The Goodyear Tire & Rubber Company
Akron, Ohio 44316 - 0001

April 27, 2009

Ms. Mary Aycock
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Subject: Indoor Air Quality Report for the Phoenix-Goodyear Airport and JRC Goodyear, LLC Properties Phoenix-Goodyear Airport South Superfund site Goodyear, Arizona

Dear Ms. Aycock:

Goodyear Tire and Rubber Company (GTRC) is providing the attached Indoor *Air Quality Report for the Phoenix-Goodyear Airport and JRC Goodyear, LLC Properties Phoenix-Goodyear Airport South Superfund site Goodyear, Arizona* as a follow up to the February 2009 indoor and ambient air sampling event as described in the *Work Plan for the Indoor Air Sampling of Selected Buildings on the Phoenix-Goodyear Airport and JRC Goodyear, LLC Properties for the Phoenix-Goodyear South Superfund Site,* approved by USEPA on January 6, 2009.

The Work Plan was initially issued in April 2008 and included a Table 2 with the Risk Assessment Tiers and Values for Carcinogenic Compounds, i.e. a listing of screening/action levels for TCE. One of the Table 2 referenced screening levels was the EPA Region 9 PRGs. The listed PRGs were a range of concentrations. In September 2008 EPA Region 9 issued a PRG for industrial worker exposure to vapors. The evaluation of findings in the attached report uses the September 2008 industrial worker exposure screening level of 6.1 ug/m3 instead of the old PRGs listed in the Work Plan.

If you have any questions, please feel free to call me at (330)796-7430

Sincerely,

Ron R. Clark
Project Manager

Attachments: Indoor *Air Quality Report for the Phoenix-Goodyear Airport and JRC Goodyear, LLC Properties Phoenix-Goodyear Airport South Superfund site Goodyear, Arizona*

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INDOOR AIR QUALITY REPORT FOR THE PHOENIX-GOODYEAR AIRPORT AND JRC GOODYEAR, LLC PROPERTIES PHOENIX-GOODYEAR AIRPORT SOUTH SUPERFUND SITE GOODYEAR, ARIZONA

Prepared for:
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Submitted: April 27, 2009

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Indoor Air Quality Report for
Selected Buildings on the Phoenix-Goodyear Airport and
JRC Goodyear, LLC Properties,
Goodyear, Arizona

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LIST OF ACRONYMS

ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health and Safety
ANOVA	Analysis of Variance
CSF	Cancer Slope Factors
COC	Chemical of Concern
DQO	Data Quality Objective
ESL	Environmental Screening Level
GAC	Goodyear Aerospace Corporation
GTRC	Goodyear Tire and Rubber Company
HVAC	Heating Ventilation and Air Conditioning
LATA	Los Alamos Technical Associates, Inc.
LM	Lockheed Martin
MRL	Minimum Risk Level
MSDS	Material Safety Data Sheets
ND	Non Detect
OEEHA	Office of Environmental Health Hazard Assessment
OU	Operable Unit
PID	Photoionization Detector
PGA	Phoenix-Goodyear Airport

ppbv	parts per billion by volume
PRG	Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control
RBC	Risk Based Concentration
RfC	Reference Concentration
RI	Remedial Investigation
RPD	Relative Percent Difference
SIM	Selective Ion Monitoring analysis
SVE	Soil Vapor Extraction
TCE	Trichloroethene
TRC	TRC Solutions, Inc.
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

This Indoor Air Quality Report has been prepared by TRC Solutions, Inc. (TRC) and Los Alamos Technical Associates, Inc. (LATA) on behalf of the Goodyear Tire & Rubber Company (GTRC). This report documents the results of an indoor air quality investigation and air sampling operations conducted in February 2009 at the Phoenix-Goodyear Airport South Superfund Site (PGA South Site) following the procedures outlined in the revised *Workplan for Indoor Air Sampling in Selected Buildings on the Phoenix-Goodyear Airport and JRC Goodyear, LLC Properties for the Phoenix Goodyear Airport South Superfund Site, Goodyear Arizona* (Work Plan) approved by the USEPA on January 6, 2009. The Work Plan provides the rationale and the methods for performing the air quality investigation around and in selected buildings on the JRC Goodyear, LLC (JRC Goodyear) and City of Phoenix (City) properties in Goodyear, Arizona. This investigation is in response to recommendations made in an assessment report (USEPA, 2007) issued by the United States Environmental Protection Agency (USEPA) in September 2007. The assessment report was prepared in conjunction with ongoing activities at the Phoenix-Goodyear Airport South Superfund Site (PGA South Site), and in response to recommendations in the USEPA's Five Year Review (USEPA, 2005). In its assessment, the USEPA identified buildings, based on historical soil gas sampling, which had the greatest potential for intrusion of trichloroethylene (TCE) vapors into indoor air. A layout of the JRC Goodyear and City properties is shown in Figure 1.

Historically, areas with surface and near-surface soil contamination (TCE) were identified at the PGA South Site. The soil was treated using a soil vapor extraction (SVE) system. Monitoring conducted following cessation of the SVE treatment in the 1990s showed that concentrations remaining in soil were protective of groundwater. However, no evaluation of possible vapor intrusion was conducted at that time.

1.1 Purpose

The purpose of this Report is to present air quality sampling results from the indoor air quality investigation that can be used for the evaluation of potential health risks to people occupying the buildings investigated. Data collected that meet the standards established in the Work Plan will be considered acceptable and consistent. The field activities covered by this Report consist of the collection and laboratory analysis of representative indoor, perimeter outdoor, and background air samples.

This Report describes work conducted to evaluate the endpoint of the vapor intrusion pathway through the collection of indoor and outdoor air samples in and around select buildings located on and away from the PGA South Site. The purpose of the outdoor samples is to assist in assessing if background or vapor intrusion is the predominant source of TCE in indoor air.

Ambient outdoor air samples were collected as reference because ambient air quality can have an effect on the quality of indoor air. Potential outdoor air contributions were identified by

comparing outdoor ambient air TCE concentrations with concentrations of TCE in indoor air. The results were used to evaluate how ambient air quality impacts indoor air. Indoor air quality also depends on several building-specific parameters such as operation of the heating, ventilation, and air conditioning (HVAC) system, building construction, presence of vapor barriers, and chemical usage inside the building. The air sampling event described within this Report provides a qualitative evaluation of the potential health risks to occupants of the selected buildings from the inhalation of TCE, vinyl chloride, and cis-1,2-dichloroethene (1,2-DCE) intruding from the subsurface.

1.2 Scope of Work

The activities completed under the Work Plan consisted of the following:

1. Pre-sampling Tasks:

    - Collecting updated information on available and non-confidential chemical use and storage from the current tenants and/or property owners through a building survey;
    - Obtaining access for sampling; and
    - Reviewing plan with landowners.

2. Representative air sampling:

    - Collecting 22 air samples (See Figure 2 for approximate sample locations). These samples can be broadly categorized into three (3) categories based on the sampling location:

      Ambient Air or Background Samples: These samples were collected with the objective of assessing ambient air quality around the City and JRC Goodyear properties. A total of two background samples were collected, identified as BS-01 and BS-02.

      Perimeter Samples: These samples were collected in the immediate vicinity or the perimeter of the buildings where indoor air samples were collected. The objective was to assess air quality in the immediate vicinity of the buildings in question, unlike background samples, which provide information on the quality of ambient air around the entire property. A total of three perimeter samples were collected, identified as OA-01, OA-02, and OA-03.

      Indoor Air Samples: These samples were collected inside the buildings to evaluate indoor air quality in select buildings. A total of 14 samples were collected in buildings on the JRC Goodyear and City properties. Additional information on sample locations and sampling methods is provided in Section 3.0, below.

Quality Assurance/Quality Control (QA/QC) Samples: Three samples were collected for QA/QC purposes, and included field/trip blanks as well as blind duplicate samples.

3. Submitting samples for laboratory analysis and evaluated data received from the laboratory.

4. Preparing this Draft Air Investigation Report for submittal to the USEPA within 45 days of receipt of the final analytical data.

5. Preparing and submitting a Final Air Investigation Report within 30 days of receipt of the USEPA's comments on this Draft Air Investigation Report.

2.0 BACKGROUND

The PGA South Site is an area of approximately 3.5 square miles situated in Maricopa County within the western Salt River Valley. The site encompasses the Phoenix-Goodyear Airport and the properties immediately adjacent to the airport, which include commercial, industrial, and agricultural operations, and residential properties. Commercial and industrial properties are found to the east of the airport and agricultural land is to the north, south, and west of the airport. The nearest residential properties are approximately one-half mile west and less than one-quarter mile northeast of the airport. The PGA South Site is approximately seventeen miles west of Phoenix, Arizona. The PGA South Site is comprised of the Phoenix Goodyear Airport and the JRC Goodyear property, which was formerly owned by the Goodyear Aerospace Corporation (GAC).

The regional climate is semi-arid and is characterized by long, hot summers and short, mild winters. Relative humidity is low particularly during early summer, and rainfall averages about 7.5 inches per year. The average daily maximum temperature is 107 degrees Fahrenheit (°F) in July. The average daily minimum temperature is 36 °F in January. The average median temperature is approximately 72 °F. Appendix A contains meteorological and climatological reports for the days of sampling.

2.1 SITE HISTORY

The GAC, a former subsidiary of GTRC, purchased the PGA-South Site located at 101 South Litchfield Road in 1949 and operated on the airport property until 1968, and adjacent to (east of) the airport property until 1987. The adjacent facility remains in use by Lockheed Martin (LM) and other companies, under ownership by JRC Goodyear. Figure 1 provides the property layout of the Site.

Historical records indicated two primary facilities as contributors to the contamination at the PGA South Site: the former Goodyear Aerospace Corporation (presently JRC Goodyear), and

the Litchfield Park Naval Air Facility (now the Phoenix Goodyear Airport). The facility was engaged in the development and manufacture of aerospace-related products including electronics equipment such as radar, aircraft and automobile windshields; and structural components such as the MX missile transporter and aluminum-skinned shelters.

The facility was also involved in manufacturing and installing machinery and electronic components for the Department of Defense. The majority of the waste streams generated at the properties were attributed to metal treatment processes such as plating, degreasing, and anodizing. A chromate treatment plant for rinse water treatment was operated in the 1970s (Ecology and Environment, 1983). The waste streams generated by the facility during these operations include waste solvents (TCE), chromium impacted sludge from metal treatment operations, acids (e.g., sulfuric, hydrochloric, chromic, nitric), process wastewater (cooling waters, boiler blow down), and domestic sewage.

In 1981, the Arizona Department of Health and Safety (ADHS) discovered that the groundwater in the PGA North and South Site area was contaminated with solvents and chromium. Additional groundwater sampling in 1982 and 1983 by ADHS and the USEPA revealed that several wells were contaminated with TCE. The site was formally listed on the National Priorities List on September 8, 1983, as the Litchfield Airport Superfund Site. After the airport property was transferred to the City of Phoenix, the site was renamed the Phoenix-Goodyear Airport Area Superfund Site. Later, the site was divided into two parts: PGA North and PGA South. In 1984, the USEPA initiated a Remedial Investigation to characterize the site, investigate the extent of the contamination, and to identify the potential sources.

The central issue at the Site is contamination of groundwater with TCE and chromium. The Site previously included two groundwater operable units (OU) and one soil OU. The groundwater OUs were OU 2 (also known as the Section 16 OU), which is for shallow groundwater (Subunit A), and OU 6 (also known as the Subunit B/C OU). These two OUs have undergone remedial activities that started in 1990 (Subunit A) and 1994 (Subunit B/C). The soil OU (OU 1), which contained volatile organic compounds (VOCs) and chromium, has been remediated at the PGA South Site and no further monitoring activities are presently being conducted. For VOCs in soil, the remediation standards were determined based on concentrations that were protective of groundwater.

Soil or soil gas analytical data from different polygonal areas of the Site were used to predict the effect on TCE concentrations in groundwater below the polygons. In May 1992, a conservative total mass dissolution test was run on 143 polygons, of which 80 polygons failed, that is, were predicted to impact groundwater with TCE concentrations greater than 5 micrograms per liter (µg/L). The VLEACH model and a mixing cell model were then run on these 80 polygons, resulting in 14 polygons failing. Additional field data were collected in 1992 and 1993. Additional modeling took place, resulting in the selection of five polygons, which required remediation using SVE. The polygon numbers were 27A, 79, 84, 92, and 96.

The SVE system was modular and consisted of five major components: extraction wells and piping, vapor inlet system, vapor treatment system, vacuum extraction module, and electrical control system and power distribution module (Metcalf and Eddy, 1993). The number of

extraction wells varied from one to three for each polygon. Flow from each well was piped through the vapor inlet system, which removed liquid from the inlet air and provided the opportunity to blend ambient air into the vapor stream to reduce the vapor concentration to below 25 percent of the Lower Explosive Limit, if needed. Off gases were treated with two 2,000-pound vapor-phase granular activated carbon vessels installed in series and then vented to the atmosphere.

Polygon 79 was the first to be treated with the SVE system. The SVE system, using four extraction wells to remove volatile organic compounds (VOCs), including TCE and its breakdown products 1,2 DCE and vinyl chloride, from the soil, operated at Polygon 79 from September 1993 through January 1994. After monitoring rebound concentrations, the polygon was officially closed by USEPA on September 3, 1994 (Metcalf and Eddy, 1995a). The same SVE system was moved to Polygon 84 in 1994, and operated between late 1994 and early 1995. The Polygon 84 system used three extraction wells to remove VOCs from the soil. Confirmation samples were collected on June 15, 1995, and the polygon was approved for closure (Metcalf and Eddy, 1995b).

In late 1995, the SVE system was moved to collectively address Polygons 27A, 92, and 96. A total of seven extraction wells were installed to remove VOCs from the soil: three in Polygon 96, three in Polygon 92 and one in Polygon 27A. The system operated from March 1996 through April 1998. Air sparging was used to further reduce VOC concentrations (in the groundwater) in these three polygons and two adjoining polygons, numbered 81 and 100, between May 1996 and April 1998. During the operation of the SVE and air sparging systems at these five polygons, 1,768 pounds of VOCs were removed from the soil and groundwater.

In summary, five polygon areas were determined through VLEACH and mixing cell modeling to require vadose zone remediation. The SVE actions were employed between 1993 and 1998 to remove contaminant mass from the vadose zone in these five polygons. Rebound monitoring took place and confirmation soil gas samples were collected from each polygon to support closure modeling. All five polygons were approved for closure by the USEPA (Metcalf and Eddy, 1995a and Ogden Environmental, 1999).

As part of the prior SVE work, there is no record of a vapor intrusion assessment. The USEPA's Five-Year Review (USEPA, 2005) recommended an assessment of vapor intrusion potential at PGA South. In 2006, LATA prepared a memorandum on behalf of GTRC that summarized the calculation of the risk-based concentration (RBC) of TCE in soil gas. The RBC was set at a target cancer risk of $1x10^{-5}$ (LATA, 2006). GTRC reviewed the 214 polygons covering the PGA South Site using the standard default values for the USEPA accepted Johnson and Ettinger (J&E model) vapor intrusion model. A total of 6 polygons (69, 70, 74, 99, 102 and 153) from the 1986 and 1987 studies and 1 polygon (79) from the 1993 to 1998 post-remediation studies had concentrations that exceeded the calculated range of Risk-Based Concentrations (RBCs) for TCE in soil-gas (3.05 g/L to 13.4 g/L). However, when these polygons were evaluated using more site specific factors (i.e. the size of existing buildings in the vicinity), the TCE concentration for these polygons were found below the calculated RBC indicating that no further action is needed on the Site.

In reviewing the modeling memorandum, the USEPA questioned the modeling approach and some of the assumptions incorporated into the model, and conducted a site inspection that identifies areas and buildings of potential concern. The buildings within these polygons are the focus of this study.

The USEPA conducted the site inspection and issued an assessment report in September 2007. The report recommended indoor air sampling in selected buildings on the Phoenix-Goodyear Airport and JRC Goodyear properties. This Plan has been developed in response to the recommendations made in the 2007 assessment report.

3.0 FIELD PROGRAM IMPLEMENTATION

The Work Plan for the indoor air sampling identified the time period for sample collection and number of samples to be collected in each building. The Work Plan also included the specific compounds that would be tested for (TCE, 1,2-DCE, and vinyl chloride). The decision to test for these three main constituents of concern was based on recommendations from Matt Plate of the USEPA, who suggested including the breakdown products of TCE because, based on historical data, any soil gas vapor migrating from the surrounding soil to indoor air should include 1,2DCE and vinyl chloride. The detection of TCE and the absence of 1,2-DCE and vinyl chloride can potentially be used to distinguish whether TCE is from current operations or historic conditions that GTRC is cleaning up.

Sample locations within the selected buildings were selected after review with property owner representatives and impacted tenants Mathew Plate was also on site during the placement and retrieval of all air sampling equipment in February 2009. Some sample locations were adjusted based on Mr. Plate's input during deployment.

Sampling equipment consisted of a 6-liter stainless steel SUMMA canister, a 12 or 24 hr flow controller (with vacuum pressure gage), and a 3 foot stainless steel "cane". This cane brought the sample intake up to the specified height as required in the Work Plan.

Photoionization detector (PID) readings were collected prior to deployment of sampling equipment. There were no detections of volatile compounds on the PID at all locations at the time of deployment.

Vacuum pressure gage readings were recorded at the beginning, middle (approximately 6 or 12 hours), and the end of the sample collection interval. All vacuum readings from the flow controller gages were verified with an independent gage at the completion of the sampling interval. In all but two instances the flow controller gage reading matched the independent gage reading. In the two instances the flow controller gage read lower than the independent gage reading. All vacuum readings were within specified ranges detailed in the Work Plan.

3.1 Field Program Deviations

There were no field implemented deviations from the approved Work Plan.

3.2 Field Design Considerations

3.2.1 Indoor Air Sampling Locations

The USEPA's Assessment Report (2007) evaluated Buildings 104, 53, 54, 55, 78, 16, and LM Buildings 76, 86, and 1/2. GTRC agreed with the USEPA's recommendation to not collect indoor air samples from JRC Goodyear Buildings 16 and 78 at this time because the materials associated with current practices in these buildings have a potential to render the results of the sampling inconclusive.

Buildings 54 and 55 were not sampled at this time. In the early 1990s, Polygon 99 was identified as an area that may have adversely affected groundwater. Building 55 is close to Polygon 99; however, Buildings 54 and 55 are outside Polygon 99 and farther away than Building 53. GTRC sampled Building 53, which is closer to Polygon 99. If sampling in Building 53 would have revealed TCE concentrations greater than action levels, then sampling for Buildings 54 and/or 55 may have been proposed. Because Building 53 has no TCE present above action levels, it is reasonable to assume that concentrations in Buildings 54 and 55 would be lower as these buildings are farther away from the identified impacted area.

Approximate sample locations for indoor air samples are shown on Figure 2. All indoor air samples were collected close to an interior wall, on the first floor, and away from HVAC ducts in order to determine a reasonable exposure scenario. Exact locations were determined based upon input from the building owners during a walk-through survey conducted prior to sampling. Modifications in predetermined locations were made once on site based on suggestions from Matt Plate of the USEPA.

Building 104: Building 104 houses the training center, flight control center, administrative offices, and cafeteria of the Airline Training Center Arizona, Inc. The main portion is a single-story office space with a two-story addition on the northern portion. GTRC collected three samples from this building in the Atrium, the lobby, and in an office.

Building 53: Building 53 is a former barracks that has been converted to a dormitory. The common area is on the first floor of the building. Two samples were collected from Building 53. One sample was collected in the common area of the first floor known as the day room, and the second sample was located in a student dormitory room.

LM Building 76: LM Building 76 is a former hanger being used as a warehouse building. The building overlies sections of Polygons 74 and 153. Two samples were collected near the center column, which is situated away from windows and doorways, and overlying Polygon 153. One of the samples was collected in the "office" area of the building, and the second sample was in the caged area of the building.

LM Building 86: LM Building 86 is a single-story commercial building which overlies Polygons 70 and 74. The building is divided into office space, workshops, shipping and receiving, and computer laboratories. Three samples were collected from LM Building 86. Locations for the samples included the hallway, the break area, and an office in the south east corner of the building.

JRC Goodyear Building 1/2: Building 1/2 is an approximately 300,000 square foot former hanger/warehouse. A small potion of the building overlies Polygons 79 and 153. Four samples were collected within the building. Locations chosen included a vacant Cavco Manufactured Homes office, a Maricopa Controls office, the Galaxy main office, and a caged storage area located centrally within the building.

3.2.2 Outdoor Air Sampling Locations

Figure 2 shows the approximate placement of the perimeter samples. Three perimeter samples were collected from the following locations:

- Between Buildings 53 and 54 and southeast of building 54;
- Southwest of Building LM 76; and
- Southwest corner of Building LM 1/2.

Two background samples were collected from the following locations:

- Entrance to City of Goodyear property off Litchfield Road at the railroad track crossing; and
- Near the south end of the airport runway at the PGA-South Air Stripper Treatment System.

In addition to these sampling points, a review of local air concentrations for TCE was performed. Data on local air concentrations of TCE are available from the USEPA's online database, AirData, and can be seen on Table 4. This database provides access to ambient concentrations of pollutants in outdoor air from more than 4,000 monitoring stations owned and operated mainly by state environmental agencies. In Arizona, monitoring stations are located in Maricopa County within the City of Phoenix. (http://www.epa.gov/air/data/geosel.html) Data is reported in units of ppbC (parts per billion by volume as carbon units). Table 4 also includes a sub table which provides the numbers converted to $\mu g/m^3$.

3.2.3 Quality Assurance/Quality Control Samples

This section discusses QA/QC samples that were taken concurrently with the other samples to maintain an acceptable level of quality assurance. All QA/QC samples were shipped to the same analytical laboratory and analyzed using the same collection, preparatory and analytical methods used for the other samples.

Field Duplicates: A blind duplicate sample was collected for 10 percent of the number of sample locations. The duplicate samples are intended to evaluate analytical variability between samples. The co-located replicated sample was obtained over the same time interval as the original sample. The replicate canisters were placed within 2 feet of the original

sample, at the same elevation, and were sampled according to the same procedures described above. The duplicate sample was not identified as a duplicate to the laboratory, but was properly identified in field records.

Field Blanks: One field blank sample was obtained for the entire sampling event. The field blank consisted of a laboratory supplied SUMMA™-a passivated steel canister under full vacuum. The canister was placed near background air sample location BS-02. There was no flow controller attached. The canister was returned to the laboratory under full vacuum. The field blank results are intended to verify sample integrity during field sample collection.

Laboratory QA/QC: Laboratory QA/QC including blanks, laboratory control spike samples, and duplicates are discussed in Appendix B.

3.2.4 Building observations that could effect data quality

Photoionization detector (PID) readings were collected prior to deployment of sample containers. There were no detections of volatile compounds on the PID at all locations at the time of deployment.

Building 104: The sample collected from the lobby area in this building (104-2) had potential for contamination from airplane exhaust. This is due to its proximity to the entry doors of the flight line and the sample location. These doors are opened and closed several times throughout the day as pilots enter and exit the building.

LATA reviewed the rooftop make up air units and air handlers for the building and the following observations were made.

Unit #	Status	Damper setting (inches open)
#1	off	1”
#2	off	0.8”
#3	off	Closed
#4	running	0.8”
#5	off	No make up air damper
#6	off	No make up air damper
#7	off	2”
#8	off	1.5”
#9	running	No make up air damper
#10	off	No make up air damper
#11	off	closed
Bathroom ventilation	running	NA

Building 53: The air conditioner units installed in the dormitory rooms do not have outdoor makeup air vents. Consequently, the units re-circulate the air within the room without exchange.

LATA/TRC inspected the former boiler room/ basement and found no detectable concentrations with the handheld PID.

LM Building 76: No issues.

LM Building 86: LATA reviewed the rooftop make up air units and air handlers for the building and the following observations were made.

- Air handler units were cycling as needed based on indoor temperature;
- Handler units #2, #3 and a small chiller unit located on the southwest corner of the facility had makeup air dampers installed to intake outdoor air;
- The damper for unit #2 was closed; and
- The damper for unit #3 was open 25%.

JRC Goodyear Building 1/2: The layout of Building 1/2 is shown in figure 3, and a list of tenants is provided in Table 5. There are several processes, including but not limited to power washing/degreasing, cabinet manufacturing, polycarbonate manufacturing, manufactured housing materials storage, construction and painting, which are conducted by tenants in or around Building 1/2 that could cause an impact to the air in and around the building. It was also noted that during deployment of sample 1/2-2, Matt Plate indicated a noticeable odor in the room.

A single air handler unit services the Maricopa Controls receiving/testing area and Maricopa Controls office/storage area (where samples 1/2-3 and its duplicate were collected). There is no outdoor makeup air damper installed on the unit and it recycles/re-circulates the air from the shipping/testing area with the office/storage area. Therefore any activity performed in or near the vicinity of the receiving/testing area may have the potential to impact the sample collected in the office/storage area.

Maricopa Controls also performs degreasing/power washing of equipment in the vicinity of the receiving/testing area. Degreasing/power washing did occur during the sampling period. A solvent degreaser is used in the cleaning process. Wash water is discharged to the concrete surface and allowed to evaporate.

OA-03 was deployed on the outside south-west corner of Building 1/2. This sample was immediately adjacent to automobile parking and could have picked up heavy exhaust while being collected. Additionally, the runoff evaporation process from the solvent/degreaser that is used at the power washing station is also a potential source of VOCs for OA-03.

GTRC is working through JRC Goodyear to obtain information on tenant operations and solvent usage.

4.0 SAMPLE ANALYSIS

As previously described in the Work Plan, the air samples were collected in 6-liter SUMMA™ canisters and then delivered to Air Toxics, Inc. located in Folsom, California. Air Toxics is an Arizona Department of Health Services-certified analytical laboratory (certification number AZ0719). A copy of this certification is included in Appendix B with the Data Validation Report. The samples were analyzed for TCE and selected breakdown products (cis-1,2-dichloroethene and vinyl chloride) only as these are the sole contaminants of concern (COCs) at the PGA-S site. Samples were analyzed for TCE, cis-1,2-dichloroethene and vinyl chloride by USEPA Method TO-15 using Selective Ion Monitoring (SIM) analysis.

4.1 Sample Collection

During sample collection and at laboratory check in, if the vacuum pressure within the SUMMA™ canister fell below 2 inches of Hg, then the sample was to be considered a "grab" sample and the resulting data is used for screening purposes only. Any sample considered a grab sample that had results without detectable concentrations of analyzed compounds was to be considered invalid for risk evaluation. If the initial (pre-deployment) vacuum gauge read less than 26 inches Hg, the canister was to be replaced prior to sample collection. Based on Field Notes and on the laboratory reports, all canisters were at a final vacuum well above 2 inches of Hg. Therefore, no samples collected during this event are considered a "grab" sample.

4.2 Data Assessment /Data Validation

After sampling was complete and the final analytical results were provided by the analytical laboratory, GTRC evaluated the data. This evaluation included, but was not limited to the following:

- The air sampling process;
- The results of analyses;
- Interpretation of the data, including comparing indoor concentrations to outdoor and background concentrations and to relevant risk-based criteria for the sampled analytes; and
- A QA/QC evaluation of the data, including calculation of percent differences between co-located replicate samples. (See section 4.2.1 below for further detail).

4.2.1 QA/QC evaluation

Following collection and laboratory analysis, the results were evaluated.

The data review included:

- Review of data package for completeness;
- Review of laboratory electronic data deliverables for completeness;
- Review of chain of custody forms (against laboratory reported information), for signatures;
- Review of holding times;
- Review of Quality Control (QC) summaries;
- Review of blank results for possible field or laboratory contamination; and
- Review of calculations used in the data set.

The data validation specifically focused on TCE and breakdown products (cis1,2-dichloroethene and vinyl chloride) analytical results.

4.3 Data Evaluation

Table 1 presents the data collected during this investigation. To evaluate the potential health risks to occupants at the selected buildings from inhalation of intrusive subsurface VOC vapors, the data collected during this investigation was screened using a two-tiered approach as described below:

Tier1: As part of the Tier 1 evaluation process, indoor air data are compared with site-specific ambient background levels and regional background data to assess if concentrations of COC detected in indoor air exceed concentrations of COCs detected in outdoor air. In particular, the ambient air concentrations can be considered representative of the fresh make-up air being drawn into the buildings during the sampling event, thus allowing an opportunity to determine if the indoor air is significantly different from the ambient conditions. Local background concentrations were determined using data from the three air samples that were collected in the immediate vicinity of the study area.

Cis1,2-dichloroethene and vinyl chloride were not detected in any of the samples collected during this investigation, therefore only TCE was evaluated. In the approved Work Plan, the threshold value for Tier 1 TCE evaluation was listed as a to be determined (TBD) value. Theoretically, a mean of the three outdoor air concentrations would have been calculated and used as the Tier 1 value. However, TCE was only detected in one outdoor air sample (OA-03 at 0.24 $\mu g/m^3$), located in proximity to building LM1/2. Detections of TCE in indoor air were also limited to building LM 1/2. Because the detected TCE results were all centered in and around building LM 1/2, the detected concentration from sample OA-03 (0.24 $\mu g/m^3$) was used as the Tier 1 threshold. Based on Tier 1 evaluation, 2 (1/2-02 & 1/2-03) out of the 5 representative samples from four separate locations collected in building LM 1/2 exceeded threshold value. This number includes a blind field duplicate that was collected in building LM 1/2.

Table 2 presents a data summary for the sampling locations and how they compare to both the Tier 1 and Tier 2 evaluations. Table 3 provides the comparison of TCE results with the action levels associated with each Tier. Tier 2 evaluation criteria are discussed in more detail below.

These data were further evaluated against regional ambient air data collected from the USEPA's Air Data database. Table 4 presents the most recent data available in the Phoenix area. These results show that the indoor air results collected during this investigation are lower than the regional means for all data collected with the exception of those samples collected in or around building LM 1/2.

Tier 2: Reported TCE concentrations are evaluated using Risk Based Concentrations (RBCs) for residential (i.e. dormitory exposure) and occupational settings. Table 2 of the Work Plan was initially issued in April 2008, with the Risk Assessment Tiers and Values for Carcinogenic Compounds, i.e. a listing of screening/action levels for TCE. One of the Table 2 referenced screening levels was the EPA Region 9 PRGs. The listed PRGs were a range of concentrations. In September 2008 EPA Region 9 issued an updated list of PRGs, including one for industrial worker exposure to vapors. The evaluation of findings in this report (Table 3)uses the September 2008 EPA Region 9 industrial worker exposure screening level of 6.1 µg/m3 for TCE instead of the outdated PRGs listed in the Work Plan.

Occupational RBCs are calculated for the risk range of 1×10^{-4} to 1×10^{-6} using cancer slope factors (CSFs) for inhalation and inhalation exposure assumptions for workplace air. For all COCs, the Tier 2 occupational RBCs listed in Table 3 are calculated using two sets of exposure assumptions:

- Central tendency exposure assumptions, which include an assumed inhalation rate of 8 m^3 air/day and 6.6 years workplace exposure duration (USEPA 1997); and
- Reasonable maximum exposure assumptions derived through application of an assumed inhalation rate of 10.4 m^3/day and 21.9 years (USEPA 1997).

Table 3 presents a comparison of TCE results with the risk assessment Tiers and RBC values used in the health risk assessment. These values represent a range of potential exposure scenarios. Basic observations regarding the data are as follows:

- Trichloroethene (TCE) was only detected in 4 of the 22 samples. Cis 1,2-dichloroethene and vinyl chloride were not detected in any of the samples.
- TCE detections were only located in and around building LM 1/2.
- TCE was detected in one outdoor ambient air sample (OA-3), located adjacent to building 1/2, at a concentration of 0.24 µg/m^3. The other three detections of TCE were from samples collected inside building 1/2. TCE was not detected in the fourth sample collected in the same building (1/2-4).
- TCE was detected in sample 1/2-1 at a concentration of 0.22 µg/m^3, which is below the outdoor ambient air concentration adjacent to the building.
- TCE was detected in samples 1/2-2 and 1/2-3 at concentrations of 0.33 µg/$m^3$and 4.1 µg/m^3, respectively. These results are below both the Region 9 PRG screening level for TCE in indoor air under an industrial scenario (6.1 µg/m^3), and the 10^{-6} risk range in the

approved work plan (4.5 to 226 ug/m3). No indoor air TCE concentrations exceed the vapor intrusion thresholds established in the approved Work Plan.

5.0 MITIGATION CONSIDERATIONS

As discussed in Section 4.0, all indoor air concentrations are below action levels associated with 1×10^{-6} risk and the appropriate Region 9 PRG as shown in Table 3. Therefore, no additional data collection is warranted and mitigation measures are not necessary.

6.0 RESULTS AND CONCLUSIONS

This report presents the results of an indoor air and background ambient air investigation conducted during February 2009. As described in Section 4.0, all samples were collected consistent with the approved Work Plan and met quality control criteria. All samples were analyzed for TCE and its degradation products DCE and Vinyl Chloride. TCE, the only COC detected during the investigation, was detected in one outdoor air sample and three indoor air sampling locations, all of which were associated with Building 1/2. TCE was not reported in the other 18 samples collected as part of this study. TCE concentrations detected in indoor air did not exceed action levels associated with a 1×10^{-6} risk or the Region 9 PRGs for industrial/occupational air.

Building 1/2 is located within polygon 79. In 1994 polygon 79 was subject to a VLEACH/Mixing Cell Closure Modeling study (Metcalf & Eddy, 1994). The soil gas analysis conducted as part of the 1990s SVE remedial action also included analysis for TCE, 1,2-DCE, and vinyl chloride. Although the concentrations were low, test results obtained during the 1990s testing indicated the presence of 1,2-DCE. It could reasonably be assumed that since 1,2-DCE is a breakdown product of TCE, and has been demonstrated to be present in soil vapor from past testing, that 1,2-DCE should have been detected during this event if the indoor air was being compromised by the surrounding soil gas vapors. Because no 1,2-DEC was detected in the Building 1/2 air samples, this historical data suggests the TCE detected was not migrating from the soil.

No additional data collection is warranted and mitigation measures are not necessary.

7.0 REFERENCES

1. Johnson and Ettinger (J&E), 1991, Model for Subsurface Vapor Intrusion into Buildings.
2. Los Alamos Technical Associates, Inc. (LATA), 2006, Updated Calculation of Risk-Based TCE Concentration in Soil Gas for the Phoenix-Goodyear Airport Site. August 8.
3. Metcalf & Eddy, Inc. (M&E), 1995a, Soil Vapor Extraction (SVE) Final Remedy Consent Decree Final extraction and Treatment System Design – Polygons 96/92/27a, Phoenix-Goodyear Airport (South), Goodyear, Arizona, June1.
4. Metcalf & Eddy, Inc. (M&E), 1994, Soil Vapor Extraction System in VLEACH/Mixing Cell Closure Modeling—Polygon 79, Phoenix-Goodyear Airport (South), Goodyear, Arizona, June 30.
5. Ogden Environmental and Energy Services Co., Inc. (Ogden), 1999, Soil Vapor Extraction Final Remedy Consent Decree Final Closure – Polygons 96/92/27a, Phoenix-Goodyear Airport (South), Goodyear, Arizona, May 10.
6. USEPA, 1997, Exposure Factors Handbook, Volume 1 General Factors, Office of Research and Development, Washington, D.C., 1997.
7. USEPA, 2000, Office of Environmental Information, *Guidance for the Data Quality Objectives Process*, EPA/600/R-96/055, August.
8. USEPA, 2005, Five-Year Review Report for Phoenix-Goodyear Airport (South) Superfund Site, Goodyear, Arizona, September.
9. USEPA, 2007, Initial Vapor Intrusion Assessment for Phoenix-Goodyear Airport (South) Superfund Site Goodyear, Arizona, September.
10. USEPA, 2008, Region 9 Preliminary Remediation Goals

Tables

Table 1. Indoor Air and Site Specific Background Ambient Air Sampling Results

Well Key	Chem Name	Date	Value	Flag1	Units	Location/Comment
104-01	Vinyl Chloride	02/24/2009	0.05	U	µg/m3	Building 104, Administration #1
104-01	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 104, Administration #1
104-01	Trichloroethene	02/24/2009	0.21	U	µg/m3	Building 104, Administration #1
104-02	Vinyl Chloride	02/24/2009	0.048	U	µg/m3	Building 104, Lobby area
104-02	cis-1,2-Dichloroethene	02/24/2009	0.15	U	µg/m3	Building 104, Lobby area
104-02	Trichloroethene	02/24/2009	0.2	U	µg/m3	Building 104, Lobby area
104-03	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 104, Atrium
104-03	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 104, Atrium
104-03	Trichloroethene	02/24/2009	0.22	U	µg/m3	Building 104, Atrium
86-01	Vinyl Chloride	02/24/2009	0.05	U	µg/m3	Building 86, Hallway
86-01	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 86, Hallway
86-01	Trichloroethene	02/24/2009	0.21	U	µg/m3	Building 86, Hallway
86-02	Vinyl Chloride	02/24/2009	0.05	U	µg/m3	Building 86, Break area
86-02	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 86, Break area
86-02	Trichloroethene	02/24/2009	0.21	U	µg/m3	Building 86, Break area
86-03	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 86, South East corner office
86-03	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 86, South East corner office
86-03	Trichloroethene	02/24/2009	0.22	U	µg/m3	Building 86, South East corner office
76-01	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 76, inside office area
76-01	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 76, inside office area
76-01	Trichloroethene	02/24/2009	0.22	U	µg/m3	Building 76, inside office area
76-02	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 76. caged area
76-02	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 76. caged area
76-02	Trichloroethene	02/24/2009	0.22	U	µg/m3	Building 76. caged area
1/2-01	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 1/2, Cavco vacant office
1/2-01	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 1/2, Cavco vacant office
1/2-01	Trichloroethene	02/24/2009	0.22		µg/m3	Building 1/2, Cavco vacant office
1/2-02	Vinyl Chloride	02/24/2009	0.053	U	µg/m3	JRC Goodyear Building 1/2--Galaxy Main Office
1/2-02	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	JRC Goodyear Building 1/2--Galaxy Main Office
1/2-02	Trichloroethene	02/24/2009	0.33		µg/m3	JRC Goodyear Building 1/2--Galaxy Main Office
1/2-03	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Building 1/2, Marcopa controls office
1/2-03	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 1/2, Marcopa controls office
1/2-03	Trichloroethene	02/24/2009	4.1		µg/m3	Building 1/2, Marcopa controls office
1/2-03	Vinyl Chloride	02/24/2009	0.05	U	µg/m3	Building 1/2, Marcopa controls office (Submitted to the lab as a blind duplicate, sample1/2-05)
1/2-03	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Building 1/2, Marcopa controls office (Submitted to the lab as a blind duplicate, sample1/2-05)
1/2-03	Trichloroethene	02/24/2009	4.1		µg/m3	Building 1/2, Marcopa controls office (Submitted to the lab as a blind duplicate, sample1/2-05)
1/2-04	Vinyl Chloride	02/24/2009	0.05	U	µg/m3	JRC Goodyear Building 1/2-Caged area
1/2-04	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	JRC Goodyear Building 1/2-Caged area
1/2-04	Trichloroethene	02/24/2009	0.21	U	µg/m3	JRC Goodyear Building 1/2-Caged area
BS-01	Vinyl Chloride	02/25/2009	0.042	U	µg/m3	Background Sample entrance to City of Goodyear property off Litchfield Road at the Railroad tracks
BS-01	cis-1,2-Dichloroethene	02/25/2009	0.13	U	µg/m3	Background Sample entrance to City of Goodyear property off Litchfield Road at the Railroad tracks
BS-01	Trichloroethene	02/25/2009	0.18	U	µg/m3	Background Sample entrance to City of Goodyear property off Litchfield Road at the Railroad tracks
BS-02	Vinyl Chloride	02/25/2009	0.049	U	µg/m3	Background Sample Near the South end of the airport runway in the vicinity of the PGA-South Treatment System Building
BS-02	cis-1,2-Dichloroethene	02/25/2009	0.15	U	µg/m3	Background Sample Near the South end of the airport runway in the vicinity of the PGA-South Treatment System Building
BS-02	Trichloroethene	02/25/2009	0.2	U	µg/m3	Background Sample Near the South end of the airport runway in the vicinity of the PGA-South Treatment System Building

Table 1. Indoor Air and Site Specific Background Ambient Air Sampling Results

Well Key	Chem Name	Date	Value	Flag1	Units	Location/Comment
OA-01	Vinyl Chloride	02/25/2009	0.045	U	µg/m3	Outside Air Between Buildings 53 and 54 and southeast of building 54
OA-01	cis-1,2-Dichloroethene	02/25/2009	0.14	U	µg/m3	Outside Air Between Buildings 53 and 54 and southeast of building 54
OA-01	Trichloroethene	02/25/2009	0.19	U	µg/m3	Outside Air Between Buildings 53 and 54 and southeast of building 54
OA-02	Vinyl Chloride	02/24/2009	0.051	U	µg/m3	Outside Air--Southwest of building LM 76
OA-02	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Outside Air--Southwest of building LM 76
OA-02	Trichloroethene	02/24/2009	0.22	U	µg/m3	Outside Air--Southwest of building LM 76
OA-03	Vinyl Chloride	02/24/2009	0.053	U	µg/m3	Outside Air--Southwest of building LM 1/2
OA-03	cis-1,2-Dichloroethene	02/24/2009	0.16	U	µg/m3	Outside Air--Southwest of building LM 1/2
OA-03	Trichloroethene	02/24/2009	0.24		µg/m3	Outside Air--Southwest of building LM 1/2
53-01	Vinyl Chloride	02/25/2009	0.042	U	µg/m3	Building 53-Room 109 Dorm
53-01	cis-1,2-Dichloroethene	02/25/2009	0.13	U	µg/m3	Building 53-Room 109 Dorm
53-01	Trichloroethene	02/25/2009	0.18	U	µg/m3	Building 53-Room 109 Dorm
53-02	Vinyl Chloride	02/25/2009	0.04	U	µg/m3	Building 53-Day Room
53-02	cis-1,2-Dichloroethene	02/25/2009	0.12	U	µg/m3	Building 53-Day Room
53-02	Trichloroethene	02/25/2009	0.17	U	µg/m3	Building 53-Day Room
53-02	Vinyl Chloride	02/25/2009	0.044	U	µg/m3	Building 53-Day Room (Submitted to the lab as a blind duplicate, sample 53-03)
53-02	cis-1,2-Dichloroethene	02/25/2009	0.14	U	µg/m3	Building 53-Day Room (Submitted to the lab as a blind duplicate, sample 53-03)
53-02	Trichloroethene	02/25/2009	0.18	U	µg/m3	Building 53-Day Room (Submitted to the lab as a blind duplicate, sample 53-03)
FB-01	Vinyl Chloride	02/25/2009	0.026	U	µg/m3	Field Blank
FB-01	cis-1,2-Dichloroethene	02/25/2009	0.079	U	µg/m3	Field Blank
FB-01	Trichloroethene	02/25/2009	0.11	U	µg/m3	Field Blank

U=analyte was not detected in the sample

Table 2. Data Summary comparing study results to Risk Assesment Tiers

		Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride			
Sample Type	Units	Mean	Maximum	Mean	Maximum	Mean	Maximum	Passes Tier 1	Passes Tier 2
Background Air	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	NA	NA
Outdoor (Perimeter) Air	$\mu g/m^3$	0.08	0.24	ND	ND	ND	ND	NA	NA
Building 104 Indoor Air	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	Yes	NA
Building 53 Indoor Air	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	Yes	NA
LM Building 76 Indoor Air	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	Yes	NA
LM Building 86 Indoor Air	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	Yes	NA
JRC Goodyear Building 1/2 Indoor Air	$\mu g/m^3$	1.75*	4.1	ND	ND	ND	ND	No	Yes

* The mean of building 1/2 includes the blind duplicate in the calculation
ND = Not Detected above the reporting limit
NA = Not Applicable
Samples were analyzed by modified EPA method TO-15 using SIM analysis

Tier 1 levels are based on outdoor ambient air samples collected as part of the work plan. Local and regional background samples were also evaluated.

Tier 2 is based on the highest RBC incorporate central tendency exposure (CTE) assumptions and the lowest RBCs incorporate reasonable maximum exposure (RME) assumptions; CTE = inhalation rate of 8 m3/day and an exposure duration of 6.6 years; RME = inhalation rate of 10.4 and an exposure duration of 21.9 years. The CSFi for RBC are 0.007 and 0.0006 (mg/kg-day)-1.

Tier 2 also evaluates the EPA Region 9 PRG calculation based on an inhalation rate of 15 m3/day and an exposure duration of 25 years. The CSFi for the RBC is 0.4 (mg/kg-day)-1

Table 3. Comparison of TCE Results with Risk Assesment Specific Action Levels

Location	Total Number of Samples	Tier 1 Action Level	Results Exceeding Tier 1 (%)	Tier 2 Action Level-- 1 x 10^{-6}	Results Exceeding Tier 2 Action Level-- 1 x 10^{-6} (%)	Tier 2 Action Level--EPA Region 9 PRG	Results Exceeding Tier 2 Action Level--EPA Region 9 PRG (%)
Background Air	2	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
Outdoor (Perimeter) Air	3	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
Building 104 Indoor Air	3	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
Building 53 Indoor Air	3*	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
LM Building 76 Indoor Air	2	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
LM Building 86 Indoor Air	3	0.24	0 (0%)	4.5-226	0 (0%)	6.1	0 (0%)
JRC Goodyear Building 1/2 Indoor Air	5*	0.24	4 (80%)*	4.5-226	0 (0%)	6.1	0 (0%)

Note: All action levels are in $\mu g/m^3$ unless otherwise noted

* These totals include the blind field duplicates

Table 4. Regional Background Data for Phoenix, AZ

Pollutant Values																		
Row #	# Obs	1st Max	2nd Max	3rd Max	4th Max	Mean	Units	Pollutant Name	Monitor ID	Monitor Type	Site Address	City	County	State	EPA Region	Location Type	Latitude (Degrees)	Longitude (Degrees)
1	23	0.08	0.07	0.07	0.07	0.034	ppbC	Trichloroethylene	04-013-4003-43824-6	Non-Regulatory	33 W Tamarisk Ave, Phoenix	Phoenix	Maricopa Co	AZ	9	Urban And Center City	33.40316	-112.07533
2	39	0.12	0.04	0.04	0.03	0.017	ppbC	Trichloroethylene	04-013-9997-43824-6	Non-Regulatory	4530 N 17th Avenue, Phoenix	Phoenix	Maricopa Co	AZ	9	Urban And Center City	33.503643	-112.095001

ppbC=parts per billion carbon

ppbC=ppbv X C (The number of Carbon Atoms in a compound)

To convert ppbC to $\mu g/m^3$ use the following equation:

$$\mu g/m^3 = \frac{(ppbC/C) \times MW}{23.68}$$

MW = molecular weight

23.68 is the molar volume of a gas at 60^oF and 1 atm pressure constant

MW of TCE = 131.39

TCE formula = C_2HCL_3

Converted to $\mu g/m^3$

Mean	Units	Pollutant Name	Monitor ID	Monitor Type	Site Address
0.094	µg/m3	Trichloroethylene	04-013-4003-43824-6	Non-Regulatory	33 W Tamarisk Ave, Phoenix
0.047	µg/m3	Trichloroethylene	04-013-9997-43824-6	Non-Regulatory	4530 N 17th Avenue, Phoenix

Table 5. Tennants of JTRC Goodyear Building LM1/2
RELIANCE MANAGEMENT
1300 S Litchfield Road, Goodyear, AZ

Suite Number	Tenant Name	Square Feet	Primary Business Use
632-A1000	SPARTECH POLCOM	44,035	Mftg polycarbonate windshields for aerospace industry.
632-A1010	VACANT	1,901	
632-A1020	VACANT	5,765	
632-A1030	GREAT GARAGE	6,717	Mftg garage cabinets
632-A1040	VACANT	2,184	
632-A1050	VACANT	1,056	
632-A1055	PURE LANDSCAPE	1,056	Storage of landscape equipment
632-A1060	MURRAY INSULATION	2,393	Storage of insulation material.
632-A1070	YOUNGER SCAFFOLD, SUPPLIES LLC	4,000	Storage of scaffolding and construction equipment.
632-A1100	VACANT	7,000	
632-A1200	VACANT	5,000	
632-A1210	VACANT	2,000	
632-A1300	VACANT	9,475	
632-A1310	BYRD ENTERPRISES	747	Storage
632-A1340	VACANT	948	
632-A1350	VACANT	7,721	
632-A1360	MANAGEMENT OFFICE	1,000	Management office
632-A1370	PALO VERDE EQUIPMENT INC	2,674	Storage
632-A1380	VACANT	4,500	
632-A1390	PATIO'S ETC	2,422	Storage
632-A2000	CAVCO INDUSTRIES	244,979	Build manufactured homes, includes full assembly area, paint booth, etc…
632-A2010	VACANT	352	
632-A2100	S & S TIRE COMPANY	10,130	Storage of tire
632-A2200	GALAXY INTERNATIONAL /	11,855	Refurbish airplane parts
	MARICOPA CONTROLS		Reverse engineering of airplane electronics
632-A3000	VACANT	3,300	
632-A3100	WOODS LINE EQUIPMENT	3,479	Metal fabrication workshop
632-A3400	DON HORN MOLDS	2,440	Fiberglass / molds manufacturing.
632-A3420	US FINISHING	19,072	Metal deburring for auto related parts.
632-A3430	VACANT	780	
632-A3500	HTO DISTRIBUTION AND	26,400	Storage of tile.
632-A3501	VACANT	10,000	
632-A3520	PATRICK MOLONEY	1,500	Small wood workshop.
632-A3530	A QUALITY HVAC SERVICE	836	Storage of HVAC equipment.
632-A4000	OCOTILLO WELDING AND EQUIPMENT	2,290	Welding shop.
632-A4010	SOUTHWEST SHADE SAILS	4,215	Mftg of shade tents for playground equipment.
632-A4020	VACANT	1,000	
632-A4025	VACANT	1,684	
632-A4030	VACANT	915	Storage
632-A4040	SOUTHWEST SAFE &	1,290	Storage and light assembly of VW Bugs.
632-A4050	BBQ AND SPA FACTORY	1,220	Storage

Table 5. Tennants of JTRC Goodyear Building LM1/2
RELIANCE MANAGEMENT
1300 S Litchfield Road, Goodyear, AZ

Suite Number	Tenant Name	Square Feet	Primary Business Use
632-A4070	HICKMAN COMPANY	168	Storage
632-A4100	N-ROUTE, LLC	8,819	Storage and light truck service.
632-A4120	VACANT	1,105	
632-A4130	VACANT	4,704	
632-B1000	DESIGN BUILDERS WEST	3,907	Storage
632-B2000	COBALT BUILDERS	1,143	Office
632-B2100	LANDCARE UNLIMITED	728	Office
632-C2100	VACANT	12,220	
632-D1000	LOCKHEED MARTIN	490,000	
632-E1000	VACANT	31,443	
632-SGALA	GALAXY INTERNATIONAL-STORAGE	0	Outside Storage
632-SGUYY	GUY CONSTRUCTION	0	Outside Storage
632-SCITYG	THE CITY OF GOODYEAR	0	Outside Storage
632-SNROUT	N-ROUTE LLC	0	Outside Storage
632-SPRINT	SPRINT	0	Telecommunications equipment
632-STMOBI	T-MOBILE	0	Telecommunications equipment
632-SHICK	HICKMAN	0	Outside Storage
632-SPURE	VACANT	0	

Figures

PHOENIX-GOODYEAR AIRPORT SOUTH SITE PHOENIX, ARIZONA

FIGURE 1

GENERAL SITE LOCATION MAP

Date: 12/01/2008

Project Number: 10888.13

N
W E
S

1,000 Feet

LEGEND

- PROPOSED BACKGROUND SAMPLE LOCATION
- KEY LOCATION OF INDOOR AND PERIMETER SAMPLING (SEE FIGURE 2)

GOODYEAR

Phoenix Goodyear Airport Site Goodyear, Arizona

TRC LATA

File Name: R:\5110\COMPREHENSIVE GWM PLAN\10888-F1_SITEPLAN.mxd

LEGEND

- POLYGON OF CONCERN
- BUILDING INCLUDED IN ASSESSMENT
- × APPROXIMATE INDOOR SAMPLING LOCATION
- ○ PERIMETER SAMPLING LOCATION
- BACKGROUND LOCATIONS NOT SHOWN DUE TO MAP SCALE

Indoor Air Samples - Approximate Locations

Building 104 - 3 samples
- East Corner within Polygon 99
- West Corner within Polygon 99
- Northeast Corner

Buildings 53 - 2 Samples Common area of bldg

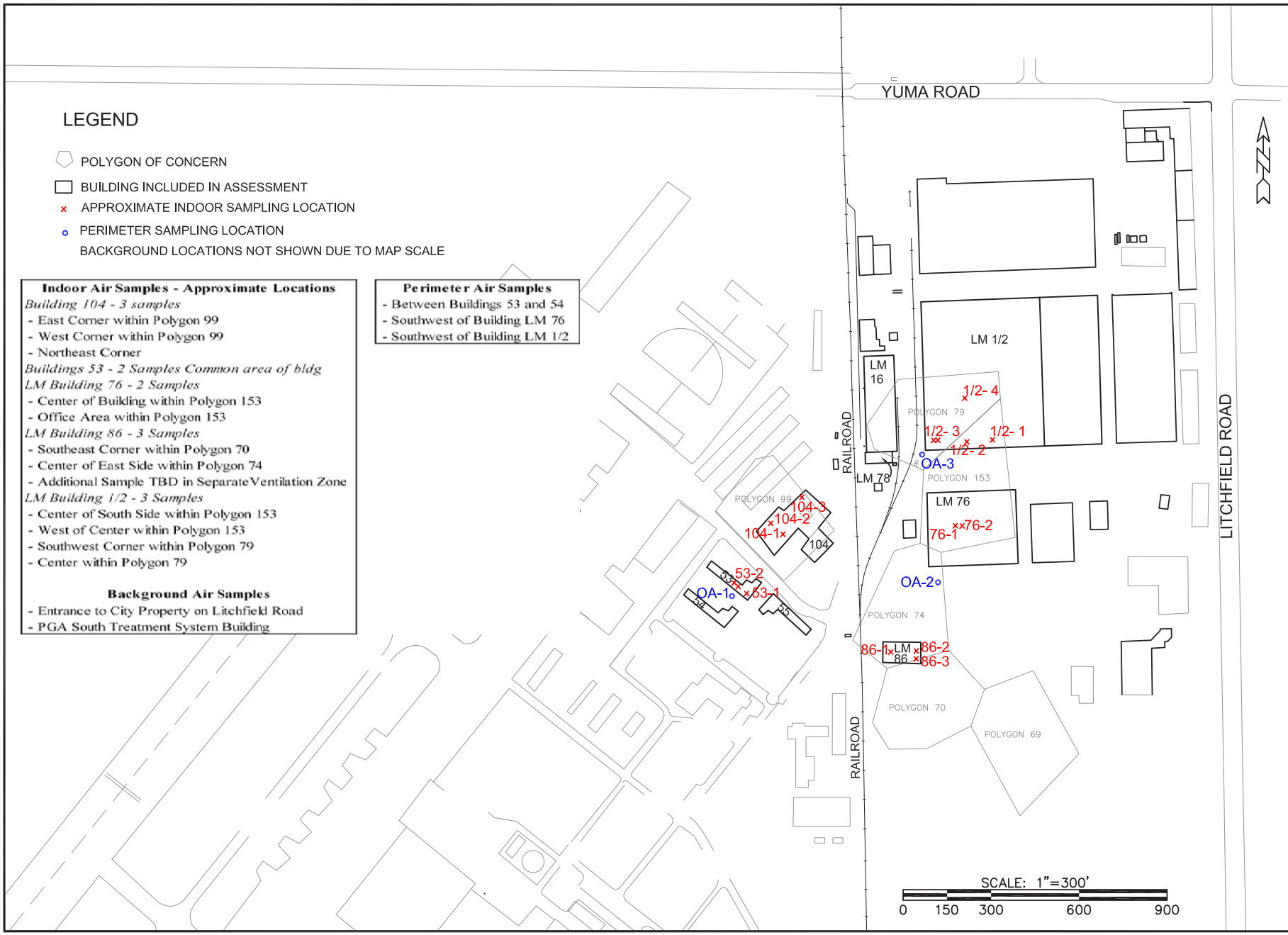
LM Building 76 - 2 Samples
- Center of Building within Polygon 153
- Office Area within Polygon 153

LM Building 86 - 3 Samples
- Southeast Corner within Polygon 70
- Center of East Side within Polygon 74
- Additional Sample TBD in Separate Ventilation Zone

LM Building 1/2 - 3 Samples
- Center of South Side within Polygon 153
- West of Center within Polygon 153
- Southwest Corner within Polygon 79
- Center within Polygon 79

Background Air Samples
- Entrance to City Property on Litchfield Road
- PGA South Treatment System Building

Perimeter Air Samples
- Between Buildings 53 and 54
- Southwest of Building LM 76
- Southwest of Building LM 1/2



Rev.	Date	Description	Design	Drawn	Check

PHOENIX-GOODYEAR AIRPORT SOUTH SITE
GOODYEAR, ARIZONA

Approximate Vapor Sampling Locations

GOODYEAR

Phoenix Goodyear Airport Site
Goodyear, Arizona

TRC WIA

File Name: VIWP\Site Plan.dwg

Project No. 5110

Sheet 1 of 1

Figure No. 2

Revision

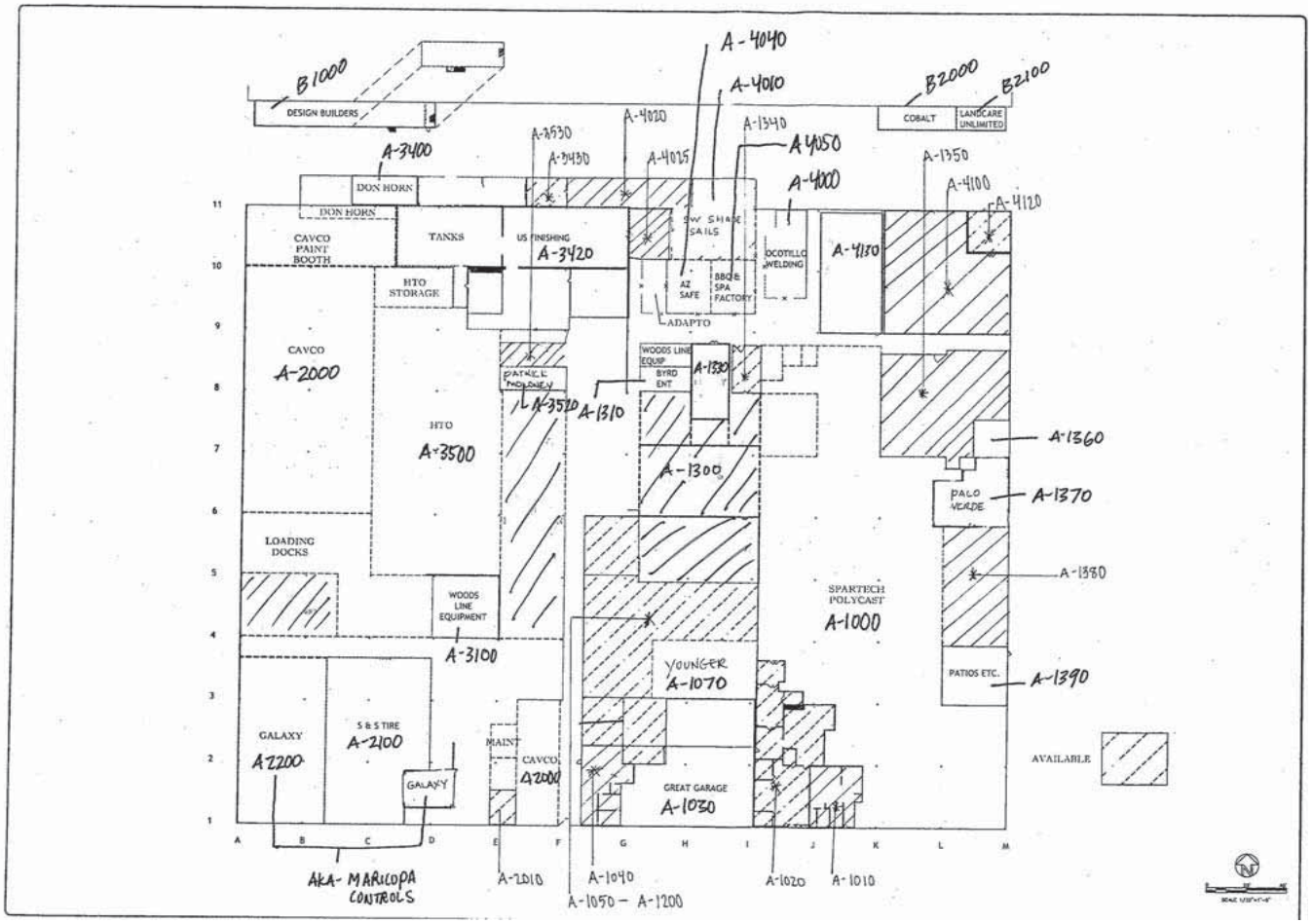


Figure 3.

Layout of JRC Goodyear Building LM 1/2

Appendix A
Climate Data

WFO Monthly/Daily Climate Data

```
000
CXUS55 KPSR 280832
CF6PHX
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                          STATION:   PHOENIX AZ
                                          MONTH:     FEBRUARY
                                          YEAR:      2009
                                          LATITUDE:   33 25 N
                                          LONGITUDE: 112  1 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
==========================================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                        12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
==========================================================================================

 1  73  46  60   2   5   0 0.00  0.0    0  3.9 10  80   M    M   1        12 330
 2  77  46  62   4   3   0 0.00  0.0    0  3.8 16  70   M    M   0        18  80
 3  82  48  65   7   0   0 0.00  0.0    0  4.1 17  70   M    M   0        22  70
 4  84  53  69  11   0   4 0.00  0.0    0  3.7 15 100   M    M   2        18 100
 5  82  53  68  10   0   3 0.00  0.0    0  6.3 18 270   M    M   5        23 280
 6  72  51  62   3   3   0 0.00  0.0    0  5.4 15 330   M    M   3        21 320
 7  72  50  61   2   4   0 0.05  0.0    0 10.1 21 280   M    M   5 1      25 270
 8  60  49  55  -4  10   0 0.69    M    0  6.7 18 260   M    M   7 1      22 270
 9  62  45  54  -5  11   0 0.52    M    0 11.4 28 190   M    M   7 1      39 290
10  57  44  51  -8  14   0 0.00  0.0    0  9.2 20 270   M    M   4        25 270
11  61  41  51  -8  14   0 0.00  0.0    0  4.0 10  80   M    M   3        13  70
12  63  47  55  -5  10   0 0.00  0.0    0  6.5 18 270   M    M   5        23 270
13  63  41  52  -8  13   0 0.00  0.0    0  3.0 12 200   M    M   1        14 180
14  61  42  52  -8  13   0 0.00  0.0    0  4.0 12 270   M    M   2        16 260
15  65  44  55  -5  10   0 0.00  0.0    0  3.3 10  70   M    M   7        14  60
16  66  45  56  -4   9   0 0.00  0.0    0  5.7 14  80   M    M   6        18 330
17  64  52  58  -2   7   0 0.06  0.0    0  4.9 22 270   M    M   6 1      25 270
18  67  45  56  -4   9   0 0.00  0.0    0  2.3  9 300   M    M   0        16 330
```

19	73	46	60	-1	5	0	0.00	0.0	0	4.6	16	50	M	M	0		21	60
20	76	48	62	1	3	0	0.00	0.0	0	2.9	12	50	M	M	3		16	40
21	76	49	63	2	2	0	0.00	0.0	0	3.3	10	90	M	M	6		13	300
22	78	55	67	6	0	2	0.00	0.0	0	3.0	10	90	M	M	7		13	70
23	84	60	72	11	0	7	0.00	0.0	0	3.6	10	300	M	M	8		17	270
24	84	56	70	9	0	5	0.00	0.0	0	3.6	9	90	M	M	5		16	330
25	85	58	72	11	0	7	0.00	0.0	0	6.3	16	230	M	M	4		20	230
26	78	54	66	4	0	1	0.00	0.0	0	6.0	18	290	M	M	3		24	280
27	78	51	65	3	0	0	0.00	0.0	0	4.2	13	290	M	M	3		20	270
SM	1943	1319			145	29	1.32	0.0		135.8			M		103			
AV	72.0	48.9								5.0	FASTST		M	M	4	MAX(MPH)		
									MISC ---->	#	28	190				# 39	290	

NOTES:
LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: PHOENIX AZ
MONTH: FEBRUARY
YEAR: 2009
LATITUDE: 33 25 N
LONGITUDE: 112 1 W

[TEMPERATURE DATA]

AVERAGE MONTHLY: 60.4
DPTR FM NORMAL: 0.6
HIGHEST: 85 ON 25
LOWEST: 41 ON 13,11

[PRECIPITATION DATA]

TOTAL FOR MONTH: 1.32
DPTR FM NORMAL: 0.58
GRTST 24HR 0.73 ON 7- 8

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM: VSBY 1/2 MILE OR LESS

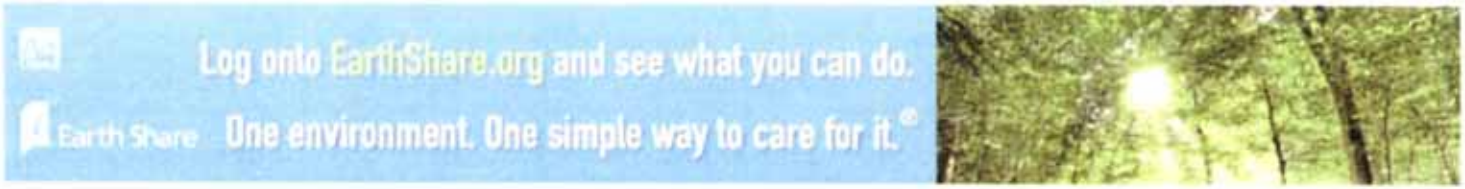
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH]		[WEATHER - DAYS WITH]	
MAX 32 OR BELOW:	0	0.01 INCH OR MORE:	4
MAX 90 OR ABOVE:	0	0.10 INCH OR MORE:	2
MIN 32 OR BELOW:	0	0.50 INCH OR MORE:	2
MIN 0 OR BELOW:	0	1.00 INCH OR MORE:	0

[HDD (BASE 65)]			
TOTAL THIS MO.	145	CLEAR (SCALE 0-3)	11
DPTR FM NORMAL	-19	PTCLDY (SCALE 4-7)	16
TOTAL FM JUL 1	660	CLOUDY (SCALE 8-10)	0
DPTR FM NORMAL	-233		

[CDD (BASE 65)]		
TOTAL THIS MO.	29	
DPTR FM NORMAL	15	[PRESSURE DATA]
TOTAL FM JAN 1	38	HIGHEST SLP M ON M
DPTR FM NORMAL	22	LOWEST SLP 29.71 ON 9

[REMARKS]

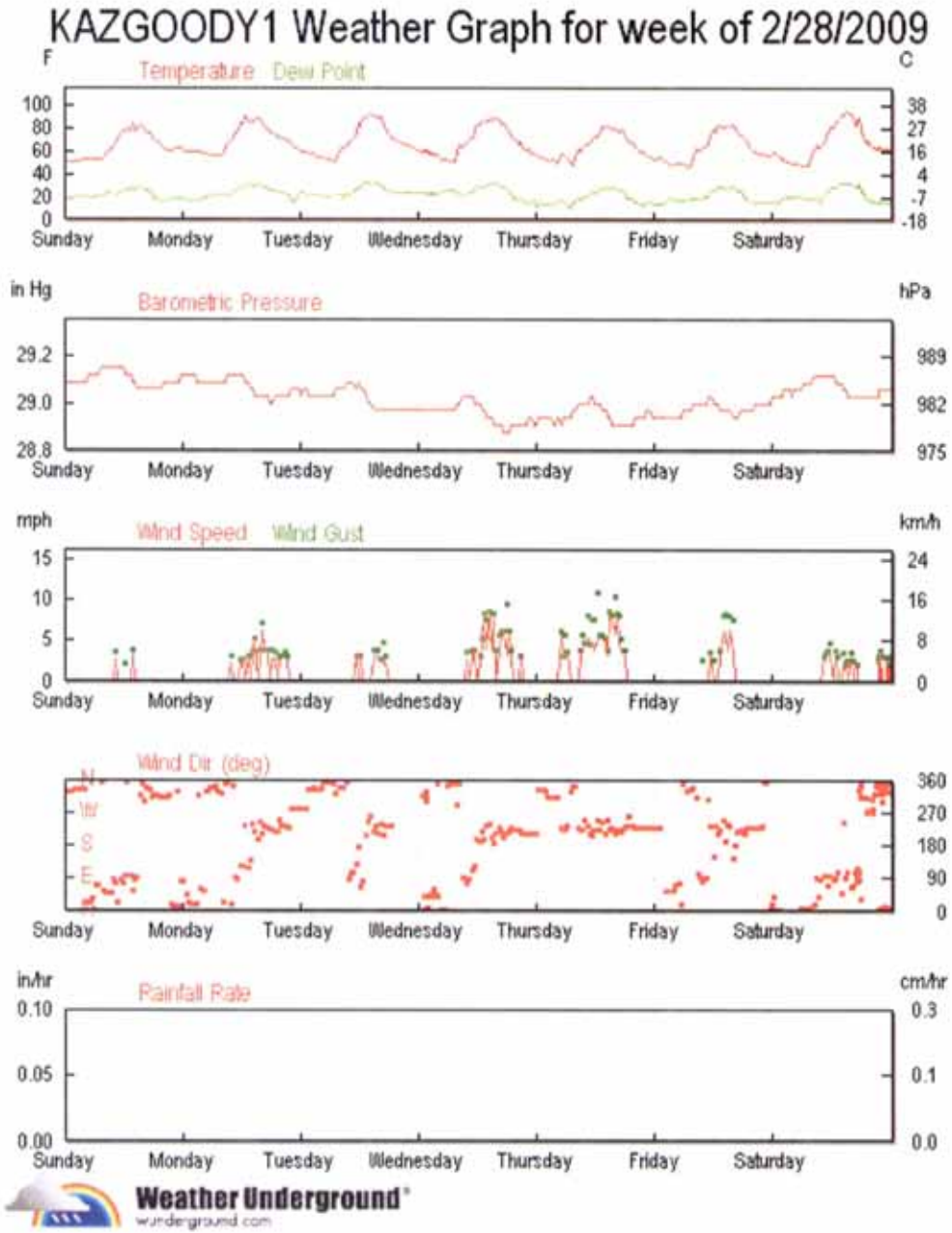


History for KAZGOODY1

PebbleCreek, Goodyear, AZ — Current Conditions

Weekly Summary for February 28, 2009

	High:	Low:	Average:
Temperature:	**94.5** °F	**45.1** °F	**65.3** °F
Dew Point:	**33.0** °F	**10.3** °F	**22.1** °F
Humidity:	39.0%	11.0%	20.1%
Wind Speed:	**15.0**mph from the WSW	-	**1.0**mph
Wind Gust:	**15.0**mph from the WNW	-	-
Wind:	-	-	South
Pressure:	**29.18**in	**28.88**in	-
Precipitation:	**0.00**in		


KAZGOODY1 Weather Graph for week of 2/28/2009
F
C
Temperature
Dew Point
100
80
60
40
20
0
38
27
16
4
-7
-18
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
in Hg
hPa
Barometric Pressure
29.2
29.0
28.8
989
982
975
mph
km/h
Wind Speed
Wind Gust
15
10
5
0
24
16
8
0
Wind Dir (deg)
N
W
S
E
360
270
180
90
0
in/hr
cm/hr
Rainfall Rate
0.10
0.05
0.00
0.3
0.1
0.0
Weather Underground
wunderground.com

This Week's Tabular Data

2009	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precip (in)
February	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum
22	87	63	50	30	22	15	32	21	13	29.18	-	29.06	-	-	-	6	0	6	0.00
23	92	69	55	32	23	16	27	18	12	29.12	-	29.00	-	-	-	8	1	8	0.00
24	93	68	50	33	25	18	35	21	12	29.09	-	28.94	-	-	-	8	1	8	0.00
25	91	65	50	32	24	12	39	22	12	29.03	-	28.88	-	-	-	12	1	12	0.00
26	85	63	47	29	19	10	27	18	14	29.03	-	28.91	-	-	-	15	2	15	0.00
27	85	62	45	30	20	11	35	20	14	29.03	-	28.94	-	-	-	12	1	12	0.00
28	94	66	47	33	23	14	36	21	11	29.15	-	29.00	-	-	-	8	1	8	0.00

Comma Delimited File

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Appendix B
Analytical Results/Data Validation

Technical Data Review for the

Vapor Intrusion Study

PGA-South Superfund Site

The data was analyzed and reported by Air Toxics, Folsom, CA (ADHS Certification Number AZ0719). The laboratory data reports are attached to this review, as is the laboratory ADHS certificate. The data review forms are contained as the front page of the data reports. The data were reviewed for the following:

- Completeness
- Chain of custody
- Sample hold time
- Trip, equipment and field blank contamination
- Method blank contamination
- Sample reporting limits
- Laboratory control sample recovery and replicates
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Field duplicate sample replication
- Surrogate recoveries for VOCs
- Initial and Continuing Calibration Verification

Samples requiring qualification are based on method blank contamination, field blank contamination, field duplicate results, calibration verification, and sample holding time. The data were qualified in accordance with the USEPA *National Functional Guidelines for Organic Data Review,* October 1999 and USEPA *National Functional Guidelines for Inorganic Data Review,* October 2004 *(Functional Guidelines)*. Due to the nature of the sampling, there was no equipment blank, trip blank, or MS/MSD to be reviewed in these sample sets.

Based on the data review the results required no qualifications. However, there were minor discrepancies between the COCs and the sample tags. The data review forms are attached as the first page of the data reports.

1.0 COMPLETENESS

The data packages from Air Toxics were complete, no deficiencies were denoted.

2.0 CHAIN OF CUSTODIES (COCS)

The COCs contained the analyses requested by the sampling crew. Sample tracking communication between the quality assurance project personnel and the laboratory was required to clarify sample identification numbers. These were verbal communications and were noted on the data review forms as part of the quality control records.

3.0 SAMPLE HOLDING TIME

All samples were analyzed within the sample holding time criteria.

4.0 TRIP, EQUIPMENT AND FIELD BLANK CONTAMINATION

Due to the nature of the sampling, no trip or equipment blanks were collected for this sampling event. The field blank (FB-01) collected for this report was non-detect for all contaminants of concern. No qualifications based on trip, equipment, and field blank contamination were required.

5.0 METHOD BLANK CONTAMINATION

All method blanks analyzed with this sample set are non detect for all analytes of concern. Therefore, no qualifications of the data are required based on the method blanks.

6.0 SAMPLE REPORTING LIMITS

All samples reviewed were reported at the appropriate reporting limits.

7.0 LABORATORY CONTROL SAMPLES AND REPLICATES

Laboratory control sampling and laboratory control sample duplicates are within acceptance criteria for recovery and relative percent difference for all analytes. No qualification of the data was required.

8.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

Due to the nature of sampling, no MS or MSD were included in this testing.

9.0 FIELD DUPLICATES

The reviewer denoted the field duplicates by hand on the data review form and in the data sheet of each data report. Sample 1/2-05 is a blind dupe of 1/2-03. The RPD between the TCE results for these two samples was 1.3%. Sample 53-03 is a blind dupe of 53-02. All results for these two samples were non detect. No qualifications were required based on the field duplicates.

10.0 SURROGATE RECOVERIES FOR VOCS

All surrogate recoveries were within the acceptance criteria for VOC analyses. No qualification of the data was required due to surrogates.

11.0 Initial and Continuing Calibration Verification Samples

All initial and continuing calibration verifications are within acceptance criteria. No qualification of the data was required due to ICV or CCV.

12.0 Conclusions

The data from samples collected for the vapor intrusion study for the PGA-South Superfund Site are usable as reported with no qualifications

Attachments:

Laboratory Data Reports
Laboratory ADHS certification

Quality Assurance Data Review

SDG No. 0902589 17

Qualifiers in EDD	NA
EDD Review	JM 3/12/09
EDD in Site DB	

Project Name: PGA-South Vapor
Sampling Date: 2/24/09
Review Date: 3/12/09
Laboratory: Air Toxics
Reviewer Signature: James A. Moore

Review Item	Matrix	Acceptable	Comments / Qualifications
Compare Chain of Custody to Data Received	Soil / Sed/ Air		Sample 104-01 had discrepancies between the COC & the sample tag. The information on the COC was used for ID purposes (1)
	GW / SW / Other		
Sample Hold Times	Soil / Sed/ Air		
	GW / SW / Other		
		✓	
Trip Blank	VOCs only		NA
Sample Reporting Limits	Soil / Sed/ Air		
	GW / SW / Other		
		✓	
Surrogate Compound Recoveries for Organic Analyses	Soil / Sed/ Air		
	GW / SW / Other		
		✓	
Method Blank	Soil / Sed/ Air		
	GW / SW / Other		
		✓	
Laboratory Control Sample Recoveries	Soil / Sed/ Air		
	GW / SW / Other		
		✓	
Matrix Spike/Spike Duplicate Recoveries and RPDs	Soil / Sed/ Air		
	GW / SW / Other		NA
Duplicate Sample Relative Percent Difference	Soil / Sed/ Air		
	GW / SW / Other		NA
Initial and Continuing Calibration	Soil / Sed/ Air		
	GW / SW / Other		
TICS	Any		NA

Additional Comments:

(1) The COC canister # and the canister I.D tagged as sample 1/2 "02 did not match the information on the canister was used to process the sample.

NA = Not Applicable
NR = Not Reported
NSS = Not a Site Sample, lab batch QC used

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

3/11/2009
Mr. James Moore
Los Alamos Technical Associates
756 Parkmeadow Rd.

Westerville OH 43081

Project Name: PGA South
Project #: 10888.13.01
Workorder #: 0902589A

Dear Mr. James Moore

The following report includes the data for the above referenced project for sample(s) received on 2/26/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for you air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Brandon M. Dunmore

Brandon Dunmore
Project Manager

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0902589A

Work Order Summary

CLIENT:	Mr. James Moore Los Alamos Technical Associates 756 Parkmeadow Rd. Westerville, OH 43081	**BILL TO:**	Accounts Payable Los Alamos Technical Associates 2424 Louisiana Blvd. NE # 400 Albuquerque, NM 87110
PHONE:	614-508-1200	**P.O. #**	OHO-09-064
FAX:		**PROJECT #**	10888.13.01 PGA South
DATE RECEIVED:	02/26/2009	**CONTACT:**	Brandon Dunmore
DATE COMPLETED:	03/05/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	104-01	Modified TO-15 SIM	9.5 "Hg	5 psi
02A	104-02	Modified TO-15 SIM	8.5 "Hg	5 psi
03A	104-03	Modified TO-15 SIM	10.0 "Hg	5 psi
04A	86-01	Modified TO-15 SIM	9.5 "Hg	5 psi
05A	86-02	Modified TO-15 SIM	9.5 "Hg	5 psi
06A	86-03	Modified TO-15 SIM	10.0 "Hg	5 psi
07A	76-01	Modified TO-15 SIM	10.0 "Hg	5 psi
08A	76-02	Modified TO-15 SIM	10.0 "Hg	5 psi
09A	1/2-01	Modified TO-15 SIM	10.0 "Hg	5 psi
10A	1/2-02	Modified TO-15 SIM	10.5 "Hg	5 psi
11A	Lab Blank	Modified TO-15 SIM	NA	NA
12A	CCV	Modified TO-15 SIM	NA	NA
13A	LCS	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Linda J. Freeman DATE: 03/11/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
Los Alamos Technical Associates
Workorder# 0902589A

Ten 6 Liter Summa Canister (SIM Certified) samples were received on February 26, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-15*	*ATL Modifications*
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample 104-01 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

The Chain of Custody (COC) information for sample 1/2-02 did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 104-01

Lab ID#: 0902589A-01A
No Detections Were Found.

Client Sample ID: 104-02

Lab ID#: 0902589A-02A
No Detections Were Found.

Client Sample ID: 104-03

Lab ID#: 0902589A-03A
No Detections Were Found.

Client Sample ID: 86-01

Lab ID#: 0902589A-04A
No Detections Were Found.

Client Sample ID: 86-02

Lab ID#: 0902589A-05A
No Detections Were Found.

Client Sample ID: 86-03

Lab ID#: 0902589A-06A
No Detections Were Found.

Client Sample ID: 76-01

Lab ID#: 0902589A-07A
No Detections Were Found.

Client Sample ID: 76-02

Lab ID#: 0902589A-08A
No Detections Were Found.

Client Sample ID: 1/2-01

Lab ID#: 0902589A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 1/2-01

Lab ID#: 0902589A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.040	0.041	0.22	0.22

Client Sample ID: 1/2-02

Lab ID#: 0902589A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.041	0.062	0.22	0.33

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 104-01

Lab ID#: 0902589A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030220**	**Date of Collection: 2/24/09 6:30:00 PM**	
Dil. Factor:	**1.96**	**Date of Analysis: 3/3/09 12:29 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	87	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 104-02

Lab ID#: 0902589A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030221	Date of Collection:	2/24/09 6:30:00 PM
Dil. Factor:	1.87	Date of Analysis:	3/3/09 01:38 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.019	Not Detected	0.048	Not Detected
cis-1,2-Dichloroethene	0.037	Not Detected	0.15	Not Detected
Trichloroethene	0.037	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	87	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 104-03

Lab ID#: 0902589A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030222**	**Date of Collection: 2/24/09 5:45:00 PM**	
Dil. Factor:	**2.01**	**Date of Analysis: 3/3/09 02:17 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	84	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 86-01

Lab ID#: 0902589A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030223	Date of Collection:	2/24/09 6:52:00 PM
Dil. Factor:	1.96	Date of Analysis:	3/3/09 02:56 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	81	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 86-02

Lab ID#: 0902589A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030224	Date of Collection:	2/24/09 6:50:00 PM
Dil. Factor:	1.96	Date of Analysis:	3/3/09 03:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	87	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 86-03

Lab ID#: 0902589A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030225**	**Date of Collection:**	**2/24/09 6:51:00 PM**
Dil. Factor:	**2.01**	**Date of Analysis:**	**3/3/09 04:17 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	85	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 76-01

Lab ID#: 0902589A-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030226	Date of Collection:	2/24/09 6:58:00 PM
Dil. Factor:	2.01	Date of Analysis:	3/3/09 05:16 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	88	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 76-02

Lab ID#: 0902589A-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030227	Date of Collection:	2/24/09 6:58:00 PM
Dil. Factor:	2.01	Date of Analysis:	3/3/09 06:15 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	87	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-01

Lab ID#: 0902589A-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030228	Date of Collection:	2/24/09 7:24:00 PM
Dil. Factor:	2.01	Date of Analysis:	3/3/09 06:55 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	0.041	0.22	0.22

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	88	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-02

Lab ID#: 0902589A-10A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030229**	**Date of Collection:**	**2/24/09 7:31:00 PM**
Dil. Factor:	**2.06**	**Date of Analysis:**	**3/3/09 07:59 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected
Trichloroethene	0.041	0.062	0.22	0.33

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	110	70-130
4-Bromofluorobenzene	90	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0902589A-11A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030205	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 3/2/09 11:26 AM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	85	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0902589A-12A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030202**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/2/09 08:49 AM**

Compound	%Recovery
Vinyl Chloride	101
cis-1,2-Dichloroethene	88
Trichloroethene	78

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	113	70-130
4-Bromofluorobenzene	96	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0902589A-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030203**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/2/09 09:58 AM**

Compound	%Recovery
Vinyl Chloride	108
cis-1,2-Dichloroethene	95
Trichloroethene	80

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	95	70-130

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: J. Strothmann
Collected by: (Print and Sign) E. Lloyd
Company: LATA Email: J.Moore@latenviro
Address: 756 Park Meadow Rd City: Westerville State: Oh Zip: 43081
Phone: 614-508-1200 Fax: 614-508-1201

Project Info:
P.O. #:
Project #: 10888
Project Name: PGA South

Turn Around Time: [X] Normal [ ] Rush ____ specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	104-01	11692	2-24-09	1830	TO-15 SIM	>30	10		
02A	104-02	35280	2-24-09	1830		>30	9.5		
03A	104-03	5611	2-24-09	1745		22	11		
04A	86-01	34273	2-24-09	1852		30	10		
05A	86-02	34366	2-24-09	1850		>30	10		
06A	86-03	05710	2-24-09	1857		30	10		
07A	76-01	916	2-24-09	1858		>30	11		
08A	~~76-02~~ 76-02	9943	2-24-09	1858		>30	12		
09A	1/2-01	33994	2-24-09	1924		>30	11		
10A	1/2-02	34104	2-24-09	1931		>30	11		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Notes:
[signature]	2-25-09 0850	Monica Groggen ATL	2/26/09 925	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	863462964192	NA	Good	Yes No None	0902589

MG 2/26/09

Form 1253 rev.11

Quality Assurance Data Review

SDG No. 0902589B

Qualifiers In EDD	—
EDD Review	SM 3/6/09
EDD In Site DB	SM 3/6/09

PDF ✓

Project Name: PGA-S Vapor Samples
Sampling Date: 02/24/09 - 02/25/09
Review Date: 3/6/09
Laboratory: Air Toxics
Reviewer Signature: [signature]

Review Item	Matrix	Acceptable	Comments / Qualifications
Compare Chain of Custody to Data Received	Soil / Sed/ Air GW / SW / Other	✓	* The COC & Sample Tags for 1/2-03 and 1/2-05 did not match. These samples are dupes of each other - The sample Tag was ①
Sample Hold Times	Soil / Sed/ Air GW / SW / Other	✓	
Trip Blank	VOCs only		N/A
Sample Reporting Limits	Soil / Sed/ Air GW / SW / Other	✓	
Surrogate Compound Recoveries for Organic Analyses	Soil / Sed/ Air GW / SW / Other	✓	
Method Blank	Soil / Sed/ Air GW / SW / Other	✓	
Laboratory Control Sample Recoveries	Soil / Sed/ Air GW / SW / Other	✓	
Matrix Spike/Spike Duplicate Recoveries and RPDs	Soil / Sed/ Air GW / SW / Other		N/A
Duplicate Sample Relative Percent Difference	Soil / Sed/ Air GW / SW / Other	✓	1/2-05 is a blind dupe of 1/2-03 S3-03 is a blind dupe of S3-02
Initial and Continuing Calibration	Soil / Sed/ Air GW / SW / Other	✓	
TICS	Any		N/A

Additional Comments:

① used for I.D. purposes

No Qualifiers
SM 3/6/09

NA = Not Applicable
NR = Not Reported
NSS = Not a Site Sample, lab batch QC used

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

3/5/2009
Mr. James Moore
Los Alamos Technical Associates
756 Parkmeadow Rd.

Westerville OH 43081

Project Name: PGA South
Project #: 10888.13.01
Workorder #: 0902589B

Dear Mr. James Moore

The following report includes the data for the above referenced project for sample(s) received on 2/26/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for you air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brandon Dunmore at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Brandon M. Dunmore

Brandon Dunmore
Project Manager

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0902589B

Work Order Summary

CLIENT:	Mr. James Moore Los Alamos Technical Associates 756 Parkmeadow Rd. Westerville, OH 43081	**BILL TO:**	Accounts Payable Los Alamos Technical Associates 2424 Louisiana Blvd. NE # 400 Albuquerque, NM 87110
PHONE:	614-508-1200	**P.O. #**	OHO-09-064
FAX:		**PROJECT #**	10888.13.01 PGA South
DATE RECEIVED:	02/26/2009	**CONTACT:**	Brandon Dunmore
DATE COMPLETED:	03/04/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
11A	1/2-03	Modified TO-15 SIM	10.0 "Hg	5 psi
11AA	1/2-03 Lab Duplicate	Modified TO-15 SIM	10.0 "Hg	5 psi
12A	1/2-05	Modified TO-15 SIM	9.5 "Hg	5 psi
13A	1/2-04	Modified TO-15 SIM	9.5 "Hg	5 psi
14A	BS-01	Modified TO-15 SIM	5.5 "Hg	5 psi
15A	BS-02	Modified TO-15 SIM	9.0 "Hg	5 psi
16A	OA-01	Modified TO-15 SIM	7.0 "Hg	5 psi
17A	OA-02	Modified TO-15 SIM	10.0 "Hg	5 psi
18A	OA-03	Modified TO-15 SIM	10.5 "Hg	5 psi
18AA	OA-03 Lab Duplicate	Modified TO-15 SIM	10.5 "Hg	5 psi
19A	53-01	Modified TO-15 SIM	5.5 "Hg	5 psi
20A	53-02	Modified TO-15 SIM	4.0 "Hg	5 psi
21A	53-03	Modified TO-15 SIM	6.5 "Hg	5 psi
22A	FB-01	Modified TO-15 SIM	28.0 "Hg	5 psi
23A	Lab Blank	Modified TO-15 SIM	NA	NA
24A	CCV	Modified TO-15 SIM	NA	NA
25A	LCS	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Linda J. Freeman DATE: 03/04/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards.

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
Los Alamos Technical Associates
Workorder# 0902589B

Twelve 6 Liter Summa Canister (SIM Certified) samples were received on February 26, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-15*	*ATL Modifications*
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample 1/2-05 and 1/2-03 did not match the information on the canister with regard to canister identification. Per cleint request, the information on the canister was used to process and report the samples.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 1/2-03

Lab ID#: 0902589B-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.040	0.77	0.22	4.1

Client Sample ID: 1/2-03 Lab Duplicate

Lab ID#: 0902589B-11AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.040	0.78	0.22	4.2

Client Sample ID: 1/2-05

Lab ID#: 0902589B-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.039	0.77	0.21	4.1

Client Sample ID: 1/2-04

Lab ID#: 0902589B-13A

No Detections Were Found.

Client Sample ID: BS-01

Lab ID#: 0902589B-14A

No Detections Were Found.

Client Sample ID: BS-02

Lab ID#: 0902589B-15A

No Detections Were Found.

Client Sample ID: OA-01

Lab ID#: 0902589B-16A

No Detections Were Found.

Client Sample ID: OA-02

Lab ID#: 0902589B-17A

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: OA-02

Lab ID#: 0902589B-17A

No Detections Were Found.

Client Sample ID: OA-03

Lab ID#: 0902589B-18A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.041	0.044	0.22	0.24

Client Sample ID: OA-03 Lab Duplicate

Lab ID#: 0902589B-18AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Trichloroethene	0.041	0.044	0.22	0.24

Client Sample ID: 53-01

Lab ID#: 0902589B-19A

No Detections Were Found.

Client Sample ID: 53-02

Lab ID#: 0902589B-20A

No Detections Were Found.

Client Sample ID: 53-03

Lab ID#: 0902589B-21A

No Detections Were Found.

Client Sample ID: FB-01

Lab ID#: 0902589B-22A

No Detections Were Found.

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-03

Lab ID#: 0902589B-11A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030312**	**Date of Collection: 2/24/09**	
Dil. Factor:	**2.01**	**Date of Analysis: 3/3/09 06:36 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	0.77	0.22	4.1

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	97	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-03 Lab Duplicate

Lab ID#: 0902589B-11AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030307	Date of Collection:	2/24/09
Dil. Factor:	2.01	Date of Analysis:	3/3/09 02:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	0.78	0.22	4.2

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	110	70-130
4-Bromofluorobenzene	99	70-130

%RSD 1.3%

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-05 Blind Dupe of 1/2-03

Lab ID#: 0902589B-12A RSD = 100% or 0 RPD

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030313	**Date of Collection:**	2/24/09
Dil. Factor:	1.96	**Date of Analysis:**	3/3/09 07:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	0.77	0.21	4.1

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 1/2-04

Lab ID#: 0902589B-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030314	Date of Collection:	2/24/09
Dil. Factor:	1.96	Date of Analysis:	3/3/09 07:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	Not Detected	0.21	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BS-01

Lab ID#: 0902589B-14A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030316	Date of Collection:	2/25/09
Dil. Factor:	1.64	Date of Analysis:	3/3/09 09:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	88	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: BS-02

Lab ID#: 0902589B-15A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030317**	**Date of Collection: 2/25/09**	
Dil. Factor:	**1.91**	**Date of Analysis: 3/3/09 10:26 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.019	Not Detected	0.049	Not Detected
cis-1,2-Dichloroethene	0.038	Not Detected	0.15	Not Detected
Trichloroethene	0.038	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	86	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: OA-01

Lab ID#: 0902589B-16A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030318	Date of Collection:	2/25/09
Dil. Factor:	1.75	Date of Analysis:	3/3/09 11:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	86	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: OA-02

Lab ID#: 0902589B-17A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030319	**Date of Collection:**	2/24/09
Dil. Factor:	2.01	**Date of Analysis:**	3/3/09 11:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	89	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: OA-03

Lab ID#: 0902589B-18A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030320**	**Date of Collection: 2/24/09**	
Dil. Factor:	**2.06**	**Date of Analysis: 3/4/09 12:32 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected
Trichloroethene	0.041	0.044	0.22	0.24

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	88	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: OA-03 Lab Duplicate

Lab ID#: 0902589B-18AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030322**	**Date of Collection: 2/24/09**	
Dil. Factor:	**2.06**	**Date of Analysis: 3/4/09 01:55 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected
Trichloroethene	0.041	0.044	0.22	0.24

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	83	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 53-01

Lab ID#: 0902589B-19A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030321**	**Date of Collection: 2/25/09**	
Dil. Factor:	**1.64**	**Date of Analysis: 3/4/09 01:16 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	86	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 53-02

Lab ID#: 0902589B-20A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030323	Date of Collection:	2/25/09
Dil. Factor:	1.55	Date of Analysis:	3/4/09 02:33 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.17	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	86	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: 53-03

Lab ID#: 0902589B-21A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030324	Date of Collection:	2/25/09
Dil. Factor:	1.71	Date of Analysis:	3/4/09 03:13 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	86	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: FB-01

Lab ID#: 0902589B-22A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a030325	Date of Collection:	2/25/09
Dil. Factor:	1.00	Date of Analysis:	3/4/09 03:52 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	76	70-130

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0902589B-23A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/09 01:57 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	86	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0902589B-24A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030303**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/09 11:46 AM**

Compound	**%Recovery**
Vinyl Chloride	104
cis-1,2-Dichloroethene	86
Trichloroethene	75

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	114	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0902589B-25A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**a030304**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/09 12:26 PM**

Compound	**%Recovery**
Vinyl Chloride	100
cis-1,2-Dichloroethene	91
Trichloroethene	77

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	115	70-130
4-Bromofluorobenzene	97	70-130

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: T. Struthmann
Collected by: (Print and Sign) S. Lloyd
Company: LATA Email: JMoore@lataenv.com
Address: 756 Park Meadow Rd City: Westerville State: Oh Zip: 43081
Phone: 614-508-1200 Fax: 614-508-1201

Project Info:
P.O. #:
Project #: 10888
Project Name: PGA South

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
11A	1/2-03	4204	2-24-09	1945	TO-15	>30	11		
12A	1/2-05	05403	2-24-09	1945		26	12		
13A	1/2-04	24229	2-24-09	1940		29	10		
14A	BS-01	4294	2-25-09	0645		28	8		
15A	BS-02	1521	2-25-09	0830		>30	11		
16A	OA-01	6579	2-25-09	0635		>30	9		
17A	OA-02	12695	2-24-09	1858		>30	12		
18A	OA-03	30890	2-24-09	1925		28	12		
19A	53-01	25316	2-25-09	0620		>30	7.5		
20A	53-02	95639	2-25-09	0622		>30	5		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Notes:
	2-25-09 0830	Monica Green ATL	2/26/09 925	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	8634629640192	NA	Good	Yes No None	0902589

Form 1886 rev. 1

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager T. Struffmann
Collected by: (Print and Sign) S. Lloyd
Company LATA Email JMoore@latacnv.com
Address 756 Park Meadow Rd City Westerville State OH Zip 43081
Phone 614-508-1200 Fax 614-508-1201

Project Info:
P.O. #
Project # 10888
Project Name TGA South

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
21A	53-B	94452	0622	2-25-09	TO-15 SIM		9		
22A	FB-01	33327		2-25-09	↓				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Notes:
	2-25-09 0830	Monica Grogan ATL	2/26/09 925	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed ex	8634 6296 4192	NA	Good	Yes No None	0902589

MG 4/MG 2/26/09

Form 1200 rev.11

Arizona
Department of
Health Services

ENVIRONMENTAL LABORATORY LICENSE

Issued to:

Laboratory Director: **Linda L. Freeman**
Owner/Representative: **Brad Mosakowski**

Air Toxics Limited
AZ0719

is in compliance with Environmental Laboratory's applicable standards for the State of Arizona and maintains on file a List of Parameters for which the laboratory is certified to perform analysis.

PERIOD OF LICENSURE FROM: 11/14/2008 TO: 11/13/2009

Steven D. Baker, Chief
Office of Laboratory Services
Bureau of State Laboratory Services

Arizona Department of Health Services
Office of Laboratory Licensure, Certification & Training
250 North 17th Avenue, Phoenix, AZ 85007

Monday, September 29 2008

AZ License: **AZ0719**

Lab Director: **Ms. Linda L. Freeman**

Lab Name: Air Toxics Limited
Phone: 916-985-1000
Fax: 916-985-1020

Program **AIR**

Parameter	EPA Method	Billing Code	Cert Date
Volatile Organic Compounds	METHOD TO-15	AIR17	11/14/07
Volatile Organic Compounds In Ambient Air	METHOD TO-14A	AIR17	03/19/08

Total Licensed Parameters in this Program: 2

Instruments	Quantity	Date
GAS CHROMATOGRAPH/MASS SPECTROMETER	5	10/17/07
GAS CHROMATOGRAPH	2	09/29/08

Softwares

TARGET - GC/MS

CHEMSTATION - GC/MS

Appendix C
Field Sheets

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

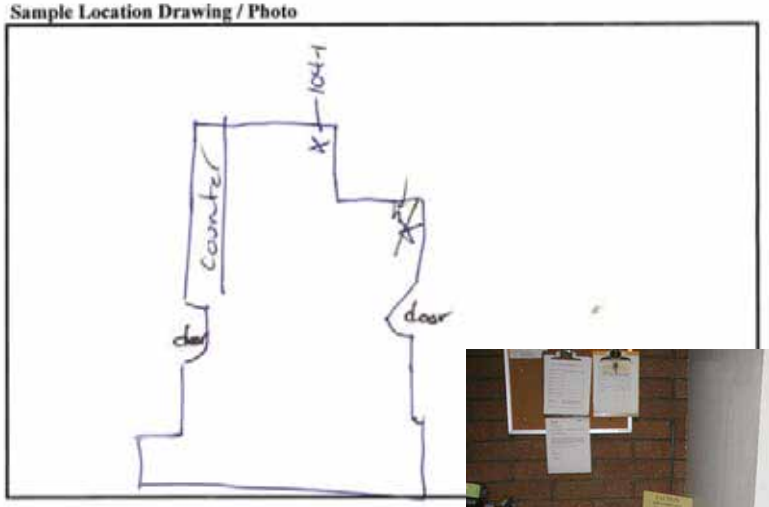
Project # 10888
Project Name Phoenix Goodyear Airport - South

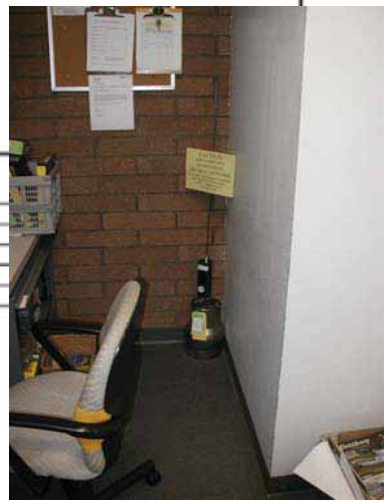
Date 2-24-09
Weather clear 55
Sampler SL BB

Sample Name 104-1
Sample Location Bldg 104 Administration #1

Sample Container/Equipment Description
can # 11892

Sample Location Drawing / Photo





Deployment Information

Date	2-24-09	2-24-09
Time	0707	1315
Intial Vacuum	230"	16.5"

Retreival Information

Date	2-24-09
Time	1830
Ending Vacuum	10"

Comments / Issues
PID reading Opp
No ventilation running @ deployment

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

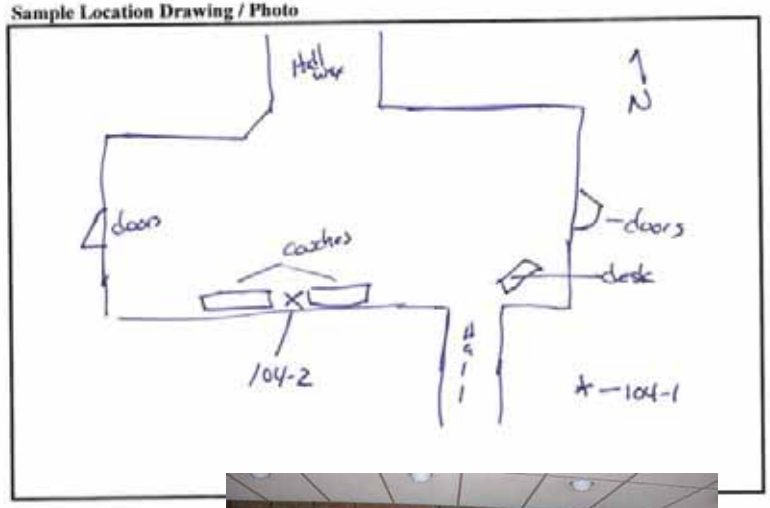
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 10888
Weather clear 58
Sampler [illegible] 1313

Sample Name 104-2
Sample Location Bldg 104 Lobby area

Sample Container/Equipment Description
Can # 35280

Sample Location Drawing / Photo



Deployment Information

Date	02-24-09	2-24-09
Time	0715	1313
Intial Vacuum	>30"	17.5

Retreival Information

Date	2-24-09
Time	1330
Ending Vacuum	9.5

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

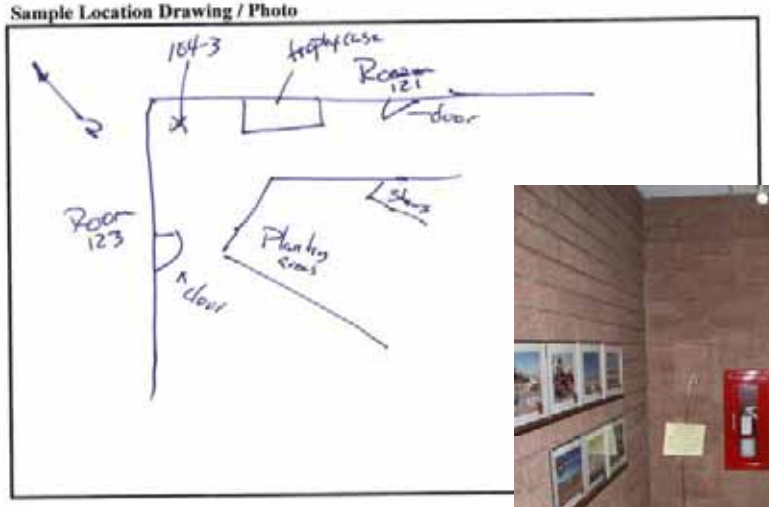
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 10888
Weather Clear 65°
Sampler SL BB

Sample Name 104-3
Sample Location Bldg 104 Atrium

Sample Container/Equipment Description
Can # 5611

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0720	1314
Intial Vacuum	~~30"~~ 22"	8"

Retreival Information

Date	2-24-09
Time	1745
Ending Vacuum	11"

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

Date ~~[illegible]~~ 2-24-09
Weather clear 55°
Sampler SL BB

Sample Name S6-1
Sample Location Bldg S6 hallway

Sample Container/Equipment Description
Can # 34273

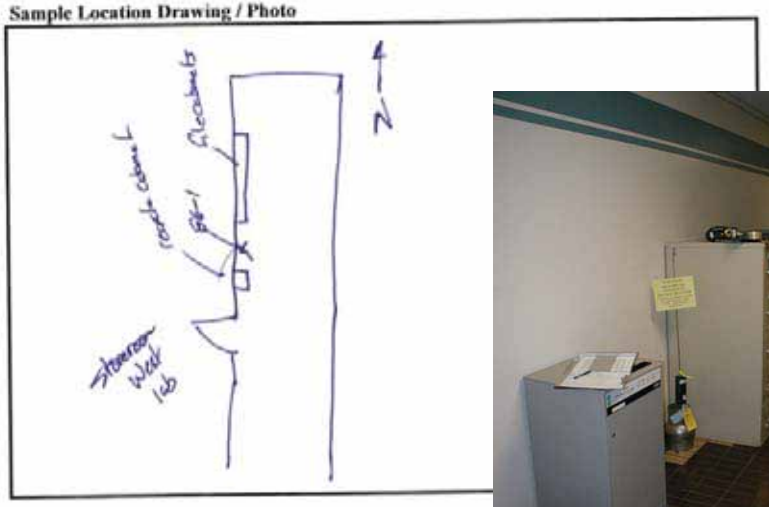
Deployment Information

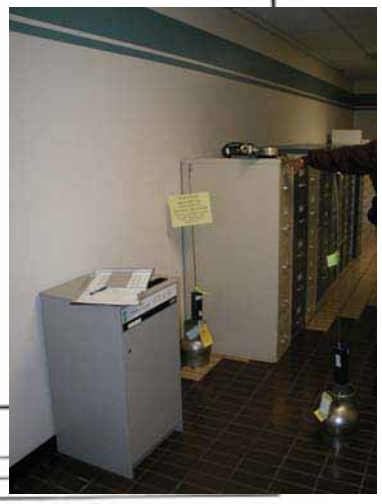
Date	02/24/09	2/24/09
Time	0752	1346
Intial Vacuum	30"	17.5"

Retreival Information

Date	2-24-09
Time	1852
Ending Vacuum	10"

Sample Location Drawing / Photo





Comments / Issues
PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

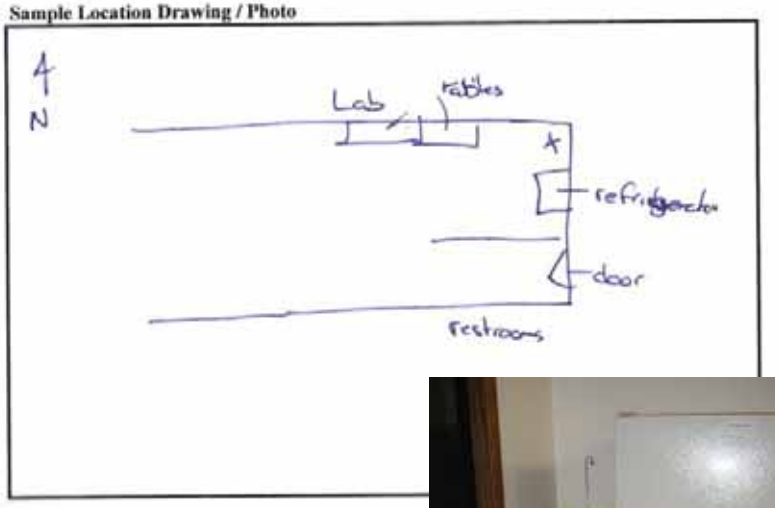
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date ~~10888~~ 2-24-09
Weather clear 55°
Sampler JK BB

Sample Name 56-2
Sample Location Break area Bldg Sw

Sample Container/Equipment Description
Can # 34366

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0756	1348
Intial Vacuum	>30	18"

Retreival Information

Date	2-24-09
Time	1850
Ending Vacuum	10.5

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

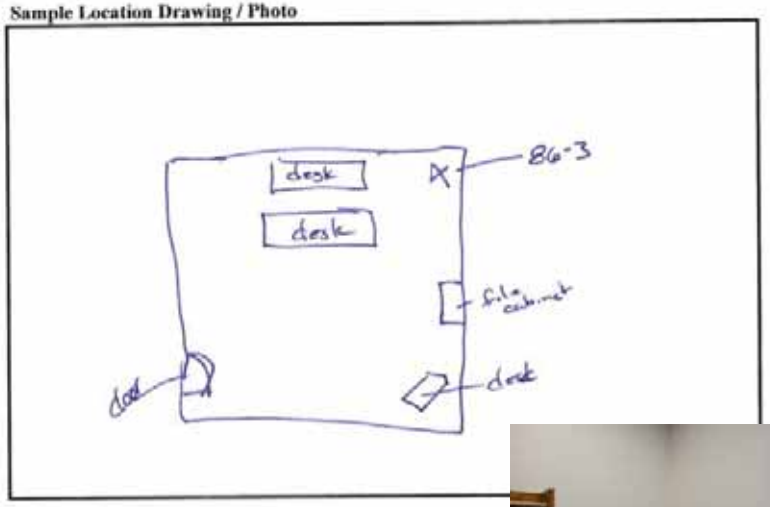
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear 55°
Sampler SL BB

Sample Name S6-3
Sample Location south east corner office

Sample Container/Equipment Description
Can # 05710

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0800	1330
Intial Vacuum	30"	19"

Retreival Information

Date	2-24-09
Time	1850
Ending Vacuum	10"

Comments / Issues
PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear. 60
Sampler BB

Sample Name 76-01
Sample Location ~~caged area outside office centrally located~~ Inside office Bldg 76

Sample Container/Equipment Description
Can # 916

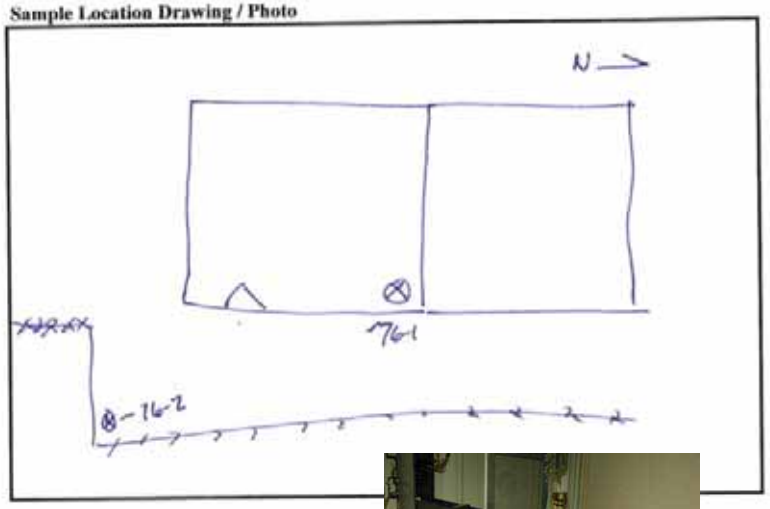
Deployment Information

Date	2-24-09	2-24-09
Time	0825	1343
Intial Vacuum	230	18"

Retreival Information

Date	2-24-09
Time	1858
Ending Vacuum	11"

Sample Location Drawing / Photo



Comments / Issues
PID oppm
Well air conditioner not operating
LG

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

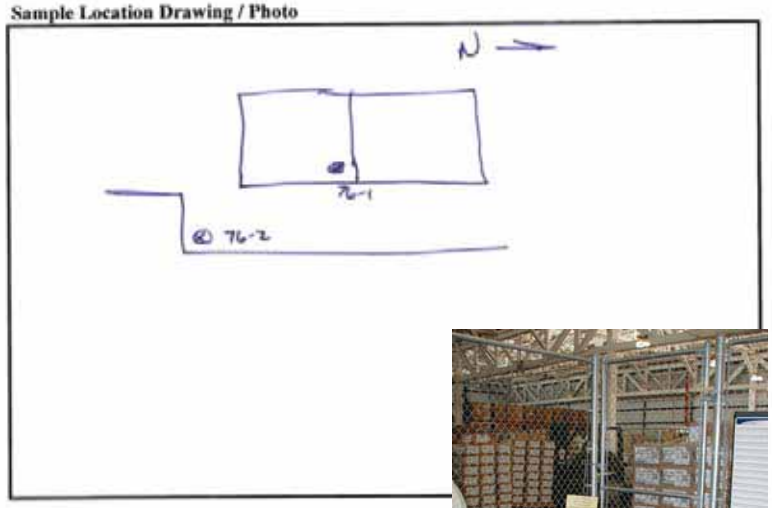
Project # 10888
Project Name Phoenix Goodyear Airport - South

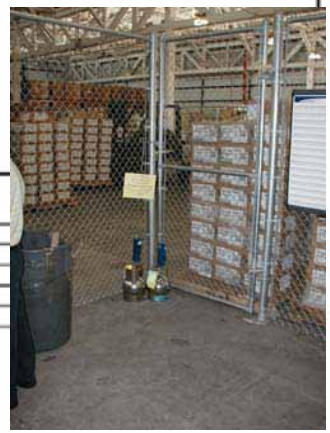
Date 2-24-09
Weather Clear 60
Sampler BB

Sample Name 76-02
Sample Location caged area

Sample Container/Equipment Description
can # 9443
~~FB-01 can # 4204~~

Sample Location Drawing / Photo





Deployment Information

Date	2-24-09	2-24-09
Time	0826	1343
Intial Vacuum	>30"	19"

Retreival Information

Date	2-24-09
Time	1858
Ending Vacuum	12

Comments / Issues
PID opp
~~FB collected @ this area~~

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather Clear 60's
Sampler SL BB

Sample Name 1/2-01
Sample Location Cavco Vacant office

Sample Container/Equipment Description
Can # 33994

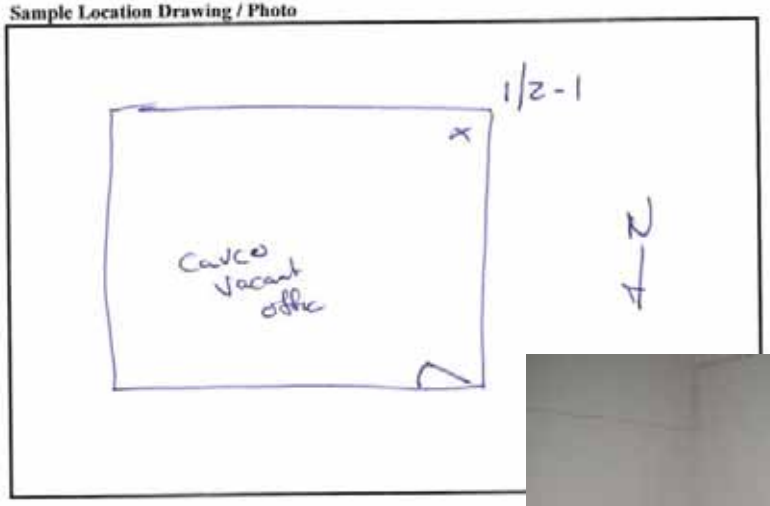
Deployment Information

Date	2-24-09	2-24-09
Time	0857	1408
Intial Vacuum	>30	20"

Retreival Information

Date	2-24-09
Time	1924
Ending Vacuum	11

Sample Location Drawing / Photo



Comments / Issues PID 0 ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

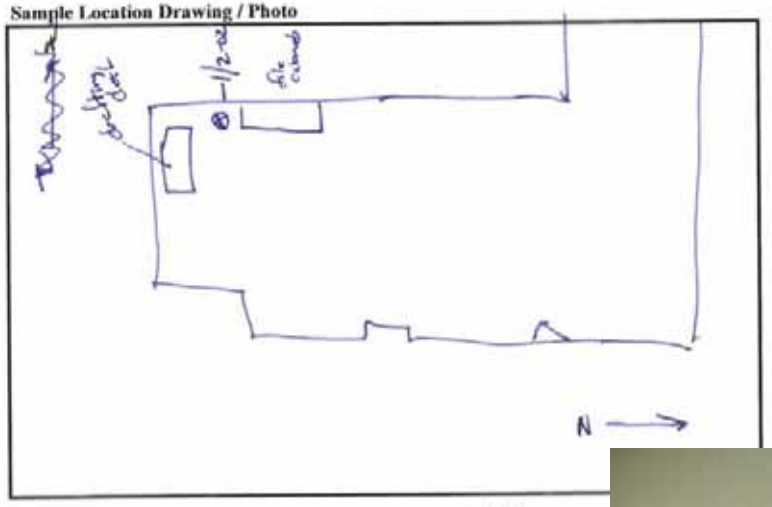
Date 2/24/09
Weather clear 60
Sampler SC BB

Sample Name 1/2 -02
Sample Location Maricopa controls office

Sample Container/Equipment Description

Can # 34104

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0902	1411
Intial Vacuum	730	18"

Retreival Information

Date	2-24-09
Time	1931
Ending Vacuum	11"

Comments / Issues

PID .035 ppm PID went to 0 when we exited bldg/office

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

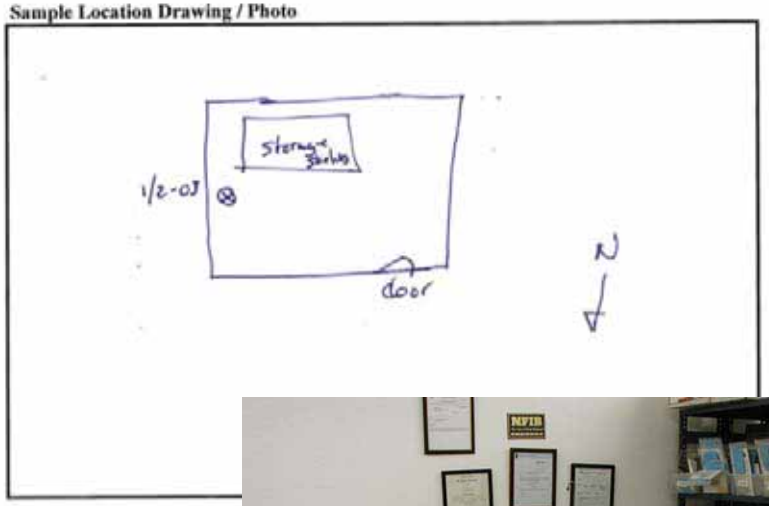
Date 2-24-05
Weather Clear 60
Sampler S. BB

Sample Name 1/2-03
Sample Location Galaxy Main office

Sample Container/Equipment Description

Can # 4204 Dupe 1/2-05
Can # 05403 1/2-03

Sample Location Drawing / Photo



Deployment Information

Date 2-24-05
Time 0915
Intial Vacuum See note →

4204 >30
5403 26"

2-24-05
1416
4204 19"
5403 14"

Retreival Information

Date 2-24-05
Time 1445
Ending Vacuum 11" 1/2-03
12" 1/2-05

Comments / Issues PID

dUped as # 1/2-05

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

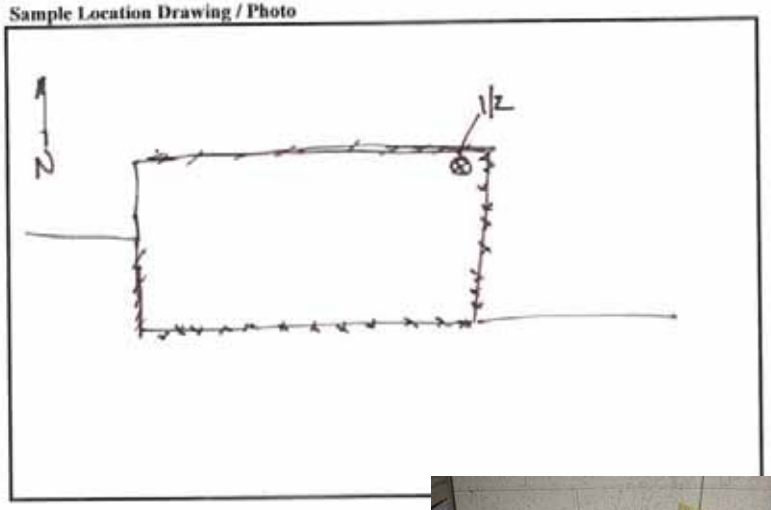
Date 2-28-09
Weather clear 60
Sampler BB

Sample Name 1/2-04
Sample Location caged area bldg 1/2

Sample Container/Equipment Description

CGA# 27229

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0918	1421
Intial Vacuum	29"	17"

Retreival Information

Date	2-24-09
Time	1940
Ending Vacuum	10"

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear 55°
Sampler [illegible] 1338

Sample Name OA-01
Sample Location Bldg 58 & 54

Sample Container/Equipment Description
Can Silk" 64427
Can" 5579

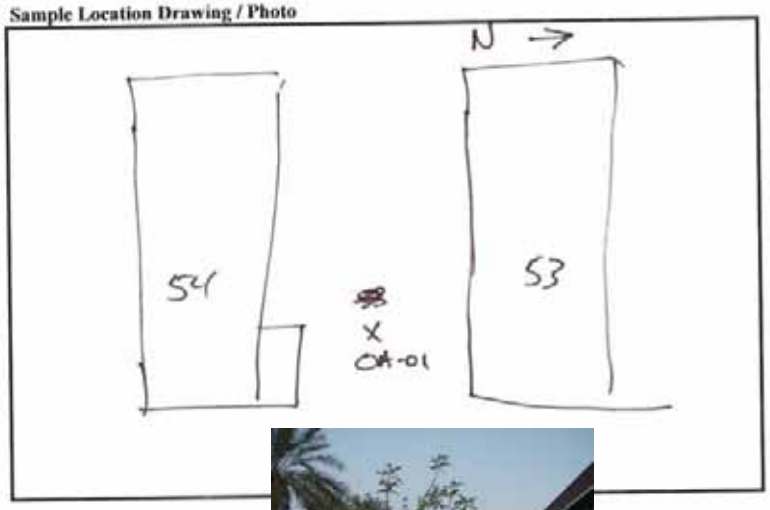
Deployment Information

Date	2-24-01	2-24-09
Time	0654	1320
Intial Vacuum	730"	23"

Retreival Information

Date	2-25-09
Time	0635
Ending Vacuum	9"

Sample Location Drawing / Photo



Comments / Issues PID opp[illegible]

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

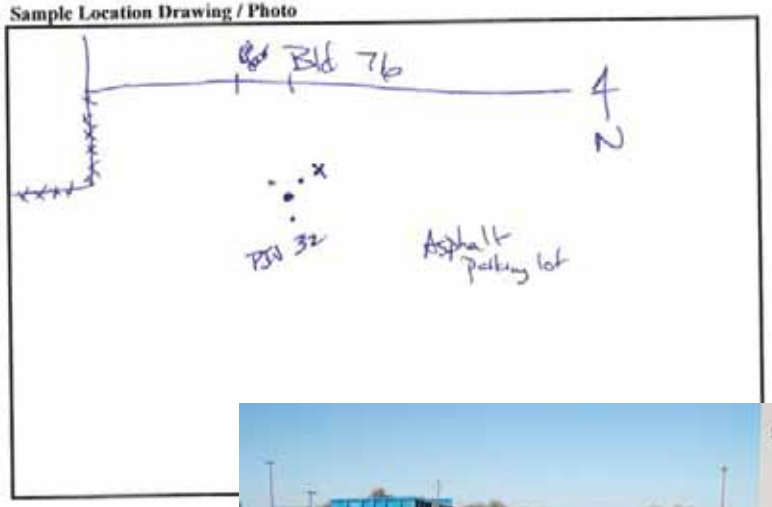
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 10888
Weather Clear Breeze 60°
Sampler SL BR

Sample Name OA-02
Sample Location SWest of Bldg 76

Sample Container/Equipment Description
Can # 12695

Sample Location Drawing / Photo



Deployment Information

Date 2-24-09
Time 0830
Intial Vacuum >30"

2/24/09 1342
19"

Retreival Information

Date 2-24-09
Time 1858
Ending Vacuum 12"

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

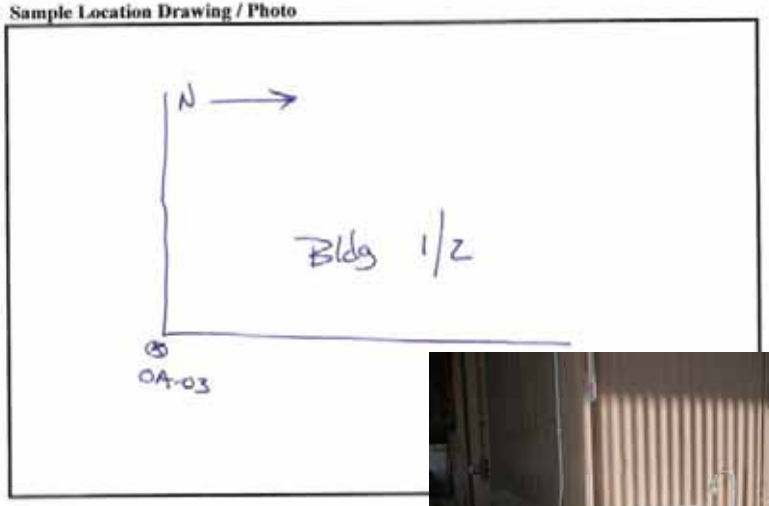
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear 60
Sampler GL BB

Sample Name OA-03
Sample Location SW corner Bldg 1/2

Sample Container/Equipment Description
Can # 30840

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0908	1412
Intial Vacuum	28	17.5"

Retreival Information

Date	2-24-09
Time	1525
Ending Vacuum	12

Comments / Issues
PID 0 ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

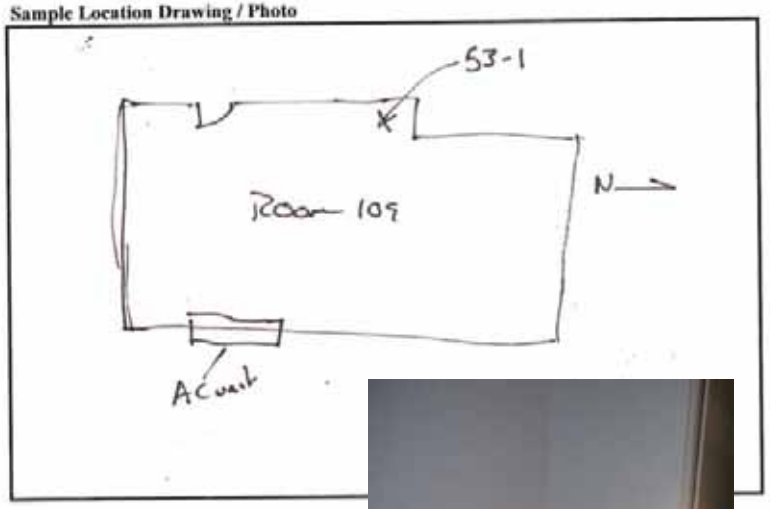
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear 85°
Sampler SL BB

Sample Name 53-01
Sample Location Room 109

Sample Container/Equipment Description
Canister # 25316

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0637	1323
Intial Vacuum	730"	23"

Retreival Information

Date	2-25-09
Time	0620
Ending Vacuum	7.5

Comments / Issues PID reading 0 ppm AC unit running

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 10888
Weather Clear 55°
Sampler SL BB

Sample Name 53-02
Sample Location Bldg 53 day room

Sample Container/Equipment Description
Can # 95639 File # 64427
can # 94952

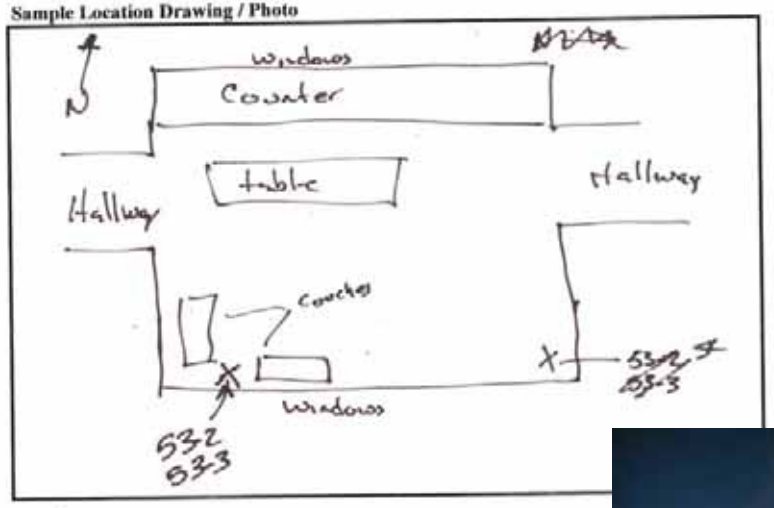
Deployment Information

Date	02-24-09	2-24-09
Time	0648	1324
Intial Vacuum	730	20" / 23"

Retreival Information

Date	2-25-09
Time	0622
Ending Vacuum	5" / 9"

Sample Location Drawing / Photo



Comments / Issues
Duplicate Sample collected as 53-3
PID Reading 0 ppm
No ventilation running @ deployment and windows are closed

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

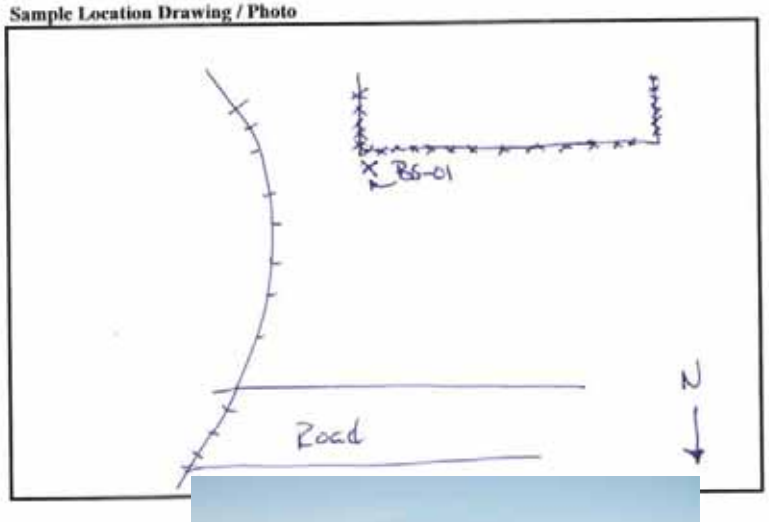
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather clear 55°
Sampler J. Lloyd / B. Berry

Sample Name BS-01
Sample Location RR crossing @ Goodyear Pkwy

Sample Container/Equipment Description
Can # 4294 Site # 6442 7
Controller # 6240
Equip # 4294

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0730	1333
Intial Vacuum	28"	23

Retreival Information

Date	2-25-09
Time	0645
Ending Vacuum	8"

Comments / Issues PID 0ppm

Vapor Intrusion Sampling
Field Sampling Sheet

TRC/LATA

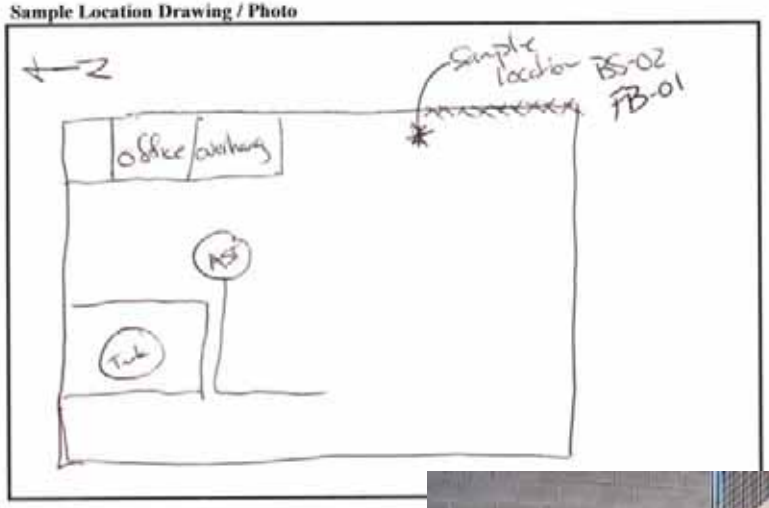
Project # 10888
Project Name Phoenix Goodyear Airport - South

Date 2-24-09
Weather
Sampler S. Lloyd / B Barry

Sample Name BS-02
Sample Location AST Treatment Compound

Sample Container/Equipment Description
Equipment # 1521
Flow Controller 40067
Can # 1521 Site # 64427

Sample Location Drawing / Photo



Deployment Information

Date	2-24-09	2-24-09
Time	0930	1442
Intial Vacuum	>30" Hg	24.5

Retreival Information

Date	2-25-09
Time	0830
Ending Vacuum	11

Comments / Issues
PID 0ppm
Set FB-01 @ this location