Acq# 10-43716

0190100008-Champaign
AmerenIP
SR/Tech

Evaluation of Soil Gas Data Collected at the Center for Women in Transition 304 N. 5th St., 504, 506, and 508 E. Church St. Champaign, Illinois

Prepared for:

Ameren Services
One Ameren Plaza
1901 Chouteau Avenue
MC 602
St. Louis, MO 63103

Prepared by:

RAM Group of Gannett Fleming, Inc.
5433 Westheimer Road, Suite 725
Houston, TX 77056
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January 2010

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RAM GROUP *The Risk Assessment & Management Group of Gannett Fleming, Inc.*

January 25, 2010

RECEIVED

JAN 26 2010

IEPA/BOL

Gregory W. Dunn, L.P.G.
Illinois Environmental Protection Agency (IEPA)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

RE: Evaluation of Soil Gas Data Collected at the Center for Women in Transition
304 N. 5th St., 504, 506, and 508 E. Church St., Champaign, Illinois

Dear Mr. Dunn:

The Risk Assessment and Management Group of Gannett Fleming, Inc. (RAM Group) is submitting one original, two copies, and one CD of the above referenced report to the IEPA on behalf of our client Ameren Services. The soil gas sampling fieldwork was performed on December 1-2, 2009.

Please call any of the following if you have questions or need clarification or additional documentation:

- Kendall Pickett, RAM Group – 713-784-5151
- Atul Salhotra, RAM Group – 713-784-5151
- Brian Martin, Ameren Services – (314) 554-2233

ORIGINAL

Sincerely,

Atul M. Salhotra, Ph.D.
Principal Professional

Kendall L. Pickett
Senior Geologist

cc: Cary Ware, Illinois Department of Public Health (2 copies, 1 CD)
John Sullivan, Center for Women in Transition (2 copies, 1CD)
Brian Martin, Ameren Services (2 copies, 1 CD)

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January 2010

Atul M. Salhotra, Ph.D.
Principal Professional

Kendall L. Pickett
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Illinois Licensed Professional Engineer No. 062-056575

CLIFFORD COFFEY WRIGHT 062-056575 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

1/22/10

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bgs	below ground surface
CCV	Continuing Calibration Verification
COC	Chain of Custody
CWT	Center for Women in Transition
EPA	Environmental Protection Agency
ft	feet
HASP	Health and Safety Plan
IDPH	Illinois Department of Public Health
IDW	Investigation Derived Waste
IEPA	Illinois Environmental Protection Agency
in Hg	inches Mercury
LCS	Laboratory Control Sample
MGP	Manufactured Gas Plant
mL	milliliter
%	percent
PPE	Personal Protective Equipment
ppbv	parts per billion volume
PRT	Post Run Tubing
QA/QC	Quality assurance/quality control
PSC	Philip Environmental Services Corporation
RAM	RAM Group of Gannett Fleming, Inc.
RO	Remediation Objective
RPD	Relative Percent Difference
TACO	Tiered Approach to Corrective Action Objectives
TIC	Tentatively Identified Compound
ug/L	micrograms per liter
VOC	Volatile Organic Compounds

This report presents the results from a soil gas sampling event performed on December 1 and 2, 2009, at the Center for Women in Transition (CWT) residential properties across the alley to the south of a former manufactured gas plant (MGP) site in Champaign, Illinois. The following properties were included in this sampling event:

- 304 N. 5th Street
- 504 E. Church Street
- 506 E. Church Street
- 508 E. Church Street

The soil gas sampling event consisted of the collection of ten soil gas samples (including one field duplicate) from nine locations along the north, east, and west perimeters of the four residential properties and one ambient air sample. The soil gas samples were collected in 1-liter SUMMA canisters using Geoprobe® post-run tubing (PRT) methods. Quality assurance/quality control (QA/QC) samples were also collected. The samples were analyzed for volatile organic compounds (VOCs) related to former MGP operations.

Based on the QA/QC evaluation, the laboratory results are acceptable and considered representative of the soil gas concentrations across the site at the depths and times measured.

The soil gas samples and most recent groundwater analytical results from area monitoring wells were compared to the draft Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action Objectives (TACO) residential Tier 1 remediation objectives (ROs) for the indoor inhalation pathway. The comparison indicated that the concentrations of none of the chemicals exceeded the Tier 1 ROs in samples collected at the CWT properties, and hence the residual soil and groundwater impacts from the former MGP are not of concern for the indoor inhalation pathway at the homes listed above.

Concentrations of chemicals analyzed in the ambient air sample (506-E-AMB) were below reporting limits.

Based on the above results, no further action is recommended relative to potential indoor air inhalation risks to the residents and employees at the subject properties.

1.1 SITE LOCATION

The former MGP site is located at 308 North Fifth Street in Champaign, Illinois. This investigation focused on the collection of soil gas samples to evaluate soil gas inhalation risk at four CWT residential properties located across the alley to the south of the former MGP site.

The MGP site has been the subject of several previous investigations (PSC 2008). These investigations have resulted in the collection of soil and groundwater data and information on the site stratigraphy and hydrogeology.

Figure 1-1 shows the locations of the four residential properties, former MGP site boundary, and nearby streets. The former MGP site is fenced and access is restricted by locked gates. The former MGP site is partially covered with a portable building within which excavation of impacted soil media was being performed at the time of this sampling event.

1.2 SETTING

The four CWT residential properties are located within the city of Champaign, Illinois in Champaign County. The general area consists of mostly residential and some commercial properties.

The subject properties are located to the south of the former MGP site across an alley at 304 N. 5th Street, 504 E. Church Street, 506 E. Church Street, and 508 E. Church Street. The homes are used as short and long-term temporary housing (up to 2 years) for women, children, and offices for the staff. The E. Church Street homes all have basements. The 304 N. 5th Street home does not have a basement, but has a crawl space below the home. The properties were noted to have the following:

- 304 N. 5th Street – alley on north, paved sidewalk on west, gravel driveway on south, and grassy areas on all sides.

- 504 E. Church Street – alley on north, paved parking on north, paved sidewalks on north, east, and south, and grassy areas on all sides.

- 506 E. Church Street – alley on north, paved parking on north, paved driveway on east (shared with 508 E. Church Street), paved sidewalks on north and south, and grassy areas on all sides.

- 508 E. Church Street – alley on north, paved parking area on north with some play ground equipment, vegetable garden on east, play ground on south, paved sidewalks on south, paved driveway on west (shared with 506 E. Church Street), and minimal grassy areas on all sides.

1.3 OBJECTIVE OF THIS REPORT

This report presents the results of the December 1 and 2, 2009 soil gas sampling event at the four CWT residential properties. The objective of the sampling was to:

- Obtain ten soil gas samples (including one duplicate) near the four residences and one ambient air sample;
- Perform laboratory analysis of the soil gas, duplicate, and ambient air samples for MGP related VOCs;
- Compile and evaluate the field data and laboratory analytical results in regards to the potential for MGP chemicals to cause vapor inhalation concerns at the residences; and
- Document the results of the investigation in a formal report.

This investigation was performed in accordance with the following:

- RAM Group letter to Mr. Brian Martin dated November 5, 2009 (Sampling Plan), which was approved by the IEPA in their letter dated November 19, 2009 (Appendix A),
- Gannett Fleming Standard Operating Procedure (SOP) for Soil Vapor Well Sampling with 1-Liter Summa® Canisters, SOP No. SM-27, Revision No. 3, dated April 9, 2009, and
- Geoprobe® Systems, Soil Gas Sampling – PRT System Operation.

1.4 OVERVIEW

The December 2009 soil gas sampling event was performed by the RAM Group of Gannett Fleming, Inc. Geoprobe® services were provided by Soil Essentials, Inc. and laboratory analytical services were provided by Air Toxics, Ltd., both under subcontract to RAM Group.

Soil gas sampling was performed on December 1 and 2, 2009 at the following four CWT residential properties in Champaign, Illinois:

- 304 N. 5th Street
- 504 E. Church Street
- 506 E. Church Street
- 508 E. Church Street

The following personnel performed the soil gas sampling:

- Cory Johnson, Soil Essentials driller
- Keith Klemm, Gannett Fleming
- Kendall Pickett, RAM Group

The following personnel were also present to observe activities:

- Brian Martin, Ameren
- Warren Mueller, Ameren
- Leslie Hoosier, Philip Environmental Services Corporation (PSC)
- Stu Cravens, Kelron Environmental
- Gregory Dunn, IEPA
- Cary Ware, Illinois Department of Public Health (IDPH)

Building use information was provided by Pete Sazama of PSC and was documented during a building survey conducted on October 28, 2009 (Survey Forms in Sampling Plan, Appendix A).

2.1 PRE-INVESTIGATION ACTIVITIES

2.1.1 Utilities Clearance

Soil Essentials, Inc., the drilling company, contacted the state utility locate service in Illinois (JULIE Locate) to coordinate marking of underground utilities at the surface on and near the four residential properties. Upon arrival at the site on December 1, 2009, paint markings and flags were present. RAM Group used these markings and site observations to avoid encountering subsurface utilities during sampling.

2.1.2 Daily Site Health & Safety Meetings

A field safety meeting was held on the mornings of December 1 and 2, 2009 before any fieldwork was performed to review the site-specific health and safety plan prepared for this project (Appendix B).

2.2 SOIL GAS AND AMBIENT AIR SAMPLING

The weather conditions on December 1, 2009 were clear in the low to mid 30's °F warming to the mid-50's °F with a slight breeze out of the south. On December 2, 2009, the temperatures were in the low 30's with calm winds and overcast sky.

Based on the PSC *Off-Site Investigation Report, Former Manufactured Gas Plant, Champaign, Illinois, State ID 0190100008*, dated August 22, 2008, the soils in the vicinity of the site consist of glacial till of mostly tight silty clays in the upper 10 feet below ground surface (ft bgs) and sandy sediments below 10 ft bgs. The water table has been measured at depths of 7 to 8 ft bgs.

2.2.1 Soil Gas Sampling

The locations of the soil gas samples were selected based on the following criteria:

- In close proximity to each of the four CWT residences,
- In areas on the CWT properties near the former MGP remediation site,
- At depths within the vadose zone above the shallow groundwater interval,
- At depths at or below the building basement floor slabs, and
- In soil intervals permeable enough to allow purging and sampling for soil vapors in a reasonable time frame.

Ten soil gas samples (including one duplicate) were collected from nine locations using hand and Geoprobe® sampling methods (Photographs, Appendix C). The Sampling Plan called for soil gas samples to be collected from each boring, at approximately 6 ft bgs (approximately one foot below the bottom of the basement slab, estimated at 5 ft bgs and above the water table, estimated at 7-8 ft bgs) adjacent to four CWT residences. However, tight soils encountered in the soil column did not allow for gas collection at the designated depths at some locations; instead sampling was performed at depths where a more permeable soil layer was encountered. Also, the basement depths varied (refer to Sampling Plan survey forms in Appendix A) and sampling depths were adjusted to target at or below the basement floor slabs:

- 304 N. 5th Street – does not have basement, has a 2 ft crawl space below home
- 504 E. Church Street – basement extends 7.1 ft bgs
- 506 E. Church Street – basement extends 5.7 ft bgs
- 508 E. Church Street – basement extends 5.8 ft bgs

Specific sample depths are shown in Table 2-1. Ground water was not encountered at any of the sample locations.

Soil gas samples were collected in 1-liter SUMMA canisters (process certified) using Geoprobe® PRT methods. One duplicate soil gas sample (506-EF) was collected from a location at 506 E. Church Street.

The sampling approach involved the use of small diameter steel rods that were advanced vertically by either hand or using a Geoprobe® 550B track-mounted rig by Soil Essentials. Extreme care was taken to prevent damage to the properties. Hydrated bentonite was placed around the rods where they entered the ground to create a seal at the ground surface (Photograph 9, Appendix C). Teflon® tubing was attached to the PRT adapter and pushed down inside the rods, seated, and threaded into an expendable point holder. Next, a Swagelok® three-way valve and a gas-tight 60-milliliter (mL) disposable syringe were connected to the Teflon® tubing (Photograph 8, Appendix C) and the steel rods were pulled up approximately 4 to 8 inches to dislodge the rods from the expendable point.

The soil gas sample depths ranged from 3 to 7 ft bgs. Specific sample depths are shown in Table 2-1 and the sample locations are shown on Figure 1-2.

1,1-Difluoroethane was used as a leak detection compound to check for the presence of leaks in the sampling system (i.e., short-circuiting). Household paper towels, wetted with computer keyboard duster spray containing difluoroethane, were wrapped around the steel rods at the ground surface/bentonite seal (to test for short-circuiting at the borehole annulus) and around the top of the rod where the Teflon® tubing exited the steel rods to test for short-circuiting across the O-ring seal in the PRT adapter (Photograph 4, Appendix C).

The initial vacuum of each 1-L SUMMA canister was measured in the field prior to sampling using a liquid-filled vacuum gauge to confirm the vacuum was at least -25 inches of mercury (in Hg). The initial vacuum was recorded on the chain of custody (COC) form and in the field log book. Refer to Table 2-1 for summary of vacuum measurements.

Purge volume calculations were performed and the tubing was purged prior to sample collection using a Swagelok® three-way valve and a gas-tight 60-mL disposable syringe. Purge volumes ranged from 420 to 1200 mL.

After purging, the 1-L SUMMA canister was connected to a flow controller set by the laboratory at 167 mL/min. The flow controller includes an internal filter to prevent solids from entering and to restrict the soil gas flow rate into the canister. The flow controller was then connected to the Swagelok® three-way valve for sample collection (Photograph 4, Appendix C). For the duplicate sample collected at 506-EF, a sample splitter was used to allow soil gas to enter two canisters simultaneously using a single flow controller.

Generally, the sampling duration was between 5 and 11 minutes until the final vacuum in the canister was about -5 in Hg. After collection of each sample and withdrawal of the steel rods, the resulting borehole was filled with hydrated bentonite chips to the surface.

In addition, an ambient air sample (506-E-AMB) was collected between 506 and 508 E. Church Street. The ambient air sample was collected by connecting the flow controller

directly to the canister and opening the canister via the flow controller inlet to the outdoor air (Photograph 16).

The sample collection time, initial vacuum, and the final vacuum were recorded on the COC and in the field log book. A copy of the pertinent pages from the field logbook is presented in Appendix D.

2.2.1.1 304 N. 5th Street

The property is developed with a single story building with a 2 ft below floor crawl space. The property was occupied by residents of the CWT.

Three soil gas samples were collected, one on the north side (Sample ID #304-N) within 3 ft of the house, one on the west side (Sample ID #304-W) about 12 ft from the house, and a third (Sample ID #304-E) was collected on the east side within 20 ft of the house. Small diameter steel rods were installed using a Geoprobe® 550B track-mounted rig to push the rods to the desired sampling depths.

Both Sample #304-W and Sample #304-N were collected at a depth of 5.0 ft bgs, and Sample #304-N was collected at a depth of 7.0 ft bgs due to its proximity to 504 E. Church Street building which has a basement extending to about 7 ft bgs. Table 2-1 presents details of the soil gas samples.

Photographs 1-5 show general sampling locations and procedures for 304 N. 5th Street (Appendix C).

2.2.1.2 504 E. Church Street

The property is developed with a 2-story building with a basement extending 7.1 ft bgs. The main offices take up most of the basement of this building with some minor storage. Both above grade stories of the building were occupied by residents of the CWT.

Two soil gas samples were collected, one on the north side (Sample ID #504-N) within 3.5 ft of the house and one on the east side (Sample ID #504-E) about 8.0 ft from the house. Small diameter steel rods were installed using a Geoprobe® 550B track-mounted rig to push the rods to the desired sampling depths.

Sample #504-N was collected at a depth of 7.0 ft bgs and Sample #504-E was collected at a depth of 6.0 ft bgs after multiple attempts at depths between 6 ft and 7 ft bgs, which were too tight to purge and sample. Table 2-1 presents details of the soil gas samples.

Photograph 6 shows the general sampling area for 504-N (Appendix C).

2.2.1.3 506 E. Church Street

The property is developed with a 2-story house with a basement that extends about 5.7 ft bgs. Both stories of the building were occupied by residents of the CWT. The basement is used for storage and based on the October 2009 building survey, not for habitation.

Three soil gas samples including one duplicate (506-EF) were collected, one on the north side (Sample ID #506-N) about 4 ft from the house, and two on the east side (Sample ID #506-E and 506-EF), both within 3.0 ft of the house. Small diameter steel rods were installed using a Geoprobe® 550B track-mounted rig to push the rods to the desired sampling depths.

Sample #506-N was finally collected at a depth of 3.0 ft bgs on December 2, 2009 after several attempts on both days at deeper depths between 4 ft and 7 ft bgs, which were too tight to purge and sample. Samples 506-E and 506-EF were collected at a depth of 4.0 ft bgs on December 1, 2009 also after multiple attempts between 5 ft and 7 ft bgs, which were too tight to purge and sample. Table 2-1 presents details of the soil gas samples.

Photographs 7-11 show the general sampling locations and procedures for 506 E. Church Street (Appendix C).

2.2.1.4 508 E. Church Street

The property is developed into a 2-story house with a basement that extends about 5.8 ft bgs. Both stories of the building were occupied by residents of the CWT. There is a small office on the first floor. The basement is used for storage and based on the October 2009 building survey, not for habitation.

Two soil gas samples were collected, one sample on the north side (Sample ID #508-N) within 7 ft of the house and another on the east side (Sample ID #508-E) within 5.0 ft of the house. Small diameter steel rods were installed using a Geoprobe® 550B track-mounted rig to push the rods to the desired sampling depth for 508-N. However, the rig was not accessible to the 508-E location; therefore, the steel rods were installed by hand using a slide hammer to push the rods to the desired sampling depth.

Both samples were collected at a depth of 6.5 ft bgs. Table 2-1 presents details of the soil gas samples.

Photographs 12-15 show the general sampling locations and procedures for 508 E. Church Street (Appendix C).

2.2.2 Ambient Air Sampling

One ambient (outdoor) air sample (Sample ID #506-E-AMB) was collected along the east property line of the 506 E. Church Street property in a 6-liter SUMMA canister (100%

certified) to characterize the ambient air in the vicinity of the CWT homes. Figure 1-2 shows the location of this sample.

The ambient air sample was collected from just above ground surface. The sampling was conducted between the homes at 506 and 508 E. Church Street about 15 ft east of the 506 E. Church Street house. The ambient air sample was collected in a similar manner to the soil vapor samples, except that the flow controller (100% certified) connected to the Summa canister was opened to the ambient air during sampling. The sample collection details are summarized on Table 2-1. The sampling duration was about 35 minutes and the final vacuum in the canister was about -5 in Hg.

Photographs 11 and 16 show the general sampling location and procedures for the ambient air sample (Appendix C).

2.3 SAMPLE ANALYSIS

Laboratory analysis was performed by Air Toxics Ltd. in Folsom, California. Air Toxics analyzed the soil gas samples using Method TO-15 GC/MS in full scan mode for BTEX, styrene, naphthalene, and the leak detection chemical (1,1-difluoroethane) except for the ambient air sample. It was determined that these are the only VOCs (RAM 2008), except leak detection compound, that are related to MGP operations after a thorough literature review conducted for the previous report.

The laboratory report and chain-of-custody form are included in Appendix E. Table 2-2 presents a summary of the laboratory analysis results.

2.4 SOIL GEOTECHNICAL SAMPLING

As per the work plan, two geotechnical soil samples were collected from the 4 to 7 ft bgs depth interval in macro-core tubes using a Geoprobe® 550B track-mounted rig at 304-E Geotech and 506-E Geotech (Figure 1-2). However, the samples were placed on hold pending the results of the soil gas analysis results. Since the soil gas sample results did not exceed target levels, the geotechnical samples were not analyzed.

2.5 DECONTAMINATION PROCEDURES

Personal Protective Equipment (PPE) and decontamination procedures are described in the site-specific health and safety plan (HASP) included in Appendix B. The following comments provide a general description of measures taken to mitigate cross contamination between soil gas sampling locations and from the natural environment.

The primary source of cross contamination from one sampling location to the next is the use of non-dedicated equipment. During this sampling event, 1.25-inch diameter rods with expendable point holder, Swagelok® components, valves, quick connects, adapters, syringes, and Teflon® tubing were used to obtain samples at each location. The Teflon® tubing and syringes were new, dedicated for each sample location, and disposed after

each use. The 1.25-inch diameter rods with expendable point holder, Swagelok® components, valves, quick connects, and adapters were decontaminated before use at each soil gas sampling point using an Alconox soap wash followed by a distilled water rinse or flushing with ultra pure nitrogen gas (per Gannett Fleming 2009).

Contamination from the natural environment and other outside sources was controlled through the use of the following:

- Dedicated sampling equipment (new dedicated disposable Teflon® tubing and syringes for purging and sampling),
- Use of disposable Nitrile gloves, and
- Use of chain-of-custody protocols during delivery of samples to the laboratory.

2.6 INVESTIGATION DERIVED WASTE (IDW)

Investigation derived waste consisted of disposables and portions of soil samples. Disposables were contained in a plastic garbage bag and disposed in the trash dumpster at the former MGP remediation site.

Soil samples were collected from two locations for possible analysis for geotechnical parameters. The portions not sent to the laboratory were disposed along with excavated soils at the former MGP remediation site.

2.7 QUALITY ASSURANCE AND CONTROL

Quality assurance and control procedures are presented in Appendix F, which includes the field methods and laboratory methods followed in this investigation.

The laboratory narrative indicated that one sample, 504-N, had to be diluted prior to analysis due to the presence of high level concentrations of non-target species. RAM Group requested that the laboratory identify the high concentration non-target species in sample 504-N. Air Toxics re-issued the report on December 31, 2009, including the top 10 tentatively identified compounds (TICs) present in 504-N. Only one compound was identified based on presumptive evidence (N), 1-chloro-1,1-difluoroethane at an estimated concentration (J) of 10,000 parts per billion volume (ppbv) with a match quality of 83%.

This compound is not known to be associated with MGP sites and is a likely component (impurity) of the leak detection compound source. The concentration of this compound in the sample was calculated and found to be present at less than 10%, thus the sample results for 504-N were not considered compromised due to leakage.

Dilutions of the samples ranged from 1.69 to 121, the higher dilutions being due to high concentrations of the leak detector compound or its components. Since all detected and

non-detected reporting limits were below the target levels for the chemicals analyzed, the dilutions did not affect the results.

Based on the QA/QC evaluation, the laboratory results are acceptable and considered representative of the soil gas concentrations across the site at the depths and times measured.

3.1 INTRODUCTION

Soil gas concentrations of the MGP related VOCs were used to evaluate the indoor inhalation pathway. The evaluation is consistent with the IEPA's draft 35 Ill. Adm. Code Part 742: TACO.

3.2 RECENT GROUNDWATER DATA

Recent groundwater data from the shallow groundwater monitoring wells located closest to the CWT residences are compiled in Table 3-1 for BTEX and naphthalene. Styrene data was not available. The locations of these wells are shown on Figure 1-2. The following five shallow monitoring wells are located in close proximity to the CWT residences and the most recent groundwater data is indicated below:

- UMW-105 – 6/10/2009, 9/9/2009
- UMW-106 – 6/10/2009, 9/9/2009
- UMW-114 – 6/14/2007
- UMW-115 – 6/11/2009, 9/8/2009
- UMW-121 – 6/10/09, 9/8/09

The closest wells are UMW-105 and UMW-121. UMW-105 is located near the northwest corner of the 506 E. Church Street building on the CWT property. UMW-121 is located on the CWT property along the property line that separates 506 and 508 E. Church Street about mid-way between the buildings and the alley to the north. For both the June and August 2009 groundwater sampling events, BTEX and naphthalene were below reporting limits in both wells.

The next closest monitoring wells are UMW-114 and UMW-115, both located on the former MGP remediation site. UMW-114 was located about 85 ft north of the northeast corner of the 508 E. Church Street building. It was abandoned due to active remediation involving excavation of soils from the former MGP site at depths extending below the shallow groundwater interval. The most recent groundwater data for June 2007 indicated that benzene at 1,150 ug/L exceeded the residential Tier 1 RO for the indoor inhalation pathway of 360 ug/L.

UMW-115 is located about 65 ft north of the northeast corner of the 304 N. 5th Street building. The June and August 2009 groundwater results for UMW-115 indicated very low levels of BTEX and naphthalene, all well below the Tier 1 ROs.

UMW-106 is located about 100 ft northwest of the northwest corner of the 304 N. 5th Street building. It is located across N. 5th Street from the former MGP remediation site. The June and August 2009 groundwater results indicated that BTEX and naphthalene were below reporting limits.

Previous (December 2006 and May 2008) groundwater flow maps for the shallow groundwater interval indicate flow in the southwestern portion of the former MGP site to be to the south and southwest towards the CWT properties (PSC 2008).

Based on the recent groundwater results on and in close proximity to the CWT property, it is evident that the shallow groundwater below the CWT property is not currently impacted above the Tier 1 ROs for the indoor inhalation pathway.

3.3 COMPARISON OF SOIL GAS CONCENTRATIONS WITH RELEVANT REMEDIATION OBJECTIVES

The Tier 1 soil gas ROs for residential properties were obtained from Table G of Appendix B in Section 742 of draft TACO rule. Table 3-2 presents both soil gas ROs and soil gas concentrations for MGP related VOCs. The comparison indicated that none of the constituents of concern exceed the Tier 1 soil gas ROs.

SECTION 4.0
SUMMARY AND RECOMMENDATIONS

This report presents the results from a soil gas sampling event performed on December 1 and 2, 2009 at the following CWT residential properties across the alley to the south of a former MGP site in Champaign, Illinois:

- 304 N. 5th Street
- 504 E. Church Street
- 506 E. Church Street
- 508 E. Church Street

The soil gas sampling event consisted of the collection of ten soil gas samples (including one field duplicate) from nine locations along the north, east, and west perimeters of the four residential properties and one ambient air sample. The soil gas samples were collected in 1-liter SUMMA canisters using Geoprobe® PRT methods. QA/QC samples were also collected. The samples were analyzed for VOCs related to former MGP operations.

Based on the QA/QC evaluation, the laboratory results are acceptable and considered representative of the soil gas concentrations across the site at the depths and times measured.

The soil gas samples and most recent groundwater analytical results from area monitoring wells were compared to the draft IEPA TACO residential Tier 1 ROs for the indoor inhalation pathway. The comparison indicated that the concentrations of none of the chemicals exceeded the Tier 1 ROs in samples collected at the CWT properties, and hence the residual soil and groundwater impacts from the former MGP are not of concern for the indoor inhalation pathway at the homes listed above.

Concentrations of chemicals analyzed in the ambient air sample (506-E-AMB) were below reporting limits.

Based on the above results, no further action is recommended relative to potential indoor air inhalation risks to the residents and employees at the subject properties.

Gannett Fleming, 2009. Standard Operating Procedure (SOP) for Soil Vapor Well Sampling with 1-Liter Summa® Canisters, SOP No. SM-27, Revision No. 3, April 9.

Geoprobe® Systems. Soil Gas Sampling – PRT System Operation.

Interstate Technology Regulatory Council (ITRC), 2007. Vapor Intrusion Pathway: A Practical Guide, January.

Illinois Environmental Protection Agency (IEPA), 2008. Draft 35 Ill. Adm. Code Part 742: Tiered Approach to Corrective Action (TACO).

IEPA, 2009. Approval of Sampling Plan letter, November 19.

New York State Department of Health (NYSDOH), 2006. Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October.

PSC Industrial Outsourcing, LP, 2008. Off-Site Investigation Report, Former Manufactured Gas Plant, Champaign, Illinois, State ID 0190100008, August 22.

RAM Group of Gannett Fleming, Inc. (RAM), 2008. Evaluation of Soil Gas Data Collected at Residential Properties near Former MGP Site, Champaign, Illinois. December 10.

RAM, 2009. Soil Vapor Sampling, Women in Transition Shelter near Former Manufactured Gas Plant Site, Champaign, Illinois. November 5 Letter to Brian Martin of Ameren Services.

United States Environmental Protection Agency (USEPA), 2008. Quality Assurance Project Plan (QAPP)

Table 2-1
Soil Gas Sample Details
Ameren Services, Women's Shelter, Champaign, Illinois

Sample		Basement Depth	Canister Pressure/Vacuum			Concentration of Leak Detection Compound*	Analytical Method	Date Collected	Date Analyzed
Name	Depth		Initial[1]	Final[2]	Lab receipt[3]				
	[ft bgs]	[ft bgs]	[inch Hg]			[ppbv]			
506-E-AMB*	Surface	NA	-27.9	-5.0	-6.2	NA	Modified TO-15 in full scan mode for BTEX Styrene Naphthalene 1,1-difluoroethane*	12/01/09	12/15/09
304-W	5.0	NA	-29.4	-5.0	-4.2	12,000E		12/01/09	12/15/09
304-N	5.0	NA	-25.7	-4.5	-6.2	12		12/01/09	12/15/09
304-E	7.0	NA	-27.3	-5.0	-6.6	710E		12/01/09	12/15/09
504-N	7.0	7.1	-29.0	-5.0	-6.0	<20		12/01/09	12/15/09
504-E	6.0	7.1	-26.7	-5.0	-5.8	5.2		12/01/09	12/15/09
506-N	3.0	5.7	-27.1	-5.0	-5.0	16		12/02/09	12/15/09
506-E	4.0	5.7	-26.0	-3.5	-4.4	<4.7		12/01/09	12/15/09
506-EF	4.0	5.7	-27.1	-3.5	-4.4	<4.7		12/01/09	12/15/09
508-N	6.5	5.8	-29.0	-5.0	-5.0	140,000E		12/02/09	12/15/09
508-E	6.5	5.8	-28.8	-5.0	-3.0	6,500E		12/01/09	12/15/09

Notes:
NA: Not applicable
inch Hg: Inches of mercury
F: Field duplicate
ft bgs: Feet below ground surface
ppbv: Parts per billion volume
<: Less than reporting limit
AMB: Ambient air sample
E: Exceeds instrument calibration range

Footnotes:
1: Field measurement prior to filling canister
2: Field measurement after filling canister
3: Lab measurement upon receipt of canister
*: Leak detection compound was 1,1-difluoroethane; 506-E-AMB was not analyzed for this chemical

Table 2-2
Summary of Soil Gas and Ambient Air Concentrations (ug/m^3)
Ameren Services, Women's Shelter, Champaign, Illinois

Chemical	CAS	304 N. 5th Street			504 E. Church St.		506 E. Church Street			508 E. Church Street			Ambient Air
		304-W	304-N	304-E	504-N**	504-E	506-N	506-E	506-EF	508-N*	508-E	508-E Lab Dup	506-E-AMB
Date Sampled		12/01/09					12/02/09	12/01/09		12/02/09	12/01/09		
Depth of Sample (ft bgs)		5.0	5.0	7.0	7.0	6.0	3.0	4.0	4.0	6.5	6.5	6.5	Surface
Depth of Basement (ft bgs)		NA	NA	NA	7.1	7.1	5.7	5.7	5.7	5.8	5.8	5.8	NA
Benzene	71-43-2	<15	4.5	4.8	<16	<4.0	5.4	<3.8	<3.8	<190	8.3	8	<2.7
Toluene	108-88-3	<18	<4.8	7.3	<19	<4.7	6.2	<4.5	<4.5	<230	12	11	<3.2
Ethyl Benzene	100-41-4	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	6.3	<260	<4.9	<9.7	<3.7
m,p-Xylene	108-38-3/ 106-42-3	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	5.7	<260	<4.9	<9.7	<3.7
o-Xylene	95-47-6	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	<5.1	<260	<4.9	<9.7	<3.7
Styrene	100-42-5	<20	<5.4	<5.5	<22	<5.3	<5.2	<5.0	<5.0	<260	<4.8	<9.5	<3.6
Naphthalene	91-20-3	<98	<27	<27	<100	<26	<25	<25	<25	<1300	<23	<47	<18

Notes:
<: Less than reporting limit shown
NA: not applicable
E: Exceeds instrument calibration range

Footnotes:
*: Did not use results of 508-N for site evaluation since leak detection compound concentration exceeded 10% of sample volume.
**: 504-N diluted due to high level of non-target species

Table 3-1
Groundwater Analytical Data (ug/L)
Ameren Services, Women's Shelter, Champaign, Illinois

Well ID	Residential Tier 1 GW RO for Indoor Inhalation Pathway	UMW-105		UMW-106		UMW-114*	UMW-115		UMW-121	
Sampling Date		06/10/09	09/09/09	06/10/09	09/09/09	06/14/07	06/11/09	09/08/09	06/10/09	09/08/09
Benzene	360	<2	<2	<2	<2	**1,150**	13.4	10	<2	<2
Toluene	530,000**	<5	<5	<5	<5	170J	1.1J	<5	<5	<5
Ethyl benzene	170,000**	<5	<5	<5	<5	1,160	1J	1.3J	<5	<5
Xylenes, total	80,000	<5	<5	<5	<5	963	1.3J	1J	<5	<5
Napthalene	31,000**	<0.1	<0.1	<0.1	<0.1	6,440	0.55	0.43	<0.1	<0.1
Styrene	310,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
J - Detected below PQL and above MDL
NA - Not Analyzed
Values in bold exceed Tier 1 RO
RO - Remediation Objective

Footnotes:
* - Most recent available data; Well UMW-114 was abandoned due to its location in the remediation area
** - Tier 1 RO exceeds solubility in water; therefore, solubility of chemical is shown

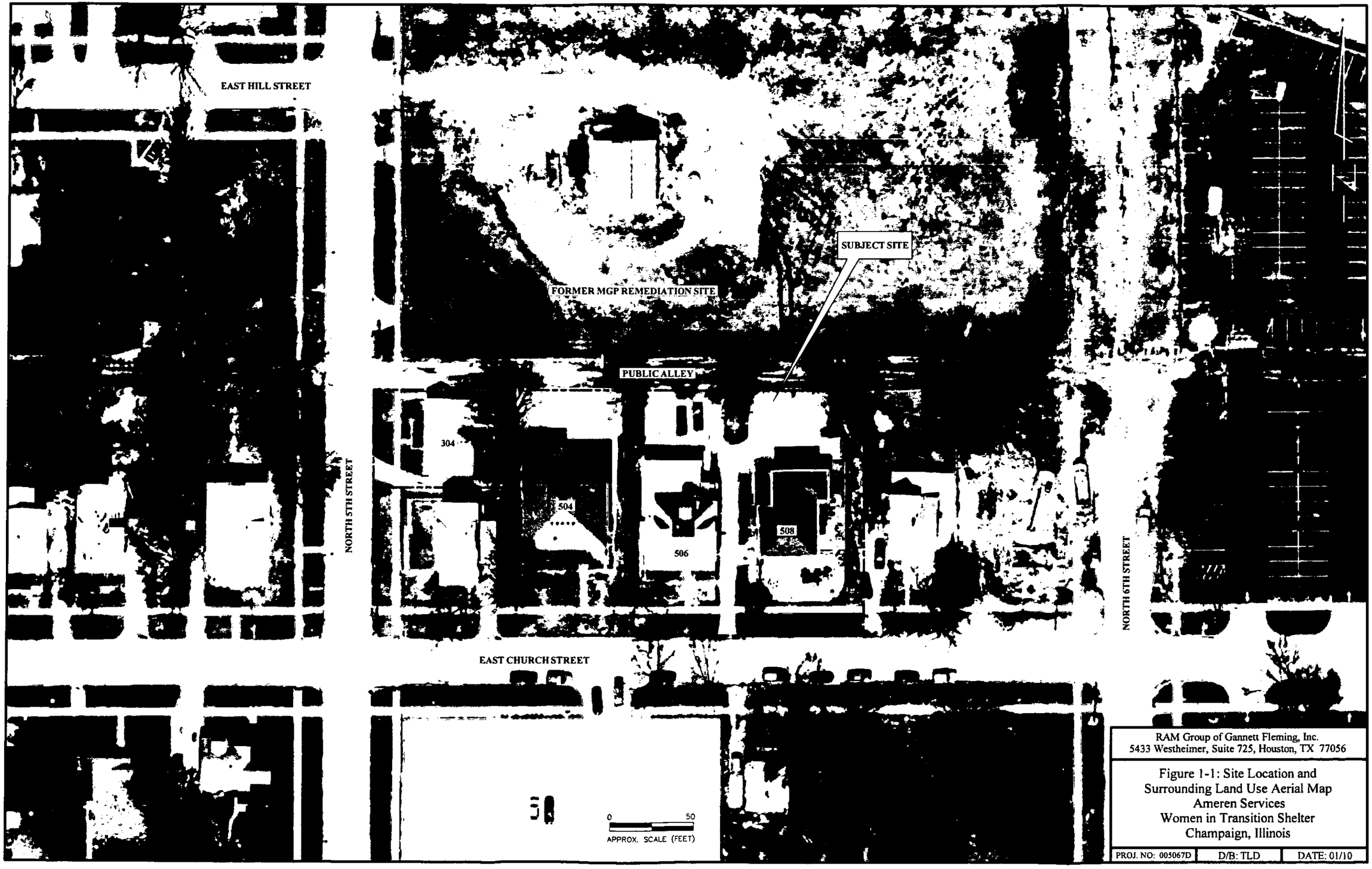
Table 3-2
Comparison of Soil Gas Concentrations to Tier 1 Remediation Objectives (ug/m^3)
Ameren Services, Women's Shelter, Champaign, Illinois

Chemical	Residential Tier 1 Soil Gas RO for Indoor Inhalation Pathway (ug/m^3)	304 N. 5th Street			504 E. Church St.		506 E. Church Street			508 E. Church Street		
		304-W	304-N	304-E	504-N***	504-E	506-N	506-E	506-EF	508-N	508-E	508-E Lab Dup
Date Sampled		12/01/09					12/02/09	12/01/09		12/02/09	12/01/09	
Depth of Sample (ft bgs)		5.0	5.0	7.0	7.0	6.0	3.0	4.0	4.0	6.5	6.5	6.5
Depth of Basement (ft bgs)		NA	NA	NA	7.1	7.1	5.7	5.7	5.7	5.8	5.8	5.8
Benzene	41,000	<15	4.5	4.8	<16	<4.0	5.4	<3.8	<3.8	<190	8.3	8
Toluene	140,000,000**	<18	<4.8	7.3	<19	<4.7	6.2	<4.5	<4.5	<230	12	11
Ethyl Benzene	59,000,000**	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	6.3	<260	<4.9	<9.7
m,p-Xylene	16,000,000*	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	5.7	<260	<4.9	<9.7
o-Xylene	17,000,000	<20	<5.5	<5.6	<22	<5.4	<5.2	<5.1	<5.1	<260	<4.9	<9.7
Styrene	34,000,000**	<20	<5.4	<5.5	<22	<5.3	<5.2	<5.0	<5.0	<260	<4.8	<9.5
Naphthalene	610,000	<98	<27	<27	<100	<26	<25	<25	<25	<1300	<23	<47

Notes:
<: Less than reporting limit shown
NA: not applicable

Footnotes:
*: RO for p-xylene
**: Tier 1 RO exceeds C_v Sat value of chemical; therefore, C_v Sat value was used.
***: 504-N diluted due to high level of non-target species

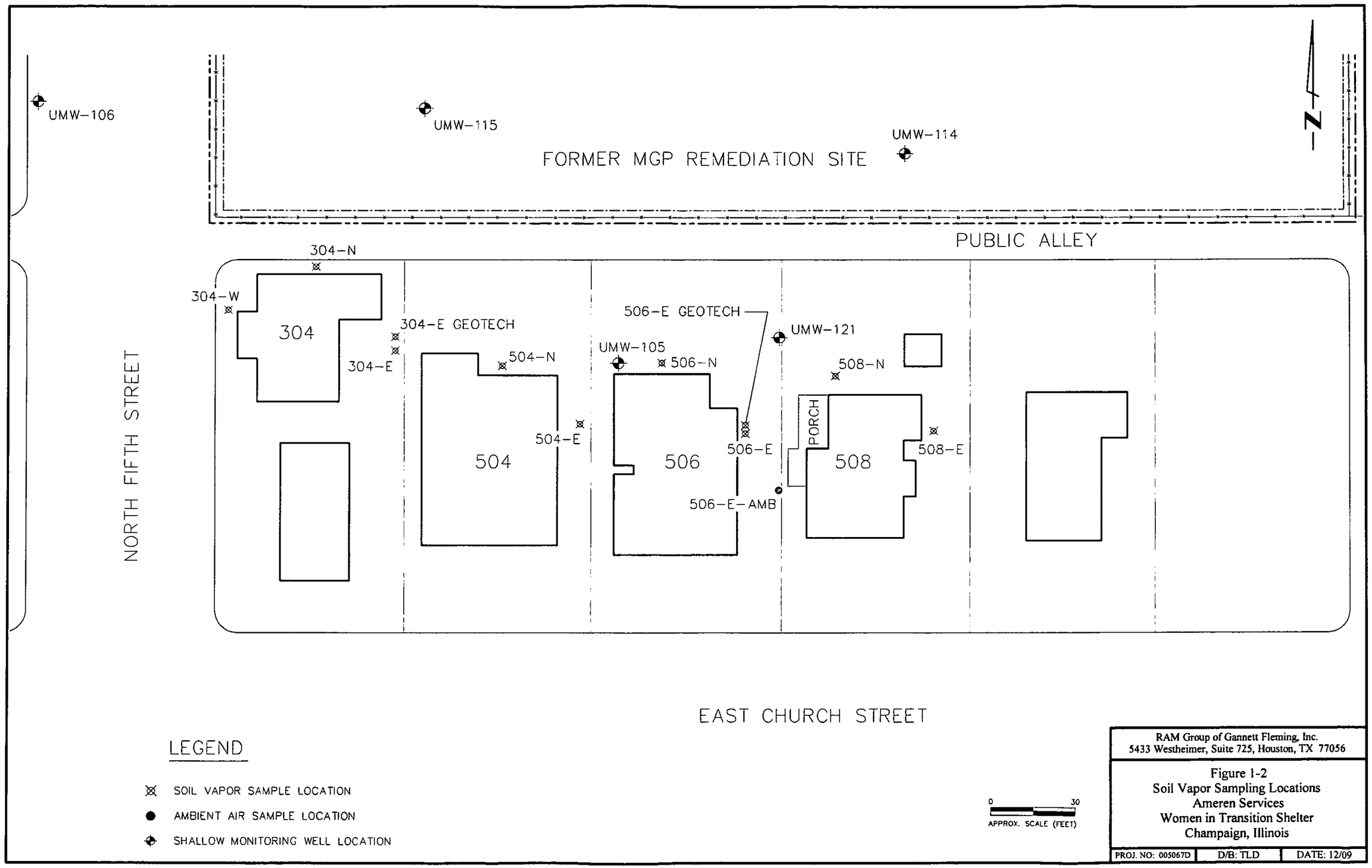
FIGURES



RAM Group of Gannett Fleming, Inc.
5433 Westheimer, Suite 725, Houston, TX 77056

Figure 1-1: Site Location and Surrounding Land Use Aerial Map
Ameren Services
Women in Transition Shelter
Champaign, Illinois

PROJ. NO: 005067D	D/B: TLD	DATE: 01/10



RAM Group of Gannett Fleming, Inc.
5433 Westheimer, Suite 725, Houston, TX 77056

Figure 1-2
Soil Vapor Sampling Locations
Ameren Services
Women in Transition Shelter
Champaign, Illinois

PROJ. NO: 005067D	D/B: TLD	DATE: 12/09

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-2829
James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 • (312) 814-6026

PAT QUINN, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

(217) 785-2359

November 19, 2009

CERTIFIED MAIL

7007 3020 0002 3212 9002

Brian H. Martin, CHMM
Ameren Services
1901 Chouteau Avenue, P.O. Box 66149
St. Louis, Missouri 63166-6149

Re: 0190100008--Champaign County
Champaign/IP Town Gas
Site Remediation Program/Technical Reports

Dear Mr. Martin:

The Illinois Environmental Protection Agency ("Illinois EPA") has completed review of the Soil Vapor Sampling for the Center for Women in Transition ("Sampling Plan"). The Sampling Plan, received by the Illinois EPA on November 16, 2009 (Log No. 09-43136), was prepared by the RAM Group for Ameren. The Illinois EPA approves of the Sampling Plan with the following additions as discussed in the November 10, 2009 e-mail:

1. The post-run tubing (PRT) identified on page 2 of the Sampling Plan will be Teflon tubing.

2. The procedure to check for leakage will be computer duster spray which has difluoroethene. Clean paper towels will be placed in a zip lock bag and saturated with the computer duster spray at least 40 feet downwind from the sampling point. The paper towels will then be placed around the geoprobe rod at ground surface and around the sampling train where it enters the rod. The Summa canister is then analyzed for 1,1-difluoroethene at the lab to check for leakage of the soil vapor collection system.

3. The soil vapor sampling will be conducted the week of November 30, 2009, unless unforeseen circumstances prevent the rescheduling of the sampling.

All future submittals to the Illinois EPA concerning the Illinois Power Town Gas site in Champaign should include one original and two copies of each document. If you have any questions, please feel free to contact me at above telephone number, address or e-mail me at Greg.Dunn@illinois.gov.

Sincerely,

Gregory W. Dunn, L.P.G., Manager
Voluntary Site Remediation Unit B
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

cc: Bureau of Land File
Stan Black
Greg Dunn

Kendall Tackett
RAM Group
5433 Westheimer, Suite 725
Houston, Texas 77056

RAM GROUP *The Risk Assessment & Management Group of Gannett Fleming, Inc.*

November 5, 2009

Mr. Brian Martin
Ameren Services
One Ameren Plaza
1901 Chouteau Avenue, MC 602
St. Louis, MO 63166-6149

Re: Soil Vapor Sampling
Women in Transition Shelter near Former Manufactured Gas Plant Site
Champaign, Illinois

Dear Brian:

Thank you very much for the opportunity to collect the data necessary to evaluate potential soil vapor migration and vapor inhalation risk to the Women in Transition Shelter homes located south of the former manufactured gas plant (MGP) site in Champaign, Illinois. The following tasks will be conducted:

We will use the OSHA-compliant health and safety plan (HASP) that was prepared for the previous sampling that we performed in October 2008 near the former MGP site. The state one-call service will be notified at least 48 hours before initiation of the fieldwork to mark the locations of sub-surface utilities along the public rights-of-way in the vicinity of the four residential properties to be sampled. These markings as well as visual observations at each residence will be used to avoid encountering sub-surface utilities during the fieldwork.

Coordination with the management of the Shelter will be conducted to explain and coordinate the work prior to mobilization to the field. We understand the four residential homes are located at 304 N. 5th Street and three homes on Church Street at 504, 506, and 508. These homes are located south of the former MGP site across a public alley. We understand that each home has a basement that partially extends below grade to a depth of approximately five feet.

On Wednesday, October 28, 2009, Brian Martin of Ameren Services and Peter Sazama of Philip Environmental Services Corporation visited the four homes and met with John Sullivan of the Women's Shelter. Attached are Indoor Air Building Survey forms for each home that were prepared during their visit.

We understand that the soils in the vicinity of the site consist of glacial till consisting of mostly tight silty clays in the upper 10 feet bgs and sandy sediments below 10 feet bgs. The water table has been measured at depths of 7 to 8 feet bgs.

Keith Klemm and Mihika Baruah will perform the fieldwork according to the following schedule:

Day 1: Travel to the site and perform site reconnaissance, mark utility and sampling locations, inspect all Summa® canisters and other field equipment, and purchase any field supplies necessary.

Install nine temporary soil vapor sampling borings to a target depth of approximately six feet below ground surface (approximately one foot below the bottom of the basement slab, estimated at 5 ft bgs and above the water table, estimated at 7-8 ft bgs) adjacent to the four Shelter homes. Based on our previous experience in the neighborhood, the soils in the interval between basement slabs and the water table are clay-rich and relatively tight; therefore, we may have to adjust our sampling depth (typically upward) to find an interval that is permeable enough to collect the soil gas samples in a reasonable time frame. We will avoid high moisture areas (near down spouts, below roof drip lines, etc.). The vapor borings will be installed using a Geoprobe® track-mounted rig. Extreme care will be taken to prevent damage to private property.

Soil vapor samples will be collected from the borings using post-run tubing (PRT) methods. All samples will be collected using flow controllers set at 167 ml/minute. Nine soil vapor samples will be collected, one at each of the locations shown on the attached Figure 1 in 1-liter process certified Summa® canisters. One duplicate soil vapor sample will be collected using a duplicate sampling "T" to allow filling of two Summa® canisters simultaneously from a location to be determined in the field. Computer duster spray containing difluoroethane will be used in the field to check for leakage in the soil vapor collection system and from short-circuiting between the soil vapor probe implant to the ambient air at the surface. One ambient (outdoor) air sample will also be collected in one 100% certified 6-liter Summa® canister at a location to be determined in the field. The samples will be analyzed by Air Toxics, Ltd. using modified EPA Method TO-15 for the following MGP specific volatile chemicals and the leak detection compound:

- benzene,
- toluene,
- ethylbenzene,
- xylenes
- styrene,
- naphthalene, and
- 1,1-difluoroethane (leak detection compound).

Soil vapor and ambient air sampling will be consistent with the guidance in *Data Collection for Evaluating Vapor Intrusion* Pathway, prepared for Ameren Services by RAM Group, dated September 14, 2006 (Ameren SOP) and the *Gannett Fleming Standard Operating Procedure (SOP) for Soil Vapor Well Sampling with 1-Liter Summa® Canisters. SOP No. SM-27, Revision No. 3*, dated April 9, 2009 (GF SOP).

Two soil samples will be collected from the vadose zone from one centrally located boring and will be analyzed for geotechnical parameters. The samples will be placed on hold in the laboratory pending the results of the soil vapor analytical results. If the results are non-detectable or at concentration levels below the applicable Tier 1 soil vapor target levels, then the geotechnical samples will not be analyzed. If the soil vapor results exceed the Tier 1 target levels, then PTS Laboratories will perform the following geotechnical analysis on the two soil samples submitted:

- Grain size analysis by ASTM D4464,
- Fraction Organic Carbon by Walkley-Black,
- Specific Gravity by ASTM D854,
- Moisture Content by ASTM D2216,
- Dry Bulk Density by ASTM D2937, and
- Total Porosity (calculated).

Day 2: Continuation of work performed on Day 1, if necessary. The samples will be shipped and the field personnel will travel back to the office to complete any remaining paperwork.

Day 20: Receipt of all data from laboratories (standard turnaround) in electronic format.

Day 45: Submission of draft report for your review and comments consisting of a single report including data collection, risk evaluation, and recommendations.

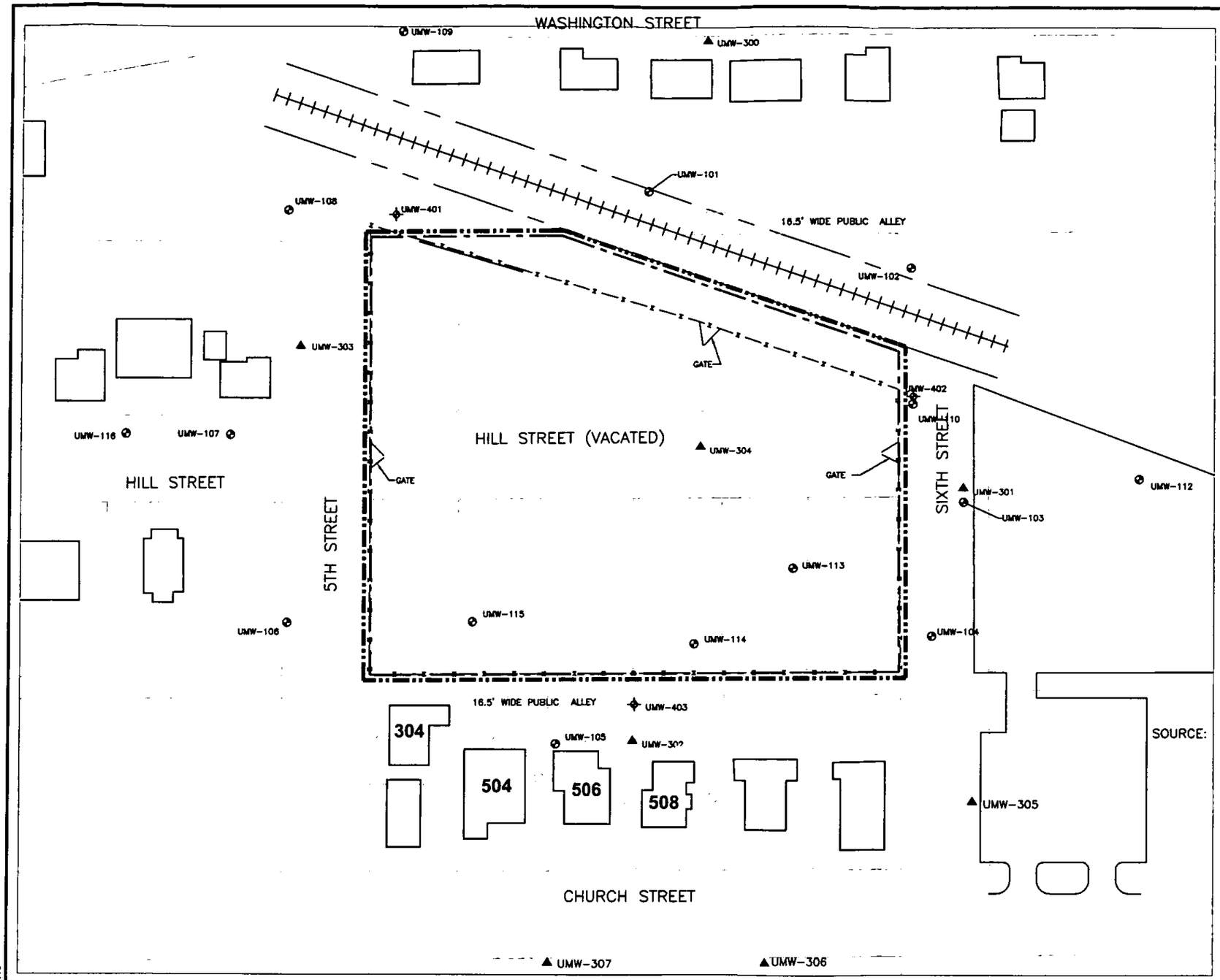
Day 60: Finalization of the report and submittal of up to 10 hard copies.

We look forward to working with you on this project and will call you soon to discuss this.

Sincerely,

Kendall L. Pickett
Senior Geologist

Attachments: Figure 1
Indoor Air Building Survey Forms



LEGEND

- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- UMW-100 SHALLOW GROUNDWATER MONITORING WELLS
- UMW-300 INTERMEDIATE GROUNDWATER MONITORING WELLS
- UMW-400 DEEP GROUNDWATER MONITORING WELLS
- VAPOR INTRUSION PROBEHOLE LOCATIONS

THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

N

J:\024\026478-110 COL

PSC

TITLE:
SITE MAP SHOWING THE HOMES OWNED BY THE WOMEN IN TRANSITION SHELTER

DWN: TMM	DES: MRC	PROJECT NO: 62403053 AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 10/20/09	REV:	FIGURE 1

INDOOR AIR BUILDING SURVEY FORM PAGE 1 OF 4

Building Address: 304 N. 5TH ST.

Property Contact: MR. JOHN SULLIVAN Owner / Renter / (other:) ________

Contact's Phone: home ( ) ________ work (217) 819-4611 ________ cell ( ) ________

Building occupants: Children under age 13 _____ Children age 13-18 ______ Adults _____

How long in this residence? 2 YEARS MAXIMUM

History of wet basement or flooding? NONE

General Description of Building Construction and Materials:

CONCRETE BLOCK CRAWL SPACE / WOOD FRAME & SIDING

How many occupied stories does the building have? 1

Does someone sleep in the basement? NO

Has the building been weatherized with any of the following? (Circle all that apply)

(Insulation) (Storm Windows) Energy-Efficient Windows Other (specify) ________

Approximately how much of the basement is below grade level? 2 FEET

Total wall area: 1800 FT^2

Total wall area in contact with soil: 360 FT^2

Basement Floor Description:

POURED CONCRETE (CRAWL)

Basement Walls Description:

CONCRETE BLOCK (CRAWL)

Moisture, water, or wet floors or walls observed or sensed: NO

Is a basement sump present? (Y/N) NO Sufficient water for sampling? (Y/N) NO

Sump Construction: N/A

Does the basement have any observable characteristics that might permit soil vapor entry? (i.e. cracks in concrete, crack at wall/floor, pipe penetrations): NO

Building address: _____
Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 2 OF 4

Heating and Ventilation System(s) Present

What type of heating system(s) are used in this building? (Circle all that apply)

(Hot Air Circulation)	Heat Pump	Stream Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	Other (specify) _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

(Natural Gas)	Electric	Coal	Other (specify) _____
Fuel Oil	Wood	Solar	

What type of mechanical ventilation systems are present in the building? (Circle all that apply)

(Central Air Conditioning)	Mechanical Fans	(Bathroom Ventilation Fan)
Individual Air Conditioning Units	Kitchen Range Hood	Air-to-Air Heat Exchanger
(Open windows)	Other (specify) _____	

Do any occupants of the building smoke? *Yes* / (No) How often? _____

Has anyone smoked within the building within the last 48 hours? *Yes* / (No)

Do the occupants of the building have their clothes dry-cleaned? (Yes) / *No*

When were dry-cleaned clothes last brought into the building? N/A

Have the occupants ever noticed any unusual odors in the building? *Yes* / (No)

Describe (with location): _____

Any known spills of a chemical immediately outside or inside the building? *Yes* / (No)

Describe (with location): _____

Has the building been treated with any insecticides/pesticides? If so, what chemicals are used and how often are they applied? No

Do any of the occupants apply pesticides/herbicides in the yard or garden? If so, what chemicals are used and how often are they applied? TRUEGREEN

Any use of chemicals not listed above? *Yes* / (No)

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 3 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources found on the first floor and basement levels, the location of the sources, and whether the item was removed from the building at least 48 hours prior to indoor air sampling event.

Potential Sources	Location(s)	Removed Prior to Sampling? (Yes / No / NA)
Gasoline storage cans		No
Gas-powered equipment		No
Kerosene storage cans		No
Paints / thinners / strippers		No
Cleaning solvents		No
Oven cleaners	KITCHEN	YES
Carpet / upholstery cleaners	"	YES
Moth balls		No
Polishes / waxes	KITCHEN	YES
Insecticides		No
Furniture / floor polish	KITCHEN	YES
Nail polish / polish remover	BATHROOM	YES
Hairspray	"	YES
Cologne / perfume	"	YES
Air fresheners	KITCHEN	YES
Hobbies - glues, paints, etc.		NO
Fireplace		NA
Wood stove or kerosene burner		NA
New furniture / upholstery		NA
New carpeting / flooring		NA
Recent painting in building?		NA
Medical Equipment		NA

INDOOR AIR BUILDING SURVEY FORM PAGE 4 OF 4

Indoor Contaminant Sources

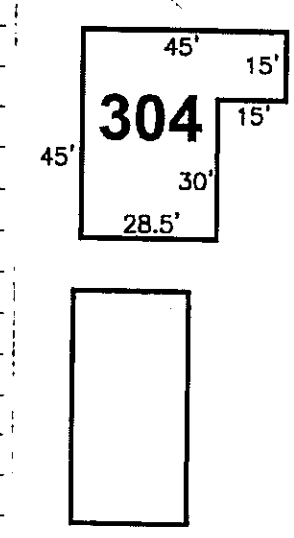
Identify all potential indoor sources as detected by the ppbRAE located on the first floor and basement levels, the location of the sources. Provide a brief description of source and the two PID responses obtained from the initial and follow-up screenings.

Location Number	Location	Brief Description	ppbRAE Response (initial screening)	ppbRAE Response (follow-up screening)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				

MGP Site:

Building Characteristics to be Determined Before Finalization of Work Plan — Form 1

Building Identification					
Ownership					
Age of Building	2 YR REMOD				
Number of Floors (Yes/No)	1				
Number of Elevators (Yes/No)	NO				
First Floor Footprint Dimensions (L x W in ft)					
Crawl Space Dimensions (L x W x H in ft)	SA 1ST FLOOR				
Basement Footprint Dimensions (L x W in ft)					
Basement Height (ft)	3.5				
Basement Height Above Ground Surface (ft)	2.0				
First Floor Height (ft)	8'				
Basement Floor Type	CONCRETE				
Thickness of Basement Walls (ft)	N/A				
Thickness of Slab (ft)	N/A				
Condition of Slab	GOOD				
Vapor Barrier (Yes/No)	N/A				
Post-Tension Slab (Yes/No)	NO				
Sump Characteristics	NO				
HVAC Characteristics	FORCED AIR				
Information on Doors/Windows	N/A				
Locations of floor drains, sinks, toilets on lowest floor of building	N/A				
As-Built Drawings or Plans Reviewed (Yes/No)	NO				
Exposure Characteristics:					
Building Activities-General					
First Floor Activities					
Basement Activities					
Number of Workers					
Work-week number of days					
Work-day number of hours					



Note: Add additional sheets for relevant comments/information; Locate all buildings on a site map.

INDOOR AIR BUILDING SURVEY FORM PAGE 1 OF 4

Building Address: 504 Church St.

Property Contact: Mr. John Sullivan Owner / Renter / (other:)

Contact's Phone: home ( ) work (217) 819-4611 cell ( )

Building occupants: Children under age 13 X Children age 13-18 X Adults X

How long in this residence? 2 YEARS MAXIMUM

History of wet basement or flooding? No

General Description of Building Construction and Materials: POURED CONCRETE / WOOD FRAME

How many occupied stories does the building have? 3
Does someone sleep in the basement? No

Has the building been weatherized with any of the following? (Circle all that apply)
(Insulation) (Storm Windows) (Energy-Efficient Windows) Other (specify) _____

Approximately how much of the basement is below grade level? 80"
Total wall area: 2045 FT²
Total wall area in contact with soil: 1520 FT²

Basement Floor Description:
POURED CONCRETE GOOD CONDITION

Basement Walls Description:
POURED CONCRETE

Moisture, water, or wet floors or walls observed or sensed: No

Is a basement sump present? (Y/N) 2 Sufficient water for sampling? (Y/N) YES
Sump Construction: 3.5' DIA STEEL SUMPS - APPROX 5 FT DEEP

Does the basement have any observable characteristics that might permit soil vapor entry? (i.e. cracks in concrete, crack at wall/floor, pipe penetrations): No

4' DEEP ELEVATOR SHAFT

Building address: _____
Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 2 OF 4

Heating and Ventilation System(s) Present

What type of heating system(s) are used in this building? (Circle all that apply)

(Hot Air Circulation)	Heat Pump	Stream Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	Other (specify) _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

(Natural Gas)	Electric	Coal	Other (specify) _____
Fuel Oil	Wood	Solar	

What type of mechanical ventilation systems are present in the building? (Circle all that apply)

(Central Air Conditioning)	Mechanical Fans	(Bathroom Ventilation Fan)
Individual Air Conditioning Units	Kitchen Range Hood	Air-to-Air Heat Exchanger
(Open windows)	Other (specify) _____	

Do any occupants of the building smoke? *Yes* / (No) How often? _____

Has anyone smoked within the building within the last 48 hours? *Yes* / (No)

Do the occupants of the building have their clothes dry-cleaned? (Yes) / *No*

When were dry-cleaned clothes last brought into the building? N/A

Have the occupants ever noticed any unusual odors in the building? *Yes* / (No)

Describe (with location): _____

Any known spills of a chemical immediately outside or inside the building? *Yes* / (No)

Describe (with location): _____

Has the building been treated with any insecticides/pesticides? If so, what chemicals are used and how often are they applied? No

Do any of the occupants apply pesticides/herbicides in the yard or garden? If so, what chemicals are used and how often are they applied? TRUEGREEN

Any use of chemicals not listed above? *Yes* / (No)

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 3 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources found on the first floor and basement levels, the location of the sources, and whether the item was removed from the building at least 48 hours prior to indoor air sampling event.

Potential Sources	Location(s)	Removed Prior to Sampling? (Yes / No / NA)
Gasoline storage cans		No
Gas-powered equipment		No
Kerosene storage cans		No
Paints / thinners / strippers		No
Cleaning solvents		No
Oven cleaners		No
Carpet / upholstery cleaners		No
Moth balls		No
Polishes / waxes		No
Insecticides		No
Furniture / floor polish		No
Nail polish / polish remover		No
Hairspray		No
Cologne / perfume		No
Air fresheners		No
Hobbies - glues, paints, etc.		No
Fireplace		NA
Wood stove or kerosene burner		NA
New furniture / upholstery		NA
New carpeting / flooring		NA
Recent painting in building?		NA
Medical Equipment		NA

INDOOR AIR BUILDING SURVEY FORM PAGE 4 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources as detected by the ppbRAE located on the first floor and basement levels, the location of the sources. Provide a brief description of source and the two PID responses obtained from the initial and follow-up screenings.

Location Number	Location	Brief Description	ppbRAE Response (initial screening)	ppbRAE Response (follow-up screening)
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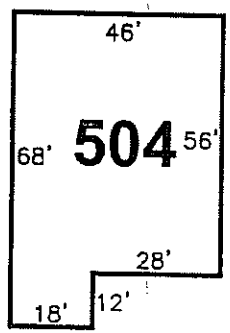
ATGP Site

Building Characteristics to be Determined Before Finalization of Work Plan — Form 1

Building Identification					
Ownership					
Age of Building	50				
Number of Floors (Yes/No)	3				
Number of Elevators (Yes/No)	YES				
First Floor Footprint Dimensions (L x W in ft)					
Crawl Space Dimensions (L x W x H in ft)					
Basement Footprint Dimensions (L x W in ft)					
Basement Height (ft)	109"				
Basement Height Above Ground Surface (ft)	2'				
First Floor Height (ft)	8'				
Basement Floor Type	POURED CONC.				
Thickness of Basement Walls (ft)	N/A				
Thickness of Slab (ft)	N/A				
Condition of Slab	GOOD				
Vapor Barrier (Yes/No)	N/A				
Post-Tension Slab (Yes/No)	N/A				
Sump Characteristics	2 - RUNNING				
HVAC Characteristics	FORCED AIR				
Information on Doors/Windows	N/A				
Locations of floor drains, sinks, toilets on lowest floor of building	N/A				
As-Built Drawings or Plans Reviewed (Yes/No)	NO				
Exposure Characteristics:					
Building Activities-General					
First Floor Activities					
Basement Activities					
Number of Workers					
Work-week number of days					
Work-day number of hours					



Note: Add additional sheets for relevant comments/information; Locate all buildings on a site map.

INDOOR AIR BUILDING SURVEY FORM PAGE 1 OF 4

Building Address: 506 Church St.

Property Contact: Mr. John Sullivan Owner / Renter / (other:) _____

Contact's Phone: home ( ) _____ work (217) 819-4611 cell ( ) _____

Building occupants: Children under age 13 X Children age 13-18 X Adults X

How long in this residence? Maximum 2 Years

History of wet basement or flooding? No

General Description of Building Construction and Materials:
Concrete Block and Poured Concrete / Wood Frame

How many occupied stories does the building have? 4
Does someone sleep in the basement? No

Has the building been weatherized with any of the following? (Circle all that apply)
(Insulation) (Storm Windows) (Energy-Efficient Windows) Other (specify) _____

Approximately how much of the basement is below grade level? 6'
Total wall area: 1560 FT2
Total wall area in contact with soil: 1170 FT2

Basement Floor Description:
Concrete Block (216') Poured Concrete
Poured Concrete (66')

Basement Walls Description:

Moisture, water, or wet floors or walls observed or sensed: No

Is a basement sump present? (Y/N) YES Sufficient water for sampling? (Y/N) YES
Sump Construction: Plastic Tub

Does the basement have any observable characteristics that might permit soil vapor entry? (i.e. cracks in concrete, crack at wall/floor, pipe penetrations):
No

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 2 OF 4

Heating and Ventilation System(s) Present

What type of heating system(s) are used in this building? (Circle all that apply)

(Hot Air Circulation)	Heat Pump	Stream Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	Other (specify) _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

(Natural Gas)	Electric	Coal	Other (specify) _____
Fuel Oil	Wood	Solar	

What type of mechanical ventilation systems are present in the building? (Circle all that apply)

(Central Air Conditioning)	Mechanical Fans	Bathroom Ventilation Fan
Individual Air Conditioning Units	(Kitchen Range Hood)	Air-to-Air Heat Exchanger
(Open windows)	Other (specify) _____	

Do any occupants of the building smoke? *Yes* / (No) How often? _____

Has anyone smoked within the building within the last 48 hours? *Yes* / (No)

Do the occupants of the building have their clothes dry-cleaned? (Yes) / *No*

When were dry-cleaned clothes last brought into the building? N/A

Have the occupants ever noticed any unusual odors in the building? *Yes* / (No)

Describe (with location): _____

Any known spills of a chemical immediately outside or inside the building? *Yes* / (No)

Describe (with location): _____

Has the building been treated with any insecticides/pesticides? If so, what chemicals are used and how often are they applied? No

Do any of the occupants apply pesticides/herbicides in the yard or garden? If so, what chemicals are used and how often are they applied? TRUE GREEN

Any use of chemicals not listed above? *Yes* / (No)

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 3 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources found on the first floor and basement levels, the location of the sources, and whether the item was removed from the building at least 48 hours prior to indoor air sampling event.

Potential Sources	Location(s)	Removed Prior to Sampling? (Yes / No / NA)
Gasoline storage cans		No
Gas-powered equipment		No
Kerosene storage cans		No
Paints / thinners / strippers	BASEMENT	YES
Cleaning solvents	"	YES
Oven cleaners	KITCHEN	YES
Carpet / upholstery cleaners	"	YES
Moth balls		NO
Polishes / waxes	KITCHEN	YES
Insecticides		NO
Furniture / floor polish	KITCHEN	YES
Nail polish / polish remover	BATHROOM	YES
Hairspray	"	YES
Cologne / perfume	BEDROOM / BATHROOM	YES
Air fresheners	KITCHEN	YES
Hobbies - glues, paints, etc.	BASEMENT	YES
Fireplace		NA
Wood stove or kerosene burner		NA
New furniture / upholstery		NA
New carpeting / flooring		NA
Recent painting in building?		NA
Medical Equipment		NA

INDOOR AIR BUILDING SURVEY FORM PAGE 4 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources as detected by the ppbRAE located on the first floor and basement levels, the location of the sources. Provide a brief description of source and the two PID responses obtained from the initial and follow-up screenings.

Location Number	Location	Brief Description	ppbRAE Response (initial screening)	ppbRAE Response (follow-up screening)
1				
2				
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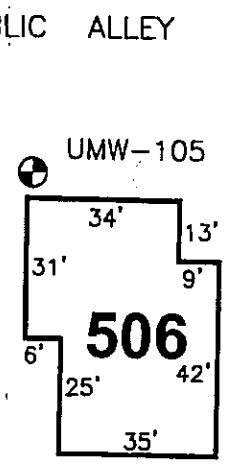
MGP Site:

Building Characteristics to be Determined Before Finalization of Work Plan					Form 1
Building Identification					
Ownership					
Age of Building	5				
Number of Floors (Yes/No)	4				
Number of Elevators (Yes/No)	No				
First Floor Footprint Dimensions (L x W in ft)					
Crawl Space Dimensions (L x W x H in ft)					
Basement Footprint Dimensions (L x W in ft)					
Basement Height (ft)	92"				
Basement Height Above Ground Surface (ft)	2'				
First Floor Height (ft)	8'				
Basement Floor Type	Block + Poured concrete				
Thickness of Basement Walls (ft)	N/A				
Thickness of Slab (ft)	N/A				
Condition of Slab	Good				
Vapor Barrier (Yes/No)	N/A				
Post-Tension Slab (Yes/No)	N/A				
Sump Characteristics	Some Water				
HVAC Characteristics	Forced Air				
Information on Doors/Windows	Good				
Locations of floor drains, sinks, toilets on lowest floor of building	N/A				
As-Built Drawings or Plans Reviewed (Yes/No)	NO				
Exposure Characteristics:					
Building Activities-General					
First Floor Activities					
Basement Activities					
Number of Workers					
Work-week number of days					
Work-day number of hours					



Note: Add additional sheets for relevant comments/information; Locate all buildings on a site map.

INDOOR AIR BUILDING SURVEY FORM PAGE 1 OF 4

Building Address: 508 CHURCH ST.

Property Contact: MR JOHN SULLIVAN Owner / Renter / other: _____

Contact's Phone: home ( ) _____ work (217) 819-4611 cell ( ) _____

Building occupants: Children under age 13 X Children age 13-18 X Adults X

How long in this residence? 2 YEARS MAXIMUM

History of wet basement or flooding?
ONE CORNER @ BOTTOM OF STEPS - MINOR

General Description of Building Construction and Materials:
POURED CONCRETE / WOOD FRAME

How many occupied stories does the building have? 3
Does someone sleep in the basement? NO

~~Has the building been weatherized~~ with any of the following? (Circle all that apply)
Insulation Storm Windows Energy-Efficient Windows Other (specify) _____

Approximately how much of the basement is below grade level? 70"
Total wall area: 1480 FT²
Total wall area in contact with soil: 1080 FT²

Basement Floor Description:
POURED CONCRETE

Basement Walls Description:
POURED CONCRETE

Moisture, water, or wet floors or walls observed or sensed: ONE CORNER WALL

Is a basement sump present? (Y/N) 1 Sufficient water for sampling? (Y/N) YES
Sump Construction: PLASTIC TUB

Does the basement have any observable characteristics that might permit soil vapor entry? (i.e. cracks in concrete, crack at wall/floor, pipe penetrations): NO

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 2 OF 4

Heating and Ventilation System(s) Present

What type of heating system(s) are used in this building? (Circle all that apply)

(Hot Air Circulation)	Heat Pump	Stream Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	Other (specify) _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

(Natural Gas)	Electric	Coal	Other (specify) _____
Fuel Oil	Wood	Solar	

What type of mechanical ventilation systems are present in the building? (Circle all that apply)

(Central Air Conditioning)	Mechanical Fans	Bathroom Ventilation Fan
Individual Air Conditioning Units	(Kitchen Range Hood)	Air-to-Air Heat Exchanger
(Open windows)	Other (specify) _____	

Do any occupants of the building smoke? *Yes* / (No) How often? _____

Has anyone smoked within the building within the last 48 hours? *Yes* / (No)

Do the occupants of the building have their clothes dry-cleaned? (Yes) / *No*

When were dry-cleaned clothes last brought into the building? N/A

Have the occupants ever noticed any unusual odors in the building? *Yes* / (No)

Describe (with location): _____

Any known spills of a chemical immediately outside or inside the building? *Yes* / (No)

Describe (with location): _____

Has the building been treated with any insecticides/pesticides? If so, what chemicals are used and how often are they applied? NO

Do any of the occupants apply pesticides/herbicides in the yard or garden? If so, what chemicals are used and how often are they applied? TRUEGREEN

Any use of chemicals not listed above? *Yes* / (No)

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 3 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources found on the first floor and basement levels, the location of the sources, and whether the item was removed from the building at least 48 hours prior to indoor air sampling event.

Potential Sources	Location(s)	Removed Prior to Sampling? (Yes / No / NA)
Gasoline storage cans		No
Gas-powered equipment		No
Kerosene storage cans		No
Paints / thinners / strippers		No
Cleaning solvents	BASEMENT	YES
Oven cleaners	KITCHEN	YES
Carpet / upholstery cleaners	KITCHEN	YES
Moth balls		NO
Polishes / waxes	KITCHEN	YES
Insecticides		No
Furniture / floor polish	KITCHEN	YES
Nail polish / polish remover	BATHROOM	YES
Hairspray	BATHROOM	YES
Cologne / perfume	BEDROOM	YES
Air fresheners	KITCHEN	YES
Hobbies - glues, paints, etc.		NO
Fireplace		NA
Wood stove or kerosene burner		NA
New furniture / upholstery		NA
New carpeting / flooring		NA
Recent painting in building?		NA
Medical Equipment		NA

INDOOR AIR BUILDING SURVEY FORM PAGE 4 OF 4

Indoor Contaminant Sources

Identify all potential indoor sources as detected by the ppbRAE located on the first floor and basement levels, the location of the sources. Provide a brief description of source and the two PID responses obtained from the initial and follow-up screenings.

Location Number	Location	Brief Description	ppbRAE Response (initial screening)	ppbRAE Response (follow-up screening)
1				
2				
3				
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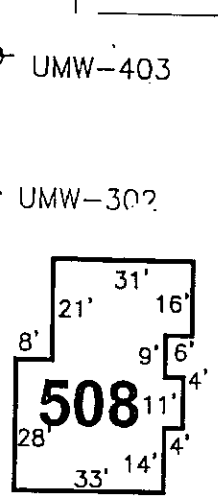
MGP Site:

Building Characteristics to be Determined Before Finalization of Work Plan — Form II

Building Identification					
Ownership					
Age of Building	5				
Number of Floors (Yes/No)	3				
Number of Elevators (Yes/No)	No				
First Floor Footprint Dimensions (L x W in ft)					
Crawl Space Dimensions (L x W x H in ft)					
Basement Footprint Dimensions (L x W in ft)					
Basement Height (ft)	90"				
Basement Height Above Ground Surface (ft)	20"				
First Floor Height (ft)	8'				
Basement Floor Type	Poured Conc.				
Thickness of Basement Walls (ft)	N/A				
Thickness of Slab (ft)	N/A				
Condition of Slab	Good				
Vapor Barrier (Yes/No)	N/A				
Post-Tension Slab (Yes/No)	N/A				
Sump Characteristics	Some Water				
HVAC Characteristics	Forced Air				
Information on Doors/Windows	Good				
Locations of floor drains, sinks, toilets on lowest floor of building	N/A				
As-Built Drawings or Plans Reviewed (Yes/No)	NO				
Exposure Characteristics:					
Building Activities-General					
First Floor Activities					
Basement Activities					
Number of Workers					
Work-week number of days					
Work-day number of hours					



Note: Add additional sheets for relevant comments/information; Locate all buildings on a site map.

Appendix B
Site Health & Safety Plan

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENTS

I have been informed and fully understand the procedures set forth in the Health and Safety Plan and all amendments and appendices for the Ameren/Champaign Women's Shelter Site.

Name (printed)	Name (signature)	Date
Kendall Pickett		12/1/09
Keith Klenn		12/1/09
Cory A Johnson		12/1/09
Kendall Pickett		12/2/09
Cory A Johnson		12/2/09
Keith Klenn		12/2/09

FORMER AMEREN MANUFACTURED GAS PLANT SITE
HEALTH AND SAFETY PLAN
GANNETT FLEMING, INC.

SITE NAME	Ameren - Champaign	**PROJECT #**	50067
ADDRESS	308 N. 5th Street	**PROJECT CONTACT**	Kendall Pickett (Houston Office)
CITY, STATE	Champaign, Illinois	**PM PHONE**	(713) 784-5151
VERSION NO.	1	**CLIENT CONTACT**	Brian Martin
DATE	October 6, 2008	**CLIENT PHONE**	(314) 554-2233
PREPARED BY	Erin Beares	**SIGNATURE**	
APPROVED BY	Chris Ralston	**SIGNATURE**	
REVIEWED BY	Rob Scrafford	**SIGNATURE**	

1 SITE BACKGROUND AND DESCRIPTION

The former Champaign and Urbana Gas Light Company and subsequently AmerenIP, operated a manufactured gas plant on this site from approximately 1869 to the 1930's. The plant was then on standby status from the 1930's through the 1950's and was used to meet peak demands. The site was vacant and unused from 1960 until 1979 when the property was sold to American Legion Post 559 as a meeting house. The property was then repurchased by AmerenIP in 1991 and has since remained vacant.

The site consists of a vacant flat area secured by a chain-link fence. There are residential properties to the north, south and west and commercial properties to the east.

1.1 SITE TYPE

	Active		Agricultural		Recreational
X	Inactive	X	Commercial		Natural Area
X	Secure	X	Residential		Unknown
	Unsecured	X	Industrial		Other
	Landfill		Military		

1.2 SURROUNDING POPULATION

X	Industrial	X	Residential
	Urban		Rural

1.3 SITE TOPOGRAPHY

This site consists of flat topography.

1.4 ANTICIPATED WEATHER CONDITIONS

The predicted weather is fall temperatures and a possibility of rain showers.

2 DESCRIPTION OF ON-SITE ACTIVITIES

	Soil sampling		Well gauging
	Lagoon/pond sampling		Well sampling
	Drum sampling		Tank sampling

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

X	Oversight of drill crew		Asbestos sampling
	Site walk		On-site meeting
	Tank removal oversight		Air monitoring
	Groundwater sampling		Product removal from specified wells
X	Geoprobe® Soil Borings		Monitoring Well Installation
	Sump gauging	X	Soil Vapor Sampling

2.1 SPECIFIC WORK TASKS

1. Installation of eight soil borings using Geoprobe.
2. Sample soil vapor using Geoprobe post-run tubing.

2.2 SUBCONTRACTOR TASKS

Geoprobe drilling will be performed by a subcontractor, yet to be determined.

3 ON-SITE ORGANIZATION AND COORDINATION

The following personnel are designated to carry out the stated job functions on-site.

GF Project Manager/Contact:	Kendall Pickett
GF Safety Manager:	Sid Curran
Site Safety and Health Supervisor (SSHS):	Keith Klemm
Field Team Leader (FTL):	Keith Klemm
Field Team Members:	Keith Klemm, Kendall Pickett
Contractor Personnel:	TBD
Regulators/Client:	Ameren Services

All personnel arriving or departing from the site should log in and out with the SSHS. All activities on-site must be approved by the Gannett Fleming, Inc. Project Manager. The SSHS will maintain a site log.

3.1 TRAINING AND MEDICAL SURVEILLANCE

All onsite personnel must meet the requirements of OSHA 29CFR 1910.120 (f) prior to entry into the exclusion zone. Documentation of each employee's health monitoring records is the responsibility of their employer. Employees must be able to produce copies of their training records, if asked to do so.

4 ON-SITE CONTROL

N/A

5 HAZARD ASSESSMENT

5.1 Hazard evaluation

X	Slip/trip/fall	X	Chemical		Heat stress
	Open trenches (small for piping)		Radiation	X	Overhead utilities
	Confined spaces		Flammable atmospheres		Cold stress
	Work around vacuum tank and hoses		Asbestos	X	Machinery

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

	Floor openings		Ladders	X	Buried utilities
X	Vehicle traffic		Gas cylinders		Poisonous plants
	Entry into excavation		Insects		

**Note this list is not inclusive of all hazards, which may be encountered.

5.2 On-site hazards

The substance(s) in Table 1 (attached) are known or suspected to be on-site. The primary hazards of each are identified.

6 PERSONAL PROTECTIVE EQUIPMENT AND SAFETY PROCEDURES

6.1 Personal Protective Equipment

The following designated items will be the minimum protection required while in the exclusion zone. Specific activities may require modification to this list.

ANTICIPATED LEVEL OF PROTECTION: B___ C___ D_X

JUSTIFICATION: Level D protection is anticipated based on the open atmosphere. Upgrades would be based on air monitoring results or field observations.

LEVEL B WILL INCLUDE: (Check all that apply)
COVERALL: Saranex___ Polytyvek___ Tyvek
GLOVES: Latex___ Nitrile___ Silver Shields___ Butyl___ Other
BOOTS: Steel Toe___ Latex Booties___ Robars___ Other
SUPPLIED AIR: SCBA___ Airlines
SPLASH APRON: Acid___ Other/Type:___/
OTHER EQUIPMENT: Hardhat___ Flash Light___ Radio___ Life Jacket___ Car Phone Earplugs

ACTIVITIES TO BE PERFORMED IN LEVEL B: (Please List)
Not anticipated.

LEVEL C WILL INCLUDE: (Check all that apply)
COVERALL: Saranex___ Polytyvek___ Tyvek
GLOVES: Latex___ Nitrile___ Silver Shields___ Butyl___ Other
BOOTS: Steel Toe___ Latex Booties___ Robars___ Other
FULL FACE RESPIRATOR: Positive Pressure___ Negative Pressure
CARTRIDGES: GMC-P100___ Other/Type___/_____ Escape Pack:
OTHER EQUIPMENT: Hardhat___ Flash Light___ Radio___ Life Jacket___ Car Phone Earplugs

ACTIVITIES TO BE PERFORMED IN LEVEL C: (Please List)
Not anticipated.

LEVEL D WILL INCLUDE: (Check all that apply)
COVERALL: Tyvek___ Cotton___ Other
GLOVES: Latex___ Nitrile_X_ Cotton___ Other (leather/work)
BOOTS: Steel Toe_X_ Latex Booties___ Robars___ Other_____
OTHER EQUIPMENT: Hardhat_X_ (if an overhead hazard is present) Safety Glasses_X_ Flash Light___ Radio___ Cell Phone_X_ Earplugs _X_ Safety Vest _X_

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

ACTIVITIES TO BE PERFORMED IN LEVEL D; (Please List)

1. Soil vapor sampling
2. Installation of soil borings

AIR MONITORING: (Check all that apply)
___ FID _X_ PID ___CGI___ DRAGER PUMP (LIST TUBES)_____RADIATION METER____
LOW-VOLUME PUMP___ HI-VOLUME PUMP___OTHERS
(LIST)_____

6.2 Safety Procedures

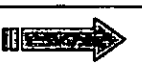
- Eating, drinking, chewing gum or tobacco, smoking, or any practice which increases the potential of hand-to-mouth transfer of dangerous material is **PROHIBITED**.
- Any facial hair that interferes with a satisfactory fit of respiratory protective devices to the face is **PROHIBITED**.
- All joins between the protective suit and gloves, boots, respirator and zipper must be taped with duct tape when working near the machinery.
- An eye station will be located in the staging area.

7 COMMUNICATION PROCEDURES

Hand signals will be agreed upon during the tailgate safety meeting prior to commencement of activities each day. Cell phones will be available for emergency use. Personnel should remain within sight of the Field Team Leader.

Thee short blasts of the vehicle horn is the emergency signal to indicate that all personnel should leave the area and convene at the location designated by the Field Team Leader.

The following standard hand signals will be used in case of failure of radio communications.

Hand gripping throat		Out of air; can't breathe
Grip partner's wrist or both hands around waist		Leave area immediately
Hands on top of head		Need assistance
Thumbs up		OK; I am alright; I understand
Thumbs down		No; negative

Telephone communication to the Command Post should be established as soon as practicable.

8 DECONTAMINATION PROCEDURES

8.1 Personnel Decontamination

All boots and other potentially contaminated garments that have, or may have, contacted contaminated materials will be cleaned with detergent/water solution and rinsed with water in wash tubs. The wash water, rinse water, and residues will be collected and properly stored until sampling results are received and final disposition of the waste can be determined. Disposable PPE will be

properly bagged and disposed of. All contaminated boots, clothing, and equipment that cannot be decontaminated will be disposed of with the disposable garments.

8.2 Sampling Equipment Decontamination

Sampling equipment will be decontaminated in the field using buckets, brushes, alconox, water and isopropyl alcohol.

8.3 Heavy Equipment Decontamination

Geoprobe rods will be decontaminated between sampling locations using buckets, brushes, alconox, and water.

8.4 Emergency Decontamination

Emergency decontamination will be conducted in the same manner as described above, when possible.

8.5 Decontamination Equipment

The following decontamination equipment is required:

X	Buckets	X	Decontamination pad
X	Brushes		Water hoses
X	Tubs		Disposal drums
	Steam cleaner	X	Cleaning solution
	Other	X	Water

9 SITE SAFETY AND HEALTH PROCEDURES

9.1 Environmental Monitoring

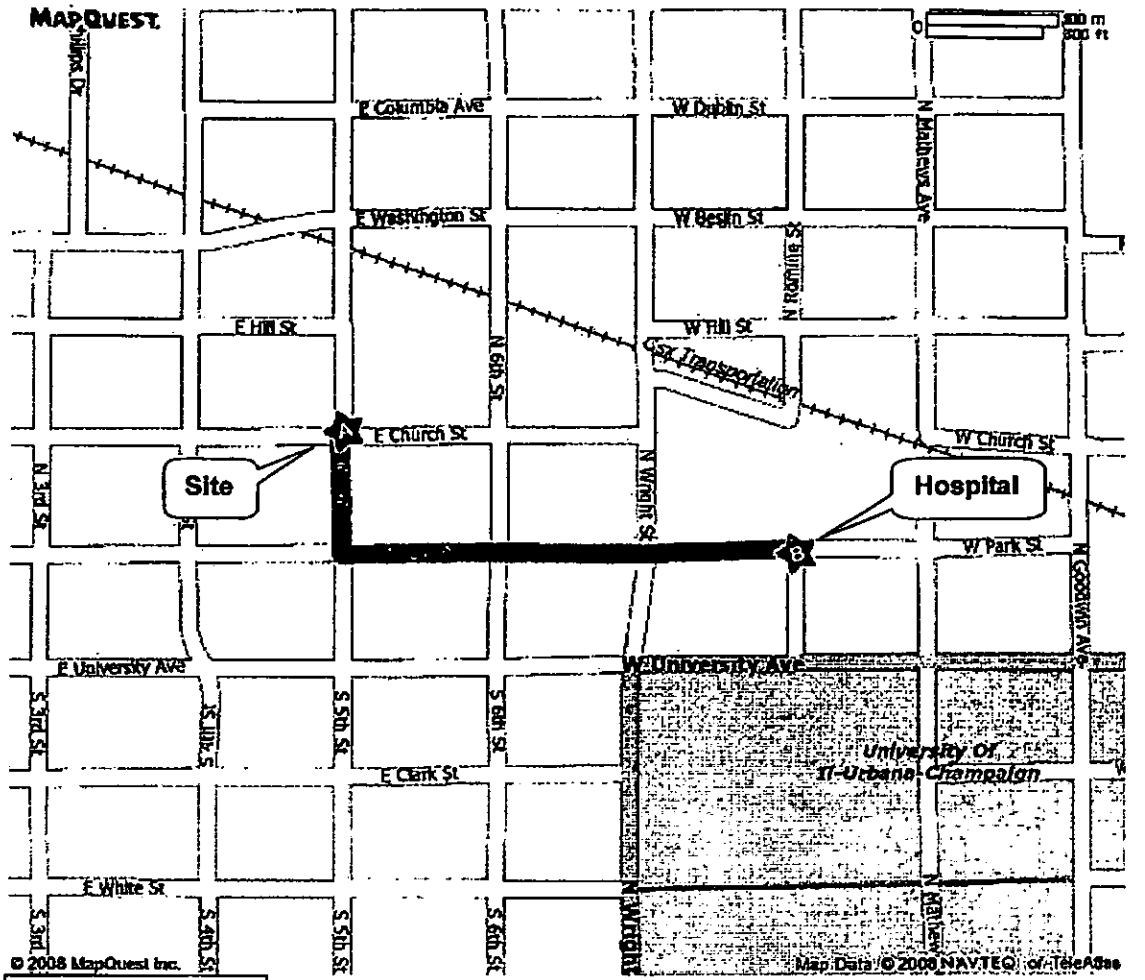
See Table 2 (attached) for the specified intervals and action levels for the PID to be used on site.

The following activities will be performed:

- Recharge each instrument at the end of each day.
- Record all reading in the site logbook.
- If an instrument fails to work, it must be repaired or replaced before work requiring its use can continue.
- Instrument readings above the action level require evacuation,reevaluation, and consultation with the Gannett Fleming, Inc. Health and Safety Manager for PPE upgrade.
- Dusty conditions may warrant upgrade in PPE. Consult with the Gannett Fleming, Inc. Health and Safety Manager if dusty conditions exist.

9.2 Emergency Medical Care

HOSPITAL: Provena Covenant Medical Center
1400 W. Park Street
Urbana, IL 61801



Source: MapQuest

DIRECTIONS TO HOSPITAL:

1. Start at 308 N 5th St going toward E Church St
2. Turn left on E Park St – go 0.3 miles
3. Arrive at 1400 W Park St on left

APPROXIMATE DISTANCE: 0.34 Miles

APPROXIMATE TRAVEL TIME: 1 Minute

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

m:\clerical\goforms\shortfor.wpd

FIRE DEPARTMENT: 911

POLICE DEPARTMENT: 911

AMBULANCE 911

FIRST AID KIT AVAILABLE AT Field vehicle

EYE WASH STATION AVAILABLE AT Field vehicle

GANNETT FLEMING TELEPHONE NO. (410) 585-1460 Baltimore Office
Sid Curran, Health and Safety Manager
(717) 763-7211 Harrisburg Office (Headquarters)
Thomas Gingrich, Regional Health & Safety Officer

9.3 Fire and Rescue Equipment

Fire extinguishers are located inside the wash building located immediately adjacent to the site. In addition, the Field Team Lead should have a fire extinguisher in the car.

First aid equipment is available on-site as follows:
First aid kit: In field vehicle and in wash building
Emergency eye wash: In field vehicle
Emergency shower: N/A

I have read and I understand the safety guidelines presented in this plan. I further understand that each contractor performing work on this site is solely responsible for the health and safety of their workers.

NAME (signature)	NAME (print)
[signature]	Keith Klemm

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

Table 1. Chemicals of Concern

Contaminant	Chemical / Physical Properties	Incompat-ibilities	Threshold Limit Value/ Permissible Exposure Limit	Immediately Dangerous to Life & Health	Route	Exposure Symptoms	First Aid
Benzene	MW: 78.1 BP: 176°F Fl.P: 12°F Sol: 0.07% VP: 75 mmHg	Strong Oxidizers, many fluorides & perchlorates nitric acid	0.1 ppm	500 ppm	Inhalation Ingestion Contact Skin absorption	Irritated eyes, skin, nose Dizziness, nausea Lassitude, Dermatitis, bone marrow depression	Eye: Immediately wash eyes with water Skin: Wash with soap and water immediately Inhalation: Move to fresh air, medical attention ASAP Swallow: Immediate medical attention
Ethyl benzene	MW: 106.2 BP: 62°F Fl.P: 55°F Sol: 0.01% VP: 7 mmHg	Strong Oxidizers	100 ppm	800 ppm	Inhalation, Ingestion, Contact	Irritated eyes, skin; Headache, dermatitis, narcosis	Eye: Immediately wash eyes with water Skin: Flush with water promptly Inhalation: Move to fresh air, medical attention ASAP Swallow: Immediate medical attention
Xylene	MW: 106.2 BP: 292°F Fl.P: 90°F Sol: 0.02% VP: 7 mmHG	Strong oxidizers, strong acids	100 ppm	900 ppm	Inhalation, Absorption, Ingestion, Contact	Irritated eyes, skin, nose throat; dizziness, excitement, drowsiness, nausea, vomiting, abdominal pain	Eye: Immediately wash eyes with water Skin: Wash skin with soap and water immediately Inhalation: Move to fresh air, medical attention immediately Swallow: Medical attention immediately
Toluene	MW: 92.1 BP: 232°F Fl.P: 40°F Sol: 0.07% VP: 21 mmHG	Strong Oxidizers	100 ppm	500 ppm	Inhalation, Absorption, Ingestion, Contact	Irritated eyes, skin, nose, coughing, dizziness, headache, Lassitude, dilated pupils, liver and kidney damage	Eye: Immediately wash eyes with water Skin: Flush with water immediately Inhalation: Move to fresh air, medical attention ASAP Swallow: Medical attention immediately

*Numerous PAH's have also been identified to exist at this site, including Benzo(a)pyrene in concentrations ranging from 10 mg/kg to 7700 mg/kg. Proper PPE, including gloves and safety glasses will be worn at all times during the short periods when exposure to these compounds is possible.

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

Table 2

AIR MONITORING ACTION LEVELS

Monitoring Equipment	Ambient Reading	Action
FID/PID*	Background	Level D
	1 - 5 units/ppm	Level C
	5-500 units/ppm	Level B
	>500 units/ppm	Exit area, consult health and safety coordinator.
		Note: Action levels based on sustained reading in breathing zone.

*Action levels provided as guidelines. Compound specific action levels may be lower or higher based on the TLV for the compound. Where unknown concentrations of organic vapors may be present caution is advised. Level B may be required until ambient concentrations are determined.

CHANGES AND/OR DEVIATIONS FROM THIS PLAN REQUIRE A SAFETY PLAN AMENDMENT

EFFECTS OF HEAT EXPOSURE

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting from protective clothing decreasing natural ventilation of the body. Heat stress can occur even when temperatures are considered moderate. One or more of the following recommendations will help reduce heat stress:

- Provide plenty of liquids. Drink plenty of water or commercial drink mixes along with more heavily salted foods (unless on a low salt diet) to replace body fluids (water and electrolytes) lost due to sweating. To prevent dehydration, response personnel should be encouraged to drink generous amounts of water even if not thirsty. Heat-related problems can happen before the sensation of thirst occurs.
- Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker fatigue. Long cotton underwear or similar type garments act as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing chemical protective clothing. It should be the minimum undergarment worn.
- Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
- Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, and that a shaded resting area is provided on sunny days. On hot days, air conditioned rest areas should be provided.
- In hot weather, rotate teams of workers wearing protective clothing or performing extremely arduous tasks. In extremely hot weather, conduct non-emergency response operations in the early morning or evening.
- Response personnel should be encouraged to maintain their physical fitness. Physically fit personnel are less prone to stress-related problems.
- Liquids which act as diuretics (such as alcohol and coffee) should be avoided or their intake minimized before anticipated operation. These can contribute to dehydration and subsequent heat-related problems.

HEAT STRESS MONITORING

For monitoring the body's recuperative ability to handle excess heat, one or more of the following techniques should be used as a screening technique. Monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70°F or above. Frequency of monitoring should increase as the ambient temperature increases or if slow recovery rates are indicated. When temperatures exceed 80°F, workers must be monitored for heat stress after every work period.

- Heart rate (HR) should be measured by counting the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33 percent), while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33 percent.
- Body temperature should be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99°F. If it does, the next work period should be shortened by 10 minutes (or 33 percent), while the length of the rest period stays the same. However, if the OT

exceeds 99.7°F at the beginning of the next period, the following work cycle should be further shortened by 33 percent. OT should be measured again at the end of the rest period to make sure that it has dropped below 99°F.

- Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing worn should be similar at both weighing; preferably the worker should be nude. The scale should be accurate to plus or minus □ pounds. BWL should not exceed 1.5 percent of the total body weight. If it does, workers should be instructed to increase their daily intake of fluids to replace the water lost through perspiration. Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in sweat as well.

Good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

EFFECT OF HEAT STRESS

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to fatal. Standard reference books should be consulted for specific first aid treatment. Medical help must be obtained for the more serious conditions.

Heat-related problems are:

- Heat Rash: caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.
- Heat Cramps: caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.
- Heat Exhaustion: caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
- Heat Stroke: the most severe form of heat stress. Can be fatal. Medical help must be obtained immediately. Body must be cooled immediately to prevent severe injury and/or death. Signs: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

USEPA STANDARD OPERATING SAFETY GUIDES, Office of Emergency and Remedial Response, Emergency Response Division, July 1988.

USEPA STANDARD OPERATING SAFETY GUIDES, Office of Emergency and Remedial Response, Emergency Response Division, July 1988.

Appendix C
Photographs

PHOTO 1: View of 304-W location on west side of 304 North 5th Street building with Geoprobe rod in ground at sampling depth.

PHOTO 2: View of 304 North 5th Street northeast corner looking southwest from alley. 304-N sampling location to right of building about mid-way along north side. North 5th Street is visible in background.

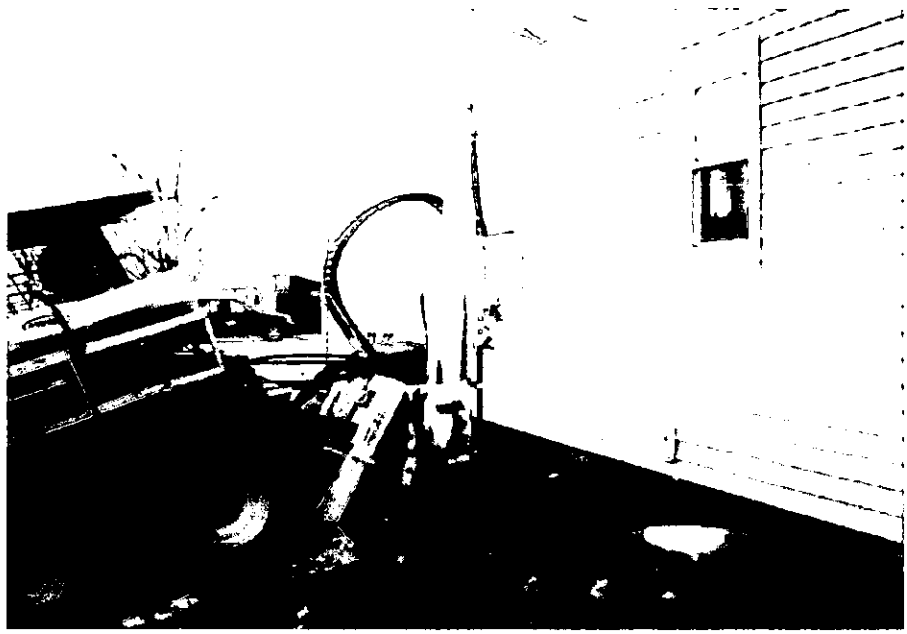


PHOTO 3: View of 304-N location on north side of 304 North 5th Street building with Geoprobe advancing rod in ground.

PHOTO 4: View of sampling at 304-N location through flow controller into 1-liter stainless steel Summa canister. Note paper towels saturated with computer duster spray containing difluoroethane (leak detector compound) wrapped around Geoprobe rod near ground surface and top of rod. Note hydrated bentonite seal at base of rod.

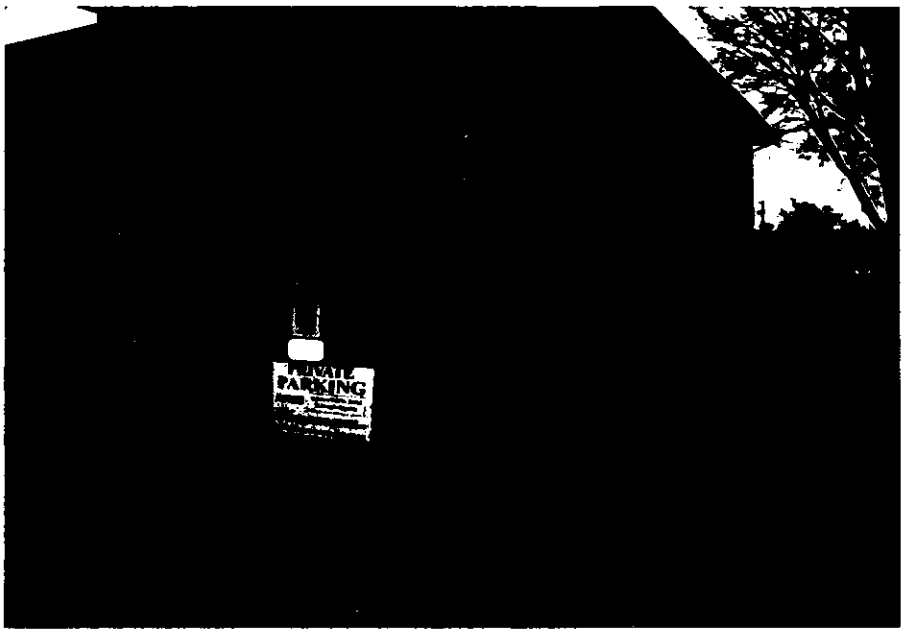


PHOTO 5: View of northwest corner of 504 Church Street building looking southeast. 304-E sampling location was just a few feet in front of building corner.

PHOTO 6: View of north side of 504 Church Street building looking southwest. 504-N sampling location was in grass in front of the three windows. Note west side of 304 North 5th Street building is in background on right side of photo.

PHOTO 7: View to southwest along north side of 506 Church Street building. 506-N sampling location was in grass between windows.

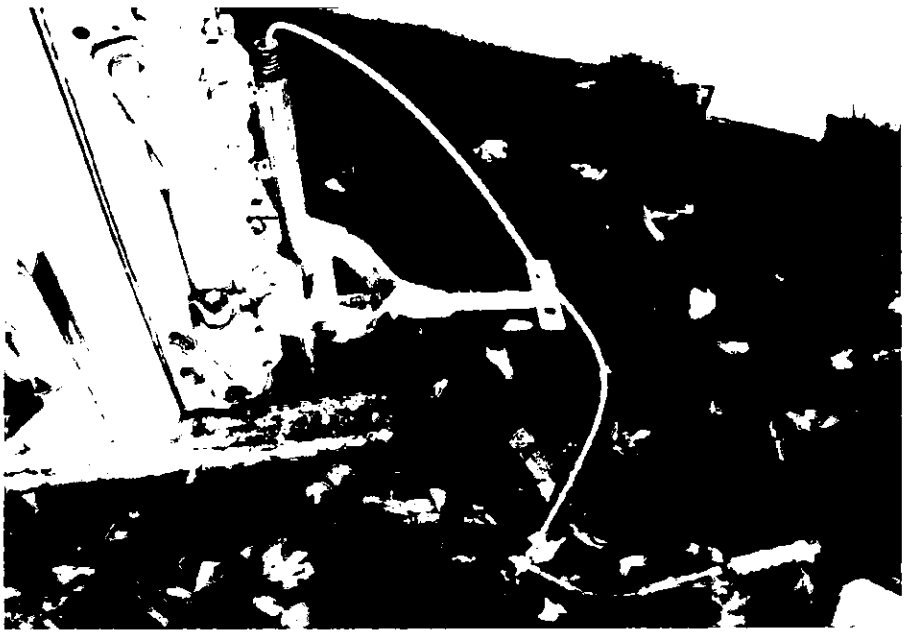


PHOTO 8: View of 506-N attempted but failed sampling location on 12/1/09. Note syringe used for purging. Soils at this sample location depth were too tight to purge or sample.

PHOTO 9: View of hydrated bentonite seal at 506-N failed sampling location.

PHOTO 10: Driller setting up at 506-N sampling location during successful 12/2/09 attempt.

PHOTO 11: View to south along 506 Church Street driveway. 506 Church Street on right; 508 Church Street on left. 506-E sampling location in grass between hose and near corner of building. 506-E-AMB ambient air sample from left side of driveway next to shrubs.

PHOTO 12: View to east along north side of 508 Church Street building (right side of photo). Driller setting up at 508-N sampling location.

PHOTO 13: View of 508-N sampling. Note paper towels saturated with computer duster spray containing difluoroethane (leak detector compound) wrapped around Geoprobe rod near ground surface and top of rod. Note hydrated bentonite seal at base of rod.

PHOTO 14: View south along east side of 508 Church Street. 508-E sample collected in grassy area just beyond vegetable garden left of second window from near corner.

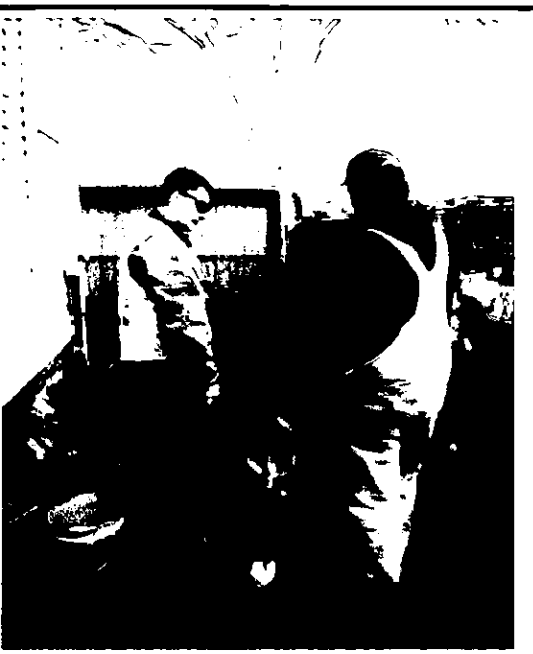


PHOTO 15: View of 508-E sampling location which was installed by hand due to inaccessibility to Geoprobe rig looking north. 508 Church Street building is on left. Note slide hammer set up for removal of rods.

PHOTO 16: View of 506-E-AMB ambient air sampling location east of 506 Church Street and west of 508 Church Street. 508 Church Street building in background.

Appendix D
Field Sampling Forms

2/[illegible]/09 Ameren / Champaign
Women's Shelter

7AM - Arrive on site
- call client Eric Martin
- call Peter Sazama PSC

Checked in at Women's Shelter
office

Checked in with Leslie Hoosier
PSC rep for adj MGP site
remediation ops.

7:20AM - held safety meeting
Cory Johnson - drlr - soil essential
Keith Klemm - GF
Kendall Pickett - RAM GF

Weather
Clear
moderate breeze from South
low to mid 30's
supposed to warm up to
mid 50s

Site locations - 4 residential bldgs
304 N. 5TH St
504 - 508 Church St.

Plan to do soil vapor borings
up to ≈ 8 ft on north, east & west
sides of bldgs with access from
alley on north side of bldgs

7:30AM - Setting up on west
side of 304 N. 5th St.
plan to sample at 5' bgs
depth of basement crawl space
is 2 ft bgs.

304-W
- attached PRT tubing
- pulled up 3-4 inches, + 10' tubing
- 420 ml (3 purge volumes)
- prepare bentonite seal (hydrated)
in ziplock

- place wet bentonite around
rod at ground surface

8:10AM - begin purge vol at ≈ 10 ml/sec
8:15AM end " " at 420 ml
Flow Controller # 6841
8:31:30 begin sampling
8:38:18 stop " at -5.0 inch Hg

12/1/09

Sheet	Depth	Canister #	Vacuum Initial/Final inches Hg	Sample Time Start/Stop	Purge Vol (ml)
304-W	5.0	36534	-29.4/-5.0	P: 31:36/P: 38:38	420ml
304-N	5.0	36497	-25.7/-4.5	9:06:00/9:11:10	435
304-E	7.0	35602	-27.3/-5.0	9:53:19/10:00:02	430
504-N	7.0	21355	-29.0/-5.0	10:51:50/10:57:20	430
504-E	6.0	22961	-26.7/-5.0	12:14:18/12:24:08	1200
508-E	6.5	9448	-28.8/-5.0	15:30:03/15:37:30	430
506-E-AMB	surface	12085	-27.9/-5.0	14:32:53/15:07:45	NA
506-E	4.0	9467	-26.0/-3.5	14:36:50/14:48:00	430
506-E Dup	4.0	9438	-27.1/-3.5	14:36:50/14:48:00	430
12/2/09					
508-N	6.5	34573	-29.0/-5.0	7:32:25/7:39:55	430
506-N	3.0	34135	-27.1/-5.0	8:44:24/8:51:45	1140

8:20 - Setting up on 304-N
5ft - pulled back 4 inches + 12' tubing
435 ml (3x purge vol.)
8:55 begin purging
8:58 end at 435ml
Flow Controller FC00508
9:06:00 begin sampling
9:11:10 end sampling @ -4.5 in Hg

9:10 - Setting up on 304-E
target depth 7' bgs since
haircut at 504 Church St
extend. to 6ft 8in.
7' bgs - pulled back 4 inches + 12' tubing
430 ml purge vol.
9:35 - began purging.
9:39 - end purge at 430ml
heating canisters in Van due to low
Vacuum 23 to 25 in Hg range
9:53:19 begin sampling
10:00:02 end sampling at -5.0 in Hg
FC 00781 Flow Controller

10:20 setting up at 504-N
7' bgs - pull up 4 inches + 12' tubing
430 ml (3X purge vol.)
10:46 begin purge
10:49 end purge at 430 ml
10:51:50 begin sampling
10:57:20 end sampling at -5.0 in Hg

11:15 Setting up at 504-E
7' bgs - pull up 4 inches + 12' tubing
Purge Volume = 430 ml (3X)
Very tight vacuum
Pulled up another 4 inches
adding 350 ml for add'l
void
Still very tight
pulled up another 4 inches
adding another 350 ml
Still tight
pulled tubing to check PRT
opening with probe
11:50 at 6' BGS
Purged 1200 ml
12:14:18 started sampling
12:24:08 finished " at -5.0 in Hg
FC00702 Flow Controller

~~12:25 setting up to take 2~~
12:30 Setting up on 506-N
target 6.5 ft bgs due to
6' basement below grade at
506 Church St
400 Purge Volume (3X)
4 inch pull up + 11.5 ft tubing
Too Tight - pulled up 6 inches
Too Tight - pulled up another 6 inches
1305 moved to east about 5 ft and
pushed new hole to 7 ft bgs
Purge Vol = 430 ml (3X)
Pull up 4 inches - too tight
need add'l 350 ml
pull up 8 inches - too tight
pull up 12 inches - too tight
1320 at 5 ft bgs
need 34 x 60 ml - Too tight
Pulled up 12 inches
1325 at 4 ft bgs
need 50 x 60 ml
1330 moving to next location at
506-E

1330 set up on 506-E
1340 at 7' bgs
pull up 6 inches
too tight
pull up 6 inches
too tight
put up to 5ft
too tight
pull up to 4ft
need 53x60 ml
too tight
1410 moved ≈ 6ft north
4' BGS
pull up 4 inches
430ml purge volume
1420 begin purge
1423 finish purge

set up duplicate and ambient
Canister 12085
FC0071S Flow Controller
27.9 initial vacuum
14:32:53 begin sampling
15:07:45 end sampling at -5.0 in Hg

506 E & Dup
9467 26.0 in Hg (original)
9438 27.1 " (duplicate)
14:36:50 begin sampling
14:48:00 end sampling at -3.5 in Hg

508 E - hand hammered to 6.5' bgs
Pulled up 4 inches - purged 430 ml
FC0023Z
15:30:03 began sampling
15:37:30 end sampling at -5.0 in Hg

1620 506 E Geotech 5-8' bgs
≈ 3ft north of 506 E

1645 304 E Geotech 5-8' bgs
≈ 5ft north of 304-E

1730 Left Site

[illegible] Ameren/Champaign
[illegible] Chelter
7Am [illegible] arrive on site
weather [illegible] low 30's, calm
overcast
forecast to warm to mid 40's
and rain/snow afternoon
7:15 - Safety Meeting
7:20 - set up on 508-N
6.5 ft bgs
430 ml purge (3X)
7:32:25 began sampling
7:39:55 stop sampling at -5.0
? FC00232
7:45 Setting up at 506-N for
another try. 5ft bgs - pulled up 4 inches
FC 00 767 Flow Controller
430ml purge volume (3X)
too tight - pulled up [illegible] inches - add 350ml
too tight - pulled up [illegible] inches - add 350ml
at 4ft bgs
8:10 moved over a few feet.
advanced rods to 4ft bgs
pulled up 4 inches
Too tight - pulled up 4 inches - add 350ml
too tight - pulled up 4 inches - add 350ml

At 3ft bgs
very tight
purged 1140ml
FC00767 Flow Controller
8:44:25 began sampling
8:51:45 end sampling at -5.0 in Hg

9:30 Am - left site for Hartford

Field Forms and Check lists
for
Manufactured Gas Plant Sites

Developed for:

Ameren Services
One Ameren Plaza
1901 Choutean Avenue
P.O. Box 66149, MC 602
St. Louis, MO 63166-6149

Developed by:

Risk Assessment & Management (RAM) Group, Inc.
5433 Westheimer, Suite 725, Houston, TX 77056
Ph: (713) 784-5151
Fax: (713) 784-6105
www.ramgp.com

MGP Site Name:	Champaign Women's Shelter
Ameren:	Brian Martin
Date:	12/1/09 - 12/2/09
Prepared By:	Kendall Pickett
Completed On:	12/3/09

MGP Site:

Table of Contents

MGP Site:

Location of Soil, Soil Vapor, and Geotechnical Data to be Collected — Form 2

Boring Name	P/T	GW Table Range__to__ (ft bgs) / Depths (ft bgs)			TO-15 BTEX	TO-15 Styrene	Acenaphthene	Anthracene	Fluorene	TO-15 Naphthalene	TO-15 Other Chemicals** 1,1-Difluoroethane	Soil Samples	Bio-Indicators***	Geotechnical Samples
					Yes/No									
SB-1*	P	3-5	7-9	10-12	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes
304-W	T	5.0			Yes	Yes	No	No	No	Yes	Yes	No	No	No
304-N	T	5.0			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
304-E	T	7.0												Yes ⊛
504-N	T	7.0												No
504-E	T	6.0												↓
508-E	T	6.5												↓
506-E	T	4.0												Yes ⊛
506-EF	T	4.0												No
508-N	T	6.5												↓
506-N	T	3.0			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total Number of Samples					10	10	0	0	0	10	10	0	0	⊛ 2

Notes: P-Permanent sampling probes; *Completed for illustration only; **Provide details in comments section;
T-Temporary sampling probes; ***Bio-indicators (O_2, CO_2, N_2, CH_4 etc.) for evaluation of biodegradation. Provide details in comments; For Geotechnical methods see Form 7.
For PAHs-Use methods in Section 3.4.6.2 in SOP; For VOCs and Naphthalene-Use methods in Section 3.4.6.1 in SOP.

Comments:

⊛ Geotech Samples
304-E taken 3ft north of 304-E soil vapor at depth of 5-8ft bgs
506-E taken 5ft north of 506-E soil vapor at depth of 5-8ft bgs
506-EF is duplicate of 506-E taken at same time using spitter "T" connector
506-E-AMB - Ambient air sample taken at surface in 6-liter Summa Canister about mid-way between 506 & 508 Church St. along east edge of 506 driveway

MGP Site:

Summary of Data Collected — Form 3

Number	Activity	Planned	Lab (F, M, B)	Actual	Lab (F, M, B)
1	Method of Drilling	Geoprobe PRT	NA	Geoprobe PRT *	NA
2	Number of Permanent Probes		NA		NA
3	Number of Temporary Probes		NA		NA
4	Number of Soil Vapor Samples	9 + 1 duplicate	F	9 + 1 duplicate	F
5	Number of Soil Samples				
6	Number of Geo-technical Samples				
7	Number of Bio-indicator Samples				
8	Number of Sub-slab vapor Samples				

Notes: F - Fixed Laboratory; M - Mobile Laboratory; B - Both Fixed and Mobile Laboratories; NA - Not Applicable.

* 508-E collected by hand driving rods to sample depth (no access for Geoprobe)

MGP Site:

Preparation of Subsurface Soil/Sub-slab Vapor Sampling Form 4.1

Pre-Sampling Activities:	Yes	No	N/A
Access from Property Owners/Tenants / Women's Shelter Mgmt	☑	☐	☐
State One-call Contacted by Soil Essential	☑	☐	☐
Subsurface Utilities Marked	☑	☐	☐
Site Drawings/Plans/As-builts Reviewed	☑	☐	☑
Proposed Sample Locations Accessible	☑	☐	☐
Proposed Sample Locations Approved by	☑	☐	☐
• Site Owner	☐	☐	☑
• Tenant	☐	☐	☑
• Client	☑	☐	☐
• Regulatory Agency	☑	☐	☐
• Other Mgmt	✓		

Site visitors included representatives of IEPA, Ameren, PSC, Kelron Environmental

Other Ameren or Site-Specific Requirements:

MGP Site:

Vapor Sampling Analysis and Equipment Checklist — Form 4.2

	Yes	No	N/A
Vapor Laboratory Analysis:			
Mobile Lab	☐	☑	☐
Permanent Lab	☑	☐	☐
RLs ≤ Regulatory Target Levels	☑	☐	☐
Vapor Sampling Equipment:			
Tedlar Bags	☐	☑	☐
Syringes	☑	☐	☐
Tubes and Cartridges	☐	☑	☐
Summa Canisters	☑	☐	☐
Flow Controller	☑	☐	☐
Tubing Type			
• Nylon	☐	☑	☐
• Teflon	☑	☐	☐
• Other			

Leak Test Methods:			
Containment	☐	☑	☐
Helium (Recommended)	☐	☑	☐
2-propanol	☐	☑	☐
Lab Grade of Tracer Gas	☐	☑	☐
Other	✓		

difluoroethane used as leak detector compound

Air Pumps

N/A

Connectors

All fittings were ¼-inch Swagelok (stainless steel)

Note: RL - Laboratory Reporting Limits.

MGP Site:

Vapor Sampling Field Documentation Checklist

Form 5

Field Personnel:	Keith Klemm - Gannett Fleming Kendall Pickett - RAM Group of GF Cory Johnson - Soil Essentials
Weather Conditions: Raining, Humidity Cloudiness, etc.	12/1/09 - clear, breezy, started in low 30's and warmed up to mid-50's. 12/2/09 - overcast, calm, 30's
Temperature	12/1/09 30's to 50's 12/2/09 30's
Barometric Pressure	Not measured
Wind Speed and Direction	Not measured 12/1/09 breezy from South 12/2/09 calm
Surface Soil Conditions: Wet Dry Moist Standing Water Frozen/Snow covered	Moist
Chain of Custody Forms Completed:	Air Toxics, Ltd (soil gas & ambient air) PTS (geotechnical)
Shipment Method and Tracking Numbers:	Air Toxics (Fedex Ground) PTS (Fedex Overnight)

Do not collect soil vapor samples during or within 3 days of a significant rain event.

MGP Site:

Soil Vapor Sampling Documentation During Sampling

Form 6

Sample ID & Interval	304-W 5.0ft	304-N 5.0ft	304-E 7.0ft	504-N 7.0ft
Sample Dates/Times	12/1/09 0838	12/1/09 0911	12/1/09 1000	12/1/09 1057
Equilibration Time				
Purging:				
Volume Purged	420 ml	435 ml	430 ml	430 ml
Flow Rate	< 60ml/min	< 60ml/min	→	→
Time Interval	≈ 5 min	≈ 3 min	≈ 4 min	≈ 3 min
Canister	N/A	N/A	→	→
Pump	N/A	→	→	→
Other	60 ml syringe	→	→	→
Leak Testing:				
Surface Seal	hydrated bentonite	→	→	→
Bucket Containment	N/A	→	→	→
Tracer Chemical	difluoroethane	→	→	→
Tracer gas labgrade (Yes/No)	No	→	→	→
Onsite Measurement	No	→	→	→
Lab Measurement	Yes (Air Toxics)	→	→	→
Pre-sample test	N/A	→	→	→
Post-sample test	N/A	→	→	→
Field Adjustment Performed ?*	N/A	→	→	→
Sample Collection:**				
Sample Volume	1-liter	→	→	→
Beginning Vacuum	-29.4	-25.7	-27.3	-29.0
Ending Vacuum	-5.0	-4.5	-5.0	-5.0
Flow Rate	167ml/min ⊗	→	→	→
Sample Container	Summa Canister (process cert.)	→	→	→

Notes:

* Includes inspection of probe and other system components.

** Refer to Sections 3.4.6.1 and 3.4.6.2 of SOP for details. ** For sub-slab sampling refer to Section 4 of SOP.

⊗ Used flow controller

MGP Site:

Soil Vapor Sampling Documentation During Sampling — Form 6

Sample ID & Interval	504-E 6.0 ft	508-E 6.5 ft	506-E 4.0 ft	506-EF 4.0 ft
Sample Dates/Times	12/1/09 1224	12/1/09 1537	12/1/09 1448	12/1/09 1448
Equilibration Time				
Purging:				
Volume Purged	1200 ml	430 ml	430 ml	430 ml
Flow Rate	< 60 ml/min	→	→	→
Time Interval	= 20 min	= 5 min	= 3 min	= 3 min
Canister	N/A	→	→	→
Pump	N/A	→	→	→
Other	60 ml syringe	→	→	→
Leak Testing:				
Surface Seal	hydrated bentonite	→	→	→
Bucket Containment	N/A	→	→	→
Tracer Chemical	difluoroethane	→	→	→
Tracer gas labgrade (Yes/No)	No	→	→	→
Onsite Measurement	No	→	→	→
Lab Measurement	Yes (Air Toxics)	→	→	→
Pre-sample test	N/A	→	→	→
Post-sample test	N/A	→	→	→
Field Adjustment Performed ?*	N/A	→	→	→
Sample Collection:**				
Sample Volume	1-Liter	→	→	→
Beginning Vacuum	-26.7	-28.8	-26.0	-27.1
Ending Vacuum	-5.0	-5.0	-3.5	-3.5
Flow Rate	167 ml/min ⊛	→	→	→
Sample Container	Summa Canister (Process cert.)	→	→	→

Notes:

* Includes inspection of probe and other system components.

** Refer to Sections 3.4.6.1 and 3.4.6.2 of SOP for details. ** For sub-slab sampling refer to Section 4 of SOP.

⊛ Used flow controller

MGP Site:

Soil Vapor Sampling Documentation During Sampling — Form 6

Sample ID & Interval	508-N 6.5ft	506-N 3.0ft	506-E-AMB Surface
Sample Dates/Times	12/2/09 0740	12/2/09 0852	12/1/09 1508
Equilibration Time			
Purging:			
Volume Purged	430 ml	1140 ml	N/A
Flow Rate	≤60 ml/min	→	N/A
Time Interval	≈ 5 min	≈ 15 min	N/A
Canister	N/A	→	N/A
Pump	N/A	→	N/A
Other	60 ml syringe	→	N/A
Leak Testing:			
Surface Seal	hydrated bentonite	→	N/A
Bucket Containment	N/A	→	N/A
Tracer Chemical	difluoroethane	→	N/A
Tracer gas labgrade (Yes/No)	No	→	No
Onsite Measurement	No	→	No
Lab Measurement	Yes (Air Toxics)	→	N/A
Pre-sample test	N/A	→	N/A
Post-sample test	N/A	→	N/A
Field Adjustment Performed ?*	N/A	→	N/A
Sample Collection:**			
Sample Volume	1-liter	→	6-liter
Beginning Vacuum	-29.0	-27.1	-27.9
Ending Vacuum	-5.0	-5.0	-5.0
Flow Rate	167 ml/min ⊛	→	167 ml/min ⊛
Sample Container	Summa Canister (process cert.)	→	Summa Canister (100% cert.)

Notes:

* Includes inspection of probe and other system components.

** Refer to Sections 3.4.6.1 and 3.4.6.2 of SOP for details. ** For sub-slab sampling refer to Section 4 of SOP.

⊛ used flow controller

Appendix E
Laboratory Analytical Report and Chain of Custody Form

Air Toxics LTD.
Laboratory Services Since 1989

12/31/2009
Mr. Kendall Pickett
Gannett Fleming
5433 Westheimer Road
Suite 725
Houston TX 77056-5312

Project Name: Ameren - Champaign
Project #: 50067
Workorder #: 0912221R1

Dear Mr. Kendall Pickett

The following report includes the data for the above referenced project for sample(s) received on 12/9/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 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 your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

A Scott

Ausha Scott
Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 0912221R1

Work Order Summary

CLIENT:	Mr. Kendall Pickett Gannett Fleming 5433 Westheimer Road Suite 725 Houston, TX 77056-5312	**BILL TO:**	Accounts Payable Gannett Fleming 4701 Mt. Hope Dr. Suite A Baltimore, MD 21215-1883
PHONE:	(713) 784-5151	**P.O. #**	50067.D
FAX:	(713) 784-6105	**PROJECT #**	50067 Ameren - Champaign
DATE RECEIVED:	12/09/2009	**CONTACT:**	Ausha Scott
DATE COMPLETED:	12/21/2009		
DATE REISSUED:	12/31/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	506-EF	Modified TO-15	4.4 "Hg	15 psi
02A	506-E	Modified TO-15	4.4 "Hg	15 psi
03A	504-E	Modified TO-15	5.8 "Hg	15 psi
04A	508-E	Modified TO-15	3.0 "Hg	15 psi
04AA	508-E Lab Duplicate	Modified TO-15	3.0 "Hg	15 psi
05A	504-N	Modified TO-15	6.0 "Hg	15 psi
06A	304-W	Modified TO-15	4.2 "Hg	15 psi
07A	304-N	Modified TO-15	6.2 "Hg	15 psi
08A	304-E	Modified TO-15	6.6 "Hg	15 psi
09A	508-N	Modified TO-15	5.0 "Hg	15 psi
10A	506-N	Modified TO-15	5.0 "Hg	15 psi
11A	506-E-AMB	Modified TO-15	6.2 "Hg	5 psi
12A	Lab Blank	Modified TO-15	NA	NA
13A	CCV	Modified TO-15	NA	NA
14A	LCS	Modified TO-15	NA	NA

CERTIFIED BY: _____ DATE: 12/30/09

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: 07/01/09, Expiration date: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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

LABORATORY NARRATIVE
Modified TO-15
Gannett Fleming
Workorder# 0912221R1

Ten 1 Liter Summa Canister and one 6 Liter Summa Canister (100% Certified) samples were received on December 09, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

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*
Daily CCV	</= 30% Difference	</= 30% Difference; Compounds exceeding this criterion and associated data are flagged and narrated.
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
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

There were no receiving discrepancies.

Analytical Notes

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds. Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Dilution was performed on sample 504-N due to the presence of high level non-target species.

THE WORKORDER WAS REISSUED ON 12-31-09 TO REPORT TOP 10 TENTATIVELY IDENTIFIED COMPOUNDS (TICS) FOR SAMPLE 504-N PER CLIENT'S REQUEST.

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.
Laboratory Services Since 1989

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

Client Sample ID: 506-EF

Lab ID#: 0912221R1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethyl Benzene	1.2	1.4	5.1	6.3
m,p-Xylene	1.2	1.3	5.1	5.7

Client Sample ID: 506-E

Lab ID#: 0912221R1-02A

No Detections Were Found.

Client Sample ID: 504-E

Lab ID#: 0912221R1-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	5.0	5.2	14	14

Client Sample ID: 508-E

Lab ID#: 0912221R1-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	2.6	3.6	8.3
Toluene	1.1	3.1	4.2	12
1,1-Difluoroethane	4.5	6500 E	12	18000 E

Client Sample ID: 508-E Lab Duplicate

Lab ID#: 0912221R1-04AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	2.2	2.5	7.2	8.0
Toluene	2.2	3.0	8.4	11
1,1-Difluoroethane	9.0	5900 E	24	16000 E

Client Sample ID: 504-N

Lab ID#: 0912221R1-05A

Air Toxics LTD.
Laboratory Services Since 1989

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

Client Sample ID: 504-N

Lab ID#: 0912221R1-05A

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Ethane, 1-chloro-1,1-difluoro-	75-68-3	83%	10000 NJ

Client Sample ID: 304-W

Lab ID#: 0912221R1-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	19	12000 E	51	33000 E

Client Sample ID: 304-N

Lab ID#: 0912221R1-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.4	4.1	4.5
1,1-Difluoroethane	5.1	12	14	33

Client Sample ID: 304-E

Lab ID#: 0912221R1-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.5	4.1	4.8
Toluene	1.3	1.9	4.9	7.3
1,1-Difluoroethane	5.2	710 E	14	1900 E

Client Sample ID: 508-N

Lab ID#: 0912221R1-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	240	140000 E	650	380000 E

Client Sample ID: 506-N

Lab ID#: 0912221R1-10A

Air Toxics LTD.
Laboratory Services Since 1989

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

Client Sample ID: 506-N

Lab ID#: 0912221R1-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	1.7	3.9	5.4
Toluene	1.2	1.6	4.6	6.2
1,1-Difluoroethane	4.8	16	13	43

Client Sample ID: 506-E-AMB

Lab ID#: 0912221R1-11A

No Detections Were Found.

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 506-EF

Lab ID#: 0912221R1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121511**	**Date of Collection: 12/1/09 2:48:00 PM**	
Dil. Factor:	**2.37**	**Date of Analysis: 12/15/09 02:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	3.8	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
Ethyl Benzene	1.2	1.4	5.1	6.3
m,p-Xylene	1.2	1.3	5.1	5.7
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Naphthalene	4.7	Not Detected	25	Not Detected
1,1-Difluoroethane	4.7	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 506-E

Lab ID#: 0912221R1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121508**	**Date of Collection:**	**12/1/09 2:48:00 PM**
Dil. Factor:	**2.37**	**Date of Analysis:**	**12/15/09 12:49 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	3.8	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Naphthalene	4.7	Not Detected	25	Not Detected
1,1-Difluoroethane	4.7	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 504-E

Lab ID#: 0912221R1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121509**	**Date of Collection:**	**12/1/09 12:24:00 PM**
Dil. Factor:	**2.50**	**Date of Analysis:**	**12/15/09 01:23 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	4.0	Not Detected
Toluene	1.2	Not Detected	4.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	Not Detected	5.4	Not Detected
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Naphthalene	5.0	Not Detected	26	Not Detected
1,1-Difluoroethane	5.0	5.2	14	14

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 508-E

Lab ID#: 0912221R1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	6121510	Date of Collection:	12/1/09 3:37:00 PM
Dil. Factor:	2.24	Date of Analysis:	12/15/09 01:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	2.6	3.6	8.3
Toluene	1.1	3.1	4.2	12
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	4.9	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Naphthalene	4.5	Not Detected	23	Not Detected
1,1-Difluoroethane	4.5	6500 E	12	18000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	105	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 508-E Lab Duplicate

Lab ID#: 0912221R1-04AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121514**	**Date of Collection: 12/1/09 3:37:00 PM**	
Dil. Factor:	**4.48**	**Date of Analysis: 12/15/09 05:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	2.2	2.5	7.2	8.0
Toluene	2.2	3.0	8.4	11
Ethyl Benzene	2.2	Not Detected	9.7	Not Detected
m,p-Xylene	2.2	Not Detected	9.7	Not Detected
o-Xylene	2.2	Not Detected	9.7	Not Detected
Styrene	2.2	Not Detected	9.5	Not Detected
Naphthalene	9.0	Not Detected	47	Not Detected
1,1-Difluoroethane	9.0	5900 E	24	16000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 504-N

Lab ID#: 0912221R1-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121515r1**	**Date of Collection: 12/1/09 10:59:00 AM**	
Dil. Factor:	**10.1**	**Date of Analysis: 12/15/09 05:36 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	5.0	Not Detected	16	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	22	Not Detected
Naphthalene	20	Not Detected	100	Not Detected
1,1-Difluoroethane	20	Not Detected	54	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Ethane, 1-chloro-1,1-difluoro-	75-68-3	83%	10000 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 304-W

Lab ID#: 0912221R1-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121516**	**Date of Collection: 12/1/09 8:38:00 AM**	
Dil. Factor:	**9.40**	**Date of Analysis: 12/15/09 06:06 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	4.7	Not Detected	15	Not Detected
Toluene	4.7	Not Detected	18	Not Detected
Ethyl Benzene	4.7	Not Detected	20	Not Detected
m,p-Xylene	4.7	Not Detected	20	Not Detected
o-Xylene	4.7	Not Detected	20	Not Detected
Styrene	4.7	Not Detected	20	Not Detected
Naphthalene	19	Not Detected	98	Not Detected
1,1-Difluoroethane	19	12000 E	51	33000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 304-N

Lab ID#: 0912221R1-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121517**	**Date of Collection:**	**12/1/09 9:11:00 AM**
Dil. Factor:	**2.55**	**Date of Analysis:**	**12/15/09 06:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.4	4.1	4.5
Toluene	1.3	Not Detected	4.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
m,p-Xylene	1.3	Not Detected	5.5	Not Detected
o-Xylene	1.3	Not Detected	5.5	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Naphthalene	5.1	Not Detected	27	Not Detected
1,1-Difluoroethane	5.1	12	14	33

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 304-E

Lab ID#: 0912221R1-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121519**	**Date of Collection: 12/1/09 10:00:00 AM**	
Dil. Factor:	**2.59**	**Date of Analysis: 12/15/09 08:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.5	4.1	4.8
Toluene	1.3	1.9	4.9	7.3
Ethyl Benzene	1.3	Not Detected	5.6	Not Detected
m,p-Xylene	1.3	Not Detected	5.6	Not Detected
o-Xylene	1.3	Not Detected	5.6	Not Detected
Styrene	1.3	Not Detected	5.5	Not Detected
Naphthalene	5.2	Not Detected	27	Not Detected
1,1-Difluoroethane	5.2	710 E	14	1900 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 508-N

Lab ID#: 0912221R1-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	6121522	Date of Collection:	12/2/09 7:39:00 AM
Dil. Factor:	121	Date of Analysis:	12/15/09 10:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	60	Not Detected	190	Not Detected
Toluene	60	Not Detected	230	Not Detected
Ethyl Benzene	60	Not Detected	260	Not Detected
m,p-Xylene	60	Not Detected	260	Not Detected
o-Xylene	60	Not Detected	260	Not Detected
Styrene	60	Not Detected	260	Not Detected
Naphthalene	240	Not Detected	1300	Not Detected
1,1-Difluoroethane	240	140000 E	650	380000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	101	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 506-N

Lab ID#: 0912221R1-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121521**	**Date of Collection: 12/2/09 8:52:00 AM**	
Dil. Factor:	**2.42**	**Date of Analysis: 12/15/09 09:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	1.7	3.9	5.4
Toluene	1.2	1.6	4.6	6.2
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Naphthalene	4.8	Not Detected	25	Not Detected
1,1-Difluoroethane	4.8	16	13	43

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: 506-E-AMB

Lab ID#: 0912221R1-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121520**	**Date of Collection: 12/1/09 3:08:00 PM**	
Dil. Factor:	**1.69**	**Date of Analysis: 12/15/09 08:51 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.84	Not Detected	2.7	Not Detected
Toluene	0.84	Not Detected	3.2	Not Detected
Ethyl Benzene	0.84	Not Detected	3.7	Not Detected
m,p-Xylene	0.84	Not Detected	3.7	Not Detected
o-Xylene	0.84	Not Detected	3.7	Not Detected
Styrene	0.84	Not Detected	3.6	Not Detected
Naphthalene	3.4	Not Detected	18	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 0912221R1-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121506**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/09 11:04 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 0912221R1-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/09 08:47 AM**	

Compound	%Recovery
Benzene	102
Toluene	100
Ethyl Benzene	97
m,p-Xylene	96
o-Xylene	96
Styrene	99
Naphthalene	109
1,1-Difluoroethane	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 0912221R1-14A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6121503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/09 09:15 AM**	

Compound	**%Recovery**
Benzene	94
Toluene	89
Ethyl Benzene	99
m,p-Xylene	97
o-Xylene	97
Styrene	100
Naphthalene	134
1,1-Difluoroethane	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	107	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: Kendall Pickett
Collected by: (Print and Sign) Keith Klemm [signature]
Company: Gannett Fleming Email: Kpickett@gfnet.com
Address: 5433 Westheimer Rd Suite 725 City: Houston State: TX Zip: 77056
Phone: 713-784-5151 Fax: 713-784-6165

Project Info:
P.O. #: 50067.D
Project #: 50067
Project Name: Ameren-Champaign

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)
01A	506-EF	9438	12/1/09	1448	TO-15 (BTEX, Styrene, Naphthalene, Hydrofluorocarbons)	27.1	3.5		
02A	506-E	9467	↓	1448	↓	26.6	3.5		
03A	504-E	22961		1224		26.7	5.0		
04A	508-E	9449		1537		28.8	3.9		
05A	504-N	2135		1057		29.0	5.0		
06A	304-W	36534		0838		29.4	5.0		
07A	304-N	36479	↓	0911		25.7	4.5		
08A	304-E	35602	12/1/09	1000		27.3	5.0		
09A	508-N	34573	12/2/09	0739		29.0	5.0		
10A	506-N	34135	12/2/09	0852	↓	27.1	5.0		

Relinquished by: (signature) [signature] Date/Time 12/2/09 1000
Received by: (signature) Monica Geegen ATL Date/Time 12/9/09 1105
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time
Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex G.	647451730016044	NA-	Good	Yes No (None)	0912221

Form 1253 rev 11

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) 457-4922

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

Project Manager: Kendall Pickett

Collected by: (Print and Sign) Keith Klemm [signature]

Company: Gannett Fleming Email: Kpickett@gfnet.com

Address: 5433 Westheimer Rd Suite 725 City: Houston State: TX Zip: 77056

Phone: 713-784-5151 Fax: 713-784-6105

Project Info:

P.O. # 50067.D

Project # 50067

Project Name: Ameren-Champaign

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)
1A	506-E-AMB	12085	12/1/09	1508	TO-15 (BTEX, Styrene, naphthalene)	27.9	5.0		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	Notes:
[signature]	12/2/09 1000	Monica Gregen ATL	12/9/09 1105	
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 G	0474517 3027997	N/A	Good	Yes No (None)	0912221

Appendix F
Quality Assurance and Control

F.1 FIELD METHODS

Specific controls were implemented during the soil gas sampling activities to ensure sample quality and to avoid false positives or false negatives during data acquisition.

- Soil gas samples were collected in process-certified 1-liter SUMMA canisters provided by Air Toxics. At random, a minimum of 10% of SUMMA canisters are retrieved after completion of the canister cleaning process and 100%-certified as part of the process certification. Subsequent SUMMA canisters are processed in the same manner and considered process certified.

- Separate process-certified flow controllers provided by Air Toxics with internal filters were used to collect each soil gas sample. The flow controllers were process-certified in a similar manner as the 1-liter SUMMA canisters as described above. Each flow controller was set in the laboratory to maintain a constant sampling rate of 167 ml/min. The flow controller with filter is used to prevent solids from entering the canister and to restrict the soil gas flow rate into the canister.

- The ambient air sample was collected using a 6-liter SUMMA canister and flow controller with internal filter set at for a constant 167 ml/min sampling rate. Both were 100% certified for the specific chemicals being analyzed.

- The initial vacuums of all SUMMA canisters were checked upon receipt. The vacuums of the canisters were acceptable for sampling use. All vacuums were re-checked in the field prior to initiating sampling, and were only used if the vacuum reading was at least -25 inches Hg.

- Sampling continued until approximately -5 inches Hg vacuum remained in each SUMMA canister. If the canisters had no vacuum remaining when received by the laboratory, this is an indication that potentially a leak occurred during shipment of the canisters. Additionally, the lab receipt vacuum should not vary from the final field vacuum by more than 7 inches Hg. These criteria were met as shown on Table 2-1.

- Prior to initiation of sampling at each sample location, the sampling train connected to the SUMMA canister on one end and the sampling port on the other end is tested for leakage by opening the SUMMA canister with the valve closed at the sampling port. If any loss of vacuum is noted on the gauge, all fittings are re-tightened until there is no loss of vacuum on the gauge.

- A leak detection chemical (difluoroethane) was used during sampling. The leak detection chemical was detected in seven field samples collected from 304-W, 304-N, 304-E. 504-E, 506-N, 508-N, and 508-E and its lab duplicate at concentrations between 14 and 380,000 $\mu g/m^3$. Although, IEPA has not established criteria for the

acceptable amount of leak detection compound in a sample, according to New York State Department of Health document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 and concurred in the Interstate Technology Regulatory Council (ITRC) guidance titled "Vapor Intrusion Pathway: A Practical Guide" dated January 2007, concentrations up to 10% concentration of tracer gas are considered acceptable. Assuming a starting concentration equal to the saturated vapor pressure concentration of the tracer gas, the percent concentrations of the tracer gas were calculated for the seven samples that contained detectable concentrations of 1,1-difluoroethane (Table 2-1). None of the samples contained 1,1-difluoroethane a concentrations that exceeded 10%. Therefore, the results for all samples were not compromised by excessive leakage and are considered representative of the soil gas concentrations across the site at the depths and time measured.

- Dedicated sampling equipment (dedicated Teflon® tubing and disposable syringes) was used.

- Use of new disposable Nitrile gloves.

- Non-dedicated equipment was decontaminated between sampling locations.

- Chain-of-Custody protocols were followed.

Duplicate soil gas samples were collected (506-E and 506-EF) in separate 1-liter SUMMA canisters using a single flow controller with attached sample splitter. Quality control comparison of the original sample collected at 506-E and its field duplicate are summarized in Table F-1. The results of original to field duplicate indicate that both the samples are a good match for all the chemicals.

Quality control comparison of the original sample collected at 508-E and its lab duplicate are summarized in Table F-2. The results of original to lab duplicate indicate that both the samples are a good match for all the chemicals. Also, any results that exceed $\pm$ 20% RPD should not be used (USEPA 2008). All RPDs were <20%, thus are acceptable.

F.2 LABORATORY METHODS (Air Toxics Ltd)

A comparison of the chain-of-custody to the laboratory login confirmation for the soil gas samples revealed no discrepancies. Sampling dates, times, name of sampler, received date, analysis methods, initial and final canister vacuum were listed on the chain-of-custody form. According to the chain-of-custody, all samples were received at the laboratory on December 9, 2009 within eight days of sample collection in good condition without custody seals.

Typical holding time for TO-15 analysis is 30 days. All samples (including one duplicate i.e. 506-EF) were collected on December 1 and 2, 2009 and analyzed on December 15, 2009. All samples were analyzed within the holding time.

The Air Toxics report includes a narrative and various laboratory flags to qualify specific results, if necessary. The laboratory narrative indicated that one sample, 504-N, had to be diluted prior to analysis due to the presence of high level concentrations of non-target species. RAM Group requested that the laboratory identify the high concentration non-target species in sample 504-N. Air Toxics re-issued the report on December 31, 2009 including the top 10 tentatively identified compounds (TICs) present in 504-N. Only one compound was identified based on presumptive evidence (N), 1-chloro-1,1-difluoroethane at an estimated concentration (J) of 10,000 ppbv with a match quality of 83%. This compound is not known to be associated with MGP sites and is a likely component (impurity) of the leak detection compound source (computer keyboard duster spray). Therefore, the concentration of this compound in the sample was calculated and found to be present at less than 10%, thus the sample results for 504-N were not considered compromised due to leakage.

Laboratory qualifiers used during this analysis included the following:

- E – exceeds instrument calibration range. This qualifier was applied to the 1,1-difluoroethane results for samples 304-W, 304-E, 508-N, 508-E and its lab duplicate. This indicates that the concentrations of 1,1-difluoroethane were estimated concentrations above the range of the instrument.

- N – the identification of the chemical is based on presumptive evidence. This qualifier was applied to the presence of 1-chloro-1,1-difluoroethane in sample 504-N. This chemical was identified during the TIC analysis discussed above. Since this chemical was not part of the original request for analysis, its presence is based on presumptive evidence and was not based on using a standard for this chemical during the analysis.

- J – estimated value. This qualifier was also applied to the presence of 1-chloro-1,1-difluoroethane in sample 504-N. This chemical was identified during the TIC analysis discussed above. Since this chemical was not part of the original request for analysis, its concentration was estimated and was not based on using a standard for this chemical during the analysis.

- The Not Spiked-flag for 1,1-difluoroethane in the laboratory control sample (LCS) means the LCS sample was not spiked for this compound, since this compound is not on the standard list of chemicals for the TO-15 method. This chemical was added to the analysis request since it was the leak detection chemical used in the field. 1,1-Difluoroethane was spiked in the Continuing Calibration Verification (CCV) sample and met method retention requirements; therefore, this flag does not indicate that the results have been compromised.

No results were flagged in the CCV sample. No chemicals analyzed were detected in the laboratory blank samples. No other issues were identified in the narrative.

Dilutions of the samples ranged from 1.69 to 121. The higher dilutions were due to high concentrations of the leak detector compound, 1,1-difluoroethane, and the TIC, 1-chloro-1,1-difluoroethane (as discussed above). Since all detected concentrations and all non-detected reporting limits for the MGP related volatile chemicals analyzed were below the target levels, the dilutions did not affect the results.

Attachment: Table F-1 Comparison of Original Soil Gas Sample Results to Field Duplicate.
Table F-2 Comparison of Original Soil Gas Sample Results to Laboratory Duplicate.

Table F-1

Comparison of Original Soil Gas Sample Results to Field Duplicate (ug/m^3)

Ameren Services, Women's Shelter, Champaign, Illinois

Chemical	CAS	506E			506EF			RPD (%)
		Original	Original RL	5 X Original RL	Field Duplicate	Duplicate RL	5 X Duplicate RL	
Benzene	71-43-2	<3.8			<3.8			NC
Toluene	108-88-3	<4.5			<4.5			NC
Ethylbenzene	100-41-4	<5.1			6.3	5.1	25.5	NC
m,p-Xylene	108-38-3/ 106-42-3	<5.1			5.7	5.1	25.5	NC
o-Xylene	95-47-6	<5.1			<5.1			NC
Styrene	100-42-5	<5.0			<5.0			NC
Naphthalene	91-20-3	<25			<25			NC
1,1-Difluoroethane	75-37-6	<13			<13			NC

Notes:

<: Reporting limit RPD: Relative percent difference RL: Reporting limit

RPD was calculated when original and duplicate samples have detected results and either of the detected results is greater than 5 X RL.

NC: Not calculated since both original and field duplicate samples have not had detected concentrations

$$RPD = \frac{(OriginalSample - DuplicateSample) \times 100}{(OriginalSample + DuplicateSample) + 2}$$

Table F-2

Comparison of Original Soil Gas Sample Results to Lab Duplicate (ug/m^3)

Ameren Services, Women's Shelter, Champaign, Illinois

Chemical	CAS	508E			508E (Lab Duplicate)			RPD (%)
		Original	Original RL	5 X Original RL	Lab Duplicate	Duplicate RL	5 X Duplicate RL	
Benzene	71-43-2	8.3	3.6	18	8	7.2	36	3.7
Toluene	108-88-3	12	4.2	21	11	8.4	42	8.7
Ethylbenzene	100-41-4	<4.9			<9.7			NC
m,p-Xylene	108-38-3/ 106-42-3	<4.9			<9.7			NC
o-Xylene	95-47-6	<4.9			<9.7			NC
Styrene	100-42-5	<4.8			<9.5			NC
Naphthalene	91-20-3	<23			<47			NC
1,1-Difluoroethane	75-37-6	18,000E	12	60	16,000E	24	120	11.8

Notes:

<: Reporting limit RPD: Relative percent difference RL: Reporting limit

RPD was calculated when original and duplicate samples have detected results and either of the detected results is greater than 5 X RL.

NC: Not calculated since both original and field duplicate samples have not had detected concentrations

$$RPD = \frac{(OriginalSample - DuplicateSample) \times 100}{(OriginalSample + DuplicateSample) \div 2}$$