been covered by concrete foundation and pavement. The use of the OMC Site for airplane maintenance ended in 2003 when United Airlines ("UAL") ceased operations. At that time, a detailed review of potential operational sources of contamination was conducted by Environmental Resources Management ("ERM") on behalf of UAL, in which numerous Areas of Concern ("AOCs") were identified and investigated. The findings were documented in the report titled, *Former United Airlines Oakland Maintenance Center, Site Investigation and Risk Assessment Report, Oakland, California*, and dated June 2004 ("2004 ERM Report").

The 2004 ERM Report identified 19 AOCs and conducted soil and groundwater sampling at each AOC for the chemicals of potential concern ("COPCs"). For the majority of the AOCs, the primary COPCs were petroleum fuel related. Excerpts from the 2004 ERM Report describing the AOCs and a figure showing AOC locations are provided in Attachment D. Based on descriptions of the AOCs in the 2004 ERM Report, the following AOCs appear to be plausible sources of nickel to groundwater:

- AOC 1 – Small Parts Wash Rack
  At the northwest edge of the hangar, UAL and a former tenant operated a small parts wash rack and adjacent cleaning room. Collected water in both areas drained into several small sumps and one main 2,000-gallon sump, which was connected to the sanitary sewer. The sump was believed to be constructed with concrete, as was the floor of both wash areas.

- AOCs 2 and 3 – Aircraft Wash Rack and Industrial Wastewater Vault
  UAL installed an aircraft wash rack about 500 feet northwest of the hangar building in 1990. Wash water was collected into drains and into a 2,000- to 2,500 gallon sump which was connected to the sanitary sewer. Initial runoff from rain was also directed

[4] The Wilcoxon-Mann-Whitney test was also done with the opposite sets of null and alternative hypotheses, and the calculated p-value was 0.999, indicating that the null hypothesis of nickel concentrations on FedEx site is less than or equal to those on the OMC Site should not be rejected.

to the sump. In 2001, UAL added trench drains and a metals treatment plant to pre-treat the collected water before it was discharged to the sanitary sewer. The treatment system consisted of several aboveground storage tanks.

- AOC 14 – Storm Drains
  Storm drain pipes and ditches at the OMC Site were considered AOC 14.

- AOC 19 – Runoff from Pavement to Unpaved Area North of OMC
  Until about 2009/2010, an area northwest of the hangar (northeast of AOCs 2 and 3 and adjacent to the storm water drainage channels) remained unpaved. AOC 19 was defined as the edge of the previously unpaved area where overland flow of rain runoff would have drained.

DISCUSSION

Table 1 summarizes and Figure 7 illustrates nickel concentrations in groundwater samples collected from wells at the OMC Site in 2003 and 2006, when the major investigations were conducted. Twenty-one wells were sampled in as many as three separate groundwater monitoring events where nickel was analyzed. Nickel concentrations ranged from less than the laboratory reporting limits (note that laboratory reporting limits were as high as 50 µg/l) up to 590 µg/l. Higher concentrations were found under and near the northwestern edge of the hangar building (wells ERM-MW-1, ERM-MW-3, ERM-MW-4, ERM-MW-11, ERM-MW-13, and ERM-MW-14) and in area about 500 feet northwest of the hangar (wells ERM-MW-7, ERM-MW-8, ERM-MW-9, ERM-MW-10, and ERM-MW-15).

Nickel concentrations in the groundwater varied spatially and also temporally in individual wells. For example, in the area about 500 feet northwest of the hangar building, elevated nickel concentrations were reported in well ERM-MW-8 and ERM-MW-9 samples, while concentrations in nearby wells ERM-MW-6 and ERM-MW-16 were significantly lower (Figure 7). Other examples are illustrated on Figure 8 for the area around wells ERM-MW-01, ERM-MW-02 and ERM-MW-3, where five grab groundwater samples from borings were also collected in 2003; nickel concentrations in groundwater samples collected from the borings and wells within a distance of no more than 70 feet ranged from 15 to 190 µg/l. Immediately to the east, five grab groundwater samples were collected within the small area around wells UAL-MW-2, UAL-MW-3, and UAL-MW-4, and the reported range of nickel concentrations in the wells and grab samples ranged from less than the laboratory reporting limit of 20 µg/l up to 100 µg/l (Figure 8).

The two possible sources of the elevated nickel concentrations found in groundwater samples collected from the OMC Site are: (1) releases from past operations; and/or (2) leaching from fill

materials that were placed at the Site. This evaluation found that past operations at the OMC Site could have contributed nickel to the groundwater. At the same time, historical records indicate that the timing and source(s) of fill placed on the OMC Site are different from the fill placed on the adjacent FedEx site. Nickel concentrations in groundwater in samples collected at the OMC Site appears higher than those collected from the FedEx site. Statistical evaluation indicates that the nickel concentrations in the fill at the two sites are not from the same population and that the concentrations on the OMC Site are likely higher.[5]

With the available data and information, it is not possible rule out either of the two possible sources as contributing to the nickel concentrations in the groundwater at the OMC Site. It is also not possible to estimate the relative contribution from the two possible sources.

[5] Strictly speaking, the Wilcoxon-Mann-Whitney test found that the nickel concentrations in soil at the OMC Site is not lower or equal to the nickel concentrations on the adjacent FedEx site.

ENCLOSURES:

Figure 1: Location of OMC and Federal Express Sites
Figure 2: May 1971 Aerial Photograph
Figure 3: October 1971 Aerial Photograph
Figure 4: August 1972 Aerial Photograph
Figure 5: Histograms of Nickel Concentrations in Soil
Figure 6: Normal Q-Q and Box Plot of Nickel Concentration in Soil
Figure 7: Nickel in Groundwater Samples Collected from Wells (Post-2002 Data)
Figure 8: Nickel Concentrations in Groundwater Samples in Select Areas
Table 1: Post-2002 Data Set – Groundwater Results – Metals
Table 2: Statistics on Nickel Concentration in Soil at the OMC and FedEx Sites
Attachment A: Excerpts from Investigation Reports for the FedEx Site
Attachment B: Nickel Concentrations in Soil Samples Collected from OMC and FedEx Sites
Attachment C: ProUCL Output for Wilcoxon-Mann-Whitney Test
Attachment D: Excerpts from 2004 ERM Report for the OMC

Lydia Huang

LOCATION OF OMC AND FEDERAL EXPRESS SITES

Figure 1

Oakland Maintenance Center
1100 Airport Drive, Oakland, California

0 800 Feet

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12315-20.02330.Fig1.cdr 5/5/15

MAY 1971 AERIAL PHOTOGRAPH

Figure 2

Approximate

0 1100 Feet

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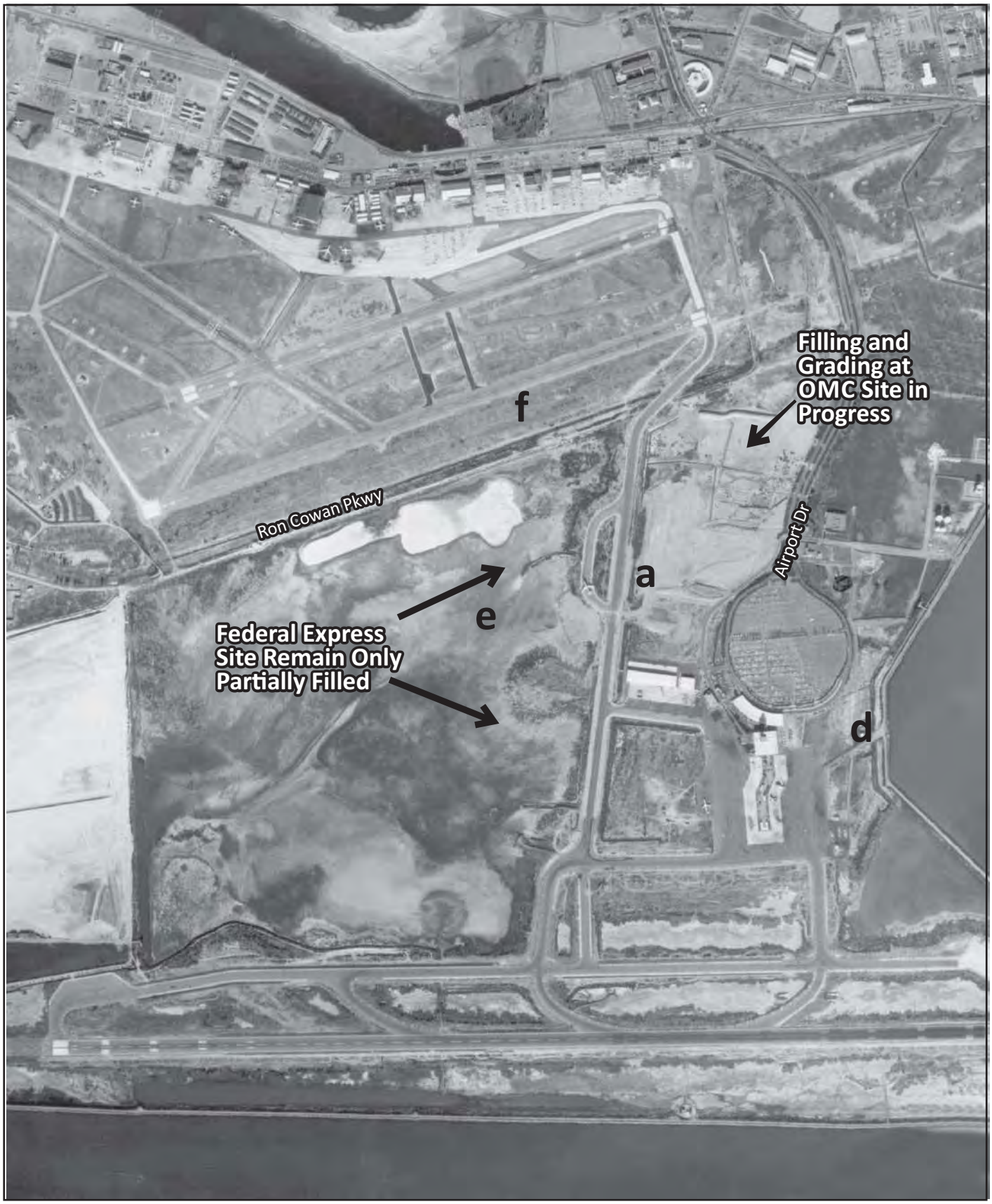
Oakland Maintenance Center
1100 Airport Drive, Oakland, California

12315-20.02330.Fig 2.cdr - 5/5/15

OCTOBER 1971 AERIAL PHOTOGRAPH

Figure 3



Approximate

0 1400 Feet

Oakland Maintenance Center
1100 Airport Drive, Oakland, California

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12315-20.02330.Fig 3.cdr - 5/5/15

AUGUST 1972 AERIAL PHOTOGRAPH

Figure 4

Approximate

0 1400 Feet

Oakland Maintenance Center
1100 Airport Drive, Oakland, California

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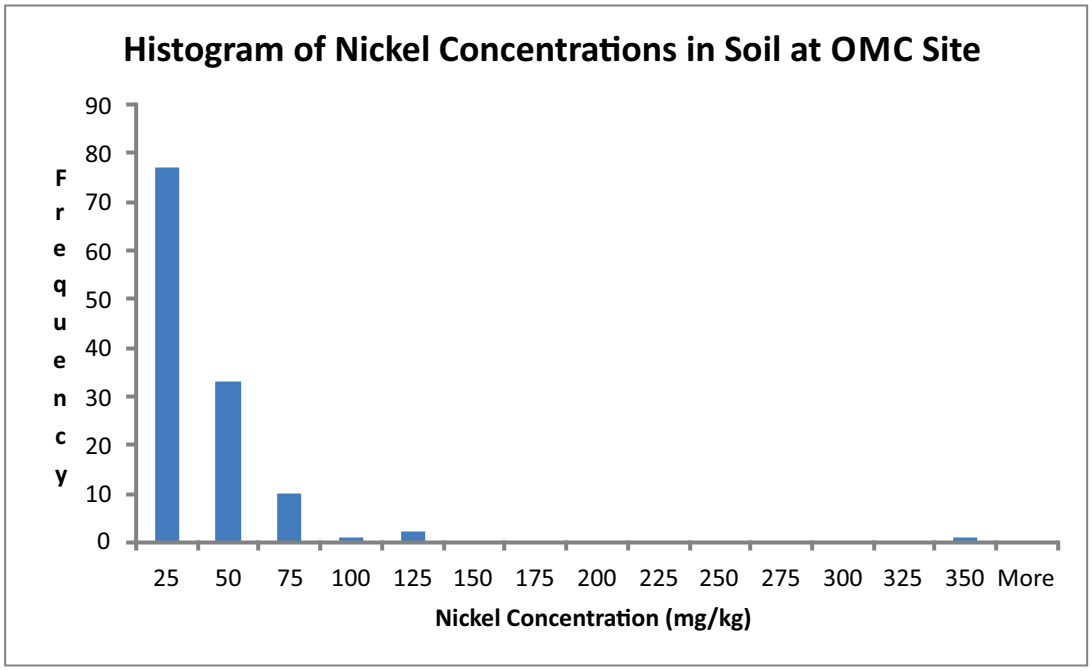
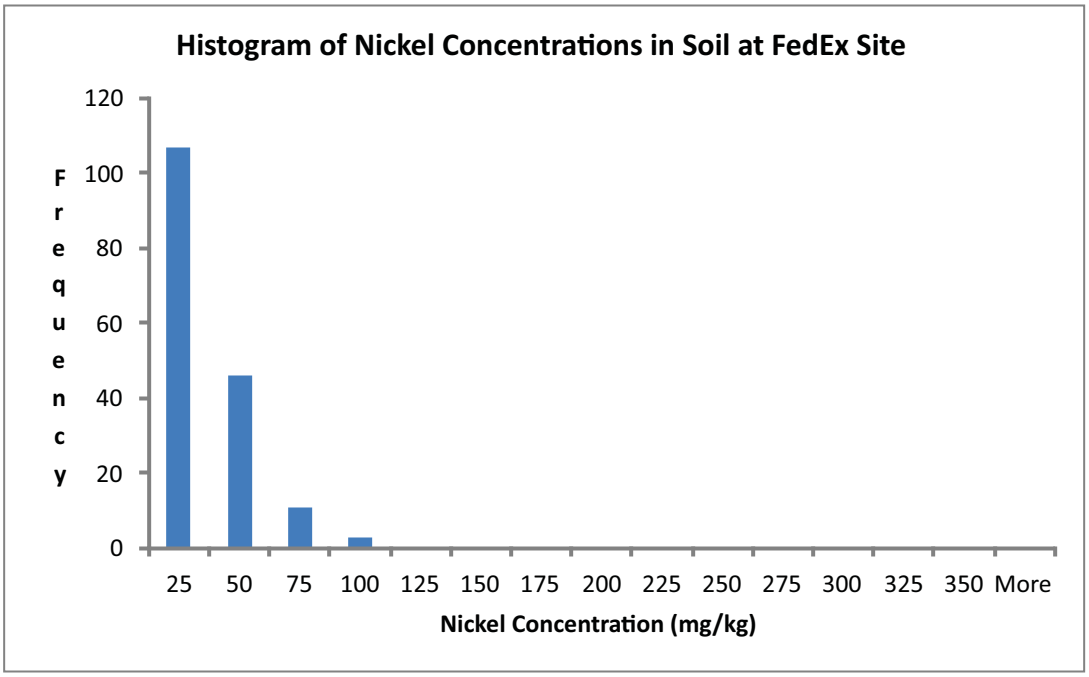
HISTOGRAMS OF NICKEL CONCENTRATIONS IN SOIL

Figure 5





Oakland Maintenance Center
1100 Airport Drive, Oakland, California

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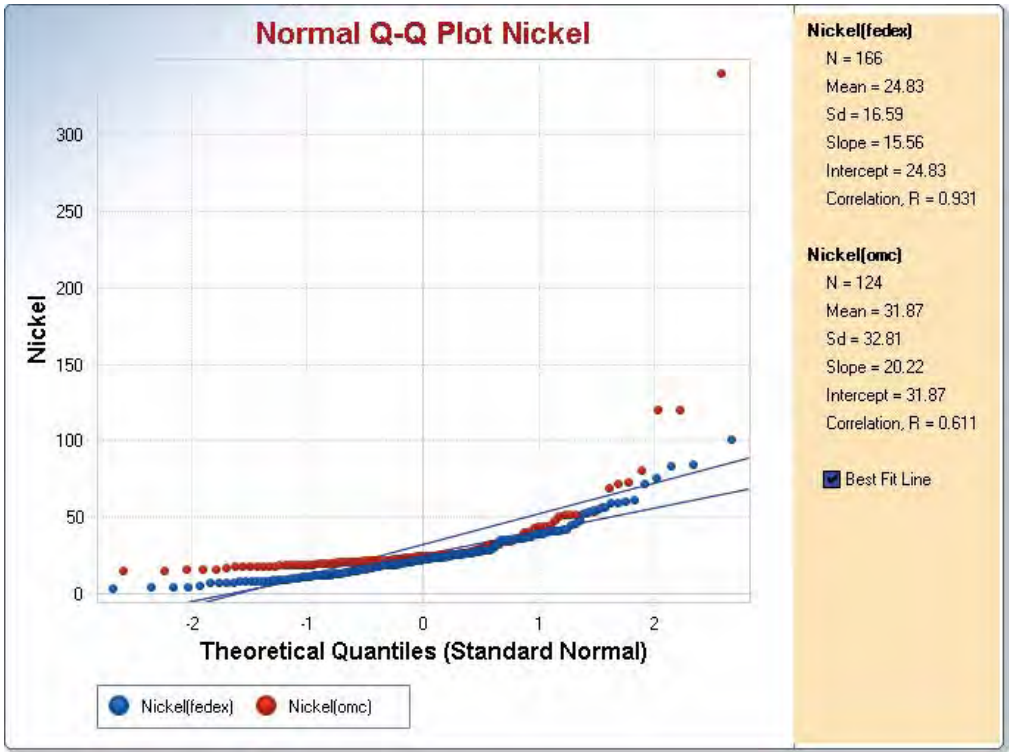
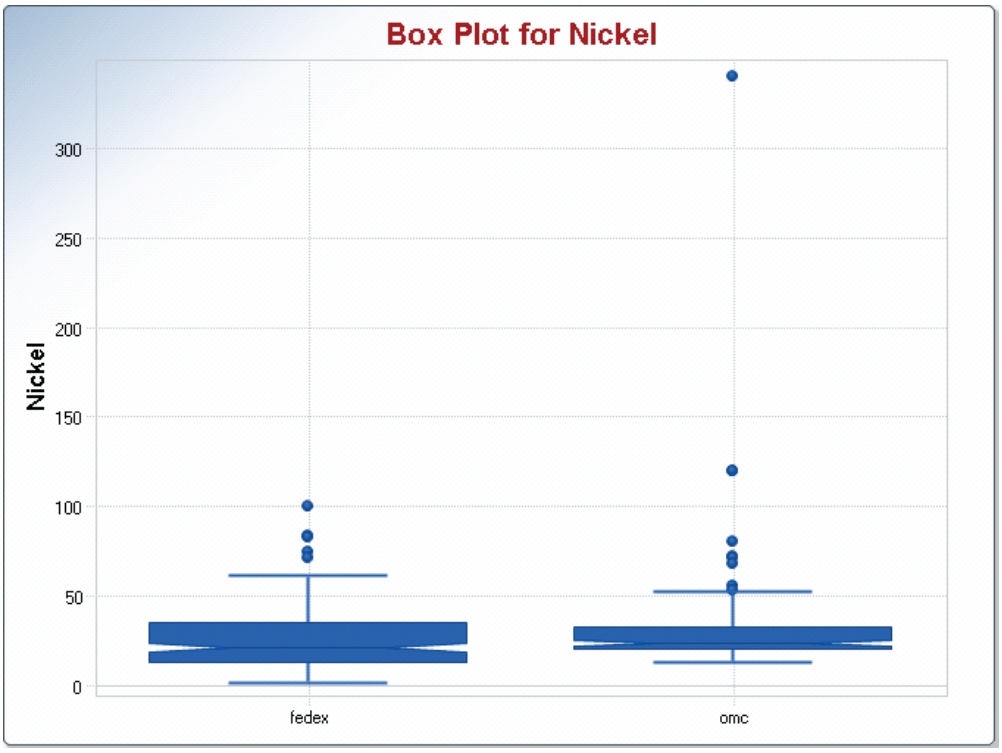
NORMAL Q-Q AND BOX PLOT OF NICKEL CONCENTRATIONS IN SOIL

Figure 6





Oakland Maintenance Center
1100 Airport Drive, Oakland, California

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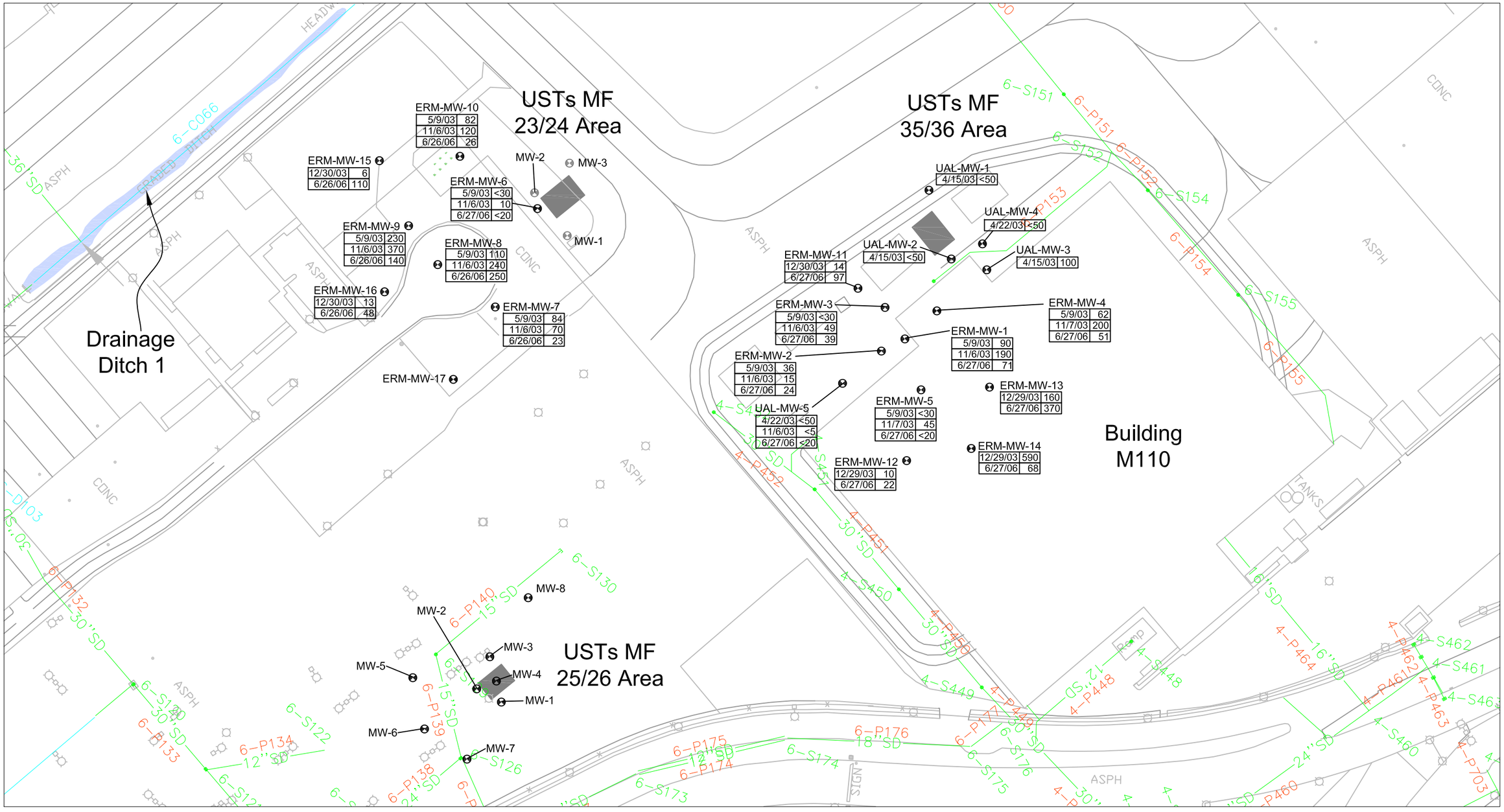
NICKEL IN GROUNDWATER SAMPLES COLLECTED FROM WELLS (Post-2002 Data)

FIGURE 7



Legend

- Groundwater monitoring well
- Abandoned groundwater monitoring well
- Approximate location of former USTs

Well ID
ERM-MW-01
mm/dd/yy | xx
Groundwater sample date
Nickel concentration in groundwater (µg/L)

Note: The Environmental Screening Level for the protection aquatic habitat is 52 µg/L for fresh water, and 8.2 µg/L for salt water (RWQCB, December 2013 update).

0 125 Feet

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1100 Airport Drive, Oakland, California

12315-20.02330.fnl.dwg/Fig 7 - 5/5/2015

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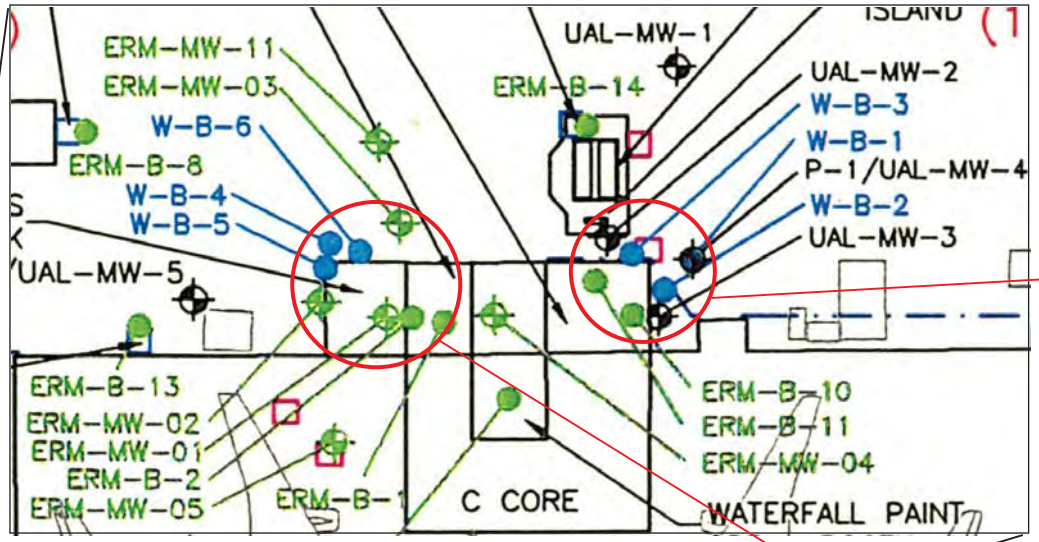
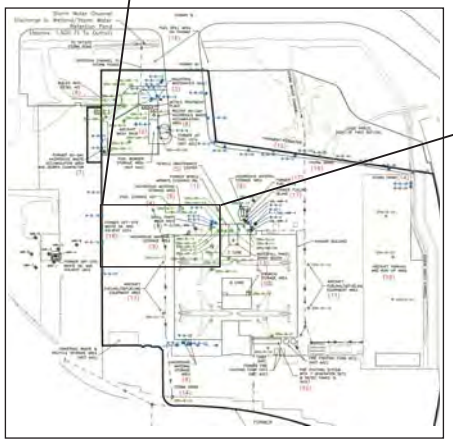
NICKEL CONCENTRATIONS IN GROUNDWATER SAMPLES FROM SELECT AREAS

Figure 8





Sample Location	Date Sampled	Nickel in Groundwater (μg/L)
ERM-B-10	4/17/2003	<20
ERM-B-11	4/17/2003	<20
W-B-1	4/14/2003	<50
W-B-2	4/14/2003	<20
W-B-2 (c)	4/14/2003	<50
W-B-3	4/15/2003	<20
W-B-3 (c)	4/15/2003	60
UAL-MW-2	4/15/2003	<50
UAL-MW-3	4/15/2003	100
UAL-MW-4	4/22/2003	<50

Sample Location	Date Sampled	Nickel in Groundwater (μg/L)
ERM-B-1	4/15/2003	190
ERM-B-2	4/15/2003	130
W-B-4	4/15/2003	<20
W-B-5	4/15/2003	64
W-B-6	4/15/2003	31
ERM-MW-01	5/9/2003	90
ERM-MW-01	11/6/2003	190
ERM-MW-01	6/27/2006	71
ERM-MW-02	5/9/2003	36
ERM-MW-02	11/6/2003	15
ERM-MW-02	6/27/2006	24
ERM-MW-03	5/9/2003	<30
ERM-MW-03	11/6/2003	49
ERM-MW-03	6/27/2006	39

Source: Figure 4 from report titled *Former United Airlines Maintenance Center, Site Investigation and Risk Assessment Report, Oakland, California,* by ERM, dated June 2004.

Oakland Maintenance Center
1100 Airport Drive, Oakland, California

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Table 1: Post-2002 Data Set – Groundwater Results – Metals
Oakland Maintenance Center, Oakland, California (μg/L)

Sample Location	AOC	Date Sampled	Antimony	Arsenic	Beryllium	Cadmium	Cobalt	Copper	Lead	Nickel	Silver	Thallium	Zinc
ERM-B-1	1	4/15/2003	<50	<50	<5	<5	**20**	<5	<50	**190**	<5	<50	**6.5**
ERM-B-2	1	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**130**	<5	--	<5
ERM-B-2	1	4/15/2003	--	--	--	--	--	--	--	--	--	<5	--
ERM-MW-01	1	5/9/2003	--	--	--	--	--	--	--	**90**	--	--	--
ERM-MW-01	1	11/6/2003	--	--	--	--	--	--	--	**190**	--	--	--
ERM-MW-01	1	6/27/2006	--	--	--	--	--	--	--	**71**	--	--	--
ERM-MW-02	1	5/9/2003	--	--	--	--	--	--	--	**36**	--	--	--
ERM-MW-02	1	11/6/2003	--	--	--	--	--	--	--	**15**	--	--	--
ERM-MW-02	1	6/27/2006	--	--	--	--	--	--	--	**24**	--	--	--
ERM-MW-03	1	5/9/2003	--	--	--	--	--	--	--	<30	--	--	--
ERM-MW-03	1	11/6/2003	--	--	--	--	--	--	--	**49**	--	--	--
ERM-MW-03	1	6/27/2006	--	--	--	--	--	--	--	**39**	--	--	--
ERM-MW-04	1	5/9/2003	--	--	--	--	--	--	--	**62**	--	--	--
ERM-MW-04	1	11/7/2003	--	--	--	--	--	--	--	**200**	--	--	--
ERM-MW-04	1	6/27/2006	--	--	--	--	--	--	--	**51**	--	--	--
ERM-MW-05	1	5/9/2003	--	--	--	--	--	--	--	<30	--	--	--
ERM-MW-05	1	11/7/2003	--	--	--	--	--	--	--	**45**	--	--	--
ERM-MW-05	1	6/27/2006	--	--	--	--	--	--	--	<20	--	--	--
ERM-MW-11	1	12/30/2003	--	--	--	--	--	--	--	**14**	--	--	--
ERM-MW-11	1	6/27/2006	--	--	--	--	--	--	--	**97**	--	--	--
ERM-MW-12	1	12/29/2003	--	--	--	--	--	--	--	**10**	--	--	--
ERM-MW-12	1	6/27/2006	--	--	--	--	--	--	--	**22**	--	--	--
ERM-MW-13	1	12/29/2003	--	--	--	--	--	--	--	**160**	--	--	--
ERM-MW-13	1	6/27/2006	--	--	--	--	--	--	--	**370**	--	--	--
ERM-MW-14	1	12/29/2003	--	--	--	--	--	--	--	**590**	--	--	--
ERM-MW-14	1	6/27/2006	--	--	--	--	--	--	--	**68**	--	--	--
W-B-4	1	4/15/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	--	<20
W-B-5	1	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**64**	<5	<50	<20
W-B-6	1	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**31**	<5	<50	<20
ERM-B-3	2	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**120**	<5	<50	<5
ERM-B-4	2	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**160**	<5	<50	<5
ERM-B-5	2	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**230**	<5	--	**6.6**
ERM-B-6	2	4/15/2003	<50	<50	<5	<5	<20	<5	<50	**260**	<5	--	<5
ERM-B-7	2	4/15/2003	<50	<50	<5	**5.6**	<20	**5.4**	<50	**92**	<5	<50	**14**
ERM-MW-06	2	5/9/2003	--	--	--	<5	--	--	<50	<30	--	--	--
ERM-MW-06	2	12/30/2003	--	--	--	--	--	**17**	--	--	--	--	--
ERM-MW-06	2	11/6/2003	--	--	--	<5	--	--	**21**	**10**	--	--	--
ERM-MW-06	2	6/27/2006	--	--	--	<5	--	<10	<3	<20	--	--	--
ERM-MW-07	2	5/9/2003	--	--	--	<5	--	--	<50	**84**	--	--	--
ERM-MW-07	2	11/6/2003	--	--	--	<5	--	--	**33**	**70**	--	--	--
ERM-MW-07	2	6/26/2006	--	--	--	<5	--	--	<3	**23**	--	--	--
ERM-MW-08	2	5/9/2003	--	--	--	<5	--	--	<50	**110**	--	--	--
ERM-MW-08	2	11/6/2003	--	--	--	<5	--	--	**33**	**240**	--	--	--
ERM-MW-08	2	6/26/2006	--	--	--	<5	--	--	<3	**250**	--	--	--
ERM-MW-09	2	5/9/2003	--	--	--	<5	--	--	<50	**230**	--	--	--
ERM-MW-09	2	11/6/2003	--	--	--	<5	--	--	**20**	**370**	--	--	--
ERM-MW-09	2	6/26/2006	--	--	--	<5	--	--	<3	**140**	--	--	--

Table 1: Post-2002 Data Set – Groundwater Results – Metals
Oakland Maintenance Center, Oakland, California (μg/L)

Sample Location	AOC	Date Sampled	Antimony	Arsenic	Beryllium	Cadmium	Cobalt	Copper	Lead	Nickel	Silver	Thallium	Zinc
ERM-MW-15	2	12/30/2003	--	--	--	--	--	--	--	**6**	--	--	--
ERM-MW-15	2	6/26/2006	--	--	--	--	--	--	--	**110**	--	--	--
ERM-MW-16	2	12/30/2003	--	--	--	--	--	--	--	**13**	--	--	--
ERM-MW-16	2	6/26/2006	--	--	--	--	--	--	--	**48**	--	--	--
W-B-7	2	4/17/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-8	2	4/14/2003	<50	<50	<5	<5	<20	**48**	**1900**	**52**	<5	--	**790**
W-B-8 (a)	2	4/14/2003	<60	<500	<4	<5	<50	**94**	**960**	**100**	<10	<50	**140**
ERM-MW-10	3	5/9/2003	--	--	--	<5	--	--	<50	**82**	--	--	--
ERM-MW-10	3	12/30/2003	--	--	--	--	--	<5	--	--	--	--	--
ERM-MW-10	3	11/6/2003	--	--	--	<5	--	--	<15	**120**	--	--	--
ERM-MW-10	3	6/26/2006	--	--	--	<5	--	<10	<3	**26**	--	--	--
W-B-10	3	4/15/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-11	3	4/15/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-12	3	4/15/2003	<50	<50	<5	**38**	<20	**220**	<50	**63**	<5	<50	**36**
ERM-B-10	5	4/17/2003	**74**	<50	**8.6**	<5	<20	<5	<50	<20	<5	<50	<20
ERM-B-11	5	4/17/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	--	<20
W-B-1	5	4/14/2003	<60	<5	<4	<5	<50	<50	<50	<50	<10	<50	<50
W-B-2	5	4/14/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-2 (a)	5	4/14/2003	<60	<5	<4	<5	<50	<50	<50	<50	<10	<50	<50
W-B-3	5	4/15/2003	**55**	<50	**6.1**	<5	<20	<5	<50	<20	<5	<50	**6.3**
W-B-3 (a)	5	4/15/2003	<60	<5	<4	<5	<50	<50	<50	**60**	<10	<50	<50
ERM-MW-17	7	12/30/2003	--	<5	--	--	--	--	--	--	--	--	--
ERM-MW-17	7	6/26/2006	--	**8**	--	--	--	--	--	--	--	--	--
ERM-MW-17D	7	12/30/2003	--	<5	--	--	--	--	--	--	--	--	--
W-B-16	7	4/17/2003	<50	<50	<5	<5	<20	<5	<50	**54**	<5	<50	<20
W-B-16 (a)	7	4/17/2003	<60	**5.5**	<4	<5	<50	<50	<50	**54**	<10	<50	<50
W-B-17	7	4/17/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-17 (a)	7	4/17/2003	<6	**12**	<4	<5	<50	<50	<50	<50	<10	<5	<50
ERM-B-12	8	4/17/2003	<50	<50	<5	<5	<20	<5	<50	**63**	<5	<50	<20
ERM-B-13	9	4/16/2003	<50	<50	**5.9**	<5	<20	<5	**57**	<20	**5.8**	<50	**17**
ERM-B-14	9	4/17/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	**65**	<20
P-2/UAL-MW-5	9	4/22/2003	<60	<500	<4	<5	<50	<50	<50	<50	<10	<50	<50
P-2/UAL-MW-5	9	11/6/2003	--	--	--	--	--	--	--	<5	--	--	--
P-2/UAL-MW-5	9	6/27/2006	--	--	--	--	--	--	--	<20	--	--	--
W-B-22	9	4/18/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	**9.9**
ERM-B-23	14	4/17/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
W-B-32	14	4/16/2003	<50	<50	**5.8**	<5	<20	**5.6**	**50**	<20	<5	--	**21**
W-B-38	14	4/15/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	<20
UAL-MW-1	17	4/15/2003	<60	**8**	<4	<5	<50	<50	<50	<50	<10	<50	<50
UAL-MW-1	17	6/27/2006	<60	**42**	<2	--	--	--	--	--	--	--	--
UAL-MW-2	17	4/15/2003	<60	<5	<4	<5	<50	<50	<50	<50	<10	<50	<50
UAL-MW-2	17	6/27/2006	<60	<5	<2	--	--	--	--	--	--	--	--
UAL-MW-3	17	4/15/2003	<60	<5	<4	<5	<50	<50	<50	**100**	<10	<50	<50
UAL-MW-3	17	6/27/2006	<60	**12**	<2	--	--	--	--	--	--	--	--
P-1/UAL-MW-4	17	4/22/2003	<60	**847**	<4	<5	<50	<50	<50	<50	<10	<50	<50
W-B-18	18	4/18/2003	<60	<50	<4	<5	<50	<50	<50	<50	<10	<50	<50
W-B-19	18	4/18/2003	<60	<50	<0.4	<0.5	<5	<5	<50	<5	<1	<50	<5

Table 1: Post-2002 Data Set – Groundwater Results – Metals
Oakland Maintenance Center, Oakland, California (μg/L)

Sample Location	AOC	Date Sampled	Antimony	Arsenic	Beryllium	Cadmium	Cobalt	Copper	Lead	Nickel	Silver	Thallium	Zinc
W-B-20	18	4/18/2003	<60	<50	<0.4	<0.5	<5	<5	<50	<5	<1	<50	<5
W-B-20D	18	4/18/2003	<600	<500	<0.4	<0.5	<5	<5	<5	<5	<1	<500	<5
W-B-9	18	4/18/2003	<60	<50	<0.4	<0.5	<5	<5	<50	<5	<1	<50	<5
W-B-25	19	4/16/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	**8.1**
W-B-29	19	4/16/2003	<50	<50	<5	<5	<20	<5	<50	<20	<5	<50	**5**

Notes
Bolding indicates detected concentrations.
All units are in micrograms per liter (μg/L).

Only analytes that have at least one detection and have exceeded the Tier-1 screening level are shown.
-- = not analyzed
< = analyte was not detected at or above the laboratory method detection limit
For sample locations, see Figure 4 from report titled *Former United Airlines Maintenance Center, Site Investigation and Risk Assessment Report, Oakland, California* , by ERM, dated June 2004.

(a) Analyzed by second laboratory.

Table 2: Statistics on Nickel Concentrations in Soil at the OMC and FedEx Sites
Oakland Maintenance Center, Oakland, California

	FedEx Site	OMC Site
Number of Valid Observations	166	124
Minimum (mg/kg)	2.5	14
Maximum (mg/kg)	100	340
Mean (mg/kg)	24.8	31.9
Median (mg/kg)	21.5	24
Standard Deviation (mg/kg)	16.6	32.8
Standard Error of Mean (mg/kg)	1.29	2.95
Kurtosis	3.65	64.4
Skewness	1.64	7.22

Note:
Nickel concentrations in soil samples collected at the OMC and FedEx sites are tabulated in Attachment B.

Attachment A

Excerpts from Investigation Reports for the FedEx Site

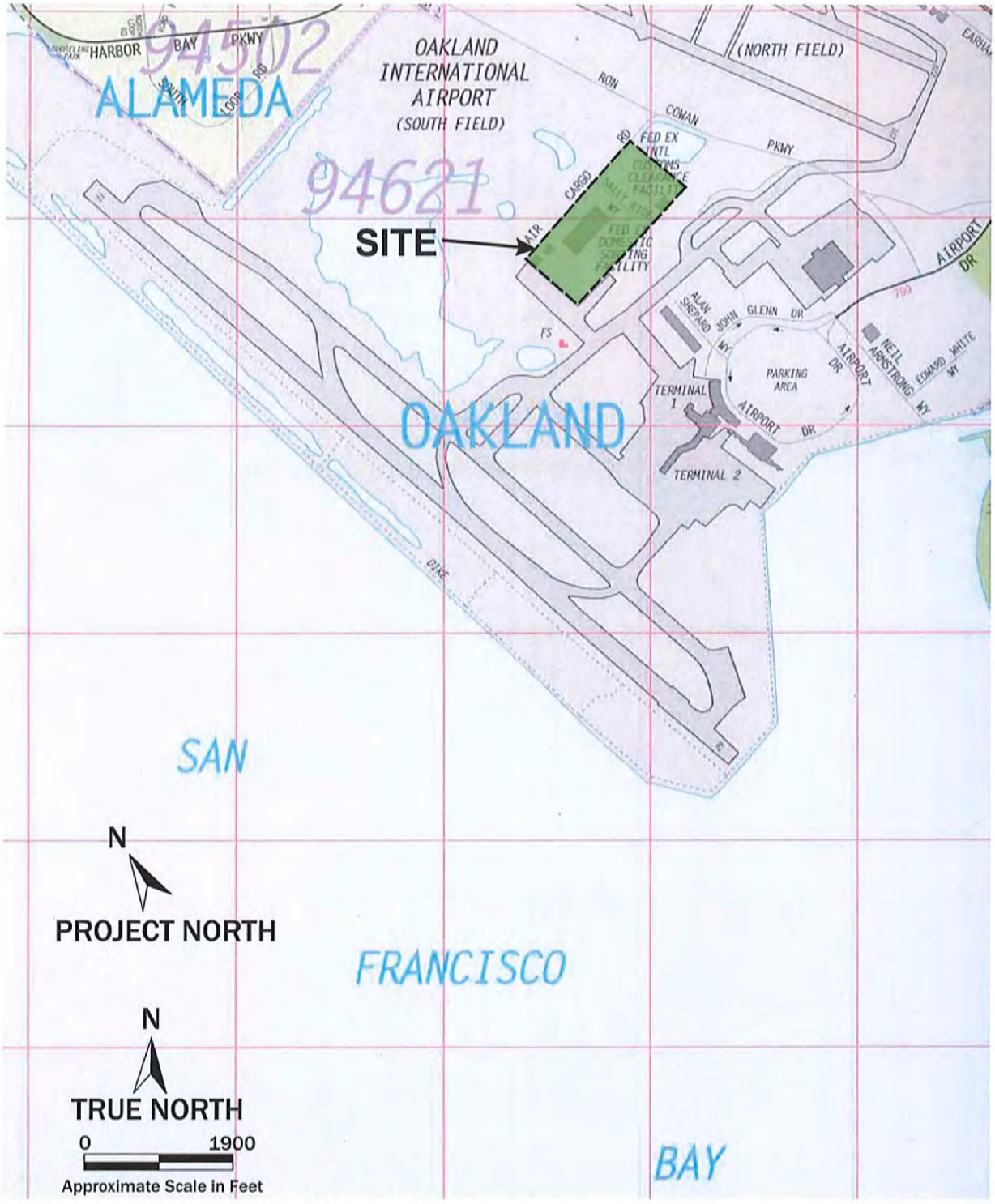
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants

BASELINE INVESTIGATION REPORT
FEDERAL EXPRESS METROPLEX
OAKLAND INTERNATIONAL
METROPOLITAN AIRPORT
OAKLAND, CALIFORNIA

PREPARED FOR:
Environmental Health & Safety Compliance Department
Port of Oakland
530 Water Street
Oakland, California 94607

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
1956 Webster Street, Suite 400
Oakland, California 94612

November 26, 2008
Project No. 401164015



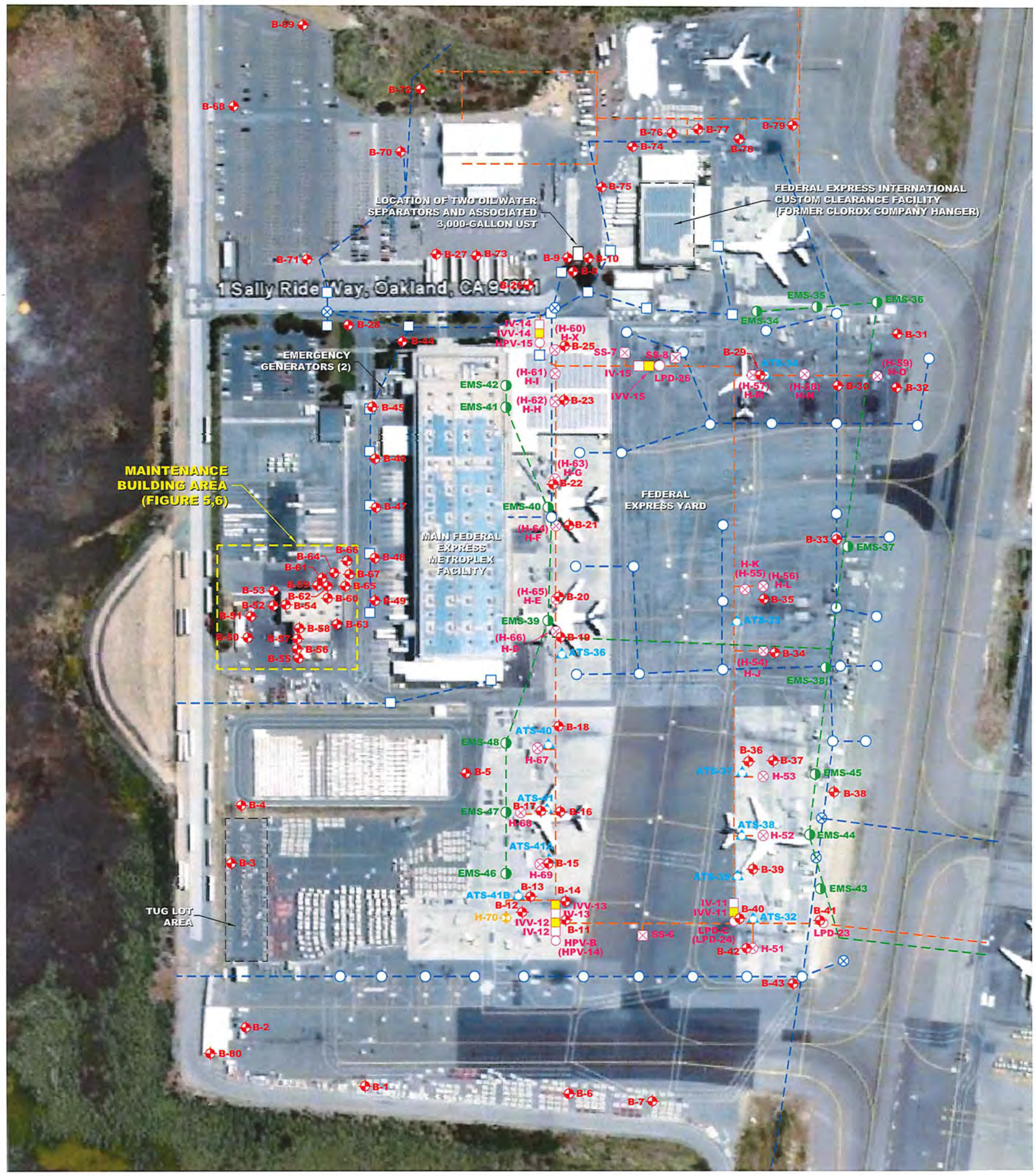
Source: The Thomas Guide, Bay Area Metro Guide, 2006.

Ninyo & Moore

SITE LOCATION MAP

FEDERAL EXPRESS
1 SALLY RIDE WAY
OAKLAND, CALIFORNIA

PROJECT NO.	DATE	FIGURE
401164015	11/08	1



REFERENCE: GOOGLE EARTH, TOWILL INC. 2008.

LEGEND

B-43	Soil Boring Location	EMS-45	Approximate Emergency Shut-Off Location
IV-12	Approximate Isolation Valve Pit Location		Approximate Large Storm Drain Catch Basin Location
HPV-B	Approximate Hydrant Fuel Pit Location		Approximate Storm Drain Manhole Location
H-K (H-55)	Approximate Valve Pit Location		Approximate Small Storm Drain Catch Basin Location
H-70	Approximate Fuel Hydrant Valve Location		Approximate 12"-14" Hydrant Fuel Line Location
ATS-39	Approximate Anode Test Station Location		Approximate Conduit Location
SS-8	Approximate Surge Suppressor Location		Approximate 15"-24" Storm Drain Line Location
IVV-13	Approximate Isolation Valve Vault Location	UST	Underground Storage Tank Location

N
PROJECT NORTH
APPROXIMATE SCALE IN FEET
0 100 200

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore

BORING LOCATION MAP

FIGURE 2

PROJECT NUMBER	DATE
401164015	11/08

FEDERAL EXPRESS METROPLEX
1 SALLY RIDE WAY
OAKLAND, CALIFORNIA

TABLE 3
SOIL SAMPLE LABORATORY ANALYTICAL RESULTS FOR
TITLE 22 METALS

	Analyte																
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Sample I.D.	Analytical Results (mg/kg)																
B1-S-0.5	<2	23	270	<0.51	<0.51	22	9.5	33	19	0.78	<1	18	<2	<1	<1	42	92
B2-S-0.5	<1.9	1.7	24	<0.48	<0.48	16	21	35	<0.96	0.71	<0.96	23	<1.9	<0.96	<0.96	120	38
B202-S-0.5[1]	<1.9	13	240	0.5	<0.49	29	14	87	11	0.67	<0.97	35	<1.9	<0.97	<0.97	47	100
B3-S-0.5	<2	16	94	<0.49	<0.49	19	6.6	18	13	0.27	<0.98	15	<2	<0.98	<0.98	28	71
B4-S-0.5	<1.9	10	110	<0.49	<0.49	34	8.5	26	15	0.2	1.8	25	<1.9	<0.97	<0.97	41	83
B5-S-0.5	<1.9	5.5	120	<0.48	<0.48	22	19	28	17	0.17	<0.96	19	<1.9	<0.96	<0.96	37	90
B6-S-0.5	<2	20	180	<0.49	<0.49	32	10	41	13	0.23	1.1	23	<2	<0.98	<0.98	49	75
B106-S-0.5[2]	<2	5.1	120	<0.5	<0.5	32	7.5	28	28	0.25	<0.99	35	<2	<0.99	<0.99	37	59
B11-S-0.5	<1.9	11	370	0.51	<0.48	31	15	77	12	0.2	<0.96	35	<1.9	<0.96	<0.96	45	94
B12-S-0.5	<1.9	3.6	96	<0.48	<0.48	45	20	49	2.5	0.057	<0.95	36	<1.9	<0.95	<0.95	83	66
B13-S-0.5	<1.9	3.8	79	<0.49	<0.49	57	20	48	2.7	0.066	1.6	36	<1.9	<0.97	<0.97	88	55
B14-S-0.5	<1.9	4.5	61	0.49	<0.48	19	6.2	6.1	5.8	<0.05	1.8	15	<1.9	<0.96	<0.96	22	29
B15-S-0.5	<2	3.2	83	<0.51	<0.51	52	22	48	1.8	<0.049	1.6	38	<2	<1	<1	85	55
B16-S-0.5	<2	4.7	110	<0.51	<0.51	62	23	75	5.4	<0.049	4.9	40	<2	<1	<1	98	70
B17-S-0.5	<1.9	3	74	<0.48	<0.48	69	26	64	2.7	<0.049	2.8	40	<1.9	<0.96	<0.96	120	64
B18-S-0.5	<2	5.5	71	<0.51	<0.51	19	7	7.2	6.1	0.089	1.3	15	<2	<1	<1	28	42
B19-S-0.5	<2	7.7	110	<0.51	<0.51	30	9.4	21	11	0.15	<1	25	<2	<1	<1	36	61
B20-S-0.5	<2	9.4	110	<0.5	<0.5	17	7.1	20	7.6	0.18	1	13	<2	<0.99	<0.99	41	71
B21-S-0.5	<1.9	3.6	68	<0.49	<0.49	16	16	45	4.8	0.3	<0.97	12	<1.9	<0.97	<0.97	64	60
B22-S-0.5	<2	9.6	130	<0.51	<0.51	33	8.3	28	10	0.16	<1	22	<2	<1	<1	45	76
B23-S-0.5	<2	3.7	85	<0.51	<0.51	16	6	18	5.3	0.18	<1	9.2	<2	<1	<1	33	72
B25-S-0.5	<2	3.2	150	<0.49	<0.49	4.7	7.5	16	4.7	0.2	<0.98	6.3	<2	<0.98	<0.98	39	94
B26-S-0.5	<2	13	110	<0.49	<0.49	31	10	28	8.6	2.4	1.1	16	<2	<0.98	<0.98	42	110
B126-S-0.5[3]	<2	11	91	<0.51	<0.51	33	8.6	22*	7.2	0.28	<1	16	<2	<1	<1	36	79
B26-S-8	<2	12	210	<0.5	<0.5	25	11	38	7.6	0.19	1.1	19	<2	<0.99	<0.99	44	92
B126-S-8[4]	<2.1	18	170	<0.52	<0.52	35	9.1	40	6.8	0.14	2.1	23	<2.1	<1	<1	36	76
B27-S-0.5	<1.9	20	81	<0.48	<0.48	9.7	5.2	12*	17	0.091	<0.96	7.9	<1.9	<0.96	1	28	90
B127-S-0.5[5]	<1.9	17	130	<0.49	<0.49	19	11	21*	8.1	0.55	2.1	12	<1.9	<0.97	<0.97	33	80
B27-S-8.5	<2	7.7	130	0.52	<0.49	73	13	36	16	0.12	<0.98	59	<2	<0.98	<0.98	61	67
B127-S-8.5[6]	<2	7.9	130	<0.5	<0.5	58	11	35	7.5	0.12	<1	41	<2	<1	<1	54	63
B28-S-0.5	<2	1.5	85	<0.49	<0.49	41	16	31	1.8	0.077	<0.98	28	<2	<0.98	<0.98	66	41
B228-S-0.5[1]	<1.9	2.7	100	<0.49	<0.49	2.8	5.6	7.3	2.2	0.082	<0.97	2.5	<1.9	<0.97	<0.97	30	59
B28-S-8	<1.9	2.9	91	<0.48	<0.48	17	7.5	14	3.4	0.081	<0.96	17	<1.9	<0.96	<0.96	36	61
B29-S-0.5	<2	11	93	<0.51	0.52	30	7.1	18	110	0.21	<1	52	<2	<1	<1	34	130
B30-S-0.5	<2	13	84	<0.51	<0.51	24	6.3	14	26	0.058	<1	23	<2	<1	<1	25	62
B30-S-7	<2	1.8	37	<0.51	<0.51	27	4.6	6.4	4.9	<0.05	<1	26	<2	<1	<1	18	18
B31-S-0.5	<2	3.5	72	<0.51	<0.51	9.6	6.5	10	6.1	0.27	<1	8	<2	<1	<1	31	78
B31-S-7	<2	2.2	33	<0.5	<0.5	19	8.8	7.1	4	0.092	<1	18	<2	3.5	<1	17	21
B32-S-0.5	<2.1	22	82	<0.52	0.57	11	5.1	15	100	0.24	<1	7.4	<2.1	<1	<1	28	180
B32-S-7	<1.9	1.4	29	<0.49	<0.49	22	3.9	5.7	1.5	<0.05	<0.97	21	<1.9	<0.97	<0.97	17	14
B33-S-0.5	<2.1	15	84	<0.52	<0.52	13	6	12	70	0.25	1.1	22	<2.1	<1	<1	30	130
B33-S-7.5	<2.1	1.6	29	<0.52	<0.52	21	3.8	4.2	1.4	<0.052	<1	21	<2.1	<1	<1	15	13
B34-S-0.5	<2	7.9	78	<0.5	<0.5	12	6	13	67	0.26	<1	12	<2	<1	<1	34	96
B34-S-7	<1.9	1.4	27	<0.48	<0.48	22	3.6	3.6	1.2	<0.052	<0.96	19	<1.9	<0.96	<0.96	15	12
B35-S-0.5	<2	13	87	<0.5	0.53	9.6	6.1	11	72	0.18	<0.99	7.7	<2	<0.99	<0.99	29	120
B35-S-7.5	<1.9	1.5	27	<0.49	<0.49	21	4.1	4.1	1.5	<0.053	<0.97	21	<1.9	<0.97	<0.97	17	13
B36-S-0.5	<2.1	12	92	<0.52	1.1	18	6.6	28	31	0.2	1.2	12	2.2	<1	<1	41	97
B37-S-0.5	<2	15	69	<0.5	<0.5	11	5.3	27	10	0.28	<0.99	7	<2	<0.99	<0.99	42	86
B38-S-0.5	<2.1	3.9	110	<0.53	<0.53	22	10	14	14	0.092	<1.1	20	<2.1	<1.1	<1.1	49	43

TABLE 3
SOIL SAMPLE LABORATORY ANALYTICAL RESULTS FOR
TITLE 22 METALS

	Analyte																
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B38-S-7	<2	2.9	68	<0.49	<0.49	36	6.7	14	8.1	<0.048	<0.98	37	<2	<0.98	<0.98	27	27
B39-S-0.5	<1.9	13	110	<0.49	1.1	28	8.8	36	38	0.21	<0.97	18	<1.9	<0.97	<0.97	42	83
B40-S-0.5	<2	7.1	400	<0.51	<0.51	39	12	65	13	0.055	<1	38	<2	<1	<1	47	51
B41-S-0.5	<2.1	4.5	66	<0.52	<0.52	23	6.5	10	6.3	<0.05	<1	25	<2.1	<1	<1	21	31
B42-S-0.5	<1.9	8.3	210	<0.48	0.72	33	9	91	31	0.11	1.4	23	<1.9	<0.95	<0.95	45	59
B43-S-0.5	<2.1	9.3	99	<0.53	1.1	26	16	72	44	<0.049	<1.1	20	<2.1	<1.1	<1.1	110	66
B43-S-6.5	<2	1.9	34	<0.51	<0.51	28	4.8	5.4	1.5	<0.051	<1	26	<2	<1	<1	19	16
B44-S-0.5	<2	5.2	87	<0.5	<0.5	11	7.7	21	5.1	0.24	<0.99	8.4	<2	<0.99	<0.99	33	70
B44-S-7.5	<2	12	130	<0.5	<0.5	8.5	8.1	23	7.4	0.19	1.6	11	<2	<1	<1	31	76
B45-S-0.5	<2	5.6	130	<0.5	<0.5	26	8.6	35	6.5	0.17	<0.99	23	<2	<0.99	<0.99	41	72
B45-S-8	<1.9	4.7	150	<0.48	<0.48	38	12	32	7.3	0.089	<0.95	28	<1.9	<0.95	<0.95	54	71
B46-S-0.5	<1.9	<0.95	250	<0.48	<0.48	52	23	52	<0.95	<0.05	<0.95	33	<1.9	<0.95	<0.95	95	48
B46-S-8	<2	5.7	110	<0.51	<0.51	26	9.8	25	5.4	<0.048	<1	18	<2	<1	<1	43	60
B47-S-0.5	<2.1	8.4	140	<0.53	<0.53	48	10	34	7.8	0.33	1.5	27	<2.1	<1.1	<1.1	51	85
B47-S-9	<2	3.3	69	<0.51	<0.51	56	9.2	13	4.4	<0.052	<1	55	<2	<1	<1	37	37
B48-S-0.5	<1.9	<0.95	63	<0.48	<0.48	41	22	39	<0.95	<0.049	<0.95	40	<1.9	<0.95	<0.95	57	49
B48-S-9.5	<1.9	4.5	62	<0.49	<0.49	63	9.8	18	5.1	<0.053	<0.97	60	<1.9	<0.97	<0.97	42	40
B49-S-0.5	<1.9	5.7	120	<0.48	<0.48	51	21	43	3.5	<0.051	1.1	56	<1.9	<0.95	<0.95	66	41
B49-S-7.0	<2	8.4	130	<0.49	<0.49	17	11	38	8.5	0.21	<0.98	14	<2	<0.98	<0.98	52	81
B50-S-0.5	<2.1	4.8	170	<0.52	<0.52	33	9.2	37	40	0.12	<1	45	<2.1	<1	<1	41	83
B50-S-10	<2	9.4	200	<0.51	<0.51	18	13	34	7.4	0.21	<1	18	<2	<1	<1	37	96
B51-S-0.5	<2	10	69	<0.49	<0.49	6.6	9	22	7.5	0.06	<0.98	4.9	<2	<0.98	<0.98	36	89
B51-S-7.5	<2	6.4	130	<0.5	<0.5	15	8.2	31	6.1	0.17	<0.99	13	<2	<0.99	<0.99	41	76
B52-S-0.5	<2	2.4	56	<0.5	<0.5	55	8	10	2.9	<0.048	<0.99	35	<2	<0.99	<0.99	33	23
B52-S-8	<2	4.9	110	<0.5	<0.5	25	11	25	8	0.19	1.5	17	<2	<0.99	<0.99	53	53
B53-S-0.5	<1.9	2.2	60	<0.48	<0.48	56	7.2	8	2.4	<0.049	<0.96	35	<1.9	<0.96	<0.96	30	22
B53-S-7	<1.9	4.1	140	<0.48	<0.48	23	9.5	22	11	0.11	<0.95	21	<1.9	<0.95	<0.95	39	58
B54-S-0.5	<1.9	8.2	63	<0.48	<0.48	16	42	30	13	0.42	<0.95	11	<1.9	1	<0.95	31	70
B54-S-8	<2	4.4	130	<0.49	<0.49	17	7.8	16	4.5	0.14	1.7	8.5	<2	<0.98	<0.98	47	78
B55-S-0.5	<1.9	2.6	46	<0.48	<0.48	59	9	8.1	3.4	<0.051	<0.95	36	<1.9	<0.95	<0.95	33	22
B55-S-8	<2.1	6.9	100	<0.53	<0.53	11	8.4	17	4.7	0.11	<1.1	9	<2.1	<1.1	<1.1	35	74
B56-S-0.5	<1.9	8.1	82	<0.48	<0.48	49	9.3	18	9.1	<0.049	<0.96	32	<1.9	<0.96	<0.96	35	59
B56-S-8	<2	14	210	<0.51	<0.51	19	11	33	6.7	0.2	<1	18	<2	<1	<1	37	79
B57-S-0.5	<2	6.3	71	<0.49	<0.49	42	8.5	14	5.3	0.16	<0.98	28	<2	<0.98	<0.98	40	46
B57-S-8	<2	7.6	160	<0.49	<0.49	14	9.1	30	6.7	0.2	<0.98	14	<2	<0.98	<0.98	38	82
B58-S-0.5	<1.9	4.2	120	<0.49	<0.49	65	11	16	5.2	0.061	<0.97	40	<1.9	<0.97	<0.97	33	42
B58-S-8	<1.9	8.3	140	<0.48	<0.48	18	8.6	27	11	0.26	<0.95	20	<1.9	<0.95	<0.95	34	74
B59-S-0.5	<2	6.1	120	<0.49	<0.49	30	11	27	13	0.087	<0.98	22	<2	<0.98	<0.98	47	78
B259-S-0.5[1]	<2	6.5	79	<0.5	<0.5	49	7.8	20	13	<0.051	<0.99	27	<2	<0.99	<0.99	37	50
B59-S-7.5	<2	6.6	140	<0.5	0.76	19	6.6	32	140	0.12	<1	17	<2	<1	<1	25	270
B60-S-0.5	<2	4.2	68	<0.5	<0.5	34	6.8	12	5.6	0.13	<1	21	<2	<1	<1	32	39
B60-S-7.5	<2	7.4	110	<0.51	<0.51	11	9.1	21	10	0.41	<1	10	<2	<1	<1	33	72
B61-S-0.5	<2	1.5	130	<0.51	<0.51	39	19	46	1.1	<0.048	<1	30	<2	<1	<1	76	46
B261-S-0.5[1]	<1.9	1.5	81	<0.48	<0.48	52	19	53	1.2	<0.051	<0.95	36	<1.9	<0.95	<0.95	67	42
B61-S-8	<2	9.1	210	<0.51	<0.51	14	18	29	62	0.14	<1	14	<2	<1	<1	24	140
B62-S-0.5	<2.1	1.2	81	<0.52	<0.52	60	24	58	<1	<0.048	<1	47	<2.1	<1	<1	67	44
B62-S-7.5	<1.9	5.3	97	<0.49	<0.49	54	10	23	9.3	0.13	<0.97	53	<1.9	<0.97	<0.97	41	65
B63-S-0.5	<2	2.6	110	<0.49	<0.49	60	9.3	16	2.9	<0.048	<0.98	38	<2	<0.98	<0.98	38	28
B63-S-7.5	<2	5.4	110	<0.49	<0.49	39	14	25	5.7	0.17	1.1	27	<2	<0.98	<0.98	41	53
B64-S-0.5	<2	7.8	84	<0.5	<0.5	34	7.6	25	5.3	0.12	<0.99	37	<2	<0.99	<0.99	35	47
B64-S-7.5	<2.1	10	130	<0.53	<0.53	12	8.1	22	5.7	0.15	<1.1	11	<2.1	<1.1	<1.1	32	73
B65-S-0.5	<2	5.1	100	<0.51	<0.51	22	8	19	7.8	0.17	<1	17	<2	<1	<1	37	68

TABLE 3
SOIL SAMPLE LABORATORY ANALYTICAL RESULTS FOR
TITLE 22 METALS

	Analyte																
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B65-S-7.5	<2	19	120	<0.5	<0.5	7.4	8.3	31	9.5	0.48	1.3	11	<2	<0.99	<0.99	54	87
B66-S-0.5	<2	3.1	180	<0.51	<0.51	42	21	49	2.3	<0.048	<1	39	<2	<1	<1	76	51
B66-S-7.5	<2	2	43	<0.51	<0.51	10	4.1	11	3.1	<0.049	<1	18	<2	<1	<1	11	21
B67-S-0.5	<2.1	<1	71	<0.52	<0.52	64	24	55	<1	<0.049	<1	54	<2.1	<1	<1	74	48
B67-S-7.5	<2	5	83	0.51	<0.49	80	14	26	22	0.13	<0.98	84	<2	<0.98	<0.98	45	68
B68-S-0.5	<2	5.9	110	<0.5	<0.5	30	9	25	12	0.18	<1	26	<2	<1	<1	41	60
B69-S-0.5	<1.9	3.3	270	<0.48	<0.48	40	19	63	5	0.096	<0.96	41	<1.9	<0.96	<0.96	53	58
B169-S-0.5[7]	<1.9	6.7	92	<0.48	<0.48	26	12	40	9.6	0.42	<0.96	28	<1.9	<0.96	<0.96	45	59
B70-S-0.5	<2	4.6	100	<0.5	<0.5	11	6.7	20*	3.9	0.17	<0.99	8.3	<2	<0.99	<0.99	36	71
B71-S-0.5	<2	5.9	97	<0.5	<0.5	23	11	26	11	0.2	<1	23	<2	<1	<1	44	73
B271-S-0.5[1]	<2	7.1	80	<0.51	<0.51	12	11	26	18	0.53	<1	10	<2	<1	<1	42	77
B72-S-0.5	<1.9	5.7	120	<0.48	<0.48	34	8.6	23*	14	0.076	<0.96	38	<1.9	<0.96	<0.96	42	100
B73-S-0.5	<2	3.2	120	<0.49	<0.49	4.7	8.4	16	4.6	0.17	<0.98	6.6	<2	<0.98	<0.98	40	96
B273-S-0.5[1]	<1.9	3.8	120	<0.49	<0.49	6.5	8.9	11	3.5	0.16	<0.97	3.9	<1.9	<0.97	<0.97	38	100
B73-S-8.5	<1.9	11	120	<0.48	<0.48	53	12	27	8.3	0.18	6.8	19	<1.9	<0.95	<0.95	36	68
B273-S-8.5[1]	<2	12	140	<0.49	<0.49	15	10	23	5.3	0.15	1.1	12	<2	1.8	<0.98	38	86
B74-S-0.5	<1.9	4.3	170	<0.48	<0.48	43	8.8	32	14	0.083	<0.95	44	<1.9	<0.95	<0.95	43	110
B74-S-8	<1.9	24	83	<0.49	<0.49	17	5.3	17	18	0.15	2.1	9.3	<1.9	<0.97	<0.97	45	65
B75-S-0.5	<2	1.5	82	<0.5	<0.5	4.2	6	6.3	3.3	0.14	<0.99	3.8	<2	<0.99	<0.99	33	78
B75-S-9.5	<2	5.0	100	<0.51	<0.90	64	6	27	9.4	0.098	<1	61	<2	<1	<1	51	64
B76-S-0.5	<2	9	170	<0.51	<0.51	38	12	33	9.9	0.14	<1	23	<2	<1	<1	53	79
B76-S-7.5	<2	7.9	160	<0.5	<0.5	48	17	40	7.8	0.13	<0.99	25	<2	<0.99	<0.99	65	69
B77-S-0.5	<2	4.1	90	<0.5	<0.5	13	6.6	12	6.6	0.2	<1	10	<2	<1	<1	32	67
B77-S-7	<2	3.5	73	<0.5	<0.5	28	7.1	12	5.7	0.06	<0.99	27	<2	<0.99	<0.99	27	44
B78-S-0.5	<2	3.7	61	<0.5	<0.5	9.7	9.1	9.1	4.8	0.09	<0.99	7.9	<2	<0.99	<0.99	19	54
B78-S-7.5	<2	2.3	34	<0.49	<0.49	33	5.2	9.8	3.8	<0.049	<0.98	26	<2	<0.98	<0.98	24	22
B79-S-0.5	<2	7.9	110	<0.51	<0.51	35	11	25	14	0.2	<1	36	<2	<1	<1	40	73
B79-S-7	<2	3.3	65	<0.49	<0.49	22	6	21	12	0.37	<0.98	18	<2	<0.98	<0.98	28	48
B80-S-0.5	<1.9	58	100	<0.48	<0.48	10	3.7	18	70	0.29	<0.95	8.3	<1.9	<0.95	2.1	27	260
ESLs*	NA	19.1***	1,500	8.0	7.4	99.6***	80	230	750	10	40	150	10	40	16	200	600
ESLs**	NA	15	2,600	98	39	NA	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000

Notes:
Title 22 Metals analyzed using EPA Method 6010B.
Mercury analyzed using EPA Method 7471A
mg/kg = milligrams per kilogram
<n = not detected above laboratory reporting limit of n
[1] = Laboratory QA/QC samples
[2] = B6-S-0.5 Duplicate
[3] = B26-S-0.5 Duplicate
[4] = B26-S-8 Duplicate
[5] = B27-S-0.5 Duplicate
[6] = B27-S-8.5 Duplicate
[7] = B69-S-0.5 Duplicate
Bold numbers indicate concentrations greater than laboratory reporting limits
Shaded cells indicate concentrations reported greater than ESLs
ESLs* = San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels - For commercial/industrial land use where soil samples are collected from depths less than or equal to 3 meters below ground surface and where groundwater is not a current or potential drinking water resource (May 2008): Table B-2
ESLs** = RWQCB Direct Exposure Soil Screening Levels for Construction/Trench Worker Exposure Scenario (May 2008): Table K-3
*** = City of Oakland Survey of Background Metal Concentrations
NA = Not Appicable

TABLE 11
GROUNDWATER SAMPLE LABORATORY ANALYTICAL RESULTS FOR
TITLE 22 METALS

	Analyte															
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Sample I.D.	Analytical Result (mg/L)																
B8-GW	<0.005	<0.005	**0.11**	<0.005	<0.002	<0.005	**0.0065**	<0.005	<0.005	<0.0002	<0.005	**0.0089**	<0.005	<0.005	<0.005	<0.005	<0.01
B9-GW	<0.005	<0.005	**0.2**	<0.005	<0.002	<0.005	**0.014**	**0.015**	<0.005	<0.0002	<0.005	**0.017**	<0.005	<0.005	<0.005	**0.0095**	**0.04**
B10-GW	<0.005	<0.005	**0.22**	<0.005	<0.002	<0.005	**0.0087**	**0.012**	<0.005	<0.0002	<0.005	**0.013**	<0.005	<0.005	<0.005	**0.0072**	**0.026**
B210-GW[1]	<0.005	<0.005	**0.18**	<0.005	<0.002	<0.005	**0.007**	**0.0087**	<0.005	<0.0002	<0.005	**0.011**	<0.005	<0.005	<0.005	**0.005**	**0.021**
B52-GW-8.5	<0.005	**0.027**	**0.35**	<0.005	<0.002	<0.005	**0.033**	<0.005	<0.005	<0.0002	**0.03**	**0.012**	<0.005	<0.005	<0.005	<0.005	<0.01
B53-GW	<0.005	<0.005	**0.11**	<0.005	<0.002	<0.005	**0.0086**	**0.011**	<0.005	<0.0002	**0.0094**	**0.0057**	<0.005	<0.005	<0.005	**0.0063**	**0.033**
B57-GW-8.5	**0.0086**	**0.0087**	**0.14**	<0.005	<0.002	<0.005	**0.016**	<0.005	<0.005	<0.0002	**0.019**	**0.008**	<0.005	<0.005	<0.005	<0.005	<0.01
B58-GW-8.5	<0.005	<0.005	**0.15**	<0.005	<0.002	<0.005	**0.0093**	<0.005	<0.005	<0.0002	**0.01**	**0.0079**	<0.005	<0.005	<0.005	<0.005	<0.01
B59-GW	<0.005	<0.005	**0.14**	<0.005	<0.002	<0.005	**0.0073**	<0.005	<0.005	<0.0002	**0.0088**	**0.005**	<0.005	<0.005	<0.005	<0.005	<0.01
B60-GW	<0.005	<0.005	**0.082**	<0.005	<0.002	<0.005	**0.0063**	<0.005	<0.005	<0.0002	<0.005	**0.0061**	<0.005	<0.005	<0.005	<0.005	<0.01
B63-GW	<0.005	<0.005	**0.18**	<0.005	<0.002	<0.005	**0.02**	<0.005	<0.005	<0.0002	**0.0055**	**0.016**	<0.005	<0.005	<0.005	<0.005	<0.01
B66-GW	<0.005	**0.0064**	**0.17**	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.0002	**0.012**	**0.013**	<0.005	<0.005	<0.005	<0.005	<0.01
B73-GW-9*	<0.005	**0.022**	**0.89**	<0.005	<0.002	**0.079**	**0.047**	**0.08**	**0.017**	**0.00051**	<0.005	**0.062**	**0.0066**	<0.005	<0.005	**0.12**	**0.23**
B273-GW-9[1]*	<0.005	**0.021**	**0.83**	<0.005	<0.002	**0.081**	**0.049**	**0.083**	**0.019**	**0.00058**	<0.005	**0.064**	<0.005	<0.005	<0.005	**0.12**	**0.22**
B74-GW*	<0.005	**0.031**	**0.44**	<0.005	<0.002	**0.055**	**0.026**	**0.05**	**0.025**	**0.0005**	**0.014**	**0.047**	<0.005	<0.005	<0.005	**0.089**	**0.18**
B75-GW*	<0.005	**0.074**	**1.1**	**0.0086**	**0.0043**	**0.86**	**0.16**	**0.3**	**0.098**	**0.00045**	**0.015**	**0.78**	**0.015**	**0.012**	<0.005	**0.67**	**0.64**
B76-GW	<0.005	<0.005	**0.22**	<0.005	<0.002	<0.005	**0.03**	<0.005	<0.005	<0.001	**0.0051**	**0.038**	<0.005	<0.005	<0.005	<0.005	<0.01
B77-GW	<0.005	<0.005	**0.12**	<0.005	<0.002	<0.005	**0.0096**	<0.005	<0.005	<0.001	<0.005	**0.036**	<0.005	<0.005	<0.005	<0.005	<0.01
B78-GW-8*	<0.005	**0.092**	**2.3**	**0.0061**	**0.0052**	**0.91**	**0.34**	**0.46**	**0.16**	**0.0021**	**0.017**	**0.83**	**0.0067**	**0.0062**	<0.005	**0.79**	**0.93**
B79-GW	<0.005	**0.0073**	**0.27**	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.001	**0.014**	**0.025**	<0.005	<0.005	<0.005	**0.0051**	<0.01
EB-2	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
EB-3	<0.005	<0.005	**0.017**	<0.005	<0.002	<0.005	<0.005	**0.019**	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.017**
EB-4	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
ESLs**	0.030	0.036	1	0.00053	0.00025	0.18[2]	0.003	0.0031	0.0025	0.000025	0.24	0.0082	0.005	0.00019	0.004	0.019	0.081
ESLs***	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Title 22 Metals analyzed using EPA Method 6010B.
Mercury analyzed using EPA Method 7471A
mg/L = milligrams per liter
<n = not detected above laboratory reporting limit of n
[1] = Laboratory QA/QC samples
[2] = Total Chromium
* Concentrations for this sample erroneously high due to samples not being filtered prior to preservation with nitric acid
EB = Equipment Blank
Bold numbers indicate concentrations greater than laboratory reporting limits
Shaded cells indicate concentrations reported greater than ESLs
ESLs** = San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels, Final Groundwater Screening Levels - where groundwater is not a current or potential drinking water resource (May 2008): Table F-1b
ESLs*** = San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels, Vapor Intrusion into Buildings - where groundwater is not a current or potential drinking water resource (May 2008): Table E-1a
NA = Not Appicable

Baseline Subsurface Investigation

Proposed Lease Area, Oakland International Airport
Oakland, Alameda County, California
Portions of APNs 42-4540-2-1 (Lots 3, 4, 5),
42-4404-8 (Lots 28, 29)
Port of Oakland Parcel Nos. 6, 6A, 7, 7A, 8

September 10, 2007
33106-006780.01

Prepared for
Federal Express
Buffalo Grove, Illinois

BUREAU VERITAS

For the benefit of business and people

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6920 Koll Center Parkway
Pleasanton, California 94566
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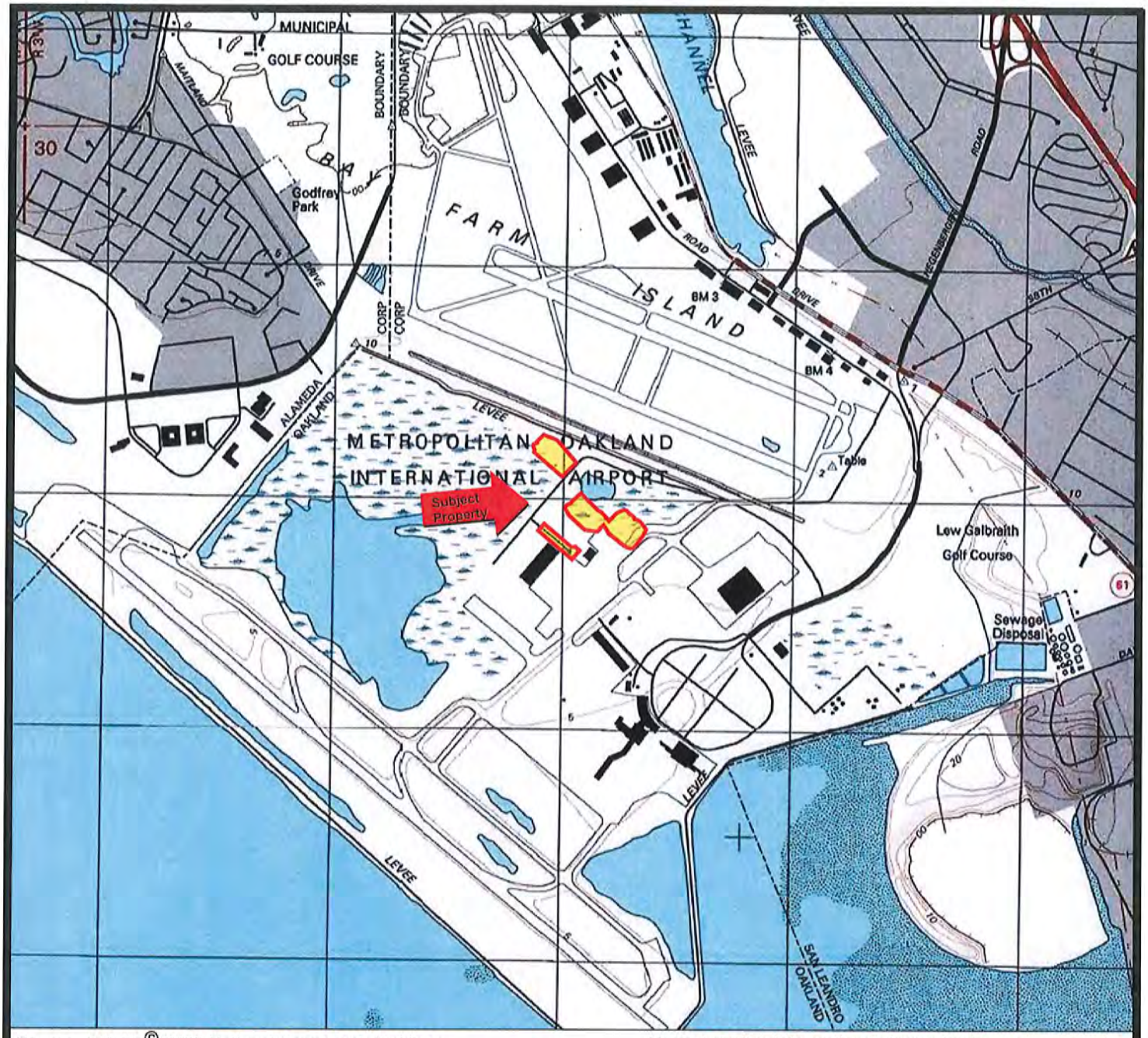


Source: TOPO!© 2000 National Geographic Holdings

Note: Location Information is Approximate

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

Portion of the 7.5-Minute Series San Leandro, California
Quadrangle Topographic Map (Datum: NAD 27)
United States Department of the Interior
Geological Survey
1993

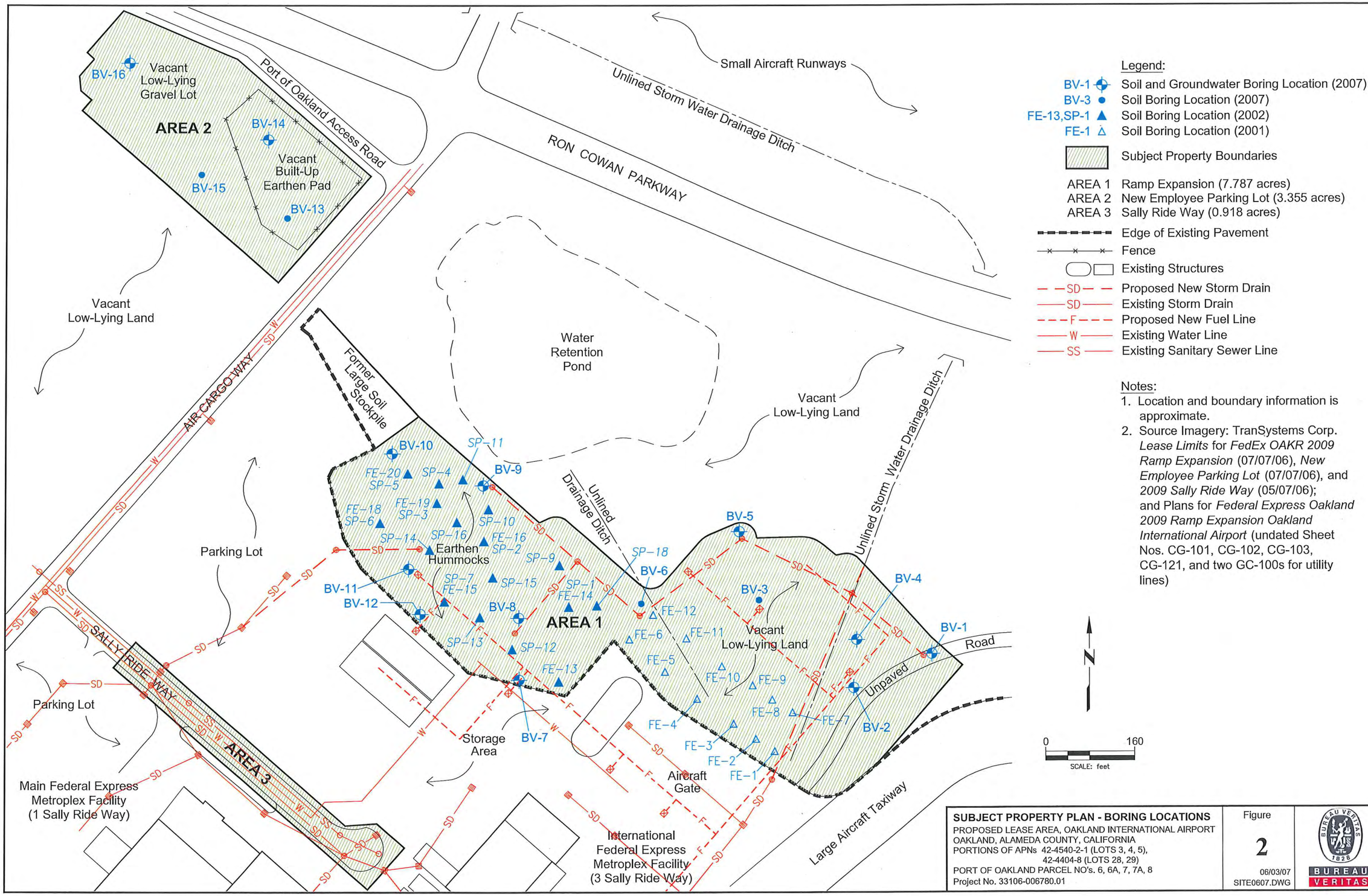
N

CALIF

QUADRANGLE LOCATION

Subject Property Location	Figure
Proposed Lease Area, Oakland International Airport Oakland, Alameda County, California Portions of APNs 42-4540-1-1 (Lots 3, 4, 5), 42-4404-8 (Lots 28, 29) Port of Oakland Parcel Nos. 6, 6A, 7, 7A, 8 Project No. 33106-006780.01	1

BUREAU VERITAS



Legend:

- BV-1 — Soil and Groundwater Boring Location (2007)
- BV-3 — Soil Boring Location (2007)
- FE-13,SP-1 — Soil Boring Location (2002)
- FE-1 — Soil Boring Location (2001)
- Subject Property Boundaries
- AREA 1 Ramp Expansion (7.787 acres)
- AREA 2 New Employee Parking Lot (3.355 acres)
- AREA 3 Sally Ride Way (0.918 acres)
- Edge of Existing Pavement
- Fence
- Existing Structures
- SD — Proposed New Storm Drain
- SD — Existing Storm Drain
- F — Proposed New Fuel Line
- W — Existing Water Line
- SS — Existing Sanitary Sewer Line

Notes:

1. Location and boundary information is approximate.
2. Source Imagery: TranSystems Corp. *Lease Limits* for *FedEx OAKR 2009 Ramp Expansion* (07/07/06), *New Employee Parking Lot* (07/07/06), and *2009 Sally Ride Way* (05/07/06); and Plans for *Federal Express Oakland 2009 Ramp Expansion Oakland International Airport* (undated Sheet Nos. CG-101, CG-102, CG-103, CG-121, and two GC-100s for utility lines)

SUBJECT PROPERTY PLAN - BORING LOCATIONS
PROPOSED LEASE AREA, OAKLAND INTERNATIONAL AIRPORT
OAKLAND, ALAMEDA COUNTY, CALIFORNIA
PORTIONS OF APNs 42-4540-2-1 (LOTS 3, 4, 5), 42-4404-8 (LOTS 28, 29)
PORT OF OAKLAND PARCEL NO's. 6, 6A, 7, 7A, 8
Project No. 33106-006780.01

Figure 2

06/03/07
SITE0607.DWG

BUREAU VERITAS

TABLE 2
Soil Data Summary: Total Metals
Proposed Lease Area, Oakland International Airport
Oakland, Alameda County, California

Sample ID	Sample Date	Depth	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
FE-1,2,7,8	11/20/2001	2.0	ND	ND	42	0.93	0.86	34	9.1	9.7	ND	ND	ND	38	ND	ND	ND	25	49
FE-3,4,5,6	11/20/2001	2.0	ND	3.7	150	ND	ND	32	20	29	4.0	0.13	ND	19	ND	ND	ND	61	140
FE-9,10,11,12	11/20/2001	2.0	ND	ND	56	ND	ND	66*	16	22	6.7	ND	ND	72	ND	ND	ND	47	63
ACOMP-A	3/21/2002	≤8.0	ND	7.0	98	ND	ND	14	9.8	20	11	0.12	ND	11	ND	ND	ND	37	110
ACOMP-B	3/21/2002	≤8.0	ND	3.7	98	ND	ND	8.4	8.4	19	8.8	0.083	ND	8.4	ND	ND	ND	32	83
FCOMP	3/21/2002	2.0-3.0	ND	3.4	32	ND	ND	22	3.6	5.3	8.9	ND	ND	22	ND	ND	ND	16	17
SPCOMP-1	3/21/2002	2.0-3.0	ND	ND	26	ND	ND	25	3.6	5.0	7.8	ND	ND	18	ND	ND	ND	23	24
SPCOMP-3	3/21/2002	2.0-3.0	ND	3.7	26	ND	ND	30	4.5	6.5	18	ND	ND	22	ND	ND	ND	24	38
SP-2	3/21/2002	2.0-3.0	ND	3.3	45	ND	ND	30	6.1	9.9	34	0.076	ND	21	ND	ND	ND	28	46
SP-4	3/21/2002	2.0-3.0	ND	3.8	30	ND	ND	37	5.2	6.7	19	ND	ND	24	ND	ND	ND	30	31
SP-12	3/21/2002	2.0-3.0	ND	4.7	38	ND	ND	43	6.4	9.8	23	ND	ND	28	ND	ND	ND	38	46
SP-13	3/21/2002	2.0-3.0	ND	3.2	33	ND	ND	36	5.3	6.8	15	ND	ND	24	ND	ND	ND	31	32
SP-14	3/21/2002	2.0-3.0	3.3	3.0	32	ND	ND	40	5.7	7.3	26	ND	ND	25	ND	ND	ND	34	39
SP-15	3/21/2002	2.0-3.0	ND	ND	21	ND	ND	30	4.4	6.0	11	ND	ND	22	ND	ND	ND	23	21
BV-1@0.5'	4/9/2007	0.5	1.6	14	100	0.39	0.32	16	8.9	20	48	0.29	1.4	9.7	0.80	ND	ND	34	130
BV-1@4'	4/9/2007	4.0	0.72	1.3	24	ND	ND	18	3.3	3.6	1.6	ND	ND	20	ND	ND	ND	13	13
BV-2@0.5'	4/9/2007	0.5	1.5	25*	140	0.40	0.37	18	12	35	47	0.21	1.3	13	ND	ND	ND	55	140
BV-2@4'	4/9/2007	4.0	0.77	2.0	56	0.12	ND	27	4.4	5.2	3.5	ND	0.44	26	ND	ND	ND	18	18
BV-3@0.5'	4/9/2007	0.5	0.68	3.0	67	0.36	ND	64*	11	19	6.8	0.027	ND	71	ND	ND	ND	42	45
BV-3@8'	4/9/2007	8.0	ND	3.4	12	0.11	ND	17	4.3	5.6	3.0	ND	0.58	15	ND	ND	ND	13	14
BV-4@0.5'	4/9/2007	0.5	ND	1.4	30	0.14	ND	28	5.0	6.6	8.1	0.023	ND	29	ND	ND	ND	21	23
BV-4@4'	4/9/2007	4.0	ND	1.3	32	ND	ND	17	2.9	3.8	1.4	ND	ND	18	ND	ND	ND	12	11
BV-5@0.5'	4/9/2007	0.5	ND	2.1	68	0.30	ND	54	9.2	16	6.2	0.034	ND	59	ND	ND	ND	38	41
BV-5@8'	4/9/2007	8.0	1.0	3.1	11	0.15	ND	29	2.9	5.4	2.1	ND	0.45	14	ND	ND	ND	20	14
BV-6@0.5'	4/9/2007	0.5	ND	3.3	73	0.42	0.28	71	11	23	6.4	0.028	ND	75	ND	ND	ND	47	50
BV-6@8'	4/9/2007	8.0	1.1	1.6	39	0.19	ND	31	2.2	4.5	2.2	ND	ND	15	ND	ND	ND	23	16
BV-7@0.5'	4/10/2007	0.5	0.70	2.7	26	0.14	ND	41	5.3	6.8	12	0.040	ND	24	ND	ND	ND	40	30
BV-7@7'	4/10/2007	7.0	ND	4.2	79	0.22	ND	24	3.9	7.9	7.8	0.10	0.30	16	ND	ND	ND	28	26
BV-7@17'	4/10/2007	17.0	ND	2.7	11	ND	ND	12	3.4	3.5	1.7	ND	0.61	10	ND	ND	ND	11	9.6
BV-8@0.5'	4/10/2007	0.5	0.83	2.3	37	0.17	ND	39	5.7	9.6	18	0.067	ND	25	ND	ND	ND	36	38
BV-8@13'	4/10/2007	13.0	ND	6.3	130	0.37	ND	26	10	14	7.9	0.29	ND	28	0.86	ND	1.1	38	91
BV-9@0.5'	4/10/2007	0.5	ND	2.6	34	0.16	ND	45	5.7	7.0	11	1.4	ND	25	ND	ND	ND	42	36

TABLE 2
Soil Data Summary: Total Metals
Proposed Lease Area, Oakland International Airport
Oakland, Alameda County, California

Sample ID	Sample Date	Depth	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
BV-9@16'	4/10/2007	16.0	**0.91**	**1.5**	**26**	**0.21**	ND	**41**	**4.0**	**7.6**	**2.9**	ND	ND	**25**	ND	ND	ND	**30**	**18**
BV-10@0.5'	4/10/2007	0.5	ND	**1.6**	**33**	**0.11**	ND	**22**	**3.7**	**4.5**	**1.7**	ND	ND	**22**	ND	ND	ND	**17**	**17**
BV-10@4'	4/10/2007	4.0	ND	**7.7**	**81**	**0.33**	ND	**4.9**	**7.3**	**15**	**4.7**	**0.13**	ND	**7.1**	ND	ND	ND	**32**	**67**
BV-10@12'	4/10/2007	12.0	**0.89**	**4.9**	**27**	**0.29**	**0.26**	**38**	**7.6**	**18**	**13**	**0.23**	ND	**37**	ND	ND	ND	**32**	**47**
BV-11@0.5'	4/10/2007	0.5	ND	**1.2**	**29**	ND	ND	**20**	**3.4**	**4.8**	**1.9**	ND	ND	**20**	ND	ND	ND	**15**	**16**
BV11@4'	4/10/2007	4.0	ND	**7.0**	**110**	**0.38**	ND	**6.6**	**9.2**	**21**	**5.9**	**0.15**	ND	**7.4**	ND	ND	ND	**44**	**73**
BV11@12'	4/10/2007	12.5	ND	**2.5**	**11**	**0.10**	ND	**18**	**2.9**	**4.5**	**1.8**	ND	**0.57**	**11**	ND	ND	ND	**14**	**11**
BV-12@0.5'	4/11/2007	0.5	ND	**4.1**	**42**	**0.16**	ND	**24**	**6.4**	**21**	**5.8**	**0.21**	**0.36**	**24**	ND	ND	ND	**31**	**81**
BV-12@4'	4/11/2007	4.0	ND	**8.6**	**150**	**0.32**	ND	**16**	**7.9**	**20**	**7.1**	**0.33**	**1.0**	**11**	ND	ND	ND	**42**	**76**
BV-12@9.5'	4/11/2007	9.5	ND	**2.7**	**9.6**	ND	ND	**12**	**3.6**	**4.8**	**1.8**	**0.021**	**0.75**	**11**	ND	ND	ND	**10**	**10**
BV-13@0.5'	4/11/2007	0.5	ND	**4.6**	**96**	**0.19**	**0.31**	**32**	**8.0**	**25**	**68**	**0.094**	**0.49**	**35**	ND	ND	ND	**33**	**68**
BV13-@14'	4/11/2007	14.0	ND	**5.6**	**82**	**0.62**	**1.0**	**100***	**15**	**35**	**15**	**0.072**	ND	**100**	ND	ND	ND	**64**	**70**
BV-14@0.5'	4/11/2007	0.5	ND	**3.6**	**60**	**0.16**	ND	**17**	**5.6**	**16**	**28**	**0.12**	**0.34**	**22**	ND	ND	ND	**26**	**59**
BV14@12'	4/11/2007	12.0	**0.61**	**19**	**45**	**0.23**	ND	**8.6**	**4.7**	**14**	**14**	**0.24**	**1.8**	**6.6**	ND	ND	ND	**25**	**85**
BV-15@0.5'	4/11/2007	0.5	**0.73**	**2.3**	**32**	**0.11**	ND	**25**	**4.7**	**15**	**4.8**	**0.15**	**1.1**	**11**	ND	ND	ND	**21**	**52**
BV-15@21'	4/11/2007	21.0	ND	**0.40**	**15**	**0.14**	ND	**36**	**4.0**	**7.0**	**2.4**	ND	ND	**24**	ND	ND	ND	**24**	**20**
BV-16@0.5'	4/11/2007	0.5	ND	**3.9**	**25**	**0.11**	ND	**4.3**	**2.8**	**6.8**	**4.0**	**0.083**	**0.58**	**3.9**	ND	ND	ND	**16**	**43**
BV-16@6'	4/11/2007	6.0	**0.88**	**3.5**	**68**	**0.49**	**0.94**	**82***	**13**	**29**	**8.5**	**0.073**	ND	**83**	ND	**0.37**	ND	**61**	**62**
RWQCB ESL- Commercial			**40**	**17****	**1,500**	**8.0**	**7.4**	**58**	**22****	**230**	**750**	**10**	**40**	**150**	**10**	**40**	**13**	**200**	**600**
STLC Screening Levels			**15**	**5.0**	**100**	**0.75**	**1.0**	**5.0**	**80**	**25**	**5.0**	**0.2**	**350**	**20**	**1.0**	**5.0**	**7.0**	**24**	**250**
TCLP Screenin g Levels			**NE**	**5.0**	**100**	**NE**	**1.0**	**6.0**	**NE**	**NE**	**5.0**	**0.2**	**NE**	**NE**	**1.0**	**5.0**	**NE**	**NE**	**NE**

Notes:

Depth is in feet below ground surface (bgs); units are in milligrams per kilogram (mg/kg) or parts per million (ppm); anlaysis was by United States Environmental Protection Agency (USEPA) Method 6010B

ND = Not detected above method detection limit

Bold data entries indicate detected concentrations

RWQCB ESL = Regional Water Quality Control Board - San Francisco Bay Region, Environmental Screening Level (mg/kg), Commercial/Industrial Land Use where groundwater is not a potentilal drinking water source (Table B; RWQCB, 2005).

Bolded and Shaded indicates that the Commercial RWQCB ESL was exceeded for this analyte

TCLP = Toxicity Characteristic Leaching Potential

STLC = Soluble Threshold Limit Concentration

** Indicates ESL derived from the background concentration (95th percentile) developed at Lawreence Berkeley National Laboratory (LBNL, 2002)

* Indicates the calcualted 95% UCL is below the commercial RWQCB ESL for this analtye

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194009	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-1	Sampled:	04/09/07
Lab ID:	194009-020	Received:	04/09/07
Matrix:	Filtrate	Prepared:	04/11/07
Units:	ug/L	Analyzed:	04/11/07
Diln Fac:	1.000		

Analyte	Result	RL	Batch#	Prep	Analysis
Antimony	ND	10	124044	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124044	EPA 3010A	EPA 6010B
Barium	120	5.0	124044	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124044	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124044	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124044	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124044	EPA 3010A	EPA 6010B
Copper	ND	5.0	124044	EPA 3010A	EPA 6010B
Lead	ND	3.0	124044	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124071	METHOD	EPA 7470A
Molybdenum	ND	5.0	124044	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124044	EPA 3010A	EPA 6010B
Selenium	ND	10	124044	EPA 3010A	EPA 6010B
Silver	ND	5.0	124044	EPA 3010A	EPA 6010B
Thallium	ND	10	124044	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124044	EPA 3010A	EPA 6010B
Zinc	ND	20	124044	EPA 3010A	EPA 6010B

= Not Detected
RL= Reporting Limit

56.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194009	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-2	Sampled:	04/09/07
Lab ID:	194009-021	Received:	04/09/07
Matrix:	Filtrate	Prepared:	04/11/07
Units:	ug/L	Analyzed:	04/11/07
Diln Fac:	1.000		

Analyte	Result	RL	Batch#	Prep	Analysis
Antimony	ND	10	124044	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124044	EPA 3010A	EPA 6010B
Barium	52	5.0	124044	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124044	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124044	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124044	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124044	EPA 3010A	EPA 6010B
Copper	ND	5.0	124044	EPA 3010A	EPA 6010B
Lead	ND	3.0	124044	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124071	METHOD	EPA 7470A
Molybdenum	12	5.0	124044	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124044	EPA 3010A	EPA 6010B
elenium	ND	10	124044	EPA 3010A	EPA 6010B
ilver	ND	5.0	124044	EPA 3010A	EPA 6010B
Thallium	ND	10	124044	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124044	EPA 3010A	EPA 6010B
Zinc	ND	20	124044	EPA 3010A	EPA 6010B

= Not Detected
RL= Reporting Limit

57.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194009	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-4	Sampled:	04/09/07
Lab ID:	194009-022	Received:	04/09/07
Matrix:	Filtrate	Prepared:	04/11/07
Units:	ug/L	Analyzed:	04/11/07
Diln Fac:	1.000		

Analyte	Result	RL	Batch#	Prep	Analysis
Antimony	ND	10	124044	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124044	EPA 3010A	EPA 6010B
Barium	170	5.0	124044	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124044	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124044	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124044	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124044	EPA 3010A	EPA 6010B
Copper	ND	5.0	124044	EPA 3010A	EPA 6010B
Lead	ND	3.0	124044	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124071	METHOD	EPA 7470A
Molybdenum	ND	5.0	124044	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124044	EPA 3010A	EPA 6010B
Selenium	ND	10	124044	EPA 3010A	EPA 6010B
Silver	ND	5.0	124044	EPA 3010A	EPA 6010B
Thallium	ND	10	124044	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124044	EPA 3010A	EPA 6010B
Zinc	ND	20	124044	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

58.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194009	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-5	Sampled:	04/09/07
Lab ID:	194009-023	Received:	04/09/07
Matrix:	Filtrate	Prepared:	04/11/07
Units:	ug/L	Analyzed:	04/11/07
Diln Fac:	1.000		

Analyte	Result	RL	Batch#	Prep	Analysis
Antimony	ND	10	124044	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124044	EPA 3010A	EPA 6010B
Barium	52	5.0	124044	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124044	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124044	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124044	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124044	EPA 3010A	EPA 6010B
Copper	7.1	5.0	124044	EPA 3010A	EPA 6010B
Lead	ND	3.0	124044	EPA 3010A	EPA 6010B
Mercury	0.54	0.20	124071	METHOD	EPA 7470A
Molybdenum	9.0	5.0	124044	EPA 3010A	EPA 6010B
Nickel	5.8	5.0	124044	EPA 3010A	EPA 6010B
Selenium	ND	10	124044	EPA 3010A	EPA 6010B
Silver	ND	5.0	124044	EPA 3010A	EPA 6010B
Thallium	28	10	124044	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124044	EPA 3010A	EPA 6010B
Zinc	ND	20	124044	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

59.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194033	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex OIA
Field ID:	BV-7'	Diln Fac:	1.000
Lab ID:	194033-008	Sampled:	04/10/07
Matrix:	Filtrate	Received:	04/10/07
Units:	ug/L	Prepared:	04/12/07

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Barium	120	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124091	04/13/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124116	04/12/07	METHOD	EPA 7470A
Molybdenum	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Nickel	9.8	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Silver	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Thallium	12	10	124091	04/13/07	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124091	04/13/07	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

40.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194033	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex OIA
Field ID:	BV-8	Diln Fac:	1.000
Lab ID:	194033-015	Sampled:	04/10/07
Matrix:	Filtrate	Received:	04/10/07
Units:	ug/L	Prepared:	04/12/07

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Barium	120	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124091	04/13/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124116	04/12/07	METHOD	EPA 7470A
Molybdenum	6.6	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
ilver	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
hallium	12	10	124091	04/13/07	EPA 3010A	EPA 6010B
Vanadium	8.3	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124091	04/13/07	EPA 3010A	EPA 6010B

= Not Detected
RL= Reporting Limit

41.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194033	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex OIA
Field ID:	BV-9	Diln Fac:	1.000
Lab ID:	194033-020	Sampled:	04/10/07
Matrix:	Filtrate	Received:	04/10/07
Units:	ug/L	Prepared:	04/12/07

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Barium	88	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124091	04/13/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124116	04/12/07	METHOD	EPA 7470A
Molybdenum	12	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Nickel	5.6	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
ilver	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
hallium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Vanadium	16	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124091	04/13/07	EPA 3010A	EPA 6010B

= Not Detected
RL= Reporting Limit

42.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194072	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-10	Diln Fac:	1.000
Lab ID:	194072-001	Sampled:	04/11/07
Matrix:	Filtrate	Received:	04/11/07
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Arsenic	17	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Barium	93	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Copper	5.7	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124157	04/13/07	04/13/07	METHOD	EPA 7470A
Molybdenum	37	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Nickel	5.1	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Silver	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Thallium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Vanadium	6.6	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

65.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194033	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex OIA
Field ID:	BV-11	Diln Fac:	1.000
Lab ID:	194033-034	Sampled:	04/10/07
Matrix:	Filtrate	Received:	04/10/07
Units:	ug/L	Prepared:	04/12/07

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Arsenic	13	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Barium	33	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124091	04/13/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124116	04/12/07	METHOD	EPA 7470A
Molybdenum	18	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Silver	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Thallium	ND	10	124091	04/13/07	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124091	04/13/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124091	04/13/07	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194072	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-12	Diln Fac:	1.000
Lab ID:	194072-006	Sampled:	04/11/07
Matrix:	Filtrate	Received:	04/11/07
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Arsenic	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Barium	73	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Chromium	5.5	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Copper	5.2	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124157	04/13/07	04/13/07	METHOD	EPA 7470A
Molybdenum	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
ilver	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
hallium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Vanadium	14	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B

J= Not Detected
RL= Reporting Limit

66.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194072	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-14	Diln Fac:	1.000
Lab ID:	194072-013	Sampled:	04/11/07
Matrix:	Filtrate	Received:	04/11/07
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Arsenic	9.2	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Barium	250	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cobalt	6.6	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124157	04/13/07	04/13/07	METHOD	EPA 7470A
Molybdenum	14	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Silver	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Thallium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B

= Not Detected
RL= Reporting Limit

67.0

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Dissolved California Title 26 Metals

Lab #:	194072	Project#:	OIA
Client:	Bureau Veritas North America	Location:	FED Ex O.A
Field ID:	BV-16	Diln Fac:	1.000
Lab ID:	194072-022	Sampled:	04/11/07
Matrix:	Filtrate	Received:	04/11/07
Units:	ug/L		

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Arsenic	8.2	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Barium	220	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Beryllium	ND	2.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cadmium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Chromium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Cobalt	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Copper	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Lead	ND	3.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Mercury	ND	0.20	124157	04/13/07	04/13/07	METHOD	EPA 7470A
Molybdenum	6.8	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Nickel	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Selenium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Silver	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Thallium	ND	10	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Vanadium	ND	5.0	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B
Zinc	ND	20	124208	04/16/07	04/16/07	EPA 3010A	EPA 6010B

ND = Not Detected
RL= Reporting Limit

68.0

Attachment B

Nickel Concentrations in Soil Samples Collected from OMC and FedEx Sites

Table B-1: Nickel Concentrations in Soil Samples Collected from the OMC Site (mg/kg)

Sample Location	AOC	Sample Depth (feet bgs)	Date Sampled	Nickel
ERM-B-1	1	3.5	4/15/2003	21
ERM-B-2	1	3.5	4/15/2003	18
W-B-4	1	0.5	4/14/2003	51
W-B-4	1	3	4/14/2003	21
W-B-4	1	3.5	4/14/2003	17
W-B-5	1	0.5	4/14/2003	68
W-B-5	1	3	4/14/2003	24
W-B-5	1	3.5	4/14/2003	18
W-B-6	1	0.5	4/14/2003	47
W-B-6	1	3	4/14/2003	19
W-B-6	1	3.5	4/14/2003	35
ERM-B-3	2	2.5	4/15/2003	19
ERM-B-4	2	2.5	4/15/2003	17
ERM-B-5	2	2.5	4/15/2003	21
ERM-B-6	2	2.5	4/15/2003	17
W-B-7	2	0.5	4/17/2003	24
W-B-7	2	1.5	4/17/2003	22
W-B-7	2	3	4/17/2003	20
W-B-8	2	0.5	4/14/2003	51
W-B-8	2	2	4/14/2003	32
W-B-8	2	3	4/14/2003	25
W-B-10	3	0	4/15/2003	24
W-B-10	3	3	4/15/2003	19
W-B-10	3	3.5	4/15/2003	19
W-B-10	3	6	4/15/2003	17
W-B-11	3	0.5	4/15/2003	25
W-B-11	3	1.5	4/15/2003	26
W-B-11	3	3	4/16/2003	34
W-B-11	3	8	4/15/2003	14
W-B-12	3	0.5	4/16/2003	340
W-B-12	3	3	4/15/2003	50
W-B-12	3	6	4/15/2003	20
W-B-12 (c)	3	0.5	4/16/2003	51
ERM-B-10	5	2.5	4/17/2003	21
ERM-B-11	5	2.5	4/17/2003	20
W-B-1	5	0.5	4/14/2003	120
W-B-1	5	3	4/14/2003	37
W-B-2	5	0.5	4/14/2003	51
W-B-2	5	3	4/14/2003	42
W-B-2	5	4	4/14/2003	15

Table B-1: Nickel Concentrations in Soil Samples Collected from the OMC Site (mg/kg)

Sample Location	AOC	Sample Depth (feet bgs)	Date Sampled	Nickel
W-B-3	5	0.5	4/14/2003	120
W-B-3	5	3	4/14/2003	43
W-B-3	5	3.5	4/14/2003	21
W-B-16	7	0.5	4/17/2003	23
W-B-16	7	1.5	4/17/2003	22
W-B-16	7	3	4/17/2003	19
W-B-17	7	0.5	4/17/2003	23
W-B-17	7	1.5	4/17/2003	25
W-B-17	7	3	4/17/2003	25
ERM-B-12	8	2	4/17/2003	24
ERM-B-13	9	3.5	4/16/2003	15
ERM-B-14	9	4.5	4/17/2003	30
W-B-21	9	0.5	4/17/2003	32
W-B-21	9	3	4/17/2003	24
W-B-22	9	0.5	4/18/2003	25
W-B-22	9	2.5	4/18/2003	18
W-B-22	9	3	4/18/2003	24
W-B-23	9	0.5	4/18/2003	25
W-B-23	9	3	4/18/2003	80
ERM-B-15	10	1	4/17/2003	21
ERM-B-22	13	1.5	4/17/2003	20
ERM-B-23	14	4.5	4/17/2003	21
W-B-32	14	0.5	4/16/2003	26
W-B-32	14	1.5	4/16/2003	17
W-B-32	14	3	4/16/2003	20
W-B-32	14	8	4/16/2003	40
W-B-38	14	0.5	4/15/2003	32
W-B-38	14	2.5	4/15/2003	20
W-B-38	14	3	4/15/2003	21
W-B-38	14	8	4/15/2003	18
W-B-39	14	0.5	4/14/2003	27
W-B-39	14	3	4/14/2003	20
W-B-39	14	8	4/14/2003	28
W-B-13	16	0.5	4/15/2003	34
W-B-13	16	3	4/15/2003	18
W-B-13	16	8	4/15/2003	15
W-B-14	16	0	4/15/2003	23
W-B-14	16	3	4/15/2003	28
W-B-14	16	8	4/15/2003	18
W-B-15	16	0.5	4/15/2003	39

Table B-1: Nickel Concentrations in Soil Samples Collected from the OMC Site (mg/kg)

Sample Location	AOC	Sample Depth (feet bgs)	Date Sampled	Nickel
W-B-15	16	8	4/15/2003	18
W-B-18	18	4.5	4/18/2003	26
W-B-18	18	8	4/18/2003	18
W-B-19	18	4	4/18/2003	22
W-B-20	18	3	4/18/2003	24
W-B-9	18	4	4/18/2003	21
W-B-24	19	0.5	4/14/2003	19
W-B-24	19	3	4/14/2003	34
W-B-24	19	8	4/14/2003	26
W-B-25	19	0	4/15/2003	18
W-B-25	19	1.5	4/15/2003	22
W-B-25	19	3	4/15/2003	71
W-B-25	19	8	4/15/2003	27
W-B-26	19	0.5	4/16/2003	29
W-B-26	19	3	4/16/2003	21
W-B-26	19	12	4/16/2003	29
W-B-27	19	0.5	4/16/2003	21
W-B-27	19	3	4/16/2003	16
W-B-27	19	8	4/16/2003	22
W-B-28	19	0.5	4/16/2003	39
W-B-28	19	3	4/16/2003	14
W-B-28	19	8	4/16/2003	24
W-B-29	19	0.5	4/16/2003	31
W-B-29	19	1.5	4/16/2003	72
W-B-29	19	3	4/16/2003	23
W-B-29	19	8	4/16/2003	17
W-B-30	19	0.5	4/16/2003	32
W-B-30	19	3	4/16/2003	24
W-B-30	19	8	4/16/2003	20
W-B-31	19	0.5	4/16/2003	25
W-B-31	19	3	4/16/2003	56
W-B-31	19	3.5	4/16/2003	53
W-B-33	19	0.5	4/16/2003	43
W-B-33	19	2.5	4/16/2003	34
W-B-33	19	3	4/16/2003	36
W-B-33	19	8	4/16/2003	44
W-B-34	19	0.5	4/17/2003	17
W-B-34	19	3	4/17/2003	52
W-B-35	19	0.5	4/17/2003	43
W-B-35	19	3	4/17/2003	24

Table B-1: Nickel Concentrations in Soil Samples Collected from the OMC Site (mg/kg)

Sample Location	AOC	Sample Depth (feet bgs)	Date Sampled	Nickel
W-B-36	19	0.5	4/17/2003	25
W-B-36	19	3	4/17/2003	20
W-B-37	19	0.5	4/17/2003	21
W-B-37	19	4	4/17/2003	23

Notes

Bolding indicates detected concentrations.
All units are in milligrams per kilogram (mg/kg).
AOC = Area of concern.
bgs = below ground surface.
For sample locations, see Figure 4 from report titled *Former United Airlines Maintenance Center, Site Investigation and Risk Assessment Report, Oakland, California* , by ERM, dated June 2004.

Table B-2: Nickel Concentrations in Soil Samples Collected from the FedEx Site (mg/kg)

Source	Sample ID	Date Sampled	Nickel
BV, 2007	BV-1@0.5'	4/9/2007	9.7
BV, 2007	BV-1@4'	4/9/2007	20
BV, 2007	BV-2@0.5'	4/9/2007	13
BV, 2007	BV-2@4'	4/9/2007	26
BV, 2007	BV-3@0.5'	4/9/2007	71
BV, 2007	BV-3@8'	4/9/2007	15
BV, 2007	BV-4@0.5'	4/9/2007	29
BV, 2007	BV-4@4'	4/9/2007	18
BV, 2007	BV-5@0.5'	4/9/2007	59
BV, 2007	BV-5@8'	4/9/2007	14
BV, 2007	BV-6@0.5'	4/9/2007	75
BV, 2007	BV-6@8'	4/9/2007	15
BV, 2007	BV-7@0.5'	4/10/2007	24
BV, 2007	BV-7@7'	4/10/2007	16
BV, 2007	BV-7@17'	4/10/2007	10
BV, 2007	BV-8@0.5'	4/10/2007	25
BV, 2007	BV-8@13'	4/10/2007	28
BV, 2007	BV-9@0.5'	4/10/2007	25
BV, 2007	BV-9@16'	4/10/2007	25
BV, 2007	BV-10@0.5'	4/10/2007	22
BV, 2007	BV-10@4'	4/10/2007	7.1
BV, 2007	BV-10@12'	4/10/2007	37
BV, 2007	BV-11@0.5'	4/10/2007	20
BV, 2007	BV-11@4'	4/10/2007	7.4
BV, 2007	BV-11@12'	4/10/2007	11
BV, 2007	BV-12@0.5'	4/11/2007	24
BV, 2007	BV-12@4'	4/11/2007	11
BV, 2007	BV-12@9.5'	4/11/2007	11
BV, 2007	BV-13@0.5'	4/11/2007	35
BV, 2007	BV-13@14'	4/11/2007	100
BV, 2007	BV-14@0.5'	4/11/2007	22
BV, 2007	BV-14@12'	4/11/2007	6.6
BV, 2007	BV-15@0.5'	4/11/2007	11
BV, 2007	BV-15@21'	4/11/2007	24
BV, 2007	BV-16@0.5'	4/11/2007	3.9
BV, 2007	BV-16@6'	4/11/2007	83
N&M, 2008	B1-S-0.5	Jun-08	18
N&M, 2008	B2-S-0.5	Jun-08	23
N&M, 2008	B202-S-0.5	Jun-08	35
N&M, 2008	B3-S-0.5	Jun-08	15
N&M, 2008	B4-S-0.5	Jun-08	25
N&M, 2008	B5-S-0.5	Jun-08	19
N&M, 2008	B6-S-0.5	Jun-08	23
N&M, 2008	B106-S-0.5	Jun-08	35

Table B-2: Nickel Concentrations in Soil Samples Collected from the FedEx Site (mg/kg)

Source	Sample ID	Date Sampled	Nickel
N&M, 2008	B11-S-0.5	Jun-08	35
N&M, 2008	B12-S-0.5	Jun-08	36
N&M, 2008	B13-S-0.5	Jun-08	36
N&M, 2008	B14-S-0.5	Jun-08	15
N&M, 2008	B15-S-0.5	Jun-08	38
N&M, 2008	B16-S-0.5	Jun-08	40
N&M, 2008	B17-S-0.5	Jun-08	40
N&M, 2008	B18-S-0.5	Jun-08	15
N&M, 2008	B19-S-0.5	Jun-08	25
N&M, 2008	B20-S-0.5	Jun-08	13
N&M, 2008	B21-S-0.5	Jun-08	12
N&M, 2008	B22-S-0.5	Jun-08	22
N&M, 2008	B23-S-0.5	Jun-08	9.2
N&M, 2008	B25-S-0.5	Jun-08	6.3
N&M, 2008	B26-S-0.5	Jun-08	16
N&M, 2008	B126-S-0.5	Jun-08	16
N&M, 2008	B26-S-8	Jun-08	19
N&M, 2008	B126-S-8	Jun-08	23
N&M, 2008	B27-S-0.5	Jun-08	7.9
N&M, 2008	B127-S-0.5	Jun-08	12
N&M, 2008	B27-S-8.5	Jun-08	59
N&M, 2008	B127-S-8	Jun-08	41
N&M, 2008	B28-S-0.5	Jun-08	28
N&M, 2008	B228-S-0.5	Jun-08	2.5
N&M, 2008	B28-S-8	Jun-08	17
N&M, 2008	B29-S-0.5	Jun-08	52
N&M, 2008	B30-S-0.5	Jun-08	23
N&M, 2008	B30-S-7	Jun-08	26
N&M, 2008	B31-S-0.5	Jun-08	8
N&M, 2008	B31-S-7	Jun-08	18
N&M, 2008	B32-S-0.5	Jun-08	7.4
N&M, 2008	B32-S-7	Jun-08	21
N&M, 2008	B33-S-0.5	Jun-08	22
N&M, 2008	B33-S-7.5	Jun-08	21
N&M, 2008	B34-S-0.5	Jun-08	12
N&M, 2008	B34-S-7	Jun-08	19
N&M, 2008	B35-S-0.5	Jun-08	7.7
N&M, 2008	B35-S-7.5	Jun-08	21
N&M, 2008	B36-S-0.5	Jun-08	12
N&M, 2008	B37-S-0.5	Jun-08	7
N&M, 2008	B38-S-0.5	Jun-08	20
N&M, 2008	B38-S-7	Jun-08	37
N&M, 2008	B39-S-0.5	Jun-08	18
N&M, 2008	B40-S-0.5	Jun-08	38

Table B-2: Nickel Concentrations in Soil Samples Collected from the FedEx Site (mg/kg)

Source	Sample ID	Date Sampled	Nickel
N&M, 2008	B41-S-0.5	Jun-08	25
N&M, 2008	B42-S-0.5	Jun-08	23
N&M, 2008	B43-S-0.5	Jun-08	20
N&M, 2008	B43-S-6.5	Jun-08	26
N&M, 2008	B44-S-0.5	Jun-08	8.4
N&M, 2008	B44-S-7.5	Jun-08	11
N&M, 2008	B45-S-0.5	Jun-08	23
N&M, 2008	B45-S-8	Jun-08	28
N&M, 2008	B46-S-0.5	Jun-08	33
N&M, 2008	B46-S-8	Jun-08	18
N&M, 2008	B47-S-0.5	Jun-08	27
N&M, 2008	B47-S-9	Jun-08	55
N&M, 2008	B48-S-0.5	Jun-08	40
N&M, 2008	B48-S-9.5	Jun-08	60
N&M, 2008	B49-S-0.5	Jun-08	56
N&M, 2008	B49-S-7.0	Jun-08	14
N&M, 2008	B50-S-0.5	Jun-08	45
N&M, 2008	B50-S-10	Jun-08	18
N&M, 2008	B51-S-0.5	Jun-08	4.9
N&M, 2008	B51-S-7.5	Jun-08	13
N&M, 2008	B52-S-0.5	Jun-08	35
N&M, 2008	B52-S-8	Jun-08	17
N&M, 2008	B53-S-0.5	Jun-08	35
N&M, 2008	B53-S-7	Jun-08	21
N&M, 2008	B54-S-0.5	Jun-08	11
N&M, 2008	B54-S-8	Jun-08	8.5
N&M, 2008	B55-S-0.5	Jun-08	36
N&M, 2008	B55-S-8	Jun-08	9
N&M, 2008	B56-S-0.5	Jun-08	32
N&M, 2008	B56-S-8	Jun-08	18
N&M, 2008	B57-S-0.5	Jun-08	28
N&M, 2008	B57-S-8	Jun-08	14
N&M, 2008	B58-S-0.5	Jun-08	40
N&M, 2008	B58-S-8	Jun-08	20
N&M, 2008	B59-S-0.5	Jun-08	22
N&M, 2008	B259-S-0.5	Jun-08	27
N&M, 2008	B59-S-7.5	Jun-08	17
N&M, 2008	B60-S-0.5	Jun-08	21
N&M, 2008	B60-S-7.5	Jun-08	10
N&M, 2008	B61-S-0.5	Jun-08	30
N&M, 2008	B261-S-0.5	Jun-08	36
N&M, 2008	B61-S-8	Jun-08	14
N&M, 2008	B62-S-0.5	Jun-08	47
N&M, 2008	B62-S-7.5	Jun-08	53

Table B-2: Nickel Concentrations in Soil Samples Collected from the FedEx Site (mg/kg)

Source	Sample ID	Date Sampled	Nickel
N&M, 2008	B63-S-0.5	Jun-08	38
N&M, 2008	B63-S-7.5	Jun-08	27
N&M, 2008	B64-S-0.5	Jun-08	37
N&M, 2008	B64-S-7.5	Jun-08	11
N&M, 2008	B65-S-0.5	Jun-08	17
N&M, 2008	B65-S-7.5	Jun-08	11
N&M, 2008	B66-S-0.5	Jun-08	39
N&M, 2008	B66-S-7.5	Jun-08	18
N&M, 2008	B67-S-0.5	Jun-08	54
N&M, 2008	B67-S-7.5	Jun-08	84
N&M, 2008	B68-S-0.5	Jun-08	26
N&M, 2008	B69-S-0.5	Jun-08	41
N&M, 2008	B169-S-0.5	Jun-08	28
N&M, 2008	B70-S-0.5	Jun-08	8.3
N&M, 2008	B71-S-0.5	Jun-08	23
N&M, 2008	B271-S-0.5	Jun-08	10
N&M, 2008	B72-S-0.5	Jun-08	38
N&M, 2008	B73-S-0.5	Jun-08	6.6
N&M, 2008	B273-S-0.5	Jun-08	3.9
N&M, 2008	B73-S-8.5	Jun-08	19
N&M, 2008	B273-S-8.5	Jun-08	12
N&M, 2008	B74-S-0.5	Jun-08	44
N&M, 2008	B74-S-8	Jun-08	9.3
N&M, 2008	B75-S-0.5	Jun-08	3.8
N&M, 2008	B75-S-9.5	Jun-08	61
N&M, 2008	B76-S-0.5	Jun-08	23
N&M, 2008	B76-S-7.5	Jun-08	25
N&M, 2008	B77-S-0.5	Jun-08	10
N&M, 2008	B77-S-7	Jun-08	27
N&M, 2008	B78-S-0.5	Jun-08	7.9
N&M, 2008	B78-S-7.5	Jun-08	26
N&M, 2008	B79-S-0.5	Jun-08	36
N&M, 2008	B79-S-7	Jun-08	18
N&M, 2008	B80-S-0.5	Jun-08	8.3

Note:

BV, 2007 = Bureau Veritas, 2007, *Baseline Subsurface Investigation, Proposed Lease Area, Oakland International Airport, Oakland, Alameda County, California, Portions of APNs 42-4540-2-1 (Lots 3, 4, 5,), 42-4404-8 (Lots 28, 29), Port of Oakland Parcel Nos. 6, 6A, 7, 7A, 8*, Table 2, 10 September.

N&M, 2008 = Ninyo & Moore, *Baseline Investigation Report, Federal Express Metroplex, Oakland International Metropolitan Airport, Oakland, California* , Table 3, 26 November.

Excerpts from the two reports are provided in Attachment 1.

Attachment C

ProUCL Output for Wilcoxon-Mann-Whitney Test

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	4/29/2015 11:53
From File	Ni in Soil.finalcheck.xls
Full Precision	OFF
Confidence Coefficient	99%
Substantial Difference	0.000
Selected Null Hypothesis	OMC Mean/Median <= FedEx Mean/Median (Form 1)
Alternative Hypothesis	OMC Mean/Median > FedEx Mean/Median

Sample 1 Data: Nickel (OMC)

Sample 2 Data: Nickel(FedEx)

Raw Statistics

	OMC	FedEx
Number of Valid Observations	124	166
Number of Distinct Observations	40	65
Minimum	14	2.5
Maximum	340	100
Mean	31.87	24.83
Median	24	21.5
SD	32.81	16.59
SE of Mean	2.946	1.288

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	20245
Standardized WMW U-Stat	3.119
Mean (U)	10292
SD(U) - Adj ties	706.1
Approximate U-Stat Critical Value (0.01)	2.326
P-Value (Adjusted for Ties)	9.07E-04

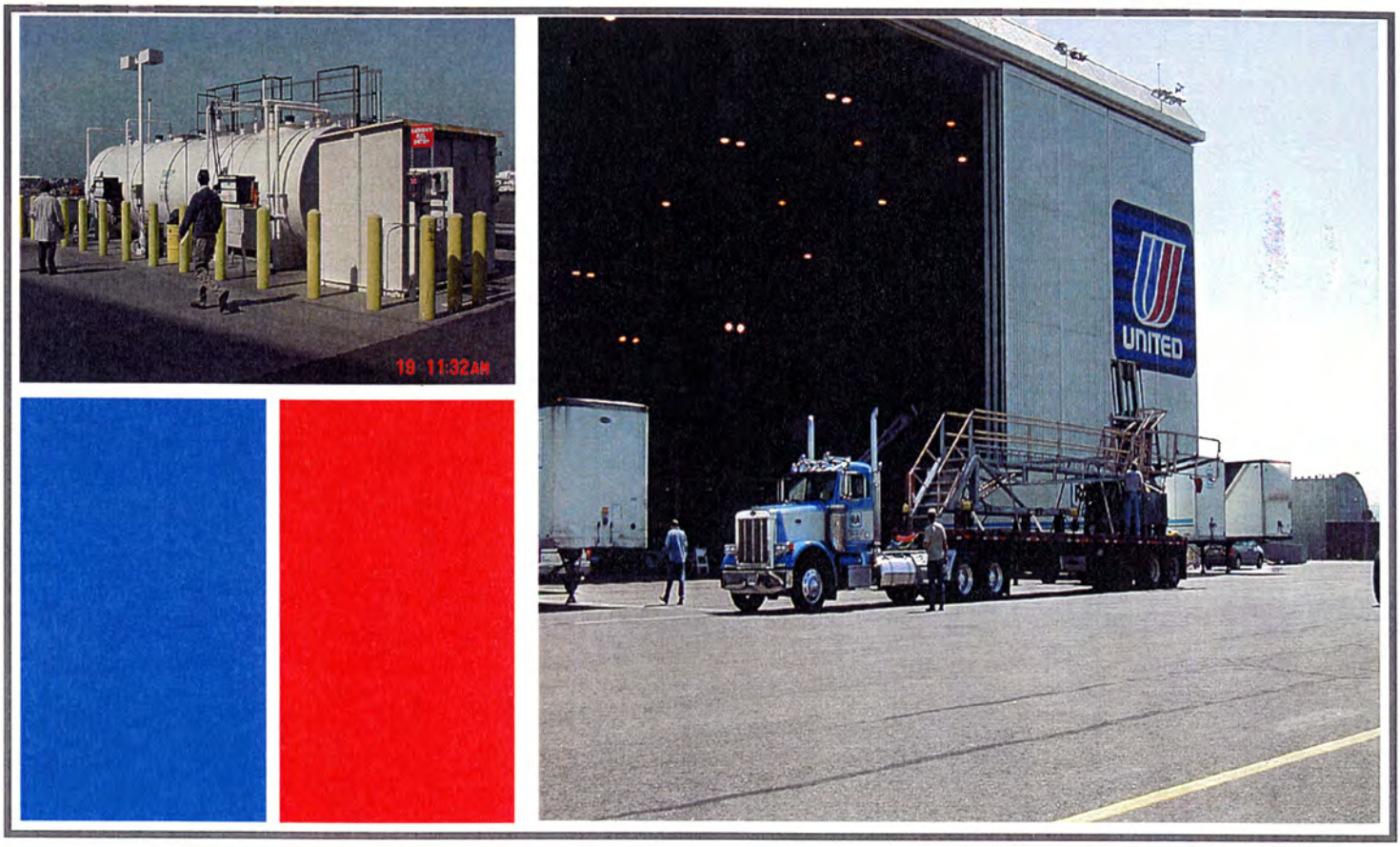
Conclusion with Alpha = 0.01

Reject H0, Conclude OMC > FedEx

P-Value < alpha (0.01)

Attachment D

Excerpts from 2004 ERM Report for the OMC Site



REPORT ID# 377
pdf - 10-1-08

Former United Airlines Oakland Maintenance Center Site Investigation and Risk Assessment Report *Oakland International Airport*

Presented to
United Airlines
1200 E. Algonquin Road
Elk Grove Township, IL 60007

June 2004

Prepared by

ERM
Environmental Resources Management
1777 Botelho Drive, Suite 260
Walnut Creek, CA 94596

UNITED AIRLINES

Project No. 5310.10
Date: 01/20/04
Drawn By: J. Estrada
CAD File: g:\\5310\10\5310020.dwg

Storm Water Channel Discharge to Wetland/Storm Water Retention Pond (Approx. 1,500 Ft To Outfall)

TO OFFSITE STORM POND

DIVERSION CHANNEL TO STORM PONDS

TAXIWAY B

TAXIWAY B1

FUEL SPILL AREA ON TAXIWAY (16)

BOILER WITH DIESEL AST (6)

INDUSTRIAL WASTEWATER VAULT (3)

METALS TREATMENT PLANT

RECENT 90-DAY HAZARDOUS WASTE ACCUMULATION AREA (8)

AIRCRAFT WASH RACK (2)

FORMER JET FUEL USTs (NOT AOC)

FORMER 90-DAY HAZARDOUS WASTE ACCUMULATION AREA AND DEBRIS COMPACTOR (7)

FUEL BOWSER STORAGE AREA (NOT AOC)

VEHICLE MAINTENANCE CENTER (5)

FORMER WORLD AIRWAYS CLEANING RM. (1)

HAZARDOUS MATERIAL STORAGE AREA (9)

FUEL STORAGE AST (4)

SMALL PARTS WASH RACK (4)

FORMER OFF-SITE WASTE OIL AND SOLVENT USTs (18)

HAZARDOUS MATERIAL STORAGE AREA (9)

FORMER OFF-SITE WASTE OIL AND SOLVENT USTs

AIRCRAFT FUELING/DEFUELING EQUIPMENT AREA (11)

C CORE

B CORE

WATERFALL PAINT SPRAY BOOTH (13)

CHEMICAL STORAGE AREA (10)

HANGAR BUILDING

HAZARDOUS MATERIAL STORAGE AREA (9)

FORMER FUEL USTs (17)

FORMER FUELING ISLAND (17)

STORM WATER CHANNEL

PAVEMENT PERIMETER (19)

LEASE PARCEL RIGHT OF FIRST REFUSAL

STORM DRAIN (14)

SALLY RIDE WAY

AIRCRAFT PARKING AND RUN UP AREA (15)

AIRCRAFT FUELING/DEFUELING EQUIPMENT AREA (11)

UNIVERSAL WASTE & RECYCLE STORAGE AREA (NOT AOC)

HAZARDOUS MATERIAL STORAGE AREA (9)

STORM DRAIN (14)

EAST GATE

FORMER FIRE FIGHTING FOAM USTs (NOT AOC)

FIRE FIGHTING FOAM ASTs (NOT AOC)

FIRE FIGHTING SYSTEM WITH 7 GENERATOR SETS & DIESEL TANKS IN VAULT (12)

FORMER UAL OMC LEASEHOLD

DISCHARGE TO SAN FRANCISCO BAY

AIRPORT DRIVE

Discharge to San Francisco Bay (Approx. 1,500 Ft To Outfall)

0 200 FEET

LEGEND

- (5) AREA of CONCERN (AOC) FOR INVESTIGATION
- ERM-MW-01 ERM MONITORING WELL
- UAL-MW-3 OTHER MONITORING WELL
- ERM-B-10 ERM BORING
- W-B-2 WEISS BORING
- SATELLITE HAZARDOUS WASTE ACCUMULATION POINTS (NOT AOC)
- HAZARDOUS MATERIAL STORAGE AREA (9)
- STORM WATER DRAIN CATCH BASIN (14)
- STORM WATER SEWER LINE (14)
- TRENCH DRAIN (14)
- STORM WATER CHANNEL (14)

Figure 4
Soil Boring and Monitoring Well Locations
Former United Airlines Oakland Maintenance Center
Oakland International Airport, Oakland, California
ERM 01/04

2.0 IDENTIFICATION OF AREAS OF CONCERN

This section presents the AOCs that were identified based on operations conducted by UAL and historical operations by former tenants of the OMC. Section 2.1 summarizes the evaluation approach used to identify AOCs. Section 2.2 describes AOCs at the OMC that were deemed to require site investigation. Section 2.3 describes off-site, adjacent AOCs that were recommended for site investigation. Section 2.4 describes environmental sites/issues at the OMC that were identified during the evaluation, but were categorized as not requiring further investigation.

2.1 EVALUATION APPROACH TO IDENTIFY AOCS

The approach for identifying AOCs included the following:

- A visual inspection of the OMC property (19 March 2003);
- Interviews with past and present UAL employees and review of UAL files to determine current and historical use or releases of potentially hazardous substances;
- Review of available documents identifying historical uses of the OMC property and adjacent properties, including aerial photographs and Port of Oakland files; and
- Review of available local, state, and federal environmental agency records for sites within one mile of the OMC property.

2.2 AREAS OF CONCERN AT THE OMC PROPERTY

The AOCs identified at the OMC property to require further investigation are described below and as indicated on Figure 3. Each AOC has a number (AOC 1, AOC2, etc.) corresponding to its designation on figures and tables.

2.2.1 *Small Parts Wash Rack/Former World Airways Cleaning Room (AOC 1)*

The small parts wash rack is immediately adjacent to the northwestern side of the hangar (Figure 3). Since UAL operations began in 1988, UAL used only alkaline cleaner for cleaning parts in this area. This area was previously used by World Airways, which may have used solvents for parts cleaning. The wash rack is surrounded by a 2- to 4-inch concrete berm to contain water. Water collected in the bermed area drains into an approximately 2,000-gallon concrete sump. The

sump predates UAL occupancy and is thought to be constructed of about 6-inch-thick concrete. The sump discharges into the sanitary sewer for treatment by the East Bay Municipal Utility District (EBMUD) at the main Oakland treatment facility. Two additional smaller sumps are also located in the small parts wash rack area. These sumps drain into the 2,000-gallon sump for discharge to the sanitary sewer.

World Airways also operated a cleaning room with a sump and grated floor drain inside the hangar building adjacent to this area to the east. According to UAL personnel, UAL used this cleaning room from approximately 1988 until the mid-1990s. UAL subsequently filled the sump with gravel and poured a concrete floor over the grated area. This sump discharged to the 2,000-gallon sump described above, which discharged to the sanitary sewer. Based on the potential historic use of chlorinated solvents in this area, it was investigated.

2.2.2 *Aircraft Wash Rack (AOC 2)*

The aircraft wash rack was in the northwestern corner of the OMC property in the concrete paved area formerly used for aircraft storage by World Airways (Figure 3). Aircraft were washed using steam cleaners as well as alkaline cleaner since the wash rack was installed by UAL in 1990. Aircraft washing was not performed by UAL at the OMC prior to installation of the wash rack. From approximately 1990 to 2001, the wash water was collected in drains and diverted to an approximately 2,000- to 2,500-gallon concrete sump (AOC 3). The sump was used to catch wash water and/or the first 20 minutes of runoff during significant rainfall events. This water was sent to the sanitary sewer system for subsequent treatment by EBMUD at the main Oakland treatment facility. After 20 minutes of significant rainfall, the surface water runoff was diverted to storm water drains.

Due to exceedances of EBMUD Ordinance 311 discharge limits for copper and cadmium for sanitary sewer discharges from the aircraft wash rack, UAL installed trench drain collectors and a metals treatment plant in 2001 to collect and treat wash water and the first 20 minutes of storm water runoff. Several aboveground storage tanks (ASTs) were also installed as part of the metals treatment plant, including two 11,000-gallon feed tanks, two 250-gallon process tanks, two 100-gallon sludge tanks, and one 1,900-gallon sludge tank. Following installation, UAL exceeded the required sewer discharge criteria for metals on only one occasion in April 2002. Based on the detection of metals within the aircraft wash water, this area was investigated.

2.2.3 *Industrial Wastewater Vault (AOC 3)*

As discussed in Section 2.2.2, water from the aircraft wash rack in the northwestern corner of the OMC property collected in a trench drain and was

diverted to an approximately 2,000- to 2,500-gallon concrete sump, which is designated as AOC 3 (Figure 3). Water was treated by an on-site metals removal system (installed in 2001) prior to discharge to the sanitary sewer for treatment by EBMUD at the main Oakland treatment facility. During storm events, the first 20 minutes of runoff was diverted from the sump into the holding tanks for the metals removal plant and subsequent runoff was diverted to storm water drains at the OMC property. The diversion channel from the sump to the storm water drains is unlined; therefore, the sump and unlined diversion channel were investigated.

2.2.4 *Aboveground Fuel Storage Tank (AOC 4)*

A double-walled, fuel AST (AOC 4) is located north of the hangar (Figure 3). This tank consists of two separate compartments with an 8,000-gallon diesel tank and a 4,000-gallon unleaded fuel tank. This tank was installed by UAL in 1999. This tank was emptied and cleaned prior to UAL's exit of the OMC in May 2003. The area beneath and surrounding the tank is paved with concrete. This was considered an AOC due to minor staining observed on the concrete pad surrounding the tank during the site inspection.

2.2.5 *Vehicle Maintenance Center (AOC 5)*

The vehicle maintenance center (AOC 5) was located inside the main hangar building at the northern end of the building (Figure 3). According to UAL personnel, vehicle maintenance was performed both inside and immediately outside of the building since UAL operations began in 1988. Based on information provided by UAL personnel, it appears that a subgrade hydraulic lift previously used by World Airways in this area was used by UAL until it was abandoned in place in the mid-1990s. Investigation was considered appropriate for this area due to minor staining observed on the floor of the vehicle maintenance center during the site inspection and the history of vehicle maintenance activities in this area.

2.2.6 *Boiler and Aboveground Diesel Storage Tank (AOC 6)*

A boiler and 1,000-gallon diesel AST (AOC 6) were installed by UAL in the northwestern corner of the OMC property in approximately 1990 for heating water for the aircraft wash rack (Figure 3). A minor leak on an exterior diesel filtration line occurred and diesel was spilled onto non-paved ground in this area. According to UAL personnel, soil was removed as a remedial action for this leak, although no information on confirmation sampling could be located in UAL files. A 2,000-gallon aboveground poly tank was also present in this area. This poly tank was used to contain detergent for aircraft washing activities on the adjacent aircraft wash rack (AOC 2). The Port of Oakland removed the boiler and

aboveground tanks from this area following UAL's exit of the OMC. Due to the history of this area, it was considered an AOC and investigated.

2.2.7 *Former 90-Day Hazardous Waste Accumulation Area (AOC 7)*

Prior to 2003, hazardous wastes were stored in a fenced area (AOC 7) near the southwestern corner of the aircraft wash rack (Figure 3). Containers of waste were stored on pallets with secondary containment. A compactor was also present for compacting debris. Liquid wastes stored in this area included used oil, antifreeze, non-chlorinated solvents, and jet fuel. No spills are known to have occurred in this area; however, based on the historical use of this area for waste storage, it was considered an AOC and investigated.

2.2.8 *Recent 90-Day Hazardous Waste Accumulation Area (AOC 8)*

Hazardous wastes were stored in a fenced area (AOC 8) on the eastern side of the aircraft wash rack (Figure 3). Containers of waste were stored on pallets with secondary containment. This facility was used from approximately January 2003 until May 2003. Liquid wastes stored in this area included used oil, antifreeze, non-chlorinated solvents, and jet fuel. Based on the use of this area for waste storage, it was considered an AOC and investigated.

2.2.9 *Hazardous Material Storage Areas (AOC 9)*

Five mobile safety storage buildings (AOC 9) were present at the OMC at the locations shown in Figure 3. These mobile buildings contained small volumes of hazardous materials, including new product as well as waste (satellite storage). The majority of waste generated by the facility was solid debris (rags, containers, etc). Liquid wastes including used oil, antifreeze, non-chlorinated solvents, and jet fuel, were recycled, if possible, or properly disposed of. Based on the use of these areas for liquid product and waste storage, they were investigated.

At the hazardous material storage area on the northwestern side of the hangar building, a monitoring well was observed during the site inspection (Figure 3). This well had a measured total depth of 15 feet bgs. Information on the purpose for this well and its construction was subsequently retrieved from UAL files. The information indicated that this well was installed as a piezometer in March 1999 during a geotechnical investigation for a planned expansion of the hangar building. No ground water sampling information was available for this well.

2.2.10 *Chemical Storage Area (AOC 10)*

A chemical storage area (AOC 10) was located within the hangar building (Figure 3). This room was constructed in 2000 and used by employees to procure chemicals for use in the hangars. This room was also used for storage of empty chemical containers and for hazardous waste satellite accumulation. Materials stored in this area included oils, paints, lubricants, and non-chlorinated solvents. Based on the use of this area for chemical and waste storage, it was investigated.

2.2.11 *Aircraft Fueling/Defueling Equipment Area (AOC 11)*

A mobile system was used at the OMC to fuel and defuel aircraft parked in the hangar. A tanker truck was situated approximately 50 feet outside of the hangar doors (AOC 11) and connected to the aircraft using mobile piping to fuel or defuel aircraft. These areas were observed to have some minor staining possibly related to drips from the fueling/defueling operations.

Additionally, a fuel spill was reported to have occurred in one of these areas on 15 December 2001. Approximately 40 gallons of jet fuel were spilled on the pavement in the area outside of Bay 2 on the western side of the hangar building (Figure 3). Absorbent materials were used to clean up the spill and no fuel was reported to have reached any storm drains. The City of Oakland Fire Department was immediately informed and the fire chief that witnessed the cleanup was reported to be satisfied with UAL's actions in containing the spill. Piazza Mobile Sweep was called in to sweep the area once the spill had been cleaned up. A copy of 15 December 2001 *UAL's Environmental Spill Report, Investigation Data Collection Form, and Security – Maintenance Report* regarding this incident are included in Appendix A. Due to the presence of staining and the previously reported spill, these areas were investigated.

2.2.12 *Fire System Generators (AOC 12)*

Seven diesel-powered motors were used to power the fire system water pumps. Each motor has an approximately 250-gallon diesel storage tank (AOC 12). The tanks and motors are located in an underground concrete vault located immediately southeast of the hangar (Figure 3). The motors and diesel storage tanks appeared in proper working order, and no diesel drips or stains were observed within the vault. The drain in the vault discharges to the sanitary sewer. This area was investigated due to the presence of the diesel storage tanks.

2.2.13 *Paint Spray Booth (AOC 13)*

A waterfall-style paint spray booth (AOC 13) was installed by UAL in the early 1990s within the northern portion of the hangar building (Figure 3). Paints and

non-chlorinated solvents were used and stored by UAL in this area. During the inspection, the spray booth was no longer operable due to leaks in the water holding tank caused by corrosion. The booth was decommissioned by UAL in 1998, and the water and sludge were properly disposed of off site. Paint overspray was observed within the booth during the site inspection. Based on operations in this area, it was investigated.

2.2.14 *Storm Drains (AOC 14)*

A number of storm water drains, pipelines, and ditches convey storm water off of the property (Figure 3). These include a storm ditch on the eastern edge of the property, storm drains and an underground pipeline on the eastern side of the hangar building, and storm drains and an underground pipeline on the western side of the hangar building. The storm ditch and the underground pipeline on the eastern side of the hangar building drain north into an open storm channel. The western pipeline drains south under Airport Drive to San Francisco Bay south of Airport Drive. Potential leaks from the storm water conveyance system were investigated at the property boundary.

2.2.15 *Aircraft Parking and Run-Up Area (AOC 15)*

Discussions with UAL personnel indicate that the concrete paved area east of the hangar (AOC 15) was used as an aircraft run-up area. In addition, UAL personnel and review of aerial photographs indicate the area east of the hangar was used for aircraft parking. Some minor evidence of fuel or oil staining was observed in this area during the inspection; therefore, it was investigated.

2.2.16 *Fuel Spill Area on Taxiway (AOC 16)*

An approximately 15 gallon jet fuel spill occurred during refueling on Taxiway B-10 on 2 July 2001. The letter, included in Appendix A and entitled *Taxiway Fuel Spill and Response* (ENSR, 21 August 2001), indicates that the Alameda County Fire Department washed down the taxiway, which resulted in runoff of spilled fuel and wash water onto the adjacent soils east and west of the taxiway. As presented in the letter, soil from these areas was hand-shoveled into drums on 2 July 2001 and a backhoe was used to excavate additional soil on 3 July 2001. The letter indicates that 13.17 tons of soil containing hydrocarbons was excavated and sent for treatment to TPS Technologies, Inc., in Richmond, California. The letter indicates that, for safety reasons, the excavation was backfilled the same day.

Previous investigation activities were completed in this area to assess any residual hydrocarbons in soil. The investigation consisted of collection of soil samples from excavation walls and shallow borings installed in the area surrounding the excavation. The soil sampling results indicated the presence of residual

concentrations of total petroleum hydrocarbons (TPH) less than 4 milligrams per kilogram (mg/kg), with the exception of the eastern and northern excavation walls, which contained TPH concentrations of 330 and 630 mg/kg, respectively. Benzene was not detected in any of the samples collected and toluene, ethylbenzene, and xylenes concentrations were either non-detect or just greater than their respective detection limits.

Based on the limited compounds of concern (COCs) detected in the soil samples, the ENSR letter requested a finding of No Further Action from Alameda County. However, a review of UAL and Alameda County files did not identify a reply from Alameda County. Therefore, the status of this site is not known. The reported residual hydrocarbon compounds in this area and the uncertainty related to the regulatory status of this location warranted further investigation.

2.2.17 *Former Vehicle Fueling USTs (AOC 17)*

One 10,000-gallon diesel UST (identified by the Port of Oakland as MF35) and one 10,000-gallon unleaded gasoline UST (identified by the Port of Oakland as MF36) and associated piping and dispensers (AOC 17) were excavated and removed from the OMC property in January 1999 (Figure 3). Soil containing hydrocarbons in the vicinity of the USTs was also removed at this time.

Following well installation and ground water monitoring in 1999 and 2000, ENSR, on UAL's behalf, requested a finding of No Further Action (NFA) from Alameda County in a letter entitled *Third Quarter 2000 Ground Water Monitoring Report and Request for No Further Action* (ENSR, 6 February 2001). In a response letter entitled *Underground Tank Investigation for UAL Building M-110* (Alameda County Health Care Services Agency, 23 April 2001) and included as Appendix B, the County stated that they would not require further work for the USTs; however, a formal NFA letter could not be issued because another leaking UST site at the same address (1100 Airport Drive) was still under active County oversight. As discussed in Section 2.3 below, this off-site leaking UST site is not on the former UAL OMC property nor is it UAL's responsibility.

Three monitoring wells (UAL-MW-1 through MW-3) were observed in the area surrounding the former gasoline and diesel UST locations. These wells were associated with the previous monitoring activities conducted by ENSR in this area. One additional well was also found in this area during the site inspection. Information on the purpose of this well and its construction was subsequently located in UAL files. This well was installed as a piezometer in March 1999 during a geotechnical investigation for a planned expansion of the hangar building. No ground water sampling information was available for this well. Due to the use and history of AOC 17, and its location adjacent to AOC 5, this area was investigated.

2.3 *AREAS OF CONCERN AT NEIGHBORING PROPERTIES*

AOCs identified at locations off of the OMC property are described below. Each of these areas is shown in Figure 3.

2.3.1 *Migration of Off-Site Solvent Plume onto OMC Property (AOC 18)*

As discussed in Section 2.2.17, a leaking UST site (AOC 18) is still under County oversight and listed for the OMC property address (1100 Airport Drive). This still active, former UST site is located in the economy parking area west of the OMC property, at the location shown in Figure 3. This area was part of World Airways operations at the OMC and is therefore listed under the address of the OMC, but it is not within UAL's former leasehold area. This leaking UST site, first identified in October 1988, consists of a former 1,000-gallon solvent UST and a former 3,000-gallon waste oil UST (identified by the Port of Oakland as MF25 and MF26). The tanks were removed by the Port of Oakland in March 1992. Investigation of these tank sites indicated the presence of TPH as gasoline, TPH as diesel, benzene, toluene, ethylbenzene, total xylenes, methyl-tert-butyl-ether, 1,1,1-trichloroethane, 1,1-dichloroethane, 1,2-DCA, 1,2-dichloroethene, and trichloroethene in soil and/or ground water. The Port of Oakland currently performs ground water monitoring within this area to address the releases from these former USTs. Potential migration of contamination in ground water from these off-site former USTs onto the OMC property was considered a concern requiring investigation. This additional investigation was required to document the extent to which off-site chemical sources have resulted in the presence of chemicals in soil and ground water on the OMC property.

2.3.2 *Runoff from Pavement to Unpaved Area North of OMC (AOC 19)*

As shown in Figure 3, the area immediately northeast of the OMC property consists of an unpaved grassy area (AOC 19) where storm water drains from the OMC property. Runoff from the paved areas of the OMC property adjacent to this unpaved area has the potential to have caused impacts to soil and ground water; therefore, this area was investigated.

2.4 *AREAS NOT REQUIRING INVESTIGATION*

In addition to the AOCs identified in Section 2.2 and 2.3 above, several areas with potential environmental concerns were evaluated and not considered to require further investigation. Each of these areas is described below along with the rationale for not investigating them.

URS

May 1, 2015

Mr. Douglas Herman
Environmental Scientist
Port of Oakland
530 Water Street
Oakland, CA 94607

Re: Transmittal of Habitat Evaluation of Drainage Ditches at the Oakland Maintenance Center (OMC), Oakland International Airport

Dear Mr. Herman:

The referenced technical memorandum is attached for your use. As requested and per the requirements of Alameda County, the memorandum has been reviewed by a registered engineer, Mr. Phillip Mineart.

Sincerely,

URS Corporation

Steve Leach
Project Manager

Phillip Mineart, PE
Registered Engineer

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612
Tel: 510.893.3600
Fax: 510.874.3268

URS

Memorandum

Date: May 1, 2015

To: Douglas Herman and Diane Heinze, Port of Oakland

From: Steve Leach, URS Corporation
Ivan Parr, URS Corporation

Subject: **Habitat Evaluation of Drainage Ditches at the Oakland Maintenance Center (OMC), Oakland International Airport (Airport)**

Introduction and Objective

On April 13, 2015, Douglas Herman and Diane Heinze (Port of Oakland); and biologist Ivan Parr (URS) evaluated habitat associated with two drainage ditches behind the OMC within the Pump House No. 6 watershed at the Airport (the study area – Attachment A). Drainage Ditches 1 and 2 drain Ron Cowan Parkway, parts of the OMC, and Taxiway Bravo and adjacent areas. Based on the drainage area, the ditches are expected to convey freshwater runoff. URS was retained by the Port of Oakland to evaluate whether the habitats within the ditches are freshwater or brackish. Although wildlife was also observed, the habitat within the two drainage ditches was evaluated primarily by determining whether the dominant plant species are typical of fresh or brackish water environments.

This memorandum presents the methods and results of the survey. Photographs of the two drainage ditches are included as Attachment B.

Background

Hydrology. Drainage Ditch 2, the more eastern of the two ditches, receives runoff from Pump House 8 that drains Ron Cowan Parkway, and two areas east of the OMC: a concrete ditch from a vehicle parking area and the overnight aircraft parking area. Drainage Ditch 1, to the west, receives runoff from Drainage Ditch 2, and runoff from Taxiway Bravo, the area adjacent to the Southwest Airlines Provisioning Building, and the vehicle parking area west of the OMC. A map of the study area, including its drainages and drainage sources is included as Attachment A.

Vegetation. Based on Baye's *Selected Tidal Marsh Plant Species of the San Francisco Estuary* (2007), salinity groupings were determined as follows:

- **Freshwater**: 0 ppt salinity. This would include species, such as arrowhead (*Sagittaria* spp.) and aquatic buttercup (*Ranunculus aquatilis*).
- **Transitional**: > 5 ppt salinity. This salinity favors unspecialized species, such as cattails (*Typha* spp.).
- **Brackish**: 5-18 ppt salinity. This salinity level favors brackish or alkali-tolerant species such as alkali bulrush (*Bolboschoenus maritimus*), fathen (*Atriplex prostrata*), alkali heath (*Frankenia salina*), and marsh baccharis (*Baccharis glutinosa*), saltgrass (*Distichlis spicata*), and pickleweed (*Salicornia* spp.).
- **Saline**: 18+ ppt salinity. This would include species such as eelgrass (*Zostera marina*), pickleweed, and surfgrass (*Phyllospadix scouleri*).

Methods

A list of plant species observed at the Airport was compiled, and aquatic species on the list were ranked based on broad salinity tolerances: "freshwater", "brackish", "saline", "various", "upland", and combinations of these.

Their general tolerances were obtained from reviewing the A Manual of California Vegetation (Sawyer et al.) and The Jepson Manual (Baldwin et al. 2012).

Plants within the study area were identified by walking the perimeters of both drainage ditches (Drainage Ditch 1 and Drainage Ditch 2) and noting the species observed. Three transects within each of the drainage ditches were evaluated to provide a representative cross-section of the habitat. Within each transect, the percent cover of each plant species rooted within the inundated and saturated portions of the ditch was visually estimated. Wildlife observations were also noted.

Results - Vegetation

The results of the vegetation transects are presented in the table below.

Drainage Ditch 1

SPECIES	COMMON NAME	SALT TOLERANCE	% West Cross-Section	% Central Cross Section	% East Cross-Section
Carpobrotus chilensis	common iceplant	generally upland	>1	<1	5
Cortaderia jubata	Pampas grass	generally upland	>1	5	50
Distichlis spicata	salt grass	Saline	0	<1	0
Myoporum laetum	ngaio	generally upland	0	<1	0
Solanum douglasii	greenspot nightshade	fresh to brackish	0	<1	0
Typha cf. dominigensis	cattail	fresh to brackish	90	90	20

Drainage Ditch 2

SPECIES	COMMON NAME	SALT TOLERANCE	% East Cross-Section	% Central Cross Section	% West Cross-Section
Salicornia pacifica	Pacific pickleweed	brackish to saline	<1	<1	5
Atriplex prostrata	fat hen	brackish to saline	10	30	10
Baccharis glutinosa	marsh baccharis	freshwater to saline	0	<1	5
Bolboschoenus maritimus	alkali bulrush	brackish to saline	60	50	50
Carpobrotus chilensis	common iceplant	generally upland	<1	<1	5
Cortaderia jubata	Pampas grass	generally upland	10	<1	10
Cotula coronopifolia	brass buttons	various	0	<1	0
Distichlis spicata	salt grass	saline	0	10	5
Frankenia salina	alkali heath	brackish to saline	0	<1	<1
Typha cf. dominigensis	cattail	fresh to brackish	<1	<1	<1

Drainage Ditch 1. Within Drainage Ditch 1, the dominant vegetation is consistently cattail, a species tolerant of both freshwater and brackish water ecosystems. Pampas grass and ice plant are both species with general tolerances, and are typically found in upland habitats, but are not intolerant of freshwater or brackish water ecosystems. Indications of salinity within Drainage Ditch 1 included salt crust forming on dead vegetation, and loose soils.

Transitional areas between brackish and freshwater wetlands are often characterized by unspecialized freshwater marsh plants, such as cattail (Baye 2007). Soil salinity in these marshes typically do not exceed 5 parts per thousand (ppt) in the root zone during the growing season (Baye 2007). The dominance of cattail within the lower portions of Drainage Ditch 1 is characteristic of transitional zones between freshwater and brackish wetlands. Therefore, it is likely that the soil salinity in these areas would be less than 5 ppt during the growing season (March-August).

Drainage Ditch 2. Within Drainage Ditch 2, the vegetation is dominated by species that are tolerant of brackish environments. The dominant species is alkali bulrush, followed by fat hen, and salt grass. Species that are characterized as brackish marsh species tolerate a wide range of salinity, but the salinity does not typically exceed 18 ppt, at least not for periods of weeks or more (Baye 2007). Based on the presence of several brackish marsh species, it is likely that Drainage Ditch 2 has a higher soil salinity compared to Ditch 1 but it is unlikely that the soil salinity would exceed 18 ppt for long periods.

A list of all plant species identified in the study area is presented in Attachment C.

Results – Wildlife

Although wildlife was not the focus of the survey, the wildlife species observed during the surveys are summarized in Attachment D. Additional wildlife observations included breeding behavior of red-winged blackbirds within both of the drainage ditches and the sighting of a muskrat shown in Photo 4 (Attachment B).

Conclusion

The vegetation of Drainage Ditches 1 and 2 indicates variable concentrations of soil salinity. Drainage Ditch 2 appears to be more brackish than Drainage Ditch 1. An unspecialized wetland species, cattail, dominates the vegetation in Drainage Ditch 1, which is typical of sites with lower salinity, such as the transitional zone between fresh and brackish water. Cattail and other unspecialized plant species are less likely to occur if the root zone exceeds 5 ppt during the growing season (Baye 2007), therefore, it is assumed that the salinity in Drainage Ditch 1 is less than 5 ppt.

Plant species typical of brackish habitats are dominant at Drainage Ditch 2. Based on the observed species, it is likely that the soil and water salinity is higher in Drainage Ditch 2 compared to Drainage Ditch 1, but the soil salinity is not likely to exceed 18 ppt for extended periods of time.

References

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Baye, Peter. 2007. Selected Tidal Marsh Plant Species of the San Francisco Estuary, A Field Identification Guide. Prepared for the San Francisco Estuary Invasive Spartina Project

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Sawyer, John O. T. Keeler-Wolf and Julie M. Evens. A Manual of California Vegetation, 2nd ed. 2009. California Native Plant Society. Sacramento, CA.

Attachments

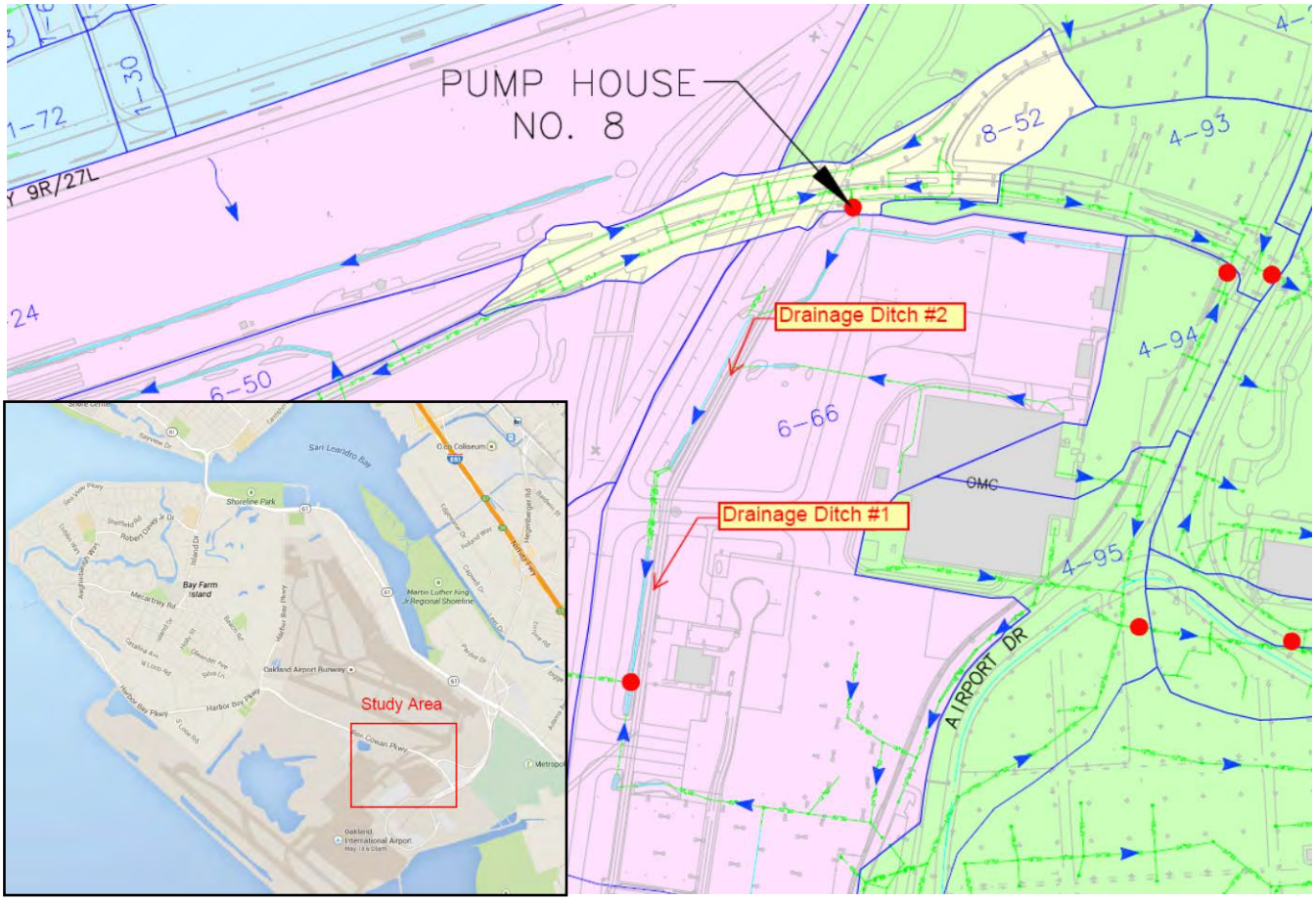
A Study Area Location

B Photographs of the Survey Area

D Species List of Plants Observed

C Species List of Wildlife Observed

Attachment A
Study Area Location



Oakland International Airport Study Area Location

Attachment B
Photographs of the Survey Area

Attachment B Photographs of the Survey Area

Drainage Ditch 1

Photos #1 and #2

Drainage Ditch 1 Vegetation: Illustrates dominant vegetation (cattails, pampas grass, and Chilean iceplant) growing along the banks of Drainage Ditch 1 (top photo) and close-up of a transect (bottom photo), showing cattails and pampas grass.

Photos #3 and #4

Drainage Ditch 1: Illustrates salt encrusting the roots of salt grass (top photo) and a muskrat, a (typically) freshwater-dwelling rodent observed in Drainage Ditch 1 (bottom photo)

Drainage Ditch 2

Photos #5, #6, and #7

Drainage Ditch 2 Vegetation: dominant vegetation growing along the banks of Drainage Ditch 2 (top photo) includes pickleweed, fathen, and saltgrass. The overview of the drainage ditch (center photo) shows alkali bulrush and fathen growing throughout the ditch. Photo #7 shows freshwater (rushes) and brackish water (alkali bulrush, fathen, and pickleweed) species adjacent to a culvert outlet.

Attachment C
Species List of Plants Observed

Appendix C Species List of Plants Observed

Scientific Name	Common Name	Origin	Status*
Ambrosia psilostachya	western ragweed	Native	NA
Amsinckia menziesii	Menzies's fiddleneck	Native	NA
Anagallis arvensis	scarlet pimpernel	Non-native	NA
Anagallis arvensis	scarlet pimpernel	Non-native	NA
Avena barbata	slender oat	Non-native	Cal-IPC Moderate
Avena fatua	wild oat	Non-native	Cal-IPC Moderate
Baccharis glutinosa	marsh baccharis	Native	NA
Baccharis pilularis	coyotebrush	Native	NA
Bellardia trixago	Mediterranean linseed	Non-native	Cal-IPC Limited
Bolboschoenus maritimus	alkali bulrush	Native	NA
Brassica nigra	black mustard	Non-native	Cal-IPC Moderate
Briza minor	little quaking grass	Non-native	NA
Bromus diandrus	ripgut brome	Non-native	Cal-IPC Moderate
Bromus hordeaceus	soft brome	Non-native	Cal-IPC Limited
Carpobrotus chilense	common iceplant	Non-native	Cal-IPC Moderate
Centaurea melitensis	Maltese star thistle	Non-native	Cal-IPC Moderate
Centaurea solstitialis	Yellow star thistle	Non-native	Cal-IPC High
Conium maculatum	poison hemlock	Non-native	Cal-IPC Moderate
Conyza bonariensis	asthmaweed	Non-native	NA
Conyza canadensis	Canadian horseweed	Native	NA
Cortaderia jubata	pampas grass	Non-native	Cal-IPC High
Cotula coronopifolia	brass buttons	Non-native	Cal-IPC Limited
Crassula connata	sand pygmyweed	Native	NA
Crepis capillaris	smooth hawksbeard	Non-native	NA
Cynodon dactylon	Bermuda grass	Non-native	Cal-IPC Moderate
Distichlis spicata	inland saltgrass	Native	NA
Dittrichia graveolens	stinkwort	Non-native	Cal-IPC Moderate
Epilobium brachycarpum	panicled fireweed	Native	NA
Epilobium ciliatum	fringed willowherb	Native	NA
Erodium botrys	long-beaked filaree	Non-native	NA
Erodium cicutarium	field stork'ds bill	Non-native	Cal-IPC Limited
Festuca bromoides	brome fescue	Non-native	NA
Festuca myuros	rat-tail fescue	Non-native	Cal-IPC Moderate
Foeniculum vulgare	sweet fennel	Non-native	Cal-IPC High
Geranium dissectum	Cut-leaved geranium	Non-native	Cal-IPC Limited
Helminthotheca echioides	bristly oxtongue	Non-native	NA
Heterotheca grandiflora	telegraph weed	Native	NA
Hordeum brachyantherum	meadow barley	Native	NA
Hordeum marinum	seaside barley	Native	Cal-IPC Limited
Hordeum murinum	foxtail barley	Non-native	Cal-IPC Moderate
Hypochaeris glabra	smooth cat's ear	Non-native	Cal-IPC Limited
Hypochaeris radicata	rough cat's ear	Non-native	Cal-IPC Limited
Leymus triticoides	beardless wildrye	Native	NA
Lolium multiflorum	Italian ryegrass	Non-native	NA
Lolium perenne	perennial ryegrass	Non-native	NA
Lotus corniculatus	bird's-foot trefoil	Non-native	Cal-IPC NL
Lupinus bicolor	miniature lupine	Native	NA

Scientific Name	Common Name	Origin	Status*
Lythrum hyssopifolium	hyssop loosestrife	Non-native	Cal-IPC Moderate
Matricaria discoidea	pineapple weed	Non-native	NA
Medicago polymorpha	burclover	Non-native	Cal-IPC Limited
Medicago sativa	alfalfa	Non-native	NA
Melilotus indicus	annual yellow sweetclover	Non-native	NA
Melilotus officinalis	yellow sweetclover	Non-native	Cal-IPC NL
Myoporum laetum	ngaio	Non-native	Cal-IPC Moderate
Olea europea	European olive	Non-native	Cal-IPC Limited
Plantago coronopus	buckhorn plantain	N/A	Cal-IPC NL
Plantago lanceolata	English plantain	Non-native	Cal-IPC Limited
Poa annua	annual bluegrass	Non-native	NA
Polypogon monspeliensis	annual rabbitsfoot grass	Non-native	Cal-IPC Limited
Pseudognaphalium luteoalbum	Jersey cudweed	Non-native	NA
Raphanus sativus	cultivated radish	Non-native	Cal-IPC Moderate
Rumex acetosella	common sheep sorrel	Non-native	Cal-IPC Moderate
Rumex crispus	curly dock	Non-native	Cal-IPC Limited
Rumex salicifolius	willow dock	Native	NA
Salicornia pacifica	Pacific pickleweed	Native	NA
Schoenoplectus pungens	common threesquare	Native	NA
Solanum douglasii	Greenspot nightshade	native	NA
Sonchus asper	spiny sowthistle	Non-native	Cal-IPC NL
Sonchus oleraceus	common sowthistle	Non-native	NA
Spergularia marina	salt marsh sand spurry	Native	NA
Taracacum officinale	common dandelion	Non-native	Cal-IPC NL
Trifolium campestre	low hop clover	Non-native	NA
Typha cf. *dominigensis*	cattail	Native	NA
Vicia americana	American vetch	Native	NA
Vicia disperma	European vetch	Non-native	NA

* Status Notes:

NA: .....No status

Cal-IPC Limited.....California Invasive Plant Council species that are invasive but their ecological impacts are minor on a statewide level or there is not enough information to justify a higher score

Cal-IPC Moderate .....California Invasive Plant Council species that have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure

Cal-IPC High.....California Invasive Plant Council species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure.

USDA List C.....US Department of Agriculture List C - any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment

Attachment D
Species List of Wildlife Observed

Attachment D Species List of Wildlife Observed

Common Name	Scientific Name	Conservation Status*
Reptiles		
Western fence lizard	*Sceloporus occidentalis*	NL
Birds		
mallard	*Anas platyrhynchos*	NL
snowy egret	*Egretta thula*	NL
Wilson's snipe	*Gallinago delicata*	NL
western gull	*Larus occidentalis*	NL
northern mockingbird	*Mimus polyglottos*	NL
red-winged blackbird	*Agelaius phoeniceus*	NL
house finch	*Carpodacus mexicanus*	NL
Mammals		
California ground squirrel	*Spermophilus beecheyi*	NL
Botta's pocket gopher (burrowing evidence)	*Thomomys bottae*	NL
common muskrat	*Ondatra zibethicus*	NL

*Conservation Status:

NL: .....Not Listed