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May 20, 2016

Mr. Mark Detterman, RG, CEG
Senior Hazardous Materials Specialist
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Perjury Statement-**
Indoor Air Sampling Work Plan Addendum Letter
ABF Freight System Facility (SLIC Case No. RO#0003134)
4575 Tidewater Avenue
Oakland, California

Dear Mr. Detterman:

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

Sincerely

Michael K. Rogers
Director, Real Estate
ArcBest Corporation

May 20, 2016
Project 154.010.001

Mr. Mark Detterman, RG, CEG
Senior Hazardous Materials Specialist
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: *Indoor Air Sampling Work Plan Addendum Letter*
ABF Freight System Facility
4575 Tidewater Avenue
Oakland, California
RO#0003033 and RO#0003134

Dear Mr. Detterman:

Trinity Source Group, Inc. (Trinity) has prepared this *Indoor Air Sampling Work Plan Addendum Letter (Letter)* on behalf of ABF Freight System, Inc. (ABF) for the referenced site. This *Letter* proposes changes to the scope of work proposed in the January 14, 2016 *Indoor Air Sampling Work Plan (Work Plan).* In the *Work Plan*, Trinity proposed conducting indoor air and sub-slab vapor sampling to evaluate indoor air quality of the maintenance building and current sub-slab vapor concentrations in sub-slab vapor Probe SVP-2 to determine vapor intrusion potential. The *Work Plan* was conditionally approved by Alameda County Environmental Health Department (ACEH) in a letter dated March 7, 2016. This *Letter* focuses on reassessment of the scope of work proposed in the *Work Plan* based on the February 2016 update to the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs)[1].

Indoor air sampling was proposed in the *Work Plan* due to elevated sub-slab vapor concentrations of tetrachloroethene (PCE) detected beneath the maintenance shop in sub-slab vapor Probe SVP-2. As of the date of submittal of the *Work Plan*, PCE concentrations detected in Probe SVP-2 exceeded SFBRWQCB commercial indoor air environmental screening levels (ESLs) attenuated for sub-slab vapor intrusion to indoor air[2]. The December 2013 SFBRWQCB ESLs do not provide default sub-slab vapor to indoor air (SSIA) attenuation factors (AFs); Trinity applied the default Department of Toxic Substances Control (DTSC) SSIA AF of 0.05 provided in the *DTSC Vapor Intrusion Guidance (VIG, October 2011)* to

[1] San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency, February 2016.

[2] San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency, December 2013.

sub-slab vapor concentrations to determine if the concentrations exceeded ESLs. The resulting attenuated commercial sub-slab vapor ESL for PCE is 42 micrograms per meter cubed (µg/m^3). PCE concentrations of up to 971 µg/m^3 in Probe SVP-2 exceeded the commercial ESL by one order of magnitude.

In the SFBRWQCB December 2013 ESL update, soil gas vapor intrusion to indoor air (SGIA) AFs were updated to be consistent with DTSC VIG default soil gas attenuation factors, which were derived using the Johnson and Ettinger model (JEM)[3]. However, the SFBRWQCB did not adopt DTSC default SSIA AFs, which were empirically derived from the United States Environmental Protection Agency national Vapor Intrusion Database (VI Database)[4]. The VI Database consists of nationwide paired indoor air and sub-slab vapor samples. The SFBRWQCB did not adopt the DTSC default SSIA AFs due to concerns over the national VI Database not being appropriate for the regional climate of California. The SFBRWQCB did not provide defaults SSIA AFs and instead recommended site-specific assessments to establish attenuation factors as needed.

In February 2016, the SFBRWQCB ESL update adopted default SSIA AFs derived using a vapor-flux approach previously used in 2003 to 2008 SFBRWQCB ESLs with climate-adjusted inputs. The vapor-flux approach is based on the vapor-entry-to-building component of the Johnson and Ettinger model (Johnson and Ettinger, 1991). Climate-adjusted inputs to the model are based on regional-adjusted climate inputs for soil vapor entry rates to indoor air and indoor air to outdoor air exchange rates proposed by Brewer et al. 2014[5]. The adopted commercial and residential SSIA AFs are 0.001 and 0.002, respectively. The SSIA AFs are also applied to soil gas ESLs, conservatively assuming that soil gas and sub-slab vapor attenuation to indoor air only occurs across intact concrete building slabs. The resulting commercial sub-slab vapor ESL for PCE is 2,100 µg/m^3.

In the *SFBRWQCB Technical Resource Document: Default Subslab Soil Gas and Soil Gas to Indoor Air Attenuation Factors* included in the February 2016 ESL update, the SFBRWQCB reviews a variety of model-based and empirical approaches to deriving SSIA AFs, including the VI Database, which is the basis for the default commercial DTSC SSIA AF that Trinity previously applied to sub-slab vapor concentrations at the site. SFBRWQCB considered several concerns regarding use of the VI Database to derive sub-slab AFs including regional climate variation, mass balance problems, and lack of spatial and temporal controls in the VI Database. In selecting the climate-adjusted vapor-flux approach to deriving SSIA AFs, SFBRWQCB stated concerns that SSIA AFs derived using the VI Database are "not technically defensible and is not suitable for screening or prioritizing cases."

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[3] Johnson, P. C., and R. A. Ettinger. 1991. Heuristic Model for Predicting the Intrusion of Contaminant Vapors into Buildings. Environmental Science and Technology, v. 25, no. 8, p. 1445 – 1452.

[4] USEPA. 2008. U.S. EPA's Vapor Intrusion Database: Preliminary Evaluation of Attenuation Factors.
Office of Solid Waste and Emergency Response. March 4.

5 Brewer, R., J. Nagashima, M. Rigby and M. Schmidt, and Harry O'Neill, 2014. Estimation of Generic Subslab Attenuation Factors for Vapor Intrusion Investigations. Groundwater Monitoring & Remediation, December 15.

Trinity recommends that the most current SFBRWQCB ESLs be applied to this site. Because sub-slab vapor concentrations detected at the site are below both commercial and residential sub-slab vapor ESLs, Trinity recommends cancelling the indoor air sampling scope of work proposed in the *Work Plan* and that the site be considered for closure.

Should you have any questions regarding this letter, please call Trinity at (831) 426-5600.

Sincerely,

TRINITY SOURCE GROUP, INC.

Information, conclusions, and recommendations made by Trinity in this document regarding this site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Debra J. Moser, PG, CEG, CHG
Senior Geologist

Spencer Davis
Staff Geologist

DISTRIBUTION

A copy of this letter has been forwarded to:

Mr. Mike Rogers (via email to mkrogers@arkbest.com)

Leroy Griffin (via email to lgriffin@oaklandnet.com)