FOR CONTRACT NO: 11-2976U4
PROJECT ID: 1100020490

INFORMATION HANDOUT

PERMITS

COASTAL DEVELOPMENT PERMIT
GENERAL ORDER 88-B RAILROAD PERMIT

MATERIALS INFORMATION

LEAD STUDY REPORT
BATTERY BACKUP SYSTEM DIAGRAMS
BURN ASH STUDY REPORT

ROUTE: 11-SD-5-R10.0, R10.7

ROUTE 5 AND BAY MARINA DRIVE
BURN ASH STUDY REPORT
NATIONAL CITY, CALIFORNIA
CALTRANS CONTRACT NO. 11A1638
EA 297610

March 23, 2012

Prepared for:

State of California
Department of Transportation – District 11
4050 Taylor Street, MS-242
San Diego, California 92110

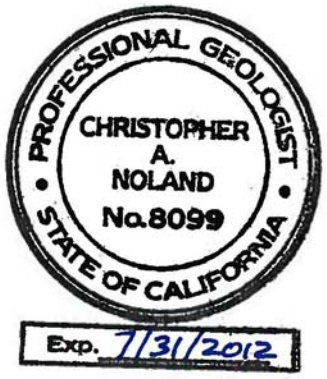
ROUTE 5 AND BAY MARINA DRIVE
BURN ASH STUDY REPORT
NATIONAL CITY, CALIFORNIA
CALTRANS CONTRACT NO. 11A1638
EA 297610

Kleinfelder Project No. 125347

Prepared by:

Meghan Hearne, GIT
Staff Geologist

Reviewed by:



Christopher Noland, PG (8099)
Project Geologist

KLEINFELDER WEST, INC.
5015 Shoreham Place
San Diego, California, 92122
(858) 320-2000

March 23, 2012

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report has been prepared to summarize procedures and results of a limited soil investigation to assess the potential presence of burn ash materials on Bay Marina Drive, directly west of Interstate 5, in National City (Site). This investigation was performed for California for the State of California Department of Transportation (Caltrans). This report summarizes soil sampling activities conducted on February 10, 2012 on the on-ramp shoulder of Bay Marina Drive (Site, Plate 1) in National City, California.

1.2 PROJECT OBJECTIVES AND SCOPE OF WORK

This report was prepared under Caltrans Contract No. 11A1638 and Task Order No. 29. The scope of work for Task Order No. 29 was to collect and analyze soil samples to evaluate whether burn ash materials are in soil where a highway improvement excavation is planned, consistent with a request from the County of San Diego Solid Waste Local Enforcement Agency (LEA). The work was completed consistent with that presented in Kleinfelder's *EA297610/Route 5 at Bay Marina Drive Sampling and Testing Work Plan* (Work Plan) (Kleinfelder, 2012), dated February 9, 2012.

Soil sampling was conducted to investigate whether chemicals of concern related to burn ash were present in soils anticipated to be excavated at the Site. The location and depth for each soil sample location is provided in Table 1 and the locations are shown on Plate 2. Soil analytical results are presented on Plate 3.

This report describes the procedures, results, and recommendations from the soil assessment performed within the project limits. The scope of work was consistent with that provided to Kleinfelder by Caltrans in the Task Order description and incorporated in Kleinfelder's Work Plan. Kleinfelder performed the tasks listed below:

- Provided project management and coordination.
- Prepared a site-specific work plan and prepared a site-specific health and safety plan (SHSP).
- Coordinated traffic control as necessary.

- Advanced 6 borings using hand auger methods to a maximum depth of 4 feet below ground surface (bgs) or until refusal. One soil samples was collected from each hand auger boring.
- Obtained global positioning system (GPS) readings at each boring location.
- Submitted 6 soil samples to Calscience Environmental Laboratories, Inc (Calscience) of Garden Grove, California, a state-certified laboratory, for analysis of metals by United States Environmental Protection Agency (U.S. EPA) Method 6010B/7141.
- Analyzed 2 soil samples for polycyclic aromatic hydrocarbons (PAHs) by U.S. EPA Method 8270C SIM.
- Prepared this report, including a summary of the assessment methods and field observations, data evaluation and discussion, findings, conclusions and recommendations.

2 BACKGROUND

2.1 SITE IMPROVEMENTS

Improvements are planned for the shoulder areas of the on ramp and off ramp of Bay Marina Drive at Interstate 5 south. The project involves widening Bay Marina Drive to add right and left hand turn lanes and signalizing the Bay Marina Drive and Cleveland Avenue intersection.

2.2 PREVIOUS SITE INVESTIGATIONS

Past historic uses in the vicinity around Sweetwater River and the Route 5/54 Interchange were industrial in nature and included a disposal site. The commercial disposal site was in operation during the 1930s through the 1950s. Areas of informal disposal may have also occurred on higher ground north of the Sweetwater River, where refuse was gathered, salvageable materials removed, and the remainder burned. This remainder that was burned is identified as burn ash. The burned material was dumped into the adjacent marsh. Refuse in the disposal area may have included military, commercial, and residential wastes. The burn ash is defined as "debris, refuse, ash, and ash contaminated soil that was produced from the burning of municipal solid waste." Burn ash is often found to contain elevated levels of metals from food cans, crystal glassware, and lead paint on wood debris. Chemicals associated with burn ash sites may include metals, polynuclear aromatic hydrocarbons, polychlorinated biphenyls, dioxins and dibenzofurans, and radioactive materials.

Kleinfelder performed an aerially-deposited lead (ADL) investigation in 2010 (Kleinfelder, 2010) that assessed the presence of lead in shallow soil. Based on the results of the investigation, ADL was present in shallow soil at the Site; however, evidence of burn ash material was not encountered.

The area of soil that is going to be disturbed has the possibility of containing burn ash from previous uses at the site to the south. During construction of the site to the south, soils were found to be contaminated with burn ash material that contained a variety of heavy metals.

3 SAMPLING ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

Kleinfelder prepared and submitted a Work Plan (Kleinfelder, 2012a) and a SHSP (Kleinfelder, 2012b). The health and safety plan was reviewed daily with field personnel for potential hazards, emergency contact information, and hospital route.

Prior to ground-disturbance activities, Underground Service Alert (USA) was notified 48 hours in advance and USA issued ticket number A20390286.

3.2 SAMPLING LOCATIONS AND RATIONALE

The sampling strategy originally proposed for the Site included random sampling; however, the six sampling locations and associated depths were selected by the LEA representative during performance of the field work. One soil sample was collected at each location.

3.3 HAND AUGER DRILLING AND SOIL SAMPLING METHODS

Hand auger borings were advanced to depths up to 4 feet bgs on February 10, 2012, at locations shown on Plates 2 and 3. Borings were advanced using a manually-operated, pre-cleaned, stainless steel hand auger. Work was performed in the unpaved shoulder.

Soil samples were collected from the hand auger and placed into laboratory-supplied, 8-ounce jars with Teflon lids. The sample jars were labeled with sample identification information and placed in a secured, chilled ice chest. Standard chain-of-custody procedures were used during sampling and transportation to Calscience, the laboratory subcontracted by Kleinfelder.

The sample locations were recorded during utility location using a hand-held Trimble GPS unit and coordinates are provided in Table A-1 (Appendix A). The approximate locations of these borings are shown on Plates 2 and 3.

3.5 ANALYTICAL METHODS

Six soil samples were analyzed for California Title 22 Metals by U.S. EPA Method 6010B/7141. The two samples that had the highest detections of metals were also analyzed for PAHs by U.S. EPA Method 8270C SIM.

3.6 DECONTAMINATION AND BORING ABANDONMENT

Sampling equipment (i.e., hand auger cutter head, soil sampler, etc.) was washed with a solution of Alconox® detergent, rinsed with tap water, and then rinsed with distilled water in buckets prior to each use. Generation of wash water was minimized. Wash water was contained in 5-gallon pails for disposal. At the end of the day, wash water was disposed at the surface in Caltrans right-of-way, in an area that did not cause runoff of fluid or sediment into receptors (i.e., storm drain, creek, or other surface water bodies) in accordance with the Work Plan. Soil cuttings originating from each boring were placed back within the original borehole as described in the Work Plan.

4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

This section includes a summary of the Site conditions observed during the field work and a summary of the analytical results. Additionally, this section presents a discussion of the data quality assessment. The analytical results for the soil samples are presented in Table 1. Certified Level II laboratory reports are included as Appendix B.

4.1 SITE CONDITIONS

Typical burn ash materials (broken or fused glass, ceramic, and/or metal fragments) were not encountered in the borings performed as part of this investigation. Groundwater was not encountered in the borings to a maximum depth of 4 feet bgs.

4.2 SOIL SAMPLE RESULTS

4.2.1 Metals

Results of metals analyses are presented in Table 1. The soil samples collected as part of this investigation contained concentrations of metals that were not indicative of burn ash materials. Metals concentrations detected in soil samples were consistent with background concentrations typically encountered in Southern California.

4.2.2 PAHs

Results of PAH analyses are presented in Appendix B. PAHs were not detected above laboratory reporting limits in the two soil samples selected for analysis.

4.3 DATA QUALITY ASSESSMENT

The following section summarizes the quality assurance (QA) and quality control (QC) program and data quality assessment. The data quality assessment process consisted of a review, verification, validation, and evaluation of the analytical data generated. The data quality assessment was performed using the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (U.S. EPA, 2004) as a reference.

A total of 6 samples were collected and submitted to Calscience for one or more of the following analyses:

- California Title 22 Metals by U.S. EPA Method 6010B/7141A.
- PAHs by U.S. EPA Method 8270C SIM.

A limited data quality review was performed on the samples. The data quality review included a review of the completeness of the data deliverables; the accuracy and completeness of the chain-of-custody (COC) records; the adherence to holding times, preservatives, and turnaround times; and an evaluation of the analyses of the samples, field and laboratory blanks, laboratory control samples (LCS), and precision/accuracy of the quality control (QC) samples and surrogates, if applicable. Custody seals were affixed to the sample cooler prior to shipment to the analytical laboratory. The custody seals were reportedly intact upon arrival at the laboratory; therefore the integrity of the samples was not compromised.

The laboratory method blanks did not contain concentrations of target analytes above laboratory reporting limits. Additionally, the method-specific LCS and surrogate recoveries were within the laboratory's control limits for precision and accuracy. Based on the limited data quality review, the data are considered to be acceptable and valid as intended for the project.

5 CONCLUSIONS AND RECOMMENDATIONS

The Task Order scope of work was to collect and analyze soil samples to evaluate the potential presence of metals (burn ash materials) in soil where highway excavation will take place at the request of the LEA. Typical burn ash components (e.g. ash material or debris such as broken or fused glass and ceramics, metal fragments, etc.) were not observed in borings, as stated in Section 4.1. Metal concentrations were within typical background levels observed in Southern California, and PAHs were not detected above laboratory-reporting limits.

5.1 RECOMMENDATIONS

Based on the results of the soil sampling activities conducted, current and future uses of the Site, and anticipated general construction activities that may be associated with proposed construction along the median of the subject corridor, the general recommendations listed below are provided.

- Recommendations from Kleinfelder in the report dated March 17, 2010 shall still apply (Kleinfelder, 2010).
- Although burn ash material was absent in borings, based on the presence of lead-impact mainly in surface soil samples collected during the prior investigation (Kleinfelder, 2010), it appears that some Site soil is affected by ADL; therefore, the DTSC variance should be evaluated and used as appropriate for soil disposal, reuse, or both.

6 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. The Client is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. The Client is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

7 REFERENCES

Kleinfelder. 2010. EA 297610/Route 5 and Bay Marina Drive Lead Study Report, National City, CA. March 17.

_____. 2012. EA 297610/Route 5 at Bay Marina Drive Sampling and Testing Work Plan, National City, CA. February 9.

_____. 2012b. Site Specific Health and Safety Plan, Soil Sampling, Bay Marina Drive and Interstate 5, San Diego, California. February 9.

United States Environmental Protection Agency. 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. October.

U.S. EPA. *See* United States Environmental Protection Agency.

Visual Sample Plan Version 5.9. 2009. Battelle Memorial Institute under contract with the United States Department of Energy.

VSP. *See* Visual Sample Plan.

TABLE

TABLE 1
Soil Analytical Results

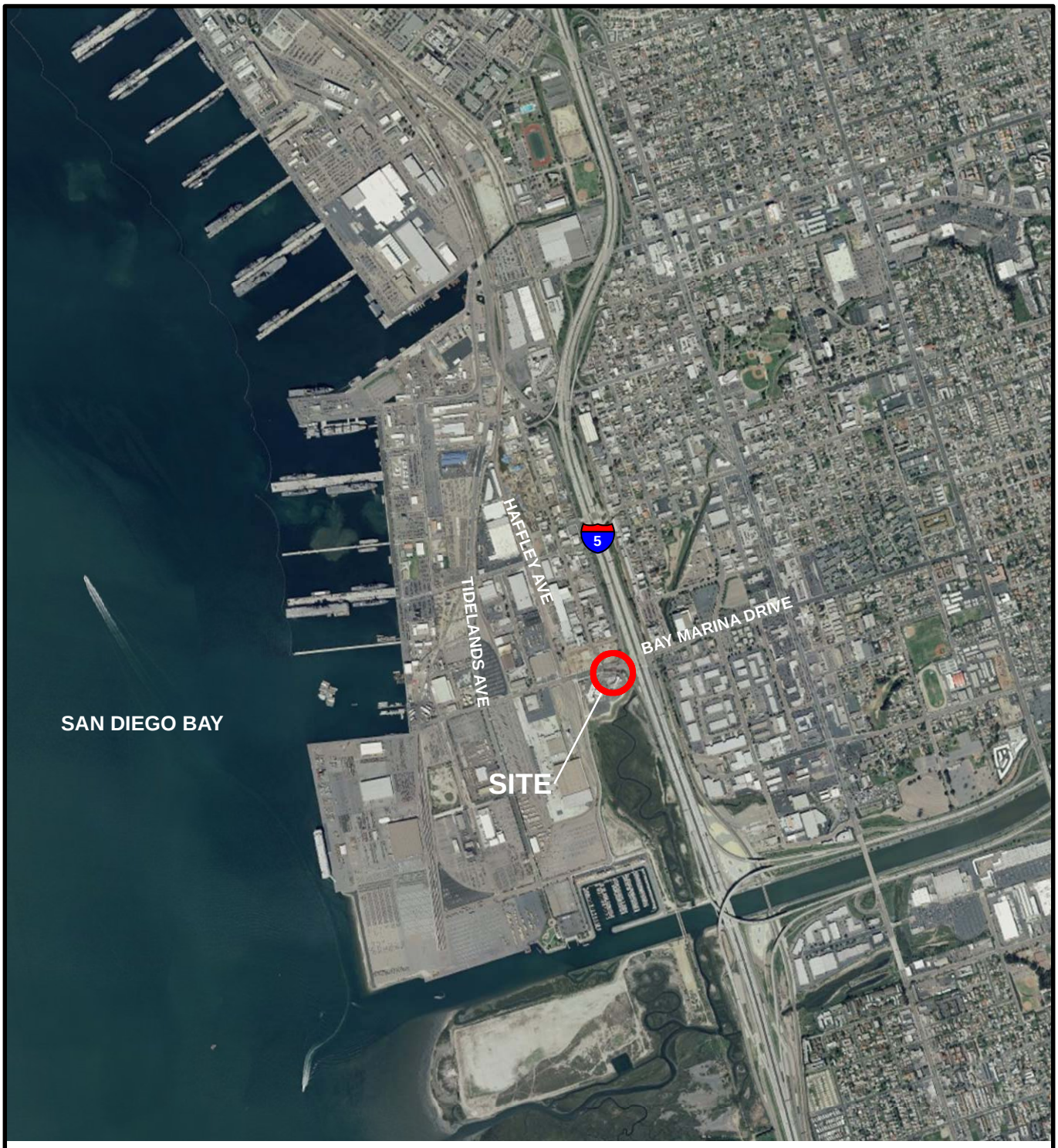
Sample ID	Depth (feet bgs)	Analyte*	Concentration (mg/kg)
HA01-2.5	2.5	Antimony	ND
HA01-2.5	2.5	Arsenic	1.37
HA01-2.5	2.5	Barium	64.6
HA01-2.5	2.5	Beryllium	ND
HA01-2.5	2.5	Cadmium	ND
HA01-2.5	2.5	Chromium	9.96
HA01-2.5	2.5	Cobalt	7.12
HA01-2.5	2.5	Copper	7.01
HA01-2.5	2.5	Lead	4.24
HA01-2.5	2.5	Molybdenum	ND
HA01-2.5	2.5	Nickel	4.29
HA01-2.5	2.5	Selenium	ND
HA01-2.5	2.5	Silver	ND
HA01-2.5	2.5	Thallium	ND
HA01-2.5	2.5	Vanadium	30.9
HA01-2.5	2.5	Zinc	20.5
HA01-2.5	2.5	Mercury	ND
HA02-4.0	4.0	Antimony	ND
HA02-4.0	4.0	Arsenic	2.40
HA02-4.0	4.0	Barium	90.3
HA02-4.0	4.0	Beryllium	0.336
HA02-4.0	4.0	Cadmium	0.512
HA02-4.0	4.0	Chromium	16.6
HA02-4.0	4.0	Cobalt	11.5
HA02-4.0	4.0	Copper	10.4
HA02-4.0	4.0	Lead	4.40
HA02-4.0	4.0	Molybdenum	ND
HA02-4.0	4.0	Nickel	5.53
HA02-4.0	4.0	Selenium	ND
HA02-4.0	4.0	Silver	ND
HA02-4.0	4.0	Thallium	ND
HA02-4.0	4.0	Vanadium	54.2
HA02-4.0	4.0	Zinc	32.2
HA02-4.0	4.0	Mercury	ND
HA03-2.0	2.0	Antimony	ND
HA03-2.0	2.0	Arsenic	3.09
HA03-2.0	2.0	Barium	74.9
HA03-2.0	2.0	Beryllium	0.351
HA03-2.0	2.0	Cadmium	ND
HA03-2.0	2.0	Chromium	14.6
HA03-2.0	2.0	Cobalt	9.06
HA03-2.0	2.0	Copper	22.2
HA03-2.0	2.0	Lead	19.1
HA03-2.0	2.0	Molybdenum	ND
HA03-2.0	2.0	Nickel	6.33
HA03-2.0	2.0	Selenium	ND
HA03-2.0	2.0	Silver	ND
HA03-2.0	2.0	Thallium	ND
HA03-2.0	2.0	Vanadium	44.8
HA03-2.0	2.0	Zinc	48.8
HA03-2.0	2.0	Mercury	ND
HA04-0.5	0.5	Antimony	ND
HA04-0.5	0.5	Arsenic	2.07
HA04-0.5	0.5	Barium	76.9
HA04-0.5	0.5	Beryllium	0.344

TABLE 1
Soil Analytical Results

Sample ID	Depth (feet bgs)	Analyte*	Concentration (mg/kg)
HA04-0.5	0.5	Cadmium	ND
HA04-0.5	0.5	Chromium	13.8
HA04-0.5	0.5	Cobalt	9.38
HA04-0.5	0.5	Copper	11.6
HA04-0.5	0.5	Lead	10.1
HA04-0.5	0.5	Molybdenum	ND
HA04-0.5	0.5	Nickel	6.15
HA04-0.5	0.5	Selenium	ND
HA04-0.5	0.5	Silver	ND
HA04-0.5	0.5	Thallium	ND
HA04-0.5	0.5	Vanadium	42.5
HA04-0.5	0.5	Zinc	29.3
HA04-0.5	0.5	Mercury	ND
HA05-2.0	2.0	Antimony	ND
HA05-2.0	2.0	Arsenic	2.22
HA05-2.0	2.0	Barium	70.1
HA05-2.0	2.0	Beryllium	0.392
HA05-2.0	2.0	Cadmium	0.623
HA05-2.0	2.0	Chromium	15.9
HA05-2.0	2.0	Cobalt	10.8
HA05-2.0	2.0	Copper	8.19
HA05-2.0	2.0	Lead	10.4
HA05-2.0	2.0	Molybdenum	ND
HA05-2.0	2.0	Nickel	6.54
HA05-2.0	2.0	Selenium	ND
HA05-2.0	2.0	Silver	ND
HA05-2.0	2.0	Thallium	ND
HA05-2.0	2.0	Vanadium	53.5
HA05-2.0	2.0	Zinc	31.1
HA05-2.0	2.0	Mercury	ND
HA06-3.5	3.5	Antimony	ND
HA06-3.5	3.5	Arsenic	2.53
HA06-3.5	3.5	Barium	98.1
HA06-3.5	3.5	Beryllium	0.346
HA06-3.5	3.5	Cadmium	ND
HA06-3.5	3.5	Chromium	17.2
HA06-3.5	3.5	Cobalt	6.12
HA06-3.5	3.5	Copper	8.83
HA06-3.5	3.5	Lead	3.39
HA06-3.5	3.5	Molybdenum	ND
HA06-3.5	3.5	Nickel	5.97
HA06-3.5	3.5	Selenium	ND
HA06-3.5	3.5	Silver	ND
HA06-3.5	3.5	Thallium	ND
HA06-3.5	3.5	Vanadium	53.1
HA06-3.5	3.5	Zinc	32.8
HA06-3.5	3.5	Mercury	ND

Notes:
bgs = below ground surface
mg/kg = milligrams per kilogram
ND = Not detected above laboratory reporting limit
* = polycyclic aromatic hydrocarbons not listed, since not detected above laboratory reporting limits.

PLATES



BASE MAP:
Imagery
from ESRI online service

0 1,000 2,000 4,000 Feet

N

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PROJECT NO.	125347
DRAWN:	03/13/2012
DRAWN BY:	SC
CHECKED BY:	TG
FILE NAME:	SLC12A020.MXD

SITE VICINITY MAP

BAY MARINA DRIVE
SAN DIEGO, CALIFORNIA

PLATE
1

BASE MAP:
Imagery
from ESRI online service

LEGEND

BORING LOCATION

SITE BOUNDARY

0 25 50 100 Feet

N

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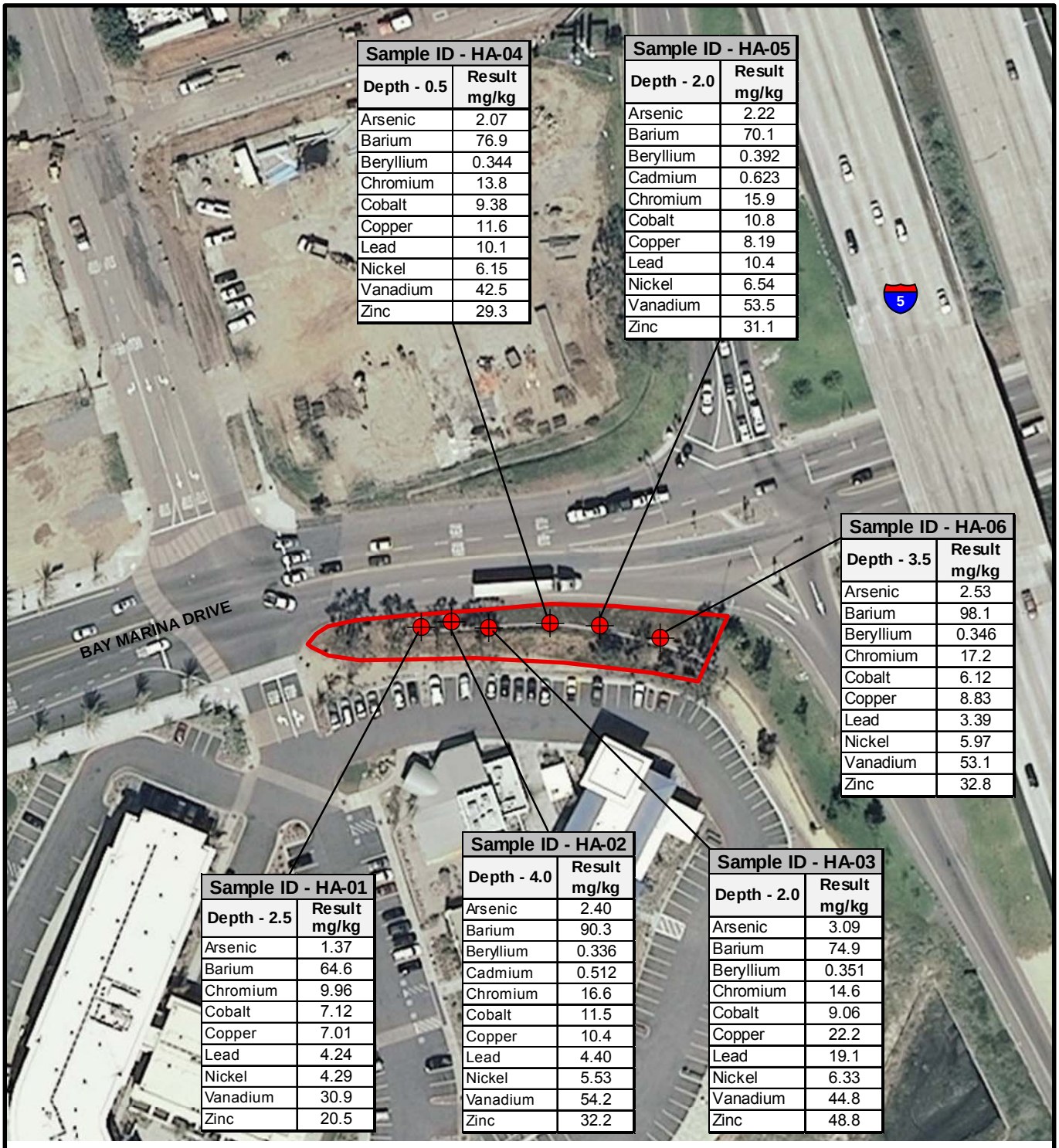
PROJECT NO.	125347
DRAWN:	03/20/2012
DRAWN BY:	SC
CHECKED BY:	MH
FILE NAME:	SLC12A021.MXD

SAMPLE LOCATION MAP

BAY MARINA DRIVE
SAN DIEGO, CALIFORNIA

PLATE
2



Sample ID - HA-04	
Depth - 0.5	Result mg/kg
Arsenic	2.07
Barium	76.9
Beryllium	0.344
Chromium	13.8
Cobalt	9.38
Copper	11.6
Lead	10.1
Nickel	6.15
Vanadium	42.5
Zinc	29.3

Sample ID - HA-05	
Depth - 2.0	Result mg/kg
Arsenic	2.22
Barium	70.1
Beryllium	0.392
Cadmium	0.623
Chromium	15.9
Cobalt	10.8
Copper	8.19
Lead	10.4
Nickel	6.54
Vanadium	53.5
Zinc	31.1

Sample ID - HA-06	
Depth - 3.5	Result mg/kg
Arsenic	2.53
Barium	98.1
Beryllium	0.346
Chromium	17.2
Cobalt	6.12
Copper	8.83
Lead	3.39
Nickel	5.97
Vanadium	53.1
Zinc	32.8

Sample ID - HA-01	
Depth - 2.5	Result mg/kg
Arsenic	1.37
Barium	64.6
Chromium	9.96
Cobalt	7.12
Copper	7.01
Lead	4.24
Nickel	4.29
Vanadium	30.9
Zinc	20.5

Sample ID - HA-02	
Depth - 4.0	Result mg/kg
Arsenic	2.40
Barium	90.3
Beryllium	0.336
Cadmium	0.512
Chromium	16.6
Cobalt	11.5
Copper	10.4
Lead	4.40
Nickel	5.53
Vanadium	54.2
Zinc	32.2

Sample ID - HA-03	
Depth - 2.0	Result mg/kg
Arsenic	3.09
Barium	74.9
Beryllium	0.351
Chromium	14.6
Cobalt	9.06
Copper	22.2
Lead	19.1
Nickel	6.33
Vanadium	44.8
Zinc	48.8

BASE MAP:
Imagery
from ESRI online service

0 50 100 200
Feet

N

LEGEND

BORING LOCATION
SITE BOUNDARY

Notes:
All samples collected on 2-10-2012
mg/kg = milligrams per kilogram

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PROJECT NO.	125347
DRAWN:	03/21/2012
DRAWN BY:	SC
CHECKED BY:	MH
FILE NAME:	SLC12A022.MXD

DETECTED ANALYTICAL RESULTS

BAY MARINA DRIVE
SAN DIEGO, CALIFORNIA

PLATE
3

APPENDIX A

Sample Location Coordinates

TABLE A-1
Sample Location Coordinates

Boring ID[1]	Latitude	Longitude
HA-01	32.660	117.109
HA-02	32.660	117.109
HA-03	32.660	117.109
HA-04	32.660	117.109
HA-05	32.660	117.109
HA-06	32.660	117.109

[1] - Coordinates collected with Trimble GeoXT with sub-meter capability

APPENDIX B

Laboratory Analytical Reports and Chain-of-Custody Documentation

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 12-02-0736

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kleinfelder, Inc.

Client Project Name: Caltrans Bay Marina Drive / 125347

Attention: Chris Noland
5015 Shoreham Place
San Diego, CA 92122-5993

Approved for release on 02/29/2012 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Caltrans Bay Marina Drive / 125347
Work Order Number: 12-02-0736

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs
Units: mg/kg

Project: Caltrans Bay Marina Drive / 125347

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA02-4.0	**12-02-0736-2-A**	**02/10/12 10:37**	**Solid**	**GC/MS AAA**	**02/21/12**	**02/27/12 14:07**	**120221L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.020	1		Pyrene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1		Benzo (a) Anthracene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1		Chrysene	ND	0.020	1	
Acenaphthylene	ND	0.020	1		Benzo (k) Fluoranthene	ND	0.020	1	
Acenaphthene	ND	0.020	1		Benzo (b) Fluoranthene	ND	0.020	1	
Fluorene	ND	0.020	1		Benzo (a) Pyrene	ND	0.020	1	
Phenanthrene	ND	0.020	1		Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Anthracene	ND	0.020	1		Dibenz (a,h) Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1		Benzo (g,h,i) Perylene	ND	0.020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2-Fluorobiphenyl	72	14-146			Nitrobenzene-d5	78	18-162		
p-Terphenyl-d14	72	34-148							

HA05-2.0	**12-02-0736-5-A**	**02/10/12 11:40**	**Solid**	**GC/MS AAA**	**02/21/12**	**02/27/12 14:34**	**120221L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.020	1		Pyrene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1		Benzo (a) Anthracene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1		Chrysene	ND	0.020	1	
Acenaphthylene	ND	0.020	1		Benzo (k) Fluoranthene	ND	0.020	1	
Acenaphthene	ND	0.020	1		Benzo (b) Fluoranthene	ND	0.020	1	
Fluorene	ND	0.020	1		Benzo (a) Pyrene	ND	0.020	1	
Phenanthrene	ND	0.020	1		Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Anthracene	ND	0.020	1		Dibenz (a,h) Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1		Benzo (g,h,i) Perylene	ND	0.020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2-Fluorobiphenyl	94	14-146			Nitrobenzene-d5	107	18-162		
p-Terphenyl-d14	73	34-148							

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received:	02/10/12
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	mg/kg

Project: Caltrans Bay Marina Drive / 125347

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-010-1,347**	**N/A**	**Solid**	**GC/MS AAA**	**02/21/12**	**02/27/12 13:41**	**120221L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.020	1		Pyrene	ND	0.020	1	
2-Methylnaphthalene	ND	0.020	1		Benzo (a) Anthracene	ND	0.020	1	
1-Methylnaphthalene	ND	0.020	1		Chrysene	ND	0.020	1	
Acenaphthylene	ND	0.020	1		Benzo (k) Fluoranthene	ND	0.020	1	
Acenaphthene	ND	0.020	1		Benzo (b) Fluoranthene	ND	0.020	1	
Fluorene	ND	0.020	1		Benzo (a) Pyrene	ND	0.020	1	
Phenanthrene	ND	0.020	1		Indeno (1,2,3-c,d) Pyrene	ND	0.020	1	
Anthracene	ND	0.020	1		Dibenz (a,h) Anthracene	ND	0.020	1	
Fluoranthene	ND	0.020	1		Benzo (g,h,i) Perylene	ND	0.020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
2-Fluorobiphenyl	64	14-146			Nitrobenzene-d5	74	18-162		
p-Terphenyl-d14	74	34-148							

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Caltrans Bay Marina Drive / 125347

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA01-2.5	**12-02-0736-1-A**	**02/10/12 10:22**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:49**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:36 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	1.37	0.750	1		Molybdenum	ND	0.250	1	
Barium	64.6	0.500	1		Nickel	4.29	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	9.96	0.250	1		Thallium	ND	0.750	1	
Cobalt	7.12	0.250	1		Vanadium	30.9	0.250	1	
Copper	7.01	0.500	1		Zinc	20.5	1.00	1	
Lead	4.24	0.500	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA02-4.0	**12-02-0736-2-A**	**02/10/12 10:37**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:51**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:38 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.40	0.750	1		Molybdenum	ND	0.250	1	
Barium	90.3	0.500	1		Nickel	5.53	0.250	1	
Beryllium	0.336	0.250	1		Selenium	ND	0.750	1	
Cadmium	0.512	0.500	1		Silver	ND	0.250	1	
Chromium	16.6	0.250	1		Thallium	ND	0.750	1	
Cobalt	11.5	0.250	1		Vanadium	54.2	0.250	1	
Copper	10.4	0.500	1		Zinc	32.2	1.00	1	
Lead	4.40	0.500	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA03-2.0	**12-02-0736-3-A**	**02/10/12 10:51**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:52**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:40 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	3.09	0.750	1		Molybdenum	ND	0.250	1	
Barium	74.9	0.500	1		Nickel	6.33	0.250	1	
Beryllium	0.351	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	14.6	0.250	1		Thallium	ND	0.750	1	
Cobalt	9.06	0.250	1		Vanadium	44.8	0.250	1	
Copper	22.2	0.500	1		Zinc	48.8	1.00	1	
Lead	19.1	0.500	1						

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Caltrans Bay Marina Drive / 125347

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA04-0.5	**12-02-0736-4-A**	**02/10/12 11:02**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:53**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:42 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.07	0.750	1		Molybdenum	ND	0.250	1	
Barium	76.9	0.500	1		Nickel	6.15	0.250	1	
Beryllium	0.344	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	13.8	0.250	1		Thallium	ND	0.750	1	
Cobalt	9.38	0.250	1		Vanadium	42.5	0.250	1	
Copper	11.6	0.500	1		Zinc	29.3	1.00	1	
Lead	10.1	0.500	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA05-2.0	**12-02-0736-5-A**	**02/10/12 11:40**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:55**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:44 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.22	0.750	1		Molybdenum	ND	0.250	1	
Barium	70.1	0.500	1		Nickel	6.54	0.250	1	
Beryllium	0.392	0.250	1		Selenium	ND	0.750	1	
Cadmium	0.623	0.500	1		Silver	ND	0.250	1	
Chromium	15.9	0.250	1		Thallium	ND	0.750	1	
Cobalt	10.8	0.250	1		Vanadium	53.5	0.250	1	
Copper	8.19	0.500	1		Zinc	31.1	1.00	1	
Lead	10.4	0.500	1						

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
HA06-3.5	**12-02-0736-6-A**	**02/10/12 11:30**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 18:57**	**120213L02A**

Comment(s): -Mercury analysis was performed on 02/13/12 13:46 with batch 120213L01.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.53	0.750	1		Molybdenum	ND	0.250	1	
Barium	98.1	0.500	1		Nickel	5.97	0.250	1	
Beryllium	0.346	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	17.2	0.250	1		Thallium	ND	0.750	1	
Cobalt	6.12	0.250	1		Vanadium	53.1	0.250	1	
Copper	8.83	0.500	1		Zinc	32.8	1.00	1	
Lead	3.39	0.500	1						

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Caltrans Bay Marina Drive / 125347

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-04-007-8,503**	**N/A**	**Solid**	**Mercury**	**02/13/12**	**02/13/12 13:17**	**120213L01**

Comment(s): -Preparation/analysis for Mercury was performed by EPA 7471A.

Parameter	Result	RL	DF	Qual
Mercury	ND	0.0835	1	

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-15,651**	**N/A**	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12 14:19**	**120213L02A**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Lead	ND	0.500	1	
Arsenic	ND	0.750	1		Molybdenum	ND	0.250	1	
Barium	ND	0.500	1		Nickel	ND	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	ND	0.250	1		Thallium	ND	0.750	1	
Cobalt	ND	0.250	1		Vanadium	ND	0.250	1	
Copper	ND	0.500	1		Zinc	ND	1.00	1	

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received:	02/10/12
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12-02-0735-1	**Solid**	**ICP 5300**	**02/13/12**	**02/13/12**	**120213S02**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	25.00	35	33	50-115	4	0-20	3
Arsenic	25.00	106	104	75-125	1	0-20	
Barium	25.00	104	110	75-125	3	0-20	
Beryllium	25.00	110	112	75-125	2	0-20	
Cadmium	25.00	106	107	75-125	2	0-20	
Chromium	25.00	105	108	75-125	2	0-20	
Cobalt	25.00	113	113	75-125	0	0-20	
Copper	25.00	106	108	75-125	2	0-20	
Lead	25.00	107	108	75-125	1	0-20	
Molybdenum	25.00	94	92	75-125	2	0-20	
Nickel	25.00	111	111	75-125	0	0-20	
Selenium	25.00	99	100	75-125	1	0-20	
Silver	12.50	99	101	75-125	2	0-20	
Thallium	25.00	104	103	75-125	1	0-20	
Vanadium	25.00	99	101	75-125	2	0-20	
Zinc	25.00	104	108	75-125	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received	02/10/12
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
12-02-0735-1	**Solid**	**ICP 5300**	**02/13/12**	**02/13/12**	**120213S02**

Analysis Comment: * - Analyzed 2/14/2012 2:27:00 PM

Parameter	SPIKE ADDED	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	25.00	90	92	75-125	2	0-20	
Arsenic	25.00	94	97	75-125	3	0-20	
Barium	25.00	106	108	75-125	1	0-20	
Beryllium	25.00	106	107	75-125	1	0-20	
Cadmium	25.00	102	103	75-125	1	0-20	
Chromium	25.00	102	103	75-125	1	0-20	
Cobalt	25.00	106	108	75-125	2	0-20	
Copper	25.00	101	101	75-125	0	0-20	
Lead	25.00	103	105	75-125	2	0-20	
Molybdenum	25.00	101	103	75-125	2	0-20	
Nickel	25.00	103	105	75-125	2	0-20	
Selenium	25.00	100	102	75-125	2	0-20	
Silver	12.50	97	98	75-125	1	0-20	
Thallium	25.00	100	103	75-125	3	0-20	
Vanadium	25.00	100	101	75-125	1	0-20	
Zinc	25.00	101	102	75-125	0	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 7471A Total
Method: EPA 7471A

Project Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12-02-0705-1	**Solid**	**Mercury**	**02/13/12**	**02/13/12**	**120213S01**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	110	111	80-120	1	0-16	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received: 02/10/12
Work Order No: 12-02-0736
Preparation: EPA 3545
Method: EPA 8270C SIM PAHs

Project Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
HA05-2.0	**Solid**	**GC/MS AAA**	**02/21/12**	**02/27/12**	**120221S07**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	0.2000	76	76	15-171	0	0-44	
2-Methylnaphthalene	0.2000	71	70	28-160	1	0-39	
1-Methylnaphthalene	0.2000	83	82	28-154	1	0-40	
Acenaphthylene	0.2000	64	65	27-153	0	0-41	
Acenaphthene	0.2000	68	68	33-147	0	0-38	
Fluorene	0.2000	66	65	12-180	1	0-33	
Phenanthrene	0.2000	63	62	26-152	0	0-29	
Anthracene	0.2000	53	53	10-145	0	0-25	
Fluoranthene	0.2000	65	66	20-158	1	0-31	
Pyrene	0.2000	65	64	11-191	1	0-31	
Benzo (a) Anthracene	0.2000	72	71	36-150	0	0-32	
Chrysene	0.2000	67	67	21-189	0	0-29	
Benzo (k) Fluoranthene	0.2000	70	69	40-148	2	0-32	
Benzo (b) Fluoranthene	0.2000	71	72	39-147	1	0-28	
Benzo (a) Pyrene	0.2000	58	58	36-168	0	0-26	
Indeno (1,2,3-c,d) Pyrene	0.2000	75	76	22-160	1	0-26	
Dibenz (a,h) Anthracene	0.2000	70	71	27-147	1	0-30	
Benzo (g,h,i) Perylene	0.2000	70	70	10-152	1	0-28	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-15,651	**Solid**	**ICP 5300**	**02/13/12**	**02/14/12**	**120213L02A**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Antimony	25.00	97	98	80-120	73-127	1	0-20	
Arsenic	25.00	91	92	80-120	73-127	1	0-20	
Barium	25.00	103	103	80-120	73-127	0	0-20	
Beryllium	25.00	94	95	80-120	73-127	0	0-20	
Cadmium	25.00	96	97	80-120	73-127	0	0-20	
Chromium	25.00	95	95	80-120	73-127	1	0-20	
Cobalt	25.00	102	103	80-120	73-127	1	0-20	
Copper	25.00	96	96	80-120	73-127	0	0-20	
Lead	25.00	98	99	80-120	73-127	1	0-20	
Molybdenum	25.00	96	96	80-120	73-127	1	0-20	
Nickel	25.00	100	101	80-120	73-127	0	0-20	
Selenium	25.00	95	95	80-120	73-127	0	0-20	
Silver	12.50	95	95	80-120	73-127	0	0-20	
Thallium	25.00	93	93	80-120	73-127	0	0-20	
Vanadium	25.00	94	94	80-120	73-127	0	0-20	
Zinc	25.00	100	100	80-120	73-127	0	0-20	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-8,503	**Solid**	**Mercury**	**02/13/12**	**02/13/12**	**120213L01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	101	103	85-121	2	0-10	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	12-02-0736
San Diego, CA 92122-5993		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs

Project: Caltrans Bay Marina Drive / 125347

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-010-1,347	**Solid**	**GC/MS AAA**	**02/21/12**	**02/27/12**	**120221L07**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	0.2000	87	87	64-118	55-127	1	0-20	
2-Methylnaphthalene	0.2000	84	84	55-127	43-139	0	0-20	
1-Methylnaphthalene	0.2000	100	100	57-129	45-141	0	0-21	
Acenaphthylene	0.2000	64	65	36-132	20-148	1	0-20	
Acenaphthene	0.2000	83	84	61-121	51-131	1	0-20	
Fluorene	0.2000	86	86	56-128	44-140	1	0-20	
Phenanthrene	0.2000	86	86	56-122	45-133	0	0-20	
Anthracene	0.2000	37	37	11-119	0-137	2	0-21	
Fluoranthene	0.2000	93	93	56-122	45-133	0	0-20	
Pyrene	0.2000	89	89	57-129	45-141	0	0-21	
Benzo (a) Anthracene	0.2000	81	80	49-127	36-140	0	0-20	
Chrysene	0.2000	91	92	60-126	49-137	0	0-20	
Benzo (k) Fluoranthene	0.2000	112	111	54-138	40-152	1	0-22	
Benzo (b) Fluoranthene	0.2000	111	113	46-136	31-151	2	0-24	
Benzo (a) Pyrene	0.2000	68	68	40-148	22-166	0	0-22	
Indeno (1,2,3-c,d) Pyrene	0.2000	121	121	43-163	23-183	0	0-22	
Dibenz (a,h) Anthracene	0.2000	114	114	45-153	27-171	0	0-20	
Benzo (g,h,i) Perylene	0.2000	113	113	38-140	21-157	0	0-20	

Total number of LCS compounds : 18
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 12-02-0736

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
MPN - Most Probable Number

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KLEINFELDER
Bright People. Right Solutions.

12-02-0736

PROJECT NO.	PROJECT NAME	NO. OF CONTAINERS	TYPE OF CONTAINERS	ANALYSIS: CAM 17 Title 22 Metals; 8270 SIM - PAHs	RECEIVING LAB:
125347	Caltrans Bay Marina Drive		8oz Jar		Calscience Labs.
L.P. NO. (PO. NO.)	SAMPLERS: (Signature/Number) C. N				INSTRUCTIONS/REMARKS: *please bill with Caltrans contract rates

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CONTAINERS	TYPE OF CONTAINERS	CAM 17 Title 22 Metals	8270 SIM - PAHs
1	2-10-12	1022	~~HA0~~ HA01-2.5	SOIL	1	Jar	X	
2		1037	HA02-4.0			Jar	X	
3		1051	HA03-2.0				X	
4		1102	HA04-0.5				X	
5		1140	HA05-2.0				X	
6		1130	HA06-3.5				X	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

*HOLD 8270 SIM UNTIL PRELIM. RESULTS SENT TO KLEINFELDER. KLEINFELDER WILL SELECT 2 SAMPLES FOR 8270-SIM

2-10-12

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	02/10/12 1545	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
02/10/12 19:00		Dannyle CSE
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Instructions/Remarks:

Send Results To: Cholland@kleinfelder.com

Attn:

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

ENV-02 REV 05/08)

CHAIN OF CUSTODY

COC № 04334

Danielle Gonsman

From: Chris Noland [CNoland@kleinfelder.com]
Sent: Tuesday, February 21, 2012 2:56 PM
To: Danielle Gonsman
Subject: FW: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)

Please run 8270 SIM on HA02 and HA05.

Chris Noland, PG
Project Geologist
Kleinfelder West, Inc.
5015 Shoreham Place
San Diego, CA 92122
o| 858.320.2000
d| 858.320.2201
c| 619.729.4907
f| 858.320.2001

From: Joel Kloth [joel_kloth@dot.ca.gov]
Sent: Tuesday, February 21, 2012 8:04 AM
To: Chris Noland
Subject: Fw: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)

We are good on the sample selection for 8270 SIM.

Joel Kloth, PG, REA II
Engineering Geologist, Range D
Department of Transportation, District 11 Environmental Engineering, MS-242
4050 Taylor Street
San Diego, CA 92110
phone (619) 688-3146
fax (619) 688-4237

----- Forwarded by Joel Kloth/D11/Caltrans/CAGov on 02/21/2012 08:03 AM -----

"Torres, Anthony" <Anthony.Torres@sdcounty.ca.gov>		To
02/21/2012 07:14 AM	'Joel Kloth' <joel_kloth@dot.ca.gov>	cc
		Subject
	RE: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)	

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Joel,

Sorry I didn't get back to you earlier. Took Friday off last minute.

The test selection should be fine. Thanks,

Anthony Torres, REHS
Department of Environmental Health
Solid Waste Local Enforcement Agency
5500 Overland Ave., Suite 170
San Diego, CA 92123
Office: (858) 694-2608
Fax: (858) 495-5004
Anthony.Torres@sdcounty.ca.gov

-----Original Message-----
From: Joel Kloth [mailto:joel kloth@dot.ca.gov]
Sent: Friday, February 17, 2012 11:18 AM
To: Torres, Anthony
Subject: Fw: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)

Tony:

Will performing VOC 8270 SIM (PAHs) analysis on HA02 and HA05 be OK?
Joel Kloth, PG, REA II
Engineering Geologist, Range D
Department of Transportation, District 11 Environmental Engineering, MS-242
4050 Taylor Street
San Diego, CA 92110
phone (619) 688-3146
fax (619) 688-4237

----- Forwarded by Joel Kloth/D11/Caltrans/CAGov on 02/17/2012 11:16 AM -----

Chris Noland <CNoland@kleinfelder.com>		To
02/17/2012 10:31 AM	"joel kloth@dot.ca.gov" <joel kloth@dot.ca.gov>	cc
		Subject
	FW: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)	

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It looks like nothing much here…I would guess we should ask for HA02 and HA05 for PAHs. What are your thoughts?

Chris Noland, PG
Project Geologist
Kleinfelder West, Inc.
5015 Shoreham Place
San Diego, CA 92122
o| 858.320.2000
d| 858.320.2201
c| 619.729.4907
f| 858.320.2001
(Embedded image moved to file: pic15674.jpg)Description:
cid:ANEDKXOEDJYO.IMAGE_1.jpg

From: Danielle Gonsman [mailto:dgonsman@calscience.com]
Sent: Friday, February 17, 2012 10:24 AM
To: Chris Noland
Subject: Caltrans Bay Marina Drive / 125347 / CEL 12-02-0736 (Preliminary)

Attached are prelim metals results. Please let me know which two samples to run PAHs on.

Thanks,

Danielle Gonsman
Project Manager
Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone: 714-895-5494 x232
Fax: 714-894-7501
dgonsman@calscience.com

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-0736

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: KLEINFELDER DATE: 02/10/12

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.8 °C - 0.3 °C (CF) = 1.5 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: VG

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: VG

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: NS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** NS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** VG

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:**

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