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OFFICE OF ENVIRONMENT, HEALTH AND SAFETY
UNIVERSITY HALL, 3rd FLOOR

BERKELEY, CALIFORNIA 94720-1150

October 31, 2014

Lynn Nakashima
California Department of Toxic Substances Control
700 Heinz Avenue, Suite 200C
Berkeley, CA 94710

Subject: Pacific Earthquake and Engineering Research Excavation Report and Results Richmond Field Station Site, Berkeley Global Campus

Dear Ms. Nakashima:

The University of California, Berkeley removed soils beneath a former hydraulic fluid line leak at the Richmond Field Station Site at the Berkeley Global Campus, in Richmond, California; the location of the hydraulic fluid lines are within the Pacific Earthquake and Engineering Research (PEER) courtyard north of Building 420, between Buildings 420, 421, and 484. Sampling conducted as part of the Field Sampling Workplan to resolve site-wide data gaps indicted the total petroleum hydrocarbons as diesel (TPH-d) and the total petroleum hydrocarbons as motor oil (TPH-mo) were present at concentrations ranging from 59 to 2,400 mg/kg for TPH-d and 300 to 13,000 mg/kg for TPH-mo in soils underneath a valve that had previously leaked. These results were published in the Final Phase II Sampling Results Technical Memorandum, which concluded that the area of the stained soil should be removed.

On October 15, 2014, soils beneath the hydraulic fluid lines were hand-excavated from an approximate area of 5 feet by 5 feet to a depth of 1.5 feet below ground surface (bgs). The final excavation depth was based on visual observations of oil in soil. The soils below the excavation appear to be native soils, and there is no evidence of oil migration. Two discrete soil samples were collected from below the bottom of the excavation at 2 feet below the original ground surface directly below the former fluid leak.

This letter provides a summary of field sampling protocols and sample results. A figure (Figure 1) presenting the excavation extent and sampling location is enclosed at the end of this letter, as well as the chain-of-custody form and the laboratory analytical results.

Field Sampling Protocols
The soil samples were collected approximately in the center of the final excavation area, where staining from oil was previously observed on the soil surface.

1. The field sampler used a disposable scoop to collect the soil sample.

2. One 8-ounce jar of soil was collected for each sample.

3. The jar were labeled and packed into an insulated cooler. The sample was transported directly to Curtis and Tompkins Laboratory in Berkeley, California on October 15, 2014.

4. The laboratory was instructed to homogenize the sample before analyzing it.

Analyses Summary, Screening Criteria, and Sample Results
The analytical chemicals of concern were limited to TPH-Extractables by EPA 8015B Modified method based on previous sampling results. Two samples were collected from the area during Field Sampling Workplan Phase II Investigation in 2011; these results indicated elevated total petroleum hydrocarbons extractables as motor oil and diesel, which are both included in the TPH-Extractables analyses.

Sample results are presented in Table 1 below, and compared with San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for Shallow Soils where groundwater is not a current or potential source of drinking water (Table B of RWQCB 2013).

Table 1. Soil Sample Results and RWQCB ESLs

Chemical	PEER Dup 1 (mg/kg)	PEER Dup 2 (mg/kg)	ESL (mg/kg)
TPH-d	110	230	110
TPH-mo	490	1100	500

Although the sample results of PEER Dup 2 exceed the ESLs, the University plans to leave the remaining soils in place because the ESLs are based on odor and nuisance criteria which are not applicable because an impermeable concrete cover will be constructed over the excavation area. In addition, it does not appear that there is any evidence of oil migration. The nearby EERC groundwater well installed in 2010 does not show TPH contamination. After your October 23, 2014 conversation with Karl Hans (EH&S), Jason Brodersen (Tetra Tech), and Kimi Klein (DTSC), additional investigative digging was completed to determine whether the dark brown soil at the base of the excavation was oil-stained or native. Digging found dark clays that are typical at this depth in borings in nearby portions of the RFS Site and no visual evidence of oil was found. Existing site conditions will be documented so that any future construction activity can use the findings as part of future Soils Management Plan implementation.

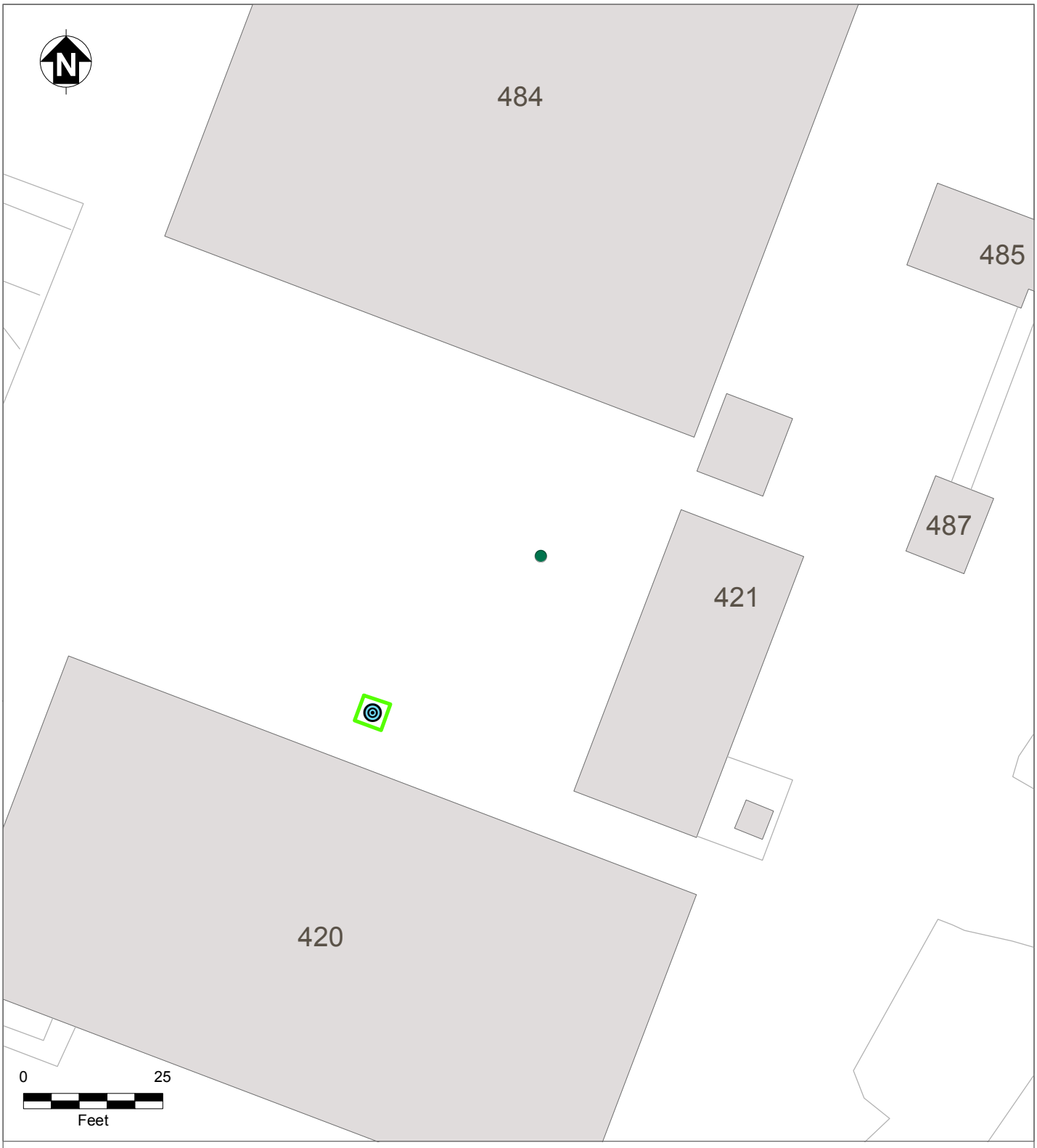
Based on these findings, the, contractors working for PEER to upgrade the piping supports will complete drip pad construction beginning the week of November 3, 2014. If you have any questions or comments regarding this submittal, please call me at (510) 642-4848.

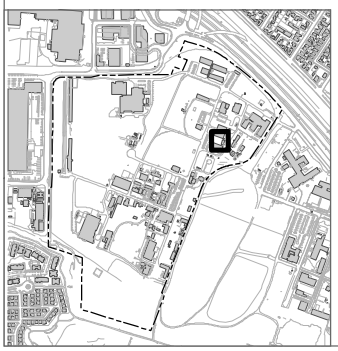
Sincerely,

Greg Haet, P.E.
EH&S Associate Director
Environmental Protection

Enclosures: Figure 1, COC, Laboratory Sample Results

Reference:
San Francisco Bay Regional Water Quality Control Board. 2013. Environmental Screening Levels.





Approximate Boundary of Hydraulic Fluid Line Soil Excavation

Sampling Location

Existing Piezometer Location

TETRA TECH

Richmond Field Station Site
University of California, Berkeley

FIGURE 1

HYDRAULIC FLUID LINE EXCAVATION AREA AND SAMPLING LOCATION

10/31/2014 V:\Misc_GIS\Richmond_Field_Station\Projects\Field_Sampling_Workplan\Phase_II\HYDRAULIC EXC EERC SAMPLING LOCATION.mxd - yashekia.evans

261732

Tetra Tech EM Inc.

Chain of Custody Record No. 7028

TETRA TECH
1999 Harrison Street, Ste 500
Oakland, CA 94612-3599

TO #: TO Follow

Lab: C+T

Project name:	TtEMI technical contact:	Field samplers:
RFS-PEER	Sara Woolley	Sara Woolley
Project (CTO) number:	**TtEMI project manager:**	**Field samplers' signatures:**
103225322.01	Jason Brodersen	Sara Woolley

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Preservative Added	Analysis Required: VOA	SVOA	PCBs	Metals – Individual *	TPH Purgeables	TPH Extractables	PAH
RFS2014101548 6TEL *		10/15/14	14:54	Soil						X				XX			X	X
RFS201410154EERC04 **			15:05							X							X	
RFS201410154EERC05 **			15:06							X							X	

	Name (print)	Company Name	Date	Time
Relinquished by: Sara Woolley	Sara Woolley	TtEMI	10/15/14	15:50
Received by:	M. DAHLQUIST	C+T	10/15/14	15:50
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:
* Metals = Arsenic, Mercury, Lead
** Rush – Need TPH-E results 10/17/14 a.m.

Fed Ex #: * RFS 2014 10 154866TEL → Standard TAT

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	261732	Location:	RFS-PEER
Client:	Tetra Tech EMI	Prep:	SHAKER TABLE
Project#:	103S225322.01	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	10/15/14
Units:	mg/Kg	Received:	10/15/14
Basis:	dry	Prepared:	10/15/14
Batch#:	216435		

Field ID:	RFS20141015EERC04	Moisture:	2%
Type:	SAMPLE	Diln Fac:	1.000
Lab ID:	261732-002	Analyzed:	10/16/14

Analyte	Result	RL	MDL
Diesel C10-C24	110 Y	1.0	0.13
Motor Oil C24-C36	490	5.1	0.59

Surrogate	%REC	Limits
o-Terphenyl	114	64-136

Field ID:	RFS20141015EERC05	Moisture:	10%
Type:	SAMPLE	Diln Fac:	10.00
Lab ID:	261732-003	Analyzed:	10/16/14

Analyte	Result	RL	MDL
Diesel C10-C24	230 Y	11	1.4
Motor Oil C24-C36	1,100	55	6.5

Surrogate	%REC	Limits
o-Terphenyl	DO	64-136

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC761705	Analyzed:	10/15/14

Analyte	Result	RL	MDL
Diesel C10-C24	0.25 J	1.0	0.12
Motor Oil C24-C36	ND	5.0	0.58

Surrogate	%REC	Limits
o-Terphenyl	97	64-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit