# ON-PROPERTY VAPOR INTRUSION ASSESSMENT REPORT FOR EASTERN PARCELS (BUILDINGS 9, 19, 39, AND G)

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**ON-PROPERTY VAPOR INTRUSION ASSESSMENT REPORT**
**FOR EASTERN PARCELS (BUILDINGS 9, 19, 39, AND G)**
**Texas Instruments Incorporated**
**2900 Semiconductor Drive**
**Santa Clara, California**

## E.1 EXECUTIVE SUMMARY

On behalf of Texas Instruments Incorporated (TI), Langan Treadwell Rollo (Langan) performed this on-property vapor intrusion assessment at TI's Santa Clara, California campus (site), in consultation with the United Stated Environmental Protection Agency (USEPA) and San Francisco Bay Regional Water Quality Control Board (Water Board). The objective of this assessment was to evaluate whether volatile organic compounds (VOCs) present in the groundwater beneath the site are migrating from the subsurface into indoor air at levels that may pose a risk to site workers or occupants. Overall eleven buildings (A, B, C, E, F, G, M, W, 9, 19, and 39) were evaluated at the site in December 2012, January and April 2013, and March and April 2014 by collecting and analyzing indoor, pathway, and ambient air samples and sub-slab vapor samples for selected constituents of concern (COCs) specified in the Work Plans approved by the Water Board. TI is offering certain portions of the campus for sale and therefore, the results are being reported in two separate reports associated with buildings proposed for sale and buildings to be retained by TI. This report contains the results associated with site Assessor Parcel Numbers (APN) 205-38-021, 205-38-022, and 205-38-008 which correspond to Buildings G, 9, 19, and 39 (collectively defined as "Eastern Parcels"), respectively. The results associated with the remaining site APNs (205-39-022 and 205-39-025) on which Buildings A, B, C, E, F, M, and W are constructed (collectively defined as "Western Parcels") will be presented in a separate report. TI is retaining title to the Western Parcels and will continue to conduct its business operations of -- research, product development and administrative office use -- on those parcels.

The indoor air sample results were compared to the USEPA's Risk Screening Levels (RSLs) for industrial air quality criteria and the Water Board's Environmental Screening Levels (ESLs) for commercial air quality criteria. They were also compared to the interim trichloroethylene (TCE) response action levels (RALs) set forth in the 30 June 2014 EPA Region 9 technical memo, adopted as regional policy in the 9 July 2014 EPA Region 9 policy memo (collectively, "USEPA July 2014 TCE Guidance"). For all Eastern Parcel buildings sampled, the results indicate that

with heating ventilation and air conditioning (HVAC) units operating indoor air concentrations in the areas normally occupied throughout a business day are below USEPA and Water Board screening criteria, and below the interim RALs in the USEPA July 2014 TCE Guidance.

Pathway samples collected from the bathrooms of Building 39 had concentrations in excess of screening criteria. However, bathrooms are normally occupied for significantly less time than the exposure frequency assumed in the calculation of the ESLs and RSLs (i.e. 8 hours a day for 250 days per year) and therefore, we conclude that there is no unacceptable risk to Building 39 occupants.

Mitigation measures in the Building 39 bathrooms have included a preferential pathway assessment, the sealing of penetrations and conduits, and the installation of portable air purification units on 6 June 2014. In addition, although the conditions do not show unacceptable risks to users of the bathroom, TI voluntarily installed a sub-slab depressurization system (SSDS) in late October 2014 to control vapor intrusion into the bathrooms. That system became operational on 5 November 2014. Confirmation indoor air samples are scheduled to be collected the first week of December 2014 to assess the efficacy of the SSDS system in preventing vapor intrusion into the two bathrooms in Building 39.

## 1.0 INTRODUCTION AND BACKGROUND

On behalf of Texas Instruments Incorporated (TI), Langan presents this *On-Property Vapor Intrusion Assessment Report for Eastern Parcels (Buildings 9, 19, 39, and G)* (Report) associated with TI's site located at 2900 Semiconductor Drive in Santa Clara, California (Figures 1 and 2).

This report is organized as follows:

- Section 1 – Introduction and Background
- Section 2 - Objectives and Scope of Assessment
- Section 3 - Field Investigations
- Section 4 - Analytical Results and Discussion
- Section 5 - Conclusions
- Section 6 - Recommendations

In an email dated 30 August 2012, the USEPA and Water Board required that a vapor intrusion assessment be completed for buildings overlying 100 micrograms per liter (µg/L) of TCE in groundwater. Accordingly, a vapor intrusion assessment was performed in general accordance with our *Work Plan for On-Property Vapor Intrusion Assessment, Texas Instruments Incorporated, 2900 Semiconductor Way, Santa Clara, California* dated 4 December 2012, as approved by the USEPA and Water Board. The associated on-property assessment was conducted in December 2012, January 2013, and April 2013 on the site at Buildings G, 9, 19, and 39 based upon the TCE concentration contours presented in the approved Work Plan.

The results of indoor air sampling at Buildings 9, 19, 39 and G from the December 2012 and January 2013 assessments were transmitted to the Water Board and USEPA in a Technical Memorandum on 14 January 2013.

On 19 July 2013, Langan submitted the *On-Property Vapor Intrusion Assessment, Buildings 9, 19, 39, C, E, F, and G*, summarizing the results of sampling events, describing sealing in the bathrooms of Building 39, and follow-up sampling conducted after said sealing activities.

On 3 December 2013, the USEPA transmitted a letter to the Water Board requiring vapor intrusion assessments be completed for all buildings located on TI's Santa Clara site (on-property) shown on Figure 3, regardless of VOC concentrations in groundwater (USEPA, 2013)[1]. As a result, the on-property vapor intrusion study area was expanded to include additional buildings on TI's site and additional vapor intrusion assessment was performed in general accordance with our approved *Work Plan for Additional On-Property Vapor Intrusion Assessment, Texas Instruments Incorporated, 2900 Semiconductor Way, Santa Clara, California* dated 9 April 2014. The additional on-property assessment was conducted in March and April 2014 and included additional on-property Buildings A, B, M, W, and previously sampled Buildings C, G, and 39. Eastern Parcel Buildings G and 39 were sampled in late 2012 and early 2013. These buildings were sampled again in March 2014. The results of all sampling conducted at Eastern Parcel Buildings 9, 19, 39, and G have been reported to the USEPA and the Water Board and are also included in this report. The sample results of the Western Parcel buildings are presented in a separate report.

[1] EPA Region 9 Guidelines and Supplemental Information Needed for Vapor Intrusion Evaluations at the South Bay National Priorities List (NPL) Sites), 3 December 2013.

## 1.1 Site Background

The site was formerly owned and operated by the National Semiconductor Corporation (NSC). In 2011, NSC was acquired by TI, and TI assumed responsibility for compliance with regulatory requirements.

In July 1987, the former NSC site was listed on the National Priorities List (NPL) of sites subject to regulation under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as the federal "Superfund" law, 42 U.S.C. § 9601, et seq.). Under agreements with the USEPA, the Water Board provides lead regulatory oversight at the site. The buildings sampled are located within the footprint of Operable Unit 1 (OU1), Subunit 1, as defined in the USEPA Record of Decision dated 11 September 1991 (the ROD), which is generally bounded by Kifer Road to the south, the City of Sunnyvale/Santa Clara boundary to the west, East Arques Avenue to the north, and portions of the Lawrence Expressway to the east (Figure 1). The location and specific boundary of OU1, Subunit 1 is illustrated on Figure 4.

The Eastern Parcels are bounded by Kifer Road to the south, a parking garage (located on TI's campus) beyond which is Central Expressway to the north, office buildings along San Ysidro Way to the east (Figure 2), and TI's commercial buildings to the west (Western Parcels) (Figure 3). Eastern Parcel buildings (Buildings 9, 19, 39 and G) are located in Subunit 1 of OU1 (Figures 3 and 4). Building 39 is currently leased to Premier One Credit Union and is not occupied by TI employees, although TI currently owns the property. TI is offering the Eastern Parcels (Buildings 9, 19, 39, and G) for sale, identified by APNs 205-38-008, 205-38-021, and 205-38-022, which are all within Subunit 1.

The investigation and remediation of the site is currently under the jurisdiction of the Water Board and the USEPA. The Final Site Cleanup Requirements are detailed in Water Board Orders 91-137, 91-139, and 91-140 (Water Board Orders), and the ROD, which were issued in September 1991. Four soil source units were identified in the Water Board Orders on the Eastern Parcels. The locations of the former source areas on the Eastern Parcels are illustrated on Figure 2. All four of these former source areas on the Eastern Parcels have been identified as requiring no further action by the Water Board. No further action documents associated with the former source areas are referenced in the *Fourth Five-Year Remedial Action Status Report and Effectiveness Evaluation, Texas Instruments Incorporated, Santa Clara, California* dated 20 March 2013.

### 1.1.1 Geology

The site is underlain by a thick layer of unconsolidated quaternary alluvial sediments, which were deposited by primarily northward flowing streams draining from the Coast Range Mountains. Alluvial sediment deposits range from approximately 500 to 1,200 feet thick and consist of clays and silts interlayered with sands and gravels. The sand and gravel layers range from 1 foot to over 20 feet thick. The alluvial sands and gravels become finer and contain more clay and silt towards the ground surface. This trend is the result of a decrease in depositing stream energy as the area became filled with sediments and stream gradients decreased. Paleochannels consisting of more permeable sands and gravels were formed in the direction of the depositing streams in the south to north direction. The paleochannels act as preferential paths for groundwater flow. Bedrock underlies the alluvial sediments (HLA, 1991).

### 1.1.2 Hydrogeology

Depth to groundwater at the site generally ranges from 8 to 15 feet beneath ground surface (bgs). The A-aquifer is locally unconfined or partially confined, and separated from the underlying B-aquifers by a low permeability clay aquitard. There are areas where the A- and B-aquifers appear to be hydraulically connected. Historically, the subsurface in OU1 has been subdivided into the following general shallow aquifer units (Treadwell & Rollo, 2006):

- The A-aquifer, typically found between 5 to 30 feet bgs;
- The B1-aquifer, typically found between 30 to 45 feet bgs;
- The B2-aquifer, typically found between 45 to 60 feet bgs; and
- The B3-aquifer, typically found between 70 to 90 feet bgs.

A groundwater elevation contour map for the A-aquifer in OU1 illustrating general flow directions is shown on Figure 4.

### 1.1.3 Site Contamination

Volatile organic compounds (VOCs), including chlorinated solvents and aromatics, make up the majority of chemicals detected in site soils and in groundwater, although semi-VOCs have been detected historically in isolated locations at the site (Treadwell & Rollo, 2006).

The following chemicals were detected in groundwater at the site in 2013 (Table 1) and were analyzed in sub-slab vapor, indoor air, pathway air, and ambient air samples:

- TCE
- cis-1,2-dichloroethene (cis-1,2-DCE)
- 1,1,1-trichloroethane (1,1,1-TCA)
- 1,1-dichloroethene
- trichlorotrifluoroethane (Freon 113)
- Tetrachloroethene (PCE)
- trans-1,2-dichloroethene
- vinyl chloride
- 1,1,2-trichloroethane
- 1,1-dichloroethane
- 1,2-dichloroethane
- Chloroethane
- chloroform
- dichloromethane
- 1,2,3-trichlorobenzene
- 1,2,4-trichlorobenzene
- 1,2-dichlorobenzene
- 1,3-dichlorobenzene
- 1,4-dichlorobenzene
- chlorobenzene
- toluene
- ethylbenzene
- xylenes
- trichlorofluoromethane

A TCE concentration contour map for the A-aquifer is shown on Figure 3.

### 1.2 Fate and Transport Mechanisms and Potential Exposure Pathways

Fate and transport mechanisms for VOCs may include migration in groundwater, adsorption to soil and organic matter in the subsurface, volatilization and migration in soil gas (advection and diffusion through the vadose zone), and volatilization and migration to air. VOCs may also accumulate beneath building foundations, in building crawl spaces and basements, and migrate into buildings via preferential pathways such as utility corridors, slab penetrations, or elevator shafts.

### 1.3 Previous Vapor Intrusion Assessments

A summary of previous vapor intrusion assessments conducted in 2004 on the Eastern Parcels of TI's campus was presented in the approved Work Plan earlier documents. The results of the previous assessments showed no unacceptable risks to building occupants at the time of each assessment.

## 2.0 SCOPE OF ASSESSMENT

Based on the shallow groundwater level and the VOC concentrations in groundwater at the site, the USEPA and Water Board requested that a vapor intrusion assessment be completed on the site. The on-property vapor intrusion assessment scope for the Eastern Parcels included collecting and analyzing indoor air, pathway air, sub-slab vapor and ambient air samples from Buildings 9, 19, 39, and G ("buildings to be sampled"), as detailed in the approved Work Plans.

The vapor intrusion assessments included the following work elements:

- **Building Surveys (2012).** Conducting a building survey and inventory with USEPA and/or Water Board representatives at all buildings to be sampled to identify appropriate sample locations in 2012;

- **8-Hour Indoor Air and Pathway Sampling with HVAC On and Off (2012/2013).** Collecting indoor air and pathway samples over a period of 8 hours from Buildings 9, 19, 39, and G with HVAC systems operating normally and with HVAC systems turned off for a minimum of 36 hours prior to initiating sample collection in December 2012 or January 2013. Another round of pathway sampling was performed in April 2013 at Building 39 with HVAC units off;

- **10 Hour Indoor Air Sampling with HVAC On and Off (2014).** Collecting indoor air and pathway samples over a period of 10 hours from Buildings 39 and G with the HVAC system operating normally and with the HVAC system turned off for a minimum of 36 hours prior to sampling. These samples were collected in March 2014[2];

- **Sub-Slab Sampling (2012).** Collecting sub-slab (or near-slab where slab thicknesses exceeded 12 inches) vapor samples from Buildings 9, 19, 39, and G in 2012 to assess sub-slab vapor concentrations over the same general timeframe as the indoor and pathway air sampling. Sub-slab and indoor air radon samples were also collected to develop site-specific sub-slab-to-indoor air attenuation factors;

- **Outdoor Ambient Air Sampling (2012/2013/2014).** Collecting outdoor ambient air samples near the intakes of the HVAC systems at or near buildings to be sampled where indoor air samples were collected to evaluate potential non-groundwater sources of chemicals in indoor air for all sampling events;

- **Sample Analysis.** Analyzing the indoor, pathway, ambient air, and sub-slab vapor samples for VOCs previously detected in the sub-surface (listed in Section 1.1.3) and radon (where collected);

[2] The sampling duration was changed from 8 hours to 10 hours based on the guidelines presented by the USEPA in the 3 December 2013 letter.

- **Evaluation Summaries (2013/2014).** Evaluating and documenting the data in technical memoranda and transmitting it to the USEPA and Water Board in 2013 and 2014; and

- **Eastern Parcels Summary Report (2014).** Preparing this Eastern Parcels vapor intrusion assessment report.

## 3.0 FIELD INVESTIGATIONS

Indoor air VOC concentrations can be attributed to volatilization from subsurface into the building, contributions from outdoor ambient air, and facility or occupational sources (such as building construction, operation, and sources introduced by building occupants). This investigation evaluated all these factors by collecting the following types of samples:

1. **Indoor Air Samples** – These samples were collected in areas normally occupied throughout the day at breathing zone height (between 3 to 5 feet).

2. **Pathway Samples** – These samples were collected in areas not normally occupied throughout the day to evaluate: (i) if potential conduits were acting as a direct route for VOC migration into the building, and (ii) if localized vapor migration was occurring. Examples of these areas include floor penetrations, cracks in the floor slab, areas outside of elevators, restrooms and sumps. These samples are representative of concentrations at preferential pathways and are not representative of direct exposure concentrations to occupants.

3. **Outdoor Ambient Air Samples** – These samples were collected outside the buildings, near the intakes of HVAC systems at buildings where indoor air samples were collected to evaluate potential non-groundwater sources of chemicals in outdoor air.

4. **Sub-Slab Vapor Samples** - These samples were collected to assess the sub-slab VOC and/or radon concentrations in order to develop building specific slab attenuation factors and to assess whether any VOCs detected in indoor air were coming from the subsurface or from indoor sources of VOCs. Sub-slab samples were collected near indoor air sample locations and near former source areas, if possible, and to provide spatial coverage of the building footprint. In accordance with the approved Work Plans, open areas, rather than areas adjacent to walls or other obstructions, were selected as sampling locations.

5. **Quality Control Samples** – Field duplicates and laboratory control samples were analyzed to maintain an acceptable level of quality assurance.

### 3.1 Pre-sampling Field Activities

On 13 and 14 November 2012, building surveys were completed at Eastern Parcel Buildings 9, 19, 39, and G to identify appropriate indoor air, ambient air, and sub-slab vapor sampling locations. The surveys were conducted in the presence of the USEPA and/or Water Board case managers. During the building surveys the following information was documented and/or inventoried:

- Building exterior and interior observations;
- Chemical use and storage;
- Presence of floor drains;
- Concrete slab conditions;
- Presence of HVAC units and operational areas;
- Operational parameters for HVAC units;
- Workers and type of work conducted in the building;
- Potential alternative indoor contaminant sources; and
- Presence of potential preferential pathways for soil vapor migration.

Field screening was conducted using a photoionization detector (PID) – ppbRAE Plus – with a detection limit in the low parts per billion (ppb) range, to further evaluate potential vapor intrusion pathways and identify locations with the greatest vapor intrusion potential. Potential preferential pathways for soil vapor migration include gaps and cracks in building foundations, piping and utility slab penetrations, and dewatering systems. Slightly elevated PID readings were generally observed in areas with sub-slab openings and penetrations such as floor drains in the restrooms, sinks in the janitor closets, sub-slab electrical conduits and floor boxes. Areas with heightened VOC concentrations were recorded on field logs and used to identify indoor air, pathway air, and sub-slab sample locations. Sample locations were selected during the building surveys with input from the USEPA and/or the Water Board.

Building layout plans and approved sample locations for Eastern Parcel Buildings 9, 19, 39, and G are illustrated on Figures 5 through 9. These figures also show the distinct air handling areas, which were used to approximate areas of similar air composition during the selection of sampling locations.

A survey questionnaire of building condition, use, and chemicals present at all the buildings with the exception of Building 39 was completed by TI. No building survey was obtained (although requested) for Building 39, which is leased and occupied by the Premier One Credit Union. The completed building surveys and inventory forms are included in Appendix A.

### 3.2 Field Activities

Multiple rounds of indoor air and pathway air sampling have been completed with both HVAC units on and off within Eastern Parcel buildings, in accordance with the approved work plans. Indoor and pathway air sampling with the HVAC units on was conducted on 13 and 18 December 2012 (Buildings 9, 19, G, and 39), and 7 and 13 March 2014 (Buildings 39 and G). Indoor air and pathway air sampling with the HVAC units off was conducted on 30 December 2012 (Buildings 9, 19, and G), 6 January 2013 (Building 39), and 9 and 16 March 2014 (Buildings 39 and G). For indoor air and pathway samples collection with HVAC system off, the HVAC units in the buildings to be sampled were turned off at approximately 5 PM on Fridays. After a minimum of 36 hours, indoor air and pathway samples were collected on Sundays with HVAC units remaining off during sample collection. Sub-slab samples were collected in all four buildings on 13, 14, and 15 December 2012.

Table 2 indicates sample types (i.e., indoor air, pathway, ambient, or sub-slab) and a sample location description. The sample locations are presented on Figures 5 through 9. A brief description of each building and current usage is provided below and summarized in Table 3.

The sampling events at each building are discussed below with results presented in Section 4.0.

**<u>Building 9</u>**

Buildings 9 is a single story, flat roofed, slab on-grade structure located to the north of Building G (Figure 2). Building 9 has approximately 16,540 square feet of interior space. At the time of sampling, Building 9 was occupied by TI's training center (i.e., conference rooms, class rooms and offices) but has been unoccupied since May 2014. There are six distinct air handling areas in Building 9 (Figure 5). Building 9 is located down-gradient of former VOC source areas. The

prospective purchaser of Building 9 has indicated that it plans to demolish this building and replace it with a surface parking lot.

Based on the building survey, the approved Work Plan provided for four indoor air sample locations and two sub-slab sample locations for Building 9. Sample locations are shown on Figure 5. On 13 December 2012, indoor air and pathway samples were collected from Building 9 with the HVAC units operating normally. On 30 December 2012, indoor air and pathway samples were collected from Building 9 with the HVAC units off. Sub-slab samples were collected from Buildings 9 on 14 December 2012.

**Building 19**

Buildings 19 is a single story, flat roofed, slab on-grade structure located to the north of Building G (Figure 2). Building 19 has approximately 15,500 square feet of interior space. Building 19 was formerly an office space for TI's environmental health and safety and facilities department. As of May 2013, TI employees were relocated to other portions of the campus and the building is now empty. The north end of Building 19 formerly consisted of a facilities work area (Figure 6). This area also consisted of a wood and metal working area for painting and general maintenance. There are three distinct air handling areas in Building 19. Building 19 is located down-gradient of former VOC source areas. The prospective purchaser of Building 19 has indicated that it plans to demolish this building and replace it with a surface parking lot.

Former source area Tank T4 was present north of Building 19 (Figure 2). As previously noted, this former source area was identified by the Water Board as requiring 'No Further Action'.

Based on the building survey, the approved Work Plan provided for three indoor air sample locations, two sub-slab sample locations and one pathway sample location. Sample locations are shown on Figure 6. On 13 December 2012, indoor air and pathway samples were collected from Building 19 with the HVAC units operating normally. On 30 December 2012, indoor air and pathway samples were collected from Building 19 with the HVAC units off. Sub-slab samples were collected from Building 19 on 14 December 2012.

**Building 39**

Building 39 is located to the east of Building 9 and is a 15,000 square foot, single story, slab on-grade building owned by TI (Figure 7). This building is currently leased and occupied by Premier One Credit Union, and requires coordination with that tenant for access. There are six distinct

air handling areas in Building 39. Building 39 is located down-gradient of former VOC source areas. The prospective purchaser of Building 39 has indicated that it intends to keep this building leased in its current configuration, at least until the current lease expires in May 2015.

Based on the building survey, the approved Work Plan provided for three indoor air sample locations, two sub-slab sample locations, and one pathway sample location for Building 39. On 18 December 2012, indoor air and pathway samples from Building 39 were collected with the HVAC units operating normally. On 6 January 2013, indoor air and pathway samples were collected from Building 39 with the HVAC units off. Sub-slab samples were collected from Building 39 on 13 December 2012.

All indoor air sample results were below the USEPA RSLs, Water Board ESLs and interim TCE RALs with HVAC systems operating. However, pathway samples collected from the men's bathroom had exceedances of the EPA RSLs, Water Board ESLs and interim RALs set forth in the USEPA July 2014 TCE Guidance. As a result, additional preferential pathway assessment and mitigation measures, including sealing penetrations and conduits, were implemented to address this issue in February and March 2013. Follow up pathway air sampling was performed on 28 April 2013 with HVAC units off. A second pathway sample collected from the women's bathroom was added to the scope of sampling for Building 39 in the April 2013 sampling event. The April 2013 was followed by another complete round of sampling with HVAC units on and off in Building 39 on 7 and 9 March 2014, respectively. Analytical results for Building 39 are discussed in more detail in Section 4.11.

**Building G**

Building G is a slab on-grade, three floor office building with approximately 140,000 square feet of total interior space (Figures 8 and 9). Building G formerly housed NSC's corporate headquarters, with all of the space used as offices and cubicle areas. Building G is currently unoccupied. The prospective purchaser has indicated that it intends to lease Building G for commercial purposes. Building G was constructed around 2000 and replaced former Buildings 2, 3, and 4. Building G has six air handling units servicing the first floor and four air handling units servicing the second floor of the building.

Former soil source areas Tank T2, Tank T3, and Sump S3 were present near or beneath Building G (Figure 2). As previously noted, these former source areas were identified by the Water Board as requiring 'No Further Action' in June 2000. A former soil vapor extraction (SVE)

and ozone sparging (OS) system was installed around 2000 and remains in place beneath Building G. The system has not been operated since 2009 and is proposed for abandonment in November 2014.

Based on the building survey, the approved Work Plan provided for five indoor air sample locations, including four on the first floor (Figure 8) and one on the second floor (Figure 9), three sub-slab sample locations, and three pathway sample locations for Building G. On 13 December 2012, indoor air and pathway samples were collected from Building G with the HVAC units operating normally. Indoor air and pathway samples were collected from Building G with the HVAC units off on 30 December 2012. Sub-slab samples were collected on 14 December 2012. A second round of sampling was performed at Building G at the previously approved sample locations with HVAC on and off on 13 and 16 March 2014, respectively.

**Outdoor Ambient Air Samples**

Since adjacent buildings were sampled together, one ambient air sample was collected per day. Indoor air sampling occurred on eight different days and accordingly, a total of eight ambient samples were collected. Ambient air samples were collected outside, approximately 10 feet from the HVAC intakes of the buildings sampled.

## 3.3 Sampling Methodology

The following sections outline the sample collection methodology, analytical methods, field documentation, and quality control measures implemented. The number and type of samples collected at each building are presented in Table 3 and also outlined in Sections 3.2 of this report. Photographs are included in Appendix B.

### 3.3.1 Indoor and Pathway Air Sample Collection

All indoor air and pathway samples were collected using a 6-liter summa canister with an 8- or 10-hour flow controller provided by the laboratory. Following arrival at the site, Langan field personnel removed the Swagelok® nut cap from each 6-liter Summa™ canister, attached the designated, laboratory-supplied, 8- or 10-hour flow controller to the canister, and then fitted the Swagelok® nut cap to the top of the flow controller. The canisters were placed in their approved designated locations. Samples intended to be representative of the breathing zone were placed on desks, chairs, and/or other features such that the intake was at a level of approximately 3 to 5 feet above floor level. Pathway samples were placed adjacent to the potential pathway intended for evaluation. Each canister was then opened to allow flow to

begin. Approximately 1 hour after commencing sampling, the pressure meter on each canister was checked to ensure that air was flowing properly (i.e., by confirming that the vacuum had dropped from its initial reading). The pressure meter for each canister was checked every two hours thereafter. Approximately 8 or 10 hours after commencing sampling, with a vacuum of approximately -5 to -7 in Hg remaining in each canister, the valve on each canister was closed. The flow controller was then removed from each canister, and the Swagelok® nut cap was replaced.

The indoor air and pathway samples collected from Buildings 9, 19, 39, and G (collected in December 2012 and January 2013) were transported under chain of custody (COC) protocol to McCampbell Analytical, Inc. (McCampbell) of Pittsburgh, California. The indoor air and pathway samples collected from Buildings 39 and G in March 2014 were transported under COC protocol to CalScience Environmental Laboratories, Inc. (CalScience) of Garden Grove, California.

Indoor air and pathway samples were analyzed using method TO-15 with selective ion monitoring (SIM) for VOCs as detailed in Section 1.1.3. As detailed in the approved Work Plan, the indoor air samples were sequentially identified as IA(sample number)-(building ID)-year-month-date (e.g., IA2-G-2014-03-13, the second indoor air sample collected at Building G on 13 March 2014). Pathway samples were sequentially identified as PS(sample number)-(building ID)-year-month-date (e.g., PS1-G-2014-03-13, the first pathway sample collected at Building G on 13 March 2014).

### 3.3.2 Ambient Air Sample Collection

Due to the multitude of influences on indoor air quality, ambient air samples were collected outside, approximately 10 feet from the intakes of HVAC systems at or near buildings where indoor air samples were collected to evaluate potential non-groundwater sources of chemicals in air. Ambient air samples were collected on the same day as the indoor air sampling at each building. If adjacent buildings were sampled on the same day, only one ambient air sample was collected for adjacent buildings. Ambient air samples were sequentially identified as AA(sample number)-(building ID)-year-month-date (e.g., AA1-G-2014-03-13, the first ambient air sample collected at Building G on 13 March 2014). Ambient air samples were analyzed for VOCs using the same laboratory methods as indicated for the indoor air samples. Ambient air samples were collected following the same methodology outlined for indoor air and pathway sampling presented in Section 3.3.1.

### 3.3.3 Sub-Slab Vapor Sample Collection Methodology

As detailed in the approved Work Plan, sub-slab samples were collected using Vapor Pins™ manufactured by Cox-Colvin and Associates Incorporated. Sub-slab samples were collected in general accordance with Cox-Colvin and Associates Incorporated's Standard Operating Procedure for Installation and Extraction of the Vapor Pins™ and in general accordance with the California Department of Toxic Substances Control's (DTSC) documents titled "Advisory – Active Soil Gas Investigation" dated April 2012 and "Final, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air" dated October 2011. Vapor Pins™ allow for easy installation and removal and provide an air-tight seal between the slab and the exterior of the pin. New silicone sleeves were used at each sample location and discarded following the initial use.

The sub-slab sampling probes (i.e. Vapor Pins™) were installed just below the slab and allowed to equilibrate for a period of at least two hours prior to sampling. After the equilibration period, leak testing (using a shroud) and shut-in testing was performed at each location prior to purging and sample collection. Helium was used as a tracer gas during field sampling to confirm leakage did not occur during sampling. The sampling system was sealed within a shroud and a 20% concentration of helium was added inside the shroud and maintained at this concentration during sampling. Helium concentrations were tested at the laboratory to verify the quality of the field sampling program. In addition to laboratory testing, field instrumentation (helium gas meter) was used to evaluate whether leakage was occurring by testing pre-sample purge gas. One-liter summa canisters were used for both purging and sample collection along with flow controllers set to a maximum rate of 50 milliliters per minute (mL/min).

Sub-slab vapor samples were sequentially identified as SS(sample number)-(building ID)-year-month-date (e.g., SS1-G-2012-12-14, the first sub-slab sample collected at Building G on 14 December 2014). Sub-slab vapor samples were analyzed for VOCs as detailed in Section 1.1.3. Following the collection of the sub-slab vapor samples, the samples were transported under COC protocol to CalScience. All sub-slab samples were analyzed for VOCs by EPA method TO-15.

### 3.3.4 Quality Control Sample Collection

The purpose of collecting field quality assurance/Quality Control (QA/QC) samples is to demonstrate the reliability and defensibility of the data and to assess the consistency of the overall sampling effort, including collection, transport, and analysis. Field QC samples included

field duplicate samples. Field duplicate samples are two samples collected at the same time, from the same source at the same depth and sample location as the associated field sample. Field duplicates were collected using the same sample collection methodologies described in Sections 3.3.1 to 3.3.3.

Field duplicates are submitted to the project laboratory as separate samples ("blind"). The purpose of submitting blind duplicate samples is to assess the consistency or precision of the laboratory's analytical system. Indoor air and sub-slab field duplicates were collected at a frequency of 10%, or one per laboratory submittal, whichever was greater. Duplicate samples used nomenclature sequentially identified as DUP (sample number)-(building ID)-year-month-date (e.g., DUP1-G-2014-03-13, the first duplicate sample collected at Building G on 13 March 2014). The primary sample and duplicate sample ID pairs are recorded in the field logs.

## 4.0 ANALYTICAL RESULTS AND DISCUSSION

This section describes the results of the indoor air investigation, including analytical laboratory analysis results, quality assurance/quality control (QA/QC) results, and adherence to data quality objectives (DQOs) specified in the Quality Assurance Project Plan (QAPP) that was attached to the approved Work Plan. Since all buildings sampled are currently zoned and utilized as commercial spaces, all indoor air results were compared to State of California ESLs for commercial/industrial air and the USEPA's RSLs for commercial/industrial air. In addition, results were also compared to the interim Response Action Levels (RALs) for TCE described in the USEPA July 2014 TCE Guidance. The sub-slab vapor screening levels were derived by dividing the RSLs and ESLs for indoor air by USEPA's default sub-slab vapor to indoor air attenuation factor of 0.01 ("adjusted RSLs and adjusted ESLs"). The attenuation factor of 0.01 has been chosen based on an evaluation of the data presented in the USEPA's *Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors*, dated 16 March 2012.

Indoor, pathway, ambient air, and sub-slab sample locations are described in Section 3.2 and are summarized on Table 2. The laboratory analytical results for VOCs in indoor air, pathway, and ambient air samples are summarized in Table 4; and the laboratory analytical results for VOCs in sub-slab vapor samples are summarized in Table 5. Copies of the laboratory analytical reports are presented in Appendix C.

## 4.1 Building 9

Four indoor air sample locations and two sub-slab sample locations were sampled at Building 9.

With the HVAC units operating normally, all compounds tested were below USEPA RSLs and Water Board ESLs for commercial/industrial air at all indoor air sample locations. Additionally, TCE was below interim RALs set forth in the USEPA July 2014 TCE Guidance at all indoor air sample locations with HVAC on and off.

With the HVAC units off, 1,2-DCA was detected at a concentration of 0.66 µg/m$^3$ in indoor air sample IA4-9-2012-12-30, exceeding both its commercial/industrial RSL (0.47 µg/m$^3$) and ESL (0.58 µg/m$^3$). All other compounds tested with HVAC off were below the commercial/industrial ESLs and RSLs at all locations in Building 9. 1,2-DCA was not detected in any sub-slab samples collected from this building; therefore, the detection is likely related to a small, indoor source and not to subsurface conditions.

Concentrations of TCE exceeded its adjusted screening level at both sub-slab sample locations. At sub-slab sample location SS1-9-2012-12-14, TCE was detected at concentrations 1,900 and 1,800 µg/m$^3$ in primary and duplicate samples, respectively. TCE was also detected at a concentration of 2,500 µg/m$^3$ at sub-slab sample location SS2-9-2012-12-14. These concentrations are above the 300 µg/m$^3$ adjusted commercial screening level (both ESL and RSL) for TCE. At sub-slab sample location SS2-9-2012-12-14, PCE was detected at a concentration of 380 µg/m$^3$, which exceeds its adjusted commercial ESL of 210 µg/m$^3$, but is below its adjusted commercial RSL of 4,700 µg/m$^3$.

Based upon the analytical data for Building 9, VOCs in the subsurface are not causing an unacceptable risk to indoor air quality. Furthermore, Building 9 is currently unoccupied and the prospective purchaser of this parcel has indicated that it plans to demolish Building 9 and replace it with a surface parking lot. No further sampling or mitigation is recommended for Building 9 at this time.

## 4.2 Building 19

Three indoor air sample locations, two sub-slab sample locations and one pathway sample location were sampled at Building 19. All compounds tested were below RSLs and ESLs for commercial/industrial air at all indoor air and pathway sample locations with HVAC units operating normally and with HVAC units turned off. Additionally, TCE was below interim RALs

set forth in the USEPA July 2014 TCE Guidance at all indoor air sample locations, with HVAC on and off.

Concentrations of TCE exceeded its adjusted screening level at both sub-slab sample locations. TCE was detected at concentrations of 5,300 and 2,800 µg/m$^3$ at sub-slab sample locations SS1-19-2012-12-14 and SS2-19-2012-12-14, respectively. These concentrations are above the 300 µg/m$^3$ derived commercial screening level (both ESL and RSL) for TCE. At sub-slab sample location SS1-19-2012-12-14, PCE was detected at a concentration of 230 µg/m$^3$, which exceeds its adjusted commercial ESL of 210 µg/m$^3$, but is below its adjusted commercial RSL of 4,700 µg/m$^3$.

Based upon the analytical data for Building 19, none of the screening levels were exceeded at any location in indoor air, with HVAC on or off. Furthermore, Building 19 is currently unoccupied and the prospective purchaser of this parcel has indicated that it plans to demolish Building 19 and replace it with a surface parking lot. No further sampling or mitigation is recommended for Building 19 at this time.

### 4.3 Building 39 (Credit Union)

Three indoor air sample locations, one pathway sample location, and three sub-slab sample locations were tested at Building 39, which is now leased to a credit union. Indoor and pathway air samples were first collected in December 2012 with HVAC units on and in January 2013 with HVAC units off. A follow-up pathway air sampling event was completed in April 2013 with HVAC units off only. A second pathway sample collected from the women's bathroom was added to the scope of sampling in April 2013. A second, complete round of testing was completed in March of 2014 with HVAC systems on and off.

During the December 2012 sampling event, all compounds tested were below the commercial/industrial ESLs and RSLs with HVAC units operating. During the January 2013 event, with HVAC units off, all compounds were below commercial/industrial ESLs and RSLs, with the exception of the pathway sample (PS1-39-2013-01-06) collected from the men's bathroom.

In January 2013, chloroform and TCE were detected in the men's bathroom pathway sample at levels above the commercial/industrial ESLs and RSLs with HVAC units off. PCE was also detected above its Water Board ESL, but below the USEPA RSL in this same

sample. Chloroform was detected at a concentration of 3.5 µg/m$^3$, exceeding its RSL of 0.53 µg/m$^3$ and ESL of 2.3 µg/m$^3$. TCE was detected in the men's bathroom at a concentration of 27 µg/m$^3$, exceeding its RSL and ESL of 3 µg/m$^3$ and its interim RALs set forth in the USEPA July 2014 TCE Guidance. PCE was detected at a concentration of 6.2 µg/m$^3$, which is above its Water Board commercial/industrial ESL of 2.1 µg/m$^3$, but below the USEPA RSL of 47 µg/m$^3$. All other compounds tested in samples collected with HVAC off were below the commercial/industrial ESLs and RSLs at all locations in Building 39.

Following the December 2012/January 2013 sampling event, an additional preferential pathway assessment was conducted in the men's and women's bathrooms in February and March 2013 in Building 39. The preferential pathway assessment included the use of a portable gas chromatography/mass spectrometry (GC/MS) unit for real-time measurement of VOCs in the bathrooms at the floor drains, near the sinks, in the sanitary clean-outs, and in the air between the shared walls of the two bathrooms where utility pipes and slab penetrations are present. The portable GC/MS investigation indicated the potential for VOCs migrating into the building from the sanitary clean-out and the space between the walls of the two bathrooms. Based on these findings, mitigation measures were undertaken and included sealing the sanitary clean-out and sealing the slab penetrations in the shared bathroom wall using a vapor barrier membrane. The slab penetrations were sealed by opening the shared wall between the bathrooms, cleaning the area and applying trowel-grade Geo-Seal™.

Following the sealing of the bathroom conduits, re-testing of indoor air was performed in both bathrooms on 28 April 2013 with the HVAC off. Pathway samples PS1-39-2013-04-28 was collected in the men's bathroom and PS2-39-2013-04-28 was collected in the women's bathroom. The results of this testing showed some concentrations above some screening levels for both restrooms. The detected concentrations in the men's bathroom were approximately half the concentrations detected in the pathway sample prior to the sealing activities, indicating the sealing had some positive effect. TCE was detected at concentrations of 16 and 13 µg/m$^3$ in PS1-39-2013-04-28 and PS2-39-2013-04-28, respectively, exceeding its RSL and ESL of 3 µg/m$^3$ and its interim RALs set forth in the USEPA July 2014 TCE Guidance. PCE (3.2 µg/m$^3$) was detected above its Water Board ESL and chloroform (1.6 µg/m$^3$) was detected above its USEPA RSL in the sample collected from the men's bathroom.

A second round of testing was performed in Building 39 in March 2014. All compounds tested continued to be below both the Water Board's commercial/industrial ESLs and USEPA's RSLs

with HVAC units operating normally and with HVAC units off in occupied areas of the building. However, the pathway samples from the men's and women's bathrooms did have screening criteria exceedances. With the HVAC operating normally, TCE was detected in the men's and women's bathroom pathway samples at concentrations of 17 and 5.6 µg/m$^3$, respectively. Both concentrations exceed the Water Board's commercial/industrial ESL and USEPA's RSL of 3 µg/m$^3$, which assume an 8-hour daily exposure. With HVAC units operating, the men's bathroom sample exceeded the interim RALs set forth in the USEPA July 2014 TCE Guidance, while the women's bathroom sample did not. PCE was also detected in the men's bathroom pathway sample at a concentration of 2.8 µg/m$^3$, which is above the Water Board's commercial/industrial ESL (2.1 µg/m$^3$), but is below the USEPA's RSL (47 µg/m$^3$). Both the Water Board's ESL and USEPA's RSL assume an 8-hour daily exposure.

In March 2014 with HVAC systems off, TCE was detected in the men's and women's bathroom pathway samples at concentrations of 40 and 11 µg/m$^3$, respectively. Both concentrations exceed the Water Board's commercial/industrial ESL and USEPA's RSL of 3 µg/m$^3$ and the interim RALs set forth in the USEPA July 2014 TCE Guidance. However, the HVAC unit off condition is not the normal operating condition in the bathrooms. PCE was also detected in the pathway samples collected from the men's and women's bathrooms at concentrations of 9.1 and 2.6 µg/m$^3$, respectively. These concentrations exceed the Water Board's commercial/industrial ESL, but are below the USEPA's RSL. Chloroform was detected above the USEPA's RSL of 0.53 µg/m$^3$ in pathway samples collected from the men's and women's bathrooms at concentrations of 1.8 and 2.9 µg/m$^3$, respectively. The concentration detected in the women's bathroom also exceeded its Water Board ESL of 2.3 µg/m$^3$. Chloroform concentrations in indoor air have been known to be associated with off-gassing from municipal water supplies, which is the likely source of chloroform in these samples.

Although the pathway samples collected from the men's and women's bathrooms of Building 39 show concentrations above ESLs and RSLs for commercial uses, these screening levels are based on exposure assumptions of 8 hours a day, 250 days a year. By contrast, a bathroom would be used far less. Very conservatively, we estimated an employee may occupy the bathroom for up to one hour per day. Considering this one hour exposure scenario, a modified commercial ESL and RSL for TCE were both calculated to be 24 µg/m$^3$. The TCE concentrations detected in the most recent event in March 2014 (17 and 5.6 µg/m$^3$, respectively) were well below the modified health screening levels considering a one hour exposure scenario.

Concentrations of TCE exceeded its adjusted screening level at two of the three sub-slab sample locations. At sub-slab sample location SS1-39-2012-12-13, TCE was detected at a concentration of 1,000 µg/m$^3$, in both primary and duplicate samples. TCE was also detected at a concentration of 510 µg/m$^3$ at sub-slab sample location SS3-39-2012-12-13. These concentrations are above TCE's adjusted ESL and RSL of 300 µg/m$^3$. No other compounds detected in the sub-slab samples exceeded the adjusted commercial/industrial ESLs and RSLs.

Although the conditions in the bathrooms do not pose an unacceptable risk to bathroom users, TI voluntarily installed air purifiers in the bathrooms of Building 39 on 6 June 2014. Additionally, in an abundance of caution, TI voluntarily installed a sub-slab depressurization system (SSDS) to control vapor intrusion into the bathrooms in late October 2014 and activated the system on 5 November 2014. The as-built design drawings and the Bay Area Air Quality Management District (BAAQMD) permit application associated with the SSDS system are included in Appendix D.

The air purification units will continue to operate during the initial week of SSDS operation to remove any residual VOCs in the bathrooms. One month following the installation of the SSDS, confirmation air sampling will be conducted in the bathrooms of Building 39. This testing is scheduled for the first week in December 2014.

### 4.4 Building G

Five indoor air sample locations (including four on the first floor and one on the second floor), three sub-slab sample locations, and three pathway sample locations were sampled at Building G. Indoor and pathway air samples were first collected in December 2012 and a second round of testing was completed in March 2014, both with HVAC systems on and off.

All compounds tested were below USEPA RSLs and Water Board ESLs for commercial/industrial air and the interim RALs set forth in the USEPA July 2014 TCE Guidance at all indoor air and pathway sample locations with HVAC units operating normally during each sampling event.

With HVAC units off, no compounds were detected above applicable screening criteria during the 2012 sampling event. However, chloroform was detected in one sample (IA3) above its ESL with the HVAC system off in the March 2014 sampling event. All other compounds tested were below their respective Water Board commercial/industrial ESLs and USEPA RSLs, and

TCE was below interim RALs set forth in the USEPA July 2014 TCE Guidance. Chloroform was detected at a concentration of 1.2 µg/m$^3$, which exceeded its ESL (0.53 µg/m$^3$), but below its RSL (2.3 µg/m$^3$). Low levels of chloroform were detected in Building G samples during both sampling events; however, the concentration detected in IA3 was nearly five times higher than other locations during this event, whereas chloroform concentrations at all other sample locations are consistent with previous sampling events. Chloroform was not detected in the sub-slab samples collected from Building G and therefore, the chloroform detection may be associated with an indoor source and is not likely associated with vapor intrusion. The chloroform detection may also be associated with off-gassing from municipal water.

Concentrations of TCE and PCE exceeded their adjusted screening levels at one of the three sub-slab sample locations. At sub-slab sample location SS2-G-2012-12-14, TCE was detected at a concentration of 660 µg/m$^3$, which is above the adjusted ESL and RSL for TCE of 300 µg/m$^3$. PCE was detected at a concentration of 250 µg/m$^3$, which slightly exceeds its adjusted ESL of 210 µg/m$^3$ but is significantly below its adjusted RSL of 4,700 µg/m$^3$. No other compounds detected in the sub-slab samples exceeded their respective adjusted commercial/industrial ESLs and RSLs.

Given the results of this assessment and the consistent results (with both HVAC on and off) from multiple sampling events, no additional assessment or mitigation is proposed at Building G.

## 5.0 CONCLUSIONS

The on-property vapor intrusion assessment for the Eastern Parcels at the site was conducted in consultation with the USEPA and Water Board. All work was conducted in general accordance with the approved Work Plans dated 4 December 2012 and 9 April 2014. The overall objective of this assessment was to evaluate whether VOCs present in the groundwater beneath the site are migrating from the subsurface into indoor air at levels that may pose a risk to site workers or occupants. This report presents the results of the assessment, which consisted of the collection of indoor, pathway, ambient air, and sub-slab vapor samples from Eastern Parcels Buildings G, 9, 19, and 39 located at the Texas Instruments campus in Santa Clara in December 2012, January and April 2013, and March and April 2014. Sample locations were selected and finalized during the pre-sampling surveys conducted with the USEPA and/or Water Board.

The indoor air sample results were compared to the USEPA RSLs for industrial air quality criteria and the Water Board ESLs for commercial air quality criteria. The results were also compared with interim RALs in USEPA's July 2014 Guidance, which were issued after the work plans were approved.

Building G had multiple rounds of testing completed with HVAC units on and off. The results of sampling show no exceedances, related to vapor intrusion, of any of the applicable standards.

Buildings 9 and 19 were both sampled with HVAC units on and off. The results of the sampling at Buildings 9 and 19 do not show any exceedances, related to vapor intrusion, of any of the applicable standards. The prospective purchaser of Buildings 9 and 19 have indicated that they plan to demolish these buildings and replace them with a surface parking lot.

For Building 39, test results in the occupied spaces showed no exceedances of applicable standards with HVAC on and off, during multiple rounds of testing.

Pathway samples collected in the men's and women's bathrooms in March 2014 in Building 39 had TCE and PCE exceedances with both HVAC units on and off. TCE and PCE exceedances were also previously detected in the 2013 pathway samples collected from the bathrooms. Preferential pathway assessment and mitigation measures, including sealing penetrations and conduits, were implemented to address vapor intrusion in the bathrooms. However, these pathway concentrations remain above screening levels.

We conclude that the conditions in the bathrooms of Building 39 do not pose an unacceptable risk to workers since the Water Board's ESL and USEPA's RSL for commercial uses are based on exposure assumptions of 8 hours a day, 5 days a week, and 50 weeks a year. By contrast, a bathroom would be occupied far less. Very conservatively, we estimated an employee may occupy the bathroom for up to one hour per day. Considering this one-hour exposure scenario, a modified commercial Water Board ESL and a USEPA RSL for TCE were both calculated to be 24 $\mu g/m^3$.

The most recent March 2014 sampling results showed TCE concentrations detected in the men's room and women's room with HVAC operating were 17 and 5.6 $\mu g/m^3$, respectively. These concentrations are below the modified health screening levels considering a one hour exposure scenario. Although the conditions do not show unacceptable risks to users of the bathroom, TI voluntarily installed air-purification units in both the men's and women's

bathrooms on 6 June 2014. Additionally, and in an abundance of caution, TI also voluntarily installed a sub-slab depressurization system (SSDS) to address vapor intrusion into the bathrooms at Building 39 in October 2014. This SSDS system became operational on 5 November 2014. The SSDS as-built drawings and BAAQMD permit application are included in Appendix D.

The air purification units will continue to operate during the initial week to remove any residual VOCs in the bathrooms. One month following the installation of the SSDS, confirmation air sampling will be conducted in the bathrooms of Building 39. This confirmation testing is scheduled for the first week in December 2014.

## 6.0 RECOMMENDATIONS

Based on the data presented in this report and the multiple rounds of sampling, no further indoor air testing or mitigation is recommended for Buildings G, 9 and 19. The prospective purchaser of the Eastern Parcels has indicated their intent to demolish Buildings 9 and 19 and replace them with a surface parking lot. It is anticipated that Building G will be leased as commercial space. However, since multiple rounds of testing in Building G showed no exceedances related to vapor intrusion of any of the applicable standards, no additional testing or mitigation is recommended.

Testing of occupied space in Building 39 (Credit Union) showed no exceedances of any applicable standards with HVAC on or off during multiple sampling events. We recommend that the SSDS system voluntarily installed to prevent vapor intrusion into the men's' and women's bathrooms continue to be operated and follow up testing completed.

In summary, with the exception of the measures taken to address the potential preferential pathway issue in the bathrooms at Building 39, no further action is recommended for any of the Eastern Parcels buildings.

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# TABLES

**Table 1**
**Groundwater Analytical Results, October 2013**
**Operable Unit 1**
**Texas Instruments**
**Santa Clara, California**

| Chemical Name | | | 1,1,1-TCA | 1,1,2-TCA | 1,1-DCA | 1,1-DCE | 1,2,3-TCB | 1,2,4-TCB | 1,2-DCB | 1,2-DCA | 1,3-DCB | 1,4-DCB | Carbon Disulfide | Chloro-benzene | Chloroform | cis-1,2-DCE | Ethyl-benzene | Freon 113 | m,p-Xylenes | MTBE | O-Xylene | PCE | trans-1,2-DCE | TCE | Vinyl Chloride | All Other VOCs | Perchlorate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unit | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Well ID | Sample Date | DUP | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Cleanup Standard (µg/L)** | | | **200** | **--** | **5** | **6** | **--** | **--** | **60** | **--** | **--** | **5** | **--** | **--** | **5** | **6** | **68** | **1,200** | **175[A]** | **--** | **175[A]** | **5** | **10** | **5** | **0.5** | **--** | **--** |
| **A-Aquifer Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11A | 10/15/13 | | 0.6 | < 0.5 | **9.5** | 2.7 | < 0.5 | 3.7 | 3.7 | < 0.5 | 0.5 | 0.9 | < 0.5 | < 0.5 | < 0.5 | 1.7 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 3.5 | 0.5 | 4.1 | < 0.5 | ND | NA |
| 18A | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **15** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1 | **12** | < 0.5 | ND | NA |
| 21A | 10/15/13 | | < 0.5 | < 0.5 | 4.1 | 3.2 | < 0.5 | 0.6 | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **59** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 1.2 | 1.5 | **100** | **2.3** | ND | NA |
| | 10/15/13 | DUP-1 | < 0.5 | < 0.5 | 4.2 | 3.6 | < 0.5 | 0.6 | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **58** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 1.2 | 1.1 | **96** | **2.4** | ND | NA |
| 30A | 10/15/13 | | 1.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **18** | < 1.0 | 7.4 | < 1.0 | < 1.0 | < 1.0 | **6.8** | < 1.0 | **110** | < 1.0 | ND | NA |
| 32A | 10/16/13 | | < 1.7 | < 1.7 | **5.8** | 3 | < 1.7 | < 1.7 | 4.9 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **220** | < 1.7 | 65 | < 1.7 | < 1.7 | < 1.7 | 2.5 | 4.1 | **84** | **30** | ND | NA |
| | 10/16/13 | DUP-2 | < 1.7 | < 1.7 | **5.1** | 2.4 | < 1.7 | < 1.7 | 4.4 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **200** | < 1.7 | 61 | < 1.7 | < 1.7 | < 1.7 | 2.5 | 3 | **79** | **28** | ND | NA |
| 38A | 10/16/13 | | 1.1 | < 0.5 | 1.3 | 0.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.6 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 1.7 | < 0.5 | 1.1 | < 0.5 | ND | NA |
| 39A | 10/15/13 | | 4.2 | < 1.7 | **12** | < 1.7 | < 1.7 | 25 | **61** | < 1.7 | 89 | **250** | < 1.7 | 25 | < 1.7 | **28** | < 1.7 | < 6.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **18** | ND | NA |
| 44A | 10/17/13 | | 1.1 | < 0.5 | 1 | 0.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.7 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 1.6 | < 0.5 | 0.5 | < 0.5 | ND | NA |
| 46A | 10/16/13 | | 3.7 | < 3.6 | **10** | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | **220** | < 3.6 | 15 | < 3.6 | < 3.6 | < 3.6 | < 3.6 | 3.9 | **610** | < 3.6 | ND | NA |
| 48A | 10/16/13 | | < 1.7 | < 1.7 | 4.8 | 2.5 | < 1.7 | < 1.7 | 5.8 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **190** | < 1.7 | 110 | < 1.7 | < 1.7 | < 1.7 | 2.5 | 2.9 | **87** | **25** | ND | NA |
| 50A | 10/16/13 | | < 0.7 | < 0.7 | 4.7 | 1 | < 0.7 | < 0.7 | 3.6 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | **140** | < 0.7 | < 2.9 | < 0.7 | < 0.7 | < 0.7 | < 0.7 | 3.1 | **6.5** | **74** | ND | NA |
| 58A | 10/16/13 | | < 2.5 | < 2.5 | **5.1** | 4.2 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | **100** | < 2.5 | 12 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | 3.2 | **500** | < 2.5 | ND | NA |
| 62A | 10/15/13 | | 5.9 | < 0.5 | 3.1 | 1.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **46** | < 0.5 | 4.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **58** | < 0.5 | ND | NA |
| 68A | 12/23/13 | | 0.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 4.1 | < 0.5 | 5.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 69A | 12/23/13 | | 0.6 | < 0.5 | < 0.5 | 0.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.7 | 6.5 | < 0.5 | 3.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **41** | < 0.5 | ND | NA |
| 70A | 10/16/13 | | < 1.7 | < 1.7 | 2.9 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **140** | < 1.7 | 6.8 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | 1.8 | **250** | < 1.7 | ND | NA |
| 72A | 10/16/13 | | < 1.7 | < 1.7 | **7** | 2.3 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **250** | < 1.7 | < 6.7 | < 1.7 | < 1.7 | < 1.7 | 2.4 | 2.8 | **230** | < 1.7 | ND | NA |
| 89A | 10/15/13 | | 2.7 | 2 | **48** | **14** | < 0.5 | < 0.5 | 36 | 1.4 | < 0.5 | < 0.5 | < 0.5 | 2.1 | < 0.5 | **8.4** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **60** | 2.1 | **35** | ND | NA |
| 101A | 10/16/13 | | < 0.5 | < 0.5 | 1.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **9.3** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 4.7 | < 0.5 | ND | NA |
| 103A | 10/16/13 | | < 1.3 | < 1.3 | 1.4 | 1.8 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **48** | < 1.3 | 7.4 | < 1.3 | < 1.3 | < 1.3 | 1.7 | < 1.3 | **210** | < 1.3 | ND | NA |
| 113A | 10/16/13 | | 0.8 | < 0.5 | 0.7 | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.6 | **8.3** | < 0.5 | 2.8 | < 0.5 | < 0.5 | < 0.5 | **5.2** | < 0.5 | **38** | < 0.5 | ND | NA |
| 128A | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **11** | < 0.5 | 4.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.8 | **6.8** | < 0.5 | ND | NA |
| 136A | 10/16/13 | | < 0.5 | < 0.5 | 2.4 | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **90** | < 0.5 | 6.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.8 | **62** | **0.6** | ND | NA |
| 139A | 12/23/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 141A | 12/23/13 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 27 | < 1.0 | 3.6 | < 1.0 | 8.3 | 17 | < 1.0 | 2.4 | < 1.0 | **8.3** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.0 | **27** | **1.6** | ND | NA |
| 142A | 12/23/13 | | < 0.5 | < 0.5 | < 0.5 | 0.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **38** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 2.9 | 1.2 | **88** | < 0.5 | ND | NA |
| 143A | 12/23/13 | | 140 | < 100 | < 100 | < 100 | 310 | 970 | **340** | < 100 | 260 | **1,200** | < 100 | 170 | < 100 | < 100 | **9,600** | < 400 | **31,000** | < 100 | **9,000** | < 100 | < 100 | < 100 | < 100 | ND | NA |
| 145A | 10/15/13 | | < 2.5 | < 2.5 | 4 | 4.8 | < 2.5 | < 2.5 | 38 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | **230** | < 2.5 | < 10 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | 5.3 | **5.3** | **130** | ND | NA |
| 146A | 10/17/13 | | < 0.5 | < 0.5 | **13** | 1.1 | < 0.5 | 1.5 | 42 | < 0.5 | 0.8 | **6.9** | < 0.5 | < 0.5 | < 0.5 | **35** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 3.1 | < 0.5 | 1.3 | < 0.5 | ND | NA |
| | 10/17/13 | DUP-3 | < 0.5 | < 0.5 | **13** | 1.1 | < 0.5 | 2.9 | **75** | < 0.5 | 1.5 | **13** | < 0.5 | < 0.5 | < 0.5 | **53** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 4.9 | < 0.5 | 1.9 | < 0.5 | ND | NA |
| 147A | 12/23/13 | | < 1.3 | < 1.3 | 3.8 | 3.4 | < 1.3 | 1.5 | 24 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **210** | < 1.3 | < 5.0 | < 1.3 | < 1.3 | < 1.3 | 3.1 | 4.2 | **54** | 14 | ND | NA |
| 147A | 10/16/13 | | < 1.0 | < 1.0 | 3.1 | 2.6 | < 1.0 | < 1.0 | 24 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **200** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | 3.2 | 3.9 | **51** | **15** | ND | NA |
| | 10/16/13 | DUP-4 | < 1.0 | < 1.0 | 3.4 | 3.1 | < 1.0 | < 1.0 | 25 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **180** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | 3.1 | 4.5 | **51** | **16** | ND | NA |
| 148A | 10/16/13 | | < 1.7 | < 1.7 | **5.1** | < 1.7 | < 1.7 | < 1.7 | 50 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **210** | < 1.7 | < 6.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | 5.3 | 3.8 | **76** | ND | NA |
| 149A | 10/16/13 | | < 2.5 | < 2.5 | **5.9** | 2.9 | < 2.5 | < 2.5 | 12 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | **420** | < 2.5 | < 10 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | **10** | **49** | **39** | ND | NA |
| 150A | 10/17/13 | | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | < 250 | **5,100** | **27,000** | **4,700** | **95,000** | < 250 | **29,000** | < 250 | < 250 | **1,700** | **500** | ND | NA |
| 151A | 12/23/13 | | 2.6 | < 10 | **21** | 4.4 | < 1.0 | < 1.0 | 1.1 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **180** | < 1.0 | 12 | < 1.0 | < 1.0 | < 1.0 | 4.4 | 4.8 | **25** | **24** | ND | NA |
| 153A | 10/15/13 | | 14 | < 1.0 | **28** | **95** | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 14 | < 1.0 | < 1.0 | < 1.0 | **6.3** | < 1.0 | **5.3** | < 1.0 | ND | NA |
| 154A | 10/17/13 | | < 20 | < 20 | **170** | < 20 | < 100 | 270 | **8,000** | < 20 | 210 | **1,200** | < 20 | < 20 | < 20 | **300** | **3,200** | < 80 | **11,000** | < 20 | **2,600** | **2,600** | < 20 | **760** | < 20 | ND | NA |
| | 10/17/13 | DUP-5 | < 50 | < 50 | **170** | < 50 | 51 | 430 | **8,000** | < 50 | 220 | **1,300** | < 50 | < 50 | < 50 | **240** | **3,400** | < 200 | **11,000** | < 50 | **2,500** | **2,800** | < 50 | **710** | < 50 | ND | NA |
| 155A | 10/17/13 | | 1.5 | < 0.5 | **5.4** | < 0.5 | < 0.5 | < 0.5 | 7.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 3.5 | 0.8 | < 2.0 | 3 | < 0.5 | 3 | **84** | < 0.5 | 2.1 | < 0.5 | ND | NA |
| 156A | 12/23/13 | | < 0.5 | < 0.5 | **5.0** | 0.7 | < 0.5 | 6.6 | **69** | < 0.5 | 7.6 | **14** | < 0.5 | 11 | < 0.5 | **66** | < 0.5 | < 2.0 | 0.6 | < 0.5 | < 0.5 | < 0.5 | 4.7 | 3.9 | 130 | ND | NA |
| 157A | 12/23/13 | | < 0.5 | < 0.5 | **6.5** | 1.6 | < 0.5 | 21 | **88** | < 0.5 | 11 | **24** | < 0.5 | 12 | < 0.5 | **76** | < 0.5 | < 2.0 | 0.9 | < 0.5 | < 0.5 | < 0.5 | 5.0 | 3.4 | 320 | ND | NA |
| LF07 | 10/17/13 | | 1.9 | < 0.5 | 0.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.9 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **98** | < 0.5 | ND | < 4.0 |
| | 10/17/13 | DUP-6 | 1.9 | < 0.5 | 0.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.9 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **93** | < 0.5 | ND | < 4.0 |
| LF19 | 10/17/13 | | 1.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **92** | < 0.5 | ND | 61 |
| LF21 | 10/17/13 | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | < 4.0 |
| | 10/17/13 | DUP-7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | < 4.0 |
| M19A | 10/17/13 | | 1.8 | < 0.5 | 1.3 | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.4 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **44** | < 0.5 | ND | NA |
| ME43A | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 6.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2.8 | < 0.5 | **98** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | **8.3** | 1.9 | **38** | **0.8** | ND | NA |
| MM01A | 10/15/13 | | < 1.0 | < 1.0 | 2.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **130** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | 1.3 | 2.3 | **9.5** | < 1.0 | ND | NA |
| MM07A | 10/16/13 | | < 2.5 | < 2.5 | 4 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | < 2.5 | 98 | < 2.5 | **370** | < 2.5 | < 10 | < 2.5 | < 2.5 | < 2.5 | **9.9** | 3.8 | **71** | **8.2** | ND | NA |
| MM17A | 10/17/13 | | < 1.0 | < 1.0 | 2.5 | < 1.0 | < 1.0 | < 1.0 | 1.8 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **75** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | **34** | 1.8 | **120** | **2.2** | ND | NA |
| MM31A | 10/17/13 | | < 1.7 | < 1.7 | 2.4 | < 1.7 | < 1.7 | < 1.7 | 2.9 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | 2 | < 1.7 | **100** | < 1.7 | < 6.7 | < 1.7 | < 1.7 | < 1.7 | **7.2** | 1.7 | **190** | < 1.7 | ND | NA |
| | 10/17/13 | DUP-8 | < 1.7 | < 1.7 | 2.7 | < 1.7 | < 1.7 | < 1.7 | 3.1 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | 2 | < 1.7 | **100** | < 1.7 | < 6.7 | < 1.7 | < 1.7 | < 1.7 | **7.7** | 2 | **210** | < 1.7 | ND | NA |
| MM33A | 10/17/13 | | < 0.5 | < 0.5 | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **32** | < 0.5 | 3.5 | < 0.5 | 21 | < 0.5 | < 0.5 | < 0.5 | 2.7 | **1.4** | ND | NA |
| MM34A | 10/15/13 | | 0.6 | < 0.5 | 4 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **92** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | 1.4 | 1.7 | **60** | **2.3** | ND | NA |
| MM37A | 10/17/13 | | < 1.3 | < 1.3 | 2.9 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **65** | < 1.3 | < 5.0 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | 2.3 | **220** | < 1.3 | ND | NA |
| MM40A | 10/15/13 | | < 0.5 | < 0.5 | 2 | **8.6** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **89** | < 0.5 | 4.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.2 | **19** | **2.5** | ND | NA |
| MW18AR | 10/16/13 | | < 1.0 | < 1.0 | 2 | < 1.0 | < 1.0 | < 1.0 | 17 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 18 | < 1.0 | **90** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | **17** | 2.3 | **130** | < 1.0 | ND | NA |
| RC4A | 12/23/13 | | < 1.3 | < 1.3 | **5.2** | 5.5 | 1.9 | 8.6 | 42 | < 1.3 | < 1.3 | 1.8 | < 1.3 | < 1.3 | < 1.3 | **220** | < 1.3 | < 5.0 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | 4.0 | **6.6** | **58** | ND | NA |

**Table 1**
**Groundwater Analytical Results, October 2013**
**Operable Unit 1**
**Texas Instruments**
**Santa Clara, California**

| Chemical Name | | | 1,1,1-TCA | 1,1,2-TCA | 1,1-DCA | 1,1-DCE | 1,2,3-TCB | 1,2,4-TCB | 1,2-DCB | 1,2-DCA | 1,3-DCB | 1,4-DCB | Carbon Disulfide | Chloro-benzene | Chloroform | cis-1,2-DCE | Ethyl-benzene | Freon 113 | m,p-Xylenes | MTBE | O-Xylene | PCE | trans-1,2-DCE | TCE | Vinyl Chloride | All Other VOCs | Perchlorate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unit | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Well ID | Sample Date | DUP | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Cleanup Standard (µg/L)** | | | **200** | **--** | **5** | **6** | **--** | **--** | **60** | **--** | **--** | **5** | **--** | **--** | **5** | **6** | **68** | **1,200** | **175[A]** | **--** | **175[A]** | **5** | **10** | **5** | **0.5** | **--** | **--** |
| **A/B1-Aquifer Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17A/B1 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **28** | < 0.5 | ND | NA |
| 45A/B1 | 10/15/13 | | < 1.0 | < 1.0 | 1 | < 1.0 | < 1.0 | < 1.0 | 5 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **29** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | **5.3** | < 1.0 | **100** | < 1.0 | ND | NA |
| 52A/B1 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **59** | < 0.5 | 2.1 | < 0.5 | < 0.5 | < 0.5 | **13** | 1.6 | **57** | < 0.5 | ND | NA |
| 71A/B1 | 10/16/13 | | 14 | < 1.3 | **6.2** | 3.7 | < 1.3 | < 1.3 | 2.7 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **160** | < 1.3 | 24 | < 1.3 | < 1.3 | < 1.3 | 1.7 | < 1.3 | **180** | **7.9** | ND | NA |
| 97A/B1 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 98A/B1 | 10/16/13 | | 6.8 | < 1.3 | **7.9** | 2.8 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **180** | < 1.3 | 24 | < 1.3 | < 1.3 | < 1.3 | 3.5 | 1.9 | **160** | < 1.3 | ND | NA |
| 102A/B1 | 10/16/13 | | 0.6 | < 0.5 | 0.6 | 0.7 | < 0.5 | < 0.5 | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **19** | < 0.5 | 2.9 | < 0.5 | < 0.5 | < 0.5 | 0.5 | 1.3 | **65** | < 0.5 | ND | NA |
| 104A/B1 | 10/16/13 | | 2 | < 0.5 | 3 | 1.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **41** | < 0.5 | 3.8 | < 0.5 | < 0.5 | < 0.5 | 1.3 | < 0.5 | **67** | < 0.5 | ND | NA |
| 105A/B1 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 106A/B1 | 10/16/13 | | 2.2 | < 0.5 | 2.6 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **45** | < 0.5 | 4.2 | < 0.5 | < 0.5 | < 0.5 | 0.6 | < 0.5 | **150** | < 0.5 | ND | < 4.0 |
| 108A/B1 | 10/15/13 | | 1.3 | < 0.5 | 0.6 | 1.7 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.6 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **6.2** | < 0.5 | ND | < 4.0 |
| 110A/B1 | 10/15/13 | | 3 | < 0.5 | 1.7 | 2.1 | < 0.5 | 0.7 | 3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **44** | < 0.5 | 14 | < 0.5 | < 0.5 | < 0.5 | 1.5 | < 0.5 | **80** | < 0.5 | ND | NA |
| 111A/B1 | 10/17/13 | | 1.9 | < 0.5 | 1 | 4.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.4 | < 0.5 | 4.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **27** | < 0.5 | ND | NA |
| 112A/B1 | 10/15/13 | | 0.9 | < 0.5 | 0.7 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5.6 | < 0.5 | 2.1 | < 0.5 | < 0.5 | < 0.5 | 2.3 | < 0.5 | **46** | < 0.5 | ND | NA |
| 114A/B1 | 10/16/13 | | 0.7 | < 0.5 | 0.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 3.6 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | **6.6** | < 0.5 | **53** | < 0.5 | ND | NA |
| 115A/B1 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **25** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **96** | < 0.5 | ND | NA |
| **B1-Aquifer Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14B1 | 10/16/13 | | 0.8 | < 0.5 | 0.6 | 1.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **34** | < 0.5 | 9.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **72** | < 0.5 | ND | NA |
| 15B1 | 10/15/13 | | < 1.0 | < 1.0 | 1.2 | < 1.0 | < 1.0 | < 1.0 | 1.2 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **91** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **110** | < 1.0 | ND | NA |
| | 10/15/13 | DUP-9 | < 1.0 | < 1.0 | 1.2 | < 1.0 | < 1.0 | < 1.0 | 1.5 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **95** | < 1.0 | < 4.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **100** | < 1.0 | ND | NA |
| 21B1 | 10/16/13 | | < 3.1 | < 3.1 | 4.8 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | **320** | < 3.1 | < 13 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | < 3.1 | **65** | **3.7** | ND | NA |
| 72B1 | 10/16/13 | | 7.6 | < 1.7 | 2.8 | 3.2 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **180** | < 1.7 | 38 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | < 1.7 | **180** | **7.3** | ND | NA |
| 77B1 | 10/17/13 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **150** | < 1.0 | 6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **59** | < 1.0 | ND | NA |
| 83B1 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 100B1 | 10/16/13 | | < 1.0 | < 1.0 | 1.8 | 2.1 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **150** | < 1.0 | 21 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1 | **220** | < 1.0 | ND | NA |
| 107B1 | 10/16/13 | | 1.2 | < 0.5 | 0.7 | 1.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.8 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **7.5** | < 0.5 | ND | < 4.0 |
| | 10/16/13 | DUP-10 | 1.2 | < 0.5 | 0.7 | 1.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.9 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **7.3** | < 0.5 | ND | < 4.0 |
| 124B1 | 10/16/13 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **100** | < 1.0 | 12 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1 | < 1.0 | ND | NA |
| 125B1 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 4.7 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| 126B1 | 10/16/13 | | 1.5 | < 1.3 | < 1.3 | 2.8 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | **160** | < 1.3 | 20 | < 1.3 | < 1.3 | < 1.3 | < 1.3 | 2.2 | **120** | < 1.3 | ND | NA |
| 127B1 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **23** | < 0.5 | 3.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **9.8** | < 0.5 | ND | NA |
| 140B1 | 10/17/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **20** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| LF02 | 10/17/13 | | 5 | < 0.5 | 3.2 | **6.2** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **1.1** | **79** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5.3 | **190** | **2.6** | ND | < 4.0 |
| LF06 | 10/17/13 | | 3.2 | < 0.5 | 2.1 | 2.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.3 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **55** | < 0.5 | ND | < 4.0 |
| MM14B1 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.3 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.6 | < 0.5 | ND | NA |
| ME07B1 | 10/17/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **22** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **57** | < 0.5 | ND | NA |
| MM17B1 | 10/17/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.9 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **1.3** | < 0.5 | ND | NA |
| **B2-Aquifer Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39B2 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | 1.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2 | < 0.5 | **3.9** | < 0.5 | < 0.5 | < 0.5 | **5.7** | < 0.5 | **78** | < 0.5 | ND | NA |
| 71B2 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **15** | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **10** | < 0.5 | ND | NA |
| ME19B2 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.9 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.4 | < 0.5 | ND | NA |
| MM33B2 | 10/17/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 4.1 | < 0.5 | ND | NA |
| **Other Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HILTONC | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| **Trip Blank Samples** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TB-1 | 10/15/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.8 | 3.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| TB-2 | 10/16/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |
| TB-3 | 10/17/13 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 2.0 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | ND | NA |

Notes:
A. Cleanup standard is for total xylenes.
µg/L - micrograms per Liter
VOCs - Volatile Organic Compounds
1,1,1-TCA - 1,1,1-Trichloroethane
1,1,2-TCA - 1,1,2-Trichloroethane
1,1-DCA - 1,1-Dichloroethane
1,1-DCE - 1,1-Dichloroethene
1,2,3-TCB -1,2,3-Trichlorobenzene
1,2,4-TCB - 1,2,4-Trichloro-benzene
1,2-DCB - 1,2-Dichlorobenzene
1,2-DCA - 1,2-Dichloroethane
1,3-DCB - 1,3-Dichlorobenzene
1,4-DCB - 1,4-Dichlorobenzene
cis-1,2-DCE - cis-1,2-Dichloroethene
PCE - Tetrachloroethene
trans-1,2-DCE - trans-1,2-Dichloroethene
**Bold** - Analytes detected above the laboratory reporting limit and cleanup standard are shown in bold lettering.
ND - Not detected above the laboratory reporting limit
NA - Not Analyzed
TB: - Trip Blank Sample
DUP - Duplicate field Sample

**Table 2**
**Description of Sample Locations**
**Texas Instruments Incorporated**
**Santa Clara, California**
**Project: 750620701**

| Sample ID | Matrix | HVAC On | HVAC Off | Location |
|---|---|---|---|---|
| **Building 9** | | | | |
| SS1-9-2012-mm-dd | Sub-Slab | X | | Communication room |
| SS2-9-2012-mm-dd | Sub-Slab | X | | Storage room (eastern side) |
| IA1-9-2012-mm-dd | Indoor Air | X | X | Kitchen area |
| IA2-9-2012-mm-dd | Indoor Air | X | X | Men's restroom |
| IA3-9-2012-mm-dd | Indoor Air | X | X | Office area (eastern side) |
| IA4-9-2012-mm-dd | Indoor Air | X | X | Classroom 3 |
| AA-9-2012-mm-dd | Ambient Air [1] | X | X | Roof, within 10 feet of HVAC |
| **Building 19** | | | | |
| SS1-19-2012-mm-dd | Sub-Slab | X | | Janitor's closet |
| SS2-19-2012-mm-dd | Sub-Slab | X | | Facilities workshop area |
| IA1-19-2012-mm-dd | Indoor Air | X | X | Office area (southwestern portion) |
| IA2-19-2012-mm-dd | Indoor Air | X | X | Break room |
| IA3-19-2012-mm-dd | Indoor Air | X | X | Facilities workshop area |
| PS1-19-2012-mm-dd | Pathway | X | X | Janitor's closet |
| AA-19-2012-mm-dd | Ambient Air [1] | X | X | Roof, within 10 feet of HVAC |
| **Building 39** | | | | |
| SS1-39-2012-mm-dd | Sub-Slab | X | | Storage room |
| SS2-39-2012-mm-dd | Sub-Slab | X | | Electrical room |
| SS3-39-2012-mm-dd | Sub-Slab | X | | Telephone room |
| IA1-39-2014-mm-dd | Indoor Air | X | X | Office area (Collections Department) |
| IA2-39-2014-mm-dd | Indoor Air | X | X | Office area (Lending Department) |
| IA3-39-2014-mm-dd | Indoor Air | X | X | Tellers area |
| PS1-39-2014-mm-dd | Pathway | X | X | Men's restroom |
| PS2-39-2014-mm-dd | Pathway | X | X | Women's restroom |
| AA-39-2014-mm-dd | Ambient Air [1] | X | X | Roof, within 10 feet of HVAC |
| **Building G** | | | | |
| SS1-G-2012-mm-dd | Sub-Slab | X | | Office area (northeastern portion) |
| SS2-G-2012-mm-dd | Sub-Slab | X | | Office area (southeastern portion) |
| SS3-G-2012-mm-dd | Sub-Slab | X | | Office area (southwestern portion) |
| IA1-G-2014-mm-dd | Indoor Air | X | X | Office area (southwestern portion) |
| IA2-G-2014-mm-dd | Indoor Air | X | X | Planter area |
| IA3-G-2014-mm-dd | Indoor Air | X | X | Office area (northeastern portion) |
| IA4-G-2014-mm-dd | Indoor Air | X | X | MPOE room |
| PS1-G-2014-mm-dd | Pathway | X | X | Second Floor (in the vicinity of far south elevator) |
| PS2-G-2014-mm-dd | Pathway | X | X | In front of the Elevator (far south) |
| PS3-G-2014-mm-dd | Pathway | X | X | In front of the Elevator (south-central) |
| PS4-G-2014-mm-dd | Pathway | X | X | Men's restroom (central portion) |
| AA-G-2014-mm-dd | Ambient Air [1] | X | X | Roof, within 10 feet of HVAC |

Notes:
1 - Ambient air samples will be collected at a frequency of one per day.
mm = month
dd= day

**Table 3**
**Site Building Information**
**Texas Instruments Incorporated**
**Santa Clara, California**

| Building Identification | Pertinent Construction Information | Size (SF) | Historical Use | Current Use | Contamination Source Areas | Anticipated Depth to Groundwater (feet below ground surface) | Remediation Information |
|---|---|---|---|---|---|---|---|
| **Building 9** | - Single story building<br><br>- Possible concrete coring area at rollup door along north side of Building 19 | 15,500 | Various uses | Office space and facilities work shop | - No source areas identified<br><br>- Upgradient sources including Sump S3 | 8-10 | - **Groundwater Extraction:** Groundwater extraction continues to take place to the west and north of Building 9. The groundwater extraction system is working to contain the plume's migration downgradient. |
| **Building 19** | - Single story building<br><br>- Possible concrete coring area at rollup door along north side of Building 19 | 16,540 | Various uses | Office space and learning center | - Tank T4 located in Building 19<br>- Upgradient sources including Sump S3 | 8-10 | **- Soil Vapor Extraction:** SVE was implemented at the Tank T4 source area in 1995. In 1996, it was documented that soil cleanup goals were attained at Tank T4 and SVE system operation was discontinued. Approximately ninety-five pounds (lbs) of VOCs were removed from the Tank T4 source area during SVE system operation.<br><br>- **Groundwater Extraction:** Groundwater extraction continues to take place to the west and north of Building 19. The groundwater extraction system is working to contain the plume's migration downgradient. |
| **Building 39** | - Slab thickness approximately 6 inches | 15,000 | Various uses | 1st National Credit Union (independently owned and operated) | - Upgradient and cross-gradient sources, including former Sump S3 | 8-10 | - **Groundwater Extraction:** Groundwater extraction continues to take place to the west and north of Building 39. The groundwater extraction system is working to contain the plume's migration downgradient. |
| **Building G** | - Three story building with open lobby area extending up to the upper floors<br><br>- Slab thickness approximately 6 inches<br><br>- Former SVE and ozone injection/ sparging system remain in place | Total: 140,000<br><br>1st Floor - 66,000 | Historical locations of Buildings 2, 3 and 4 used for semiconductor research and small-scale manufacturing.<br><br>Former Building 2 housed several processes including acid/photo etching and plating onto substrates. Support facilities at Building 2 included: three zinc precipitation baths, hazardous waste transfer tanks for acid and cyanide bearing wastes, and roof mounted scrubber units.<br><br>Former Building 3 was the original wafer fabrication facility at NSC and was used for metal plating of lead frames.<br>No known sources were identified at former Building 4. Sierra Semiconductor occupied Building 4 from 1984 through 1990.<br><br>Former Buildings 2, 3, and 4 were demolished by 2000 and Building G construction started the same year. Building G was constructed and used as NSC's corporate offices until 2011. | Currently unoccupied | - Former Sump S3 was located north of former Building 2 and north of the existing Building G.<br><br>- Former Tank T2 was located west of former Building 3 and below the western half of the existing Building G.<br><br>- Former Tank T3 was located in the alley south of former Building 3 and north of former Building 4 and near the southeast corner of the existing Building G. | 8-10 | **- Soil Vapor Extraction:** SVE was implemented at the Tank T2 and Tank T3 source areas to address shallow soil contamination around 1992. SVE was discontinued in 1998 pending soil closure activities in the source areas. NSC requested soil closure in 1999 (HLA, 1999). On 23 June 2000, the Water Board approved the request submitted by NSC on 27 April 2000, for permanent closure of the SVE system in operation at Buildings 2, 3, and 4 due to the fact that VOC concentrations were below cleanup levels at Tank T2, Tank T3, and Sump S3 source areas, and VOC removal rates had declined to very low levels (Water Board, 2000).<br><br>**- Ozone Injection/Sparging:** NSC implemented ozone sparging for treatment of the saturated zone in the Tank T2 and Tank T3 areas in 2000 (SECOR, 2000a and SECOR, 2000b). An ozone sparging system with vapor capture using SVE was installed during construction of Building G which currently overlies the Tank T2 and Tank T3 source areas. National expanded the OS/SVE system into the parking lot of Building G prior to completion of the building (SECOR, 2002). The OS/SVE system operated from 2002 to 2008. Ozone sparging beneath Building G in the T2 and T3 source areas was discontinued in 2007 based on the results of a limited Geoprobe® investigation documenting that groundwater concentrations for total VOCs were below 500 ug/L (SECOR, 2007).Treatment was halted in the Building G parking lot in 2008 due to limited treatment effectiveness in the S3 source area. Elevated concentrations of ethylbenzene and xylenes, low permeability clay soils, and a low density of treatment wells are believed to have contributed to the limited effectiveness of ozone sparging in the S3 source area.<br><br>**- Fenton's Reagent:** NSC implemented Fenton's Reagent in the S3 source area in 2009 (Stantec, 2010). Fenton's Reagent was found to have limited effectiveness in the low permeability soils.<br><br>**- Enhanced In Situ Bioremediation:** NSC conducted a pilot study to evaluate Enhanced In Situ Bioremediation in 2011 and 2012 (EISB, Stantec, 2011). NSC selected SiRem Laboratories (SiRem) KB-1-Plus microbial inoculum to enhance TCE biodegradation and that of chlorobenzenes and 1,1,1-TCA. Preliminary results of the pilot study indicate that the treatment can be implemented effectively to remediate VOCs in the S3 source area (Stantec, 2012). |

# Table 4
## Indoor, Pathway and Ambient Air Analytical Results
## - December 2012 to April 2013, and March to April 2014
## Texas Instruments Incorporated
## Santa Clara, California

| Chemical of Concern | Sample Date | 1,2,3-TCB | 1,1,1-TCA | Freon 113 | 1,1,2-TCA | 1,1-DCA | 1,1-DCE | 1,2,4-TCB | 1,2-DCB | 1,2-DCA | 1,3-DCB | 1,4-DCB | Chloro-benzene | Chloro-ethane | Chloroform | Ethyl-benzene | Methylene Chloride | PCE | Toluene | TCE | Trichloro-fluro-methane | Vinyl Chloride | cis-1,2-DCE | Total Xylenes | trans-1,2-DCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Comparison to Short-Term Health Based Screening Criteria[1]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acute Exposure MRL[2] | | NE | 10,914 | NE | NE | NE | NE | NE | NE | NE | NE | 12,025 | NE | 39,583 | 488 | 21,710 | NE | 1,357 | 3,768 | NE | NE | 1,278 | 810 | 8,685 | 810 |
| Intermediate Exposure MRL[3] | | NE | 3,820 | NE | NE | NE | 79 | NE | NE | NE | NE | 1,203 | NE | NE | 244 | 8,684 | NE | NE | NE | NE | NE | 77 | 810 | 2,605 | 810 |
| **USEPA Regional Screening Levels [4]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential Screening Level [5] | | NE | 5,200 | 31,000 | 0.15 | 1.5 | 210 | NE | 210 | 0.094 | NE | 0.22 | 52 | 10,000 | 0.11 | 0.97 | 96 | 9.4 | 5,200 | 0.43 | 730 | 0.16 | NE | 100 | 63 |
| Industrial/Commercial Screening Level [6] | | NE | 22,000 | 130,000 | 0.77 | 7.7 | 880 | NE | 880 | 0.47 | NE | 1.1 | 220 | 44,000 | 0.53 | 4.9 | 1,200 | 47 | 22,000 | 3 | 3,100 | 2.8 | NE | 440 | 260 |
| **RWQCB Environmental Screening Level [7]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential | | NE | 5,200 | NE | 0.15 | 1.5 | 210 | NE | 210 | 0.12 | NE | 0.22 | 1,000 | 31,000 | 0.46 | 0.97 | 5.2 | 0.41 | 310 | 0.59 | NE | 0.031 | 7.3 | 100 | 63 |
| Commercial or Industrial | | NE | 22,000 | NE | 0.77 | 7.7 | 880 | NE | 880 | 0.58 | NE | 1.1 | 4,400 | 130,000 | 2.3 | 4.9 | 26 | 2.1 | 1,300 | 3.0 | NE | 0.16 | 31 | 440 | 260 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Building 9 with HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-9-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.12 | NA | 0.066 | < 0.47 | < 0.27 | 0.23 | 0.3 | 0.47 | 0.1 | 1.4 | 0.13 | 1.2 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| IA2-9-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.18 | NA | 0.077 | < 0.47 | < 0.27 | 0.26 | 0.36 | 0.57 | 0.54 | 1.6 | 0.59 | 1.6 | < 0.031 | < 0.4 | 1.6 | < 0.4 |
| IA3-9-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.094 | NA | 0.052 | < 0.47 | < 0.27 | 0.16 | 0.28 | 0.45 | 0.069 | 1.3 | 0.12 | 1.4 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| IA4-9-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.13 | NA | 0.052 | < 0.47 | < 0.27 | 0.11 | 0.26 | 0.67 | 0.084 | 1.2 | 0.096 | 1.4 | < 0.031 | < 0.4 | 1.2 | < 0.4 |
| **Building 9 without HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-9-2012-12-30 | 12/30/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.39 | NA | 0.071 | < 0.47 | < 0.27 | 0.37 | 0.33 | 0.38 | 0.46 | 1.6 | 1.7 | 1.5 | < 0.031 | < 0.4 | 1.5 | < 0.4 |
| IA2-9-2012-12-30 | 12/30/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.085 | NA | 0.074 | < 0.47 | < 0.27 | 0.21 | 0.22 | 0.43 | 0.14 | 1.1 | 0.27 | 1.4 | < 0.031 | < 0.4 | 1.0 | < 0.4 |
| IA3-9-2012-12-30 | 12/30/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.43 | NA | 0.079 | < 0.47 | < 0.27 | 0.29 | 0.43 | 0.49 | 0.58 | 2.3 | 1.8 | 1.8 | < 0.031 | < 0.4 | 1.9 | < 0.4 |
| IA4-9-2012-12-30 | 12/30/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | **0.66** | NA | 0.065 | < 0.47 | < 0.27 | 0.20 | 0.36 | 0.37 | 0.42 | 1.7 | 1.7 | 1.4 | < 0.031 | < 0.4 | 1.6 | < 0.4 |
| **Building 19 with HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-19-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.078 | NA | 0.088 | < 0.47 | < 0.27 | 0.18 | 2.0 | 0.84 | 0.14 | 9.1 | 0.91 | 1.5 | < 0.031 | < 0.4 | 11 | < 0.4 |
| IA2-19-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.079 | NA | 0.085 | < 0.47 | < 0.27 | 0.24 | 1.8 | 0.9 | 0.15 | 8.1 | 0.98 | 1.8 | < 0.031 | < 0.4 | 9.3 | < 0.4 |
| IA3-19-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.081 | NA | 0.080 | < 0.47 | < 0.27 | 0.16 | 2.4 | 0.87 | 0.15 | 11 | 0.94 | 1.7 | < 0.031 | < 0.4 | 13 | < 0.4 |
| PS1-19-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.088 | NA | 0.085 | < 0.47 | < 0.27 | 0.17 | 2.6 | 0.93 | 0.16 | 12 | 1.2 | 1.2 | < 0.031 | < 0.4 | 13 | < 0.4 |
| **Building 19 without HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-19-2012-12-30 | 12/30/12 | NA | < 0.55 | 0.88 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.11 | NA | 0.082 | < 0.47 | < 0.27 | 0.21 | 2.0 | 1.2 | 0.31 | 10 | 2.1 | 1.8 | < 0.031 | < 0.4 | 10 | < 0.4 |
| IA2-19-2012-12-30 | 12/30/12 | NA | < 0.55 | 0.86 | < 0.098 | < 0.41 | 0.039 | NA | < 0.61 | 0.099 | NA | 0.090 | < 0.47 | < 0.27 | 0.16 | 1.8 | 1.2 | 0.22 | 9.3 | 1.3 | 1.7 | < 0.031 | < 0.4 | 8.9 | < 0.4 |
| IA3-19-2012-12-30 | 12/30/12 | NA | 1.2 | 0.97 | < 0.098 | < 0.41 | 0.050 | NA | < 0.61 | 0.11 | NA | 0.095 | < 0.47 | < 0.27 | 0.17 | 3.1 | 1.9 | 0.21 | 16 | 1.8 | 1.7 | < 0.031 | < 0.4 | 16 | < 0.4 |
| PS1-19-2012-12-30 | 12/30/12 | NA | 0.56 | 0.92 | < 0.098 | < 0.41 | 0.056 | NA | < 0.61 | 0.11 | NA | 0.092 | < 0.47 | < 0.27 | 0.23 | 2.0 | 1.2 | 0.29 | 10 | 1.9 | 1.7 | < 0.031 | < 0.4 | 10 | < 0.4 |
| **Building 39 with HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-39-2012-12-18 | 12/18/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.080 | NA | 0.14 | < 0.47 | < 0.27 | 0.12 | 0.31 | 0.47 | 0.081 | 1.5 | 0.31 | 1.3 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| IA1-39-2014-03-07 | 03/07/14 | < 0.0010 | < 0.14 | 0.71 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | 0.14 | 0.12 | 0.91 | 0.35 | < 0.17 | 3.7 | 0.24 | 1.2 | < 0.026 | < 0.099 | 2.33 | < 0.099 |
| IA2-39-2012-12-18 | 12/18/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.080 | NA | 0.062 | < 0.47 | < 0.27 | 0.13 | 0.27 | 1 | 0.079 | 1.3 | 0.21 | 1.6 | < 0.031 | < 0.4 | 1.2 | < 0.4 |
| DUP2-2012-12-18 | 12/18/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.078 | NA | 0.061 | < 0.47 | < 0.27 | 0.12 | 0.28 | 0.5 | 0.078 | 1.3 | 0.22 | 1.6 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| IA2-39-2014-03-07 | 03/07/14 | < 0.0010 | < 0.14 | 0.69 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | < 0.12 | 0.17 | 0.45 | < 0.17 | 1.2 | 0.18 | 1.0 | < 0.026 | < 0.099 | 0.77 | < 0.099 |
| DUP1-39-2014-03-07 | 03/07/14 | < 0.0010 | < 0.14 | 0.71 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | < 0.12 | 0.17 | 0.46 | < 0.17 | 1.3 | 0.18 | 1.2 | < 0.026 | < 0.099 | 0.75 | < 0.099 |
| IA3-39-2012-12-18 | 12/18/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.075 | NA | 0.083 | < 0.47 | < 0.27 | 0.17 | 0.26 | 0.42 | 0.086 | 1.2 | 0.22 | 1.6 | < 0.031 | < 0.4 | 1.2 | < 0.4 |
| IA3-39-2014-03-07 | 03/07/14 | < 0.0010 | < 0.14 | 0.68 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | 0.33 | < 0.12 | < 0.066 | < 0.12 | 0.21 | 0.34 | < 0.17 | 2.9 | 0.19 | 1.2 | < 0.026 | < 0.099 | 0.97 | < 0.099 |
| PS1-39-2012-12-18 | 12/18/12 | NA | < 0.55 | 1.9 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.076 | NA | 0.091 | < 0.47 | < 0.27 | 0.28 | 0.3 | 0.96 | 0.47 | 1.4 | 2.4 | 1.5 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| PS1-39-2014-03-07 | 03/07/14 | < 0.0010 | 1.8 | 13 | < 0.14 | 0.37 | 0.27 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.29 | 0.18 | 0.46 | **2.8** | 1.1 | **17** | 1.3 | < 0.026 | 0.94 | 0.76 | 0.10 |
| PS2-39-2014-03-07 | 03/07/14 | < 0.0010 | 0.65 | 6.0 | < 0.14 | 0.14 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.30 | 0.21 | 0.47 | 1.1 | 1.6 | **5.6** | 1.1 | < 0.026 | 0.30 | 0.86 | < 0.099 |

# Table 4
## Indoor, Pathway and Ambient Air Analytical Results
## - December 2012 to April 2013, and March to April 2014
## Texas Instruments Incorporated
## Santa Clara, California

| Chemical of Concern | Sample Date | 1,2,3-TCB | 1,1,1-TCA | Freon 113 | 1,1,2-TCA | 1,1-DCA | 1,1-DCE | 1,2,4-TCB | 1,2-DCB | 1,2-DCA | 1,3-DCB | 1,4-DCB | Chloro-benzene | Chloro-ethane | Chloroform | Ethyl-benzene | Methylene Chloride | PCE | Toluene | TCE | Trichloro-fluro-methane | Vinyl Chloride | cis-1,2-DCE | Total Xylenes | trans-1,2-DCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Comparison to Short-Term Health Based Screening Criteria[1]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acute Exposure MRL[2] | | NE | 10,914 | NE | NE | NE | NE | NE | NE | NE | NE | 12,025 | NE | 39,583 | 488 | 21,710 | NE | 1,357 | 3,768 | NE | NE | 1,278 | 810 | 8,685 | 810 |
| Intermediate Exposure MRL[3] | | NE | 3,820 | NE | NE | NE | 79 | NE | NE | NE | NE | 1,203 | NE | NE | 244 | 8,684 | NE | NE | NE | NE | NE | 77 | 810 | 2,605 | 810 |
| **USEPA Regional Screening Levels [4]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential Screening Level [5] | | NE | 5,200 | 31,000 | 0.15 | 1.5 | 210 | NE | 210 | 0.094 | NE | 0.22 | 52 | 10,000 | 0.11 | 0.97 | 96 | 9.4 | 5,200 | 0.43 | 730 | 0.16 | NE | 100 | 63 |
| Industrial/Commercial Screening Level [6] | | NE | 22,000 | 130,000 | 0.77 | 7.7 | 880 | NE | 880 | 0.47 | NE | 1.1 | 220 | 44,000 | 0.53 | 4.9 | 1,200 | 47 | 22,000 | 3 | 3,100 | 2.8 | NE | 440 | 260 |
| **RWQCB Environmental Screening Level [7]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential | | NE | 5,200 | NE | 0.15 | 1.5 | 210 | NE | 210 | 0.12 | NE | 0.22 | 1,000 | 31,000 | 0.46 | 0.97 | 5.2 | 0.41 | 310 | 0.59 | NE | 0.031 | 7.3 | 100 | 63 |
| Commercial or Industrial | | NE | 22,000 | NE | 0.77 | 7.7 | 880 | NE | 880 | 0.58 | NE | 1.1 | 4,400 | 130,000 | 2.3 | 4.9 | 26 | 2.1 | 1,300 | 3.0 | NE | 0.16 | 31 | 440 | 260 |
| **Building 39 without HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-39-2013-01-06 | 01/06/13 | NA | < 0.55 | 2.7 | < 0.098 | < 0.41 | 0.053 | NA | < 0.61 | 0.130 | NA | 0.12 | < 0.47 | < 0.27 | 0.16 | 0.37 | 0.43 | 0.44 | 1.4 | 0.96 | 1.8 | < 0.031 | < 0.4 | 1.6 | < 0.4 |
| IA1-39-2014-3-9 | 03/09/14 | < 0.0010 | 0.17 | 1.1 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.21 | 0.36 | 0.57 | 0.43 | 2.3 | 0.69 | 1.2 | < 0.026 | < 0.099 | 1.42 | < 0.099 |
| IA2-39-2013-01-06 | 01/06/13 | NA | < 0.55 | 1.9 | < 0.098 | < 0.41 | 0.025 | NA | < 0.61 | 0.10 | NA | 0.10 | < 0.47 | < 0.27 | 0.16 | 0.29 | 0.39 | 0.16 | 1.2 | 0.56 | 1.7 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| DUP2-2013-01-06 | 01/06/13 | NA | < 0.55 | 1.9 | < 0.098 | < 0.41 | 0.023 | NA | < 0.61 | 0.097 | NA | 0.10 | < 0.47 | < 0.27 | 0.20 | 0.29 | 0.64 | 0.15 | 1.2 | 0.56 | 1.7 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| IA2-39-2014-3-9 | 03/09/14 | < 0.0010 | < 0.14 | 1.2 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.21 | 0.34 | 0.53 | 0.28 | 2.2 | 0.75 | 1.1 | < 0.026 | < 0.099 | 1.41 | < 0.099 |
| DUP1-39-2014-3-9 | 03/09/14 | < 0.0010 | < 0.14 | 1.1 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.18 | 0.30 | 0.68 | 0.26 | 2.0 | 0.63 | 1.1 | < 0.026 | < 0.099 | 1.25 | < 0.099 |
| IA3-39-2013-01-06 | 01/06/13 | NA | < 0.55 | 2.4 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.10 | NA | 0.093 | < 0.47 | < 0.27 | 0.18 | 0.29 | 0.43 | 0.18 | 1.4 | 0.67 | 1.8 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| IA3-39-2014-3-9 | 03/09/14 | < 0.0010 | 0.15 | 1.3 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | 0.17 | < 0.12 | < 0.066 | 0.21 | 0.36 | 0.42 | 0.27 | 2.6 | 0.72 | 1.2 | < 0.026 | < 0.099 | 1.44 | < 0.099 |
| PS1-39-2013-01-06 | 01/06/13 | NA | 5.3 | 37 | < 0.098 | 0.60 | 0.48 | NA | < 0.61 | 0.074 | NA | 0.11 | < 0.47 | < 0.27 | **3.5** | 0.25 | 0.39 | **6.2** | 1.2 | **27** | 2.5 | < 0.031 | 2.0 | 1.1 | < 0.4 |
| PS1-39-2013-04-28 | 04/28/13 | NA | 1.7 | 7.5 | < 0.11 | 0.21 | 0.078 | NA | < 0.12 | 0.060 | NA | < 0.12 | < 0.092 | < 0.053 | **1.6** | 0.14 | < 0.69 | **3.2** | 0.87 | **16** | 1.3 | < 0.026 | 0.3 | 0.53 | < 0.40 |
| PS1-39-2014-3-9 | 03/09/14 | < 0.0010 | 5.3 | 38 | < 0.14 | 0.96 | 0.98 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | 0.35 | < 0.12 | < 0.066 | **1.8** | 0.34 | 0.57 | **9.1** | 2.0 | **40** | 1.2 | < 0.026 | 3.1 | 1.33 | 0.30 |
| PS2-39-2013-04-28 | 04/28/13 | NA | 0.39 | 2.7 | < 0.11 | < 0.081 | < 0.040 | NA | < 0.12 | 0.072 | NA | < 0.12 | < 0.092 | < 0.053 | 0.12 | 0.14 | < 0.69 | 0.79 | 0.86 | **13** | 1.4 | < 0.026 | < 0.079 | 0.54 | < 0.40 |
| PS2-39-2014-3-9 | 03/09/14 | < 0.0010 | 1.3 | 9.1 | < 0.14 | 0.30 | 0.25 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | **2.9** | 0.34 | 0.69 | **2.6** | 2.1 | **11** | 1.1 | < 0.026 | 0.70 | 1.42 | < 0.099 |
| **Building G with HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.064 | NA | 0.041 | < 0.47 | < 0.27 | 0.11 | 0.22 | 0.43 | 0.059 | 1.0 | 0.13 | 0.68 | < 0.031 | < 0.4 | 1.0 | < 0.4 |
| DUP1-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.072 | NA | 0.038 | < 0.47 | < 0.27 | 0.12 | 0.21 | 0.43 | 0.12 | 0.95 | 0.11 | 1.1 | < 0.031 | < 0.4 | 0.94 | < 0.4 |
| IA1-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.60 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.13 | 0.17 | 0.39 | < 0.17 | 1.2 | < 0.13 | 1.3 | < 0.026 | < 0.099 | 0.74 | < 0.099 |
| DUP1-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.60 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.13 | 0.17 | 0.38 | < 0.17 | 1.3 | < 0.13 | 1.3 | < 0.026 | < 0.099 | 0.69 | < 0.099 |
| IA2-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | 0.026 | NA | < 0.61 | 0.076 | NA | 0.051 | < 0.47 | < 0.27 | 0.16 | 0.27 | 0.55 | 0.078 | 1.2 | 0.21 | 1.6 | < 0.031 | < 0.4 | 1.2 | < 0.4 |
| IA2-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.62 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.14 | 0.21 | 0.39 | < 0.17 | 1.4 | < 0.13 | 1.3 | < 0.026 | < 0.099 | 0.91 | < 0.099 |
| IA3-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | 0.041 | NA | < 0.61 | 0.077 | NA | 0.078 | < 0.47 | < 0.27 | 0.32 | 0.39 | 1.2 | 0.11 | 1.8 | 0.33 | 1.5 | < 0.031 | < 0.4 | 1.8 | < 0.4 |
| IA3-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.57 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.15 | 0.17 | 0.41 | < 0.17 | 1.4 | < 0.13 | 1.1 | < 0.026 | < 0.099 | 0.72 | < 0.099 |
| IA4-G-2012-12-13 | 12/13/12 | NA | 0.8 | < 0.78 | < 0.098 | 0.71 | 0.051 | NA | < 0.61 | 0.079 | NA | 0.069 | < 0.47 | < 0.27 | 0.22 | 0.32 | 0.59 | 0.32 | 1.5 | 1.4 | 2.7 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| IA4-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.64 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.14 | 0.19 | 0.39 | < 0.17 | 1.7 | 0.17 | 1.2 | < 0.026 | < 0.099 | 0.81 | < 0.099 |
| IA5-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.068 | NA | 0.043 | < 0.47 | < 0.27 | 0.24 | 0.23 | 0.53 | 0.065 | 1.0 | 0.15 | 1.4 | < 0.031 | < 0.4 | 1.1 | < 0.4 |
| PS4-G-2014-3-13 * | 03/13/14 | < 0.19 | < 0.14 | 0.62 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.14 | 0.22 | 0.39 | < 0.17 | 1.9 | 0.41 | 1.3 | < 0.026 | < 0.099 | 0.96 | < 0.099 |
| PS1-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | 0.022 | NA | < 0.61 | 0.064 | NA | 0.045 | < 0.47 | < 0.27 | 0.21 | 0.24 | 0.74 | 0.084 | 1.1 | 0.22 | 1.5 | < 0.031 | < 0.4 | 1.1 | < 0.4 |
| PS1-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.62 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.14 | 0.21 | 0.40 | 0.38 | 1.8 | 0.20 | 1.3 | < 0.026 | < 0.099 | 0.91 | < 0.099 |
| PS2-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | 0.024 | NA | < 0.61 | 0.077 | NA | 0.058 | < 0.47 | < 0.27 | 0.21 | 0.30 | 3.8 | 0.084 | 1.4 | 0.24 | 1.6 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| PS2-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.63 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.15 | 0.19 | 0.40 | < 0.17 | 1.6 | 0.14 | 1.3 | < 0.026 | < 0.099 | 0.84 | < 0.099 |
| PS3-G-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.081 | NA | 0.062 | < 0.47 | < 0.27 | 0.24 | 0.31 | 0.63 | 0.084 | 1.5 | 0.25 | 1.6 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| PS3-G-2014-3-13 | 03/13/14 | < 0.19 | 0.17 | 0.66 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.21 | 0.28 | 0.47 | < 0.17 | 2.1 | 0.47 | 1.3 | < 0.026 | < 0.099 | 1.23 | < 0.099 |
| **Building G without HVAC** | | | | | | | | | | | | | | | | | | | | | | | | | |
| IA1-G-2012-12-30 | 12/30/12 | NA | 0.71 | 0.91 | < 0.098 | < 0.41 | 0.15 | NA | < 0.61 | 0.099 | NA | 0.055 | < 0.47 | < 0.27 | 0.15 | 0.3 | 0.38 | 0.18 | 1.6 | 0.67 | 1.8 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| DUP1-2012-12-30 | 12/30/12 | NA | 0.73 | 0.88 | < 0.098 | < 0.41 | 0.11 | NA | < 0.61 | 0.089 | NA | 0.057 | < 0.47 | < 0.27 | 0.15 | 0.29 | 0.40 | 0.18 | 1.6 | 0.61 | 1.6 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| IA1-G-2014-3-16 | 03/16/14 | < 0.19 | 0.42 | 0.71 | < 0.14 | 0.15 | < 0.099 | < 0.19 | < 0.15 | 0.11 | < 0.15 | 0.22 | < 0.12 | 0.093 | 0.29 | 0.24 | 0.52 | < 0.17 | 1.9 | 0.38 | 1.3 | < 0.026 | < 0.099 | 0.99 | < 0.099 |
| DUP1-G-2014-3-16 | 03/16/14 | < 0.19 | 0.71 | 0.81 | < 0.14 | 0.26 | < 0.099 | < 0.19 | < 0.15 | 0.11 | < 0.15 | < 0.15 | < 0.12 | 0.069 | 0.25 | 0.32 | 0.48 | < 0.17 | 1.8 | 0.53 | 1.3 | < 0.026 | < 0.099 | 1.12 | < 0.099 |
| IA2-G-2012-12-30 | 12/30/12 | NA | 1.1 | 0.98 | < 0.098 | < 0.41 | 0.15 | NA | < 0.61 | 0.093 | NA | 0.054 | < 0.47 | < 0.27 | 0.20 | 0.3 | 0.39 | 0.20 | 1.5 | 0.83 | 1.8 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| IA2-G-2014-3-16 | 03/16/14 | < 0.19 | 1.0 | 0.87 | < 0.14 | 0.36 | < 0.099 | < 0.19 | < 0.15 | 0.11 | < 0.15 | < 0.15 | < 0.12 | 0.069 | 0.24 | 0.24 | 0.48 | < 0.17 | 1.6 | 0.66 | 1.3 | < 0.026 | < 0.099 | 1.07 | < 0.099 |
| IA3-G-2012-12-30 | 12/30/12 | NA | 0.76 | 0.97 | < 0.098 | < 0.41 | 0.10 | NA | < 0.61 | 0.09 | NA | 0.057 | < 0.47 | < 0.27 | 0.21 | 0.32 | 0.48 | 0.18 | 1.6 | 0.62 | 1.7 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| IA3-G-2014-3-16 | 03/16/14 | < 0.19 | 0.49 | 0.76 | < 0.14 | 0.20 | < 0.099 | < 0.19 | < 0.15 | 0.11 | < 0.15 | 0.17 | < 0.12 | 0.15 | **1.2** | 0.22 | 0.47 | 0.18 | 1.5 | 0.65 | 1.3 | < 0.026 | < 0.099 | 0.84 | < 0.099 |
| IA4-G-2012-12-30 | 12/30/12 | NA | 1.0 | 1.8 | < 0.098 | 0.70 | 0.13 | NA | < 0.61 | 0.11 | NA | 0.069 | < 0.47 | < 0.27 | 0.20 | 0.35 | 0.43 | 0.35 | 1.8 | 1.3 | 3.0 | 0.035 | < 0.4 | 1.4 | < 0.4 |
| IA4-G-2014-3-16 | 03/16/14 | < 0.19 | 0.39 | 0.94 | < 0.14 | 0.30 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.22 | 0.18 | 0.46 | < 0.17 | 1.4 | 0.67 | 2.0 | < 0.026 | < 0.099 | 0.76 | < 0.099 |

# Table 4
## Indoor, Pathway and Ambient Air Analytical Results
## - December 2012 to April 2013, and March to April 2014
## Texas Instruments Incorporated
## Santa Clara, California

| Chemical of Concern | Sample Date | 1,2,3-TCB | 1,1,1-TCA | Freon 113 | 1,1,2-TCA | 1,1-DCA | 1,1-DCE | 1,2,4-TCB | 1,2-DCB | 1,2-DCA | 1,3-DCB | 1,4-DCB | Chloro-benzene | Chloro-ethane | Chloroform | Ethyl-benzene | Methylene Chloride | PCE | Toluene | TCE | Trichloro-fluro-methane | Vinyl Chloride | cis-1,2-DCE | Total Xylenes | trans-1,2-DCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Comparison to Short-Term Health Based Screening Criteria[1]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acute Exposure MRL[2] | | NE | 10,914 | NE | NE | NE | NE | NE | NE | NE | NE | 12,025 | NE | 39,583 | 488 | 21,710 | NE | 1,357 | 3,768 | NE | NE | 1,278 | 810 | 8,685 | 810 |
| Intermediate Exposure MRL[3] | | NE | 3,820 | NE | NE | NE | 79 | NE | NE | NE | NE | 1,203 | NE | NE | 244 | 8,684 | NE | NE | NE | NE | NE | 77 | 810 | 2,605 | 810 |
| **USEPA Regional Screening Levels [4]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential Screening Level [5] | | NE | 5,200 | 31,000 | 0.15 | 1.5 | 210 | NE | 210 | 0.094 | NE | 0.22 | 52 | 10,000 | 0.11 | 0.97 | 96 | 9.4 | 5,200 | 0.43 | 730 | 0.16 | NE | 100 | 63 |
| Industrial/Commercial Screening Level [6] | | NE | 22,000 | 130,000 | 0.77 | 7.7 | 880 | NE | 880 | 0.47 | NE | 1.1 | 220 | 44,000 | 0.53 | 4.9 | 1,200 | 47 | 22,000 | 3 | 3,100 | 2.8 | NE | 440 | 260 |
| **RWQCB Environmental Screening Level [7]** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential | | NE | 5,200 | NE | 0.15 | 1.5 | 210 | NE | 210 | 0.12 | NE | 0.22 | 1,000 | 31,000 | 0.46 | 0.97 | 5.2 | 0.41 | 310 | 0.59 | NE | 0.031 | 7.3 | 100 | 63 |
| Commercial or Industrial | | NE | 22,000 | NE | 0.77 | 7.7 | 880 | NE | 880 | 0.58 | NE | 1.1 | 4,400 | 130,000 | 2.3 | 4.9 | 26 | 2.1 | 1,300 | 3.0 | NE | 0.16 | 31 | 440 | 260 |
| IA5-G-2012-12-30 | 12/30/12 | NA | 0.81 | 0.95 | < 0.098 | < 0.41 | 0.14 | NA | < 0.61 | 0.09 | NA | 0.057 | < 0.47 | < 0.27 | 0.17 | 0.33 | 0.40 | 0.20 | 1.7 | 0.71 | 1.7 | < 0.031 | < 0.4 | 1.4 | < 0.4 |
| PS4-G-2014-3-16 * | 03/16/14 | < 0.19 | 0.44 | 0.70 | < 0.14 | 0.16 | < 0.099 | < 0.19 | < 0.15 | 0.12 | < 0.15 | < 0.15 | < 0.12 | 0.093 | 0.26 | 0.25 | 0.51 | 0.25 | 6.7 | 0.47 | 1.2 | < 0.026 | < 0.099 | 1.01 | < 0.099 |
| PS1-G-2012-12-30 | 12/30/12 | NA | 1.2 | 1.1 | < 0.098 | 0.43 | 0.16 | NA | < 0.61 | 0.10 | NA | 0.061 | < 0.47 | < 0.27 | 0.21 | 0.36 | 0.51 | 0.23 | 1.8 | 0.88 | 2.0 | < 0.031 | < 0.4 | 1.6 | < 0.4 |
| PS1-G-2014-3-16 | 03/16/14 | < 0.19 | 1.2 | 0.89 | < 0.14 | 0.41 | < 0.099 | < 0.19 | < 0.15 | 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.23 | 0.20 | 0.48 | < 0.17 | 1.5 | 0.80 | 1.5 | < 0.026 | < 0.099 | 0.81 | < 0.099 |
| PS2-G-2012-12-30 | 12/30/12 | NA | 0.75 | 1.2 | < 0.098 | < 0.41 | 0.26 | NA | < 0.61 | 0.10 | NA | 0.064 | < 0.47 | < 0.27 | 0.23 | 0.36 | 0.75 | 0.22 | 1.9 | 0.86 | 1.9 | 0.034 | < 0.4 | 1.6 | < 0.4 |
| PS2-G-2014-3-16 | 03/16/14 | < 0.19 | 0.54 | 0.85 | < 0.14 | 0.18 | < 0.099 | < 0.19 | < 0.15 | 0.10 | < 0.15 | < 0.15 | < 0.12 | 0.079 | 0.22 | 0.18 | 0.45 | < 0.17 | 1.5 | 0.73 | 1.2 | < 0.026 | < 0.099 | 0.76 | < 0.099 |
| PS3-G_2012-12-30 | 12/30/12 | NA | 0.70 | 1.1 | < 0.098 | < 0.41 | 0.24 | NA | < 0.61 | 0.11 | NA | 0.075 | < 0.47 | < 0.27 | 0.19 | 0.37 | 0.47 | 0.22 | 2.0 | 0.89 | 2.0 | 0.035 | < 0.4 | 1.7 | < 0.4 |
| PS3-G-2014-3-16 | 03/16/14 | < 0.19 | 0.38 | 0.70 | < 0.14 | 0.13 | < 0.099 | < 0.19 | < 0.15 | 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.27 | 0.21 | 0.48 | < 0.17 | 1.7 | 0.40 | 1.3 | < 0.026 | < 0.099 | 0.91 | < 0.099 |
| **Comparison to Background/Outdoor Ambient** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Background (outdoor ambient for Buildings 9, 19 and G) AA1-19-2012-12-13 | 12/13/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.077 | NA | 0.033 | < 0.47 | < 0.27 | 0.17 | 0.2 | 0.41 | 0.065 | 0.85 | 0.058 | 1.1 | 0.048 | < 0.4 | 0.88 | < 0.4 |
| Background (outdoor ambient for Building 39) AA1-39-2012-12-18 | 12/18/12 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.073 | NA | < 0.031 | < 0.47 | < 0.27 | 0.086 | 0.46 | 1.7 | 0.039 | 0.88 | 0.035 | 1.6 | < 0.031 | < 0.4 | 2.1 | < 0.4 |
| Background (outdoor ambient for Buildings 9, 19 and G) AA1-19-2012-12-30 | 12/30/12 | NA | < 0.55 | 0.98 | 0.17 | < 0.41 | 0.12 | NA | < 0.61 | 0.20 | NA | 0.21 | < 0.47 | < 0.27 | 0.24 | 0.6 | 0.72 | 0.33 | 4.0 | 0.17 | 2.1 | 0.071 | < 0.4 | 2.4 | < 0.4 |
| Background (outdoor ambient for Building 39) AA1-39-2013-01-06 | 01/06/13 | NA | < 0.55 | < 0.78 | < 0.098 | < 0.41 | < 0.02 | NA | < 0.61 | 0.099 | NA | 0.042 | < 0.47 | < 0.27 | 0.21 | 0.29 | 0.52 | 0.052 | 1.4 | 0.072 | 1.6 | < 0.031 | < 0.4 | 1.3 | < 0.4 |
| Background (outdoor ambient for Buildings 9, 19 and G) AA1-G-2014-3-13 | 03/13/14 | < 0.19 | < 0.14 | 0.57 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | < 0.12 | 0.20 | 0.36 | < 0.17 | 1.4 | < 0.13 | 1.2 | < 0.026 | < 0.099 | 0.93 | < 0.099 |
| Background (outdoor ambient for Buildings 9, 19 and G) AA1-G-2014-3-16 | 03/16/14 | < 0.19 | < 0.14 | 0.57 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | 0.11 | 0.16 | 0.14 | 0.38 | < 0.17 | 0.9 | < 0.13 | 1.2 | < 0.026 | < 0.099 | 0.56 | < 0.099 |
| Background (outdoor ambient for Building 39) AA1-39-2014-03-07 | 03/07/14 | < 0.0010 | < 0.14 | 0.54 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.22 | 0.13 | 0.27 | 0.29 | 0.98 | < 0.13 | 1.0 | < 0.026 | < 0.099 | 0.52 | < 0.099 |
| Background (outdoor ambient for Building 39) AA1-39-2014-03-09 | 03/09/14 | < 0.0010 | < 0.14 | 0.53 | < 0.14 | < 0.10 | < 0.099 | < 0.19 | < 0.15 | < 0.10 | < 0.15 | < 0.15 | < 0.12 | < 0.066 | 0.15 | 0.22 | 0.65 | < 0.17 | 2.0 | < 0.13 | 1.0 | < 0.026 | < 0.099 | 0.85 | < 0.099 |

Notes:

Units in micrograms per cubic meter (μg/m$^3$) at 25° Celsius and 1 atmosphere.

**Bold** values indicate an exceedance of the commercial/industrial Residential Screening Level (RSL) or the Environmental Screening Level (ESL).

Samples identified with 'IA' were collected from areas of buildings normally occupied whereas, samples identified with 'PS' were collected from areas not occupied for 8-hours a day.

[1] - Short-term health risk based screening criteria obtained from the Agency for Toxic Substances & Disease Registry (ATSDR), Minimal Risk Levels (MRLs) for hazardous substances (July 2013)

[2] - Acute screening levels (Acute MRSs) are derived for exposure durations of 1 to 14 days.

[3] - Intermediate MRLs are derived for exposure durations of >14 to 364 days

[4] - Long-term health risk based screening criteria obtained from the United States Environmental Protection Agency (USEPA), RSLs for chemical contaminants, THQ=1.0 (November 2013).
http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/docs/master_sl_table_run_NOV2013.pdf

[5] - Residential screening levels (Residential Air RSLs) are derived for exposure durations of 350 days per year and 30 years.

[6] - Commercial/Industrial screening levels (Industrial Air RSLs) are derived for exposure durations of 8 hours per day, 250 days per year and 25 years.

[7] - Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL) indoor air from Table E-3, December 2013.

* - Sample PS4-G was collected at the same sample location as IA5-G. Since the sample is representative of pathway conditions, the sample designation was changed during the 2014 sampling event.

USEPA recommends the use of Interim TCE Indoor Air Short-Term Response Action Levels for TCE Inhalation exposure from subsurface vapor intrusion at South Bay National Priority List Sites. Commercial/Industrial prompt response action levels are calculated as the time-weighted average from the RfC - 9 μg/m$^3$ for an 8-hour workday; 7 μg/m$^3$ for a 10-hour workday. Based on input from commercial building owners and tenants, EPA Region 9 recommends use of the 10-hour workday for determining the appropriate response action levels for Commercial/Industrial buildings at the South Bay Sites. Time-weighted adjustments can be made as needed for workplaces with longer work schedules.

1,1,1-TCA - 1,1,1-trichloroethane
1,1,2_TCA - 1,1,2-trichloroethane
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
1,2-DCB - 1,2-dichlorobenzene
1, 2-DCA - 1,2-dichloroethane
1, 4-DCB - 1,4-dichlorobenzene
Freon 113 - trichlorotrifluoroethane

chloroethane - ethyl chloride
cis-1,2-DCE - cis-1,2-dichloroethene
Methylene Choride - Dichloromethane
PCE - tetrachloroethene
Freon 11 - trichlorofluoromethane
trans-1,2-DCE - trans-1,2-dichloroethene
TCE - trichloroethene
NE = Not established

# Table 5
## Sub-Slab Analytical Results - December 2012 and April 2014
## Texas Instruments Incorporated
## Santa Clara, California

| Chemical of Concern | Sample Date | Helium | 1,2,3-TCB | 1,1,1-TCA | 1,2,4-TCB | 1,3-DCB | Freon 113 | Chloro-benzene | Chloro-ethane | Chloroform | 1,2-DCB | 1,4-DCB | 1,1-DCA | 1,2-DCA | 1,1-DCE | cis-1,2-DCE | trans-1,2-DCE | Ethyl-benzene | Methylene Chloride | PCE | Toluene | 1,1,2-TCA | TCE | Trichloro-fluoro-methane | Vinyl Chloride | Xylenes Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit** | | % | **(µg/m³)** | | | | | | | | | | | | | | | | | | | | | | | |
| **Building 9** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SS1-9-2012-12-14 | 12/14/12 | 0.12 | NA | 19 | NA | NA | < 16 | < 9.4 | < 5.4 | 3.9 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | 95 | 15 | < 3.0 | **1,900** | < 11 | < 1.3 | < 27 |
| DUP2-2012-12-14 | 12/14/12 | 0.048 | NA | 18 | NA | NA | < 16 | < 9.4 | < 5.4 | 3.5 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | 94 | 14 | < 3.0 | **1,800** | < 11 | < 1.3 | < 27 |
| SS2-9-2012-12-14 | 12/14/12 | 0.079 | NA | 27 | NA | NA | < 16 | < 9.4 | < 5.4 | 10 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | 16 | 3.4 | < 8.8 | < 7.1 | **380** | 18 | < 3.0 | **2,500** | < 11 | < 1.3 | < 27 |
| **Building 19** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SS1-19-2012-12-14 | 12/14/12 | 0.12 | NA | 1,000 | NA | NA | 1,400 | < 9.4 | < 5.4 | 7.8 | < 12 | < 4.4 | 17 | < 1.9 | 110 | 42 | 5.3 | < 8.8 | < 7.1 | **230** | 12 | < 3.0 | **5,300** | 31 | < 1.3 | < 27 |
| SS2-19-2012-12-14 | 12/14/12 | 0.28 | NA | 930 | NA | NA | 400 | < 9.4 | < 5.4 | 5.5 | < 12 | < 4.4 | < 8.2 | < 1.9 | 14 | 9.2 | < 1.9 | < 8.8 | < 7.1 | 92 | < 7.7 | < 3.0 | **2,400** | 13 | < 1.3 | < 27 |
| **Building 39** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SS1-39-2012-12-13 | 12/13/12 | 0.028 | NA | 300 | NA | NA | 2,500 | < 9.4 | < 5.4 | 5.0 | < 12 | < 4.4 | 110 | < 1.9 | 37 | 81 | 6.3 | < 8.8 | < 7.1 | 210 | < 7.7 | < 3.0 | **1,000** | < 11 | < 1.3 | < 27 |
| DUP1-2012-12-13 | 12/13/12 | 0.026 | NA | 300 | NA | NA | 2,800 | < 9.4 | < 5.4 | 4.9 | < 12 | < 4.4 | 110 | < 1.9 | 37 | 83 | 6.3 | < 8.8 | < 7.1 | 210 | < 7.7 | < 3.0 | **1,000** | < 11 | < 1.3 | < 27 |
| SS2-39-2012-12-13 | 12/13/12 | 0.019 | NA | < 11 | NA | NA | 150 | < 9.4 | < 5.4 | < 2.2 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | 11 | < 7.7 | < 3.0 | 82 | < 11 | < 1.3 | < 27 |
| SS3-39-2012-12-13 | 12/13/12 | 0.042 | NA | 33 | NA | NA | 540 | < 9.4 | < 5.4 | < 2.2 | < 12 | < 4.4 | 9.1 | < 1.9 | < 8.1 | 55 | 4.7 | < 8.8 | < 7.1 | 54 | < 7.7 | < 3.0 | **510** | < 11 | < 1.3 | < 27 |
| **Building G** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SS1-G-2012-12-14 | 12/14/12 | 0.016 | NA | < 11 | NA | NA | < 16 | < 9.4 | < 5.4 | < 2.2 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | < 8.2 | < 7.7 | < 3.0 | < 11 | < 11 | < 1.3 | < 27 |
| SS2-G-2012-12-14 | 12/14/12 | < 0.005 | NA | 83 | NA | NA | 47 | < 9.4 | < 5.4 | < 2.2 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | **250** | < 7.7 | < 3.0 | **660** | < 11 | < 1.3 | < 27 |
| SS3-G-2012-12-14 | 12/14/12 | 0.028 | NA | 28 | NA | NA | < 16 | < 9.4 | < 5.4 | < 2.2 | < 12 | < 4.4 | < 8.2 | < 1.9 | < 8.1 | < 8.1 | < 1.9 | < 8.8 | < 7.1 | 11 | < 7.7 | < 3.0 | 110 | < 11 | < 1.3 | < 27 |
| **RSLs [1]** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Industrial/Commercial Screening Level | | | NE | 22,000 | NE | NE | 130,000 | 220 | 44,000 | 0.53 | 880 | 1.1 | 7.7 | 0.47 | 880 | NE | 260 | 4.9 | 1,200 | 47 | 22,000 | 0.77 | 3 | 3,100 | 2.8 | 440 |
| **RWQCB ESLs [2]** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commercial | | | NE | 22,000 | NE | NE | NE | 4,400 | 130,000 | 2.3 | 880 | 1.1 | 7.7 | 0.58 | 880 | 31 | 260 | 4.9 | 26 | 2.1 | 1,300 | 0.77 | 3 | NE | 0.16 | 440 |
| **Commercial RSL Adjusted using 0.01 Slab Attenuation Factor [3]** | | | NE | 2,200,000 | NE | NE | 13,000,000 | 22,000 | 4,400,000 | 53 | 88,000 | 110 | 770 | 47 | 88,000 | NE | 26,000 | 490 | 120,000 | 4,700 | 2,200,000 | 77 | 300 | 310,000 | 280 | 44,000 |
| **Commercial ESL Adjusted using 0.01 Slab Attenuation Factor [3]** | | | NE | 2,200,000 | NE | NE | NE | 440,000 | 13,000,000 | 230 | 88,000 | 110 | 770 | 58 | 88,000 | 3,100 | 26,000 | 490 | 2,600 | 210 | 130,000 | 77 | 300 | NE | 16 | 44,000 |

Notes:
**Bold** values indicate an exceedance of the Commercial/Industrial ESL or RSL corrected using a 0.01 slab attenuation factor.
[1] - Commercial/Industrial screening levels (Industrial Air RSLs) are derived for exposure durations of 8 hours per day, 250 days per year and 25 years.
[2] - Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL) indoor air from Table E-3, December 2013.
RWQCB ESLs can be access at: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml
[3] - Indoor air screening levels have been adjusted using an assumed attenuation factor of 0.01 for commercial buildings based on an evaluation of the data presented in the USEPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings. EPA 530-R-10-002. March 16.
USEPA RSL = United States Environmental Protection Agency, Regional Screening Levels
ESL = Environmental Screening Level
RWQCB = Regional Water Quality Control Board, San Francisco Bay Region

1,2,3-TCB - 1,2,3-Trichlorobenzene
1,1,1-TCA - 1,1,1-trichloroethane
1,1,2_TCA - 1,1,2-trichloroethane
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
1,2-DCB - 1,2-dichlorobenzene
1, 2-DCA - 1,2-dichloroethane
1, 4-DCB - 1,4-dichlorobenzene
1,2,4-TCB - 1,2,4-Trichlorobenzene
chloroethane - ethyl chloride
cis-1,2-DCE - cis-1,2-dichloroethene
Methylene Choride - Dichloromethane
PCE - tetrachloroethene
Freon 11 - trichlorofluoromethane
trans-1,2-DCE - trans-1,2-dichloroethene
TCE - trichloroethene
1,3-DCB - 1,3-dichlorobenzene
Freon 113 - trichlorotrifluoroethane
NE = Not established

# FIGURES

**Notes:**

1. Basemap provided © 2010 NAVTEQ © AND © 2013 Microsoft Corporation.
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

**TEXAS INSTRUMENTS INCORPORATED**
Santa Clara, California

**SITE LOCATION MAP**

***LANGAN TREADWELL ROLLO***

| Date 3/13/2014 | Project 750620701 | Figure 1 |
|---|---|---|

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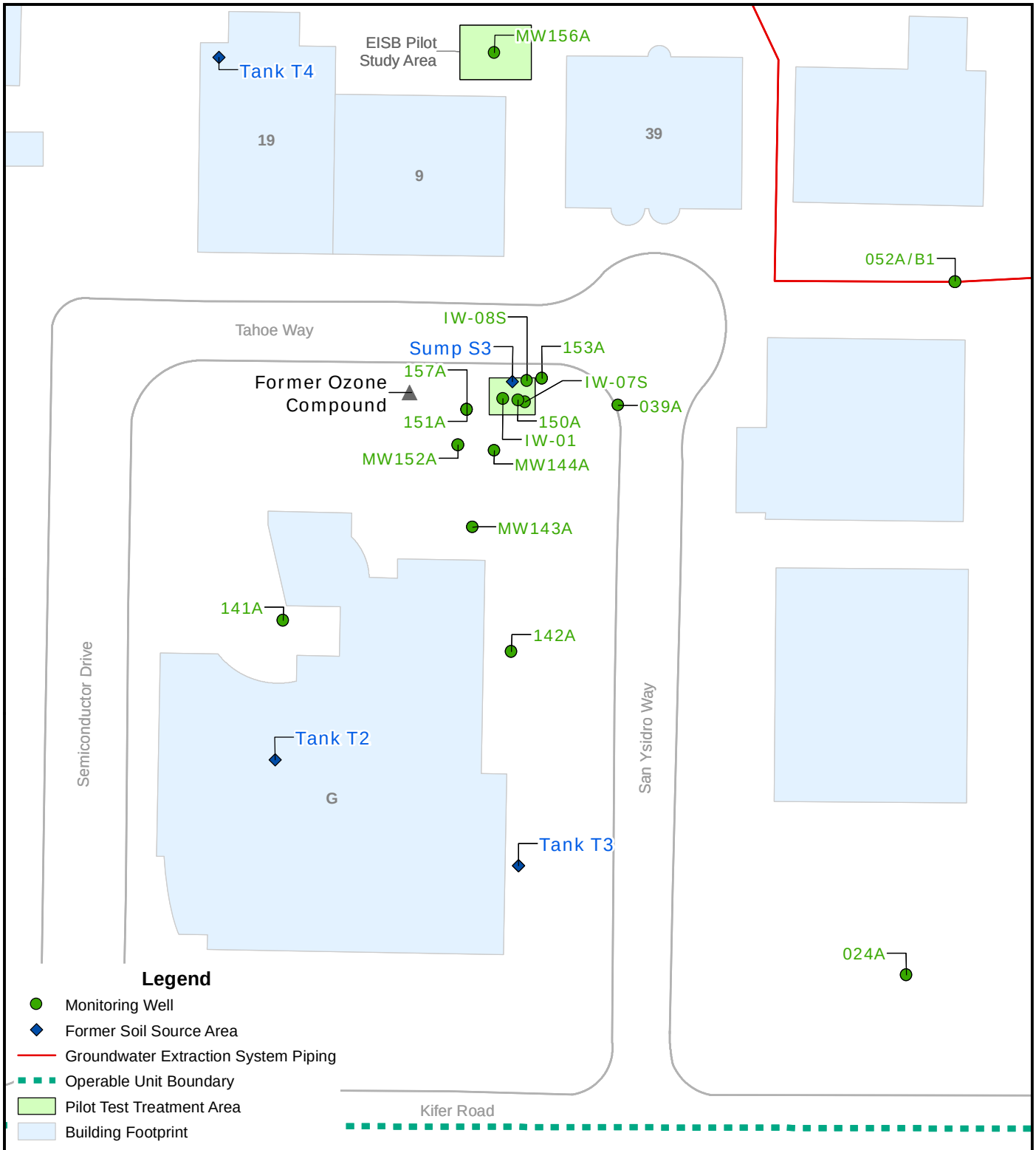


**Notes:**

1. All locations displayed are considered approximate.
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 50 100 200
Feet

N

**TEXAS INSTRUMENTS INCORPORATED**
Santa Clara, California

**SITE PLAN**

**LANGAN TREADWELL ROLLO**

| Date 11/7/2014 | Project 750620701 | Figure 2 |
|---|---|---|

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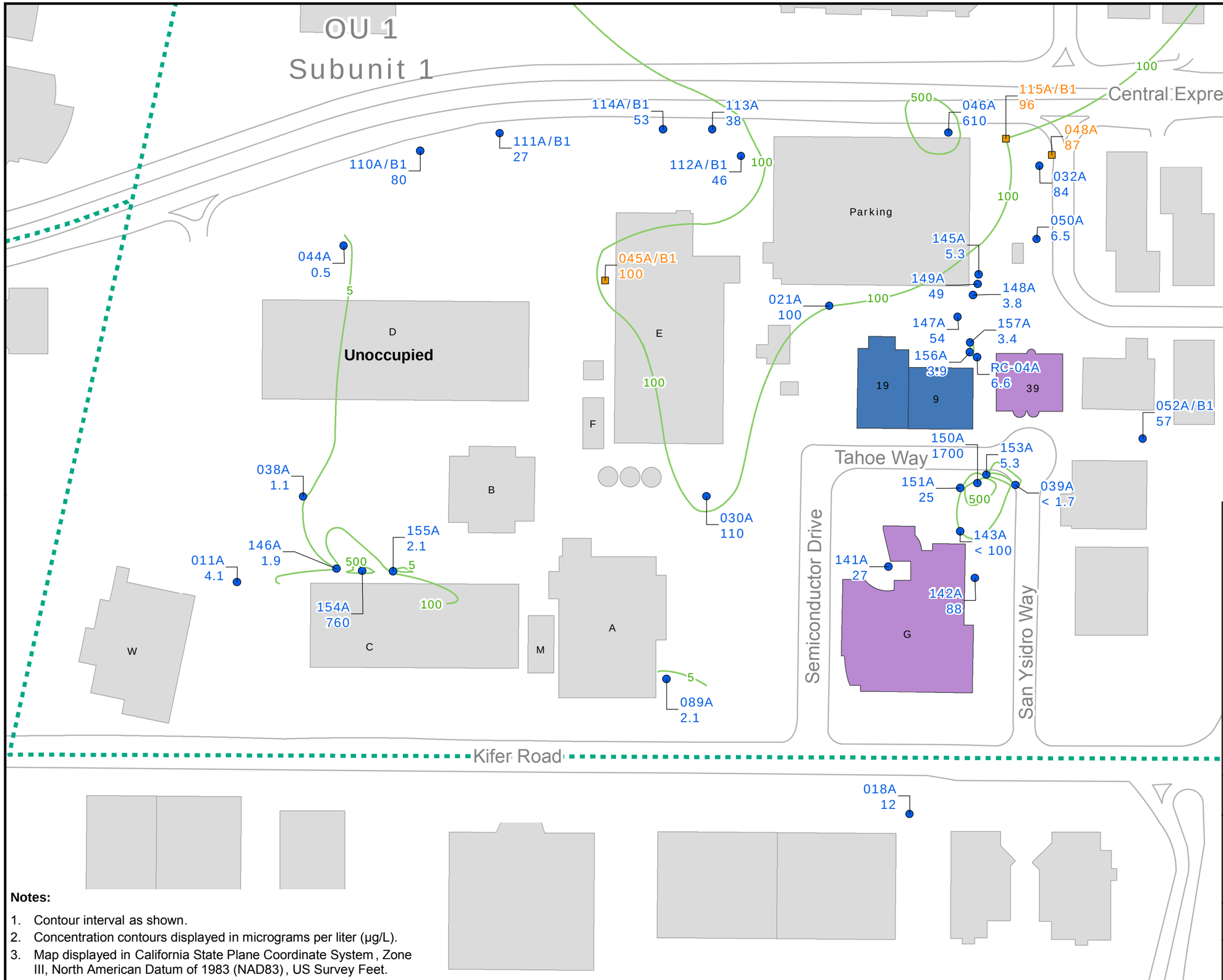


**Legend**

- Monitoring Well
- Extraction Well
- 2013 TCE Concentration Contour (ug/L) A-Aquifer
- Operable Unit Boundary
- On-Property Building Sampled in 2012/2013, No Resampling performed.
- On-Property Building Sampled in 2012/2013, Resampled in 2014

0 125 250 500
Feet

**TEXAS INSTRUMENTS INCORPORATED**
Santa Clara, California

# 2013 TCE GROUNDWATER CONCENTRATION CONTOURS AND BUILDINGS SAMPLED

| Date 11/4/2014 | Project 750620701 | Figure 3 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

**Notes:**

1. Contour interval as shown.
2. Concentration contours displayed in micrograms per liter (µg/L).
3. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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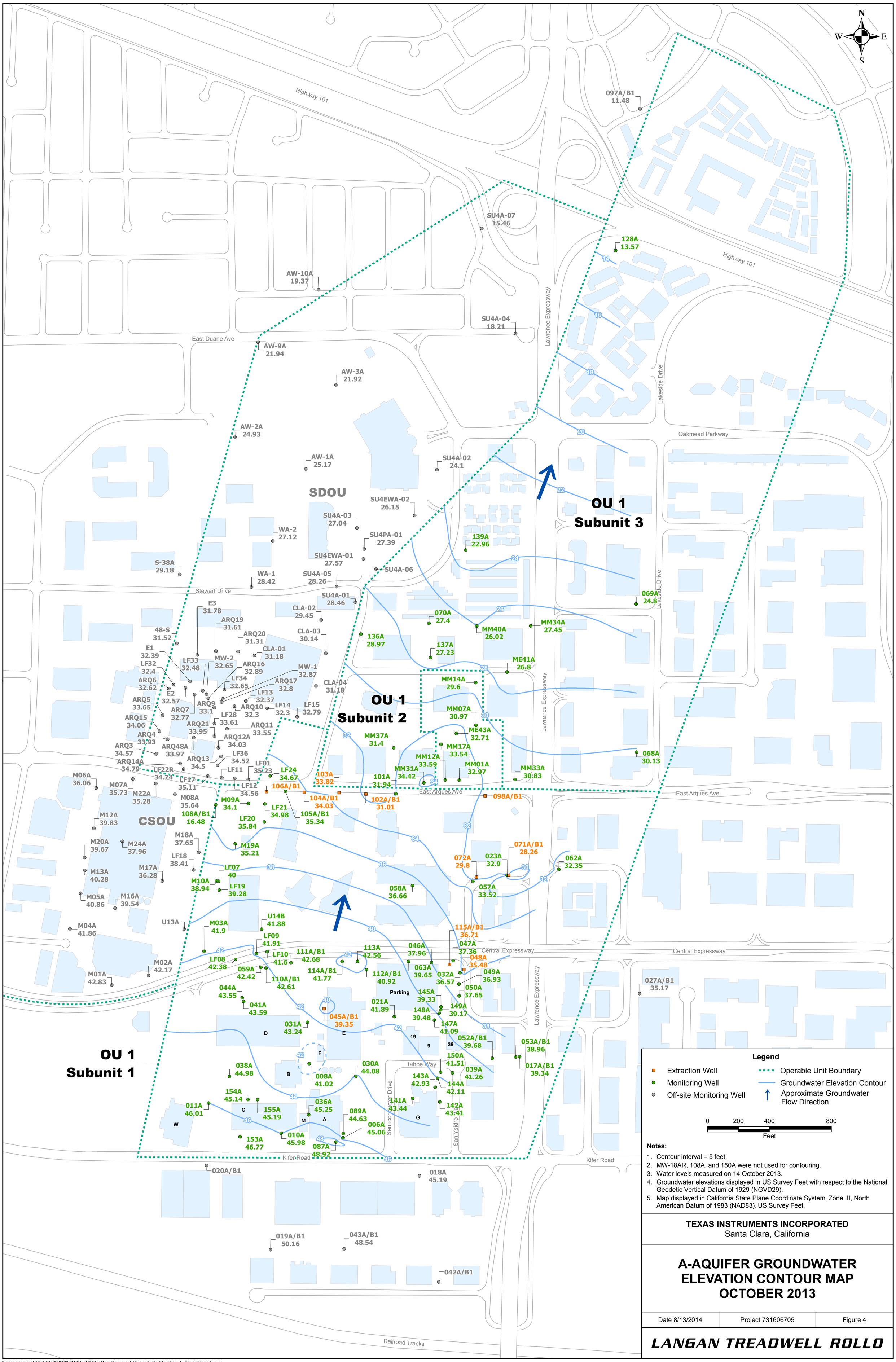


**Notes:**

1. Contour interval = 5 feet.
2. MW-18AR, 108A, and 150A were not used for contouring.
3. Water levels measured on 14 October 2013.
4. Groundwater elevations displayed in US Survey Feet with respect to the National Geodetic Vertical Datum of 1929 (NGVD29).
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

**TEXAS INSTRUMENTS INCORPORATED**
Santa Clara, California

# A-AQUIFER GROUNDWATER ELEVATION CONTOUR MAP OCTOBER 2013

| Date 8/13/2014 | Project 731606705 | Figure 4 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

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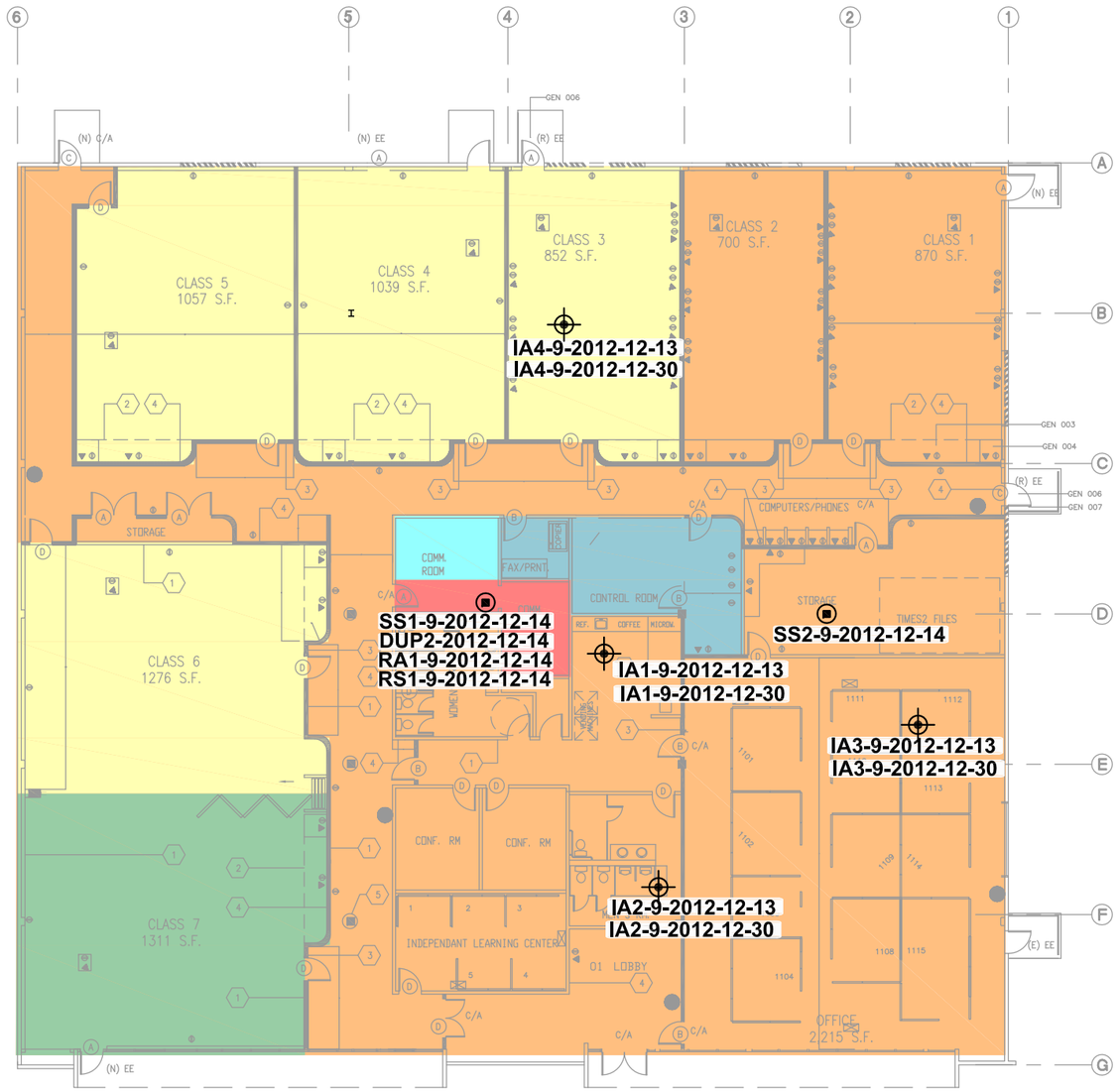


**EXPLANATION**

- Air Conditioning 1
- Air Conditioning 2
- Air Conditioning 3
- Air Conditioning 4
- Air Conditioning 5
- Air Conditioning 3/5
- IA — Indoor air sample
- SS — Sub-slab sample

0 — 20 Feet
Approximate scale

Reference: Base map from a drawing titled, "Building 9 NSU Floor Plan," by Texas Instruments, dated 06/24/10.

**TEXAS INSTRUMENTS**
Santa Clara, California

**INTERIOR FLOOR PLAN AND AIR HANDLING AREAS WITH SAMPLE LOCATIONS - BUILDING 9**

| Date 11/04/14 | Project No. 750620701 | Figure 5 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

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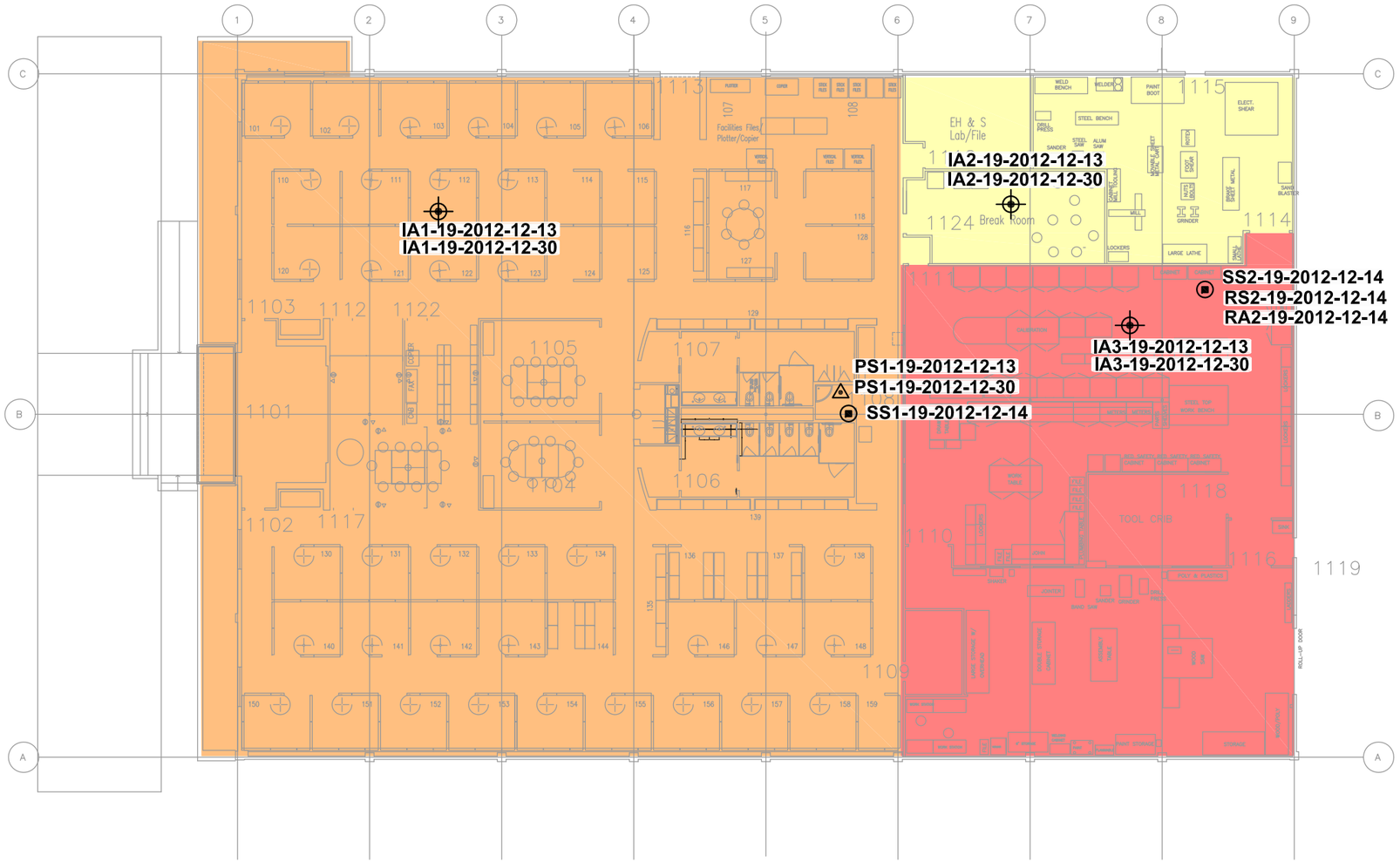


**EXPLANATION**

- Outside Conditioner Unit AHU-1
- Outside Conditioner Unit AHU-2
- Outside Conditioner Unit AHU-3

- IA — Indoor air sample
- SS — Sub-slab sample
- PS — Pathway sample

0 — 20 Feet
Approximate scale

Reference: Base map from a drawing titled, "Building 19 Floor Plan," by Texas Instruments, dated 03/09/12.

**TEXAS INSTRUMENTS**
Santa Clara, California

**INTERIOR FLOOR PLAN AND AIR HANDLING AREAS WITH SAMPLE LOCATIONS - BUILDING 19**

| Date 11/04/14 | Project No. 750620701 | Figure 6 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

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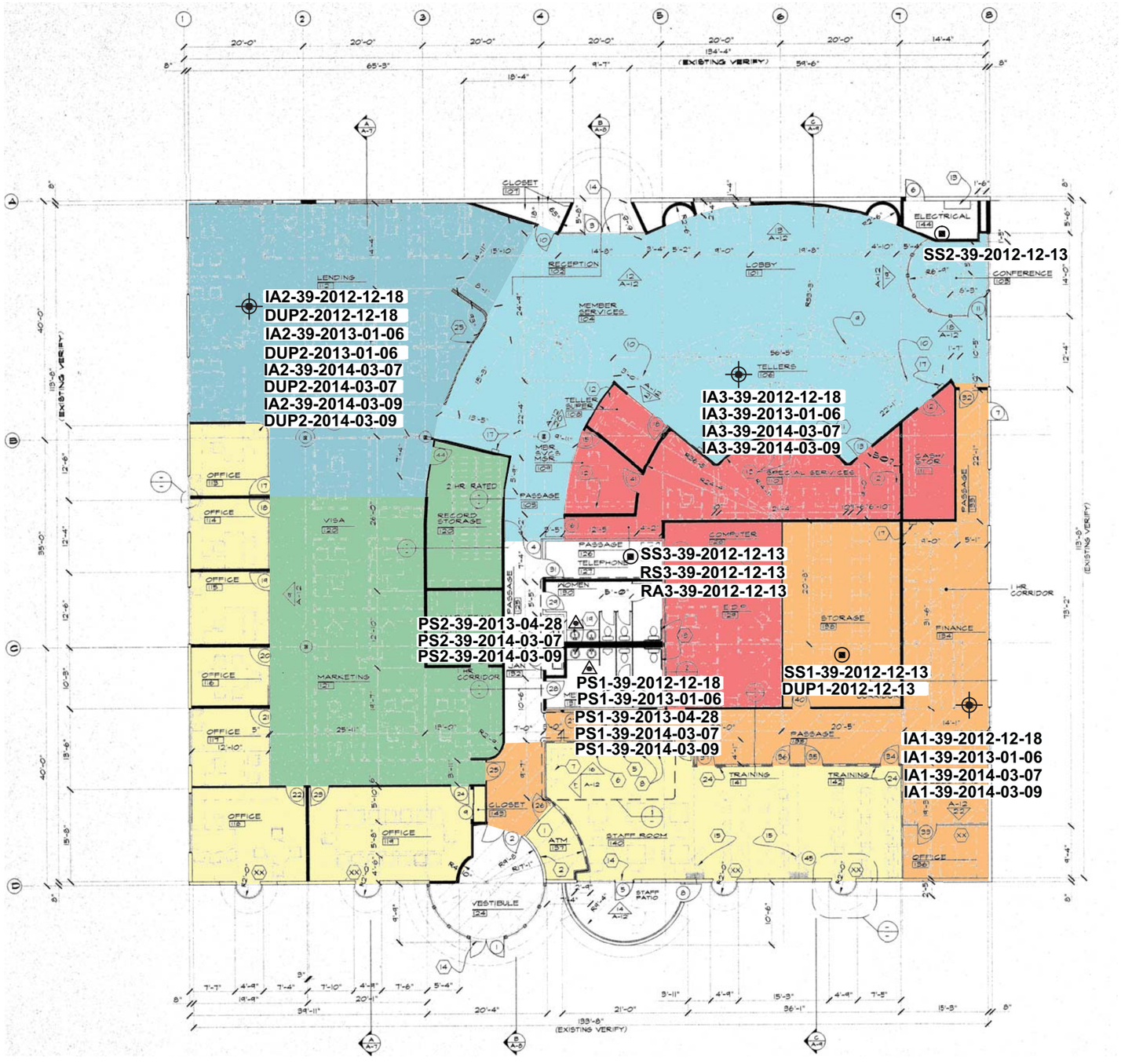


## EXPLANATION

- Air Conditioning 1
- Air Conditioning 2
- Air Conditioning 3
- Air Conditioning 4
- Air Conditioning 5
- Air Conditioning 6
- IA — Indoor air sample
- SS — Sub-slab sample
- PS — Pathway sample

0 — 20 Feet

Approximate scale

**TEXAS INSTRUMENTS**
Santa Clara, California

**INTERIOR FLOOR PLAN AND AIR HANDLING AREAS WITH SAMPLE LOCATIONS - BUILDING 39**

| Date 11/04/14 | Project No. 750620701 | Figure 7 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

Reference: Base map from a drawing titled, "National Semiconductor Federal Credit Union," by Facility Design Group, dated 06/22/00.

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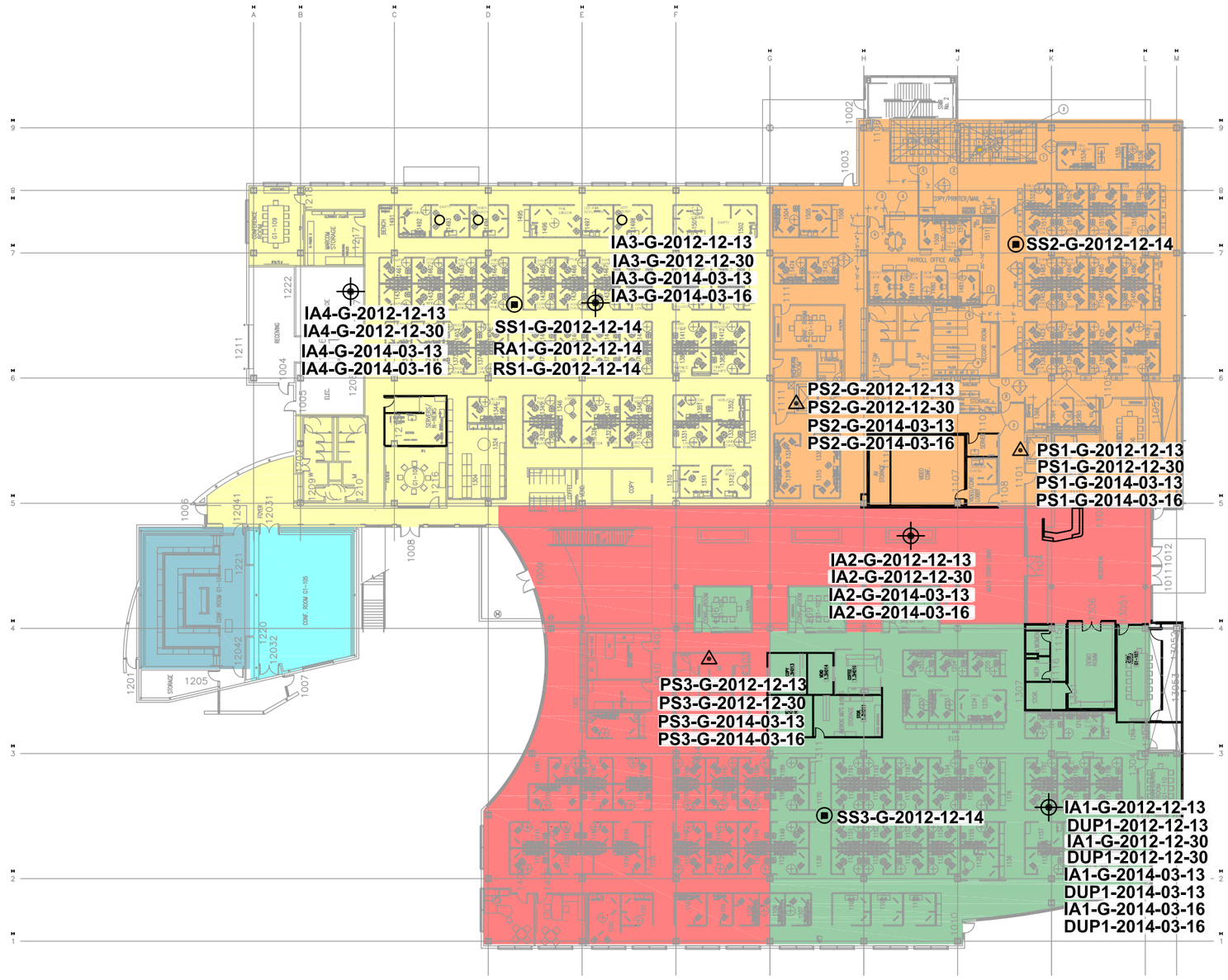


**EXPLANATION**

- Air Handling Unit A/H-1G
- Air Handling Unit A/H-2G
- Air Handling Unit A/H-3G
- Air Handling Unit A/H-4G
- Air Handling Unit A/H-6G
- Air Handling Unit A/H-7G

IA — Indoor air sample

SS — Sub-slab sample

PS — Pathway sample

0 — 40 Feet

Approximate scale

Reference: Base map from a drawing titled, "Building G-1 Floor Plan," by Texas Instruments, dated 12/13/11.

**TEXAS INSTRUMENTS**
Santa Clara, California

**INTERIOR FLOOR PLAN AND AIR HANDLING AREAS WITH SAMPLE LOCATIONS - BUILDING G-1**

| Date 11/04/14 | Project No. 750620701 | Figure 8 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

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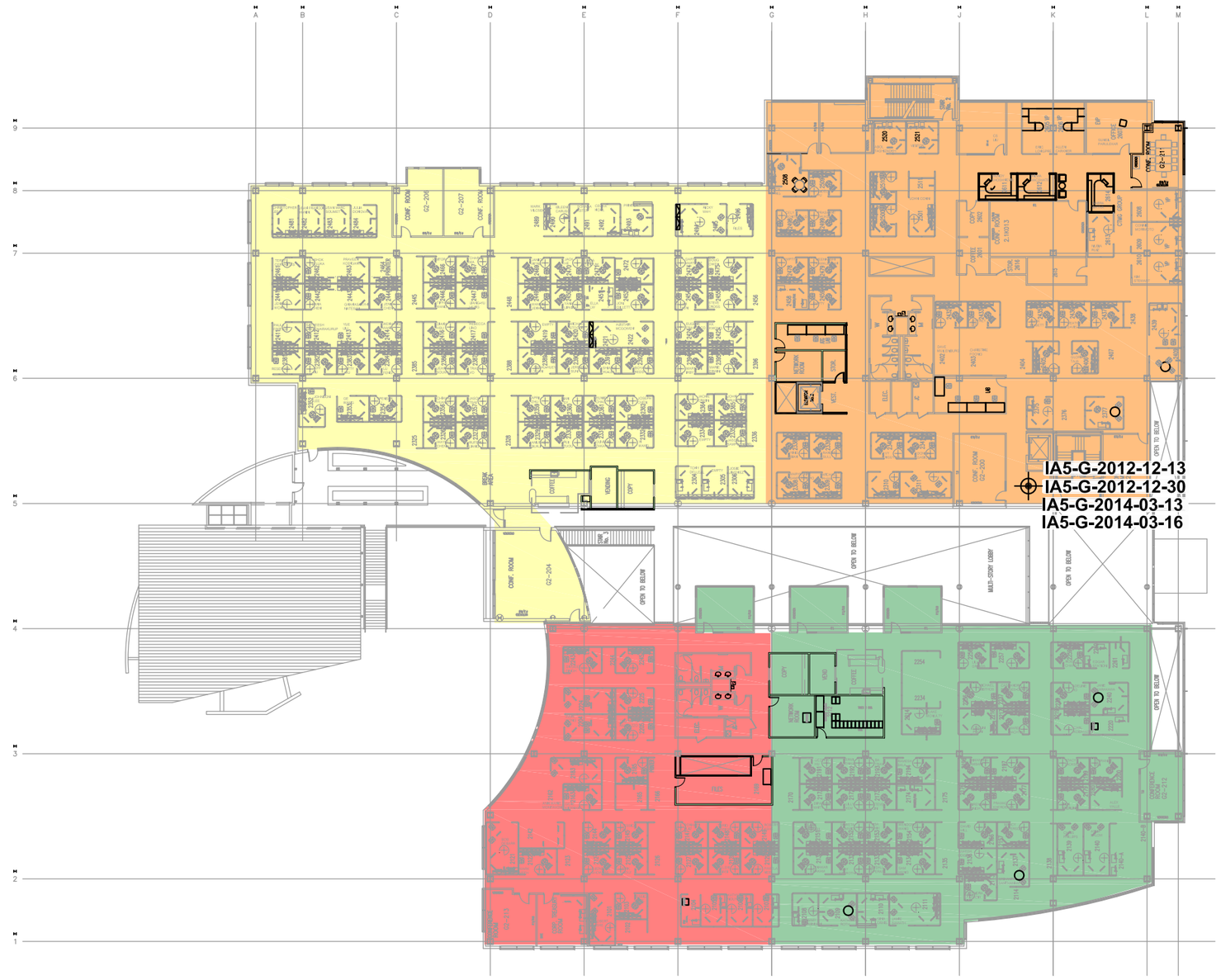


**EXPLANATION**

- Air Handling Unit A/H-1G
- Air Handling Unit A/H-2G
- Air Handling Unit A/H-3G
- Air Handling Unit A/H-4G

IA Indoor air sample

0 40 Feet
Approximate scale

Reference: Base map from a drawing titled, "Building G-2 Floor Plan," by Texas Instruments, dated 04/11/11.

**TEXAS INSTRUMENTS**
Santa Clara, California

**INTERIOR FLOOR PLAN AND AIR HANDLING AREAS WITH SAMPLE LOCATION - BUILDING G-2**

| Date 11/04/14 | Project No. 750620701 | Figure 9 |
|---|---|---|

**LANGAN TREADWELL ROLLO**

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# APPENDIX A

# INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Treadwell&Rollo
A LANGAN COMPANY

630-6

# Indoor Air Building Survey and Sampling Form

Preparer's name: Elma Fung  Date: 11/9/2012

Preparer's affiliation: Environmental Engineer  Phone #: (408) 7213885

Site Name: Texas Instruments  Building #: 9

**PART I – OCCUPANTS**

Building Address: 3693 Tahoe Way Santa Clara, CA 95051

Property Contact: Jim Greene  Owner/Renter/Other: Owner

Contact's Phone: home ( )  work: (408) 7213335  Cell: ( )

# of Building occupants: Children under age 13: Ø  Children age 13-18: Ø  Adults: 4 permanent varies if there is training

**PART II – BUILDING CHARACTERISTICS**

Building use: residential / multi-family residential / (office) / strip mall / commercial / industrial

Business Type: Training center

Describe building: One story  Year constructed: 1962

Sensitive population: day care / nursing home / hospital / school / other (specify): N/A

Multiple Units? Yes/(No)  Number of Units: N/A

Number of floors below grade: ____ (full basement / crawl space / slab on grade) Height of each floor (ft.) ____

Number of floors at or above grade: 1  Height of each floor (ft.) 9ft to grid

Depth of basement below grade surface: Ø ft. Basement size: ____ ft$^2$ Basement Slab thickness: ____inch

Basement Condition: wet  dry  damp  moldy

Finished  unfinished  partially finished

Basement floor construction: concrete / dirt / floating / stone / other (specify): N/A

Concrete floor: Unsealed/sealed with: unsealed

Are the basement walls or floor sealed with water proof paint or epoxy coatings? Yes / No N/A

Foundation walls: (Poured concrete) / cinder blocks / stone / other (specify): _____

Basement sump present? Yes / No  Sump pump? Yes / No  Water in sump? Yes / No N/A

Sump construction: Poured concrete / cinder blocks / stone / other (specify) ): N/A

Elevator Present (Yes / (No))  # of Elevators: 0

Elevator Shaft details: depth below grade (ft.) N/A

Shaft bottom construction: Poured concrete / cinder blocks / stone / other (specify): N/A

Identify potential vapor entry points and approximate size (cracks, utility point, drains)

**FLOOR PLANS**

Attach or draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PId meter readings. If the building does not have a basement, please note:

**Basement:**

**Firs Floor:**

**Outdoor Plot**

Attach or draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

**PART III – HVAC CHARACTERISTICS**

Type of heating system (circle all that apply):

Hot air circulation hot air radiation wood steam radiation
Heat pump (hot water radiation) kerosene heater electric baseboard

Other (specify): _____

Type of ventilation system (circle all that apply):

(Central air conditioning) (mechanical fans) (bathroom ventilation fans)
(Individual air conditioning units) (kitchen range hood fan) (outside air intake)

Other (specify): _____

Type of fuel utilized (circle all that apply):

(Natural gas) / electric / fuel oil / wood / coal / solar / kerosene

Is there a whole house fan? Yes / No

Water Supply: (Public) Well Other: _____

Septic system? Yes / Yes (but not used) / (No)

Water Heater Fueled by: _____

Irrigation / private well? Yes / Yes (but not used) / (No)

Type and percent of ground cover outside of building: grass / concrete / asphalt / other (specify) grass 5 % concrete 95 %

Existing subsurface depressurization (radon) system in place? Yes / (No) active / passive

Sub-slab vapor / moisture barrier in place? Yes / No unknown

Type of barrier: _____

**Air Handling Unit**

Unit identification 5 Area served: Office / training rooms

**Outdoor Air Intake, Mixing Plenum, and Damper**

Outdoor air intake location: roof

Nearby contaminant sources? (describe): _____

Bird screen in place and unobstructed? yes

Design total cfm ~25000 Outdoor air (O.A.) cfm 10-15% Date last tested and balanced: Jan 2012

Minimum % O.A. (damper setting) 10 Minimum cft O.A. (total cfm x minimum %O.A.)/100 = _____

Current O.A. damper setting (date, time, and HVAC operating mode): 10% - 15%

Damper control sequence (describe): economizer control. (automatic)

Condition of dampers and controls (note date): good

**Fans**

Control sequence: constant

Condition (note date): good

maintain room temp 72°F

Indicated temperatures Supply air: _____ mixed air: _____ return air: _____ outdoor air: _____

Actual temperatures Supply air: _____ mixed air: _____ return air: _____ outdoor air: _____

**Coils**

Heating fluid discharge temperature: _____ ΔT: _____ cooling fluid discharge temperate _____ ΔT: _____

Controls (describe): dx unit (freon)

Condition (note date): good

**Humidifier** N/A

Type: _____ if biocide is used, note type: _____

Condition (no overflow, drains trapped, all nozzles working?): _____

No slime, visible growth, or mineral deposits? _____

**Boilers** supplied bldg 19

Rated Btu input ~1 million Condition: good

Combustion air: is there at least one square inch free area per 2,000 Btu input? _____

Fuel or combustion odors: _____

**Cooling Tower** N/A

Clean? No leaks or overflow: _____ Slime or algae growth? _____

Eliminator performance: _____

Biocide treatment working (list type of biocide): _____

Spill containment plan implemented? _____ Dirt separator working? _____

**Chillers** N/A

Refrigerant leaks? _____

Evidence of condensation problems? _____

Waste oil and refrigerant properly stored and disposed of? _____

**Distribution System**

| | | Supply Air | | Return Air | | Power Exhaust | | |
|---|---|---|---|---|---|---|---|---|
| Zone/ Room | System Type | Ducted/ unducted | Cfm* | Ducted/ unducted | cftm* | cfm* | Control | Serves (e.g. toilet) |
| office | dx | ducted | 200 total | ducted | | | | bathroom break room |
| classroom | dx | ducted | | ducted | | | | bathroom |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Condition of distribution system and terminal equipment (note locations of problems)

Adequate access for maintenance? yes

Ducts and coils clean and obstructed? yes

Air paths unobstructed? Supply ____ return: ____ transfer: ____ exhaust: make-up: ____

Note locations of blocked air paths, diffusers, or grilles: _____

Any unintentional openings into plenums? N/A

Controls operating properly? yes

Air volume correct? yes

Drain pans clean? Any visible growth or odors? PM 6 mos.

**Filters**

| Location | Type/Rating | Size | Date last Changed | Condition (give date) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Occupied Space**

Thermostat Types: each classroom + office electronic BMS control

| Zone Room | Thermostat Location | What does Thermostat Control? (e.g. radiator, AHU-3) | Setpoints | | Measured Temperature | Day/Time |
|---|---|---|---|---|---|---|
| | | | Summer | Winter | | |
| office | | | 71-73 | 71-73 | | |
| training | | | " | " | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Humidistats/Dehumidistats type: N/A

| Zone/Room | Humidistat/ Dehumidistat Location | What Does it Control? | Setpoints (%RH) | Measured Temperature | Day/Time |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Potential problems (note location): _____

Thermal comfort or air circulation (drafts, obstructed airflow, stagnant air, overcrowding, poor thermostat location):

_____

_____

Malfunctioning equipment: _____

Major sources of odors of contaminants (e.g., poor sanitation, incompatible uses of space)

_____

Are there air distribution ducts present? (Yes)/No

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the location on the floor plan diagram.

_____

_____

_____

_____

_____

**Part IV – Occupancy**

Is basement/lowest level occupied? (Full-time) Occasionally Seldom Almost Never

| Level | General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage) |
|---|---|
| Basement | None |
| 1st Floor | Fulltime Office Training center |
| 2nd floor | |
| 3rd floor | |
| 4th floor | |

**Factors that May Influence Indoor Air Quality**

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y/ N/ NA

c. Area petroleum-powered machines or vehicles stored in the garage (e.g. lawnmower, atv, car) Y/ N/ NA Please specify _____

d. Has the building ever had a fire? Y / N When? _____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type?

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____

n. Is there a bathroom exhaust fant? Y / N If yes, where vented? _____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y/N

p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building? Y / N

If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are there clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) (Unknown)
yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y (N) Date of Installation: _____

Is the system active or passive? Active/Passive

**PART V – OUTSIDE CONTAMINANT SOURCES**

Known contaminated site (1,000-ft. radius): Bldg is on OU1 of superfund

Other stationary sources nearby (gas stations, emission stacks, etc.): gas station, air stripper

Heavy vehicular traffic nearby (or other mobile sources) and distance from building: ~600ft

**PART VI – MISCELLANEOUS ITEMS**

Do any occupants of the building smoke? (Yes) / No How often? unknown
Last time someone smoked in the building? Hours / days ago w/o smoking inside buildings

Does the building have an attached garage directly connected to living space? Yes / (No)
If so, is a car usually parked in the garage? Yes / No

Are gas-powered equipment or cans of gasoline/fuels stored in the garage? Yes / No

Do the occupants of the building have their clothes dry cleaned? (Yes) / No
If yes, how often? Weekly / monthly / 304 times a year unknown

Do any of the occupants use solvents in work? Yes / (No)
If yes, what types of solvents are used? _____
If yes, are their clothes washed work? Yes / (No)

Have any pesticides/herbicides been applied around the building or in the yard? Yes / (No)
If so, when and which chemicals? _____

Has there ever been a fire in the building? Yes / (No) If yes, when? _____

Has painting or staining been done in the building in the last 6 months? (Yes) / No
If yes, when _____ and where? _____

Additional Notes: _____

## PART VII – INDOOR CONTAMINANT SOURCES See attached

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor and room), and whether the item was removed from the building 48 hours prior to indoor air sampling event. Any ventilation implemented after removal of the items should be completed at least 24 hours prior to the commencement of the indoor air sampling event.

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Gasoline storage cans | | | |
| Gas-powered equipment | | | |
| Kerosene storage cans | | | |
| Paints / thinners / strippers | | | |
| Cleaning solvents | | | |
| Oven cleaners | | | |
| Carpet / upholstery cleaners | | | |
| Other house cleaning products | | | |
| Moth balls | | | |
| Polishes / waxes | | | |
| Insecticides | | | |
| Furniture / floor polish | | | |
| Nail polish / polish remover | | | |
| Hairspray | | | |
| Cologne / perfume | | | |
| Air fresheners | | | |
| Fuel tank (inside building) | | | |
| Wood stove or fireplace | | | |
| New furniture / upholstery | | | |
| New carpeting / flooring | | | |

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Hobbies – glues, paints, etc. | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Additional Notes: _____

6-5

Treadwell&Rollo
A LANGAN COMPANY

# Indoor Air Building Survey and Sampling Form

Preparer's name: Elma Fung  Date: 11/9/2012

Preparer's affiliation: Environmental Engineer  Phone #: (408) 721 3885

Site Name: Texas Instruments  Building #: 19

**PART I – OCCUPANTS**

Building Address: 3707 Tahoe Way Santa Clara CA 95051

Property Contact: Jim Greene  Owner/Renter/Other: Owner

Contact's Phone: home ( )  work: (408) 721 3335  Cell: ( )

# of Building occupants: Children under age 13: Ø  Children age 13-18: Ø  Adults: 10

**PART II – BUILDING CHARACTERISTICS**

Building use: residential / multi-family residential / (office) / strip mall / (commercial) / industrial

Business Type: OFFice and maintenance shop

Describe building: 1-story  Year constructed: 1962

Sensitive population: day care / nursing home / hospital / school / other (specify): None

Multiple Units? Yes/(No)  Number of Units:

Number of floors below grade: 0 (full basement / crawl space / slab on grade) Height of each floor (ft.)

Number of floors at or above grade: 1  Height of each floor (ft.) 9ft to grid

Depth of basement below grade surface: ____ ft. Basement size: ____ $ft^2$ Basement Slab thickness: ____inch

Basement Condition: wet  dry  damp  moldy

Finished  unfinished  partially finished

Basement floor construction: concrete / dirt / floating / stone / other (specify): N/A

Concrete floor: Unsealed/sealed with: Unsealed

Are the basement walls or floor sealed with water proof paint or epoxy coatings? Yes / (No)

Foundation walls: Poured concrete / cinder blocks / stone / other (specify): _____

Basement sump present? Yes / No  Sump pump? Yes / No  Water in sump? Yes / No  N/A

Sump construction: Poured concrete / cinder blocks / stone / other (specify) ): _____

Elevator Present (Yes / No)  # of Elevators: 0

Elevator Shaft details: depth below grade (ft.) N/A

Shaft bottom construction: Poured concrete / cinder blocks / stone / other (specify): N/A

Identify potential vapor entry points and approximate size (cracks, utility point, drains)

**FLOOR PLANS**

Attach or draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PId meter readings. If the building does not have a basement, please note:

**Basement:**

**Firs Floor:**

**Outdoor Plot**

Attach or draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

**PART III – HVAC CHARACTERISTICS**

Type of heating system (circle all that apply):

Hot air circulation hot air radiation wood steam radiation
Heat pump hot water radiation kerosene heater electric baseboard

Other (specify): _____

Type of ventilation system (circle all that apply):

Central air conditioning mechanical fans bathroom ventilation fans
Individual air conditioning units kitchen range hood fan outside air intake

Other (specify): _____

Type of fuel utilized (circle all that apply):

Natural gas / electric / fuel oil / wood / coal / solar / kerosene

Is there a whole house fan? Yes / No

Water Supply: Public Well Other: _____

Septic system? Yes / Yes (but not used) / No

Water Heater Fueled by: _____

Irrigation / private well? Yes / Yes (but not used) / No

Type and percent of ground cover outside of building: grass / concrete / asphalt / other (specify) grass 5% concrete 95%

Existing subsurface depressurization (radon) system in place? Yes / No active / passive

Sub-slab vapor / moisture barrier in place? Yes / No unknown

Type of barrier: _____

**Air Handling Unit**

Unit identification 1 Area served: office + maintenance

**Outdoor Air Intake, Mixing Plenum, and Damper**

Outdoor air intake location: roof

Nearby contaminant sources? (describe): _____

Bird screen in place and unobstructed? yes

Design total cfm 14,000 Outdoor air (O.A.) cfm 10-15% Date last tested and balanced: Jan 2012

Minimum % O.A. (damper setting) 10-15% Minimum cft O.A. (total cfm x minimum %O.A.)/100 = _____

Current O.A. damper setting (date, time, and HVAC operating mode): 10-15%

Damper control sequence (describe): BMS control economizer

Condition of dampers and controls (note date): good

**Fans**

Control sequence: VFD

Condition (note date): good

maintain room temp

Indicated temperatures Supply air: _____ mixed air: _____ return air: 70-73 outdoor air: _____

Actual temperatures Supply air: _____ mixed air: _____ return air: _____ outdoor air: _____

**Coils**

Heating fluid discharge temperature: _____ ΔT: _____ cooling fluid discharge temperate _____ ΔT: _____

Controls (describe): BMS - electronic

Condition (note date): good

**Humidifier** N/A

Type: _____ if biocide is used, note type: _____

Condition (no overflow, drains trapped, all nozzles working?): _____

No slime, visible growth, or mineral deposits? _____

**Boilers**

Rated Btu input ~1 million Condition: good

Combustion air: is there at least one square inch free area per 2,000 Btu input? yes

Fuel or combustion odors: N/A

**Cooling Tower** N/A

Clean? No leaks or overflow: _____ Slime or algae growth? _____

Eliminator performance: _____

Biocide treatment working (list type of biocide): _____

Spill containment plan implemented? _____ Dirt separator working? _____

**Chillers** N/A

Refrigerant leaks? _____

Evidence of condensation problems? _____

Waste oil and refrigerant properly stored and disposed of? _____

**Distribution System**

| | | Supply Air | | Return Air | | Power Exhaust | | |
|---|---|---|---|---|---|---|---|---|
| Zone/ Room | System Type | Ducted/ unducted | Cfm* | Ducted/ unducted | cftm* | cfm* | Control | Serves (e.g. toilet) |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

Condition of distribution system and terminal equipment (note locations of problems)

Adequate access for maintenance? yes

Ducts and coils clean and obstructed? yes

Air paths unobstructed? Supply ____ return: ____ transfer: ____ exhaust: make-up: ____

Note locations of blocked air paths, diffusers, or grilles: N/A

Any unintentional openings into plenums? N/A

Controls operating properly? yes

Air volume correct? yes

Drain pans clean? Any visible growth or odors? 6mos. PM

**Filters**

| Location | Type/Rating | Size | Date last Changed | Condition (give date) |
|---|---|---|---|---|
| | | | | |
| | | | | |
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**Occupied Space**

Thermostat Types: BMS

| Zone Room | Thermostat Location | What does Thermostat Control? (e.g. radiator, AHU-3) | Setpoints | | Measured Temperature | Day/Time |
|---|---|---|---|---|---|---|
| | | | Summer | Winter | | |
| | | | 70-73 | 70-73 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Humidistats/Dehumidistats type: N/A

| Zone/Room | Humidistat/ Dehumidistat Location | What Does it Control? | Setpoints (%RH) | Measured Temperature | Day/Time |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
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Potential problems (note location): _____

Thermal comfort or air circulation (drafts, obstructed airflow, stagnant air, overcrowding, poor thermostat location):

_____

_____

Malfunctioning equipment: _____

Major sources of odors of contaminants (e.g., poor sanitation, incompatible uses of space)

_____

Are there air distribution ducts present? (Yes)/No

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the location on the floor plan diagram.

_____

_____

_____

_____

_____

**Part IV – Occupancy**

Is basement/lowest level occupied? (Full-time) Occasionally Seldom Almost Never

| Level | General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage) |
|---|---|
| Basement | None |
| 1st Floor | Office and maintenance shop |
| 2nd floor | None |
| 3rd floor | None |
| 4th floor | None |

**Factors that May Influence Indoor Air Quality**

a. Is there an attached garage? Y / (N)

b. Does the garage have a separate heating unit? Y/ N/ (NA)

c. Area petroleum-powered machines or vehicles stored in the garage (e.g. lawnmower, atv, car) Y/ N/ (NA) Please specify _____

d. Has the building ever had a fire? Y / (N) When? _____

e. Is a kerosene or unvented gas space heater present? Y / (N) Where? _____

f. Is there a workshop or hobby/craft area? (Y)/ N Where & Type? North of Bldg Maintenance

g. Is there smoking in the building? Y / (N) How frequently? _____

h. Have cleaning products been used recently? (Y)/ N When & Type?

i. Have cosmetic products been used recently? (Y) / N When & Type? _____

j. Has painting/staining been done in the last 6 months? (Y)/ N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / (N) Where & When? _____

l. Have air fresheners been used recently? (Y)/ N When & Type? _____

m. Is there a kitchen exhaust fan? (Y)/ N If yes, where vented? _____

n. Is there a bathroom exhaust fant? (Y)/ N If yes, where vented? _____

o. Is there a clothes dryer? Y / (N) If yes, is it vented outside? Y/N

p. Has there been a pesticide application? Y / (N) When & Type? _____

Are there odors in the building? Y / (N)

If yes, please describe: _____

Do any of the building occupants use solvents at work? (Y)/ N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? Paint, machine shop

If yes, are there clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____

Is the system active or passive? Active/Passive

**PART V – OUTSIDE CONTAMINANT SOURCES**

Known contaminated site (1,000-ft. radius): Building is on out of superfund site

Other stationary sources nearby (gas stations, emission stacks, etc.): gas station and air stripper

Heavy vehicular traffic nearby (or other mobile sources) and distance from building: ~600 ft

**PART VI – MISCELLANEOUS ITEMS**

Do any occupants of the building smoke? Yes / No How often? _____
Last time someone smoked in the building? Hours / days ago No smoking inside Bldg

Does the building have an attached garage directly connected to living space? Yes / No
If so, is a car usually parked in the garage? Yes / No

Are gas-powered equipment or cans of gasoline/fuels stored in the garage? Yes / No

Do the occupants of the building have their clothes dry cleaned? Yes / No
If yes, how often? Weekly / monthly / 304 times a year unknown

Do any of the occupants use solvents in work? Yes / No
If yes, what types of solvents are used? paint, thinners
If yes, are their clothes washed work? Yes / No

Have any pesticides/herbicides been applied around the building or in the yard? Yes / No
If so, when and which chemicals? _____

Has there ever been a fire in the building? Yes / No If yes, when? _____

Has painting or staining been done in the building in the last 6 months? Yes / No
If yes, when _____ and where? _____

Additional Notes: _____

## PART VII – INDOOR CONTAMINANT SOURCES

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor and room), and whether the item was removed from the building 48 hours prior to indoor air sampling event. Any ventilation implemented after removal of the items should be completed at least 24 hours prior to the commencement of the indoor air sampling event.

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Gasoline storage cans | | | |
| Gas-powered equipment | | | |
| Kerosene storage cans | | | |
| Paints / thinners / strippers | See attached | Maintenance shop | NO |
| Cleaning solvents | | Janitor's closet | NO |
| Oven cleaners | | | |
| Carpet / upholstery cleaners | | | |
| Other house cleaning products | | Janitor's closet | NO |
| Moth balls | | | |
| Polishes / waxes | | | |
| Insecticides | | | |
| Furniture / floor polish | | | |
| Nail polish / polish remover | | | |
| Hairspray | | | |
| Cologne / perfume | | | |
| Air fresheners | | Bathroom | NO |
| Fuel tank (inside building) | | | |
| Wood stove or fireplace | | | |
| New furniture / upholstery | | | |
| New carpeting / flooring | | | |

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Hobbies – glues, paints, etc. | See attached | Maintenance | NO |
| | | | |
| | | | |
| | | | |
| | | | |

Additional Notes:

# Inventory for Building Occupancy Classification

Plan Check No.: _____ Proposed Occupancy Classification: Group B___ Signature of Preparer: _____ Date: 12/19/2011

Control Area No.: Building 19 - Indoors Is this area protected by a fire sprinkler system? ☑ Yes; ❑ No. If H-6 Occupancy Classification give floor area: _____Sq. Ft.

| 1. Room No. | 2. Chemical Name & Concentration *(Not Trade Name)* | 3. UBC Class* Physical | Health | 4. Quantity Stored | 5. Quantity in Use* Open | Closed | 6. Stored in Approved Cabinet |
|---|---|---|---|---|---|---|---|
| Area 3 | 3M Fastbond Contact Adhesive 30-NF<br>Toluene <3% | | Carcinogen | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Rust-Oleum Aerosol Paint<br>Acetone – 30%<br>Liquefied Gas – 30% | FL-1A | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Hi-lex Bleach<br>Sodium Hypochlorite – 5.5% | | CORR | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Straight-Line Marking Chalk<br>Silica Crystalline Quartz – 1.5% | | Carcinogen | 5 ❑ gal. ☑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Dap Weldwood Contact Cement<br>Toluene – 20%<br>Acetone – 20% | FL-1A | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | 3M Sharpshooter<br>Water – 80%<br>2 Butoxyethanol-7% | | CORR<br>Irritant | 5 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Klean-Strip Phosphoric Prep & Etch<br>Phosphoric Acid Solution – 50%<br>Water – 50% | | CORR<br>Irritant | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Dap Quick Plug Hydraulic Cement<br>Silica, Crystalline – 15%<br>Calcium Sulfate – 5% | | Carcinogen<br>Irritant | 10 ❑ gal. ☑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Henry 208R SBS Rubber Modified Wet Patch<br>1,2,4-Trimethylbenzene – 5%<br>Petroleum Asphalt – 30% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Metacrylics Acrylic Grey Gel<br>Ethylene Glycol – 3%<br>Aqua Ammonia – 0.11% | CL-3B | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |

* Please see the instructions on the reverse side of this page for a list of UBC hazard classes and definitions of open use and closed use. **UN-035-1/3**

# Inventory for Building Occupancy Classification

Plan Check No.: _____ Proposed Occupancy Classification: Group B___ Signature of Preparer: _____ Date: 12/19/2011

Control Area No.: Building 19 - Indoors Is this area protected by a fire sprinkler system? ☑ Yes; ❑ No. If H-6 Occupancy Classification give floor area: _____Sq. Ft.

| 1. Room No. | 2. Chemical Name & Concentration *(Not Trade Name)* | 3. UBC Class* Physical | Health | 4. Quantity Stored | 5. Quantity in Use* Open | Closed | 6. Stored in Approved Cabinet |
|---|---|---|---|---|---|---|---|
| Area 3 | Metacrylics Acrylic White<br>Ethylene Glycol – 1.9%<br>Aqua Ammonia – 0.10% | CL-3B | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Rust-Oleum Oil Based Protective Enamel<br>Stoddard Solvent – 50%<br>Titanium Dioxide – 20% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Kelly Moore Kel-Guard<br>Aromatic Petroleum Distillates – 6%<br>Barium Metaborate Monohydrate – 6.1% | CL-2 | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Protecto Wrap 100 VOC Primer<br>Xylene – 38%<br>Acetone – 26% | FL-1B | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑ No |
| Area 3 | Henry 204 Plastic Roof Cement<br>Petroleum Asphalt – 60% | CL-2 | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 3 | Zep Heavy Duty Citrus Degreaser<br>D-Limonene – 5%<br>Monoethanolamine – 5% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Zep Streak-Free Glass Cleaner<br>Isopropyl Alcohol – 5%<br>Ethylene Glycol Monobutyl Ether – 5% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Goof Off<br>Acetone – 60%<br>Xylene – 10% | FL-1A | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Rezi Weld 1000 Construction Epoxy A<br>Bisphenol A – 60% | CL-3B | | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Henry 587 White Roof Coating<br>Ethylene Glycol 1% | CL-3B | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Rezi Weld 1000 Construction Epoxy B<br>Limestone – 45% | | CORR | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |

* Please see the instructions on the reverse side of this page for a list of UBC hazard classes and definitions of open use and closed use. **UN-035-1/3**



**Rev. 09/24/96**

# Inventory for Building Occupancy Classification

Plan Check No.: _____ Proposed Occupancy Classification: Group B___ Signature of Preparer: _____ Date: 12/19/2011

Control Area No.: Building 19 - Indoors Is this area protected by a fire sprinkler system? ☑ Yes; ❑ No. If H-6 Occupancy Classification give floor area: _____Sq. Ft.

| 1. Room No. | 2. Chemical Name & Concentration *(Not Trade Name)* | 3. UBC Class* Physical | Health | 4. Quantity Stored | 5. Quantity in Use* Open | Closed | 6. Stored in Approved Cabinet |
|---|---|---|---|---|---|---|---|
| Area 3 | Kelly-Moore Zone Marking Paint<br>Methanol – 2.5% | CL-3B | | 6 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Johnson Commercial Windex Glass Cleaner<br>IPA – 6%<br>Ammonium Hydroxide – 3% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Westpac Materials All Purpose Joint Compound<br>Calcium Carbonate <65%<br>Mica <3%<br>Attapulgite Clay <3% | | Carcinogen | 48 ❑ gal. ☑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Kelly-Moore Sat-N-Sheen 1610-23<br>Ethylene Glycol – 2.4% | | Carcinogen | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Kelly-Moore Interior Acrylic Eggshell Enamel<br>Titanium Dioxide <19%<br>Vinyl Acetate <0.2% | | Carcinogen | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 3 | Kelly-Moore Enviro Coat 1510<br>Titanium Dioxide <20% | | Carcinogen | 2 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 4 | Rust-Oleum Aerosol Paints<br>Acetone – 30%<br>Liquefied Petroleum Gas – 30% | FL-1B | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 4 | IPS Weld-On P-70 Low VOC Primer<br>Acetone – 20%<br>Methyl Ethyl Ketone – 29% | FL-1A | Carcinogen | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑ Yes ❑ No |
| Area 4 | Prestone Antifreeze/Coolant<br>Ethylene Glycol – 80%<br>Diethylene Glycol – 8% | CL-3B | Irritant | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 4 | Techspray Isopropyl Alcohol<br>2-Propanol – 100% | FL-1B | Irritant | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 4 | Henry 204 Plastic Roof Cement<br>Petroleum Asphalt – 60%<br>Aromatic Petroleum Distillate – 10%<br>1,3,5-Trimethyl Benzene – 5% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |

* Please see the instructions on the reverse side of this page for a list of UBC hazard classes and definitions of open use and closed use. **UN-035-1/3**



**Rev. 09/24/96**

# Inventory for Building Occupancy Classification

Plan Check No.: _____ Proposed Occupancy Classification: Group B Signature of Preparer: _____ Date: 12/19/2011

Control Area No.: Building 19 - Indoors Is this area protected by a fire sprinkler system? ☑ Yes; ❑ No. If H-6 Occupancy Classification give floor area: _____Sq. Ft.

| 1. Room No. | 2. Chemical Name & Concentration *(Not Trade Name)* | 3. UBC Class* Physical | Health | 4. Quantity Stored | 5. Quantity in Use* Open | Closed | 6. Stored in Approved Cabinet |
|---|---|---|---|---|---|---|---|
| Area 4 | Henry 208R SBS Rubber Cement Roof<br>Attapulgite – 13%<br>Petroleum Asphalt – 30% | CL-2 | | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ☑Yes ❑No |
| Area 5 | Argon – 100% | NFG | Asphyxiant | 336 ❑ gal. ❑ lbs. ☑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ☑ No |
| | TOTALS IN BUILDING 19 INDOORS | | | | | | |
| | | FL-1A | | 4 ☑gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | FL-1A | | 138 ❑gal. ❑ lbs. ☑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | FL-1A | Carcinogen | 1 ☑gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | FL-1B | | 3 ☑gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | FL-1B | Irritant | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | CL-2 | | 11 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | CL-3B | | 13 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | CL-3B | Irritant | 1 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |

* Please see the instructions on the reverse side of this page for a list of UBC hazard classes and definitions of open use and closed use. **UN-035-1/3**

# Inventory for Building Occupancy Classification

Plan Check No.: _____ Proposed Occupancy Classification: Group B___ Signature of Preparer: _____ Date: 12/19/2011

Control Area No.: Building 19 - Indoors Is this area protected by a fire sprinkler system? ☑ Yes; ❑ No. If H-6 Occupancy Classification give floor area: _____Sq. Ft.

| 1. Room No. | 2. Chemical Name & Concentration *(Not Trade Name)* | 3. UBC Class* Physical | Health | 4. Quantity Stored | 5. Quantity in Use* Open | Closed | 6. Stored in Approved Cabinet |
|---|---|---|---|---|---|---|---|
| | | NFG | Asphyxiant | 336 ❑ gal. ❑ lbs. ☑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | Carcinogen | 53 ❑ gal. ☑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | Carcinogen | 5 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | Carcinogen Irritant | 10 ❑ gal. ☑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | CORR | 3 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | CORR Irritant | 6 ☑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | OXY-1 | | 300 ❑ gal. ❑ lbs. ☑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |
| | | | | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | 0 ❑ gal. ❑ lbs. ❑ ft.$^3$ | ❑ Yes ❑ No |

* Please see the instructions on the reverse side of this page for a list of UBC hazard classes and definitions of open use and closed use. **UN-035-1/3**



**Rev. 09/24/96**

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**Treadwell&Rollo**
A LANGAN COMPANY

# Indoor Air Building Survey and Sampling Form

Preparer's name: Elma Fung  Date: 11/9/2012

Preparer's affiliation: Environmental Engineer  Phone #: (408) 721 3885

Site Name: Texas Instruments  Building #: G

## PART I – OCCUPANTS

Building Address: 3689 Kifer Road Santa Clara CA 95051

Property Contact: Jim Greene  Owner/Renter/Other: Owner

Contact's Phone: home ( )  work: (408) 721 3335  Cell: ( )

# of Building occupants: Children under age 13: Ø  Children age 13-18: Ø  Adults: Ø

## PART II – BUILDING CHARACTERISTICS

Building use: residential / multi-family residential / (office) / strip mall / commercial / industrial

Business Type: OFFICE

Describe building: 3 Story building  Year constructed: 2001

Sensitive population: day care / nursing home / hospital / school / other (specify): N/A

Multiple Units? Yes/(No)  Number of Units:

Number of floors below grade: Ø (full basement / crawl space / slab on grade)  Height of each floor (ft.)

Number of floors at or above grade: 3  Height of each floor (ft.) ~9ft to grid

Depth of basement below grade surface: N/A ft.  Basement size: Ø ft²  Basement Slab thickness: Ø inch

Basement Condition: wet  dry  damp  moldy

Finished  unfinished  partially finished

Basement floor construction: concrete / dirt / floating / stone / other (specify): N/A

Concrete floor: Unsealed/sealed with: unsealed

Are the basement walls or floor sealed with water proof paint or epoxy coatings? Yes / No N/A

shutdown 1 year ago - no pm

Foundation walls: Poured concrete / cinder blocks / stone / other (specify): _____

Basement sump present? Yes / No  Sump pump? Yes / No  Water in sump? Yes / No

Sump construction: Poured concrete / cinder blocks / stone / other (specify) ): _____

Elevator Present (Yes / No)  # of Elevators: 2

Elevator Shaft details: depth below grade (ft.) ~5 ft

Shaft bottom construction: Poured concrete / cinder blocks / stone / other (specify): _____

Identify potential vapor entry points and approximate size (cracks, utility point, drains)

**FLOOR PLANS**

Attach or draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PId meter readings. If the building does not have a basement, please note:

**Basement:**

**Firs Floor:**

**Outdoor Plot**

Attach or draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

**PART III – HVAC CHARACTERISTICS**

Type of heating system (circle all that apply):

Hot air circulation  hot air radiation wood  steam radiation
Heat pump  hot water radiation  kerosene heater  electric baseboard

Other (specify): _____

Type of ventilation system (circle all that apply):

Central air conditioning  mechanical fans  bathroom ventilation fans
Individual air conditioning units  kitchen range hood fan  outside air intake

Other (specify): _____

Type of fuel utilized (circle all that apply):

Natural gas / electric / fuel oil / wood / coal / solar / kerosene

Is there a whole house fan? Yes / No

Water Supply: Public  Well Other: _____

Septic system? Yes / Yes (but not used) / No

Water Heater Fueled by: _____

Irrigation / private well? Yes / Yes (but not used) / No

Type and percent of ground cover outside of building: grass / concrete / asphalt / other (specify) grass - 30% concrete - 70%

Existing subsurface depressurization (radon) system in place? Yes / No  active / passive

Sub-slab vapor / moisture barrier in place? Yes / No

Type of barrier: screen

**Air Handling Unit**

Unit identification 7  Area served: 1, 2, 3 floors

**Outdoor Air Intake, Mixing Plenum, and Damper**

Outdoor air intake location: roof (lower + upper)

Nearby contaminant sources? (describe): _____

Bird screen in place and unobstructed? yes

Design total cfm See attached  Outdoor air (O.A.) cfm 10 %  Date last tested and balanced: ~ 2 years ago

Minimum % O.A. (damper setting) 10-20 %  Minimum cft O.A. (total cfm x minimum %O.A.)/100 = varies

Current O.A. damper setting (date, time, and HVAC operating mode): Off

Damper control sequence (describe): off

Condition of dampers and controls (note date): fair condition.

**Fans**

Control sequence: OFF

Condition (note date): _____

Indicated temperatures Supply air: _____ mixed air: _____ return air: _____ outdoor air: _____

Actual temperatures Supply air: _____ mixed air: _____ return air: _____ outdoor air: _____

**Coils**

Heating fluid discharge temperature: _____ΔT: _____ cooling fluid discharge temperate _____ΔT: _____

Controls (describe): _____

Condition (note date): _____

**Humidifier**

Type: _____ if biocide is used, note type: _____

Condition (no overflow, drains trapped, all nozzles working?): _____

No slime, visible growth, or mineral deposits? _____

**Boilers**

Rated Btu input ~1 million Condition: good

Combustion air: is there at least one square inch free area per 2,000 Btu input? yes

Fuel or combustion odors: N/A

**Cooling Tower**

Clean? No leaks or overflow: N/A Slime or algae growth? _____

Eliminator performance: _____

Biocide treatment working (list type of biocide): _____

Spill containment plan implemented? _____ Dirt separator working? _____

**Chillers**

Refrigerant leaks? N/A

Evidence of condensation problems? _____

Waste oil and refrigerant properly stored and disposed of? _____

**Distribution System**

| | | Supply Air | | Return Air | | Power Exhaust | | |
|---|---|---|---|---|---|---|---|---|
| Zone/ Room | System Type | Ducted/ unducted | Cfm* | Ducted/ unducted | cftm* | cfm* | Control | Serves (e.g. toilet) |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Condition of distribution system and terminal equipment (note locations of problems)

Adequate access for maintenance? yes

Ducts and coils clean and obstructed? yes

Air paths unobstructed? Supply ____ return: ____ transfer: ____ exhaust: make-up: ____

Note locations of blocked air paths, diffusers, or grilles: N/A

Any unintentional openings into plenums? N/A

Controls operating properly? yes

Air volume correct? yes

Drain pans clean? Any visible growth or odors? 6 MOS PM

**Filters**

| Location | Type/Rating | Size | Date last Changed | Condition (give date) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Occupied Space**

Thermostat Types: electronic BMS

| Zone Room | Thermostat Location | What does Thermostat Control? (e.g. radiator, AHU-3) | Setpoints | | Measured Temperature | Day/Time |
|---|---|---|---|---|---|---|
| | | | Summer | Winter | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Humidistats/Dehumidistats type: _____

| Zone/Room | Humidistat/ Dehumidistat Location | What Does it Control? | Setpoints (%RH) | Measured Temperature | Day/Time |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Potential problems (note location): _____

Thermal comfort or air circulation (drafts, obstructed airflow, stagnant air, overcrowding, poor thermostat location):

_____

_____

Malfunctioning equipment: _____

Major sources of odors of contaminants (e.g., poor sanitation, incompatible uses of space)

_____

Are there air distribution ducts present? (Yes)/No

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the location on the floor plan diagram.

_____

_____

_____

_____

_____

**Part IV – Occupancy**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

| Level | General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage) |
|---|---|
| Basement | None |
| 1st Floor | OFFice |
| 2nd floor | OFFice |
| 3rd floor | OFFice |
| 4th floor | None |

**Factors that May Influence Indoor Air Quality**

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y/ N/ NA

c. Area petroleum-powered machines or vehicles stored in the garage (e.g. lawnmower, atv, car) Y/ N/ NA Please specify _____

d. Has the building ever had a fire? Y / N When? _____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type?

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____

n. Is there a bathroom exhaust fant? Y / N If yes, where vented? _____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y/N

p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building? Y / N

If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are there clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) (No)
Yes, use dry-cleaning infrequently (monthly or less) (Unknown)
yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / (N) Date of Installation: _____

Is the system active or passive? Active/Passive

**PART V – OUTSIDE CONTAMINANT SOURCES**

Known contaminated site (1,000-ft. radius): Superfund site

Other stationary sources nearby (gas stations, emission stacks, etc.): gas station, air stripper

Heavy vehicular traffic nearby (or other mobile sources) and distance from building: ~300 ft

**PART VI – MISCELLANEOUS ITEMS**

Do any occupants of the building smoke? Yes / (No) How often? Bldg empty
Last time someone smoked in the building? Hours / days ago N/A

Does the building have an attached garage directly connected to living space? Yes / (No)
If so, is a car usually parked in the garage? Yes / No N/A

Are gas-powered equipment or cans of gasoline/fuels stored in the garage? Yes / No N/A

Do the occupants of the building have their clothes dry cleaned? Yes / No N/A
If yes, how often? Weekly / monthly / 304 times a year

Do any of the occupants use solvents in work? Yes / (No)
If yes, what types of solvents are used? _____
If yes, are their clothes washed work? Yes / No N/A

Have any pesticides/herbicides been applied around the building or in the yard? Yes / (No)
If so, when and which chemicals? _____

Has there ever been a fire in the building? Yes / (No) If yes, when? _____

Has painting or staining been done in the building in the last 6 months? Yes / (No)
If yes, when _____ and where? _____

Additional Notes: _____

## PART VII – INDOOR CONTAMINANT SOURCES See attached

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor and room), and whether the item was removed from the building 48 hours prior to indoor air sampling event. Any ventilation implemented after removal of the items should be completed at least 24 hours prior to the commencement of the indoor air sampling event.

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Gasoline storage cans | | | |
| Gas-powered equipment | | | |
| Kerosene storage cans | | | |
| Paints / thinners / strippers | | | |
| Cleaning solvents | | | |
| Oven cleaners | | | |
| Carpet / upholstery cleaners | | | |
| Other house cleaning products | | | |
| Moth balls | | | |
| Polishes / waxes | | | |
| Insecticides | | | |
| Furniture / floor polish | | | |
| Nail polish / polish remover | | | |
| Hairspray | | | |
| Cologne / perfume | | | |
| Air fresheners | | | |
| Fuel tank (inside building) | | | |
| Wood stove or fireplace | | | |
| New furniture / upholstery | | | |
| New carpeting / flooring | | | |

| Potential Sources | Brand Name | Location(s) | Removed (yes / No / NA) |
|---|---|---|---|
| Hobbies – glues, paints, etc. | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Additional Notes: _____

# APPENDIX B

# PHOTOGRAPHS

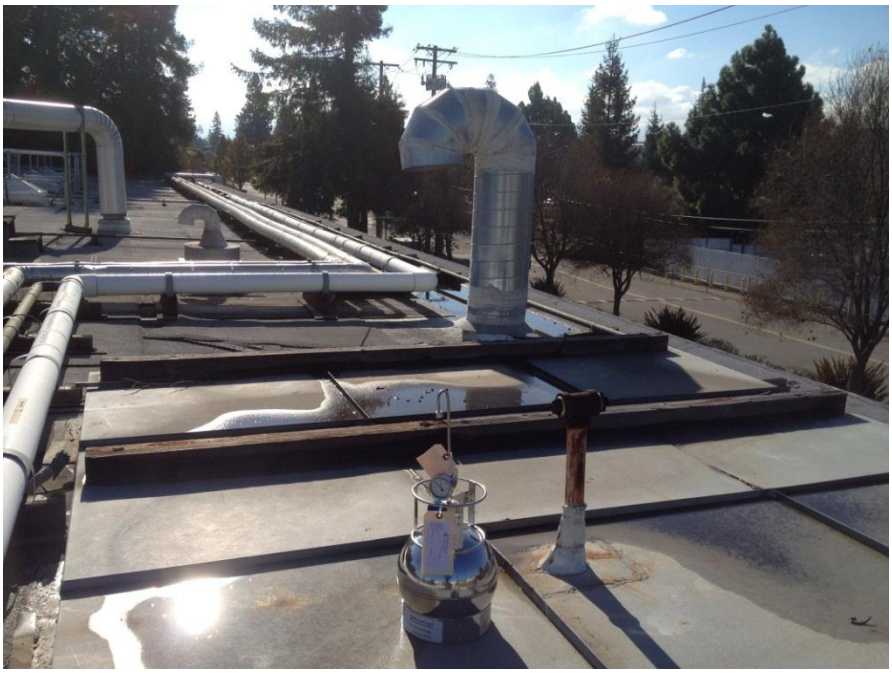
**Photograph 1: Indoor Air Sampling in Break Room, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 2: Indoor Air Sampling in Men's Room, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

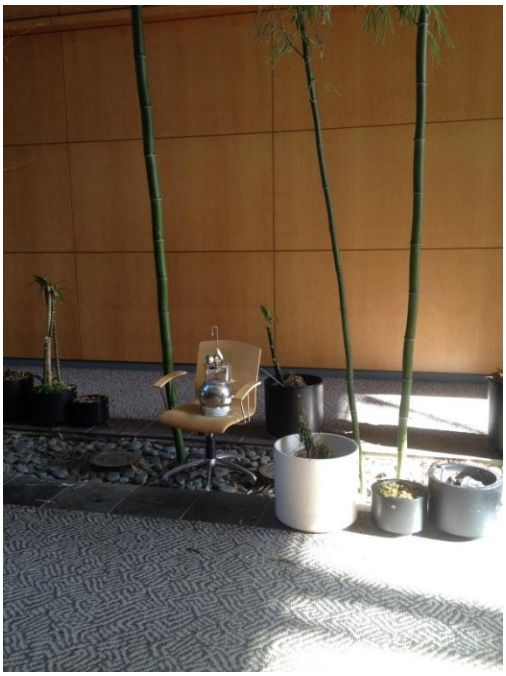
**Photograph 3: Indoor Air Sampling in Office, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 4: Indoor Air Sampling in Class Room 3, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 5: Indoor Air Sampling in Maintenance Shop, Building 19**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

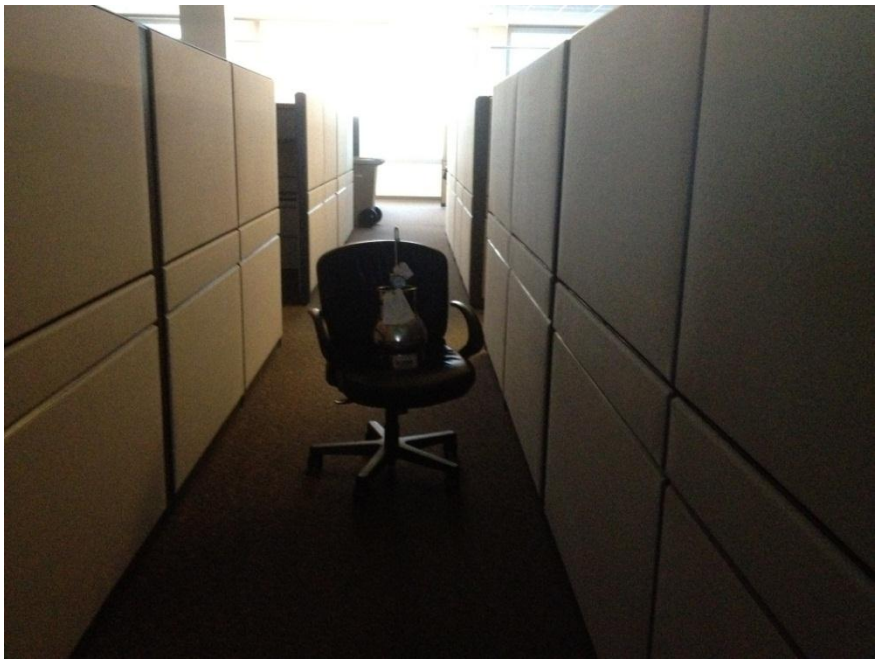


**Photograph 6: Ambient Air Sampling on roof, Building 19**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**



**Photograph 7: Indoor Air Sampling in Lobby, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

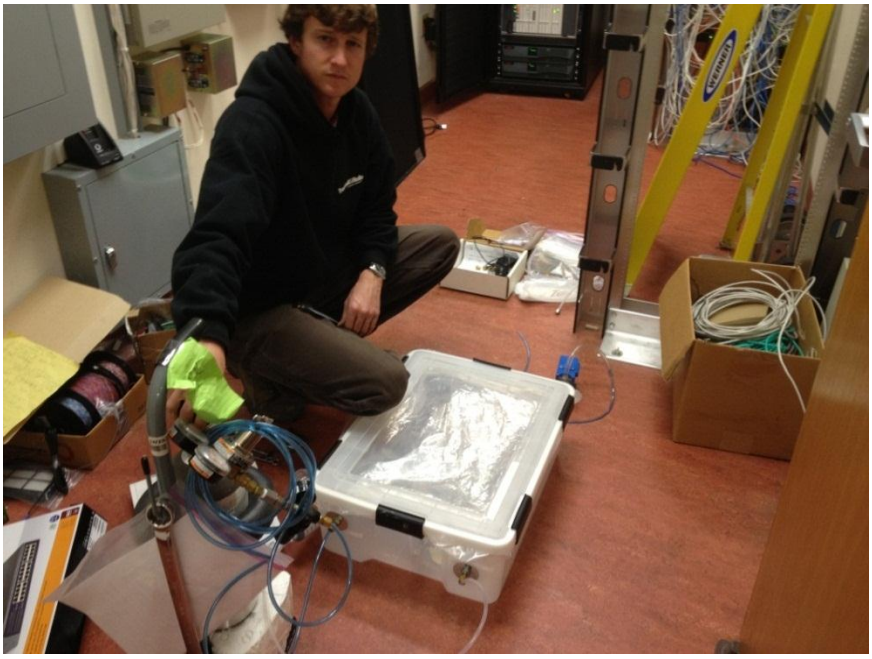
**Photograph 8: Indoor Air Sampling in Office, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**



**Photograph 9: Indoor Air Sampling in Office, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

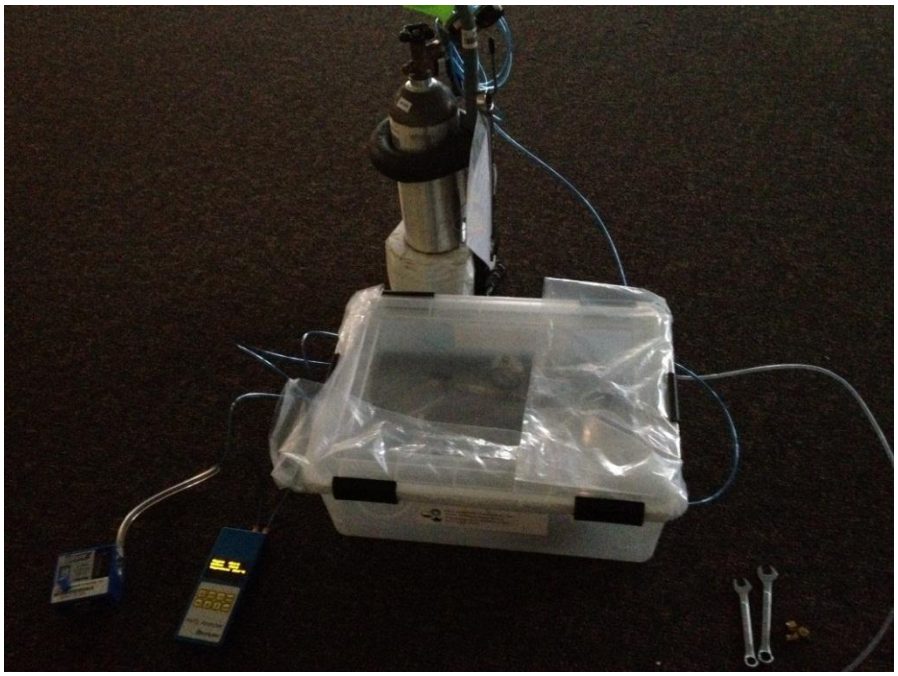
**Photograph 10: Indoor Air Sampling in Server Room, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 11: Pathway Sampling Outside Elevator, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**



**Photograph 12: Sub-Slab Sampling in Communication Room, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 13: Sub-Slab Sampling in Communication Room, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**



**Photograph 14: Sub-Slab Sampling in Office, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

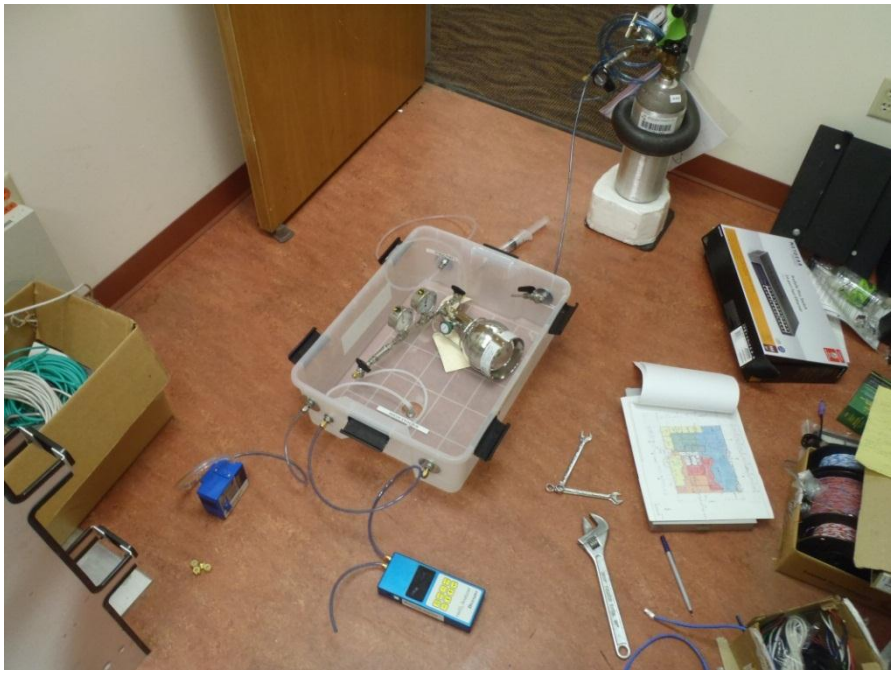
**Photograph 15: Sub-Slab Sampling in Communication Room, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 16: Sub-Slab Sampling in Communication Room, Building 9**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 20: Indoor Air Sampling with Duplicate in Office, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 21: Indoor Air Sampling in Office, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

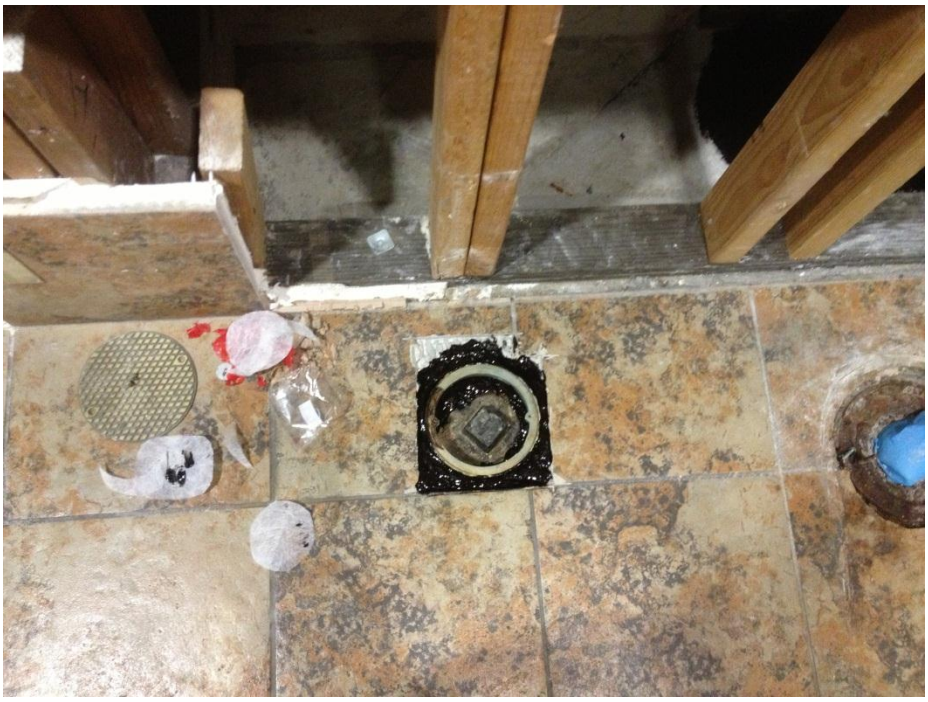
**Photograph 22: Sub-Slab Sampling in Store Room, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**



**Photograph 23: Sub-Slab Sampling in Communication Room, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 24: Sub-Slab Sampling in Communication Room, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: December 2012**

**Photograph 25: Penetration Sealing in the Men's Bathroom, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: March 2013**



**Photograph 26: Cleanout Sealing in the Men's Bathroom, Building 39**
***Texas Instruments, Santa Clara, CA***
**Date: March 2013**

**Photograph 34: Pathway Air Sampling in MPOE Room, Building G**
***Texas Instruments, Santa Clara, CA***
**Date: March 2014**

# APPENDIX C

# LABORATORY ANALYTICAL DATA

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 12/18/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 12/18/12 |

**WorkOrder: 1212396**

December 18, 2012

Dear Josh:

Enclosed within are:

1) The results of the **18** analyzed samples from your project: **#730377986; TI, Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1212396


**McCAMPBELL ANALYTICAL INC.**
1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269


# CHAIN OF CUSTODY RECORD

**TURN AROUND TIME** ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber Bill To: Treadwell & Rollo

Company: Treadwell & Rollo, A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111 E-Mail: jgraber@langan.com

Tele: (415) 955-5286 Fax: ( )

Project #: 730377986 Project Name: TJ, Santa Clara

Project Location: 2900 Semiconductor Dr, Santa Clara

Sampler Signature: Mukta Patil

**Lab Use Only**

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:

Other:

Notes: All samples are to be analyzed for TO-15 project specific list. Please send log in information & report to Josh, Dorinda, Mukta & Adam

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA1-9-2012-12-13 | 12-13-12 | 1632 | CAN4754-624 | SK7708-547 | TO-15 (SIM) | X | | -30" | -5.5" | | |
| IA2-9-2012-12-13 | 12-13-12 | 1546 | CAN4779-897 | SK9416-647 | TO-15 (SIM) | X | | -27" | -5" | | |
| IA3-9-2012-12-13 | 12-13-12 | 1630 | CAN3650-566 | SK24162-909 | TO-15 (SIM) | X | | -30" | -5" | | |
| IA4-9-2012-12-13 | 12-13-12 | 1559 | CAN4614-881 | SK24162-911 | TO-15 (SIM) | X | | -28" | -5" | | |
| IA1-19-2012-12-13 | 12-13 | 1640 | CAN3646-562 | SK24162-910 | TO-15 (SIM) | X | | -30 | -5" | | |
| IA2-19-2012-12-13 | 12-13 | 1637 | CAN7787-934 | SK8901-519 | TO-15 (SIM) | X | | -29 | -5" | | |
| IA3-19-2012-12-13 | 12-13 | 1650 | CAN2712-555 | SK7489-527 | TO-15 (SIM) | X | | -30 | -5" | | |
| PS1-19-2012-12-13 | 12-13 | 1640 | CAN4769-887 | SK4736-534 | TO-15 (SIM) | X | | -29 | -5.5" | | |
| AA-19-2012-12-13 | 12-13 | 1656 | CAN2735-558 | SK6825-943 | TO-15 (SIM) | X | | -30 | -6" | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 12-14-12 | 10:45 | Billy L. Lamm |
| | ~~12-14-12~~ | ~~10:45~~ | |
| Billy L. Lamm | 12-14-12 | 15:44 | [illegible] |

Temp (°C): _____ Work Order #: _____

Equipment Condition: _____

Shipped Via: _____

**McCAMPBELL ANALYTICAL INC.**
1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

**TURN AROUND TIME** ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber
Bill To: Treadwell & Rollo
Company: Treadwell & Rollo, A Langan Company
555 Montgomery St, Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI, Santa Clara
Project Location: 2900 Semiconductor Dr, Santa Clara
Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:

Notes: All samples are to be analyzed for TO-15 project specific list. Please send login information & report to Josh, Dorinda, Mukta & Adam

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA1-G-2012-12-13 | 12-13 | 1805 | CAN2711-554 | SK24162-907 | TO-15(SIM) | x | | -30" | -5" | | |
| DUP1-2012-12-13 | 12-13 | 1805 | CAN4616-883 | SK8644-923 | TO-15(SIM) | x | | -28" | -6" | | |
| IA2-G-2012-12-13 | 12-13 | 1743 | CAN4771-889 | SK6782-523 | TO-15(SIM) | x | | -29" | -5.5" | | |
| IA3-G-2012-12-13 | 12-13 | 1706 | CAN6039-804 | SK7571-921 | TO-15(SIM) | x | | -30" | -5" | | |
| IA4-G-2012-12-13 | 12-13 | 1647 | CAN4777-895 | SK24162-906 | TO-15(SIM) | x | | -26" | -5" | | |
| IA5-G-2012-12-13 | 12-13 | 1718 | CAN7741-929 | SK6106-927 | TO-15(SIM) | x | | -28" | -5.5" | | |
| PS1-G-2012-12-13 | 12-13 | 1745 | CAN3645-561 | SK6793-522 | TO-15(SIM) | x | | -28" | -5" | | |
| PS2-G-2012-12-13 | 12-13 | 1742 | CAN4753-623 | SK7853-544 | TO-15(SIM) | x | | -30" | -5" | | |
| PS3-G-2012-12-13 | 12-13 | 1746 | CAN4756-626 | SK9363-646 | TO-15(SIM) | x | | -30" | -5" | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 12-14 | 1045 | Billy L. Lemon |
| Billy L. Lemon | 12-14-12 | 1254 | [illegible] |
| | | | |

Temp (°C): _____ Work Order #: _____
Equipment Condition: _____
Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212396** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI, Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 12/14/2012
***Date Printed:*** 12/14/2012

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212396-001 | IA1-9-2012-12-13 | Indoor Air | 12/13/2012 16:32 | ☐ | A | | | | | | | | | | | |
| 1212396-002 | IA2-9-2012-12-13 | Indoor Air | 12/13/2012 15:46 | ☐ | A | | | | | | | | | | | |
| 1212396-003 | IA3-9-2012-12-13 | Indoor Air | 12/13/2012 16:30 | ☐ | A | | | | | | | | | | | |
| 1212396-004 | IA4-9-2012-12-13 | Indoor Air | 12/13/2012 15:59 | ☐ | A | | | | | | | | | | | |
| 1212396-005 | IA1-19-2012-12-13 | Indoor Air | 12/13/2012 16:40 | ☐ | A | | | | | | | | | | | |
| 1212396-006 | IA2-19-2012-12-13 | Indoor Air | 12/13/2012 16:37 | ☐ | A | | | | | | | | | | | |
| 1212396-007 | IA3-19-2012-12-13 | Indoor Air | 12/13/2012 16:50 | ☐ | A | | | | | | | | | | | |
| 1212396-008 | PS1-19-2012-12-13 | Indoor Air | 12/13/2012 16:40 | ☐ | A | | | | | | | | | | | |
| 1212396-009 | AA1-19-2012-12-13 | Indoor Air | 12/13/2012 16:56 | ☐ | A | | | | | | | | | | | |
| 1212396-010 | IA1-G-2012-12-13 | Indoor Air | 12/13/2012 18:05 | ☐ | A | | | | | | | | | | | |
| 1212396-011 | DUP1-2012-12-13 | Indoor Air | 12/13/2012 18:05 | ☐ | A | | | | | | | | | | | |
| 1212396-012 | IA2-G-2012-12-13 | Indoor Air | 12/13/2012 17:43 | ☐ | A | | | | | | | | | | | |
| 1212396-013 | IA3-G--2012-12-13 | Indoor Air | 12/13/2012 17:06 | ☐ | A | | | | | | | | | | | |
| 1212396-014 | IA4-G-2012-12-13 | Indoor Air | 12/13/2012 16:47 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212396** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI, Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 12/14/2012
***Date Printed:*** 12/14/2012

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212396-015 | IA5-G-2012-12-13 | Indoor Air | 12/13/2012 17:18 | ☐ | A | | | | | | | | | | | |
| 1212396-016 | PS1-G-2012-12-13 | Indoor Air | 12/13/2012 17:45 | ☐ | A | | | | | | | | | | | |
| 1212396-017 | PS2-G-2012-12-13 | Indoor Air | 12/13/2012 17:47 | ☐ | A | | | | | | | | | | | |
| 1212396-018 | PS3-G-2012-12-13 | Indoor Air | 12/13/2012 17:46 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **12/14/2012 1:09:32 PM** |
| Project Name: | **#730377986; TI, Santa Clara** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1212396** Matrix: Indoor Air | Carrier: | Client Drop-In |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| | Client Contact: Josh Graber | Date Reported: 12/18/12 |
| | Client P.O.: | Date Completed: 12/18/12 |

**Work Order: 1212396**

December 18, 2012

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The dissadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
*"When Quality Counts"*

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212396

| Lab ID | 1212396-001A | 1212396-002A | 1212396-003A | 1212396-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA1-9-2012-12-13 | IA2-9-2012-12-13 | IA3-9-2012-12-13 | IA4-9-2012-12-13 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.98 | 11.46 | 12.49 | 11.55 | | |
| Final Pressure (psia) | 12.98 | 11.46 | 12.49 | 11.55 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.23 | 0.26 | 0.16 | 0.11 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.066 | 0.077 | 0.052 | 0.052 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.12 | 0.18 | 0.094 | 0.13 | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | ND | ND | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.30 | 0.36 | 0.28 | 0.26 | 0.022 | NA |
| Freon 113 | ND | ND | ND | ND | 0.78 | NA |
| Methylene chloride | 0.47 | 0.57 | 0.45 | 0.67 | 0.35 | NA |
| Tetrachloroethene | 0.10 | 0.54 | 0.069 | 0.084 | 0.035 | NA |
| Toluene | 1.4 | 1.6 | 1.3 | 1.2 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.13 | 0.59 | 0.12 | 0.096 | 0.027 | NA |
| Trichlorofluoromethane | 1.2 | 1.6 | 1.4 | 1.4 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.4 | 1.6 | 1.3 | 1.2 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 83 | 92 | 81 | 84 | | |
| %SS2: | 90 | 98 | 89 | 90 | | |
| %SS3: | 90 | 99 | 89 | 90 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/14/12 |
| | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212396

| Lab ID | 1212396-005A | 1212396-006A | 1212396-007A | 1212396-008A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA1-19-2012-12-13 | IA2-19-2012-12-13 | IA3-19-2012-12-13 | PS1-19-2012-12-13 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.31 | 12.02 | 12.93 | 12.37 | | |
| Final Pressure (psia) | 12.31 | 12.02 | 12.93 | 12.37 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.18 | 0.24 | 0.16 | 0.17 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.088 | 0.085 | 0.080 | 0.085 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.078 | 0.079 | 0.081 | 0.088 | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | ND | ND | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 2.0 | 1.8 | 2.4 | 2.6 | 0.022 | NA |
| Freon 113 | ND | ND | ND | ND | 0.78 | NA |
| Methylene chloride | 0.84 | 0.90 | 0.87 | 0.93 | 0.35 | NA |
| Tetrachloroethene | 0.14 | 0.15 | 0.15 | 0.16 | 0.035 | NA |
| Toluene | 9.1 | 8.1 | 11 | 12 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.91 | 0.98 | 0.94 | 1.2 | 0.027 | NA |
| Trichlorofluoromethane | 1.5 | 1.8 | 1.7 | 1.2 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 11 | 9.3 | 13 | 13 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 89 | 102 | 100 | 101 | | |
| %SS2: | 96 | 110 | 107 | 109 | | |
| %SS3: | 95 | 107 | 104 | 106 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212396

| Lab ID | 1212396-009A | 1212396-010A | 1212396-011A | 1212396-012A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | AA1-19-2012-12-13 | IA1-G-2012-12-13 | DUP1-2012-12-13 | IA2-G-2012-12-13 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.68 | 12.92 | 12.02 | 12.38 | | |
| Final Pressure (psia) | 12.68 | 12.92 | 12.02 | 12.38 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.17 | 0.11 | 0.12 | 0.16 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.033 | 0.041 | 0.038 | 0.051 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.077 | 0.064 | 0.072 | 0.076 | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | ND | 0.026 | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.20 | 0.22 | 0.21 | 0.27 | 0.022 | NA |
| Freon 113 | ND | ND | ND | ND | 0.78 | NA |
| Methylene chloride | 0.41 | 0.43 | 0.43 | 0.55 | 0.35 | NA |
| Tetrachloroethene | 0.065 | 0.059 | 0.12 | 0.078 | 0.035 | NA |
| Toluene | 0.85 | 1.0 | 0.95 | 1.2 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.058 | 0.13 | 0.11 | 0.21 | 0.027 | NA |
| Trichlorofluoromethane | 1.1 | 0.68 | 1.1 | 1.6 | 0.57 | NA |
| Vinyl Chloride | 0.048 | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 0.88 | 1.0 | 0.94 | 1.2 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 84 | 83 | 83 | 101 | | |
| %SS2: | 91 | 89 | 90 | 108 | | |
| %SS3: | 90 | 85 | 87 | 104 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM Analytical Method: TO15 Work Order: 1212396

| Lab ID | 1212396-013A | 1212396-014A | 1212396-015A | 1212396-016A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA3-G--2012-12-13 | IA4-G-2012-12-13 | IA5-G-2012-12-13 | PS1-G-2012-12-13 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.62 | 10.64 | 11.89 | 12.32 | | |
| Final Pressure (psia) | 12.62 | 10.64 | 11.89 | 12.32 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.32 | 0.22 | 0.24 | 0.21 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.078 | 0.069 | 0.043 | 0.045 | 0.031 | NA |
| 1,1-Dichloroethane | ND | 0.71 | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.077 | 0.079 | 0.068 | 0.064 | 0.021 | NA |
| 1,1-Dichloroethene | 0.041 | 0.051 | ND | 0.022 | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.39 | 0.32 | 0.23 | 0.24 | 0.022 | NA |
| Freon 113 | ND | 1.6 | ND | ND | 0.78 | NA |
| Methylene chloride | 1.2 | 0.59 | 0.53 | 0.74 | 0.35 | NA |
| Tetrachloroethene | 0.11 | 0.32 | 0.065 | 0.084 | 0.035 | NA |
| Toluene | 1.8 | 1.5 | 1.0 | 1.1 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | 0.80 | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.33 | 1.4 | 0.15 | 0.22 | 0.027 | NA |
| Trichlorofluoromethane | 1.5 | 2.7 | 1.4 | 1.5 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.8 | 1.4 | 1.1 | 1.1 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 100 | 99 | 84 | 85 | | |
| %SS2: | 109 | 107 | 91 | 90 | | |
| %SS3: | 105 | 106 | 88 | 88 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI, Santa Clara | Date Sampled: 12/13/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/14/12 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212396

| Lab ID | 1212396-017A | 1212396-018A | | | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | PS2-G-2012-12-13 | PS3-G-2012-12-13 | | | | |
| Matrix | Indoor Air | Indoor Air | | | Indoor Air | W |
| Initial Pressure (psia) | 13.01 | 12.33 | | | | |
| Final Pressure (psia) | 13.01 | 12.33 | | | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | | | 0.47 | NA |
| Chloroethane | ND | ND | | | 0.27 | NA |
| Chloroform | 0.21 | 0.24 | | | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | | | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.058 | 0.062 | | | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | | | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.077 | 0.081 | | | 0.021 | NA |
| 1,1-Dichloroethene | 0.024 | ND | | | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| Ethylbenzene | 0.30 | 0.31 | | | 0.022 | NA |
| Freon 113 | ND | ND | | | 0.78 | NA |
| Methylene chloride | 3.8 | 0.63 | | | 0.35 | NA |
| Tetrachloroethene | 0.084 | 0.084 | | | 0.035 | NA |
| Toluene | 1.4 | 1.5 | | | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | | | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | | | 0.098 | NA |
| Trichloroethene | 0.24 | 0.25 | | | 0.027 | NA |
| Trichlorofluoromethane | 1.6 | 1.6 | | | 0.57 | NA |
| Vinyl Chloride | ND | ND | | | 0.031 | NA |
| Xylenes, Total | 1.4 | 1.4 | | | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 100 | 98 | | | | |
| %SS2: | 110 | 108 | | | | |
| %SS3: | 107 | 104 | | | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73283 | WorkOrder: 1212396

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Benzene | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 0.050 | N/A | N/A | N/A | 116 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 0.050 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 0.050 | N/A | N/A | N/A | 112 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 0.050 | N/A | N/A | N/A | 112 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 0.050 | N/A | N/A | N/A | 108 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 0.050 | N/A | N/A | N/A | 122 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 101 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 77.7 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 0.050 | N/A | N/A | N/A | 120 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 0.050 | N/A | N/A | N/A | 86.4 | N/A | N/A | 60 - 140 |
| Naphthalene | N/A | 0.050 | N/A | N/A | N/A | 76.1 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 0.050 | N/A | N/A | N/A | 112 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| Xylenes, Total | N/A | 0.15 | N/A | N/A | N/A | 119 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 0.0025 | N/A | N/A | N/A | 100 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 0.0025 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 0.0025 | N/A | N/A | N/A | 101 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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AR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73283 | WorkOrder: 1212396

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73283 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212396-001A | 12/13/12 4:32 PM | 12/14/12 | 12/14/12 7:54 PM | 1212396-002A | 12/13/12 3:46 PM | 12/14/12 | 12/14/12 8:58 PM |
| 1212396-003A | 12/13/12 4:30 PM | 12/14/12 | 12/14/12 9:55 PM | 1212396-004A | 12/13/12 3:59 PM | 12/14/12 | 12/14/12 10:58 PM |
| 1212396-005A | 12/13/12 4:40 PM | 12/14/12 | 12/14/12 11:56 PM | 1212396-006A | 12/13/12 4:37 PM | 12/15/12 | 12/15/12 12:57 AM |
| 1212396-007A | 12/13/12 4:50 PM | 12/15/12 | 12/15/12 1:54 AM | 1212396-008A | 12/13/12 4:40 PM | 12/15/12 | 12/15/12 2:58 AM |
| 1212396-009A | 12/13/12 4:56 PM | 12/15/12 | 12/15/12 4:01 AM | 1212396-010A | 12/13/12 6:05 PM | 12/15/12 | 12/15/12 5:09 AM |
| 1212396-011A | 12/13/12 6:05 PM | 12/15/12 | 12/15/12 6:26 AM | | | | |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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AR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73373 | WorkOrder: 1212396

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Benzene | N/A | 0.050 | N/A | N/A | N/A | 113 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 0.050 | N/A | N/A | N/A | 112 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 0.050 | N/A | N/A | N/A | 122 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 0.050 | N/A | N/A | N/A | 113 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 0.050 | N/A | N/A | N/A | 116 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 0.050 | N/A | N/A | N/A | 108 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 0.050 | N/A | N/A | N/A | 121 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 96.3 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 0.050 | N/A | N/A | N/A | 120 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 0.050 | N/A | N/A | N/A | 121 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 0.050 | N/A | N/A | N/A | 116 | N/A | N/A | 60 - 140 |
| Naphthalene | N/A | 0.050 | N/A | N/A | N/A | 61.8 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 121 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 0.050 | N/A | N/A | N/A | 119 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 0.050 | N/A | N/A | N/A | 111 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 0.050 | N/A | N/A | N/A | 98.9 | N/A | N/A | 60 - 140 |
| Xylenes, Total | N/A | 0.15 | N/A | N/A | N/A | 124 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 0.0025 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 0.0025 | N/A | N/A | N/A | 111 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 0.0025 | N/A | N/A | N/A | 108 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

AR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73373 | WorkOrder: 1212396

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73373 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212396-012A | 12/13/12 5:43 PM | 12/17/12 | 12/17/12 3:42 PM | 1212396-013A | 12/13/12 5:06 PM | 12/17/12 | 12/17/12 4:44 PM |
| 1212396-014A | 12/13/12 4:47 PM | 12/17/12 | 12/17/12 5:57 PM | 1212396-015A | 12/13/12 5:18 PM | 12/17/12 | 12/17/12 6:58 PM |
| 1212396-016A | 12/13/12 5:45 PM | 12/17/12 | 12/17/12 7:57 PM | 1212396-017A | 12/13/12 5:47 PM | 12/17/12 | 12/17/12 8:55 PM |
| 1212396-018A | 12/13/12 5:46 PM | 12/17/12 | 12/17/12 9:55 PM | | | | |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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_____ QA/QC Officer

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# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; Vapor Intrusion Assessment | Date Sampled: 12/13/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/14/12 |
| | Client Contact: Josh Graber | Date Reported: 12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 12/17/12 |

**WorkOrder: 1212397**

December 18, 2012

Dear Josh:

Enclosed within are:

1) The results of the **4** analyzed samples from your project: **#730377986; Vapor Intrusion Assessment,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1212397

# McCAMPBELL ANALYTICAL INC.

1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☑ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber
Bill To: SAME
Company: Treadwell and Rollo
E-Mail: JGraber@langan.com
Tele: (415) 955-5200
Fax: ( )
Project #: 730377486
Project Name: Vapor Intrusion Assessment
Project Location: Santa Clara
Sampler Signature: Adam Bonn

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:

Other:

Notes: Analyze all samples for helium as well. Report to Josh, Dorigday, Adam, and Mukta.

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 6406-793 | AB | | | | | | | |
| SS1-39-2012-12-13 | 12/13/12 | 1151 | ~~5861-732~~ AB | 316-667 | TO-15 Project List | | X | -30 | -5 | | |
| DUP-01-39-2012-12-13 | | 1151 | ~~6171-757~~ | 316-667 | TO-15 Project List | | X | -30 | -5 | | |
| SS2-39-2012-12-13 | | 1452 | ~~6303-735~~ 6167-753 | 316-819 | TO-15 Project List | | X | -30 | -5 | | |
| SS3-39-2012-12-13 | 12/13/12 | 1335 | 5806-737 | 316-815 | TO-15 Project List | | X | -30 | -5 | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 12-14 | 1045 | Billy L. Lemon |
| Billy L. Lemon | 12-14-12 | 1254 | [illegible] |
| | | | |

Temp (°C): _____ Work Order #: _____

Equipment Condition: _____

Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212397** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; Vapor Intrusion Assessment

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 12/14/2012
***Date Printed:*** 12/14/2012

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212397-001 | SS1-39-2012-12-13 | Soil Gas | 12/13/2012 11:51 | ☐ | A | | | | | | | | | | | |
| 1212397-002 | DUP-01-39-2012-12-13 | Soil Gas | 12/13/2012 11:51 | ☐ | A | | | | | | | | | | | |
| 1212397-003 | SS2-39-2012-12-13 | Soil Gas | 12/13/2012 14:52 | ☐ | A | | | | | | | | | | | |
| 1212397-004 | SS3-39-2012-12-13 | Soil Gas | 12/13/2012 13:35 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SOIL(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

The following SampIDs: 001A, 002A, 003A, 004A contain testgroup.

**Prepared by: Maria Venegas**

**Comments:** SEND HARD COPY

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **12/14/2012 2:01:01 PM** |
| Project Name: | **#730377986; Vapor Intrusion Assessment** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1212397** Matrix: Soil Gas | Carrier: | Courier |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; Vapor Intrusion Assessment | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| | Client Contact: Josh Graber | Date Reported: 12/17/12 |
| | Client P.O.: | Date Completed: 12/17/12 |

**Work Order: 1212397**

December 17, 2012

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The dissadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____ Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; Vapor Intrusion Assessment | Date Sampled: 12/13/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/14/12 |
| | Client Contact: Josh Graber | Date Extracted: 12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/17/12 |

## Helium*

Extraction method: ASTM D 1946-90 Analytical methods: ASTM D 1946-90 Work Order: 1212397

| Lab ID | Client ID | Matrix | Initial Pressure | Final Pressure | Helium | DF | % SS | Comments |
|---|---|---|---|---|---|---|---|---|
| 001A | SS1-39-2012-12-13 | Soil Gas | 12.58 | 25.06 | 0.028 | 1 | N/A | |
| 002A | DUP-01-39-2012-12-13 | Soil Gas | 12.58 | 25.08 | 0.026 | 1 | N/A | |
| 003A | SS2-39-2012-12-13 | Soil Gas | 12.66 | 25.30 | 0.019 | 1 | N/A | |
| 004A | SS3-39-2012-12-13 | Soil Gas | 12.46 | 24.84 | 0.042 | 1 | N/A | |

| | | | | | |
|---|---|---|---|---|---|
| Reporting Limit for DF =1; ND means not detected at or above the reporting limit | W | psia | psia | NA | NA |
| | SoilGas | psia | psia | 0.005 | % |

* vapor samples are reported in %.

%SS = Percent Recovery of Surrogate Standard

DF = Dilution Factor

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Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; Vapor Intrusion Assessment | Date Sampled: 12/13/12 |
| | | Date Received: 12/14/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/14/12-12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/14/12-12/17/12 |

## Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 Analytical Method: TO15 Work Order: 1212397

| Lab ID | 1212397-001A | 1212397-002A | 1212397-003A | 1212397-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | SS1-39-2012-12-13 | DUP-01-39-2012-12-13 | SS2-39-2012-12-13 | SS3-39-2012-12-13 | | |
| Matrix | Soil Gas | Soil Gas | Soil Gas | Soil Gas | | |
| DF | 1 | 1 | 1 | 1 | Soil Gas | W |
| Initial Pressure (psia) | 12.58 | 12.58 | 12.66 | 12.46 | | |
| Final Pressure (psia) | 25.06 | 25.08 | 25.30 | 24.84 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 9.4 | NA |
| Chloroethane | ND | ND | ND | ND | 5.4 | NA |
| Chloroform | 5.0 | 4.9 | ND | ND | 2.2 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 12 | NA |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 4.4 | NA |
| 1,1-Dichloroethane | 110 | 110 | ND | 9.1 | 8.2 | NA |
| 1,2-Dichloroethane (1,2-DCA) | ND | ND | ND | ND | 1.9 | NA |
| 1,1-Dichloroethene | 37 | 37 | ND | ND | 8.1 | NA |
| cis-1,2-Dichloroethene | 81 | 83 | ND | 55 | 8.1 | NA |
| trans-1,2-Dichloroethene | 6.3 | 6.3 | ND | 4.7 | 1.9 | NA |
| Ethylbenzene | ND | ND | ND | ND | 8.8 | NA |
| Freon 113 | 2500 | 2800 | 150 | 540 | 16 | NA |
| Methylene chloride | ND | ND | ND | ND | 7.1 | NA |
| Tetrachloroethene | 210 | 210 | 11 | 54 | 8.2 | NA |
| Toluene | ND | ND | ND | ND | 7.7 | NA |
| 1,1,1-Trichloroethane | 300 | 300 | ND | 33 | 11 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 3.0 | NA |
| Trichloroethene | 1000 | 1000 | 82 | 510 | 11 | NA |
| Trichlorofluoromethane | ND | ND | ND | ND | 11 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 1.3 | NA |
| Xylenes, Total | ND | ND | ND | ND | 27 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 88 | 89 | 88 | 90 | | |
| %SS2: | 89 | 89 | 90 | 89 | | |
| %SS3: | 84 | 83 | 83 | 83 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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# QC SUMMARY REPORT FOR ASTM D 1946-90

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73355 | WorkOrder: 1212397

**EPA Method: ASTM D 1946-90** **Extraction: ASTM D 1946-90** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | % | % | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Helium | N/A | 0.010 | N/A | N/A | N/A | 102 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73355 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212397-001A | 12/13/12 11:51 AM | 12/17/12 | 12/17/12 2:50 PM | 1212397-002A | 12/13/12 11:51 AM | 12/17/12 | 12/17/12 3:03 PM |
| 1212397-003A | 12/13/12 2:52 PM | 12/17/12 | 12/17/12 3:16 PM | 1212397-004A | 12/13/12 1:35 PM | 12/17/12 | 12/17/12 3:30 PM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73343 | WorkOrder: 1212397

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Acrylonitrile | N/A | 25 | N/A | N/A | N/A | 97.1 | N/A | N/A | 60 - 140 |
| tert-Amyl methyl ether (TAME) | N/A | 25 | N/A | N/A | N/A | 90.9 | N/A | N/A | 60 - 140 |
| Benzene | N/A | 25 | N/A | N/A | N/A | 85.5 | N/A | N/A | 60 - 140 |
| Benzyl chloride | N/A | 25 | N/A | N/A | N/A | 86.1 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 25 | N/A | N/A | N/A | 92.2 | N/A | N/A | 60 - 140 |
| Bromoform | N/A | 25 | N/A | N/A | N/A | 97 | N/A | N/A | 60 - 140 |
| t-Butyl alcohol (TBA) | N/A | 25 | N/A | N/A | N/A | 89.8 | N/A | N/A | 60 - 140 |
| Carbon Disulfide | N/A | 25 | N/A | N/A | N/A | 91.1 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 25 | N/A | N/A | N/A | 89.7 | N/A | N/A | 60 - 140 |
| Chlorobenzene | N/A | 25 | N/A | N/A | N/A | 84.3 | N/A | N/A | 60 - 140 |
| Chloroethane | N/A | 25 | N/A | N/A | N/A | 124 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 25 | N/A | N/A | N/A | 87.2 | N/A | N/A | 60 - 140 |
| Chloromethane | N/A | 25 | N/A | N/A | N/A | 107 | N/A | N/A | 60 - 140 |
| Dibromochloromethane | N/A | 25 | N/A | N/A | N/A | 95.9 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 25 | N/A | N/A | N/A | 108 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 25 | N/A | N/A | N/A | 87 | N/A | N/A | 60 - 140 |
| 1,2-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 82.3 | N/A | N/A | 60 - 140 |
| 1,3-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 82.5 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 77 | N/A | N/A | 60 - 140 |
| Dichlorodifluoromethane | N/A | 25 | N/A | N/A | N/A | 111 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethane | N/A | 25 | N/A | N/A | N/A | 90 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 25 | N/A | N/A | N/A | 86.6 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 74.1 | N/A | N/A | 60 - 140 |
| cis-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 88.3 | N/A | N/A | 60 - 140 |
| trans-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 89.6 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 25 | N/A | N/A | N/A | 92.7 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 90.7 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 91.7 | N/A | N/A | 60 - 140 |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane | N/A | 25 | N/A | N/A | N/A | 109 | N/A | N/A | 60 - 140 |
| Diisopropyl ether (DIPE) | N/A | 25 | N/A | N/A | N/A | 90.5 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 25 | N/A | N/A | N/A | 85.2 | N/A | N/A | 60 - 140 |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73343 | WorkOrder: 1212397

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Ethyl acetate | N/A | 25 | N/A | N/A | N/A | 86.6 | N/A | N/A | 60 - 140 |
| Ethyl tert-butyl ether (ETBE) | N/A | 25 | N/A | N/A | N/A | 87.8 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 25 | N/A | N/A | N/A | 79.4 | N/A | N/A | 60 - 140 |
| Freon 113 | N/A | 25 | N/A | N/A | N/A | 96.7 | N/A | N/A | 60 - 140 |
| Hexachlorobutadiene | N/A | 25 | N/A | N/A | N/A | 68.6 | N/A | N/A | 60 - 140 |
| 4-Methyl-2-pentanone (MIBK) | N/A | 25 | N/A | N/A | N/A | 87.8 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 25 | N/A | N/A | N/A | 89.4 | N/A | N/A | 60 - 140 |
| Methylene chloride | N/A | 25 | N/A | N/A | N/A | 92.3 | N/A | N/A | 60 - 140 |
| Naphthalene | N/A | 25 | N/A | N/A | N/A | 88.1 | N/A | N/A | 60 - 140 |
| Styrene | N/A | 25 | N/A | N/A | N/A | 85.1 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 92.2 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 89.5 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 25 | N/A | N/A | N/A | 78.4 | N/A | N/A | 60 - 140 |
| Tetrahydrofuran | N/A | 25 | N/A | N/A | N/A | 77.3 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 25 | N/A | N/A | N/A | 86.8 | N/A | N/A | 60 - 140 |
| 1,2,4-Trichlorobenzene | N/A | 25 | N/A | N/A | N/A | 78.6 | N/A | N/A | 60 - 140 |
| 1,1,1-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 88.3 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 88.4 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 25 | N/A | N/A | N/A | 84.6 | N/A | N/A | 60 - 140 |
| 1,2,4-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 84.3 | N/A | N/A | 60 - 140 |
| 1,3,5-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 83.1 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 25 | N/A | N/A | N/A | 115 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 500 | N/A | N/A | N/A | 84 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 500 | N/A | N/A | N/A | 88 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 500 | N/A | N/A | N/A | 83 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73343 | WorkOrder: 1212397

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73343 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212397-001A | 12/13/12 11:51 AM | 12/14/12 | 12/14/12 9:45 PM | 1212397-001A | 12/13/12 11:51 AM | 12/17/12 | 12/17/12 1:15 PM |
| 1212397-002A | 12/13/12 11:51 AM | 12/14/12 | 12/14/12 10:26 PM | 1212397-002A | 12/13/12 11:51 AM | 12/17/12 | 12/17/12 1:55 PM |
| 1212397-003A | 12/13/12 2:52 PM | 12/14/12 | 12/14/12 11:07 PM | 1212397-004A | 12/13/12 1:35 PM | 12/14/12 | 12/14/12 11:48 PM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

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# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/15/12 |
| | | Date Received: 12/17/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 12/20/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 12/20/12 |

**WorkOrder: 1212447**

December 20, 2012

Dear Josh:

Enclosed within are:

1) The results of the **7** analyzed samples from your project: **#730377986; TI Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1212447

# McCAMPBELL ANALYTICAL INC.

1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber
Bill To: Treadwell & Rollo
Company: Treadwell & Rollo, A Langan Company
555 Montgomery St, Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI Santa Clara
Project Location: 2900 Semiconductor Dr
Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:
Notes:

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Final | Receipt | Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SS1-F-2012-12-15 | 12-15 | 0814 | CAN6420-851 | MAN316-321 | TO-15 Proj list, He | | X | -26" | -5" | | |
| SS1-E-2012-12-15 | 12-15 | 1017 | CAN6202-743 | MAN316T-780 | TO-15 Proj list, He | | X | -25" | -5" | | |
| SS2-E-2012-12-15 | 12-15 | 1250 | CAN7519-867 | MAN316T-779 | TO-15 Proj list, He | | X | -30" | -5" | | |
| SS1-C-2012-12-15 | 12-15 | 1515 | CAN7526-874 | MAN316-825 | TO-15 Proj list, He | | X | -30" | -5" | | |
| SS2-C-2012-12-15 | 12-15 | 1551 | CAN5800-731 | MAN316T-992 | TO-15 Proj list, He | | X | -29" | -5" | | |
| SS3-C-2012-12-15 | 12-15 | 1346 | CAN6201-742 | MAN316-681 | TO-15 Proj list, He | | X | -30" | -5" | | |
| SS4-C-2012-12-15 | 12-15 | 1431 | CAN1461-584 | MAN316T-774 | TO-15 Proj list, He | | X | -29" | -5" | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| [signature] | 12/17/12 | 1230 | [signature] |
| [signature] | 12/17/12 | 1530 | [signature] |
| | | | |

Temp (°C): _____ Work Order #: _____

Equipment Condition: _____

Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212447** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 12/17/2012
***Date Printed:*** 12/17/2012

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212447-001 | SS1-F-2012-12-15 | Soil Gas | 12/15/2012 8:14 | ☐ | A | | | | | | | | | | | |
| 1212447-002 | SS1-E-2012-12-15 | Soil Gas | 12/15/2012 10:17 | ☐ | A | | | | | | | | | | | |
| 1212447-003 | SS2-E-2012-12-15 | Soil Gas | 12/15/2012 12:50 | ☐ | A | | | | | | | | | | | |
| 1212447-004 | SS1-C-2012-12-15 | Soil Gas | 12/15/2012 15:15 | ☐ | A | | | | | | | | | | | |
| 1212447-005 | SS2-C-2012-12-15 | Soil Gas | 12/15/2012 15:51 | ☐ | A | | | | | | | | | | | |
| 1212447-006 | SS3-C-2012-12-15 | Soil Gas | 12/15/2012 13:46 | ☐ | A | | | | | | | | | | | |
| 1212447-007 | SS4-C-2012-12-15 | Soil Gas | 12/15/2012 14:31 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SOIL(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A contain testgroup.

**Prepared by: Maria Venegas**

**Comments:** SEND HARD COPY

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **12/17/2012 3:26:38 PM** |
| Project Name: | **#730377986; TI Santa Clara** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1212447** Matrix: Soil Gas | Carrier: | Rob Pringle (MAI Courier) |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/15/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/17/12 |
| | Client Contact: Josh Graber | Date Extracted: 12/17/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/17/12 |

## Helium*

Extraction method: ASTM D 1946-90 Analytical methods: ASTM D 1946-90 Work Order: 1212447

| Lab ID | Client ID | Matrix | Initial Pressure | Final Pressure | Helium | DF | % SS | Comments |
|---|---|---|---|---|---|---|---|---|
| 001A | SS1-F-2012-12-15 | Soil Gas | 11.91 | 23.74 | 0.017 | 1 | N/A | |
| 002A | SS1-E-2012-12-15 | Soil Gas | 12.66 | 25.23 | ND | 1 | N/A | |
| 003A | SS2-E-2012-12-15 | Soil Gas | 13.68 | 27.26 | ND | 1 | N/A | |
| 004A | SS1-C-2012-12-15 | Soil Gas | 12.62 | 25.14 | 0.031 | 1 | N/A | |
| 005A | SS2-C-2012-12-15 | Soil Gas | 12.43 | 24.76 | ND | 1 | N/A | |
| 006A | SS3-C-2012-12-15 | Soil Gas | 12.74 | 25.39 | 0.019 | 1 | N/A | |
| 007A | SS4-C-2012-12-15 | Soil Gas | 11.63 | 23.28 | ND | 1 | N/A | |

| | | | | | |
|---|---|---|---|---|---|
| Reporting Limit for DF =1; ND means not detected at or above the reporting limit | W | psia | psia | NA | NA |
| | SoilGas | psia | psia | 0.005 | % |

* vapor samples are reported in %.

%SS = Percent Recovery of Surrogate Standard

DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/15/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/17/12 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 12/18/12-12/19/12 |
| | Client P.O.: | Date Analyzed: 12/18/12-12/19/12 |

## Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 Analytical Method: TO15 Work Order: 1212447

| Lab ID | 1212447-001A | 1212447-002A | 1212447-003A | 1212447-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | SS1-F-2012-12-15 | SS1-E-2012-12-15 | SS2-E-2012-12-15 | SS1-C-2012-12-15 | | |
| Matrix | Soil Gas | Soil Gas | Soil Gas | Soil Gas | | |
| DF | 1 | 1 | 1 | 1 | Soil Gas | W |
| Initial Pressure (psia) | 11.91 | 12.66 | 13.68 | 12.62 | | |
| Final Pressure (psia) | 23.74 | 25.23 | 27.26 | 25.14 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 9.4 | NA |
| Chloroethane | ND | ND | ND | ND | 5.4 | NA |
| Chloroform | ND | ND | 8.7 | ND | 2.2 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 12 | NA |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 4.4 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 8.2 | NA |
| 1,2-Dichloroethane (1,2-DCA) | ND | ND | ND | ND | 1.9 | NA |
| 1,1-Dichloroethene | ND | ND | ND | ND | 8.1 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 8.1 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 1.9 | NA |
| Ethylbenzene | ND | ND | ND | ND | 8.8 | NA |
| Freon 113 | ND | ND | 190 | 69 | 16 | NA |
| Methylene chloride | ND | ND | ND | ND | 7.1 | NA |
| Tetrachloroethene | ND | ND | 81 | 5200 | 8.2 | NA |
| Toluene | 9.4 | ND | 8.7 | 17 | 7.7 | NA |
| 1,1,1-Trichloroethane | ND | ND | 46 | 850 | 11 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 3.0 | NA |
| Trichloroethene | ND | ND | 800 | ND | 11 | NA |
| Trichlorofluoromethane | ND | ND | 38 | ND | 11 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 1.3 | NA |
| Xylenes, Total | ND | ND | ND | ND | 27 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 102 | 103 | 101 | 94 | | |
| %SS2: | 101 | 99 | 101 | 103 | | |
| %SS3: | 91 | 90 | 94 | 93 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

c2) low surrogate recovery, caused by matrix interference.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
*"When Quality Counts"*

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/15/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/17/12 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 12/18/12-12/19/12 |
| | Client P.O.: | Date Analyzed: 12/18/12-12/19/12 |

## Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 | Analytical Method: TO15 | Work Order: 1212447

| Lab ID | 1212447-005A | 1212447-006A | 1212447-007A | | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | SS2-C-2012-12-15 | SS3-C-2012-12-15 | SS4-C-2012-12-15 | | | |
| Matrix | Soil Gas | Soil Gas | Soil Gas | | | |
| DF | 1 | 1 | 1 | | Soil Gas | W |
| Initial Pressure (psia) | 12.43 | 12.74 | 11.63 | | | |
| Final Pressure (psia) | 24.76 | 25.39 | 23.28 | | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | | 9.4 | NA |
| Chloroethane | ND | ND | ND | | 5.4 | NA |
| Chloroform | ND | ND | ND | | 2.2 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | | 12 | NA |
| 1,4-Dichlorobenzene | ND | ND | ND | | 4.4 | NA |
| 1,1-Dichloroethane | ND | ND | ND | | 8.2 | NA |
| 1,2-Dichloroethane (1,2-DCA) | ND | ND | ND | | 1.9 | NA |
| 1,1-Dichloroethene | ND | ND | ND | | 8.1 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | | 8.1 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | | 1.9 | NA |
| Ethylbenzene | ND | ND | ND | | 8.8 | NA |
| Freon 113 | ND | ND | ND | | 16 | NA |
| Methylene chloride | ND | ND | ND | | 7.1 | NA |
| Tetrachloroethene | 110 | 23 | ND | | 8.2 | NA |
| Toluene | ND | 52 | 36 | | 7.7 | NA |
| 1,1,1-Trichloroethane | 24 | 21 | ND | | 11 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | | 3.0 | NA |
| Trichloroethene | 69 | ND | ND | | 11 | NA |
| Trichlorofluoromethane | 24 | ND | ND | | 11 | NA |
| Vinyl Chloride | ND | ND | ND | | 1.3 | NA |
| Xylenes, Total | ND | ND | ND | | 27 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 97 | ---# | 96 | | | |
| %SS2: | 100 | 103 | 102 | | | |
| %SS3: | 91 | 93 | 93 | | | |
| **Comments** | | c2 | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

c2) low surrogate recovery, caused by matrix interference.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# QC SUMMARY REPORT FOR ASTM D 1946-90

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73355 | WorkOrder: 1212447

**EPA Method: ASTM D 1946-90** **Extraction: ASTM D 1946-90** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | % | % | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Helium | N/A | 0.010 | N/A | N/A | N/A | 102 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73355 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212447-001A | 12/15/12 8:14 AM | 12/17/12 | 12/17/12 6:09 PM | 1212447-002A | 12/15/12 10:17 AM | 12/17/12 | 12/17/12 6:22 PM |
| 1212447-003A | 12/15/12 12:50 PM | 12/17/12 | 12/17/12 6:35 PM | 1212447-004A | 12/15/12 3:15 PM | 12/17/12 | 12/17/12 6:42 PM |
| 1212447-005A | 12/15/12 3:51 PM | 12/17/12 | 12/17/12 7:01 PM | 1212447-006A | 12/15/12 1:46 PM | 12/17/12 | 12/17/12 7:08 PM |
| 1212447-007A | 12/15/12 2:31 PM | 12/17/12 | 12/17/12 7:27 PM | | | | |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

JR QA/QC Officer

McCampbell Analytical, Inc.
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http://www.mccampbell.com / E-mail: main@mccampbell.com

# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73432 | WorkOrder: 1212447

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Acrylonitrile | N/A | 25 | N/A | N/A | N/A | 87.4 | N/A | N/A | 60 - 140 |
| tert-Amyl methyl ether (TAME) | N/A | 25 | N/A | N/A | N/A | 94.7 | N/A | N/A | 60 - 140 |
| Benzene | N/A | 25 | N/A | N/A | N/A | 89.4 | N/A | N/A | 60 - 140 |
| Benzyl chloride | N/A | 25 | N/A | N/A | N/A | 90.8 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 25 | N/A | N/A | N/A | 96.3 | N/A | N/A | 60 - 140 |
| Bromoform | N/A | 25 | N/A | N/A | N/A | 99.1 | N/A | N/A | 60 - 140 |
| t-Butyl alcohol (TBA) | N/A | 25 | N/A | N/A | N/A | 101 | N/A | N/A | 60 - 140 |
| Carbon Disulfide | N/A | 25 | N/A | N/A | N/A | 92.9 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 25 | N/A | N/A | N/A | 95 | N/A | N/A | 60 - 140 |
| Chlorobenzene | N/A | 25 | N/A | N/A | N/A | 87.6 | N/A | N/A | 60 - 140 |
| Chloroethane | N/A | 25 | N/A | N/A | N/A | 130 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 25 | N/A | N/A | N/A | 91.2 | N/A | N/A | 60 - 140 |
| Chloromethane | N/A | 25 | N/A | N/A | N/A | 102 | N/A | N/A | 60 - 140 |
| Dibromochloromethane | N/A | 25 | N/A | N/A | N/A | 99.3 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 25 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 25 | N/A | N/A | N/A | 90.1 | N/A | N/A | 60 - 140 |
| 1,2-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 84.6 | N/A | N/A | 60 - 140 |
| 1,3-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 84.9 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 79.2 | N/A | N/A | 60 - 140 |
| Dichlorodifluoromethane | N/A | 25 | N/A | N/A | N/A | 76.5 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethane | N/A | 25 | N/A | N/A | N/A | 94.7 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 25 | N/A | N/A | N/A | 91.2 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| cis-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 91.8 | N/A | N/A | 60 - 140 |
| trans-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 93.1 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 25 | N/A | N/A | N/A | 95.5 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 94.8 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 95.7 | N/A | N/A | 60 - 140 |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane | N/A | 25 | N/A | N/A | N/A | 81 | N/A | N/A | 60 - 140 |
| Diisopropyl ether (DIPE) | N/A | 25 | N/A | N/A | N/A | 95.2 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 25 | N/A | N/A | N/A | 88.4 | N/A | N/A | 60 - 140 |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73432 | WorkOrder: 1212447

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Ethyl acetate | N/A | 25 | N/A | N/A | N/A | 90.6 | N/A | N/A | 60 - 140 |
| Ethyl tert-butyl ether (ETBE) | N/A | 25 | N/A | N/A | N/A | 92.5 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 25 | N/A | N/A | N/A | 81.9 | N/A | N/A | 60 - 140 |
| Freon 113 | N/A | 25 | N/A | N/A | N/A | 89.3 | N/A | N/A | 60 - 140 |
| Hexachlorobutadiene | N/A | 25 | N/A | N/A | N/A | 71 | N/A | N/A | 60 - 140 |
| 4-Methyl-2-pentanone (MIBK) | N/A | 25 | N/A | N/A | N/A | 90.6 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 25 | N/A | N/A | N/A | 93.7 | N/A | N/A | 60 - 140 |
| Methylene chloride | N/A | 25 | N/A | N/A | N/A | 97.4 | N/A | N/A | 60 - 140 |
| Naphthalene | N/A | 25 | N/A | N/A | N/A | 90.8 | N/A | N/A | 60 - 140 |
| Styrene | N/A | 25 | N/A | N/A | N/A | 87.8 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 95.1 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 92.6 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 25 | N/A | N/A | N/A | 93.8 | N/A | N/A | 60 - 140 |
| Tetrahydrofuran | N/A | 25 | N/A | N/A | N/A | 80.9 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 25 | N/A | N/A | N/A | 89.9 | N/A | N/A | 60 - 140 |
| 1,2,4-Trichlorobenzene | N/A | 25 | N/A | N/A | N/A | 81.5 | N/A | N/A | 60 - 140 |
| 1,1,1-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 92.8 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 91.9 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 25 | N/A | N/A | N/A | 88.4 | N/A | N/A | 60 - 140 |
| 1,2,4-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 87.7 | N/A | N/A | 60 - 140 |
| 1,3,5-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 90 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 25 | N/A | N/A | N/A | 79.1 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 500 | N/A | N/A | N/A | 87 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 500 | N/A | N/A | N/A | 90 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 500 | N/A | N/A | N/A | 84 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73432 | WorkOrder: 1212447

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73432 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212447-001A | 12/15/12 8:14 AM | 12/18/12 | 12/18/12 6:50 PM | 1212447-002A | 12/15/12 10:17 AM | 12/18/12 | 12/18/12 7:31 PM |
| 1212447-003A | 12/15/12 12:50 PM | 12/18/12 | 12/18/12 8:12 PM | 1212447-003A | 12/15/12 12:50 PM | 12/19/12 | 12/19/12 1:37 AM |
| 1212447-004A | 12/15/12 3:15 PM | 12/18/12 | 12/18/12 8:53 PM | 1212447-004A | 12/15/12 3:15 PM | 12/19/12 | 12/19/12 2:18 AM |
| 1212447-005A | 12/15/12 3:51 PM | 12/18/12 | 12/18/12 9:34 PM | 1212447-006A | 12/15/12 1:46 PM | 12/18/12 | 12/18/12 10:15 PM |
| 1212447-007A | 12/15/12 2:31 PM | 12/18/12 | 12/18/12 10:56 PM | | | | |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/14/12 |
| | | Date Received: 12/17/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 12/19/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 12/19/12 |

**WorkOrder: 1212448**

December 19, 2012

Dear Josh:

Enclosed within are:

1) The results of the **8** analyzed samples from your project: **#730377986; TI Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1212448

# McCAMPBELL ANALYTICAL INC.

1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber
Bill To: Treadwell & Rollo
Company: Treadwell & Rollo, A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI Santa Clara
Project Location: 2900 Semiconductor Dr., Santa Clara
Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:
Notes:

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SS1-G-2012-12-14 | 12-14 | 1025 | CAN 6204-745 | MAN316-718 | TO-15 Proj list, He | | X | -28" | -5" | | |
| SS2-G-2012-12-14 | 12-14 | 1139 | CAN 7523-871 | MAN316-765 | TO-15 Proj list, He | | X | -29" | -5" | | |
| SS3-G-2012-12-14 | 12-14 | 1302 | CAN 7518-866 | MAN316T-997 | TO-15 Proj list, He | | X | -29" | -5" | | |
| SS1-19-2012-12-14 | 12-14 | 1434 | CAN 6310-790 | MAN316T-993 | TO-15 Proj list, He | | X | -29" | -5" | | |
| SS2-19-2012-12-14 | 12-14 | 1516 | CAN 5807-738 | MAN316T-998 | TO-15 Proj list, He | | X | -28" | -5" | | |
| SS1-9-2012-12-14 | 12-14 | 1655 | CAN 7530-878 | MAN316T-777 | TO-15 Proj list, He | | X | -28" | -5" | | |
| DUP2-2012-12-14 | 12-14 | 1655 | CAN 7514-862 | MAN316T-777 | TO-15 Proj list, He | | X | -28" | -5" | | |
| SS2-9-2012-12-14 | 12-14 | 17 | CAN 7520-868 | MAN316T-775 | TO-15 Proj list | | X | -29" | -5" | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| [signature] | 12/17/12 | 1230 | [signature] |
| Relinquished By: | Date: | Time: | Received By: |
| [signature] | 12/17/12 | 1530 | [signature] |
| Relinquished By: | Date: | Time: | Received By: |
| | | | |

Temp (°C): _____ Work Order #: _____
Equipment Condition: _____
Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212448** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 12/17/2012
***Date Printed:*** 12/17/2012

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212448-001 | SS1-G-2012-12-14 | Soil Gas | 12/14/2012 10:25 | ☐ | A | | | | | | | | | | | |
| 1212448-002 | SS2-G-2012-12-14 | Soil Gas | 12/14/2012 11:39 | ☐ | A | | | | | | | | | | | |
| 1212448-003 | SS3-G-2012-12-14 | Soil Gas | 12/14/2012 13:02 | ☐ | A | | | | | | | | | | | |
| 1212448-004 | SS1-19-2012-12-14 | Soil Gas | 12/14/2012 14:34 | ☐ | A | | | | | | | | | | | |
| 1212448-005 | SS2-19-2012-12-14 | Soil Gas | 12/14/2012 15:16 | ☐ | A | | | | | | | | | | | |
| 1212448-006 | SS1-9-2012-12-14 | Soil Gas | 12/14/2012 16:55 | ☐ | A | | | | | | | | | | | |
| 1212448-007 | DUP2-2012-12-14 | Soil Gas | 12/14/2012 16:55 | ☐ | A | | | | | | | | | | | |
| 1212448-008 | SS2-9-2012-12-14 | Soil Gas | 12/14/2012 17:00 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SOIL(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A contain testgroup.

**Prepared by: Maria Venegas**

**Comments:** SEND HARD COPY

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# Sample Receipt Checklist

Client Name: **Treadwell & Rollo**

Date and Time Received: **12/17/2012 3:34:27 PM**

Project Name: **#730377986; TI Santa Clara**

LogIn Reviewed by: Maria Venegas

WorkOrder N°: **1212448** Matrix: Soil Gas

Carrier: Rob Pringle (MAI Courier)

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/14/12 |
| | | Date Received: 12/17/12 |
| | Client Contact: Josh Graber | Date Reported: 12/19/12 |
| | Client P.O.: | Date Completed: 12/19/12 |

**Work Order: 1212448**

December 19, 2012

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The dissadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____ Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/14/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/17/12 |
| | Client Contact: Josh Graber | Date Extracted: 12/18/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/18/12 |

## Helium*

Extraction method: ASTM D 1946-90 Analytical methods: ASTM D 1946-90 Work Order: 1212448

| Lab ID | Client ID | Matrix | Initial Pressure | Final Pressure | Helium | DF | % SS | Comments |
|---|---|---|---|---|---|---|---|---|
| 001A | SS1-G-2012-12-14 | Soil Gas | 12.39 | 24.68 | 0.016 | 1 | N/A | |
| 002A | SS2-G-2012-12-14 | Soil Gas | 12.07 | 24.04 | ND | 1 | N/A | |
| 003A | SS3-G-2012-12-14 | Soil Gas | 12.25 | 24.41 | 0.028 | 1 | N/A | |
| 004A | SS1-19-2012-12-14 | Soil Gas | 12.29 | 24.48 | 0.12 | 1 | N/A | |
| 005A | SS2-19-2012-12-14 | Soil Gas | 12.20 | 24.31 | 0.28 | 1 | N/A | |
| 006A | SS1-9-2012-12-14 | Soil Gas | 12.02 | 23.84 | 0.12 | 1 | N/A | |
| 007A | DUP2-2012-12-14 | Soil Gas | 11.98 | 23.86 | 0.048 | 1 | N/A | |
| 008A | SS2-9-2012-12-14 | Soil Gas | 12.76 | 25.44 | 0.079 | 1 | N/A | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Reporting Limit for DF =1; ND means not detected at or above the reporting limit | W | psia | psia | NA | NA |
| | SoilGas | psia | psia | 0.005 | % |

* vapor samples are reported in %.

%SS = Percent Recovery of Surrogate Standard

DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/14/12 |
| | | Date Received: 12/17/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/17/12-12/18/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/17/12-12/18/12 |

## Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 | Analytical Method: TO15 | Work Order: 1212448

| Lab ID | 1212448-001A | 1212448-002A | 1212448-003A | 1212448-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | SS1-G-2012-12-14 | SS2-G-2012-12-14 | SS3-G-2012-12-14 | SS1-19-2012-12-14 | | |
| Matrix | Soil Gas | Soil Gas | Soil Gas | Soil Gas | Soil Gas | W |
| Initial Pressure (psia) | 12.39 | 12.07 | 12.25 | 12.29 | | |
| Final Pressure (psia) | 24.68 | 24.04 | 24.41 | 24.48 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 9.4 | NA |
| Chloroethane | ND | ND | ND | ND | 5.4 | NA |
| Chloroform | ND | ND | ND | 7.8 | 2.2 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 12 | NA |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 4.4 | NA |
| 1,1-Dichloroethane | ND | ND | ND | 17 | 8.2 | NA |
| 1,2-Dichloroethane (1,2-DCA) | ND | ND | ND | ND | 1.9 | NA |
| 1,1-Dichloroethene | ND | ND | ND | 110 | 8.1 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | 42 | 8.1 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | 5.3 | 1.9 | NA |
| Ethylbenzene | ND | ND | ND | ND | 8.8 | NA |
| Freon 113 | ND | 47 | ND | 1400 | 16 | NA |
| Methylene chloride | ND | ND | ND | ND | 7.1 | NA |
| Tetrachloroethene | ND | 250 | 11 | 230 | 8.2 | NA |
| Toluene | ND | ND | ND | 12 | 7.7 | NA |
| 1,1,1-Trichloroethane | ND | 83 | 28 | 1000 | 11 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 3.0 | NA |
| Trichloroethene | ND | 660 | 110 | 5300 | 11 | NA |
| Trichlorofluoromethane | ND | ND | ND | 31 | 11 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 1.3 | NA |
| Xylenes, Total | ND | ND | ND | ND | 27 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 93 | 93 | 91 | 89 | | |
| %SS2: | 90 | 85 | 91 | 91 | | |
| %SS3: | 84 | 87 | 84 | 85 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/14/12 |
| | | Date Received: 12/17/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/17/12-12/18/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/17/12-12/18/12 |

## Volatile Organic Compounds in µg/m³*

Extraction Method: TO15 | Analytical Method: TO15 | Work Order: 1212448

| Lab ID | 1212448-005A | 1212448-006A | 1212448-007A | 1212448-008A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | SS2-19-2012-12-14 | SS1-9-2012-12-14 | DUP2-2012-12-14 | SS2-9-2012-12-14 | | |
| Matrix | Soil Gas | Soil Gas | Soil Gas | Soil Gas | Soil Gas | W |
| Initial Pressure (psia) | 12.20 | 12.02 | 11.98 | 12.76 | | |
| Final Pressure (psia) | 24.31 | 23.84 | 23.86 | 25.44 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 9.4 | NA |
| Chloroethane | ND | ND | ND | ND | 5.4 | NA |
| Chloroform | 5.5 | 3.9 | 3.5 | 10 | 2.2 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 12 | NA |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 4.4 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 8.2 | NA |
| 1,2-Dichloroethane (1,2-DCA) | ND | ND | ND | ND | 1.9 | NA |
| 1,1-Dichloroethene | 14 | ND | ND | ND | 8.1 | NA |
| cis-1,2-Dichloroethene | 9.2 | ND | ND | 16 | 8.1 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | 3.4 | 1.9 | NA |
| Ethylbenzene | ND | ND | ND | ND | 8.8 | NA |
| Freon 113 | 400 | ND | ND | ND | 16 | NA |
| Methylene chloride | ND | ND | ND | ND | 7.1 | NA |
| Tetrachloroethene | 92 | 95 | 94 | 380 | 8.2 | NA |
| Toluene | ND | 15 | 14 | 18 | 7.7 | NA |
| 1,1,1-Trichloroethane | 930 | 19 | 18 | 27 | 11 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 3.0 | NA |
| Trichloroethene | 2400 | 1900 | 1800 | 2500 | 11 | NA |
| Trichlorofluoromethane | 13 | ND | ND | ND | 11 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 1.3 | NA |
| Xylenes, Total | ND | ND | ND | ND | 27 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 88 | 91 | 89 | 88 | | |
| %SS2: | 91 | 92 | 93 | 91 | | |
| %SS3: | 85 | 85 | 85 | 84 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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# QC SUMMARY REPORT FOR ASTM D 1946-90

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73415 | WorkOrder: 1212448

**EPA Method: ASTM D 1946-90** **Extraction: ASTM D 1946-90** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | % | % | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Helium | N/A | 0.010 | N/A | N/A | N/A | 115 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73415 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212448-001A | 12/14/12 10:25 AM | 12/18/12 | 12/18/12 3:59 PM | 1212448-002A | 12/14/12 11:39 AM | 12/18/12 | 12/18/12 4:12 PM |
| 1212448-003A | 12/14/12 1:02 PM | 12/18/12 | 12/18/12 4:25 PM | 1212448-004A | 12/14/12 2:34 PM | 12/18/12 | 12/18/12 4:38 PM |
| 1212448-005A | 12/14/12 3:16 PM | 12/18/12 | 12/18/12 4:51 PM | 1212448-006A | 12/14/12 4:55 PM | 12/18/12 | 12/18/12 5:04 PM |
| 1212448-007A | 12/14/12 4:55 PM | 12/18/12 | 12/18/12 5:17 PM | 1212448-008A | 12/14/12 5:00 PM | 12/18/12 | 12/18/12 5:30 PM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73383 | WorkOrder: 1212448

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Acrylonitrile | N/A | 25 | N/A | N/A | N/A | 104 | N/A | N/A | 60 - 140 |
| tert-Amyl methyl ether (TAME) | N/A | 25 | N/A | N/A | N/A | 92 | N/A | N/A | 60 - 140 |
| Benzene | N/A | 25 | N/A | N/A | N/A | 85.1 | N/A | N/A | 60 - 140 |
| Benzyl chloride | N/A | 25 | N/A | N/A | N/A | 87.4 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 25 | N/A | N/A | N/A | 94.5 | N/A | N/A | 60 - 140 |
| Bromoform | N/A | 25 | N/A | N/A | N/A | 97.8 | N/A | N/A | 60 - 140 |
| t-Butyl alcohol (TBA) | N/A | 25 | N/A | N/A | N/A | 86.8 | N/A | N/A | 60 - 140 |
| Carbon Disulfide | N/A | 25 | N/A | N/A | N/A | 89.7 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 25 | N/A | N/A | N/A | 90 | N/A | N/A | 60 - 140 |
| Chlorobenzene | N/A | 25 | N/A | N/A | N/A | 85.1 | N/A | N/A | 60 - 140 |
| Chloroethane | N/A | 25 | N/A | N/A | N/A | 109 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 25 | N/A | N/A | N/A | 87 | N/A | N/A | 60 - 140 |
| Chloromethane | N/A | 25 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| Dibromochloromethane | N/A | 25 | N/A | N/A | N/A | 97.3 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 25 | N/A | N/A | N/A | 109 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 25 | N/A | N/A | N/A | 88.1 | N/A | N/A | 60 - 140 |
| 1,2-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 82.1 | N/A | N/A | 60 - 140 |
| 1,3-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 82.6 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 25 | N/A | N/A | N/A | 77 | N/A | N/A | 60 - 140 |
| Dichlorodifluoromethane | N/A | 25 | N/A | N/A | N/A | 92.7 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethane | N/A | 25 | N/A | N/A | N/A | 90.6 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 25 | N/A | N/A | N/A | 86.8 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 102 | N/A | N/A | 60 - 140 |
| cis-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 87.9 | N/A | N/A | 60 - 140 |
| trans-1,2-Dichloroethene | N/A | 25 | N/A | N/A | N/A | 88.8 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 25 | N/A | N/A | N/A | 93.8 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 92.5 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 25 | N/A | N/A | N/A | 94.2 | N/A | N/A | 60 - 140 |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane | N/A | 25 | N/A | N/A | N/A | 99.4 | N/A | N/A | 60 - 140 |
| Diisopropyl ether (DIPE) | N/A | 25 | N/A | N/A | N/A | 90 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 25 | N/A | N/A | N/A | 85.3 | N/A | N/A | 60 - 140 |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73383 | WorkOrder: 1212448

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Ethyl acetate | N/A | 25 | N/A | N/A | N/A | 86.7 | N/A | N/A | 60 - 140 |
| Ethyl tert-butyl ether (ETBE) | N/A | 25 | N/A | N/A | N/A | 87.6 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 25 | N/A | N/A | N/A | 79.7 | N/A | N/A | 60 - 140 |
| Freon 113 | N/A | 25 | N/A | N/A | N/A | 93.9 | N/A | N/A | 60 - 140 |
| Hexachlorobutadiene | N/A | 25 | N/A | N/A | N/A | 68.5 | N/A | N/A | 60 - 140 |
| 4-Methyl-2-pentanone (MIBK) | N/A | 25 | N/A | N/A | N/A | 89.6 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 25 | N/A | N/A | N/A | 88.7 | N/A | N/A | 60 - 140 |
| Methylene chloride | N/A | 25 | N/A | N/A | N/A | 93 | N/A | N/A | 60 - 140 |
| Naphthalene | N/A | 25 | N/A | N/A | N/A | 88.7 | N/A | N/A | 60 - 140 |
| Styrene | N/A | 25 | N/A | N/A | N/A | 85.9 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 93 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 25 | N/A | N/A | N/A | 90.4 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 25 | N/A | N/A | N/A | 78.1 | N/A | N/A | 60 - 140 |
| Tetrahydrofuran | N/A | 25 | N/A | N/A | N/A | 77.7 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 25 | N/A | N/A | N/A | 87.9 | N/A | N/A | 60 - 140 |
| 1,2,4-Trichlorobenzene | N/A | 25 | N/A | N/A | N/A | 79 | N/A | N/A | 60 - 140 |
| 1,1,1-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 87.5 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 25 | N/A | N/A | N/A | 89.6 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 25 | N/A | N/A | N/A | 85.5 | N/A | N/A | 60 - 140 |
| 1,2,4-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 84.9 | N/A | N/A | 60 - 140 |
| 1,3,5-Trimethylbenzene | N/A | 25 | N/A | N/A | N/A | 85.5 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 25 | N/A | N/A | N/A | 87.4 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 500 | N/A | N/A | N/A | 84 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 500 | N/A | N/A | N/A | 88 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 500 | N/A | N/A | N/A | 83 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Soilgas | QC Matrix: Soilgas | BatchID: 73383 | WorkOrder: 1212448

**EPA Method: TO15** **Extraction: TO15** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73383 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212448-001A | 12/14/12 10:25 AM | 12/18/12 | 12/18/12 1:45 AM | 1212448-002A | 12/14/12 11:39 AM | 12/17/12 | 12/17/12 9:02 PM |
| 1212448-002A | 12/14/12 11:39 AM | 12/18/12 | 12/18/12 2:28 AM | 1212448-003A | 12/14/12 1:02 PM | 12/18/12 | 12/18/12 3:09 AM |
| 1212448-004A | 12/14/12 2:34 PM | 12/17/12 | 12/17/12 10:23 PM | 1212448-004A | 12/14/12 2:34 PM | 12/18/12 | 12/18/12 3:51 AM |
| 1212448-005A | 12/14/12 3:16 PM | 12/17/12 | 12/17/12 11:03 PM | 1212448-005A | 12/14/12 3:16 PM | 12/18/12 | 12/18/12 4:32 AM |
| 1212448-006A | 12/14/12 4:55 PM | 12/17/12 | 12/17/12 11:43 PM | 1212448-006A | 12/14/12 4:55 PM | 12/18/12 | 12/18/12 5:13 AM |
| 1212448-007A | 12/14/12 4:55 PM | 12/18/12 | 12/18/12 12:24 AM | 1212448-007A | 12/14/12 4:55 PM | 12/18/12 | 12/18/12 5:54 AM |
| 1212448-008A | 12/14/12 5:00 PM | 12/18/12 | 12/18/12 1:04 AM | 1212448-008A | 12/14/12 5:00 PM | 12/18/12 | 12/18/12 6:35 AM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/18/12 |
| | | Date Received: 12/19/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 12/20/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 12/20/12 |

**WorkOrder: 1212502**

December 20, 2012

Dear Josh:

Enclosed within are:

1) The results of the **6** analyzed samples from your project: **#730377986; TI Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1212502

# McCAMPBELL ANALYTICAL INC.

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Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: JOSHUA GRABER Bill To: TREADWELL & ROLLO

Company: TREADWELL & ROLLO, A LANGAN COMPANY

555 Montgomery Street, Suite 1300

San Francisco, CA 94111 E-Mail: jgraber@langan.com

Tele: (415) 955-5286 Fax: ( )

Project #: 730377986 Project Name: TI Santa Clara

Project Location: 2900 Semiconductor Dr, Santa Clara

Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:

Other:

Notes: Please send log in info & report to Joshua Graber, Dorinda Shipman, Adam Brown & Mukta Patil.

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA1-39-2012-12-18 | 12-18 | 1518 | CAN4783-901 | SK7054-919 | TO-15 Proj List (SIM) | X | | -27" | -5" | | |
| IA2-39-2012-12-18 | 12-18 | 1550 | CAN4708-599 | SK24162-907 | " | X | | -30" | -7" | | |
| DUP2-2012-12-18 | 12-18 | 1515 | CAN4711-640 | SK24162-906 | " | X | | -27" | -5" | | |
| IA3-39-2012-12-18 | 12-18 | 1545 | CAN7740-928 | SK7699-540 | " | X | | -30" | -5.5" | | |
| PS1-39-2012-12-18 | 12-18 | 1516 | CAN7743-931 | SK7152-524 | " | X | | -27" | -4.5" | | |
| AA1-39-2012-12-18 | 12-18 | ~~1410~~ 1310 | CAN4759-629 | SK24162-910 | " | X | | -30" | -2" | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 12-18 | 1600 | Billy L. Lemon |
| Billy L. Lemon | 12-18-12 | 7:15 | [illegible] |
| | | | |

Temp (°C): _____ Work Order #: _____

Equipment Condition: _____

Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1212502** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** **12/18/2012**
***Date Printed:*** **12/19/2012**

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1212502-001 | IA1-39-2012-12-18 | Indoor Air | 12/18/2012 15:15 | ☐ | A | | | | | | | | | | | |
| 1212502-002 | IA2-39-2012-12-18 | Indoor Air | 12/18/2012 15:50 | ☐ | A | | | | | | | | | | | |
| 1212502-003 | DUP2-2012-12-18 | Indoor Air | 12/18/2012 15:15 | ☐ | A | | | | | | | | | | | |
| 1212502-004 | IA3-39-2012-12-18 | Indoor Air | 12/18/2012 15:45 | ☐ | A | | | | | | | | | | | |
| 1212502-005 | PS1-39-2012-12-18 | Indoor Air | 12/18/2012 15:16 | ☐ | A | | | | | | | | | | | |
| 1212502-006 | AA1-39-2012-12-18 | Indoor Air | 12/18/2012 13:10 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **12/18/2012 7:15:00 PM** |
| Project Name: | **#730377986; TI Santa Clara** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1212502** Matrix: Indoor Air | Carrier: | Courier |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/18/12 |
| | | Date Received: 12/19/12 |
| | Client Contact: Josh Graber | Date Reported: 12/20/12 |
| | Client P.O.: | Date Completed: 12/20/12 |

**Work Order: 1212502**

December 20, 2012

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The dissadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____ Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/18/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 12/19/12 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 12/19/12-12/20/12 |
| | Client P.O.: | Date Analyzed: 12/19/12-12/20/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212502

| Lab ID | 1212502-001A | 1212502-002A | 1212502-003A | 1212502-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA1-39-2012-12-18 | IA2-39-2012-12-18 | DUP2-2012-12-18 | IA3-39-2012-12-18 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 11.99 | 11.91 | 10.92 | 12.98 | | |
| Final Pressure (psia) | 11.99 | 11.91 | 10.92 | 12.98 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.12 | 0.13 | 0.12 | 0.17 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.14 | 0.062 | 0.061 | 0.083 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.080 | 0.080 | 0.078 | 0.075 | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | ND | ND | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.31 | 0.27 | 0.28 | 0.26 | 0.022 | NA |
| Freon 113 | ND | ND | ND | ND | 0.78 | NA |
| Methylene chloride | 0.47 | 1.0 | 0.50 | 0.42 | 0.35 | NA |
| Tetrachloroethene | 0.081 | 0.079 | 0.078 | 0.086 | 0.035 | NA |
| Toluene | 1.5 | 1.3 | 1.3 | 1.2 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.31 | 0.21 | 0.22 | 0.22 | 0.027 | NA |
| Trichlorofluoromethane | 1.3 | 1.6 | 1.6 | 1.6 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.4 | 1.2 | 1.3 | 1.2 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 86 | 103 | 98 | 100 | | |
| %SS2: | 92 | 112 | 107 | 109 | | |
| %SS3: | 92 | 111 | 107 | 109 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/18/12 |
| | | Date Received: 12/19/12 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Extracted: 12/19/12-12/20/12 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 12/19/12-12/20/12 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1212502

| Lab ID | 1212502-005A | 1212502-006A | | | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | PS1-39-2012-12-18 | AA1-39-2012-12-18 | | | | |
| Matrix | Indoor Air | Indoor Air | | | Indoor Air | W |
| Initial Pressure (psia) | 11.78 | 13.64 | | | | |
| Final Pressure (psia) | 11.78 | 13.64 | | | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | | | 0.47 | NA |
| Chloroethane | ND | ND | | | 0.27 | NA |
| Chloroform | 0.28 | 0.086 | | | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | | | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.091 | ND | | | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | | | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.076 | 0.073 | | | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | | | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| Ethylbenzene | 0.30 | 0.46 | | | 0.022 | NA |
| Freon 113 | 1.9 | ND | | | 0.78 | NA |
| Methylene chloride | 0.96 | 1.7 | | | 0.35 | NA |
| Tetrachloroethene | 0.47 | 0.039 | | | 0.035 | NA |
| Toluene | 1.4 | 0.88 | | | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | | | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | | | 0.098 | NA |
| Trichloroethene | 2.4 | 0.035 | | | 0.027 | NA |
| Trichlorofluoromethane | 1.5 | 1.6 | | | 0.57 | NA |
| Vinyl Chloride | ND | ND | | | 0.031 | NA |
| Xylenes, Total | 1.3 | 2.1 | | | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 99 | 88 | | | | |
| %SS2: | 108 | 94 | | | | |
| %SS3: | 108 | 93 | | | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73457 | WorkOrder: 1212502

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Benzene | N/A | 0.050 | N/A | N/A | N/A | 100 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 0.050 | N/A | N/A | N/A | 116 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 0.050 | N/A | N/A | N/A | 116 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 0.050 | N/A | N/A | N/A | 115 | N/A | N/A | 60 - 140 |
| 1,2-Dibromo-3-chloropropane | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 0.050 | N/A | N/A | N/A | 111 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 0.050 | N/A | N/A | N/A | 114 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 0.050 | N/A | N/A | N/A | 107 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 0.050 | N/A | N/A | N/A | 119 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 120 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| 1,4-Dioxane | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 0.050 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 0.050 | N/A | N/A | N/A | 115 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 0.050 | N/A | N/A | N/A | 127 | N/A | N/A | 60 - 140 |
| Xylenes, Total | N/A | 0.15 | N/A | N/A | N/A | 120 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 0.0025 | N/A | N/A | N/A | 104 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 0.0025 | N/A | N/A | N/A | 109 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 0.0025 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73457 | WorkOrder: 1212502

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73457 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1212502-001A | 12/18/12 3:15 PM | 12/19/12 | 12/19/12 9:01 PM | 1212502-002A | 12/18/12 3:50 PM | 12/19/12 | 12/19/12 10:05 PM |
| 1212502-003A | 12/18/12 3:15 PM | 12/19/12 | 12/19/12 11:13 PM | 1212502-004A | 12/18/12 3:45 PM | 12/20/12 | 12/20/12 12:14 AM |
| 1212502-005A | 12/18/12 3:16 PM | 12/20/12 | 12/20/12 1:20 AM | 1212502-006A | 12/18/12 1:10 PM | 12/20/12 | 12/20/12 2:15 AM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

JR QA/QC Officer

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| | | Date Received: 01/02/13 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 01/04/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 01/04/13 |

**WorkOrder: 1301010**

January 04, 2013

Dear Josh:

Enclosed within are:

1) The results of the **18** analyzed samples from your project: **#730377986; TI Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1301010

**McCAMPBELL ANALYTICAL INC.**
1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: JOSHUA GRABER
Bill To: TREADWELL & ROLLO
Company: Treadwell & Rollo, A Langan Company
555 Montgomery St, Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI Santa Clara
Project Location: 2900 Semiconductor Dr, Santa Clara
Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:
Notes:

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial (Inches Hg) | Canister Pressure/Vacuum Final (Inches Hg) | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA1-9-2012-12-30 | 12-30 | 1545 | CAN 4613-880 | SK24162-907 | TO-15 SIM Prg List | X | | -30 | -5" | | |
| IA2-9-2012-12-30 | ↓ | 1545 | CAN 4892-660 | SK7853-544 | ↓ | X | | -30 | -6" | | |
| IA3-9-2012-12-30 | ↓ | 1503 | CAN 7788-935 | SK7152-524 | ↓ | X | | -27 | -5" | | |
| IA4-9-2012-12-30 | ↓ | 1515 | CAN 6042-807 | SK6106-927 | ↓ | X | | -27 | -5" | | |
| IA1-19-2012-12-30 | ↓ | 1548 | CAN 3656-572 | SK6375-938 | ↓ | X | | -30 | -5" | | |
| IA2-19-2012-12-30 | ↓ | 1549 | CAN 4781-899 | SK24162-909 | ↓ | X | | -30 | -5 | | |
| IA3-19-2012-12-30 | ↓ | 1518 | CAN 4704-595 | SK9416-647 | ↓ | X | | -27.5 | -4.5" | | |
| PS1-19-2012-12-30 | ↓ | 1520 | CAN 7786-933 | SK5976-536 | ↓ | X | | -30 | -5" | | |
| AA-19-2012-12-30 | ↓ | 1513 | CAN 2736-559 | SK3620-537 | ↓ | X | | -27 | -6" | | |
| | | | | | | | | | | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 1/2/13 | 1430 | |
| | 1/2/13 | 1545 | |
| | | | |

Temp (°C): ____ Work Order #: ____
Equipment Condition: ____
Shipped Via: ____

# McCAMPBELL ANALYTICAL INC.

1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

**TURN AROUND TIME** ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: JOSHUA GRABER
Bill To: TREADWELL & ROLLO
Company: Treadwell & Rollo, A Langan Company
555 Montgomery Street, Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI Santa Clara
Project Location: 2900 Semiconductor Dr, Santa Clara
Sampler Signature: Mukta Patil

**Lab Use Only**

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:
Notes:

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA1-G-2012-12-30 | 12-30 | 1610 | CAN4785-903 | SK24162-911 | TO-15 SIM Proj List | X | | -28" | -4" | | |
| DUP1-2012-12-30 | | 1610 | CAN3634-570 | SK7571-922 | | X | | -30" | 3" | | |
| IA2-G-2012-12-30 | | 1609 | CAN4714-643 | SK7054-919 | | X | | -28" | 3.5" | | |
| IA3-G-2012-12-30 | | 1606 | CAN4740-651 | SK6782-523 | | X | | -30 | 5.5" | | |
| IA4-G-2012-12-30 | | 1628 | CAN4707-548 | SK4736-534 | | X | | -30 | -7" | | |
| IA5-G-2012-12-30 | | 1615 | CAN4741-652 | SK7571-921 | | X | | -30 | -5" | | |
| PS1-G-2012-12-30 | | 1608 | CAN4743-654 | SK24162-904 | | X | | -29" | -5" | | |
| PS2-G-2012-12-30 | | 1607 | CAN4703-594 | SK24162-910 | | X | | -30 | 4.5" | | |
| PS3-G-2012-12-30 | | 1612 | CAN3647-563 | SK9363-646 | | X | | -30 | 4.5" | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 1/2/13 | 1430 | |
| | 1/2/13 | 1545 | |
| | | | |

Temp (°C): _____ Work Order #: _____
Equipment Condition: _____
Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1301010** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 01/02/2013
***Date Printed:*** 01/02/2013

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1301010-001 | IA1-9-2012-12-30 | Indoor Air | 12/30/2012 15:45 | ☐ | A | | | | | | | | | | | |
| 1301010-002 | IA2-9-2012-12-30 | Indoor Air | 12/30/2012 15:45 | ☐ | A | | | | | | | | | | | |
| 1301010-003 | IA3-9-2012-12-30 | Indoor Air | 12/30/2012 15:03 | ☐ | A | | | | | | | | | | | |
| 1301010-004 | IA4-9-2012-12-30 | Indoor Air | 12/30/2012 15:15 | ☐ | A | | | | | | | | | | | |
| 1301010-005 | IA1-19-2012-12-30 | Indoor Air | 12/30/2012 15:48 | ☐ | A | | | | | | | | | | | |
| 1301010-006 | IA2-19-2012-12-30 | Indoor Air | 12/30/2012 15:49 | ☐ | A | | | | | | | | | | | |
| 1301010-007 | IA3-19-2012-12-30 | Indoor Air | 12/30/2012 15:18 | ☐ | A | | | | | | | | | | | |
| 1301010-008 | PSI-19-2012-12-30 | Indoor Air | 12/30/2012 15:50 | ☐ | A | | | | | | | | | | | |
| 1301010-009 | AA-19-2012-12-30 | Indoor Air | 12/30/2012 15:13 | ☐ | A | | | | | | | | | | | |
| 1301010-010 | IA1-G-2012-12-30 | Indoor Air | 12/30/2012 16:10 | ☐ | A | | | | | | | | | | | |
| 1301010-011 | DUP1-2012-12-30 | Indoor Air | 12/30/2012 16:10 | ☐ | A | | | | | | | | | | | |
| 1301010-012 | IA2-G-2012-12-30 | Indoor Air | 12/30/2012 16:09 | ☐ | A | | | | | | | | | | | |
| 1301010-013 | IA3-G-2012-12-30 | Indoor Air | 12/30/2012 16:06 | ☐ | A | | | | | | | | | | | |
| 1301010-014 | IA4-G-2012-12-30 | Indoor Air | 12/30/2012 16:28 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1301010** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 01/02/2013
***Date Printed:*** 01/02/2013

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1301010-015 | IA5-G-2012-12-30 | Indoor Air | 12/30/2012 16:15 | ☐ | A | | | | | | | | | | | |
| 1301010-016 | PS1-G-2012-12-30 | Indoor Air | 12/30/2012 16:08 | ☐ | A | | | | | | | | | | | |
| 1301010-017 | PS2-G-2012-12-30 | Indoor Air | 12/30/2012 16:07 | ☐ | A | | | | | | | | | | | |
| 1301010-018 | PS3-G-2012-12-30 | Indoor Air | 12/30/2012 16:12 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **1/2/2013 4:18:27 PM** |
| Project Name: | **#730377986; TI Santa Clara** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1301010** Matrix: Indoor Air | Carrier: | Client Drop-In |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| | | Date Received: 01/02/13 |
| | Client Contact: Josh Graber | Date Reported: 01/04/13 |
| | Client P.O.: | Date Completed: 01/04/13 |

**Work Order: 1301010**

January 04, 2013

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The disadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____ Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/02/13 |
| | Client Contact: Josh Graber | Date Extracted: 01/02/13-01/03/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 01/02/13-01/03/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301010

| Lab ID | 1301010-001A | 1301010-002A | 1301010-003A | 1301010-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA1-9-2012-12-30 | IA2-9-2012-12-30 | IA3-9-2012-12-30 | IA4-9-2012-12-30 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.75 | 12.75 | 11.61 | 12.46 | | |
| Final Pressure (psia) | 12.75 | 12.75 | 11.61 | 12.46 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.37 | 0.21 | 0.29 | 0.20 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.071 | 0.074 | 0.079 | 0.065 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.39 | 0.085 | 0.43 | 0.66 | 0.021 | NA |
| 1,1-Dichloroethene | ND | ND | ND | ND | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.33 | 0.22 | 0.43 | 0.36 | 0.022 | NA |
| Freon 113 | ND | ND | ND | ND | 0.78 | NA |
| Methylene chloride | 0.38 | 0.43 | 0.49 | 0.37 | 0.35 | NA |
| Tetrachloroethene | 0.46 | 0.14 | 0.58 | 0.42 | 0.035 | NA |
| Toluene | 1.6 | 1.1 | 2.3 | 1.7 | 0.08 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 1.7 | 0.27 | 1.8 | 1.7 | 0.027 | NA |
| Trichlorofluoromethane | 1.5 | 1.4 | 1.8 | 1.4 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.5 | 1.0 | 1.9 | 1.6 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 94 | 93 | 106 | 90 | | |
| %SS2: | 97 | 99 | 112 | 97 | | |
| %SS3: | 96 | 99 | 111 | 96 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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http://www.mccampbell.com / E-mail: main@mccampbell.com

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/02/13 |
| | Client Contact: Josh Graber | Date Extracted: 01/02/13-01/03/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 01/02/13-01/03/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM Analytical Method: TO15 Work Order: 1301010

| Lab ID | 1301010-005A | 1301010-006A | 1301010-007A | 1301010-008A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA1-19-2012-12-30 | IA2-19-2012-12-30 | IA3-19-2012-12-30 | PSI-19-2012-12-30 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.67 | 12.96 | 12.32 | 12.74 | | |
| Final Pressure (psia) | 12.67 | 12.96 | 12.32 | 12.74 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.21 | 0.16 | 0.17 | 0.23 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.082 | 0.090 | 0.095 | 0.092 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.11 | 0.099 | 0.11 | 0.11 | 0.021 | NA |
| 1,1-Dichloroethene | ND | 0.039 | 0.050 | 0.056 | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 2.0 | 1.8 | 3.1 | 2.0 | 0.022 | NA |
| Freon 113 | 0.88 | 0.86 | 0.97 | 0.92 | 0.78 | NA |
| Methylene chloride | 1.2 | 1.2 | 1.9 | 1.2 | 0.35 | NA |
| Tetrachloroethene | 0.31 | 0.22 | 0.21 | 0.29 | 0.035 | NA |
| Toluene | 10 | 9.3 | 16 | 10 | 0.08 | NA |
| 1,1,1-Trichloroethane | ND | ND | 1.2 | 0.56 | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 2.1 | 1.3 | 1.8 | 1.9 | 0.027 | NA |
| Trichlorofluoromethane | 1.8 | 1.7 | 1.7 | 1.7 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 10 | 8.9 | 16 | 10 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 108 | 104 | 104 | 108 | | |
| %SS2: | 113 | 112 | 114 | 118 | | |
| %SS3: | 110 | 109 | 111 | 114 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/02/13 |
| | Client Contact: Josh Graber | Date Extracted: 01/02/13-01/03/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 01/02/13-01/03/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301010

| Lab ID | 1301010-009A | 1301010-010A | 1301010-011A | 1301010-012A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | AA-19-2012-12-30 | IA1-G-2012-12-30 | DUP1-2012-12-30 | IA2-G-2012-12-30 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 11.86 | 12.72 | 13.98 | 12.81 | | |
| Final Pressure (psia) | 11.86 | 12.72 | 13.98 | 12.81 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.24 | 0.15 | 0.15 | 0.20 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.21 | 0.055 | 0.057 | 0.054 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.20 | 0.099 | 0.089 | 0.093 | 0.021 | NA |
| 1,1-Dichloroethene | 0.12 | 0.15 | 0.11 | 0.15 | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.60 | 0.30 | 0.29 | 0.30 | 0.022 | NA |
| Freon 113 | 0.98 | 0.91 | 0.88 | 0.98 | 0.78 | NA |
| Methylene chloride | 0.72 | 0.38 | 0.40 | 0.39 | 0.35 | NA |
| Tetrachloroethene | 0.33 | 0.18 | 0.18 | 0.20 | 0.035 | NA |
| Toluene | 4.0 | 1.6 | 1.6 | 1.5 | 0.08 | NA |
| 1,1,1-Trichloroethane | ND | 0.71 | 0.73 | 1.1 | 0.55 | NA |
| 1,1,2-Trichloroethane | 0.17 | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.17 | 0.67 | 0.61 | 0.83 | 0.027 | NA |
| Trichlorofluoromethane | 2.1 | 1.8 | 1.6 | 1.8 | 0.57 | NA |
| Vinyl Chloride | 0.071 | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 2.4 | 1.4 | 1.3 | 1.4 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 103 | 92 | 89 | 94 | | |
| %SS2: | 113 | 100 | 98 | 99 | | |
| %SS3: | 111 | 95 | 94 | 96 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/02/13 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 01/02/13-01/03/13 |
| | Client P.O.: | Date Analyzed: 01/02/13-01/03/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301010

| Lab ID | 1301010-013A | 1301010-014A | 1301010-015A | 1301010-016A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA3-G-2012-12-30 | IA4-G-2012-12-30 | IA5-G-2012-12-30 | PS1-G-2012-12-30 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 12.63 | 12.04 | 12.61 | 12.17 | | |
| Final Pressure (psia) | 12.63 | 12.04 | 12.61 | 12.17 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.21 | 0.20 | 0.17 | 0.21 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.057 | 0.069 | 0.057 | 0.061 | 0.031 | NA |
| 1,1-Dichloroethane | ND | 0.70 | ND | 0.43 | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.090 | 0.11 | 0.090 | 0.10 | 0.021 | NA |
| 1,1-Dichloroethene | 0.10 | 0.13 | 0.14 | 0.16 | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.32 | 0.35 | 0.33 | 0.36 | 0.022 | NA |
| Freon 113 | 0.97 | 1.8 | 0.95 | 1.1 | 0.78 | NA |
| Methylene chloride | 0.48 | 0.43 | 0.40 | 0.51 | 0.35 | NA |
| Tetrachloroethene | 0.18 | 0.35 | 0.20 | 0.23 | 0.035 | NA |
| Toluene | 1.6 | 1.8 | 1.7 | 1.8 | 0.08 | NA |
| 1,1,1-Trichloroethane | 0.76 | 1.0 | 0.81 | 1.2 | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.62 | 1.3 | 0.71 | 0.88 | 0.027 | NA |
| Trichlorofluoromethane | 1.7 | 3.0 | 1.7 | 2.0 | 0.57 | NA |
| Vinyl Chloride | ND | 0.035 | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.4 | 1.4 | 1.4 | 1.6 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 91 | 107 | 92 | 105 | | |
| %SS2: | 99 | 116 | 100 | 116 | | |
| %SS3: | 95 | 113 | 96 | 111 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 12/30/12 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/02/13 |
| | Client Contact: Josh Graber | Date Extracted: 01/02/13-01/03/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Analyzed: 01/02/13-01/03/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301010

| Lab ID | 1301010-017A | 1301010-018A | | | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | PS2-G-2012-12-30 | PS3-G-2012-12-30 | | | | |
| Matrix | Indoor Air | Indoor Air | | | Indoor Air | W |
| Initial Pressure (psia) | 13.64 | 12.83 | | | | |
| Final Pressure (psia) | 13.64 | 12.83 | | | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | | | 0.47 | NA |
| Chloroethane | ND | ND | | | 0.27 | NA |
| Chloroform | 0.23 | 0.19 | | | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | | | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.064 | 0.075 | | | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | | | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.10 | 0.11 | | | 0.021 | NA |
| 1,1-Dichloroethene | 0.26 | 0.24 | | | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| Ethylbenzene | 0.36 | 0.37 | | | 0.022 | NA |
| Freon 113 | 1.2 | 1.1 | | | 0.78 | NA |
| Methylene chloride | 0.75 | 0.47 | | | 0.35 | NA |
| Tetrachloroethene | 0.22 | 0.22 | | | 0.035 | NA |
| Toluene | 1.9 | 2.0 | | | 0.08 | NA |
| 1,1,1-Trichloroethane | 0.75 | 0.70 | | | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | | | 0.098 | NA |
| Trichloroethene | 0.86 | 0.89 | | | 0.027 | NA |
| Trichlorofluoromethane | 1.9 | 2.0 | | | 0.57 | NA |
| Vinyl Chloride | 0.034 | 0.035 | | | 0.031 | NA |
| Xylenes, Total | 1.6 | 1.7 | | | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 105 | 109 | | | | |
| %SS2: | 116 | 117 | | | | |
| %SS3: | 110 | 115 | | | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73695 | WorkOrder: 1301010

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Benzene | N/A | 0.050 | N/A | N/A | N/A | 95 | N/A | N/A | 60 - 140 |
| Bromodichloromethane | N/A | 0.050 | N/A | N/A | N/A | 97.5 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 0.050 | N/A | N/A | N/A | 93.1 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 0.050 | N/A | N/A | N/A | 95.3 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 0.050 | N/A | N/A | N/A | 97.8 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 0.050 | N/A | N/A | N/A | 113 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 0.050 | N/A | N/A | N/A | 89.2 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 0.050 | N/A | N/A | N/A | 96.2 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 94.1 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 76.3 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 0.050 | N/A | N/A | N/A | 90.8 | N/A | N/A | 60 - 140 |
| Methyl-t-butyl ether (MTBE) | N/A | 0.050 | N/A | N/A | N/A | 92.8 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 100 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 106 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 0.050 | N/A | N/A | N/A | 95.4 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 0.050 | N/A | N/A | N/A | 87.9 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 0.050 | N/A | N/A | N/A | 92.2 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 0.050 | N/A | N/A | N/A | 98.5 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 0.050 | N/A | N/A | N/A | 98.1 | N/A | N/A | 60 - 140 |
| Xylenes, Total | N/A | 0.15 | N/A | N/A | N/A | 93.2 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 0.0025 | N/A | N/A | N/A | 113 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 0.0025 | N/A | N/A | N/A | 112 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 0.0025 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73695 | WorkOrder: 1301010

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |

BATCH 73695 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1301010-001A | 12/30/12 3:45 PM | 01/02/13 | 01/02/13 10:50 PM | 1301010-002A | 12/30/12 3:45 PM | 01/02/13 | 01/02/13 11:47 PM |
| 1301010-003A | 12/30/12 3:03 PM | 01/03/13 | 01/03/13 12:52 AM | 1301010-004A | 12/30/12 3:15 PM | 01/03/13 | 01/03/13 1:51 AM |
| 1301010-005A | 12/30/12 3:48 PM | 01/03/13 | 01/03/13 2:50 AM | 1301010-006A | 12/30/12 3:49 PM | 01/03/13 | 01/03/13 3:49 AM |
| 1301010-007A | 12/30/12 3:18 PM | 01/03/13 | 01/03/13 4:53 AM | 1301010-008A | 12/30/12 3:50 PM | 01/03/13 | 01/03/13 5:51 AM |
| 1301010-009A | 12/30/12 3:13 PM | 01/03/13 | 01/03/13 6:56 AM | 1301010-010A | 12/30/12 4:10 PM | 01/03/13 | 01/03/13 7:55 AM |
| 1301010-011A | 12/30/12 4:10 PM | 01/03/13 | 01/03/13 8:50 AM | 1301010-012A | 12/30/12 4:09 PM | 01/03/13 | 01/03/13 5:29 PM |
| 1301010-013A | 12/30/12 4:06 PM | 01/03/13 | 01/03/13 6:26 PM | 1301010-014A | 12/30/12 4:28 PM | 01/03/13 | 01/03/13 7:28 PM |
| 1301010-015A | 12/30/12 4:15 PM | 01/03/13 | 01/03/13 8:26 PM | 1301010-016A | 12/30/12 4:08 PM | 01/03/13 | 01/03/13 9:28 PM |
| 1301010-017A | 12/30/12 4:07 PM | 01/03/13 | 01/03/13 10:25 PM | 1301010-018A | 12/30/12 4:12 PM | 01/03/13 | 01/03/13 11:23 PM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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SLA QA/QC Officer

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 01/06/13 |
| | | Date Received: 01/07/13 |
| 555 Montgomery St., Suite 1300 | Client Contact: Josh Graber | Date Reported: 01/08/13 |
| San Francisco, CA 94111 | Client P.O.: | Date Completed: 01/08/13 |

**WorkOrder: 1301102**

January 08, 2013

Dear Josh:

Enclosed within are:

1) The results of the **6** analyzed samples from your project: **#730377986; TI Santa Clara,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

***The analytical results relate only to the items tested.***

1301102

**McCAMPBELL ANALYTICAL INC.**
1534 WILLOW PASS ROAD / PITTSBURG, CA 94565-1701
Website: www.mccampbell.com / Email: main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

# CHAIN OF CUSTODY RECORD

RUSH

TURN AROUND TIME: ☒ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Joshua Graber
Bill To: Treadwell & Rollo
Company: Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
E-Mail: jgraber@langan.com
Tele: (415) 955-5286
Fax: ( )
Project #: 730377986
Project Name: TI Santa clara
Project Location: 2900 Semiconductor Dr., Santa clara
Sampler Signature: Mukta Patil

Lab Use Only

| Pressurized By | Date | Pressurization Gas N2 | Pressurization Gas He |
|---|---|---|---|
| | | | |

Helium Shroud SN#:
Other:
Notes:

| Field Sample ID (Location) | Collection Date | Collection Time | Canister SN# | Manifold / Sampler Kit SN# | Analysis Requested | Indoor Air | Soil Gas | Canister Pressure/Vacuum Initial | Canister Pressure/Vacuum Final | Canister Pressure/Vacuum Receipt | Canister Pressure/Vacuum Final (psi) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA2-39-2013-01-06 | 1/06 | 1715 | CAN 4891-659 | SK8901-519 | TO15(SIM) Proj list | X | | -29.5 | -4.5 | | |
| DUP2-2013-01-06 | ↓ | 1715 | CAN6041-806 | SK6793-522 | ↓ | X | | 28.5 | -4.5 | | |
| IA1-39-2013-01-06 | ↓ | 1720 | CAN4744-655 | SK7699-540 | ↓ | X | | -29" | -5" | | |
| IA3-39-2013-01-06 | ↓ | 1714 | CAN4751-621 | SK7708-547 | ↓ | X | | -30" | -5 | | |
| PS1-39-2013-01-06 | ↓ | 1717 | CAN4702-593 | SK8644-923 | ↓ | X | | -29" | -5 | | |
| AA1-39-2013-01-06 | ↓ | 1615 | CAN4715-644 | SK6825-943 | ↓ | X | | -29" | -5" | | |

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Mukta Patil | 01/07/13 | 9:47 | |
| Relinquished By: | Date: | Time: | Received By: |
| [illegible] | 01/7/13 | 10:50 | |
| Relinquished By: | Date: | Time: | Received By: |
| | | | |

Temp (°C): _____ Work Order #: _____
Equipment Condition: _____
Shipped Via: _____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1301102** **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

**Report to:**
Josh Graber
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-9040 FAX: (415) 955-9041

Email: jdgraber@treadwellrollo.com
cc:
PO:
ProjectNo: #730377986; TI Santa Clara

**Bill to:**
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111

**Requested TAT:** 5 days

***Date Received:*** 01/07/2013
***Date Printed:*** 01/07/2013

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1301102-001 | IA2-39-2013-01-06 | Indoor Air | 1/6/2013 17:15 | ☐ | A | | | | | | | | | | | |
| 1301102-002 | DUP2-2013-01-06 | Indoor Air | 1/6/2013 17:15 | ☐ | A | | | | | | | | | | | |
| 1301102-003 | IA1-39-2013-01-06 | Indoor Air | 1/6/2013 17:20 | ☐ | A | | | | | | | | | | | |
| 1301102-004 | IA3-39-2013-01-06 | Indoor Air | 1/6/2013 17:14 | ☐ | A | | | | | | | | | | | |
| 1301102-005 | PS1-39-2013-01-06 | Indoor Air | 1/6/2013 17:17 | ☐ | A | | | | | | | | | | | |
| 1301102-006 | AA1-39-2013-01-06 | Indoor Air | 1/6/2013 16:15 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TO15_SIM_INDOOR(UG/M3) | 2 | | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Treadwell & Rollo** | Date and Time Received: | **1/7/2013 12:03:16 PM** |
| Project Name: | **#730377986; TI Santa Clara** | LogIn Reviewed by: | Maria Venegas |
| WorkOrder N°: | **1301102** Matrix: Indoor Air | Carrier: | Courier |

## Chain of Custody (COC) Information

| | | |
|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ |
| Sample IDs noted by Client on COC? | Yes ☑ | No ☐ |
| Date and Time of collection noted by Client on COC? | Yes ☑ | No ☐ |
| Sampler's name noted on COC? | Yes ☑ | No ☐ |

## Sample Receipt Information

| | | | |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | NA ☑ |
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | |
| Samples in proper containers/bottles? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | | | |
|---|---|---|---|
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature | Cooler Temp: | | NA ☑ |
| Water - VOA vials have zero headspace / no bubbles? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Sample labels checked for correct preservation? | Yes ☑ | No ☐ | |
| Metal - pH acceptable upon receipt (pH<2)? | Yes ☐ | No ☐ | NA ☑ |
| Samples Received on Ice? | Yes ☐ | No ☑ | |

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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| | | |
|---|---|---|
| Treadwell & Rollo<br><br>555 Montgomery St., Suite 1300<br><br>San Francisco, CA 94111 | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 01/06/13 |
| | | Date Received: 01/07/13 |
| | Client Contact: Josh Graber | Date Reported: 01/08/13 |
| | Client P.O.: | Date Completed: 01/08/13 |

**Work Order: 1301102**

January 08, 2013

CASE NARRATIVE REGARDING TO-15 ANALYSIS

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The disadvantages are listed in Appendix B of the DTSC Advisory of April 2012.

DHS ELAP Certification 1644

_____ Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 01/06/13 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/07/13 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 01/07/13-01/08/13 |
| | Client P.O.: | Date Analyzed: 01/07/13-01/08/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301102

| Lab ID | 1301102-001A | 1301102-002A | 1301102-003A | 1301102-004A | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | IA2-39-2013-01-06 | DUP2-2013-01-06 | IA1-39-2013-01-06 | IA3-39-2013-01-06 | | |
| Matrix | Indoor Air | Indoor Air | Indoor Air | Indoor Air | Indoor Air | W |
| Initial Pressure (psia) | 13.02 | 12.93 | 13.37 | 13.86 | | |
| Final Pressure (psia) | 13.02 | 12.93 | 13.37 | 13.86 | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | ND | ND | 0.47 | NA |
| Chloroethane | ND | ND | ND | ND | 0.27 | NA |
| Chloroform | 0.16 | 0.20 | 0.16 | 0.18 | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.10 | 0.10 | 0.12 | 0.093 | 0.031 | NA |
| 1,1-Dichloroethane | ND | ND | ND | ND | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.10 | 0.097 | 0.13 | 0.10 | 0.021 | NA |
| 1,1-Dichloroethene | 0.025 | 0.023 | 0.053 | ND | 0.02 | NA |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 0.4 | NA |
| Ethylbenzene | 0.29 | 0.29 | 0.37 | 0.29 | 0.022 | NA |
| Freon 113 | 1.9 | 1.9 | 2.7 | 2.4 | 0.78 | NA |
| Methylene chloride | 0.39 | 0.64 | 0.43 | 0.43 | 0.35 | NA |
| Tetrachloroethene | 0.16 | 0.15 | 0.44 | 0.18 | 0.035 | NA |
| Toluene | 1.2 | 1.2 | 1.4 | 1.4 | 0.019 | NA |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 0.098 | NA |
| Trichloroethene | 0.56 | 0.56 | 0.96 | 0.67 | 0.027 | NA |
| Trichlorofluoromethane | 1.7 | 1.7 | 1.8 | 1.8 | 0.57 | NA |
| Vinyl Chloride | ND | ND | ND | ND | 0.031 | NA |
| Xylenes, Total | 1.3 | 1.3 | 1.6 | 1.3 | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 118 | 113 | 113 | 113 | | |
| %SS2: | 121 | 119 | 120 | 122 | | |
| %SS3: | 120 | 119 | 119 | 121 | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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| | | |
|---|---|---|
| Treadwell & Rollo | Client Project ID: #730377986; TI Santa Clara | Date Sampled: 01/06/13 |
| 555 Montgomery St., Suite 1300 | | Date Received: 01/07/13 |
| San Francisco, CA 94111 | Client Contact: Josh Graber | Date Extracted: 01/07/13-01/08/13 |
| | Client P.O.: | Date Analyzed: 01/07/13-01/08/13 |

## Volatile Organic Compounds (SIM Mode) in µg/m³*

Extraction Method: TO15SIM | Analytical Method: TO15 | Work Order: 1301102

| Lab ID | 1301102-005A | 1301102-006A | | | Reporting Limit for DF =1 | |
|---|---|---|---|---|---|---|
| Client ID | PS1-39-2013-01-06 | AA1-39-2013-01-06 | | | | |
| Matrix | Indoor Air | Indoor Air | | | Indoor Air | W |
| Initial Pressure (psia) | 12.46 | 13.32 | | | | |
| Final Pressure (psia) | 12.46 | 13.32 | | | | |
| **Compound** | **Concentration** | | | | µg/m³ | ug/L |
| Chlorobenzene | ND | ND | | | 0.47 | NA |
| Chloroethane | ND | ND | | | 0.27 | NA |
| Chloroform | 3.5 | 0.21 | | | 0.025 | NA |
| 1,2-Dichlorobenzene | ND | ND | | | 0.61 | NA |
| 1,4-Dichlorobenzene | 0.11 | 0.042 | | | 0.031 | NA |
| 1,1-Dichloroethane | 0.60 | ND | | | 0.41 | NA |
| 1,2-Dichloroethane (1,2-DCA) | 0.074 | 0.099 | | | 0.021 | NA |
| 1,1-Dichloroethene | 0.48 | ND | | | 0.02 | NA |
| cis-1,2-Dichloroethene | 2.0 | ND | | | 0.4 | NA |
| trans-1,2-Dichloroethene | ND | ND | | | 0.4 | NA |
| Ethylbenzene | 0.25 | 0.29 | | | 0.022 | NA |
| Freon 113 | 37 | ND | | | 0.78 | NA |
| Methylene chloride | 0.39 | 0.52 | | | 0.35 | NA |
| Tetrachloroethene | 6.2 | 0.052 | | | 0.035 | NA |
| Toluene | 1.2 | 1.4 | | | 0.019 | NA |
| 1,1,1-Trichloroethane | 5.3 | ND | | | 0.55 | NA |
| 1,1,2-Trichloroethane | ND | ND | | | 0.098 | NA |
| Trichloroethene | 27 | 0.072 | | | 0.027 | NA |
| Trichlorofluoromethane | 2.5 | 1.6 | | | 0.57 | NA |
| Vinyl Chloride | ND | ND | | | 0.031 | NA |
| Xylenes, Total | 1.1 | 1.3 | | | 0.066 | NA |
| **Surrogate Recoveries (%)** | | | | | | |
| %SS1: | 96 | 109 | | | | |
| %SS2: | 107 | 121 | | | | |
| %SS3: | 108 | 120 | | | | |
| **Comments** | | | | | | |

*vapor samples are reported in µg/m³.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or surrogate coelutes with another peak.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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# QC SUMMARY REPORT FOR TO15

W.O. Sample Matrix: Indoor Air | QC Matrix: Indoor Air | BatchID: 73789 | WorkOrder: 1301102

**EPA Method: TO15** **Extraction: TO15SIM** **Spiked Sample ID: N/A**

| Analyte | Sample | Spiked | MS | MSD | MS-MSD | LCS | Acceptance Criteria (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | nL/L | nL/L | % Rec. | % Rec. | % RPD | % Rec. | MS / MSD | RPD | LCS |
| Bromodichloromethane | N/A | 0.050 | N/A | N/A | N/A | 101 | N/A | N/A | 60 - 140 |
| Carbon Tetrachloride | N/A | 0.050 | N/A | N/A | N/A | 89.2 | N/A | N/A | 60 - 140 |
| Chloroform | N/A | 0.050 | N/A | N/A | N/A | 103 | N/A | N/A | 60 - 140 |
| 1,2-Dibromoethane (EDB) | N/A | 0.050 | N/A | N/A | N/A | 102 | N/A | N/A | 60 - 140 |
| 1,4-Dichlorobenzene | N/A | 0.050 | N/A | N/A | N/A | 117 | N/A | N/A | 60 - 140 |
| 1,2-Dichloroethane (1,2-DCA) | N/A | 0.050 | N/A | N/A | N/A | 98 | N/A | N/A | 60 - 140 |
| 1,1-Dichloroethene | N/A | 0.050 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |
| 1,2-Dichloropropane | N/A | 0.050 | N/A | N/A | N/A | 98.4 | N/A | N/A | 60 - 140 |
| cis-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 92.7 | N/A | N/A | 60 - 140 |
| trans-1,3-Dichloropropene | N/A | 0.050 | N/A | N/A | N/A | 72 | N/A | N/A | 60 - 140 |
| Ethylbenzene | N/A | 0.050 | N/A | N/A | N/A | 106 | N/A | N/A | 60 - 140 |
| 1,1,1,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 107 | N/A | N/A | 60 - 140 |
| 1,1,2,2-Tetrachloroethane | N/A | 0.050 | N/A | N/A | N/A | 113 | N/A | N/A | 60 - 140 |
| Tetrachloroethene | N/A | 0.050 | N/A | N/A | N/A | 105 | N/A | N/A | 60 - 140 |
| Toluene | N/A | 0.050 | N/A | N/A | N/A | 96.3 | N/A | N/A | 60 - 140 |
| 1,1,2-Trichloroethane | N/A | 0.050 | N/A | N/A | N/A | 95.9 | N/A | N/A | 60 - 140 |
| Trichloroethene | N/A | 0.050 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| Vinyl Chloride | N/A | 0.050 | N/A | N/A | N/A | 83.6 | N/A | N/A | 60 - 140 |
| Xylenes, Total | N/A | 0.15 | N/A | N/A | N/A | 110 | N/A | N/A | 60 - 140 |
| %SS1: | N/A | 0.0025 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |
| %SS2: | N/A | 0.0025 | N/A | N/A | N/A | 119 | N/A | N/A | 60 - 140 |
| %SS3: | N/A | 0.0025 | N/A | N/A | N/A | 118 | N/A | N/A | 60 - 140 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73789 SUMMARY

| Lab ID | Date Sampled | Date Extracted | Date Analyzed | Lab ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 1301102-001A | 01/06/13 5:15 PM | 01/07/13 | 01/07/13 10:59 PM | 1301102-002A | 01/06/13 5:15 PM | 01/07/13 | 01/07/13 11:58 PM |
| 1301102-003A | 01/06/13 5:20 PM | 01/08/13 | 01/08/13 12:56 AM | 1301102-004A | 01/06/13 5:14 PM | 01/08/13 | 01/08/13 1:52 AM |
| 1301102-005A | 01/06/13 5:17 PM | 01/08/13 | 01/08/13 2:50 AM | 1301102-006A | 01/06/13 4:15 PM | 01/08/13 | 01/08/13 3:48 AM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

Calscience Environmental Laboratories, Inc.

# CALSCIENCE

## WORK ORDER NUMBER: 13-01-1141

*The difference is service*

AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** Treadwell & Rollo | A Langan Company

**Client Project Name:** TI Vapor Intrusion Assessment / 730377986

**Attention:** Joshua Graber
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Approved for release on 01/30/2013 by:
Kristin Beckley
Project Manager

ResultLink

Email your PM

Accredited in accordance with nelac

Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

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Work Order Number: 13-01-1141


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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA1-C-2013-01-18 (13-01-1141-1)** | | | | | | |
| Trichlorofluoromethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.1** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.48** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.25** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.080** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.23** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.17** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.44** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.84** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.8** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA2-C-2013-01-18 (13-01-1141-2)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.93** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.47** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.21** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.074** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.21** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.13** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.31** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.69** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.4** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.94** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA3-C-2013-01-18 (13-01-1141-3)** | | | | | | |
| Trichlorofluoromethane | **1.0** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.78** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.45** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.19** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.070** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.5** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.12** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.22** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.60** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.1** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.84** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA4-C-2013-01-18 (13-01-1141-4)** | | | | | | |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.59** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.32** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.12** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.13** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.32** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **5.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.22** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.86** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **3.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.4** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
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## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA5-C-2013-01-18 (13-01-1141-5)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.89** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.48** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.21** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.22** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.11** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.2** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.14** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.1** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.99** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA6-C-2013-01-18 (13-01-1141-6)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.86** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.50** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.22** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.081** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.23** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.22** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.16** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.8** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.74** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
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## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA7-C-2013-01-18 (13-01-1141-7)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.97** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.48** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.21** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.084** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.26** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.5** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.14** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.23** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.71** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.4** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.93** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS1-C-2013-01-18 (13-01-1141-8)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.86** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.50** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.26** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.076** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.18** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.13** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.15** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.3** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.75** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS2-C-2013-01-18 (13-01-1141-9)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.0** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.50** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.12** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.24** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.083** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.29** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.14** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.34** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.2** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.75** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.6** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **DUP4-C-2013-01-18 (13-01-1141-10)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.5** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.49** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.24** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.077** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.18** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.16** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.4** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.16** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.5** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.85** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
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## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **AAF-2013-01-18 (13-01-1141-11)** | | | | | | |
| Trichlorofluoromethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **2.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.45** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.14** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.066** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.4** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.17** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.28** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.62** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.2** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.90** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS1-E-2013-01-18 (13-01-1141-12)** | | | | | | |
| Trichlorofluoromethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.48** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.21** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.076** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.14** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.25** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.68** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.89** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS2-E-2013-01-18 (13-01-1141-13)** | | | | | | |
| Trichlorofluoromethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.8** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.50** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.18** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.079** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.12** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.6** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.23** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.22** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.60** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.0** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.83** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Received: | 01/22/13 10:15 |
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## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS3-E-2013-01-18 (13-01-1141-14)** | | | | | | |
| Trichlorofluoromethane | **1.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.82** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.47** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.14** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.064** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.13** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **8.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.16** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.15** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.79** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.85** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA1-E-2013-01-18 (13-01-1141-15)** | | | | | | |
| Trichlorofluoromethane | **1.3** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.53** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.22** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.088** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.30** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.67** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.4** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.94** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **DUP3-E-2013-01-18 (13-01-1141-16)** | | | | | | |
| Trichlorofluoromethane | **1.3** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.53** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.22** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.085** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.18** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.31** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.68** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.90** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA2-E-2013-01-18 (13-01-1141-17)** | | | | | | |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.62** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.24** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.091** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.35** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.67** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.89** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA3-E-2013-01-18 (13-01-1141-18)** | | | | | | |
| Trichlorofluoromethane | **1.6** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.67** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.24** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.089** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.13** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.2** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.20** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.50** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.8** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.69** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA4-E-2013-01-18 (13-01-1141-19)** | | | | | | |
| Trichlorofluoromethane | **1.5** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.61** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.27** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.12** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.16** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.19** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.62** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.91** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA5-E-2013-01-18 (13-01-1141-20)** | | | | | | |
| Trichlorofluoromethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.51** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.20** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.075** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.6** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.19** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.58** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.0** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.80** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA6-E-2013-01-18 (13-01-1141-21)** | | | | | | |
| Trichlorofluoromethane | **1.3** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.51** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.21** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.076** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.14** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.6** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.25** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.62** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.2** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.84** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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*MDL is shown.

Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS4-E-2013-01-18 (13-01-1141-22)** | | | | | | |
| Trichlorofluoromethane | **1.6** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.059** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.70** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **3.3** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethane | **0.081** | | 0.081 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.96** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.27** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.078** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.13** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.51** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **16** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.6** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.89** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.9** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA1-F-2013-01-18 (13-01-1141-23)** | | | | | | |
| Trichlorofluoromethane | **3.9** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.51** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.51** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.067** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.1** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.27** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.49** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.65** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA2-F-2013-01-18 (13-01-1141-24)** | | | | | | |
| Trichlorofluoromethane | **1.7** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.47** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.15** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.061** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.4** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.11** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.39** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.4** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.52** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1141 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

Client Sample ID

| Analyte | **Result** | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|

Subcontracted analyses, if any, are not included in this summary.

*MDL is shown.



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Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA1-C-2013-01-18** | **13-01-1141-1-A** | **01/18/13 15:05** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 14:50** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 1.2 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.23 | 0.12 | 1 | |
| Methylene Chloride | 1.1 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.48 | 0.15 | 1 | | Toluene | 4.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.17 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.44 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.84 | 0.087 | 1 | |
| Chloroform | 0.25 | 0.049 | 1 | | p/m-Xylene | 2.8 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.080 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 112 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 106 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA2-C-2013-01-18** | **13-01-1141-2-A** | **01/18/13 15:36** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 15:46** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.21 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.93 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.47 | 0.15 | 1 | | Toluene | 3.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.13 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.31 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.69 | 0.087 | 1 | |
| Chloroform | 0.21 | 0.049 | 1 | | p/m-Xylene | 2.4 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.074 | 0.040 | 1 | | o-Xylene | 0.94 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 108 | 45-153 | | 1,2-Dichloroethane-d4 | 99 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA3-C-2013-01-18** | **13-01-1141-3-A** | **01/18/13 16:00** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 16:40** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 1.0 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Methylene Chloride | 0.78 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | 0.15 | 1 | | Toluene | 3.5 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.12 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.22 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.60 | 0.087 | 1 | |
| Chloroform | 0.19 | 0.049 | 1 | | p/m-Xylene | 2.1 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.070 | 0.040 | 1 | | o-Xylene | 0.84 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 110 | 45-153 | | 1,2-Dichloroethane-d4 | 99 | 37-163 | |
| Toluene-d8 | 104 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA4-C-2013-01-18** | **13-01-1141-4-A** | **01/18/13 15:08** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 17:41** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.32 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,1,1-Trichloroethane | 0.13 | 0.11 | 1 | |
| Methylene Chloride | 1.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.59 | 0.15 | 1 | | Toluene | 5.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.22 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.86 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 1.0 | 0.087 | 1 | |
| Chloroform | 0.32 | 0.049 | 1 | | p/m-Xylene | 3.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.12 | 0.040 | 1 | | o-Xylene | 1.4 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 107 | 45-153 | | 1,2-Dichloroethane-d4 | 84 | 37-163 | |
| Toluene-d8 | 107 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA5-C-2013-01-18** | **13-01-1141-5-A** | **01/18/13 15:50** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 18:36** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 0.11 | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | 1,4-Dichlorobenzene | 0.22 | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.89 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.48 | 0.15 | 1 | | Toluene | 4.2 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.14 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.1 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.99 | 0.087 | 1 | |
| Chloroform | 0.21 | 0.049 | 1 | | p/m-Xylene | 2.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 111 | 45-153 | | 1,2-Dichloroethane-d4 | 101 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA6-C-2013-01-18** | **13-01-1141-6-A** | **01/18/13 15:15** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 19:34** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 0.22 | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.23 | 0.12 | 1 | |
| Methylene Chloride | 0.86 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.50 | 0.15 | 1 | | Toluene | 4.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.16 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.8 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.74 | 0.087 | 1 | |
| Chloroform | 0.22 | 0.049 | 1 | | p/m-Xylene | 2.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.081 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 106 | 45-153 | | 1,2-Dichloroethane-d4 | 85 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA7-C-2013-01-18** | **13-01-1141-7-A** | **01/18/13 15:25** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 20:30** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.26 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | 0.97 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.48 | 0.15 | 1 | | Toluene | 4.5 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.14 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.23 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.71 | 0.087 | 1 | |
| Chloroform | 0.21 | 0.049 | 1 | | p/m-Xylene | 2.4 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.084 | 0.040 | 1 | | o-Xylene | 0.93 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 105 | 45-153 | | 1,2-Dichloroethane-d4 | 99 | 37-163 | |
| Toluene-d8 | 108 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS1-C-2013-01-18** | **13-01-1141-8-A** | **01/18/13 15:30** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 21:27** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.18 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.13 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.86 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.50 | 0.15 | 1 | | Toluene | 4.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.15 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.3 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.75 | 0.087 | 1 | |
| Chloroform | 0.26 | 0.049 | 1 | | p/m-Xylene | 2.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.076 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 107 | 45-153 | | 1,2-Dichloroethane-d4 | 84 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **PS2-C-2013-01-18** | **13-01-1141-9-A** | **01/18/13 15:53** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 22:23** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.14 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.29 | 0.12 | 1 | |
| Methylene Chloride | 1.0 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.50 | 0.15 | 1 | | Toluene | 4.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.34 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.2 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.12 | 0.079 | 1 | | Ethylbenzene | 0.75 | 0.087 | 1 | |
| Chloroform | 0.24 | 0.049 | 1 | | p/m-Xylene | 2.6 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.083 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 102 | 45-153 | | 1,2-Dichloroethane-d4 | 98 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DUP4-C-2013-01-18** | **13-01-1141-10-A** | **01/18/13 15:56** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 23:16** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.16 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,1,1-Trichloroethane | 0.18 | 0.11 | 1 | |
| Methylene Chloride | 1.5 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.49 | 0.15 | 1 | | Toluene | 4.4 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.16 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.5 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.85 | 0.087 | 1 | |
| Chloroform | 0.24 | 0.049 | 1 | | p/m-Xylene | 2.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.077 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 103 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 117 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **AAF-2013-01-18** | **13-01-1141-11-A** | **01/18/13 16:05** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 17:11** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 1.2 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 2.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.45 | 0.15 | 1 | | Toluene | 3.4 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.17 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.28 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.62 | 0.087 | 1 | |
| Chloroform | 0.14 | 0.049 | 1 | | p/m-Xylene | 2.2 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.066 | 0.040 | 1 | | o-Xylene | 0.90 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 114 | 45-153 | | 1,2-Dichloroethane-d4 | 90 | 37-163 | |
| Toluene-d8 | 111 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS1-E-2013-01-18** | **13-01-1141-12-A** | **01/18/13 15:30** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 18:07** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.2 | 0.11 | 1 | | 1,4-Dichlorobenzene | 0.14 | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.48 | 0.15 | 1 | | Toluene | 3.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.25 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.68 | 0.087 | 1 | |
| Chloroform | 0.21 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.076 | 0.040 | 1 | | o-Xylene | 0.89 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 114 | 45-153 | | 1,2-Dichloroethane-d4 | 96 | 37-163 | |
| Toluene-d8 | 103 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **PS2-E-2013-01-18** | **13-01-1141-13-A** | **01/18/13 15:58** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 19:01** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.2 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.12 | 0.12 | 1 | |
| Methylene Chloride | 1.8 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.50 | 0.15 | 1 | | Toluene | 3.6 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.23 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.22 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.60 | 0.087 | 1 | |
| Chloroform | 0.18 | 0.049 | 1 | | p/m-Xylene | 2.0 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.079 | 0.040 | 1 | | o-Xylene | 0.83 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 102 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 111 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS3-E-2013-01-18** | **13-01-1141-14-A** | **01/18/13 16:05** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 16:11** | **130124L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.13 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.82 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.47 | 0.15 | 1 | | Toluene | 8.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.16 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.15 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.79 | 0.087 | 1 | |
| Chloroform | 0.14 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.064 | 0.040 | 1 | | o-Xylene | 0.85 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 111 | 45-153 | | 1,2-Dichloroethane-d4 | 99 | 37-163 | |
| Toluene-d8 | 107 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA1-E-2013-01-18** | **13-01-1141-15-A** | **01/18/13 16:09** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 20:51** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.3 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.53 | 0.15 | 1 | | Toluene | 4.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.30 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.67 | 0.087 | 1 | |
| Chloroform | 0.22 | 0.049 | 1 | | p/m-Xylene | 2.4 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.088 | 0.040 | 1 | | o-Xylene | 0.94 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 102 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 108 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DUP3-E-2013-01-18** | **13-01-1141-16-A** | **01/18/13 16:09** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 21:46** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.18 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.3 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.53 | 0.15 | 1 | | Toluene | 3.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.31 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.68 | 0.087 | 1 | |
| Chloroform | 0.22 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.085 | 0.040 | 1 | | o-Xylene | 0.90 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 103 | 45-153 | | 1,2-Dichloroethane-d4 | 84 | 37-163 | |
| Toluene-d8 | 109 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA2-E-2013-01-18** | **13-01-1141-17-A** | **01/18/13 15:35** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 22:42** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.62 | 0.15 | 1 | | Toluene | 4.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.35 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.67 | 0.087 | 1 | |
| Chloroform | 0.24 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.091 | 0.040 | 1 | | o-Xylene | 0.89 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 104 | 45-153 | | 1,2-Dichloroethane-d4 | 97 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA3-E-2013-01-18** | **13-01-1141-18-A** | **01/18/13 15:55** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 23:36** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.13 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.6 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.67 | 0.15 | 1 | | Toluene | 3.2 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.20 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.50 | 0.087 | 1 | |
| Chloroform | 0.24 | 0.049 | 1 | | p/m-Xylene | 1.8 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.089 | 0.040 | 1 | | o-Xylene | 0.69 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 103 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 108 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA4-E-2013-01-18** | **13-01-1141-19-A** | **01/18/13 15:56** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 00:31** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.5 | 0.11 | 1 | | 1,4-Dichlorobenzene | 0.16 | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.61 | 0.15 | 1 | | Toluene | 4.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.19 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.62 | 0.087 | 1 | |
| Chloroform | 0.27 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.12 | 0.040 | 1 | | o-Xylene | 0.91 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 102 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 103 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA5-E-2013-01-18** | **13-01-1141-20-A** | **01/18/13 15:50** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 01:27** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 1.2 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.51 | 0.15 | 1 | | Toluene | 3.6 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.19 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.58 | 0.087 | 1 | |
| Chloroform | 0.20 | 0.049 | 1 | | p/m-Xylene | 2.0 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.075 | 0.040 | 1 | | o-Xylene | 0.80 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 108 | 45-153 | | 1,2-Dichloroethane-d4 | 99 | 37-163 | |
| Toluene-d8 | 107 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA6-E-2013-01-18** | **13-01-1141-21-A** | **01/18/13 16:18** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 02:24** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.14 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.3 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.51 | 0.15 | 1 | | Toluene | 3.6 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.25 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.62 | 0.087 | 1 | |
| Chloroform | 0.21 | 0.049 | 1 | | p/m-Xylene | 2.2 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.076 | 0.040 | 1 | | o-Xylene | 0.84 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 105 | 45-153 | | 1,2-Dichloroethane-d4 | 94 | 37-163 | |
| Toluene-d8 | 103 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS4-E-2013-01-18** | **13-01-1141-22-A** | **01/18/13 16:17** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 03:20** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.13 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.51 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.6 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | 0.059 | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.70 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.3 | 0.15 | 1 | | Toluene | 3.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 16 | 0.054 | 1 | |
| 1,1-Dichloroethane | 0.081 | 0.081 | 1 | | Tetrachloroethene | 1.6 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.96 | 0.079 | 1 | | Ethylbenzene | 0.89 | 0.087 | 1 | |
| Chloroform | 0.27 | 0.049 | 1 | | p/m-Xylene | 2.9 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.078 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 106 | 45-153 | | 1,2-Dichloroethane-d4 | 104 | 37-163 | |
| Toluene-d8 | 107 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA1-F-2013-01-18** | **13-01-1141-23-A** | **01/18/13 16:24** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 04:13** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | 3.9 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.51 | 0.15 | 1 | | Toluene | 3.1 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.27 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.49 | 0.087 | 1 | |
| Chloroform | 0.51 | 0.049 | 1 | | p/m-Xylene | 1.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.067 | 0.040 | 1 | | o-Xylene | 0.65 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 98 | 45-153 | | 1,2-Dichloroethane-d4 | 98 | 37-163 | |
| Toluene-d8 | 105 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA2-F-2013-01-18** | **13-01-1141-24-A** | **01/18/13 16:17** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 05:07** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.7 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.47 | 0.15 | 1 | | Toluene | 2.4 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.11 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.39 | 0.087 | 1 | |
| Chloroform | 0.15 | 0.049 | 1 | | p/m-Xylene | 1.4 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.061 | 0.040 | 1 | | o-Xylene | 0.52 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 104 | 45-153 | | 1,2-Dichloroethane-d4 | 104 | 37-163 | |
| Toluene-d8 | 108 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1141 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-22** | **N/A** | **Air** | **GC/MS DD** | **N/A** | **01/22/13 13:53** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 106 | 37-163 | |
| Toluene-d8 | 105 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-24** | **N/A** | **Air** | **GC/MS DD** | **N/A** | **01/23/13 15:24** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 100 | 45-153 | | 1,2-Dichloroethane-d4 | 102 | 37-163 | |
| Toluene-d8 | 102 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | 01/22/13 |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1141 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |
| | | Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-27** | **N/A** | **Air** | **GC/MS DD** | **N/A** | **01/24/13 14:18** | **130124L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 114 | 45-153 | | 1,2-Dichloroethane-d4 | 108 | 37-163 | |
| Toluene-d8 | 109 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1141
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-22** | **Air** | **GC/MS DD** | **N/A** | **01/22/13** | **130122L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.184 | 88 | 2.224 | 90 | 50-150 | 33-167 | 2 | 0-30 | |
| Chloromethane | 1.033 | 0.8919 | 86 | 0.8975 | 87 | 50-150 | 33-167 | 1 | 0-30 | |
| Vinyl Chloride | 1.278 | 1.073 | 84 | 1.038 | 81 | 44-140 | 28-156 | 3 | 0-33 | |
| Chloroethane | 1.319 | 1.123 | 85 | 1.081 | 82 | 50-150 | 33-167 | 4 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.197 | 78 | 2.221 | 79 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.216 | 61 | 1.476 | 74 | 50-150 | 33-167 | 19 | 0-30 | |
| Methylene Chloride | 1.737 | 1.297 | 75 | 1.329 | 77 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 2.902 | 76 | 3.022 | 79 | 50-150 | 33-167 | 4 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.558 | 79 | 1.490 | 75 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.608 | 79 | 1.592 | 79 | 50-150 | 33-167 | 1 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.587 | 80 | 1.543 | 78 | 35-165 | 13-187 | 3 | 0-35 | |
| Chloroform | 2.441 | 1.939 | 79 | 1.841 | 75 | 50-150 | 33-167 | 5 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.641 | 81 | 1.646 | 81 | 28-166 | 5-189 | 0 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 2.271 | 92 | 2.292 | 93 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.359 | 96 | 2.441 | 99 | 50-150 | 33-167 | 3 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.415 | 98 | 2.462 | 100 | 50-150 | 33-167 | 2 | 0-30 | |
| Chlorobenzene | 2.302 | 1.948 | 85 | 2.036 | 88 | 50-150 | 33-167 | 4 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 2.081 | 92 | 1.982 | 87 | 50-150 | 33-167 | 5 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.374 | 87 | 2.358 | 86 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.156 | 86 | 1.169 | 87 | 50-150 | 33-167 | 1 | 0-30 | |
| Benzene | 1.597 | 1.300 | 81 | 1.284 | 80 | 27-153 | 6-174 | 1 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 2.647 | 84 | 2.676 | 85 | 7-187 | 0-217 | 1 | 0-31 | |
| Bromodichloromethane | 3.350 | 3.011 | 90 | 3.009 | 90 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.526 | 93 | 2.537 | 93 | 27-171 | 3-195 | 0 | 0-38 | |
| Toluene | 1.884 | 1.558 | 83 | 1.621 | 86 | 28-154 | 7-175 | 4 | 0-42 | |
| Dibromochloromethane | 4.259 | 3.741 | 88 | 4.027 | 95 | 50-150 | 33-167 | 7 | 0-30 | |
| Trichloroethene | 2.687 | 2.308 | 86 | 2.329 | 87 | 43-139 | 27-155 | 1 | 0-31 | |
| Tetrachloroethene | 3.391 | 2.905 | 86 | 3.096 | 91 | 34-154 | 14-174 | 6 | 0-33 | |
| Ethylbenzene | 2.171 | 1.891 | 87 | 1.874 | 86 | 27-153 | 6-174 | 1 | 0-46 | |
| p/m-Xylene | 4.342 | 4.037 | 93 | 4.003 | 92 | 21-165 | 0-189 | 1 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 2.960 | 86 | 3.096 | 90 | 50-150 | 33-167 | 5 | 0-30 | |
| o-Xylene | 2.171 | 1.995 | 92 | 2.013 | 93 | 22-160 | 0-183 | 1 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Accredited in accordance with nelac

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | N/A |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1141 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-22** | **Air** | **GC/MS DD** | **N/A** | **01/22/13** | **130122L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 4.869 | 91 | 5.026 | 94 | 50-150 | 33-167 | 3 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.518 | 84 | 1.464 | 81 | 50-150 | 33-167 | 4 | 0-30 | |
| Naphthalene | 2.621 | 2.553 | 97 | 2.332 | 89 | 40-190 | 15-215 | 9 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
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

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1141
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-24** | **Air** | **GC/MS DD** | **N/A** | **01/23/13** | **130123L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.178 | 88 | 2.396 | 97 | 50-150 | 33-167 | 10 | 0-30 | |
| Chloromethane | 1.033 | 0.8518 | 83 | 0.9439 | 91 | 50-150 | 33-167 | 10 | 0-30 | |
| Vinyl Chloride | 1.278 | 0.9987 | 78 | 1.109 | 87 | 44-140 | 28-156 | 10 | 0-33 | |
| Chloroethane | 1.319 | 1.069 | 81 | 1.118 | 85 | 50-150 | 33-167 | 4 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.120 | 75 | 2.290 | 81 | 50-150 | 33-167 | 8 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.362 | 69 | 1.463 | 74 | 50-150 | 33-167 | 7 | 0-30 | |
| Methylene Chloride | 1.737 | 1.208 | 70 | 1.338 | 77 | 50-150 | 33-167 | 10 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 2.770 | 72 | 2.996 | 78 | 50-150 | 33-167 | 8 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.537 | 78 | 1.542 | 78 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.614 | 80 | 1.642 | 81 | 50-150 | 33-167 | 2 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.469 | 74 | 1.619 | 82 | 35-165 | 13-187 | 10 | 0-35 | |
| Chloroform | 2.441 | 1.785 | 73 | 1.788 | 73 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.493 | 74 | 1.712 | 85 | 28-166 | 5-189 | 14 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 2.173 | 88 | 2.137 | 87 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.326 | 95 | 2.276 | 93 | 50-150 | 33-167 | 2 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.367 | 96 | 2.237 | 91 | 50-150 | 33-167 | 6 | 0-30 | |
| Chlorobenzene | 2.302 | 1.953 | 85 | 1.977 | 86 | 50-150 | 33-167 | 1 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 1.899 | 84 | 2.143 | 94 | 50-150 | 33-167 | 12 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.257 | 83 | 2.568 | 94 | 50-150 | 33-167 | 13 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.077 | 80 | 1.222 | 90 | 50-150 | 33-167 | 13 | 0-30 | |
| Benzene | 1.597 | 1.161 | 73 | 1.357 | 85 | 27-153 | 6-174 | 16 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 2.540 | 81 | 2.869 | 91 | 7-187 | 0-217 | 12 | 0-31 | |
| Bromodichloromethane | 3.350 | 2.806 | 84 | 3.313 | 99 | 50-150 | 33-167 | 17 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.337 | 86 | 2.700 | 99 | 27-171 | 3-195 | 14 | 0-38 | |
| Toluene | 1.884 | 1.520 | 81 | 1.545 | 82 | 28-154 | 7-175 | 2 | 0-42 | |
| Dibromochloromethane | 4.259 | 3.856 | 91 | 3.942 | 93 | 50-150 | 33-167 | 2 | 0-30 | |
| Trichloroethene | 2.687 | 2.119 | 79 | 2.432 | 91 | 43-139 | 27-155 | 14 | 0-31 | |
| Tetrachloroethene | 3.391 | 2.902 | 86 | 2.966 | 87 | 34-154 | 14-174 | 2 | 0-33 | |
| Ethylbenzene | 2.171 | 1.896 | 87 | 1.807 | 83 | 27-153 | 6-174 | 5 | 0-46 | |
| p/m-Xylene | 4.342 | 3.989 | 92 | 3.869 | 89 | 21-165 | 0-189 | 3 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 2.997 | 87 | 3.083 | 90 | 50-150 | 33-167 | 3 | 0-30 | |
| o-Xylene | 2.171 | 1.966 | 91 | 1.960 | 90 | 22-160 | 0-183 | 0 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | N/A |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1141 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-24** | **Air** | **GC/MS DD** | **N/A** | **01/23/13** | **130123L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 4.800 | 90 | 4.882 | 92 | 50-150 | 33-167 | 2 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.491 | 83 | 1.477 | 82 | 50-150 | 33-167 | 1 | 0-30 | |
| Naphthalene | 2.621 | 2.136 | 82 | 2.123 | 81 | 40-190 | 15-215 | 1 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1141
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-27** | **Air** | **GC/MS DD** | **N/A** | **01/24/13** | **130124L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.117 | 86 | 2.334 | 94 | 50-150 | 33-167 | 10 | 0-30 | |
| Chloromethane | 1.033 | 0.8570 | 83 | 0.8948 | 87 | 50-150 | 33-167 | 4 | 0-30 | |
| Vinyl Chloride | 1.278 | 1.029 | 81 | 1.086 | 85 | 44-140 | 28-156 | 5 | 0-33 | |
| Chloroethane | 1.319 | 1.072 | 81 | 1.100 | 83 | 50-150 | 33-167 | 3 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.155 | 77 | 2.294 | 82 | 50-150 | 33-167 | 6 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.381 | 70 | 1.478 | 75 | 50-150 | 33-167 | 7 | 0-30 | |
| Methylene Chloride | 1.737 | 1.237 | 71 | 1.335 | 77 | 50-150 | 33-167 | 8 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 2.803 | 73 | 3.003 | 78 | 50-150 | 33-167 | 7 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.486 | 75 | 1.531 | 77 | 50-150 | 33-167 | 3 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.522 | 75 | 1.635 | 81 | 50-150 | 33-167 | 7 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.474 | 74 | 1.563 | 79 | 35-165 | 13-187 | 6 | 0-35 | |
| Chloroform | 2.441 | 1.843 | 75 | 2.015 | 83 | 50-150 | 33-167 | 9 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.591 | 79 | 1.646 | 81 | 28-166 | 5-189 | 3 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 1.937 | 79 | 2.129 | 87 | 50-150 | 33-167 | 9 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.186 | 89 | 2.380 | 97 | 50-150 | 33-167 | 9 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.144 | 87 | 2.302 | 94 | 50-150 | 33-167 | 7 | 0-30 | |
| Chlorobenzene | 2.302 | 1.949 | 85 | 2.133 | 93 | 50-150 | 33-167 | 9 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 2.027 | 89 | 2.065 | 91 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.411 | 88 | 2.500 | 92 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.134 | 84 | 1.214 | 90 | 50-150 | 33-167 | 7 | 0-30 | |
| Benzene | 1.597 | 1.253 | 78 | 1.309 | 82 | 27-153 | 6-174 | 4 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 2.716 | 86 | 2.831 | 90 | 7-187 | 0-217 | 4 | 0-31 | |
| Bromodichloromethane | 3.350 | 3.111 | 93 | 3.183 | 95 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.560 | 94 | 2.641 | 97 | 27-171 | 3-195 | 3 | 0-38 | |
| Toluene | 1.884 | 1.495 | 79 | 1.664 | 88 | 28-154 | 7-175 | 11 | 0-42 | |
| Dibromochloromethane | 4.259 | 3.854 | 90 | 4.266 | 100 | 50-150 | 33-167 | 10 | 0-30 | |
| Trichloroethene | 2.687 | 2.303 | 86 | 2.398 | 89 | 43-139 | 27-155 | 4 | 0-31 | |
| Tetrachloroethene | 3.391 | 2.942 | 87 | 3.266 | 96 | 34-154 | 14-174 | 10 | 0-33 | |
| Ethylbenzene | 2.171 | 1.715 | 79 | 1.834 | 84 | 27-153 | 6-174 | 7 | 0-46 | |
| p/m-Xylene | 4.342 | 3.760 | 87 | 4.086 | 94 | 21-165 | 0-189 | 8 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 2.995 | 87 | 3.295 | 96 | 50-150 | 33-167 | 10 | 0-30 | |
| o-Xylene | 2.171 | 1.860 | 86 | 2.026 | 93 | 22-160 | 0-183 | 9 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit

Return to Contents

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | N/A |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1141 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-27** | **Air** | **GC/MS DD** | **N/A** | **01/24/13** | **130124L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 4.885 | 92 | 5.374 | 101 | 50-150 | 33-167 | 10 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.360 | 75 | 1.442 | 80 | 50-150 | 33-167 | 6 | 0-30 | |
| Naphthalene | 2.621 | 1.948 | 74 | 2.126 | 81 | 40-190 | 15-215 | 9 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

## Summa Canister Vacuum Summary

Work Order Number: **13-01-1141**

| Sample Name | Vacuum In | Vacuum Out | Equipment | Description |
|---|---|---|---|---|
| IA1-C-2013-01-18 | -5.00 | -29.80 | SIM068 | Summa Canister 6L |
| IA2-C-2013-01-18 | -5.00 | -29.80 | SIM004 | Summa Canister 6L |
| IA3-C-2013-01-18 | -6.00 | -29.80 | D188 | Summa Canister 6L |
| IA4-C-2013-01-18 | -6.00 | -29.70 | D613 | Summa Canister 6L |
| IA5-C-2013-01-18 | -6.00 | -29.80 | D777 | Summa Canister 6L |
| IA6-C-2013-01-18 | -5.00 | -29.80 | SIM082 | Summa Canister 6L |
| IA7-C-2013-01-18 | -6.00 | -29.80 | SIM056 | Summa Canister 6L |
| PS1-C-2013-01-18 | -6.00 | -29.80 | SIM042 | Summa Canister 6L |
| PS2-C-2013-01-18 | -6.00 | -29.80 | D700 | Summa Canister 6L |
| DUP4-C-2013-01-18 | -6.00 | -29.80 | D701 | Summa Canister 6L |
| AAF-2013-01-18 | -6.00 | -29.60 | D074 | Summa Canister 6L |
| PS1-E-2013-01-18 | -5.50 | -29.80 | D427 | Summa Canister 6L |
| PS2-E-2013-01-18 | -5.00 | -29.80 | SIM057 | Summa Canister 6L |
| PS3-E-2013-01-18 | -5.00 | -29.80 | D834 | Summa Canister 6L |
| IA1-E-2013-01-18 | -5.00 | -29.70 | SIM003 | Summa Canister 6L |
| DUP3-E-2013-01-18 | -7.00 | -29.80 | SIM009 | Summa Canister 6L |
| IA2-E-2013-01-18 | -5.00 | -29.80 | SIM052 | Summa Canister 6L |
| IA3-E-2013-01-18 | -3.00 | -29.80 | D625 | Summa Canister 6L |
| IA4-E-2013-01-18 | -6.00 | -29.80 | D578 | Summa Canister 6L |
| IA5-E-2013-01-18 | -5.00 | -29.80 | SIM039 | Summa Canister 6L |
| IA6-E-2013-01-18 | -5.00 | -29.80 | D596 | Summa Canister 6L |
| PS4-E-2013-01-18 | -8.00 | -29.80 | D526 | Summa Canister 6L |
| IA1-F-2013-01-18 | -5.00 | -29.80 | SIM090 | Summa Canister 6L |
| IA2-F-2013-01-18 | -4.00 | -29.70 | SIM028 | Summa Canister 6L |

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Calscience Environmental Laboratories, Inc.

# Glossary of Terms and Qualifiers

Work Order Number: 13-01-1141

| 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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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

# AIR CHAIN OF CUSTODY RECORD

DATE:
PAGE: 1 OF 2

LABORATORY CLIENT: Treadwell and Rollo
ADDRESS: 555 Montgomery Street, Suite 1300
CITY: San Francisco STATE: CA ZIP: 94111
TEL: 415-955-5200 E-MAIL: J Graber@langan.com

CLIENT PROJECT NAME / NUMBER: TI Vapor Intrusion Assessment/730377986
PROJECT ADDRESS: 2900 Semiconductor Way
CITY: Santa Clara STATE: CA ZIP: 91
PROJECT CONTACT: Josh Graber

P.O.NO.:
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-01-1141

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) Adam Brown / adam Brown

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: TO-15 Propane LIST

| LAB USE ONLY | SAMPLE ID | FIELD ID / Point of Collection | Air Type (I) Indoor (SV) Soil Vap. (A) Ambient | Sampling Equipment: Canister ID# | Canister Size 6L or 1L | Flow Controller ID # | Start Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | Stop Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | TO-15 Propane LIST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | IA1-C-2013-01-18 | | I | SIM068 | 6L | FC118 | 01/18/13 | 0727 | -27 | 01/18/13 | 1505 | -5 | X |
| 2 | IA2-C-2013-01-18 | | I | SIM004 | 6L | FC100 | 01/18/13 | 0740 | -30 | 01/18/13 | 1536 | -5 | X |
| 3 | IA3-C-2013-01-18 | | I | D188 | 6L | FC97 | 01/18/13 | 0738 | -30 | 01/18/13 | 1600 | -6 | X |
| 4 | IA4-C-2013-01-18 | | I | D613 | 6L | FC205 | 01/18/13 | 0732 | -30 | 01/18/13 | 1508 | -6 | X |
| 5 | IA5-C-2013-01-18 | | I | D777 | 6L | FC247 | 01/18/13 | 0743 | -30 | 01/18/13 | 1550 | -6 | X |
| 6 | IA6-C-2013-01-18 | | I | SIM082 | 6L | FC99 | 01/18/13 | 0759 | -28 | 01/18/13 | 1515 | -5 | X |
| 7 | IA7-C-2013-01-18 | | I | SIM056 | 6L | FC29 | 01/18/13 | 0814 | -27 | 01/18/13 | 1525 | -6 | X |
| 8 | PS1-C-2013-01-18 | | I | SIM042 | 6L | FC32 | 01/18/13 | 0745 | -29 | 01/18/13 | 1530 | -6 | X |
| 9 | PS2-C-2013-01-18 | | I | D700 | 6L | FC233 | 01/18/13 | 0801 | -30 | 01/18/13 | 1553 | -6 | X |
| 10 | DUP4-2013-01-18 | | I | D101 | 6L | FC54 | 01/18/13 | 0759 | -30 | 01/18/13 | 1556 | -6 | X |
| 11 | AAF-2013-01-18 | | I | D074 | 6L | FC30 | 01/18/13 | 0826 | -30 | 01/18/13 | 1605 | -6 | X |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| adam Brown | | | |
| Relinquished by: (Signature) 650 | Received by: (Signature) CA | 01/22/13 | 1015 |
| Relinquished by: (Signature) | Received by: (Signature) | | |

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# AIR CHAIN OF CUSTODY RECORD

DATE:
PAGE: 2 OF 2

LABORATORY CLIENT: Treadwell & Rollo, A Langan Company
ADDRESS: 555 Montgomery Street, Suite 1300
CITY: San Francisco STATE: CA ZIP: 94111
TEL: 415-955-5286 E-MAIL: jgraber@langan.com

CLIENT PROJECT NAME / NUMBER: TI Santa Clara, 730377986
PROJECT ADDRESS: 2900 Semiconductor Dr.,
CITY: Santa Clara STATE: CA ZIP:
PROJECT CONTACT: JOSHUA GRABER

P.O.NO.:
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 01-1144

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) MUKTA PATIL, ADAM BROWN

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: TO-15 Project List (SIM)

| | LAB USE ONLY | SAMPLE ID | FIELD ID / Point of Collection | Air Type (I) Indoor (SV) Soil Vap. (A) Ambient | Sampling Equipment: Canister ID# | Canister Size 6L or 1L | Flow Controller ID # | Start Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | Stop Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | TO-15 Project List (SIM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 1 | PS1-E-2013-01-18 | | I | D427 | 6L | FC105 | 01-18-13 | 0729 | 29.5" | 01-18-13 | 1530 | -5.5" | X |
| 13 | 2 | PS2-E-2013-01-18 | | I | SIM057 | 6L | FC61 | 01-18-13 | 0808 | 30" | 01-18-13 | 1558 | -5" | X |
| 14 | 3 | PS3-E-2013-01-18 | | I | D834 | 6L | FC111 | 01-18-13 | 0810 | 30" | 01-18-13 | 1605 | -5" | X |
| 15 | 4 | IA1-E-2013-01-18 | | I | SIM003 | 6L | FC232 | 01-18-13 | 0733 | 30" | 01-18-13 | 1609 | -5" | X |
| 16 | 5 | DUP3-[redacted]2013-01-18 | | I | SIM009 | 6L | FC104 | 01-18-13 | 0806 | 30" | 01-18-13 | 1609 | -7" | X |
| 17 | 6 | IA2-E-2013-01-18 | | I | SIM052 | 6L | FC274 | 01-18-13 | 0738 | 30" | 01-18-13 | 1535 | 5" | X |
| 18 | 7 | IA3-E-2013-01-18 | | I | D625 | 6L | FC74 | 01-18-13 | 0741 | 30" | 01-18-13 | 1555 | -3" | X |
| 19 | 8 | IA4-E-2013-01-18 | | I | D578 | 6L | FC36 | 01-18-13 | 0747 | 30" | 01-18-13 | 1556 | -6" | X |
| 20 | 9 | IA5-E-2013-01-18 | | I | SIM039 | 6L | FC185 | 01-18-13 | 0745 | 30" | 01-18-13 | 1550 | -5" | X |
| 21 | 10 | IA6-E-2013-01-18 | | I | D596 | 6L | FC372 | 01-18-13 | 0803 | 30" | 01-18-13 | 1618 | -5" | X |
| 22 | 11 | PS4-E-2013-01-18 | | I | ~~SIM057~~ | 6L | FC178 | 01-18-13 | 0808 | 30" | 01-18-13 | 1617 | -8" | X |
| ~~23~~ | 12 | | | | D526 | | | | | | | | | |
| 23 | 13 | IA1-F-2013-01-18 | | I | SIM090 | 6L | FC219 | 01-18-13 | 0830 | 30" | 01-18-13 | 1624 | -5 | X |
| 24 | 14 | IA2-F-2013-01-18 | | I | SIM028 | 6L | FC68 | 01-18-13 | 0827 | 30" | 01-18-13 | 1617 | -4 | X |
| | 15 | 1/22/13 | | | | | | | | | | | | |

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| | | | |
| Relinquished by: (Signature) 650 | Received by: (Signature) CEL | Date: 01/22/13 | Time: 1015 |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |

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TREADWELL & ROLLO
555 MONTGOMERY STREET SUITE 1300
SAN FRANCISCO, CA 94111

*Ship To:*
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CALSCIENCE
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD:
$0.00

Reference:
KB/TREADWELL & ROLLO

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 520899503

ORC

GARDEN GROVE

D92841A

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NPS

A

1141

Print Date : 01/18/13 09:01 AM

Package 1 of 7

Tracking #: 520899504

ORC

GARDEN GROVE

D92841A

8435020

Tracking #: 520899505

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D92841A

8435021

Tracking #: 520899506

ORC

GARDEN GROVE

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8435022

Tracking #: 520899507

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-01-1141

# SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: Treadwell & Rollo DATE: 01/22/13

**TEMPERATURE:** Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °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: NC

**CUSTODY SEALS INTACT:**

| | | | | | |
|---|---|---|---|---|---|
| ☐ Cooler | ☐_____ | ☐ No (Not Intact) | ☑ Not Present (Box) | ☐ N/A | Initial: NC |
| ☐ Sample | ☐_____ | ☐ No (Not Intact) | ☑ Not Present | | Initial: NC |

**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® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** NC

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

**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:** PS



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Calscience Environmental Laboratories, Inc.

# CALSCIENCE

## WORK ORDER NUMBER: 13-01-1142

*The difference is service*

AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** Treadwell & Rollo | A Langan Company

**Client Project Name:** TI Vapor Intrusion Assessment / 730377986

**Attention:** Joshua Graber
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Approved for release on 01/30/2013 by:
Kristin Beckley
Project Manager

ResultLink

Email your PM

Accredited in accordance with nelac

Calscience Environmental Laboratories, Inc. (Calscience) 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 attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

# Contents

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Work Order Number: 13-01-1142


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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA1-C-2013-01-20 (13-01-1142-1)** | | | | | | |
| Trichlorofluoromethane | **2.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **2.5** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.72** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| t-1,2-Dichloroethene | **4.7** | | 0.40 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.34** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.28** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.33** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **7.1** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.19** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **2.7** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **3.4** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.3** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA2-C-2013-01-20 (13-01-1142-2)** | | | | | | |
| Trichlorofluoromethane | **1.7** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.3** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.68** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| t-1,2-Dichloroethene | **1.0** | | 0.40 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.34** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.12** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.31** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.22** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.17** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.7** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.94** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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*MDL is shown.

Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA3-C-2013-01-20 (13-01-1142-3)** | | | | | | |
| Trichlorofluoromethane | **1.7** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.3** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.65** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| t-1,2-Dichloroethene | **1.1** | | 0.40 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.33** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.14** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.28** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.23** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **5.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.17** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.7** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.89** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.6** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA4-C-2013-01-20 (13-01-1142-4)** | | | | | | |
| Trichlorofluoromethane | **1.9** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.1** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.85** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.50** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.19** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.40** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.16** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **5.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.16** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.83** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.86** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA5-C-2013-01-20 (13-01-1142-5)** | | | | | | |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.041** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.76** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.41** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.39** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.14** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.31** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **1.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.29** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **12** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.84** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA6-C-2013-01-20 (13-01-1142-6)** | | | | | | |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.054** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.83** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethane | **0.11** | | 0.081 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.63** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.41** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.15** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.27** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **1.9** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.8** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.37** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **18** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.86** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.6** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **DUP4-2013-01-20 (13-01-1142-7)** | | | | | | |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.050** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.80** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethane | **0.10** | | 0.081 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.57** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.41** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.14** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **1.8** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.29** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.4** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.33** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **16** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.78** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.94** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS1-C-2013-01-20 (13-01-1142-8)** | | | | | | |
| Chloroethane | **0.054** | | 0.053 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.2** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.71** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.20** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.35** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.13** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.90** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.28** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **5.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.20** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **9.8** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.88** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.8** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS2-C-2013-01-20 (13-01-1142-9)** | | | | | | |
| Trichlorofluoromethane | **1.5** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.053** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.7** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.82** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethane | **0.12** | | 0.081 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.75** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.42** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.16** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **1.8** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.28** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.40** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **17** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **1.0** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.9** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **1.1** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA7-C-2013-01-20 (13-01-1142-10)** | | | | | | |
| Trichlorofluoromethane | **1.5** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **2.5** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.68** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| t-1,2-Dichloroethene | **0.90** | | 0.40 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.22** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.40** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.16** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.63** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.21** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **5.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.26** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **5.0** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.77** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.2** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.88** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA1-F-2013-01-20 (13-01-1142-11)** | | | | | | |
| Trichlorofluoromethane | **5.9** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.67** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.47** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.081** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.19** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.6** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.31** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.17** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.47** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.3** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.53** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA2-F-2013-01-20 (13-01-1142-12)** | | | | | | |
| Trichlorofluoromethane | **48** | | 0.45 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.67** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.30** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.097** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.24** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **4.1** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.31** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.16** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.73** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.9** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.72** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **AA1-F-2013-01-20 (13-01-1142-13)** | | | | | | |
| Chloroethane | **0.061** | | 0.053 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichlorofluoromethane | **1.4** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.61** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.17** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.092** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.13** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.089** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.39** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.2** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.50** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA1-E-2013-01-20 (13-01-1142-14)** | | | | | | |
| Trichlorofluoromethane | **2.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.81** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.71** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.30** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.13** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.12** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.0** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.36** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.14** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.54** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.6** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.64** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **DUP3-2013-01-20 (13-01-1142-15)** | | | | | | |
| Trichlorofluoromethane | **2.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.79** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.71** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.30** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.13** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.18** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.12** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.35** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.14** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.53** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.60** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA2-E-2013-01-20 (13-01-1142-16)** | | | | | | |
| Trichlorofluoromethane | **2.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.78** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.68** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.26** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.10** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.17** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.30** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.45** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.5** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.54** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA3-E-2013-01-20 (13-01-1142-17)** | | | | | | |
| Trichlorofluoromethane | **2.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.64** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.22** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.086** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.13** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **1.7** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.12** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.24** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **0.71** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.31** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA4-E-2013-01-20 (13-01-1142-18)** | | | | | | |
| Chloroethane | **0.093** | | 0.053 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichlorofluoromethane | **2.5** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.79** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.69** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.31** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.19** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.2** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.14** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.53** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.0** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.82** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **IA5-E-2013-01-20 (13-01-1142-19)** | | | | | | |
| Trichlorofluoromethane | **2.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **1.0** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.63** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.29** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.22** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.15** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.58** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.8** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.76** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **IA6-E-2013-01-20 (13-01-1142-20)** | | | | | | |
| Trichlorofluoromethane | **1.8** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.70** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.68** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.32** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.28** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.15** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.1** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.30** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.21** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.53** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.7** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.68** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

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*MDL is shown.

Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS1-E-2013-01-20 (13-01-1142-21)** | | | | | | |
| Trichlorofluoromethane | **1.9** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.75** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.68** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.32** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.17** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichlorobenzene | **1.3** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **1.8** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.14** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Chlorobenzene | **0.21** | | 0.092 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloroethane | **0.18** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.42** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.20** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.62** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.0** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.78** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS2-E-2013-01-20 (13-01-1142-22)** | | | | | | |
| Vinyl Chloride | **0.031** | | 0.026 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichlorofluoromethane | **1.8** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.64** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **0.16** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.26** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.098** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.22** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.9** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.57** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.25** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.48** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.6** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.63** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

| | | | |
|---|---|---|---|
| Client: | Treadwell & Rollo \| A Langan Company<br>555 Montgomery St., Suite 1300<br>San Francisco, CA 94111-2554 | Work Order: | 13-01-1142 |
| | | Project name: | TI Vapor Intrusion Assessment / 730377986 |
| | | Received: | 01/22/13 10:15 |
| Attn: | Joshua Graber | | |

## DETECTIONS SUMMARY

| Client Sample ID<br>Analyte | Result | Qualifiers | Reporting Limit | Units | Method | Extraction |
|---|---|---|---|---|---|---|
| **PS3-E-2013-01-20 (13-01-1142-23)** | | | | | | |
| Trichlorofluoromethane | **2.1** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Methylene Chloride | **0.87** | | 0.69 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **0.66** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.34** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.32** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **3.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **0.36** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **0.33** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.57** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **1.8** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.72** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| **PS4-E-2013-01-20 (13-01-1142-24)** | | | | | | |
| Trichlorofluoromethane | **2.2** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethene | **0.10** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | **3.6** | | 0.15 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1-Dichloroethane | **0.11** | | 0.081 | ug/m3 | EPA TO-15 SIM | N/A |
| c-1,2-Dichloroethene | **1.0** | | 0.079 | ug/m3 | EPA TO-15 SIM | N/A |
| Chloroform | **0.30** | | 0.049 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,2-Dichloroethane | **0.11** | | 0.040 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,4-Dichlorobenzene | **0.20** | | 0.12 | ug/m3 | EPA TO-15 SIM | N/A |
| 1,1,1-Trichloroethane | **0.53** | | 0.11 | ug/m3 | EPA TO-15 SIM | N/A |
| Toluene | **2.3** | | 0.075 | ug/m3 | EPA TO-15 SIM | N/A |
| Trichloroethene | **18** | | 0.054 | ug/m3 | EPA TO-15 SIM | N/A |
| Tetrachloroethene | **1.8** | | 0.14 | ug/m3 | EPA TO-15 SIM | N/A |
| Ethylbenzene | **0.74** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |
| p/m-Xylene | **2.0** | | 0.17 | ug/m3 | EPA TO-15 SIM | N/A |
| o-Xylene | **0.71** | | 0.087 | ug/m3 | EPA TO-15 SIM | N/A |

Subcontracted analyses, if any, are not included in this summary.

*MDL is shown.

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Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA1-C-2013-01-20** | **13-01-1142-1-A** | **01/20/13 15:48** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 14:52** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 0.28 | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.33 | 0.12 | 1 | |
| Trichlorofluoromethane | 2.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 2.5 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.72 | 0.15 | 1 | | Toluene | 7.1 | 0.075 | 1 | |
| t-1,2-Dichloroethene | 4.7 | 0.40 | 1 | | Trichloroethene | 0.19 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 2.7 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 1.1 | 0.087 | 1 | |
| Chloroform | 0.34 | 0.049 | 1 | | p/m-Xylene | 3.4 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 1.3 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 95 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 94 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA2-C-2013-01-20** | **13-01-1142-2-A** | **01/20/13 15:50** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 15:49** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.7 | 0.11 | 1 | | 1,1,1-Trichloroethane | 0.22 | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.31 | 0.12 | 1 | |
| Methylene Chloride | 1.3 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.68 | 0.15 | 1 | | Toluene | 4.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | 1.0 | 0.40 | 1 | | Trichloroethene | 0.17 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.7 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.94 | 0.087 | 1 | |
| Chloroform | 0.34 | 0.049 | 1 | | p/m-Xylene | 2.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.12 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 94 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA3-C-2013-01-20** | **13-01-1142-3-A** | **01/20/13 15:51** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 16:43** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.28 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 1.7 | 0.11 | 1 | | 1,1,1-Trichloroethane | 0.23 | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 1.3 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.65 | 0.15 | 1 | | Toluene | 5.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | 1.1 | 0.40 | 1 | | Trichloroethene | 0.17 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 1.7 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.89 | 0.087 | 1 | |
| Chloroform | 0.33 | 0.049 | 1 | | p/m-Xylene | 2.6 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.14 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA4-C-2013-01-20** | **13-01-1142-4-A** | **01/20/13 14:05** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 17:39** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.16 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.9 | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.40 | 0.12 | 1 | |
| Methylene Chloride | 1.1 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.85 | 0.15 | 1 | | Toluene | 5.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.16 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.83 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.86 | 0.087 | 1 | |
| Chloroform | 0.50 | 0.049 | 1 | | p/m-Xylene | 2.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.19 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA5-C-2013-01-20** | **13-01-1142-5-A** | **01/20/13 15:59** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 18:35** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 1.2 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | 0.041 | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.31 | 0.12 | 1 | |
| Methylene Chloride | 1.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.76 | 0.15 | 1 | | Toluene | 4.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.29 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 12 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.41 | 0.079 | 1 | | Ethylbenzene | 0.84 | 0.087 | 1 | |
| Chloroform | 0.39 | 0.049 | 1 | | p/m-Xylene | 2.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.14 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 95 | 45-153 | | 1,2-Dichloroethane-d4 | 94 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA6-C-2013-01-20** | **13-01-1142-6-A** | **01/20/13 16:01** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 19:32** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 1.9 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | 1,4-Dichlorobenzene | 0.27 | 0.12 | 1 | |
| 1,1-Dichloroethene | 0.054 | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | 1.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.83 | 0.15 | 1 | | Toluene | 4.8 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.37 | 0.054 | 1 | |
| 1,1-Dichloroethane | 0.11 | 0.081 | 1 | | Tetrachloroethene | 18 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.63 | 0.079 | 1 | | Ethylbenzene | 0.86 | 0.087 | 1 | |
| Chloroform | 0.41 | 0.049 | 1 | | p/m-Xylene | 2.6 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.15 | 0.040 | 1 | | o-Xylene | 1.0 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 97 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **DUP4-2013-01-20** | **13-01-1142-7-A** | **01/20/13 16:01** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 20:27** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 1.8 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | 0.050 | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.29 | 0.12 | 1 | |
| Methylene Chloride | 1.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.80 | 0.15 | 1 | | Toluene | 4.4 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.33 | 0.054 | 1 | |
| 1,1-Dichloroethane | 0.10 | 0.081 | 1 | | Tetrachloroethene | 16 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.57 | 0.079 | 1 | | Ethylbenzene | 0.78 | 0.087 | 1 | |
| Chloroform | 0.41 | 0.049 | 1 | | p/m-Xylene | 2.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.14 | 0.040 | 1 | | o-Xylene | 0.94 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 96 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS1-C-2013-01-20** | **13-01-1142-8-A** | **01/20/13 16:06** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 21:22** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 0.90 | 0.11 | 1 | |
| Chloroethane | 0.054 | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.28 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 1.2 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.71 | 0.15 | 1 | | Toluene | 5.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.20 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 9.8 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.20 | 0.079 | 1 | | Ethylbenzene | 0.88 | 0.087 | 1 | |
| Chloroform | 0.35 | 0.049 | 1 | | p/m-Xylene | 2.8 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.13 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 97 | 45-153 | | 1,2-Dichloroethane-d4 | 92 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **PS2-C-2013-01-20** | **13-01-1142-9-A** | **01/20/13 16:04** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 22:18** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 1.8 | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.28 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.5 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | 0.053 | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 1.7 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.82 | 0.15 | 1 | | Toluene | 4.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.40 | 0.054 | 1 | |
| 1,1-Dichloroethane | 0.12 | 0.081 | 1 | | Tetrachloroethene | 17 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.75 | 0.079 | 1 | | Ethylbenzene | 1.0 | 0.087 | 1 | |
| Chloroform | 0.42 | 0.049 | 1 | | p/m-Xylene | 2.9 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.16 | 0.040 | 1 | | o-Xylene | 1.1 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 93 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA7-C-2013-01-20** | **13-01-1142-10-A** | **01/20/13 16:10** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 23:12** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | 0.63 | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.21 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.5 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 2.5 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.68 | 0.15 | 1 | | Toluene | 5.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | 0.90 | 0.40 | 1 | | Trichloroethene | 0.26 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 5.0 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.22 | 0.079 | 1 | | Ethylbenzene | 0.77 | 0.087 | 1 | |
| Chloroform | 0.40 | 0.049 | 1 | | p/m-Xylene | 2.2 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.16 | 0.040 | 1 | | o-Xylene | 0.88 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 97 | 45-153 | | 1,2-Dichloroethane-d4 | 92 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA1-F-2013-01-20** | **13-01-1142-11-A** | **01/20/13 16:21** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 16:03** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.19 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 5.9 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.67 | 0.15 | 1 | | Toluene | 2.6 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.31 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.17 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.47 | 0.087 | 1 | |
| Chloroform | 0.47 | 0.049 | 1 | | p/m-Xylene | 1.3 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.081 | 0.040 | 1 | | o-Xylene | 0.53 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 95 | 45-153 | | 1,2-Dichloroethane-d4 | 97 | 37-163 | |
| Toluene-d8 | 96 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA2-F-2013-01-20** | **13-01-1142-12-A** | **01/20/13 16:19** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 16:58** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 48 | 0.45 | 4 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.24 | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.67 | 0.15 | 1 | | Toluene | 4.1 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.31 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.16 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.73 | 0.087 | 1 | |
| Chloroform | 0.30 | 0.049 | 1 | | p/m-Xylene | 1.9 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.097 | 0.040 | 1 | | o-Xylene | 0.72 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **AA1-F-2013-01-20** | **13-01-1142-13-A** | **01/20/13 16:50** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 17:58** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | 0.061 | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.13 | 0.12 | 1 | |
| Trichlorofluoromethane | 1.4 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.61 | 0.15 | 1 | | Toluene | 2.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.089 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.39 | 0.087 | 1 | |
| Chloroform | 0.17 | 0.049 | 1 | | p/m-Xylene | 1.2 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.092 | 0.040 | 1 | | o-Xylene | 0.50 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 100 | 45-153 | | 1,2-Dichloroethane-d4 | 98 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA1-E-2013-01-20** | **13-01-1142-14-A** | **01/20/13 16:36** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 18:52** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 2.2 | 0.11 | 1 | | 1,1,1-Trichloroethane | 0.12 | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.81 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.71 | 0.15 | 1 | | Toluene | 3.0 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.36 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.14 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.54 | 0.087 | 1 | |
| Chloroform | 0.30 | 0.049 | 1 | | p/m-Xylene | 1.6 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.13 | 0.040 | 1 | | o-Xylene | 0.64 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 95 | 45-153 | | 1,2-Dichloroethane-d4 | 97 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **DUP3-2013-01-20** | **13-01-1142-15-A** | **01/20/13 16:36** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 19:47** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 2.2 | 0.11 | 1 | | 1,1,1-Trichloroethane | 0.12 | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.18 | 0.12 | 1 | |
| Methylene Chloride | 0.79 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.71 | 0.15 | 1 | | Toluene | 2.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.35 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.14 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.53 | 0.087 | 1 | |
| Chloroform | 0.30 | 0.049 | 1 | | p/m-Xylene | 1.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.13 | 0.040 | 1 | | o-Xylene | 0.60 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 98 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 99 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA2-E-2013-01-20** | **13-01-1142-16-A** | **01/20/13 16:34** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 20:43** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.17 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 2.2 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.78 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.68 | 0.15 | 1 | | Toluene | 2.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.30 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.45 | 0.087 | 1 | |
| Chloroform | 0.26 | 0.049 | 1 | | p/m-Xylene | 1.5 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.10 | 0.040 | 1 | | o-Xylene | 0.54 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 92 | 45-153 | | 1,2-Dichloroethane-d4 | 96 | 37-163 | |
| Toluene-d8 | 95 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA3-E-2013-01-20** | **13-01-1142-17-A** | **01/20/13 16:33** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 21:37** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.13 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 2.2 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.64 | 0.15 | 1 | | Toluene | 1.7 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.12 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.24 | 0.087 | 1 | |
| Chloroform | 0.22 | 0.049 | 1 | | p/m-Xylene | 0.71 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.086 | 0.040 | 1 | | o-Xylene | 0.31 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 91 | 45-153 | | 1,2-Dichloroethane-d4 | 96 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA4-E-2013-01-20** | **13-01-1142-18-A** | **01/20/13 16:28** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 22:32** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.19 | 0.12 | 1 | |
| Chloroethane | 0.093 | 0.053 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Trichlorofluoromethane | 2.5 | 0.11 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.79 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.69 | 0.15 | 1 | | Toluene | 3.2 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.14 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.53 | 0.087 | 1 | |
| Chloroform | 0.31 | 0.049 | 1 | | p/m-Xylene | 2.0 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 0.82 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 98 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **IA5-E-2013-01-20** | **13-01-1142-19-A** | **01/20/13 16:30** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 23:28** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Trichlorofluoromethane | 2.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 1.0 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.63 | 0.15 | 1 | | Toluene | 3.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.22 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.15 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.58 | 0.087 | 1 | |
| Chloroform | 0.29 | 0.049 | 1 | | p/m-Xylene | 1.8 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 0.76 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 97 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 97 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IA6-E-2013-01-20** | **13-01-1142-20-A** | **01/20/13 16:45** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 00:22** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.15 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.8 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.28 | 0.12 | 1 | |
| Methylene Chloride | 0.70 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.68 | 0.15 | 1 | | Toluene | 3.1 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.30 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.21 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.53 | 0.087 | 1 | |
| Chloroform | 0.32 | 0.049 | 1 | | p/m-Xylene | 1.7 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 0.68 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 97 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 96 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | 01/22/13 |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1142 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |
| | | Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **PS1-E-2013-01-20** | **13-01-1142-21-A** | **01/20/13 16:24** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 01:17** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 1.8 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.14 | 0.11 | 1 | |
| Trichlorofluoromethane | 1.9 | 0.11 | 1 | | Chlorobenzene | 0.21 | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | 1.3 | 0.12 | 1 | |
| Methylene Chloride | 0.75 | 0.69 | 1 | | 1,1,2-Trichloroethane | 0.18 | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.68 | 0.15 | 1 | | Toluene | 3.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.42 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.20 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.62 | 0.087 | 1 | |
| Chloroform | 0.32 | 0.049 | 1 | | p/m-Xylene | 2.0 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.17 | 0.040 | 1 | | o-Xylene | 0.78 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 95 | 45-153 | | 1,2-Dichloroethane-d4 | 101 | 37-163 | |
| Toluene-d8 | 106 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS2-E-2013-01-20** | **13-01-1142-22-A** | **01/20/13 16:38** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 02:09** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 0.031 | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.22 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 1.8 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.64 | 0.15 | 1 | | Toluene | 2.9 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.57 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.25 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 0.16 | 0.079 | 1 | | Ethylbenzene | 0.48 | 0.087 | 1 | |
| Chloroform | 0.26 | 0.049 | 1 | | p/m-Xylene | 1.6 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.098 | 0.040 | 1 | | o-Xylene | 0.63 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 98 | 45-153 | | 1,2-Dichloroethane-d4 | 97 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **PS3-E-2013-01-20** | **13-01-1142-23-A** | **01/20/13 16:29** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 03:01** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,4-Dichlorobenzene | 0.32 | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | 2.1 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Methylene Chloride | 0.87 | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 0.66 | 0.15 | 1 | | Toluene | 3.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 0.36 | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | 0.33 | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | 0.57 | 0.087 | 1 | |
| Chloroform | 0.34 | 0.049 | 1 | | p/m-Xylene | 1.8 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 0.72 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 98 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PS4-E-2013-01-20** | **13-01-1142-24-A** | **01/20/13 16:42** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 03:57** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | 0.53 | 0.11 | 1 | |
| Trichlorofluoromethane | 2.2 | 0.11 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| 1,1-Dichloroethene | 0.10 | 0.040 | 1 | | 1,4-Dichlorobenzene | 0.20 | 0.12 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.6 | 0.15 | 1 | | Toluene | 2.3 | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | 18 | 0.054 | 1 | |
| 1,1-Dichloroethane | 0.11 | 0.081 | 1 | | Tetrachloroethene | 1.8 | 0.14 | 1 | |
| c-1,2-Dichloroethene | 1.0 | 0.079 | 1 | | Ethylbenzene | 0.74 | 0.087 | 1 | |
| Chloroform | 0.30 | 0.049 | 1 | | p/m-Xylene | 2.0 | 0.17 | 1 | |
| 1,2-Dichloroethane | 0.11 | 0.040 | 1 | | o-Xylene | 0.71 | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 98 | 73-121 | | | | | |

Return to Contents

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | 01/22/13 |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |
| Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-21** | **N/A** | **Air** | **GC/MS KK** | **N/A** | **01/22/13 13:55** | **130122L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 96 | 45-153 | | 1,2-Dichloroethane-d4 | 95 | 37-163 | |
| Toluene-d8 | 101 | 73-121 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-23** | **N/A** | **Air** | **GC/MS KK** | **N/A** | **01/23/13 15:03** | **130123L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 88 | 45-153 | | 1,2-Dichloroethane-d4 | 100 | 37-163 | |
| Toluene-d8 | 102 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Analytical Report

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | 01/22/13 |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1142 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |
| | | Units: | ug/m3 |

Project: TI Vapor Intrusion Assessment / 730377986



| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|---|---|---|---|---|---|---|
| **Method Blank** | **099-15-188-28** | **N/A** | **Air** | **GC/MS KK** | **N/A** | **01/24/13 13:47** | **130124L01** |

| Parameter | Result | RL | DF | Qual | Parameter | Result | RL | DF | Qual |
|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | ND | 0.026 | 1 | | 1,2-Dichlorobenzene | ND | 0.12 | 1 | |
| Chloroethane | ND | 0.053 | 1 | | 1,1,1-Trichloroethane | ND | 0.11 | 1 | |
| Trichlorofluoromethane | ND | 0.11 | 1 | | 1,4-Dichlorobenzene | ND | 0.12 | 1 | |
| 1,1-Dichloroethene | ND | 0.040 | 1 | | Chlorobenzene | ND | 0.092 | 1 | |
| Methylene Chloride | ND | 0.69 | 1 | | 1,1,2-Trichloroethane | ND | 0.11 | 1 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.15 | 1 | | Toluene | ND | 0.075 | 1 | |
| t-1,2-Dichloroethene | ND | 0.40 | 1 | | Trichloroethene | ND | 0.054 | 1 | |
| 1,1-Dichloroethane | ND | 0.081 | 1 | | Tetrachloroethene | ND | 0.14 | 1 | |
| c-1,2-Dichloroethene | ND | 0.079 | 1 | | Ethylbenzene | ND | 0.087 | 1 | |
| Chloroform | ND | 0.049 | 1 | | p/m-Xylene | ND | 0.17 | 1 | |
| 1,2-Dichloroethane | ND | 0.040 | 1 | | o-Xylene | ND | 0.087 | 1 | |

| Surrogates: | REC (%) | Control Limits | Qual | Surrogates: | REC (%) | Control Limits | Qual |
|---|---|---|---|---|---|---|---|
| 1,4-Bromofluorobenzene | 87 | 45-153 | | 1,2-Dichloroethane-d4 | 104 | 37-163 | |
| Toluene-d8 | 103 | 73-121 | | | | | |

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

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1142
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-21** | **Air** | **GC/MS KK** | **N/A** | **01/22/13** | **130122L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.242 | 91 | 2.165 | 88 | 50-150 | 33-167 | 4 | 0-30 | |
| Chloromethane | 1.033 | 0.9146 | 89 | 0.8834 | 86 | 50-150 | 33-167 | 3 | 0-30 | |
| Vinyl Chloride | 1.278 | 1.178 | 92 | 1.118 | 87 | 44-140 | 28-156 | 5 | 0-33 | |
| Chloroethane | 1.319 | 1.177 | 89 | 1.097 | 83 | 50-150 | 33-167 | 7 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.418 | 86 | 2.392 | 85 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.779 | 90 | 1.847 | 93 | 50-150 | 33-167 | 4 | 0-30 | |
| Methylene Chloride | 1.737 | 1.500 | 86 | 1.436 | 83 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 3.449 | 90 | 3.363 | 88 | 50-150 | 33-167 | 3 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.788 | 90 | 1.735 | 87 | 50-150 | 33-167 | 3 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.839 | 91 | 1.789 | 88 | 50-150 | 33-167 | 3 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.799 | 91 | 1.734 | 87 | 35-165 | 13-187 | 4 | 0-35 | |
| Chloroform | 2.441 | 2.048 | 84 | 2.006 | 82 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.848 | 91 | 1.805 | 89 | 28-166 | 5-189 | 2 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 2.533 | 103 | 2.484 | 101 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.489 | 101 | 2.463 | 100 | 50-150 | 33-167 | 1 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.476 | 101 | 2.450 | 100 | 50-150 | 33-167 | 1 | 0-30 | |
| Chlorobenzene | 2.302 | 2.191 | 95 | 2.181 | 95 | 50-150 | 33-167 | 0 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 2.032 | 90 | 2.012 | 89 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.549 | 93 | 2.510 | 92 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.287 | 95 | 1.243 | 92 | 50-150 | 33-167 | 3 | 0-30 | |
| Benzene | 1.597 | 1.467 | 92 | 1.425 | 89 | 27-153 | 6-174 | 3 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 3.054 | 97 | 2.983 | 95 | 7-187 | 0-217 | 2 | 0-31 | |
| Bromodichloromethane | 3.350 | 3.072 | 92 | 3.037 | 91 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.512 | 92 | 2.508 | 92 | 27-171 | 3-195 | 0 | 0-38 | |
| Toluene | 1.884 | 1.917 | 102 | 1.748 | 93 | 28-154 | 7-175 | 9 | 0-42 | |
| Dibromochloromethane | 4.259 | 4.114 | 97 | 4.073 | 96 | 50-150 | 33-167 | 1 | 0-30 | |
| Trichloroethene | 2.687 | 2.469 | 92 | 2.413 | 90 | 43-139 | 27-155 | 2 | 0-31 | |
| Tetrachloroethene | 3.391 | 3.254 | 96 | 3.236 | 95 | 34-154 | 14-174 | 1 | 0-33 | |
| Ethylbenzene | 2.171 | 2.140 | 99 | 2.114 | 97 | 27-153 | 6-174 | 1 | 0-46 | |
| p/m-Xylene | 4.342 | 4.302 | 99 | 4.250 | 98 | 21-165 | 0-189 | 1 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 3.305 | 96 | 3.273 | 95 | 50-150 | 33-167 | 1 | 0-30 | |
| o-Xylene | 2.171 | 2.178 | 100 | 2.154 | 99 | 22-160 | 0-183 | 1 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1142
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-21** | **Air** | **GC/MS KK** | **N/A** | **01/22/13** | **130122L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 5.507 | 103 | 5.631 | 106 | 50-150 | 33-167 | 2 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.609 | 89 | 1.546 | 86 | 50-150 | 33-167 | 4 | 0-30 | |
| Naphthalene | 2.621 | 2.205 | 84 | 2.231 | 85 | 40-190 | 15-215 | 1 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1142
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-23** | **Air** | **GC/MS KK** | **N/A** | **01/23/13** | **130123L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.255 | 91 | 2.360 | 95 | 50-150 | 33-167 | 5 | 0-30 | |
| Chloromethane | 1.033 | 0.9625 | 93 | 0.9520 | 92 | 50-150 | 33-167 | 1 | 0-30 | |
| Vinyl Chloride | 1.278 | 1.148 | 90 | 1.195 | 94 | 44-140 | 28-156 | 4 | 0-33 | |
| Chloroethane | 1.319 | 1.183 | 90 | 1.229 | 93 | 50-150 | 33-167 | 4 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.554 | 91 | 2.617 | 93 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.785 | 90 | 1.808 | 91 | 50-150 | 33-167 | 1 | 0-30 | |
| Methylene Chloride | 1.737 | 1.518 | 87 | 1.519 | 87 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 3.503 | 91 | 3.494 | 91 | 50-150 | 33-167 | 0 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.800 | 91 | 1.800 | 91 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.893 | 94 | 1.874 | 93 | 50-150 | 33-167 | 1 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.791 | 90 | 1.798 | 91 | 35-165 | 13-187 | 0 | 0-35 | |
| Chloroform | 2.441 | 2.120 | 87 | 2.113 | 87 | 50-150 | 33-167 | 0 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.910 | 94 | 1.922 | 95 | 28-166 | 5-189 | 1 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 2.542 | 103 | 2.523 | 103 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.557 | 104 | 2.521 | 103 | 50-150 | 33-167 | 1 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.582 | 105 | 2.475 | 101 | 50-150 | 33-167 | 4 | 0-30 | |
| Chlorobenzene | 2.302 | 2.204 | 96 | 2.197 | 95 | 50-150 | 33-167 | 0 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 2.081 | 92 | 1.997 | 88 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.619 | 96 | 2.525 | 93 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.308 | 97 | 1.338 | 99 | 50-150 | 33-167 | 2 | 0-30 | |
| Benzene | 1.597 | 1.478 | 93 | 1.413 | 88 | 27-153 | 6-174 | 5 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 3.124 | 99 | 2.997 | 95 | 7-187 | 0-217 | 4 | 0-31 | |
| Bromodichloromethane | 3.350 | 3.217 | 96 | 3.082 | 92 | 50-150 | 33-167 | 4 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.681 | 98 | 2.522 | 92 | 27-171 | 3-195 | 6 | 0-38 | |
| Toluene | 1.884 | 1.829 | 97 | 1.775 | 94 | 28-154 | 7-175 | 3 | 0-42 | |
| Dibromochloromethane | 4.259 | 4.229 | 99 | 4.222 | 99 | 50-150 | 33-167 | 0 | 0-30 | |
| Trichloroethene | 2.687 | 2.473 | 92 | 2.371 | 88 | 43-139 | 27-155 | 4 | 0-31 | |
| Tetrachloroethene | 3.391 | 3.271 | 96 | 3.264 | 96 | 34-154 | 14-174 | 0 | 0-33 | |
| Ethylbenzene | 2.171 | 2.080 | 96 | 2.080 | 96 | 27-153 | 6-174 | 0 | 0-46 | |
| p/m-Xylene | 4.342 | 4.291 | 99 | 4.294 | 99 | 21-165 | 0-189 | 0 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 3.466 | 101 | 3.418 | 100 | 50-150 | 33-167 | 1 | 0-30 | |
| o-Xylene | 2.171 | 2.184 | 101 | 2.159 | 99 | 22-160 | 0-183 | 1 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit



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Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

| | |
|---|---|
| Date Received: | N/A |
| Work Order No: | 13-01-1142 |
| Preparation: | N/A |
| Method: | EPA TO-15 SIM |

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-23** | **Air** | **GC/MS KK** | **N/A** | **01/23/13** | **130123L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 5.576 | 105 | 5.593 | 105 | 50-150 | 33-167 | 0 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.563 | 87 | 1.565 | 87 | 50-150 | 33-167 | 0 | 0-30 | |
| Naphthalene | 2.621 | 2.203 | 84 | 2.188 | 83 | 40-190 | 15-215 | 1 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

Treadwell & Rollo | A Langan Company
555 Montgomery St., Suite 1300
San Francisco, CA 94111-2554

Date Received: N/A
Work Order No: 13-01-1142
Preparation: N/A
Method: EPA TO-15 SIM

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-28** | **Air** | **GC/MS KK** | **N/A** | **01/24/13** | **130124L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 2.473 | 2.361 | 95 | 2.360 | 95 | 50-150 | 33-167 | 0 | 0-30 | |
| Chloromethane | 1.033 | 0.9619 | 93 | 0.9516 | 92 | 50-150 | 33-167 | 1 | 0-30 | |
| Vinyl Chloride | 1.278 | 1.194 | 93 | 1.210 | 95 | 44-140 | 28-156 | 1 | 0-33 | |
| Chloroethane | 1.319 | 1.225 | 93 | 1.209 | 92 | 50-150 | 33-167 | 1 | 0-30 | |
| Trichlorofluoromethane | 2.809 | 2.835 | 101 | 2.854 | 102 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1-Dichloroethene | 1.982 | 1.873 | 94 | 1.830 | 92 | 50-150 | 33-167 | 2 | 0-30 | |
| Methylene Chloride | 1.737 | 1.493 | 86 | 1.470 | 85 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 3.832 | 3.432 | 90 | 3.435 | 90 | 50-150 | 33-167 | 0 | 0-30 | |
| t-1,2-Dichloroethene | 1.982 | 1.752 | 88 | 1.764 | 89 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,1-Dichloroethane | 2.024 | 1.856 | 92 | 1.864 | 92 | 50-150 | 33-167 | 0 | 0-30 | |
| c-1,2-Dichloroethene | 1.982 | 1.735 | 88 | 1.739 | 88 | 35-165 | 13-187 | 0 | 0-35 | |
| Chloroform | 2.441 | 2.087 | 85 | 2.107 | 86 | 50-150 | 33-167 | 1 | 0-30 | |
| 1,2-Dichloroethane | 2.024 | 1.927 | 95 | 1.928 | 95 | 28-166 | 5-189 | 0 | 0-40 | |
| 1,2,4-Trimethylbenzene | 2.458 | 2.534 | 103 | 2.594 | 106 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,3,5-Trimethylbenzene | 2.458 | 2.541 | 103 | 2.596 | 106 | 50-150 | 33-167 | 2 | 0-30 | |
| 4-Ethyltoluene | 2.458 | 2.527 | 103 | 2.561 | 104 | 50-150 | 33-167 | 1 | 0-30 | |
| Chlorobenzene | 2.302 | 2.213 | 96 | 2.254 | 98 | 50-150 | 33-167 | 2 | 0-30 | |
| t-1,3-Dichloropropene | 2.269 | 2.125 | 94 | 2.024 | 89 | 50-150 | 33-167 | 5 | 0-30 | |
| 1,1,1-Trichloroethane | 2.728 | 2.613 | 96 | 2.535 | 93 | 50-150 | 33-167 | 3 | 0-30 | |
| 1,1-Difluoroethane | 1.351 | 1.308 | 97 | 1.310 | 97 | 50-150 | 33-167 | 0 | 0-30 | |
| Benzene | 1.597 | 1.417 | 89 | 1.382 | 86 | 27-153 | 6-174 | 3 | 0-34 | |
| Carbon Tetrachloride | 3.146 | 3.110 | 99 | 3.039 | 97 | 7-187 | 0-217 | 2 | 0-31 | |
| Bromodichloromethane | 3.350 | 3.240 | 97 | 3.178 | 95 | 50-150 | 33-167 | 2 | 0-30 | |
| 1,1,2-Trichloroethane | 2.728 | 2.652 | 97 | 2.621 | 96 | 27-171 | 3-195 | 1 | 0-38 | |
| Toluene | 1.884 | 1.690 | 90 | 1.814 | 96 | 28-154 | 7-175 | 7 | 0-42 | |
| Dibromochloromethane | 4.259 | 4.247 | 100 | 4.339 | 102 | 50-150 | 33-167 | 2 | 0-30 | |
| Trichloroethene | 2.687 | 2.456 | 91 | 2.373 | 88 | 43-139 | 27-155 | 3 | 0-31 | |
| Tetrachloroethene | 3.391 | 3.255 | 96 | 3.321 | 98 | 34-154 | 14-174 | 2 | 0-33 | |
| Ethylbenzene | 2.171 | 2.109 | 97 | 2.096 | 97 | 27-153 | 6-174 | 1 | 0-46 | |
| p/m-Xylene | 4.342 | 4.371 | 101 | 4.402 | 101 | 21-165 | 0-189 | 1 | 0-51 | |
| 1,1,2,2-Tetrachloroethane | 3.433 | 3.509 | 102 | 3.581 | 104 | 50-150 | 33-167 | 2 | 0-30 | |
| o-Xylene | 2.171 | 2.206 | 102 | 2.226 | 103 | 22-160 | 0-183 | 1 | 0-48 | |

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

# Quality Control - LCS/LCS Duplicate

| | | | |
|---|---|---|---|
| Treadwell & Rollo \| A Langan Company | | Date Received: | N/A |
| 555 Montgomery St., Suite 1300 | | Work Order No: | 13-01-1142 |
| San Francisco, CA 94111-2554 | | Preparation: | N/A |
| | | Method: | EPA TO-15 SIM |

Project: TI Vapor Intrusion Assessment / 730377986

| Quality Control Sample ID | Matrix | Instrument | Date Prepared | Date Analyzed | LCS/LCSD Batch Number |
|---|---|---|---|---|---|
| **099-15-188-28** | **Air** | **GC/MS KK** | **N/A** | **01/24/13** | **130124L01** |

| Parameter | SPIKE ADDED | LCS CONC | LCS %REC | LCSD CONC | LCSD %REC | %REC CL | ME_CL | RPD | RPD CL | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 5.333 | 6.010 | 113 | 6.035 | 113 | 50-150 | 33-167 | 0 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | 1.803 | 1.507 | 84 | 1.498 | 83 | 50-150 | 33-167 | 1 | 0-30 | |
| Naphthalene | 2.621 | 2.285 | 87 | 2.293 | 87 | 40-190 | 15-215 | 0 | 0-30 | |

Total number of LCS compounds : 35
Total number of ME compounds : 0
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

# Summa Canister Vacuum Summary

Work Order Number: **13-01-1142**

| Sample Name | Vacuum In | Vacuum Out | Equipment | Description |
|---|---|---|---|---|
| IA1-C-2013-01-20 | -5.00 | -29.80 | D609 | Summa Canister 6L |
| IA2-C-2013-01-20 | -5.00 | -29.80 | D863 | Summa Canister 6L |
| IA3-C-2013-01-20 | -5.00 | -29.80 | D203 | Summa Canister 6L |
| IA4-C-2013-01-20 | -5.00 | -29.80 | D284 | Summa Canister 6L |
| IA5-C-2013-01-20 | -6.00 | -29.80 | D335 | Summa Canister 6L |
| IA6-C-2013-01-20 | -4.00 | -29.80 | D099 | Summa Canister 6L |
| DUP4-2013-01-20 | -3.00 | -29.80 | D357 | Summa Canister 6L |
| PS1-C-2013-01-20 | -5.00 | -29.80 | D600 | Summa Canister 6L |
| PS2-C-2013-01-20 | -5.50 | -29.80 | D516 | Summa Canister 6L |
| IA7-C-2013-01-20 | -6.00 | -29.80 | D109 | Summa Canister 6L |
| IA1-F-2013-01-20 | -5.00 | -29.80 | D776 | Summa Canister 6L |
| IA2-F-2013-01-20 | -5.50 | -29.80 | D131 | Summa Canister 6L |
| AA1-F-2013-01-20 | -5.50 | -29.80 | D080 | Summa Canister 6L |
| IA1-E-2013-01-20 | -4.00 | -29.80 | D796 | Summa Canister 6L |
| DUP3-2013-01-20 | -5.00 | -29.80 | D630 | Summa Canister 6L |
| IA2-E-2013-01-20 | -6.00 | -29.80 | D831 | Summa Canister 6L |
| IA3-E-2013-01-20 | -8.00 | -29.60 | D854 | Summa Canister 6L |
| IA4-E-2013-01-20 | -5.00 | -29.80 | D601 | Summa Canister 6L |
| IA5-E-2013-01-20 | -5.50 | -29.80 | D903 | Summa Canister 6L |
| IA6-E-2013-01-20 | -4.00 | -29.80 | D611 | Summa Canister 6L |
| PS1-E-2013-01-20 | -5.00 | -29.80 | D243 | Summa Canister 6L |
| PS2-E-2013-01-20 | -5.00 | -29.80 | D336 | Summa Canister 6L |
| PS3-E-2013-01-20 | -4.00 | -29.80 | D531 | Summa Canister 6L |
| PS4-E-2013-01-20 | -3.00 | -29.80 | D432 | Summa Canister 6L |

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Calscience Environmental Laboratories, Inc.

# Glossary of Terms and Qualifiers

Work Order Number: 13-01-1142

| 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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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

# AIR CHAIN OF CUSTODY RECORD

DATE: 01-20-2013
PAGE: 1 OF 2

LABORATORY CLIENT: Treadwell & Rollo, A Langan Company
ADDRESS: 555 Montgomery Street, Suite 1300
CITY: San Francisco STATE: CA ZIP: 94111
TEL: 415-955-5286 E-MAIL: jgraber@langan.com

CLIENT PROJECT NAME / NUMBER: TI Santa Clara, 730377986
PROJECT ADDRESS: 2900 Semiconductor Drive
CITY: Santa Clara STATE: CA ZIP:
PROJECT CONTACT: JOSHUA GRABER

P.O.NO.:
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 13-01-1142

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE) Mukta Patil

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☒ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES: TO-15 Project list (SIM)

| LAB USE ONLY | SAMPLE ID | FIELD ID / Point of Collection | Air Type (I) Indoor (SV) Soil Vap. (A) Ambient | Sampling Equipment: Canister ID# | Canister Size 6L or 1L | Flow Controller ID # | Start Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | Stop Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | TO-15 Project list (SIM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | IA1-C-2013-01-20 | | I | D609 | 6L | FC161 | 01-20-13 | 0754 | 30" | 01-20-13 | 1548 | ~5" | X |
| 2 | IA2-C-2013-01-20 | | ↓ | D863 | ↓ | FC359 | ↓ | 0756 | 30" | ↓ | 1550 | ~5" | X |
| 3 | IA3-C-2013-01-20 | | ↓ | D203 | ↓ | FC369 | ↓ | 0757 | 30" | ↓ | 1551 | ~5" | X |
| 4 | IA4-C-2013-01-20 | | ↓ | D284 | ↓ | FC148 | ↓ | 0759 | 25" | ↓ | 1405 | ~5" | X |
| 5 | IA5-C-2013-01-20 | | ↓ | D335 | ↓ | FC53 | ↓ | 0807 | 30" | ↓ | 1559 | ~6" | X |
| 6 | IA6-C-2013-01-20 | | ↓ | D099 | ↓ | FC362 | ↓ | 0810 | 30" | ↓ | 1601 | ~4" | X |
| 7 | DUP4-2013-01-20 | | ↓ | D357 | ↓ | FC227 | ↓ | 0810 | 30" | ↓ | 1601 | ~3" | X |
| 8 | PS1-C-2013-01-20 | | ↓ | D600 | ↓ | FC355 | ↓ | 0808 | 30" | ↓ | 1606 | ~5" | X |
| 9 | PS2-C-2013-01-20 | | ↓ | D516 | ↓ | FC16 | ↓ | 0811 | 30" | ↓ | 1604 | ~5.5" | X |
| 10 | IA7-C-2013-01-20 | | ↓ | D109 | ↓ | FC255 | ↓ | 0816 | 30" | ↓ | 1610 | ~6" | X |
| 11 | IA1-F-2013-01-20 | | ↓ | D776 | ↓ | FC366 | ↓ | 0823 | 30" | ↓ | 1621 | ~5" | X |
| 12 | IA2-F-2013-01-20 | | ↓ | D131 | ↓ | FC242 | ↓ | 0823 | 30" | ↓ | 1619 | ~5.5" | X |
| 13 | AA1-F-2013-01-20 | | ↓ | D080 | ↓ | FC46 | ↓ | 0845 | 30" | ↓ | 1650 | ~5.5" | X |
| 14 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

| | | |
|---|---|---|
| Relinquished by: (Signature) Mukta Patil | Received by: (Signature) | Date: Time: |
| Relinquished by: (Signature) GSO | Received by: (Signature) | Date: 01/22/13 Time: 1015 |
| Relinquished by: (Signature) | Received by: (Signature) | Date: Time: |

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TEL: (714) 895-5494 FAX: (714) 894-7501

# AIR CHAIN OF CUSTODY RECORD

DATE: 01-20-2013
PAGE: 2 OF 2

LABORATORY CLIENT:
ADDRESS:
CITY: STATE: ZIP:
TEL: E-MAIL:

CLIENT PROJECT NAME / NUMBER:
PROJECT ADDRESS:
CITY: STATE: ZIP:
PROJECT CONTACT:

P.O.NO.:
LAB CONTACT OR QUOTE NO.
LAB USE ONLY: 01-1742

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SAMPLER(S): (NAME / SIGNATURE)

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ EDD

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

| | LAB USE ONLY | SAMPLE ID | FIELD ID / Point of Collection | Air Type (I) Indoor (SV) Soil Vap. (A) Ambient | Sampling Equipment: Canister ID# | Canister Size 6L or 1L | Flow Controller ID # | Start Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | Stop Sampling Information: Date | Time (24 hr clock) | Canister Pressure ("Hg) | TO-15 Project list (SIM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1 | IA1-E-2013-01-20 | | I | D796 | 6L | FC226 | 01-20-13 | 0836 | -30" | 01-20-13 | 1636 | ~4" | X |
| 15 | 2 | DUP3-2013-01-20 | | ↓ | D630 | ↓ | FC363 | ↓ | 0836 | -30" | ↓ | 1636 | ~5" | X |
| 16 | 3 | IA2-E-2013-01-20 | | ↓ | D831 | ↓ | FC293 | ↓ | 0835 | -30" | ↓ | 1634 | ~6" | X |
| 17 | 4 | IA3-E-2013-01-20 | | ↓ | D854 | ↓ | FC266 | ↓ | 0830 | -30" | ↓ | 1633 | ~8" | X |
| 18 | 5 | IA4-E-2013-01-20 | | ↓ | D601 | ↓ | FC240 | ↓ | 0828 | -30" | ↓ | 1628 | ~5" | X |
| 19 | 6 | IA5-E-2013-01-20 | | ↓ | D903 | ↓ | FC57 | ↓ | 0829 | -30" | ↓ | 1630 | ~5.5" | X |
| 20 | 7 | IA6-E-2013-01-20 | | ↓ | D611 | ↓ | FC125 | ↓ | 0825 | -30" | ↓ | 1645 | ~4" | X |
| 21 | 8 | PS1-E-2013-01-20 | | ↓ | D243 | ↓ | FC265 | ↓ | 0824 | -30" | ↓ | 1624 | ~5" | X |
| 22 | 9 | PS2-E-2013-01-20 | | ↓ | D336 | ↓ | FC257 | ↓ | 0838 | -30" | ↓ | 1638 | ~5" | X |
| 23 | 10 | PS3-E-2013-01-20 | | ↓ | D531 | ↓ | FC18 | ↓ | 0829 | -30" | ↓ | 1629 | ~4" | X |
| 24 | 11 | PS4-E-2013-01-20 | | ↓ | D432 | ↓ | FC177 | ↓ | 0840 | -30" | ↓ | 1642 | ~3" | X |
| | 12 | @ 1/22/13 | | | | | | | | | | | | |
| | 13 | | | | | | | | | | | | | |
| | 14 | | | | | | | | | | | | | |
| | 15 | | | | | | | | | | | | | |

| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |
|---|---|---|---|
| Mukta Patil | | | |
| Relinquished by: (Signature) | Received by: (Signature) | Date: 01/22/13 | Time: 1015 |
| Relinquished by: (Signature) | Received by: (Signature) | Date: | Time: |

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GSO GOLDEN STATE OVERNIGHT

WebShip

800-322-5555 www.gso.com

142

*Ship From:*
ADAM BROWN
TREADWELL & ROLLO
555 MONTGOMERY STREET SUITE 1300
SAN FRANCISCO, CA 94111

*Ship To:*
SAMPLE RECEIVING
CALSCIENCE
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD:
$0.00

Reference:

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 520899476

ORC

GARDEN GROVE

D92841A

8434989

NPS

A

Print Date : 01/18/13 08:58 AM

Package 1 of 7

Tracking #: 520899477

ORC

GARDEN GROVE

D92841A

8434990

Tracking #: 520899478

ORC

GARDEN GROVE

D92841A

8434991

Tracking #: 520899479

ORC

GARDEN GROVE

D92841A

8434992

Tracking #: 520899480

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ORC

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-01-1142

# SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: Treadwell & Rollo

DATE: 01/22/13

**TEMPERATURE:** Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °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: NC

**CUSTODY SEALS INTACT:**

| | | | | | |
|---|---|---|---|---|---|
| ☐ Cooler | ☐ _____ | ☐ No (Not Intact) | ☑ Not Present (Box) | ☐ N/A | Initial: NC |
| ☐ Sample | ☐ _____ | ☐ No (Not Intact) | ☑ Not Present | | Initial: NC |

**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 ☐VOAh ☐VOA$na_2$ ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGB$na_2$ ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐1PBna ☐500PB ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJ$na_2$ ☐_____ ☐_____ ☐_____

**Air:** ☐Tedlar® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** NC

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

**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:** PS



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## Radon Analysis (EPA Method GS: Grab Sample/Scintillation Cell counting)

**For Treadwell & Rollo**

Client Project Number: 730377986

Samples Collected by: Adam Brown / Mukta Patil

Sample Dates: 12/13/12 - 12/15/12

Sample containers: Tedlar bags

Site: Santa Clara, CA

Assumed Site Pressure **1.00** atm

Analysts: Doug Hammond

based on an elevation of 75 ft

Phone: 310-490-7896

Time Zone adjustment: add to decay time

email: dhammond@usc.edu

**0** hours

Collect (PST)

Run (PST)

| | Summary | Collection Date | Collection time (PST) | Analysis Date | Analysis time (PST) | Vol run (cc) | Conc. pCi/L | ±1 sig pCi/L | Lab Duplicates mean pCi/L | Lab Duplicates ±1ssd pCi/L | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Received 12/14/12 | | | | | | | | | | | |
| 1 | RS3-39-2012-12-13 | 12/13/12 | 14:00 | 12/14/12 | 15:23 | 40 | 242 | 12 | 251 | 12 | |
| | Dupe | 12/13/12 | 14:00 | 12/14/12 | 15:25 | 40 | 259 | 13 | | | |
| 2 | RA3-39-2012-12-13 | 12/13/12 | 14:10 | 12/14/12 | 15:33 | 120 | 0.23 | 0.05 | | | |
| Received 12/17/12 | | | | | | | | | | | |
| 3 | RA2-19-2012-12-14 | 12/14/12 | 15:05 | 12/17/12 | 17:43 | 120 | 0.14 | 0.07 | | | |
| 4 | RS2-19-2012-12-14 | 12/14/12 | 15:20 | 12/18/12 | 9:40 | 40 | 590 | 30 | | | |
| 5 | RA1-9-2012-12-14 | 12/14/12 | 16:40 | 12/17/12 | 17:40 | 60 | 0.14 | 0.11 | | | |
| 6 | RS1-6-2012-12-14 | 12/14/12 | 10:40 | 12/18/12 | 9:43 | 40 | 390 | 20 | 395 | 7 | |
| | Dupe | 12/14/12 | 10:40 | 12/18/12 | 9:44 | 40 | 400 | 20 | | | |
| 7 | RA1-6-2012-12-14 | 12/14/12 | 9:50 | 12/17/12 | 17:47 | 120 | 0.38 | 0.09 | | | |
| 8 | RS1-9-2012-12-14 | 12/14/12 | 16:50 | 12/18/12 | 9:38 | 40 | 117 | 6 | | | |
| 9 | RA2-E-2012-12-15 | 12/15/12 | 12:05 | 12/17/12 | 12:31 | 60 | 0.39 | 0.10 | | | |
| 10 | RA1-C-2012-12-15 | 12/15/12 | 15:15 | 12/17/12 | 12:35 | 120 | 0.52 | 0.07 | | | |
| 11 | RA3-C-2012-12-15 | 12/15/12 | 13:40 | 12/17/12 | 12:38 | 120 | 0.14 | 0.01 | | | |
| 12 | RS2-E-2012-12-15 | 12/15/12 | 13:00 | 12/17/12 | 12:16 | 40 | 390 | 20 | | | |
| 13 | RS1-C-2012-12-15 | 12/15/12 | 15:30 | 12/17/12 | 12:20 | 40 | 701 | 35 | | | |
| 14 | RS3-C-2012-12-15 | 12/15/12 | 13:50 | 12/17/12 | 12:22 | 40 | 929 | 46 | 943 | 20 | |
| | Dupe | 12/15/12 | 13:50 | 12/17/12 | 12:24 | 40 | 957 | 48 | | | |

Uncertainty given in pCi/liter is based on counting statistics for low activity samples. For high activity samples uncertainty is ±5%.

The Lower Limit of Detection for Rn (95% confidence level as recommended by EPA 402-R-95-012, Oct. 97) is 0.14 pCi/liter.

Results are reported based on standardization with NIST-traceable radon sources.

These results are for application of naturally-occurring radon as a tracer of soil vapor intrusion, but are not intended for evaluation of radon hazards.

Results corrected to in situ pressure as noted above

## Raw Data, Calculation factors, and Analytical Details

| | Sample ID | Collection Date | Collection Time (PST) | Analysis Date | Analysis Time (PST) | Count in cell/ch | He eff | Air/He eff | Vol run (cc) | Press factor | obs dpm | sig dpm | Decay T (hours) | Decay factor | Concentration dpm/liter | Concentration pCi/liter | count stats pCi/liter ±1 sig | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Received 12/14/12 | | | | | | | | | | | | | | | | | | |
| 1 | RS3-39-2012-12-13 | 12/13/12 | 14:00 | 12/14/12 | 15:23 | Z17/32 | 0.808 | 0.99 | 40 | 1.00 | 14.21 | 0.28 | 25.4 | 1.211 | 538 | 242 | 5 | |
| | Dupe | 12/13/12 | 14:00 | 12/14/12 | 15:25 | 58/31 | 0.885 | 0.99 | 40 | 1.00 | 16.66 | 0.31 | 25.4 | 1.212 | 576 | 259 | 5 | |
| 2 | RA3-39-2012-12-13 | 12/13/12 | 14:10 | 12/14/12 | 15:33 | 83/33 | 0.806 | 0.95 | 120 | 1.00 | 0.039 | 0.008 | 25.4 | 1.211 | 0.51 | 0.23 | 0.05 | |
| Received 12/17/12 | | | | | | | | | | | | | | | | | | |
| 3 | RA2-19-2012-12-14 | 12/14/12 | 15:05 | 12/17/12 | 17:43 | 83/33 | 0.806 | 0.95 | 120 | 1.00 | 0.016 | 0.008 | 74.6 | 1.757 | 0.31 | 0.14 | 0.07 | |
| 4 | RS2-19-2012-12-14 | 12/14/12 | 15:20 | 12/18/12 | 9:40 | 61/33 | 0.821 | 0.99 | 40 | 1.00 | 21.53 | 0.27 | 90.3 | 1.979 | 1310 | 590 | 7 | |
| 5 | RA1-9-2012-12-14 | 12/14/12 | 16:40 | 12/17/12 | 17:40 | 72/34 | 0.926 | 0.98 | 60 | 1.00 | 0.01 | 0.01 | 73.0 | 1.736 | 0.32 | 0.14 | 0.11 | |
| 6 | RS1-6-2012-12-14 | 12/14/12 | 10:40 | 12/18/12 | 9:43 | Z16/32 | 0.671 | 0.99 | 40 | 1.00 | 11.23 | 0.20 | 95.1 | 2.050 | 867 | 390 | 7 | |
| | Dupe | 12/14/12 | 10:40 | 12/18/12 | 9:44 | 58/31 | 0.885 | 0.99 | 40 | 1.00 | 15.17 | 0.23 | 95.1 | 2.051 | 888 | 400 | 6 | |
| 7 | RA1-6-2012-12-14 | 12/14/12 | 9:50 | 12/17/12 | 17:47 | 81/31 | 0.818 | 0.95 | 120 | 1.00 | 0.04 | 0.01 | 80.0 | 1.829 | 0.84 | 0.38 | 0.09 | |
| 8 | RS1-9-2012-12-14 | 12/14/12 | 16:50 | 12/18/12 | 9:38 | 74/34 | 0.948 | 0.99 | 40 | 1.00 | 4.99 | 0.13 | 88.8 | 1.956 | 260 | 117 | 3 | |
| 9 | RA2-E-2012-12-15 | 12/15/12 | 12:05 | 12/17/12 | 12:31 | 76/22 | 0.912 | 0.98 | 60 | 1.00 | 0.03 | 0.01 | 48.4 | 1.442 | 0.86 | 0.39 | 0.10 | |
| 10 | RA1-C-2012-12-15 | 12/15/12 | 15:15 | 12/17/12 | 12:35 | 84/11 | 0.785 | 0.95 | 120 | 1.00 | 0.07 | 0.01 | 45.3 | 1.408 | 1.16 | 0.52 | 0.07 | |
| 11 | RA3-C-2012-12-15 | 12/15/12 | 13:40 | 12/17/12 | 12:38 | 82/32 | 0.743 | 0.95 | 120 | 1.00 | 0.02 | 0.00 | 47.0 | 1.426 | 0.30 | 0.14 | 0.01 | |
| 12 | RS2-E-2012-12-15 | 12/15/12 | 13:00 | 12/17/12 | 12:16 | 74/34 | 0.948 | 0.99 | 40 | 1.00 | 22.77 | 0.33 | 47.3 | 1.429 | 867 | 390 | 6 | |
| 13 | RS1-C-2012-12-15 | 12/15/12 | 15:30 | 12/17/12 | 12:20 | 61/33 | 0.821 | 0.99 | 40 | 1.00 | 36.07 | 0.42 | 44.8 | 1.403 | 1557 | 701 | 8 | |
| 14 | RS3-C-2012-12-15 | 12/15/12 | 13:50 | 12/17/12 | 12:22 | Z16/32 | 0.671 | 0.99 | 40 | 1.00 | 38.57 | 0.44 | 46.5 | 1.421 | 2063 | 929 | 11 | |
| | Dupe | 12/15/12 | 13:50 | 12/17/12 | 12:24 | 58/31 | 0.885 | 0.99 | 40 | 1.00 | 52.39 | 0.51 | 46.6 | 1.422 | 2125 | 957 | 9 | |

Decay correctiions based on Rn decay constant of 0.1813 per day

Conversion from dpm based on 0.4504 pCi/dpm

Radon Conc = {(0.4504)(1000)(obs dpm)(decay factor)(Press factor)}/{(cc used)(He eff)(Air/He)} (in pCi/liter)

Blanks are negligible.

**Definitions:**

| | | | |
|---|---|---|---|
| Cell/ch: | Counting cell and channel used | sig dpm | uncertainty (± 1 sig) in dpm based on counting statistics |
| He eff: | Cell and counter efficiency using helium matrix | Decay T: | time elapsed from sampling to analysis |
| Air/He: | Correction for matrix counting gas density | Decay factor: | Correction factor for decay from collection to analysis |
| Sample vol: | Volume analyzed (cc) | dpm/liter: | Radon concentration in disintigrations per minute per liter of sample |
| Press factor: | Correction to in situ pressure based on collection altitude | piC/liter: | Radon concentration in picoCuries per liter |
| obs dpm: | observed radon activity (disintigrations per minute) when analyzed | count stats: | uncertainty in observed radon based on counting statistics |

# APPENDIX D

# BUILDING 39 SUB-SLAB DEPRESSURIZATION SYSTEM AS-BUILT DRAWINGS

Geosyntec consultants

1111 Broadway, Floor 6
Oakland, California 94607
PH 510.836.3034
FAX 510.836.3036
www.geosyntec.com

31 July 2014

Engineering Division
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

**Subject: Accelerated Permitting Program – Authorization to Construct and Permit to Operate**
**Sub-Slab Vapor Mitigation System at 2900 Semiconductor Drive, Building 39**
**Santa Clara, California**

Dear Sir or Madam:

On behalf of Texas Instruments (TI), Geosyntec Consultants, Inc. (Geosyntec) has prepared this application to obtain an Authority to Construct and Permit to Operate from the Bay Area Air Quality Management District (BAAQMD) for a sub-slab vapor mitigation system at 2900 Semiconductor Drive, Building 39 in Santa Clara, California (the Site, Figure 1). It is our opinion that this project meets all of the criteria for the accelerated permitting program.

**Site Description**

The Site is located at the intersection of Tahoe Way and San Ysidro Way in Santa Clara, California (Figure 1). Building 39 is a single story building with a footprint of approximately 15,300 square feet, currently occupied by National 1st Credit Union with an address of 2999 San Ysidro Way.

**Existing Environmental Conditions**

Indoor air concentrations of volatile organic compounds (VOCs) were tested in Building 39 in December 2012, under heating, ventilation, and air conditioning (HVAC) system on conditions and in January 2013 under HVAC off conditions.[1] While the HVAC system was on, all VOC concentrations were below Regional Water Quality Control Board (RWQCB) and United States Environmental Protection Agency (USEPA) screening levels. VOC concentrations were also

[1] Treadwell & Rollo, 2013. Memorandum, Updated Results of Indoor Air Testing – Buildings 9, 19, 39, C, E, F and G, July 19.

below screening levels in most areas of the building in January 2013, when the HVAC system was turned off, with the exception of trichloroethene (TCE), tetrachloroethene (PCE), and chloroform. In the men's restroom, TCE and chloroform were observed at concentrations that exceeded the RWQCB commercial/industrial Environmental Screening Levels (ESLs) and the USEPA Regional Screening Levels (RSLs), and PCE was observed at concentrations that exceeded the RWQCB commercial/industrial ESL only. In the women's restroom, TCE was observed at a concentration that exceeded the USEPA RSL and RWQCB commercial/industrial ESL. In addition, elevated concentrations of TCE and PCE were observed in sub-slab soil vapor samples collected below the women's restroom and below a nearby storage room in December 2012. Results of subsequent investigations suggest that TCE and PCE in soil vapor are migrating to indoor air through undefined entry points in or near the restrooms. Installation of a sub-slab depressurization system is proposed as an engineering control for mitigation of vapor intrusion at the Site.

**Sub-Slab Vapor Mitigation System**

The vapor mitigation system will serve to reduce the potential for VOCs to migrate into the restroom area of the Site. The vapor mitigation system will include installation of a single suction point in the fill underlying the building floor slab near the restroom area. The suction point will be fitted with valves and instrumentation for balancing and monitoring flow and vacuum during operation. The suction point will be connected to a riser constructed of polyvinyl chloride (PVC) piping that will run through the ceiling and then penetrate the roof as shown on Drawings C-1 and C-2. Once on the roof, the riser piping will be connected to the inlet of the blower and discharged to the atmosphere.

This "active venting" will create a negative pressure beneath the building slab, reducing the potential for VOCs to migrate through the slab into the building air space.

The vapor mitigation system will be equipped with alarms that will notify designated responsible personnel in the event of a system malfunction. Additionally, placards will be posted with contact information in case the system is not operating or a problem needs to be reported.

**Potential Emissions Calculations**

Potential emissions from the active vapor mitigation system for each VOC detected at the Site were calculated based on the following:

- The blower will be operated at a maximum capacity of 240 cubic feet per minute (cfm), 24 hours a day.
- Average detected sub-slab soil vapor concentrations collected throughout the building are considered representative of the consolidated vapor discharge.

Table 1 presents the potential emission estimates from the vapor mitigation system for each compound, including corresponding acute and chronic trigger levels as specified in Table 2-5-1 (Toxic Air Contaminant Trigger Levels).[2] The estimated maximum total VOC emission from the vapor mitigation system is approximately 15 pounds per year.

**Justification for the Accelerated Permitting Program**

As shown in Table 1, uncontrolled emissions of any single compound are less than 10 pounds per day. Emissions of any single compound do not exceed its trigger levels (both acute and chronic) identified in Table 2-5-1. The estimated maximum total VOC emissions from the system is approximately 15 pounds per year. In addition, the nearest school is more than 1,000 feet away from the proposed location of the equipment at the Site.

[2] BAAQMD Regulation 2, Permits, Rule 5, New Source Review of Toxic Air Contaminants.

**Closing**

We appreciate the BAAQMD's consideration of this permit application. If you have questions regarding this application, please contact the undersigned at (510) 285-2738.

Sincerely,

Jackie Lanzon, P.E.
Project Engineer

Attachments: Form P 101-B
Form G
Form P
Table 1 Potential VOC Emission Estimates for the Vapor Intrusion Mitigation System
Figure 1 Site Location Map
Design Drawings
A check payable to BAAQMD in the amount of $4,657 (including filing fee $428, Initial fee for G-1 Source $2,821, and Permit to Operate fee $1,408).

Copies to: Hector Vargas, Texas Instruments
Elma Fung, Texas Instruments

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**
939 Ellis Street, San Francisco, CA 94109
Engineering Division (415) 749-4990
www.baaqmd.gov fax (415) 749-5030

**Form P-101B**
Authority to Construct/
Permit to Operate

| | | |
|---|---|---|
| | | |

## 1. Application Information

BAAQMD Plant No. 21132 Company Name Texas Instruments

Equipment/Project Description Sub-Slab Vapor Mitigation System

## 2. Plant Information

*If you have not previously been assigned a Plant Number by the District or if you want to update any plant data that you have previously supplied to the District, please complete this section.*

Equipment Location 2900 Semiconductor Drive, Building 39

City Santa Clara Zip Code 95051

Mail Address 2900 Semiconductor Drive

City Santa Clara State CA Zip Code 95051

Plant Contact Elma Fung Title Environmantal, Safety and Health

Telephone (669) 721 -3885 Fax (408) 721 - 3353 Email Elma.Fung@ti.com

NAICS (North American Industry Classification System) see www.census.gov/epcd/naics02/naico602.htm 562910

## 3. Proximity to a School (K-12)

The sources in this permit application (*check one*) ☐ Are ☒ Are not within 1,000 ft of the outer boundary of the nearest school.

## 4. Application Contact Information

*All correspondence from the District regarding this application will be sent to the plant contact unless you wish to designate a different contact for this application.*

Application Contact Jackie Lanzon Title Project Engineer

Mail Address Geosyntec Consultants, 595 Market Street, Suite 610

City San Francisco State CA Zip Code 94105

Telephone (510) 285 - 2738 Fax (415) 243 - 0821 Email JLanzon@geosyntec.com

## 5. Additional Information

*The following additional information is required for all permit applications and should be included with your submittal. Failure to provide this information may delay the review of your application. Please indicate that each item has been addressed by checking the box. Contact the Engineering Division if you need assistance.*

☒ If a new Plant, a local street map showing the location of your business

☒ A facility map, drawn roughly to scale, that locates the equipment and its emission points

☒ Completed data form(s) and a pollutant flow diagram for each piece of equipment.
(See www.baaqmd.gov/Forms/Engineering.aspx )

☒ Project/equipment description, manufacturer's data

☒ Discussion and/or calculations of the emissions of air pollutants from the equipment

## 6. Trade Secrets

*Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 202.7, please complete the following steps.*

☐ Each page containing trade secret information must be labeled "trade secret" with the trade secret information clearly marked.

☐ A second copy, with trade secret information blanked out, marked "public copy" must be provided.

☐ For each item asserted to be trade secret, you must provide a statement which provides the basis for your claim.

**7. Small Business Certification** *You are entitled to a reduced permit fee if you qualify as a small business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:*

☐ The business does not employ more than 10 persons and its gross annual income does not exceed $750,000.

☐ And the business is not an affiliate of a non-small business. (Note: a non-small business employs more than 10 persons and/or its gross income exceeds $750,000.)

**8. Green Business Certification** *You are entitled to a reduced permit fee if you qualify as a green business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:*

☐ The business has been certified under the Bay Area Green Business Program coordinated by the Association of Bay Area Governments and implemented by participating counties.

☐ A copy of the certification is included.

**9. Accelerated Permitting** *The Accelerated Permitting Program entitles you to install and operate qualifying sources of air pollution and abatement equipment* ***without waiting for the District to issue a Permit to Operate****. To participate in this program you must certify that your project will meet all of the following criteria. Please acknowledge each item by checking each box.*

☒ Uncontrolled emissions of any single pollutant are each less than 10 lb/highest day, or the equipment has been precertified by the BAAQMD.

☒ Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-5-1 (see Regulation 2, Rule 5).

☒ The source is not a diesel engine.

☒ The project is not subject to public notice requirements (the source is either more than 1000 ft. from the nearest school, or the source does not emit any toxic compound in Table 2-5-1).

☐ For replacement of abatement equipment, the new equipment must have an equal or greater overall abatement efficiency for all pollutants than the equipment being replaced.

☐ For alterations of existing sources, for all pollutants the alteration does not result in an increase in emissions.

☒ Payment of applicable fees (the minimum permit fee to install and operate each source). See Regulation 3 or contact the Engineering Division for help in determining your fees.

**10. CEQA** *Please answer the following questions pertaining to CEQA (California Environmental Quality Act).*

A. Has another public agency prepared, required preparation of, or issued a notice regarding preparation of a California Environmental Quality Act (CEQA) document (initial study, negative declaration, environmental impact report, or other CEQA document) that analyzes impacts of this project or another project of which it is a part or to which it is related? ☐YES ☒NO If no, go to section 10B.

Describe the document or notice, preparer, and date of document or expected date of completion:

B. List and describe any other permits or agency approvals required for this project by city, regional, state or federal agencies:

Construction Permit (Electrical, Plumbing) - Santa Clara

C. List and describe all other prior or current projects for which either of the following statements is true: (1) the project that is the subject of this application could not be undertaken without the project listed below, (2) the project listed below could not be undertaken without the project that is the subject of this application:

NA

**11. Certification** *I hereby certify that all information contained herein is true and correct. (Please sign and date this form)*

| Jackie Lanzon | Project Engineer | | |
|---|---|---|---|
| Name of person certifying (print) | Title of person certifying | Signature of person certifying | Date |

Send all application materials to the **BAAQMD Engineering Division, 939 Ellis Street, San Francisco, CA 94109.**

**DATA FORM G**
**General Air Pollution Source**

# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street San Francisco, CA 94109 (415) 749-4990 FAX (415) 749-5030 www.baaqmd.gov

Form G is for general air pollution sources. Use specific forms when applicable. If this source burns fuel, then also complete Form C.

1. Business Name: Texas Instruments Plant No: 21132 (if unknown, leave blank)
2. SIC No.: _____ Date of Initial Operation _____
3. Name or Description: Sub-Slab Vapor Mitigation System Source No.: S-1
4. Make, Model, and Rated Capacity of Equipment: AMG Eagle/Force 124/240cfm
5. Process Code[1] 7156 Material Code[2] 504 Usage Unit[2] cf
6. Total throughput, last 12 mos. 0 usage units[2] Maximum operating rate: 14,400 usage units[2] /hr
7. Typical % of total throughput: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %
8. Typical operating times: 24 hrs/day 7 days/week 52 weeks/year
9. For batch or cyclic processes: NA minutes/cycle NA minutes between cycles
10. Exhaust gases from source: *(at maximum operation)* Wet gas flowrate 240 cfm at 70 °F
    Approximate water vapor content _____ volume%

**EMISSION FACTORS** *(at maximum operating rate)*

If this form is being submitted as part of an application for an **authority to construct**, completion of the following table is mandatory. If not, and the Source is *already in operation*, completion of the table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

☐ Check box if factors apply to emissions ***after*** Abatement Device(s).

| | ***Emission Factors lb/Usage Unit*** [2] | ***Basis Code*** [3] |
|---|---|---|
| 11. Particulate ..... | | |
| 12. Organics..... | Table 1 | 4 |
| 13. Nitrogen Oxides (as $N0_2$) ..... | | |
| 14, Sulfur Dioxide..... | | |
| 15. Carbon Monoxide..... | | |
| 16. Other:_____ | | |
| 17. Other:_____ | | |

18. With regard to air pollutant flow from this source, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

**S-** _____ **S-** _____ **S-** _____ **A** _____ **A-** _____ **A-** _____
**P-** 1 **P-** _____ **P-** _____ **P-** _____ **P-** _____

**[1]See Tables G-1 through G-7 for code** **[2]See Table G5 or the Material Codes Table (available upon request)**
**[3]See Basis Code Table below**

Person completing this form: Jackie Lanzon Date:

| Basis Code | |
|---|---|
| **Codes** | **Method** |
| 0 | Not applicable for this pollutant |
| 1 | Source Testing or other measurement *by plant* |
| 2 | Source Testing or other measurement *by BAAQMD* |
| 3 | Specification from vendor |
| 4 | Material balance *by plant* using engineering expertise and knowledge of process |
| 5 | Material balances *by BAAQMD* using engineering expertise and knowledge of process |
| 6 | Taken from AP-42 ("Compilation of Air Pollutant Emission Factors," E.P.A.) |
| 7 | Taken from literature, other than AP-42 |
| 8 | Guess |

| Process Code Tables for General Air Pollution Sources (Data Form G) | |
|---|---|
| **Table** | **Process** |
| G-1 | Food & Agricultural |
| G-3 | Metallurgical (Secondary Metals) |
| G-4 | Mineral |
| G-5 | Petroleum Refining |
| G-7 | Chemical/Other |
| G-8 | Miscellaneous |
| G-9 | Fugitive Emissions |

## TABLE G-1

## FOOD AND AGRICULTURAL PROCESSES

| CODE | PROCESS |
|---|---|
| 1028 | Aging |
| 1001 | Brewing |
| 1022 | Cleaning |
| 1021 | Conveying/transferring |
| 1003 | Cooking |
| 1020 | Cooling/stoning |
| 1004 | Cotton ginning - cleaner |
| 1005 | Cotton ginning - stick/burr machine |
| 1006 | Cotton ginning - unloading fan |
| 1026 | Dehydration |
| 1007 | Direct fired kiln |
| 1008 | Direct fired roaster |
| 1016 | Dryer - rotary |
| 1019 | Dryer - spray |
| 1023 | Dryer - other |
| 1009 | Drying tower |
| 1030 | Extraction - mechanical |
| 1029 | Extraction - solvent |
| 1027 | Fermentation |
| 1014 | Grinding |
| 1010 | Indirect fired kiln |
| 1011 | Indirect fired roaster |
| 1007 | Kiln - direct fired |
| 1010 | Kiln - indirect fired |
| 1012 | Liquor aging |
| 1013 | Meat smoker |
| 1024 | Milling |
| 1036 | Mixing/blending |
| 1025 | Oven baking |
| 1035 | Packaging |
| 1030 | Pressing - extraction |
| 1031 | Pressing - other |
| 1015 | Prilling |
| 1008 | Roaster - direct fired |
| 1011 | Roaster - indirect fired |
| 1016 | Rotary dryer |
| 1017 | Screening |
| 1018 | Shipping & receiving |
| 1019 | Spray dryer |
| 1032 | Sterilization - food/pharmaceutical products |
| 1020 | Stoning/cooling |
| 1034 | Storage |
| 1033 | Sulfuring - fruit/food stuff |
| 1021 | Transferring/conveying |
| 1999 | Other/not specified |

## TABLE G-3

## METALLURGICAL (SECONDARY METALS)

### DRYING (Kilns/Dryers/Ovens)

3002 Calcining kiln
3003 Concentrate dryer
3004 Oxide kiln
3005 Other/not specified

### FURNACES

3030 Bake furnace
3007 Blast furnace
3008 Casting furnace
3009 Crucible furnace
3010 Cupola
3011 Cupola furnace
3012 Electric arc furnace
3013 Flux furnace
3014 Heat treating furnace
3015 Horizontal muffle furnace
3016 Induction furnace
3017 Open hearth furnace
3018 Open hearth furnace w/ oxygen lance
3019 Pot furnace
3020 Retort furnace
3059 Reverberatory - rotary
3022 Reverberatory - sweat
3021 Reverberatory - other
3023 Rotary furnace - non-reverberatory
3024 Smelt-crucible furnace
3025 Smelt-reverberatory furnace
3026 Sweating furnace
3027 Other/not specified

### MATERIAL HANDLING/MISCELLANEOUS

3062 Abrasives blasting
3078 Alodyning
3029 Annealing
3065 Annealing - continuous
3063 Anodizing
3069 Buffing/polishing
3031 Can making operations
3046 Casting - miscellaneous
3033 Chlorination station
3062 Cleaning - abrasives blasting
3034 Cleaning - chemical
3076 Conveying
3068 Crushing/shredding
3035 Drawing
3036 Drilling
3037 Extruding
3047 Fabricating - miscellaneous
3039 Finishing - soak pit
3038 Finishing - other/not specified
3040 Foil converting
3041 Foil rolling
3042 Galvanizing
3043 Grinding
3044 Honing
3045 Lead oxide manufacturing
3067 Machine shop operations
3061 Milling/turning
3046 Miscellaneous casting
3047 Miscellaneous fabricating
3048 Mixing
3064 Non-destructive coating
3049 Paste mixer (lead batteries)
3072 Pickling
3050 Pitch treating (furnace electrode mfg)
3051 Plating (not chrome)
3070 Plating dec chrome-hexavalent <=500,000 amphr
3080 Plating dec chrome-hexavalent >500,000 amphr
3079 Plating dec chrome-trivalent
3071 Plating hard chrome-hexavalent
3081 Plasma metal application (thermal spraying)
3052 Reaming
3073 Refining
3053 Rolling
3054 Sand handling
3055 Sanding
3056 Sawing
3077 Screening
3060 Sintering
3075 Soldering
3057 Storage
3074 Ventilation
3066 Welding
3999 Other/not specified

## TABLE G-4

## MINERAL PROCESSES

### DRYING (Kilns/Dryers/Ovens)

4002 Calcimatic kiln
4082 Cement calcining kiln
4003 Coke dryer
4004 Curing oven
4005 Fluidized bed kiln
4006 Rotary dryer
4070 Rotary kiln
4007 Vertical kiln
4008 Other/not specified

### FURNACES

4010 Cupola
4012 Electric furnace
4011 Electric induction furnace
4013 Reverberatory furnace - other
4014 Reverberatory furnace - recupex
4015 Reverberatory furnace - regenex
4071 Rotary - non-reverberatory
4016 Soda lime genl furnace (glass manufacturing)
4072 Vertical furnace - other
4017 Other/not specified

### MATERIAL HANDLING/MISCELLANEOUS

4073 Abrasives blasting
4019 Asphalt blowing
4020 Asphalt dipping
4077 Asphalt mixing - batch/continuous
4078 Asphalt mixing - rotary drum
4021 Asphalt spraying
4022 Bagging
4073 Blasting - abrasives cleaning
4023 Blasting - quarry
4024 Blow chamber
4075 Calcining
4025 Coal cleaning - therm/flash
4026 Coal cleaning - therm/fluid bed
4027 Coal cleaning - therm/multi low pd
4028 Concrete batching - asbestos/cement products
4029 Concrete batching - other
4030 Conveying
4031 Cooling
4032 Crushing
4033 Drying (open air)
4034 Electric arc melting
4035 Fiberizing
4036 Forming line (fiberglass manufacturing)
4037 Furnace room venting
4074 Glass enamel spraying
4038 Glass manufacturing - batching
4039 Glass manufacturing - material receiving
4040 Glass manufacturing - material storage
4041 Glass manufacturing - mixing
4042 Glass manufacturing - molten holding tanks
4043 Glass manufacturing - other/not specified
4044 Grinding
4045 Hold/shakeout
4046 Hydrator
4079 Loading - feed/surge/weigh bins
4080 Loading/unloading (non-mining/quarry)
4047 Milling
4048 Mining/quarry - cobbing
4053 Mining/quarry - crushing (primary)
4054 Mining/quarry - crushing (secondary)
4069 Mining/quarry - crushing (tertiary)
4061 Mining/quarry - loading/unloading
4049 Mining/quarry - open pit blasting
4050 Mining/quarry - open pit cobbing
4051 Mining/quarry - open pit drilling
4052 Mining/quarry - ore concentrating
4055 Mining/quarry - stockpiling
4056 Mining/quarry - stripping
4057 Mining/quarry - surface blasting
4058 Mining/quarry - surface drilling
4059 Mining/quarry - tailing piles
4060 Mining/quarry - tailings
4062 Mining/quarry - ventilating
4068 Mining/quarry - other
4081 Mixing operations
4063 Road surfacing
4073 Sand blasting
4064 Screening
4065 Sintering
4066 Stone cutting
4067 Storage - contained
4076 Storage - open
4037 Venting - furnace room
4099 Other/not specified

## TABLE G-5

## PETROLEUM REFINING PROCESSES

| CODE | PROCESS | CODE | MATERIAL | USAGE UNITS |
|---|---|---|---|---|
| 5040 | Air Stripping/DAF processing | 300 | Waste Water | 1000 barrels |
| 5030 | Alkylation | 195 | Hydrocarbons - olefinic | 1000 barrels feed |
| 5001 | Asphalt oxidizer | 30 | Asphalt | tons processed |
| 5002 | Blow-down system - w/ controls | 340 | Crude oil * | 1000 bbl/day ref cap |
| 5003 | Blow-down system - w/o controls | 340 | Crude oil * | 1000 bbl/day ref cap |
| 5004 | Catalytic reforming | 342 | Cat reformer fresh feed | 1000 barrels fresh feed |
| 5023 | Chemical treating - other | 239 | Feedstock | 1000 barrels |
| 5038 | Coke storage piles (open) | 80 | Coke | tons |
| 5025 | Converting - other/not specified | 239 | Feedstock | 1000 barrels |
| 5005 | Cooling tower | 428 | Water - brackish/sea | 1000 gallons |
| 5005 | Cooling tower | 415 | Water - fresh | 1000 gallons |
| 5005 | Cooling tower | 300 | Waste Water | 1000 barrels |
| 5018 | Delayed coking | 343 | Delayed coke product | tons produced |
| 5027 | Distillation - crude | 89 | Crude oil | 1000 barrels |
| 5032 | Distillation - vacuum | 339 | Vacuum distillation feed | 1000 barrels |
| 5028 | Distillation - other | 239 | Feedstock | 1000 barrels |
| 5034 | Flexicoking | 346 | Coker fresh feed | 1000 barrels fresh feed |
| 5007 | Fluid cat cracker | 344 | FCC fresh feed | 1000 barrels fresh feed |
| 5008 | Fluid coking - cooling | 345 | Fluid coke product | tons produced |
| 5009 | Fluid coking - general | 346 | Coker fresh feed | 1000 barrels fresh feed |
| 5010 | Fluid coking - storage | 345 | Fluid coke product | tons produced |
| 5011 | Fluid coking - transportation | 345 | Fluid coke product | tons produced |
| 5021 | Hydrocracking | 239 | Feedstock | 1000 barrels |
| 5026 | Hydrogen manufacturing | 50 | C1-C2 paraffins | million cubic feet |
| 5026 | Hydrogen manufacturing | 52 | C3+ paraffins | 1000 barrels feed |
| 5026 | Hydrogen manufacturing | 188 | Naphtha | 1000 barrels feed |
| 5022 | Hydrotreating/hydrofining | 239 | Feedstock | 1000 barrels |
| 5031 | Isomerization | 52 | C3+ paraffins | 1000 barrels feed |
| 5039 | Marine loading/unloading berths | 80 | Coke | tons |
| 5017 | Oil-water separator | 300 | Waste water | 1000 barrels |
| 5017 | Oil-water separator | 427 | Process water | 1000 gallons |
| 5024 | Polymerization | 195 | Hydrocarbons - olefinic | 1000 barrels feed |
| 5012 | Process drain - w/controls | 442 | Waste water - sour | 1000 barrels |
| 5012 | Process drain - w/controls | 300 | Waste water | 1000 barrels |
| 5013 | Process drain - w/o controls | 442 | Waste water - sour | 1000 barrels |
| 5013 | Process drain - w/o controls | 300 | Waste water | 1000 barrels |
| 5017 | Separator - oil/water | 300 | Waste water | 1000 barrels |
| 5017 | Separator - oil/water | 427 | Process water | 1000 gallons |
| 5014 | Sludge converter | 347 | Sludge | tons produced |
| 5029 | Solvent extraction | *** | (use specific Materials Code) | |
| 5037 | Sour water stripping | 442 | Waste water - sour | 1000 barrels |
| 5035 | Sulfur removal - other/caustic | 238 | Refinery fuel gas | million cubic feet |
| 5019 | Thermal cracking | 446 | Thermal cracker fresh feed | 1000 barrels feed |
| 5020 | Thermal processing - other | 446 | Thermal cracker fresh feed | 1000 barrels feed |
| 5032 | Vacuum distillation | 339 | Vacuum distillation feed | 1000 barrels |
| 5015 | Vacuum jet - w/ controls | 339 | Vacuum distillation feed | 1000 barrels |
| 5016 | Vacuum jet - w/o controls | 339 | Vacuum distillation feed | 1000 barrels |
| 5033 | Wastewater storage - ponds | 300 | Waste water | 1000 gallons |
| 5036 | Wastewater storage - tanks | 300 | Waste water | 1000 gallons |
| 5993 | Other/not specified | 80 | Coke | tons |
| 5994 | Other/not specified | 89 | Crude oil | 1000 barrels |
| 5995 | Other/not specified | 239 | Feedstock | 1000 barrels feed |
| 5997 | Other/not specified | 339 | Vacuum distillation feed | 1000 barrels |
| 5998 | Other/not specified | 338 | Waste gases | million cubic feet |
| 5999 | Other/not specified | 321 | Other petroleum products | 1000 gallons |

**NOTE**: Each process listed in Table G-5 has a specific material associated with it for use on the G-Form.
*****Code 340 for crude oil for these processes must be used; emissions are dependent on total refinery capacity rather than on throughput. Use code 89 for crude oil in any other process.

## TABLE G-7

## CHEMICAL PROCESSES

| | |
|---|---|
| 7019 | Air blow ml brine |
| 7020 | Ammoniating |
| 7016 | Ammonium sulfate mfg - $NH_3/H_2SO_4$ proc |
| 7018 | Ammonium sulfate mfg - coke oven byprdcts |
| 7131 | Biological oxidation |
| 7021 | Bodying oil |
| 7022 | Boiling tub |
| 7023 | Brine evaporation |
| 7096 | Calcining - rotary kiln |
| 7024 | Calcining - other |
| 7030 | Carbon black manufacturing - other process |
| 7132 | Carbon dioxide liquifaction plant |
| 7031 | Carpet operation |
| 7032 | Caulking |
| 7998 | Chemical reaction - other/not specified |
| 7173 | Chemical reactor – greater than 1000 gallons |
| 7073 | Chemical reactor - other/not specified |
| 7055 | Claus - modified 2 stage |
| 7056 | Claus - modified 3 stage |
| 7057 | Claus - modified 4 stage |
| 7033 | Condensing |
| 7155 | Contaminated ground water stripping |
| 7156 | Contaminated soil remediation |
| 7034 | Cooking |
| 7035 | Creosote pressure treating |
| 7114 | Crystallizing |
| 7036 | Cyclohex - general |
| 7151 | Dipping/cleaning tank |
| 7037 | Distillation |
| 7133 | Etching |
| 7038 | Ethylene dichloride mfg - direct chlorination |
| 7039 | Ethylene dichloride mfg - oxychlorination |
| 7023 | Evaporation - brine |
| 7110 | Evaporation - other |
| 7040 | Fabrics manufacturing - bleaching |
| 7041 | Fabrics manufacturing - yarn prep |
| 7042 | Fabrics manufacturing - other/not specified |
| 7152 | Feed/holding tank |
| 7158 | Gas collection system |
| 7044 | Gas purging |
| 7046 | Gypsum pond |
| 7130 | Hydrochloric acid manufacturing |
| 7148 | Hydrochloric acid regeneration |
| 7043 | Injection – NOx control system |
| 7144 | Laboratory |
| 7145 | Landfill with gas collection system |
| 7159 | Landfill without gas collection system |
| 7132 | Liquifaction - CO2 plant |
| 7053 | Liquifaction - diaphragm |
| 7054 | Liquifaction - merc cell |
| 7055 | Mod-Claus 2 stage |
| 7056 | Mod-Claus 3 stage |
| 7057 | Mod-Claus 4 stage |
| 7097 | Neutralizing |
| 7062 | Nitration reactors |
| 7051 | Nitric acid - paraxylen gen |
| 7052 | Nitric acid concentrators |
| 7063 | Nitric acid mfg - ammonia oxid new |
| 7064 | Nitric acid mfg - ammonia oxid old |
| 7131 | Oxidation, biological |
| 7065 | Phosphoric acid manufacturing - thermal |
| 7066 | Phosphoric acid manufacturing - wet process |
| 7147 | Phosphoric acid manufacturing - other |
| 7154 | Photographic equipment |
| 7067 | Pressure treating - other |
| 7068 | Prilling |
| 7153 | Process tank |
| 7071 | Pulpboard manufacturing |
| 7072 | Pyrolysis |
| 7073 | Reactor - other/not specified |
| 7074 | Regenerator |
| 7075 | Rubberized fabric mfg - hot melt coating |
| 7076 | Rubberized fabric mfg - impregnation |
| 7077 | Rubberized fabric mfg - wet coating |
| 7078 | Rubberized fabric mfg - other/not spec |
| 7080 | Scrubber |
| 7081 | Seelite exhaust |
| 7160 | Separating – DAF processing |
| 7103 | Separating - oil/water |
| 7098 | Separating - other |
| 7290 | Sewage - Digesters |
| 7270 | Sewage - Disinfection |
| 7230 | Sewage - Flow equalization |
| 7210 | Sewage - Preliminary treatment |
| 7220 | Sewage - Primary treatment |
| 7300 | Sewage - Reclamation |
| 7250 | Sewage - Secondary clarifiers |
| 7240 | Sewage - Secondary treatment |
| 7280 | Sewage - Sludge handling processes |
| 7260 | Sewage - Tertiary treatment |
| 7200 | Sewage - Wastewater treatment plant |
| 7058 | Sodium carbonate Solvay - NH3 recovery |
| 7059 | Sodium carbonate Solvay - handling |
| 7060 | Sodium carbonate Trona - calcining |
| 7061 | Sodium carbonate Trona - dryer |
| 7146 | Sterilization - medical equipment |
| 7089 | Sulfate pulping - other/not specified |
| 7082 | Sulfate pulping - blow tank accumulator |
| 7083 | Sulfate pulping - fluidbed calciner |
| 7084 | Sulfate pulping - liquor oxidation tower |
| 7085 | Sulfate pulping - mult-effect evaporation |
| 7086 | Sulfate pulping - smelt dissolv tank |
| 7087 | Sulfate pulping - turpentine condenser |
| 7088 | Sulfate pulping - washer/screen |
| 7090 | Sulfite pulping - digester |
| 7091 | Sulfite pulping - evaporator |
| 7092 | Sulfite pulping - liquor recovery |
| 7093 | Sulfite pulping - pulp digester |
| 7094 | Sulfite pulping - smelt tank |
| 7095 | Sulfite pulping - other/not specified |
| 7047 | Sulfuric acid mfg - chamber process |
| 7048 | Sulfuric acid mfg - contact process |
| 7050 | Sulfuric acid mfg - other/not specified |
| 7049 | Sulfuric acid regenerators |
| 7157 | Tank/drum/container cleaning |
| 7073 | Other chemical - reactor |
| 7998 | Other chemical reaction - other/not spec |
| 7999 | Other process/not specified |

## TABLE G-8

### MISCELLANEOUS PROCESSES

**DRYING (Dehydration/Kilns/Dryers/Ovens)**

7006 Natural gas dehydrating
7002 Pigment drying
7003 Spray drying
7004 Veneer drying
7005 Drying - other/not specified

**MATERIAL HANDLING**

7116 Bagging/packaging
8007 Coke storage pile
7007 Drying
7045 Granulating
7008 Grinding
7009 Loading - storage tank
7010 Loading - tank car
7108 Milling
7011 Mixing
7115 Pelletizing
7017 Pumping facility - organic liquids
7012 Sanding
7014 Storage
7013 Material handling - other/not spec

**MISCELLANEOUS**

7109 Abrasives blasting
7109 Cleaning - abrasives blasting
8001 Coating operation - powder, other non-solvent
8010 Conveying
7164 Composting - windows
7165 Composting - aerated static piles
7166 Composting - in-vessel
7105 Cooling - pond
7104 Cooling - tower
7106 Cooling - other
8011 Crematory retort
8003 Expanders - plastics, other
8004 Extruders - plastics, other
7045 Granulating
7143 Insulation stripping - wire
7143 Laser-stripping - wire insulation
7170 Latex dipping
8005 Material working equipment - plastics, other
7111 Molding/curing - plastics
7112 Molding/curing - rubber
7113 Molding/curing - other/not specified
8002 Oven
8006 Paper/paperboard handling equipment
7109 Sand blasting
7079 Sawmill operation
8008 Screening/Separating
8009 Shredding/Mangling/Cutting
8012 Waste material grinding
7161 Wastewater – industrial storage ponds
7143 Wire insulation stripping - laser
7107 Woodworking - other/not specified
8999 Other process - not specified

## TABLE G-9

### FUGITIVE EMISSION SOURCES

**FUGITIVE EMISSIONS**

9000 Combined fugitive emission sources
9010 Refinery flaring/blowdown
9070 Refinery pressure relief valves
9080 Refinery process drains
9040 Refinery process vessels
9060 Refinery pumps/compressors
9030 Refinery vacuum products
9050 Refinery valves/flanges

**DATA FORM P**
**Emission Point**

## BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street .. . San Francisco, CA . . . 94109. . . (415) 749-4990 . . . Fax (415) 749-5030

Form P is for well-defined emission points such as stacks or chimneys only; do not use for windows, room vents, etc.

Business Name: Texas Instruments Plant No: 21132

Emission Point No: P- 1

With regard to air pollutant flow into this emission point, what sources(s) and/or abatement device(s) are **immediately** upstream?

**S-** 1 **S-** _____ **S-** _____ **S-** _____ **S-** _____
**S-** _____ **A-** _____ **A-** _____ **A-** _____ **A-** _____ **A-** _____

Exit cross-section area: 0.09 sq. ft. Height above grade: ~15 ft.

### Effluent Flow from Stack

| | ***Typical Operating Condition*** | ***Maximum Operating Condition*** |
|---|---|---|
| *Actual Wet Gas Flowrate* | 20-100 cfm | 240 cfm |
| *Percent Water Vapor* | Vol % | Vol % |
| *Temperature* | 70 °F | 70 °F |

If this stack is equipped to measure (monitor) the emission of any air pollutants,

Is monitoring continuous? ☐ yes ☒ no

What pollutants are monitored? VOCs

Person completing this form Jackie Lanzon Date _____

# Table 1
## Potential VOC Emission Estimates for the Vapor Intrusion Mitigation System
## 2900 Semiconductor Drive - Building 39, Santa Clara, California

| Sample Location | Date | PCE | TCE | Chloroform | 1,1-DCA | 1,1-DCE | Freon 113 | 1,1,1-TCA | cis-1,2-DCE | trans-1,2-DCE |
|---|---|---|---|---|---|---|---|---|---|---|
| SS1-39-2012-12-13 | 12/13/2012 | **210** | **1000** | **5** | **110** | **37** | **2,500** | **300** | **81** | **6.3** |
| SS2-39-2012-12-13 | 12/13/2012 | **11** | **82** | < 2.2 | < 8.2 | < 8.1 | **150** | < 11 | < 8.1 | < 1.9 |
| SS3-39-2012-12-13 | 12/13/2012 | **54** | **510** | < 2.2 | **9.1** | < 8.1 | **540** | **33** | **55** | **4.7** |
| **Average Concentration (μg/m$^3$)** | | 91.67 | 530.67 | 3.13 | 42.43 | 17.73 | 1063.33 | 114.67 | 48.03 | 4.30 |
| **Average Concentration (μg/L)** | | 0.09 | 0.53 | 0.003 | 0.04 | 0.02 | 1.06 | 0.11 | 0.05 | 0.004 |
| **Air Emission Rate (lbs/hr)** | | 8.22E-05 | 4.76E-04 | 2.81E-06 | 3.81E-05 | 1.59E-05 | 9.54E-04 | 1.03E-04 | 4.31E-05 | 3.86E-06 |
| **Acute Trigger Level (lbs/hr)** | | 4.4E+01 | -- | 3.30E-01 | -- | -- | -- | 1.50E+02 | -- | -- |
| **Air Emission Rate (lbs/day)** | | 1.97E-03 | 1.14E-02 | 6.75E-05 | 9.14E-04 | 3.82E-04 | 2.29E-02 | 2.47E-03 | 1.03E-03 | 9.26E-05 |
| **Air Emission Rate (lbs/yr)** | | 7.20E-01 | 4.17E+00 | 2.46E-02 | 3.33E-01 | 1.39E-01 | 8.36E+00 | 9.01E-01 | 3.78E-01 | 3.38E-02 |
| **Chronic Trigger Level (lbs/yr)** | | 1.8E+01 | 5.4E+01 | 2.0E+01 | 6.6E+01 | 2.7E+03 | -- | 3.9E+04 | -- | -- |

| | |
|---|---|
| **Total VOC Air Emission Rate (lbs/day)** | **0.04** |
| **Total VOC Air Emission Rate (lbs/yr)** | **15.06** |

**Assumptions:**
The larger blower is assumed to be operating at full capacity (240 cfm) 24 hours a day.

Average soil vapor concentrations are assumed to be representative of the consolidated vapor discharge.

Formula used for calculating air emission rate for each compound:
(average contaminant concentration in soil vapor, ug/L) * (28.32 L/ft3) * (240 CFM) * (60 min/hr) * ($10^{-6}$ g/ug) * (0.0022 lbs/g)
= air emission rate (lbs/hr) based on soil vapor results

**Notes:**
Soil vapor concentration units are micrograms per cubic meter (μg/m$^3$).
Compounds detected at or above the method detection limit are shown in **bold.**

**Acronyms:**
1,1,1-TCA - 1,1,1 -Trichloroethane
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene
Freon 113 - Trichlorotrifluoroethane
PCE - Tetrachloroethene
trans-1,2-DCE - trans-1,2-dichloroethene
TCE - Trichloroethene

0.5 0.25 0 0.5 Miles

N

**Site Location**

2999 San Ysidro Way
Santa Clara, CA

Geosyntec consultants

Oakland | June 2014

Figure 1

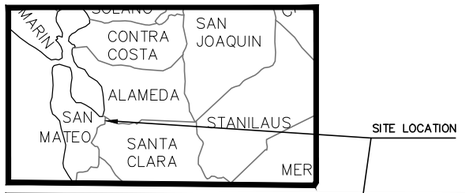
P:\GIS\Phase1\TI_SantaClara\Building 39\SiteLocation.mxd

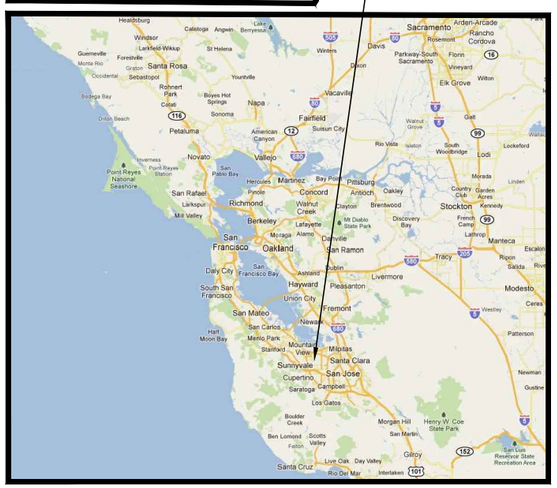
# VAPOR MITIGATION SYSTEM DESIGN

## TEXAS INSTRUMENT SITE - BUILDING 39

## 3693 TAHOE WAY, SANTA CLARA, CALIFORNIA, 95051

## JUNE 2014



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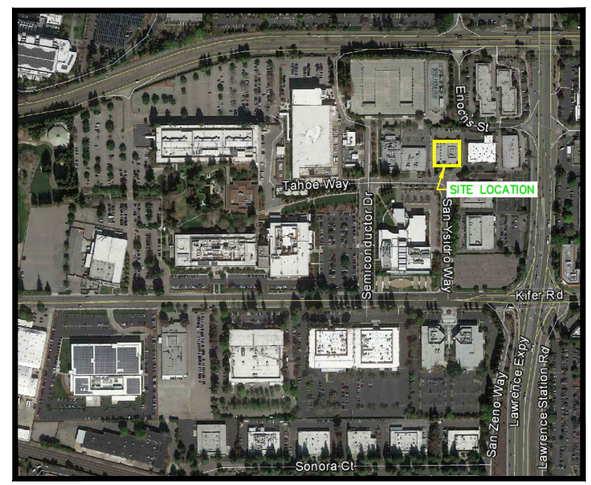


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APPROX. SCALE IN FEET

LOCATION MAPS

INDEX OF DRAWINGS


| DRAWING NO. | TITLE |
|---|---|
| GENERAL: | |
| G–1 | COVER AND INDEX DRAWING |
| G–2 | GENERAL NOTE AND SYSTEM SPECIFICATIONS |
| CONSTRUCTION: | |
| C–1 | VAPOR MITIGATION SYSTEM SCHEMATIC – PLAN VIEW |
| C–2 | VAPOR MITIGATION SYSTEM SCHEMATIC – SECTION VIEW |
| C–3 | DETAILS |


PREPARED FOR:

TEXAS INSTRUMENTS, INC.

2900 SEMICONDUCTOR DRIVE
SANTA CLARA, CA 95051

0 1" 2"
ORIGINAL SCALE
IF SHEET IS LESS THAN 22" BY 34", THEN PRINT–SCALE HAS BEEN REDUCED ACCORDINGLY.

REVISIONS

| NO. | DESCRIPTION | DATE | BY |
|---|---|---|---|
| 1 | ISSUED FOR REVIEW | 07/01/14 | JBL |


Geosyntec consultants
1111 Broadway
6th Floor
Oakland, CA 94607
Phone: 510-836-3034


COVER AND INDEX DRAWING

VAPOR MITIGATION SYSTEM DESIGN
TEXAS INSTRUMENT, INC.
2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CALIFORNIA

| | | | |
|---|---|---|---|
| DES BY: EL | DATE: JULY 2014 | | |
| DRN BY: SCG | SCALE: AS SHOWN | | |
| CHK BY: BL | PROJECT: SB–0690 | | |
| REV BY: DF | DOCUMENT: | | |
| APP BY: JBL | | | |
| FILE: G–1 COVER – BUILDING 39.DWG | | | |

DRAWING NO.
G-1

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## A. General

1. The vapor mitigation system design and these drawings have been prepared according to the standard level of care normally exercised by members of the environmental consulting profession practicing in the United States at this time. They assume that the work depicted will be performed by an experienced contractor who has a working knowledge of applicable code standards and requirements and of industry accepted standard good practice. As not every condition or element is or can be explicitly shown on these drawings, the contractor shall use industry accepted standard good practice for miscellaneous work not explicitly shown.
2. These drawings represent the finished mitigation system. They do not indicate the method of construction. The contractor shall be solely responsible for construction means, methods, techniques, sequences, procedures, etc.
3. All work shall be in compliance with federal, state, and local building, fire, and electrical codes.
4. The contractor shall confer with and seek the approval of Geosyntec for the final locations of mitigation system components, such as the points of roof penetration, suction points, pipe runs (for example, whether interior or exterior), and exhaust points on the roof.
5. Notes and details on drawings shall take precedence over general notes, provided the notes and details are in accordance with all applicable codes.
6. All inspections if required by building codes shall be provided by an independent inspection company or the building department. Site visits by the system design engineer do not constitute an inspection.

## B. Vapor Mitigation System

1. The intent of the work is to allow removal of soil vapors that may accumulate below the existing slab and vent to the atmosphere above the building roof line in a manner consistent with all applicable codes.
2. The mitigation system piping consists of pipes that 1) penetrate the existing concrete floor slab, and 2) rise vertically and, as necessary, run horizontally inside the building to roof penetration points, and 3) exhaust vapors to the atmosphere above the roof. All vent pipes, and fans shall be installed at the locations shown on the layout drawing, in the manner shown on the details sheet, and as required by these notes.
3. Vent pipe shall be schedule 40 PVC with class A fire rating and flame/smoke index of at most 25/50 by method ASTM E84 or as required by applicable codes and shall be 3 inch I.D. unless otherwise indicated on the drawings. Other pipe materials, e.g., cast iron, shall be used instead of schedule 40 PVC when required by code. Contractor shall use long or short sweep elbows where possible based on field conditions.
4. The mitigation system piping is connected to inline electric fan on the rooftop.
5. All piping connections shall be solvent cemented and permanently sealed using a primer meeting ASTM F656 and solvent meeting ASTM D2564. Joints shall be made while solvent is wet and shall be in accordance with ASTM 2855 and ASTM F402.
6. All vertical pipe runs shall be supported at least every 8 feet and at every penetration through slabs, ceiling or roof decks. All floor, wall, ceiling and roof penetrations shall meet all applicable fire and building codes. Horizontal pipe runs and the number of elbows should be minimized to the extent practicable to minimize friction to air flow. Horizontal pipe runs shall be sloped to ensure that any rain water that enters the top of the pipe and any condensation that forms in the pipe will drain toward the floor penetration. Horizontal runs shall be supported at least every 5 feet with code approved hangers. All horizontal runs shall be supported within 2 feet of each fitting. All piping shall be installed in compliance with building and fire codes.
7. Exhaust points shall be at least 10 feet above grade; at least 10 feet away from any opening that is less than 2 feet below the discharge; at least 10 feet from any private or public access; at least 10 feet from any adjacent building; above the eave of the roof; and away from any air intake.
8. Electric service shall be installed to the fans using a licensed local electrician.
9. Fans shall be installed on vent pipes according to manufacturer recommendations. To minimize vibration noise, piping shall not come in direct contact with the fan housing.

## C. Floor Slab Penetrations

1. The intent of this work is to ensure that the existing slab is sealed at all locations, to prevent the leakage of air between the slab and the indoor air space of the building.
2. Urethane caulk or sealant shall comply with federal specification TT-S-00230C (e.g. Pecora Corporation's Dynatrol 1-XL, or Tremco's Vulkem 116) and fire codes as applicable.
3. All control joints, construction joints, and similar features shall be sealed using urethane caulk according to manufacturer's recommendations and applicable fire codes.
4. All utilities, pipes, and other conduits that penetrate the existing slab, including vent pipes, shall be wrapped and sealed with a urethane grout according to manufacturer's recommendations and in a manner meeting applicable fire codes, to prevent the movement of air along the annulus between the pipe, conduit, box, or other feature and the concrete.
5. All cracks in the existing floor slab shall be sealed using expanding foam sealants or urethane caulk to ensure that the slab is sealed from the indoor space.
6. All sealant applications will be made at the finished concrete surface.

## EQUIPMENT SCHEDULE

Vapor Vent Piping

3" PVC schedule 40 pipe and fittings (ASTM D-2665) "White Color".
Hollow core PVC is not permissible.
PVC cement primer shall comply with ASTM F-656.
PVC cement adhesive shall comply with ASTM D-2564.

Piping Supports
3 inch hanging pipe supports.
Swivel ring or standard bolt type clevis
Adjustable band hangar.
Double drop in anchors.
3/8 inch threaded rod.
Assorted bolts, nuts and washers.
3 inch pipe secured to concrete floor or wall.
Slotted conduit channel.
Conduit clamps.
3/8 inch wedge anchors

Vapor Blowers
AMG force or AMG eagle
Size appropriate rubber boots with marine grade stainless steel hose clamps.

Blower Support Frame
1 5/8 inch C-profile galvanized Unistrut
MSQ - 4 four hole 90° angle connector.
MSQ push button fastening bolt.
Pipe Pier style supports for roof contact

Cracks & Sealing Materials
Urethane sealant shall comply to federal specification TT-S-00230C, subject to compliance with contract requirements. Visual expansion joints or slab cracks in the areas being mitigated that have a 1/16 inch or greater opening should be sealed.

Fire Protection
Mineral wool
3 inch fire collars
Fire stopping caulk (Hilti)

Visual Pressure Indicator
Magnehelic

Central Alarm System
Sensaphone Web 600 or equivalent
Light indicator panel mounted within janitor closet

## VAPOR MITIGATION SYSTEM

Installation - All work shall be in compliance with Federal, State and local building and electrical codes.

Labeling - Exposed piping shall be labeled "ACTIVE SOIL DEPRESSURIZATION SYSTEM" close to valves, changes in direction, branches, entry and exit of wall or floor penetrations, at least once per room/floor/above the roof, and at least every 25 feet. Piping labels shall be in accordance with Texas Instruments "Facilities System Identification Standard; Rev C".

Pipe Sizing and Elbows - The maximum pipe run for 3" PVC to each suction point will not exceed 250 feet. Each 90 degree elbow subtracts 10 feet of available pipe length. Contractor shall use long or short sweep elbows where possible based on field conditions.

Pipe fittings - All elbows and bend fittings shall be drain waste vent (DWV). All "T" fittings shall be sanitary "T" installed in direction of air movement to reduce friction losses.

Volume damper - Volume damper shall be PVC schedule 40 ball valves or blast gates equivalent sized per it's specific pipe run. Dampers shall be placed within each riser pipe at a height of approximately five feet above the floor. The damper control lever shall be locked and positioned so technicians can easily access and adjust damper.

Piping support and installation - All vertical piping runs shall be supported at least every 8 feet and at every penetration through slabs, ceiling or roof decks. Horizontal runs shall be supported every 5 feet with code approved hangers. All horizontal runs shall have a support with appropriate device within 2 feet of each fitting. All piping shall be installed in compliance with CA plumbing code.

Piping connections - All piping connections shall be solvent cemented using a clear primer meeting ASTM F656 and non-purple solvent meeting ASTM D2564. Joints will shall be made while solvent is wet and shall be in accordance with ASTM 2855 ASTM F402.

Electric service - Provide electric service to blower/fan with locking disconnect from selected electric panel. Provide and install designated 20 or 30 amp breaker (match existing) in panel and label "SSD Blower - B #". Wiring in the electrical metallic tubing (EMT) from panel to fan above roof. Above roof provide an exterior grade, weather tight tubing and terminate at fan with flexible tubing. Use appropriately sized wiring in lengths up to 120 linear feet. Over 120 linear feet increase wire size 1 gauge. All electrical work shall be completed by licensed electrician and in compliance with national electric code and state codes.

Roof penetrations and repairs - All roof flashing and related roof work shall be made by the contractors roofer that is certified by the roofing material manufacturer and is permitted by manufacturer to perform roof work on warranted roofs. Roofer must certify the work meets manufacturers warranty after the work.

0 1" 2"
ORIGINAL SCALE
IF SHEET IS LESS THAN 22" BY 34", THEN PRINT-SCALE HAS BEEN REDUCED ACCORDINGLY.

REVISIONS

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|---|---|---|---|
| 1 | ISSUED FOR REVIEW | 07/01/14 | JBL |

Geosyntec consultants
1111 Broadway
6th Floor
Oakland, CA 94607
Phone: 510-836-3034

GENERAL NOTES AND SYSTEM SPECIFICATIONS

VAPOR MITIGATION SYSTEM DESIGN
TEXAS INSTRUMENT, INC.
2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CALIFORNIA

| | | | |
|---|---|---|---|
| DES BY: EL | DATE: JULY 2014 | DRAWING NO. |
| DRN BY: SCG | SCALE: AS SHOWN | G-2 |
| CHK BY: BL | PROJECT: SB-0690 | |
| REV BY: DF | DOCUMENT: | |
| APP BY: JBL | | |

FILE:G-2 GENERAL NOTES AND SYSTEM SPECIFICATIONS - BUILDING 39.I

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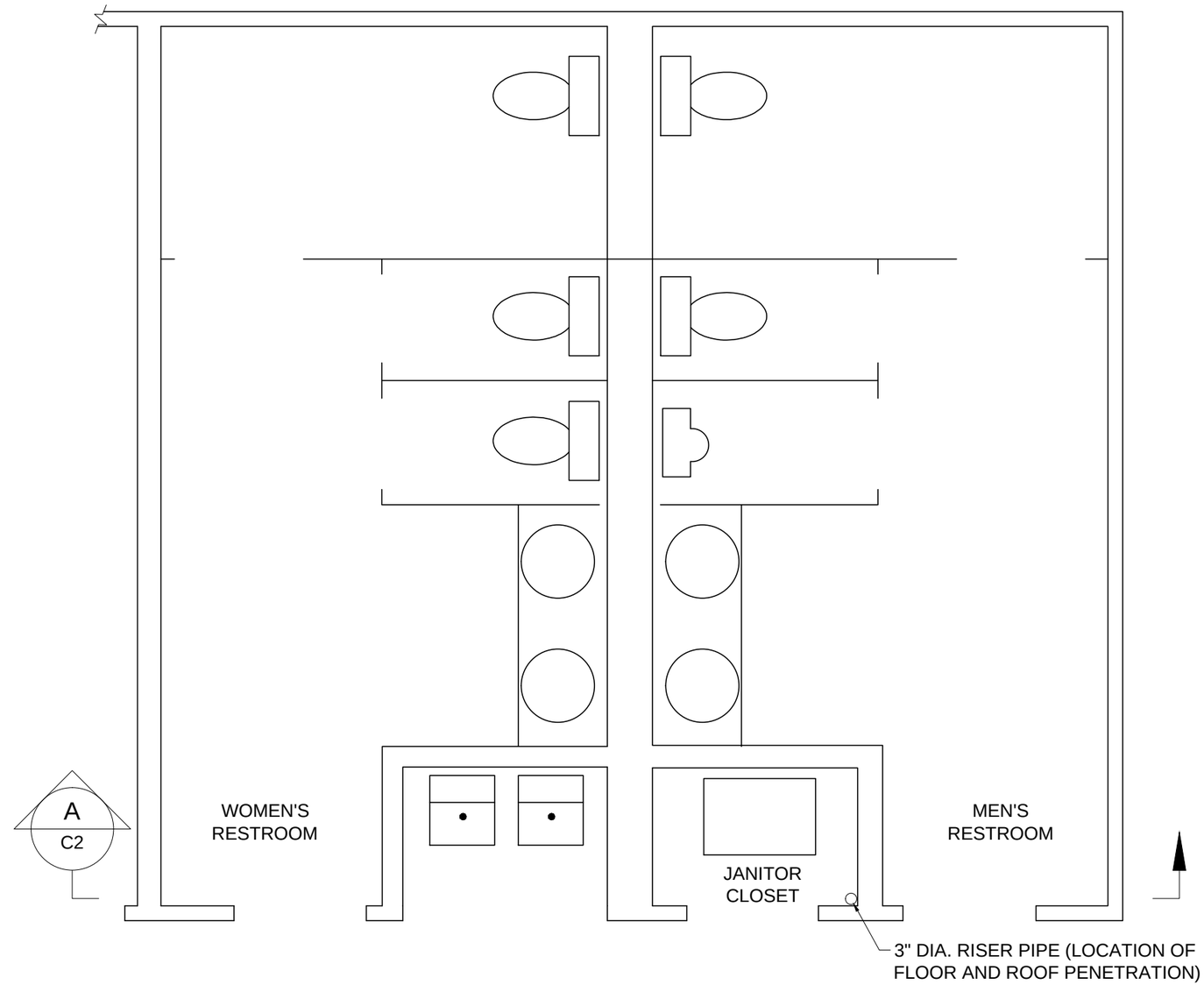


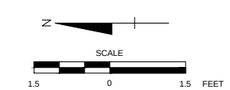


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Texas Instrument, Inc.

Geosyntec consultants

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6th Floor
Oakland, CA 94607
Phone: 510-836-3034

BUILDING 39 – VAPOR MITIGATION SYSTEM SCHEMATIC – PLAN VIEW

VAPOR MITIGATION SYSTEM DESIGN
TEXAS INSTRUMENT, INC.
2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CALIFORNIA

| | | | |
|---|---|---|---|
| DES BY: EL | DATE: JULY 2014 | | |
| DRN BY: SCG | SCALE: AS SHOWN | | |
| CHK BY: BL | PROJECT: SB-0690 | | |
| REV BY: DF | DOCUMENT: | | |
| APP BY: JBL | | | |
| FILE: BLDG 39 – MITIGATION SYSTEM SCHEMATIC.DWG | | | |

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C-1

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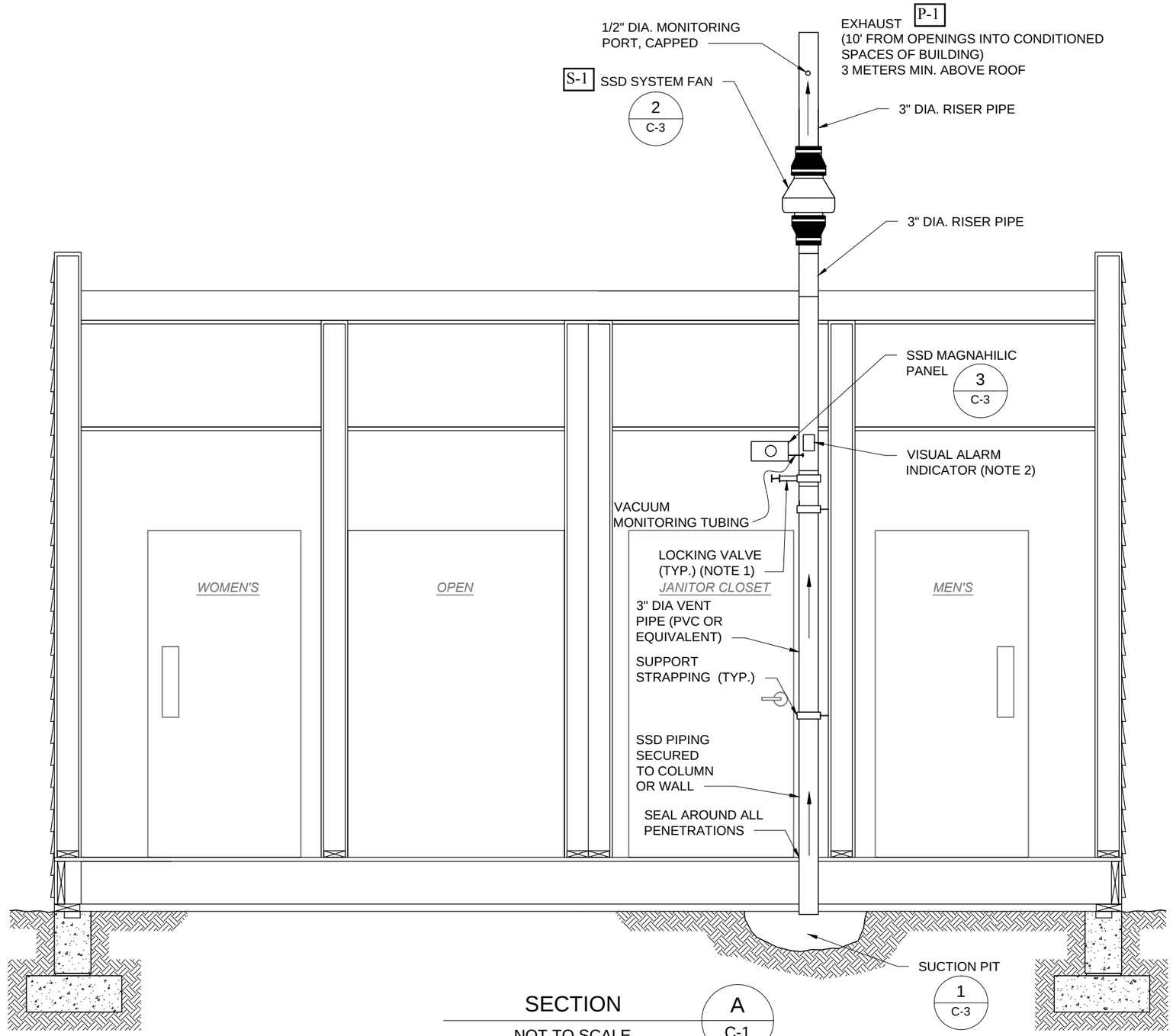


SECTION A C-1

NOT TO SCALE

## NOTES:

1. VALVE SHALL BE COVERED WITH AN APPROPRIATE VALVE LOCKOUT DEVICE.
2. VISUAL ALARM INDICATOR WILL LIGHT UP RED WHEN THE BLOWER IS OFFLINE. A PLACARD SHALL BE PLACED BENEATH THE VISUAL ALARM INDICATOR WITH THE OWNER'S CONTACT INFORMATION AND INSTRUCTIONS TO NOTIFY THE OWNER WHEN THE INDICATOR LIGHT IS RED.

0 1" 2"
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REVISIONS

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Texas Instrument, Inc.

Geosyntec consultants
1111 Broadway
6th Floor
Oakland, CA 94607
Phone: 510-836-3034

BUILDING 39 – VAPOR MITIGATION SYSTEM SCHEMATIC – SECTION VIEW

VAPOR MITIGATION SYSTEM DESIGN
TEXAS INSTRUMENT, INC.
2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CALIFORNIA

DES BY: EL
DRN BY: SCG
CHK BY: BL
REV BY: DF
APP BY: JBL
DATE: JULY 2014
SCALE: AS SHOWN
PROJECT: SB-0690
DOCUMENT:
FILE: BLDG 39 – MITIGATION SYSTEM SCHEMATIC.DWG

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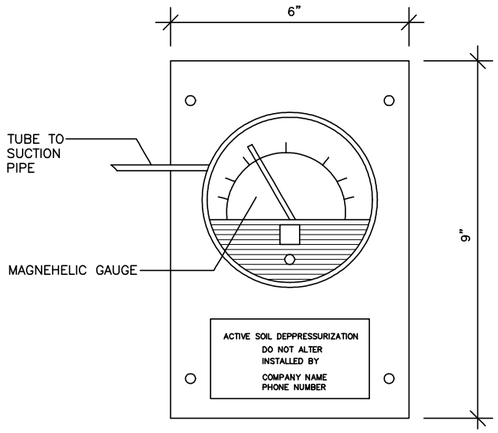
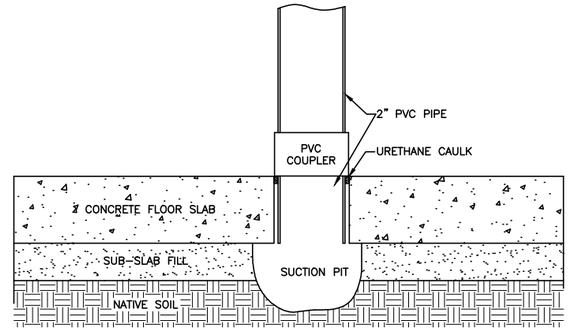
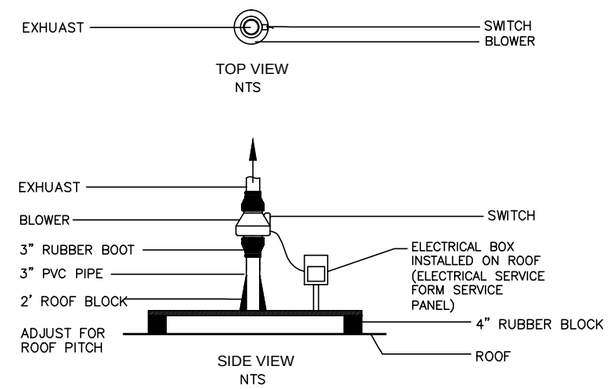



LOW PRESSUE SENSOR MAGNEHELIC DIAGRAM (3 / C-2)

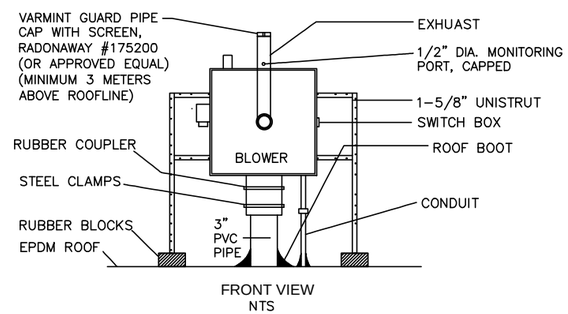



SUCTION POINT DETAIL (1 / C-2)

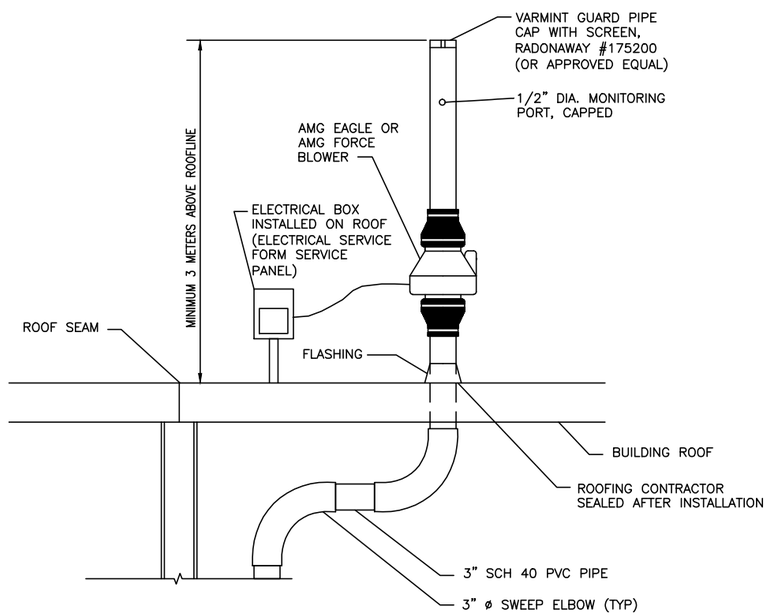
NTS



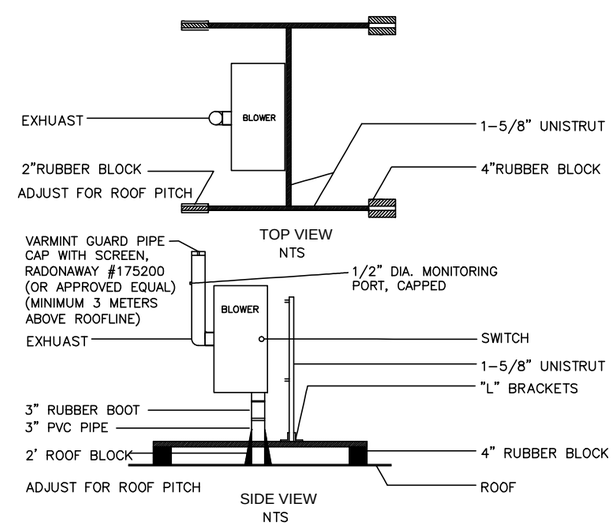

AMG EAGLE BLOWER ROOF MOUNT DETAIL



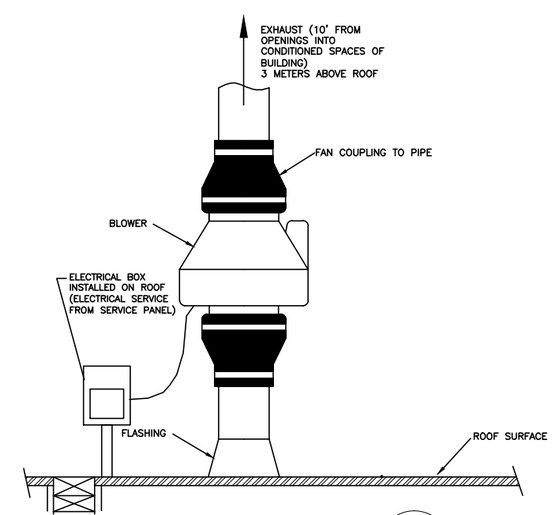

FRONT VIEW
NTS




CEILING/ROOF PENETRATION




AMG FORCE BLOWER ROOF MOUNT DETAIL




AMG EAGLE BLOWER MOUNTING DETAIL (2 / C-2)

NTS

0 1" 2"
ORIGINAL SCALE
IF SHEET IS LESS THAN 22" BY 34", THEN PRINT-SCALE HAS BEEN REDUCED ACCORDINGLY.

**REVISIONS**

| NO. | DESCRIPTION | DATE | BY |
|---|---|---|---|
| 1 | ISSUED FOR REVIEW | 07/01/14 | JBL |

Texas Instrument, Inc.

Geosyntec consultants

**1111 Broadway**
**6th Floor**
**Oakland, CA 94607**
**Phone: 510-836-3034**

BUILDING 39 – DETAILS

VAPOR MITIGATION SYSTEM DESIGN
TEXAS INSTRUMENT, INC.
2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CALIFORNIA

| | | | |
|---|---|---|---|
| DES BY: EL | DATE: JULY 2014 | | |
| DRN BY: SCG | SCALE: AS SHOWN | | |
| CHK BY: BL | PROJECT: SB-0690 | | |
| REV BY: DF | DOCUMENT: | | |
| APP BY: JBL | | | |
| FILE: C-3-BLDG 39 – DETAILS.DWG | | | |

DRAWING NO.
C-3

R:\Vapor Intrusion Solutions\SB-0695\CAD\Sheet Files\C-3-Bldg 39 - Details.dwg 7-28-14 11:44:35 AM Scollegos