

**Risk Management Plan  
Gay Laundry and Cleaners  
DSCA ID No. 60-0044  
1101 North Brevard Street  
Charlotte, Mecklenburg County  
North Carolina Dry-Cleaning  
Solvent Cleanup Act Program**

**H&H Job No. DS0-05**

**April 29, 2010**



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**RISK MANAGEMENT PLAN  
Gay Laundry and Cleaners  
DSCA ID No. 60-0044  
1101 North Brevard Street  
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**Updated Risk Management Plan  
Gay Laundry and Cleaners  
DSCA ID No. 60-0044  
1101 North Brevard Street  
Charlotte, NC**

**H&H Job No. DS0-05**

**1.0 INTRODUCTION**

Hart & Hickman, PC (H&H) has prepared this Risk Management Plan (RMP) for the former Gay Laundry and Cleaners facility (the site) on behalf of the North Carolina Dry-Cleaning Solvent Cleanup Act (DSCA) Program. The site is located at 1101 North Brevard Street in Charlotte, Mecklenburg County, North Carolina. This RMP is intended to comply with the requirements of DSCA (N.C.G.S. 143-215.104A *et seqs*) and promulgated rules and follows the outline provided in the DSCA Program's risk-based corrective action (RBCA) guidance.

**2.0 OBJECTIVES OF RMP**

H&H performed a Tier 1 and Tier 2 risk assessment and completed DSCA's Indoor Air Risk Calculator to evaluate the cumulative site-wide risk under both industrial and residential land use scenarios. The results of the Tier 1 and Tier 2 risk assessments and Indoor Air Risk Calculator indicate that site-wide risks do not exceed target risk levels. However, the evaluation was based on site-specific land use conditions that require an RMP. As such, the objective of this RMP is to ensure that those site specific land use conditions remain valid in the future.

**3.0 SUMMARY OF APPROVED RISK ASSESSMENT REPORT**

H&H submitted a Tier 1 Risk Assessment Report dated October 9, 2008 to DSCA documenting the risk assessment evaluation of the site. Based on the low constituent concentrations at the site, H&H updated the Tier 1 risk assessment to evaluate a potential future residential land use scenario. Even though there are no plans to redevelop the site for residential use, residential use

was evaluated to minimize the required land use restrictions needed to close the site. H&H also conducted a Tier 2 risk assessment to evaluate the surface water protection pathway. The updated Tier 1 and Tier 2 risk assessment report was submitted to DSCA on June 3, 2009 concurrent with this RMP. The exposure model for the risk assessment evaluation consisted of the following complete exposure pathways:

- On-Site Resident – Future Conditions - Groundwater (First Encountered Zone) - Indoor Inhalation of Vapor Emissions
- On-Site Resident – Future Conditions - Groundwater (First Encountered Zone) - Outdoor Inhalation of Vapor Emissions
- On-Site Non-Residential Worker – Current and Future Conditions - Groundwater (First Encountered Zone) - Indoor Inhalation of Vapor Emissions
- On-Site Non-Residential Worker – Current and Future Conditions - Groundwater (First Encountered Zone) - Outdoor Inhalation of Vapor Emissions
- On-Site Construction Worker – Groundwater (First Encountered Zone) - Outdoor Inhalation of Vapor Emissions.

For each complete pathway, representative concentrations (RCs) of detected contaminants in groundwater were calculated and compared with Tier 1 Risk-Based Screening Levels (RBSLs) established by the DSCA Program. There were no exceedances of Tier 1 RBSLs identified.

In addition to these pathways, the Tier 1 risk assessment included an evaluation of the protection of groundwater use pathway. For this pathway, a groundwater source area was determined and RCs of compounds detected in the groundwater source area were calculated. A hypothetical point-of-exposure (POE) for the nearest possible future location of a water supply well was identified approximately 110 feet east and downgradient of the groundwater source area on the boundary of a residential property. Tier 1 RBSLs for the protection of groundwater use pathway were obtained from Table 7-1(e) of the DSCA Risk-Based Corrective Action guidance document utilizing a dilution attenuation factor of 9.77 (based on the distance from the groundwater source

area to the POE). There were no exceedances of Tier 1 RBSLs by the groundwater source area RCs.

The nearest surface water body is an unnamed perennial tributary of Little Sugar Creek that runs through the eastern portion of the site approximately 80 feet east of the estimated downgradient extent of the groundwater source area. In order to evaluate the protection of surface water pathway, H&H utilized the DSCA Program's North Carolina Risk-Based Corrective Action (RBCA) Computational Software to perform a Tier 2 evaluation to determine site-specific target levels (SSTLs) for compounds detected in the groundwater source area. There were no exceedances of Tier 2 SSTLs by the groundwater source area RCs.

To evaluate the indoor air inhalation pathway, H&H completed DSCA's Indoor Air Risk Calculator to evaluate the cumulative risk for both an industrial worker and a resident based on indoor air samples collected at the site. The risk calculator was completed for each individual air sample collected in January and February 2010. The indoor air cumulative risk values ranged from  $1.33 \times 10^{-7}$  to  $1.30 \times 10^{-6}$  for industrial indoor air and from  $6.83 \times 10^{-7}$  to  $6.63 \times 10^{-6}$  for residential indoor air. The risk calculators are attached as Appendix A.

To incorporate the indoor air risk from the risk calculators into the site-wide risk evaluation, H&H completed an updated Tier 2 risk assessment. The Tier 2 was run without any indoor air pathways included. The cumulative risk from the Tier 2 risk assessment and the cumulative risk for indoor air from the risk calculators were then added together to arrive at the site-wide cumulative risk. An updated Tier 1 & 2 Risk Assessment report was submitted to DSCA on April 28, 2010 to document this site-wide cumulative risk evaluation. The site-wide cumulative risk levels were determined to be less than DSCA's allowable risk levels ( $<10^{-5}$  Cumulative Individual Excess Lifetime Cancer Risk and  $<1$  Cumulative Hazard Index) under both current industrial and potential future residential land use scenarios for all receptors.

Based on the results of the Tier 1 and 2 evaluations and the Indoor Air Risk Calculators, H&H concluded that the release at the subject site does not pose an unacceptable risk and recommended site closure in accordance with the DSCA Program's risk-based rules.

## **4.0 RAP COMPONENTS**

### **4.1 Summary of Prior Assessment**

According to an Environmental Data Resources (EDR) report dated July 14, 2006, the former Gay Laundry and Cleaners was operated as a dry-cleaning facility from 1959 until 1974. The site is located in a moderately populated area consisting primarily of residential, office, and industrial properties. The site property is an approximately 0.5-acre parcel of land containing an approximate 4,840-square foot warehouse structure and 400-square foot storage building. The structures on the site are currently unoccupied, but are being renovated for future use as an office.

According to a September 2006 H&H Phase I & II Environmental Site Assessment (ESA) report, the site property was developed prior to 1911 and has historically been occupied by Duncan Memorial Church (1920s to the 1940s), Home Improvement Inc. (1940s to the 1950s), Gay Laundry and Cleaners (1950s to the 1970s), and Harry Wells Construction (1970s through 2006). Mr. Wells, the property owner at the time of the ESA, reported that he purchased the property in the mid-1970s and that he utilized the space for the storage of tools, construction equipment, and household items. Mr. Wells reported that the warehouse was constructed in 1930 but was unsure of the construction date of the storage building. Mr. Wells noted that the facility previously operated as a dry cleaners; however, all dry cleaning equipment was removed from the property prior to his purchasing the property. According to Mecklenburg County property records, the site property was purchased from Mr. Wells by STW Holding, LLC in August 2006 and from STW Holding, LLC by Logan Watts in March 2008. In August 2009, Logan Watts sold the property to 1101 LLC.

Phase II ESA activities were completed on the site by H&H in August 2006. The Phase II ESA activities included stream sampling and the installation and sampling of two soil borings and three temporary groundwater monitoring wells. One soil sample was collected from soil boring SB/TWP-1 (6 to 8'), located slightly to the north of the storage building; and one was collected from SB/TWP-2 (2 to 4'), located slightly to the north of the warehouse structure. There were no detections of dry cleaning related compounds in these samples. A third soil boring (SB/TWP-3) was installed near the southern corner of the warehouse building and field screened for volatile organic compounds (VOCs), but no sample was collected for laboratory analysis.

To assess groundwater quality at the site, three temporary monitoring wells were installed during the Phase II ESA to depths ranging between 20 and 30 ft below the ground surface at each of the three soil boring locations. Analytical results for groundwater samples collected from the wells indicated concentrations of chlorinated solvent constituents. Groundwater samples collected from temporary monitoring wells SB/TWPW-1 and SB/TWP-2 indicated tetrachloroethylene (PCE) concentrations of 4.91 and 5.83 ug/l, respectively. Trichloroethylene (TCE) was also detected in the groundwater samples collected from SB/TWP-1 (1.78 ug/l) and SB/TWP-2 (2.02 ug/l). PCE and TCE were not detected in the upgradient temporary monitoring well SB/TPW-3. Chloroform was also detected in groundwater samples collected from SB/TWP-1 (1.53 ug/l), SB/TWP-2 (1.67 ug/l), and SB/TWP-3 (4.40 ug/l).

As part of the Phase II ESA, a single surface water sample (SW-1) was collected from the on-site stream to determine if impacts were present from historical operations on the subject property, or from upstream industrial activities. SW-1 was collected in the eastern portion of the property at a location west of the drainage culvert below North Brevard Street. No VOCs were detected in the stream sample.

H&H submitted a Prioritization Assessment Report (PAR) dated February 19, 2008 documenting assessment activities, including a receptor survey; the installation and sampling of 16 soil borings (S-1 through S-16), three temporary wells (TWP-1 through TWP-3), and four Type II

monitoring wells (MW-1 through MW-4); and surface water sampling (SW-1 through SW-3) of the stream located on the site property. The samples were analyzed for VOCs to evaluate potential dry cleaning solvent impacts. No contaminant concentrations were detected in the soil and surface water samples. PCE was detected in groundwater samples collected from TWP-1 (4.9 ug/L), TWP-2 (5.8 ug/L), MW-2 (9 ug/L), MW-3 (8.4 ug/L), and MW-4 (1.8 ug/L) at concentrations exceeding the NCAC 2L Standard (0.7 ug/L). TCE was detected in samples collected from MW-2 (3.4 ug/L) and MW-3 (3.2 ug/L) at concentrations exceeding the NCAC 2L Standard (2.8 ug/L). Concentrations of TCE and chloroform were detected below NCAC 2L Standards in TWP-1, TWP-2, and MW-4, and a concentration of chloroform below the NCAC 2L Standard was detected in MW-1.

H&H submitted an updated Assessment Report dated October 9, 2008 to the DSCA Program documenting additional site assessment activities that included installation and sampling of four Type II monitoring wells (MW-5 and MW-8 located on-site and MW-7 and MW-9 located off-site), sampling of existing site monitoring wells (MW-1 through MW-4), and surface water sampling (SW-UP, SW-CROSS, and SW-DOWN) of the stream located on the site property to further delineate and assess dry cleaning solvent impacts. No contaminant concentrations exceeding NCAC 2L Standards were detected in any of the surface water samples or groundwater samples collected from monitoring wells MW-1, MW-5, and MW-7 through MW-9. PCE was detected in groundwater samples collected from MW-2 (4.3 ug/L), MW-3 (5.9 ug/L), and MW-4 (5.1 ug/L) at concentrations exceeding the NCAC 2L Standard. TCE and chloroform were detected below NCAC 2L Standards in MW-2 through MW-4, and chloroform was detected below the NCAC 2L Standard in MW-1 and MW-5. Cross-gradient monitoring well MW-6 was installed on-site on November 4, 2008 in an area that could not be accessed by the drill rig utilized during the previous mobilization to the site and was subsequently sampled during quarterly monitoring activities. Since installation of all site monitoring wells (MW-1 through MW-9), H&H has completed two comprehensive quarterly groundwater monitoring events to evaluate plume stability.

On September 24, 2009, H&H conducted a sub-slab vapor sampling event at the site to evaluate the potential for vapor intrusion at the site. During the sub-slab vapor sampling event, two sub-slab vapor monitoring points (VMP-1 and VMP-2) were installed through the concrete slab of the lower level of the building. PCE was detected in VMP-2 ( $45 \mu\text{g}/\text{m}^3$ ) above the EPA Regional Screening Level (RSL) for industrial air (with a ten times dilution to account for attenuation across the slab) of  $21 \mu\text{g}/\text{m}^3$ . A concentration of PCE was also detected in VMP-1 ( $14 \mu\text{g}/\text{m}^3$ ) below ten times the EPA RSL.

Between September 2009 and February 2010, H&H completed four ambient air sampling events to evaluate potential indoor air impacts. During the initial ambient air sampling event conducted on September 23, 2009, both PCE ( $810 \mu\text{g}/\text{m}^3$ ) and TCE ( $2,200 \mu\text{g}/\text{m}^3$ ) were detected in the upstairs indoor air sample (IAS-1) at concentrations above the EPA RSLs for industrial air ( $2.1 \mu\text{g}/\text{m}^3$  and  $6.1 \mu\text{g}/\text{m}^3$ , respectively). Subsequent to the September 2009 sampling event, building renovation activities were conducted which included removal of stained building materials. H&H conducted additional indoor air sampling events during (October 2009) and near the completion of (January and February 2010) renovation activities. No constituents were detected above EPA RSLs for industrial air during the October 2009, January 2010, and February 2010 sampling events. Only two samples (IAS-6 and IAS-10) contained PCE or TCE above EPA RSLs for residential air.

## **4.2 Remedial Action**

According to the DSCA Program's RBCA guidance, no remedial action is necessary if four site conditions are met. Each of these conditions and their applicability to the subject site are addressed below. Since these conditions were met, land-use restrictions (LURs) and no further remedial action are recommended for the site.

*Condition 1: The dissolved plume is stable or decreasing.*

Since their installation in November 2007, four groundwater sampling events have been completed for monitoring wells MW-1 through MW-4 (November 2007, September 2008, December 2008, and March 2009). MW-2 through MW-4 are the primary monitoring wells used to evaluate the groundwater plume. The remaining site monitoring wells are delineation wells installed to confirm the plume extents. Three groundwater sampling events have been completed for monitoring wells MW-5 and MW-7 through MW-9 (September 2008, December 2008, and March 2009), and two sampling events have been completed for MW-6 (December 2008 and March 2009). Constituents detected in groundwater samples collected from the site during these events include PCE, TCE, and chloroform. Only PCE and TCE have been detected above NCAC 2L Standards. Furthermore, the chloroform detections are likely associated with a leak from the city water line near MW-1 and MW-5. Therefore, H&H focused on PCE and TCE as constituents of concern (COCs) for the plume stability analysis.

PCE and TCE have been detected in source area monitoring wells MW-2, MW-3, and MW-4 during each sampling event. No COCs have been detected in the upgradient monitoring well (MW-9), cross-gradient monitoring wells (MW-1 and MW-8), and downgradient monitoring wells (MW-5, MW-6, and MW-7). To evaluate plume stability, H&H prepared concentration versus distance graphs and concentration versus time graphs for each COC. As shown on the graphs in Appendix B, COC concentrations are decreasing at the site. Furthermore, TCE concentrations have decreased below the NCAC 2L Standard and have remained below the NCAC 2L Standard for three consecutive quarterly sampling events. Based on this analysis, H&H concludes that the size of the plume is stable and confined to the site property and that the concentrations in the source area are decreasing. Documentation of the plume stability evaluation, including a figure showing monitoring well locations, a table showing historical groundwater analytical data, and a concentration versus distance graph are included in Appendix B.

*Condition 2: The maximum concentration within the exposure domain for every complete exposure pathway of any COC is less than ten times the RC of that COC.*

H&H calculated representative concentrations of COCs for each complete exposure pathway during the Tier 1 Risk Assessment evaluations. The maximum concentration of any COC was less than ten times the respective RC.

*Condition 3: Adequate assurance is provided that the land-use assumptions used in the DSCA Program's RBCA process are not violated for current or future conditions.*

The risk assessment conducted by H&H for the site assumed that groundwater from the site property will not be utilized in the future. As discussed in Section 6.0, LURs will be implemented for the site property to ensure that this assumption remains valid.

*Condition 4: There are no ecological concerns at the site.*

H&H completed a Level 1 Ecological Risk Assessment for the site in accordance with the DSCA Program's RBCA guidance. The results of the evaluation indicate that the release does not pose an unacceptable ecological risk. The completed Level 1 Ecological Risk Assessment Checklists A and B are included in Appendix C.

The site's compliance with the four above-referenced conditions indicates that the contaminant concentrations are not likely to pose an unacceptable risk either at present or in the future. The plume is expected to naturally attenuate over time, and the appropriate remedial action is to implement LURs on the site property.

## **5.0 DATA COLLECTED DURING RMP IMPLEMENTATION**

No further sampling or other data collection activities are proposed for the site. As such, this section is not applicable.

## **6.0 LAND-USE RESTRICTIONS**

The risk assessment for the site was based on the assumption that groundwater from the site property will not be utilized in the future. LURs will be implemented for the site property to ensure that this land-use condition is maintained and monitored until LURs are no longer required for the site. A Notice of Dry-Cleaning Solvent Remediation (NDCSR) was prepared for the site to comply with the LUR requirement. The NDCSR is included in Appendix D. A plat showing the locations and types of dry-cleaning solvent contamination on the property is included as an exhibit to the NDCSR. The locations of dry-cleaning solvent contamination are where contaminants have been detected above unrestrictive use standards. As discussed in Section 4.2, PCE and TCE are the primary COCs for the site. Only PCE remains above unrestrictive use standards.

## **7.0 LONG-TERM STEWARDSHIP PLAN**

The NDCSR contains a clause requiring the owner of the site to submit a notarized “Annual DSCA Land-Use Restrictions Certification” to NCDENR on an annual basis certifying that the NDCSR remains recorded with the Register of Deeds and that the land-use conditions have not changed. An example of such a notice is included in Appendix E. Documents relating to this site will be maintained by NCDENR and made available for public access.

## **8.0 RMP IMPLEMENTATION SCHEDULE**

Since the contamination plume appears to be stable and confined to the site property and possible exposure to the contamination will be managed through the NDCSR and LURs, no

additional site remedial activities are required to implement the RMP. As such, upon completion of the public comment period and final approval of the RMP, the NDCSR will be filed with the Mecklenburg County Register of Deeds and will complete the RMP schedule.

## **9.0 CRITERIA FOR DEMONSTRATION OF RMP SUCCESS**

The RMP will be successfully implemented once the required LURs have been executed and recorded with the Mecklenburg County Register of Deeds. The NDCSR may, at the request of the property owner, be canceled by NCDENR after risk to public health and the environment associated with the dry-cleaning solvent contamination and any other contaminants included in the dry-cleaning solvent assessment and remediation agreement has been eliminated. If NCDENR is notified of a change in site conditions, per the notification requirements detailed in the NDCSR, the RMP will be reviewed to determine if the new site conditions have impacted the requirements set forth in the NDCSR and LURs, and if changes are required. Enforcement of the RMP will be maintained through receipt of the “Annual DSCA Land-Use Restrictions Certification” from the property owner as part of the NDCSR and LUR requirements.

## **10.0 CONTINGENCY PLAN IF RMP FAILS**

As discussed above, unless the DSCA Program is notified of a change in land-use conditions at the site, per the notification requirements detailed in this plan, the RMP will remain in effect. Pursuant to N.C.G.S. 143.215.104K, if any of the LURs set out in the NDCSR are violated, the owner of the site property at the time the LURs are violated, the owner’s successors and assigns, and the owner’s agents who direct or contract for alteration of the site in violation of the LURs, shall be held liable for the remediation of all contaminants to unrestricted standards.

## 11.0 CONCLUSIONS AND RECOMMENDATIONS

H&H has prepared this RMP for the above-referenced site on behalf of the NC DSCA Program. The results of site assessment activities and plume stability analyses indicate that the extent of the contaminant plume associated with the site appears stable and that the COC concentrations are decreasing. This RMP specifies that the NDCSR and LUR requirements provide notification that the land-use conditions observed during the risk assessment evaluation remain valid in the future. Based on the documentation contained in this report, H&H recommends issuance of a “No Further Action” letter.

## **Appendix A**

### **DSCA Indoor Air Risk Calculators**

**DSCA Indoor Air Risk Calculator - Table 1: Cumulative Risk for Resident**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Downstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-6

Cumulative Risk Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	2	2.1										
EPA Regional Screening Level (RSL) for Residential Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	0.41	1.20	0.16	0.31	0.97	0.072	9.4					
Ratio = Max Concentration $\div$ EPA RSL	4.88	1.75	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>6.63E-06</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	2											
EPA Regional Screening Level (RSL) for Residential Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	280	63	100	31	5200	1000	100	3.1	3100			
Ratio = Max Concentration $\div$ EPA RSL	0.0071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.01</b>
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- Notes:**
- RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  - Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  - Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

<p><b>CONCLUSIONS</b></p> <p><input type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input checked="" type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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**DSCA Indoor Air Risk Calculator - Table 2: Cumulative Risk for Industrial Worker**

DSCA ID No: 60-0044

Name/Address of Sample Location: Gay Laundry & Cleaners (Downstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

Have multiple sampling events been conducted at this location:  Yes  No

If yes, how many: 4

Sample ID: IAS-6

Cumulative Risk Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	2	2.1										
EPA Regional Screening Level (RSL) for Industrial Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	2.10	6.10	2.8	1.6	4.9	0.36	47					
Ratio = Max Concentration $\div$ EPA RSL	0.95	0.34	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>1.30E-06</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	2											
EPA Regional Screening Level (RSL) for Industrial Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	12000	260	440	130	22000	4400	440	13	13000			
Ratio = Max Concentration $\div$ EPA RSL	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

**CONCLUSIONS**

Risk is <  $1\text{E}-06$

Risk is between  $1\text{E}-06$  and  $1\text{E}-05$

Risk is between  $1\text{E}-05$  and  $1\text{E}-04$

Risk is >  $1\text{E}-04$

**RECOMMENDATIONS (check all that apply)**

Collect confirmation samples

Develop long-term monitoring schedule

Evaluate for mitigation

No further action for indoor air

**DSCA Indoor Air Risk Calculator - Table 1: Cumulative Risk for Resident**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-7

Cumulative Risk Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.32	0.18										
EPA Regional Screening Level (RSL) for Residential Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	0.41	1.20	0.16	0.31	0.97	0.072	9.4					
Ratio = Max Concentration $\div$ EPA RSL	0.78	0.15	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>9.30E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.32											
EPA Regional Screening Level (RSL) for Residential Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	280	63	100	31	5200	1000	100	3.1	3100			
Ratio = Max Concentration $\div$ EPA RSL	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

**CONCLUSIONS**

Risk is <  $1\text{E}-06$

Risk is between  $1\text{E}-06$  and  $1\text{E}-05$

Risk is between  $1\text{E}-05$  and  $1\text{E}-04$

Risk is >  $1\text{E}-04$

**RECOMMENDATIONS (check all that apply)**

Collect confirmation samples

Develop long-term monitoring schedule

Evaluate for mitigation

No further action for indoor air

**DSCA Indoor Air Risk Calculator - Table 2: Cumulative Risk for Industrial Worker**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-7

Cumulative Risk Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.32	0.18										
EPA Regional Screening Level (RSL) for Industrial Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	2.10	6.10	2.8	1.6	4.9	0.36	47					
Ratio = Max Concentration $\div$ EPA RSL	0.15	0.03	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>1.82E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.32											
EPA Regional Screening Level (RSL) for Industrial Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	12000	260	440	130	22000	4400	440	13	13000			
Ratio = Max Concentration $\div$ EPA RSL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

**CONCLUSIONS**

Risk is <  $1\text{E}-06$

Risk is between  $1\text{E}-06$  and  $1\text{E}-05$

Risk is between  $1\text{E}-05$  and  $1\text{E}-04$

Risk is >  $1\text{E}-04$

**RECOMMENDATIONS (check all that apply)**

Collect confirmation samples

Develop long-term monitoring schedule

Evaluate for mitigation

No further action for indoor air

**DSCA Indoor Air Risk Calculator - Table 1: Cumulative Risk for Resident**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-8

Cumulative Risk Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.43	0.18										
EPA Regional Screening Level (RSL) for Residential Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	0.41	1.20	0.16	0.31	0.97	0.072	9.4					
Ratio = Max Concentration $\div$ EPA RSL	1.05	0.15	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>1.20E-06</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.43											
EPA Regional Screening Level (RSL) for Residential Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	280	63	100	31	5200	1000	100	3.1	3100			
Ratio = Max Concentration $\div$ EPA RSL	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
- RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  - Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  - Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

**CONCLUSIONS**

Risk is <  $1\text{E}-06$

Risk is between  $1\text{E}-06$  and  $1\text{E}-05$

Risk is between  $1\text{E}-05$  and  $1\text{E}-04$

Risk is >  $1\text{E}-04$

**RECOMMENDATIONS (check all that apply)**

Collect confirmation samples

Develop long-term monitoring schedule

Evaluate for mitigation

No further action for indoor air

**DSCA Indoor Air Risk Calculator - Table 2: Cumulative Risk for Industrial Worker**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-8

Cumulative Risk Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.43	0.18										
EPA Regional Screening Level (RSL) for Industrial Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	2.10	6.10	2.8	1.6	4.9	0.36	47					
Ratio = Max Concentration $\div$ EPA RSL	0.20	0.03	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>2.34E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.43											
EPA Regional Screening Level (RSL) for Industrial Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	12000	260	440	130	22000	4400	440	13	13000			
Ratio = Max Concentration $\div$ EPA RSL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

<p><b>CONCLUSIONS</b></p> <p><input checked="" type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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**DSCA Indoor Air Risk Calculator - Table 1: Cumulative Risk for Resident**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-9

Cumulative Risk Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.28											
EPA Regional Screening Level (RSL) for Residential Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	0.41	1.20	0.16	0.31	0.97	0.072	9.4					
Ratio = Max Concentration $\div$ EPA RSL	0.68	0.00	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>6.83E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.28											
EPA Regional Screening Level (RSL) for Residential Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	280	63	100	31	5200	1000	100	3.1	3100			
Ratio = Max Concentration $\div$ EPA RSL	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

<p><b>CONCLUSIONS</b></p> <p><input checked="" type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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**DSCA Indoor Air Risk Calculator - Table 2: Cumulative Risk for Industrial Worker**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-9

Cumulative Risk Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	0.28											
EPA Regional Screening Level (RSL) for Industrial Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	2.10	6.10	2.8	1.6	4.9	0.36	47					
Ratio = Max Concentration $\div$ EPA RSL	0.13	0.00	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>1.33E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	0.28											
EPA Regional Screening Level (RSL) for Industrial Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	12000	260	440	130	22000	4400	440	13	13000			
Ratio = Max Concentration $\div$ EPA RSL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

<p><b>CONCLUSIONS</b></p> <p><input checked="" type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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**DSCA Indoor Air Risk Calculator - Table 1: Cumulative Risk for Resident**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-10

Cumulative Risk Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	1.7											
EPA Regional Screening Level (RSL) for Residential Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	0.41	1.20	0.16	0.31	0.97	0.072	9.4					
Ratio = Max Concentration $\div$ EPA RSL	4.15	0.00	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>4.15E-06</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Residential)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	1.7											
EPA Regional Screening Level (RSL) for Residential Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	280	63	100	31	5200	1000	100	3.1	3100			
Ratio = Max Concentration $\div$ EPA RSL	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.01</b>
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- Notes:**
- RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  - Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  - Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

<p><b>CONCLUSIONS</b></p> <p><input type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input checked="" type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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**DSCA Indoor Air Risk Calculator - Table 2: Cumulative Risk for Industrial Worker**

**DSCA ID No:** 60-0044

**Name/Address of Sample Location:** Gay Laundry & Cleaners (Upstairs), 1101 North Brevard St, Charlotte, Mecklenburg County

**Have multiple sampling events been conducted at this location:**  Yes  No

**If yes, how many:** 4

**Sample ID:** IAS-10

Cumulative Risk Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	Trichloroethylene	Vinyl Chloride	Benzene	Ethylbenzene	Naphthalene	MTBE					
Maximum Concentration Detected ( $\mu\text{g}/\text{m}^3$ )	1.7											
EPA Regional Screening Level (RSL) for Industrial Air (carcinogenic target risk = $1\text{E}-06$ ) $\mu\text{g}/\text{m}^3$	2.10	6.10	2.8	1.6	4.9	0.36	47					
Ratio = Max Concentration $\div$ EPA RSL	0.81	0.00	0.00	0.00	0.00	0.00	0.00					

<b>CUMULATIVE RISK (sum of ratios x <math>10^{-6}</math>)</b>	<b>8.10E-07</b>
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Cumulative Hazard Index (HI) Calculation for Indoor Air Pathway (Industrial)												
	Tetrachloroethene	trans - 1,2 -DCE	Vinyl Chloride	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE			
Maximum Concentration Detected	1.7											
EPA Regional Screening Level (RSL) for Industrial Air [noncancer Hazard Index (HI)=1] $\mu\text{g}/\text{m}^3$	12000	260	440	130	22000	4400	440	13	13000			
Ratio = Max Concentration $\div$ EPA RSL	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

<b>CUMULATIVE HI (sum of ratios)</b>	<b>0.00</b>
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- Notes:**
1. RSLs available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm)
  2. Cis-1,2-DCE, trans-1,2-DCE, toluene and xylenes were not included in the cumulative risk calculation since they currently have no carcinogenic EPA RSLs.
  3. Trichloroethylene and cis-1,2-DCE were not included in cumulative HI calculation since they currently have no noncancer EPA RSLs.

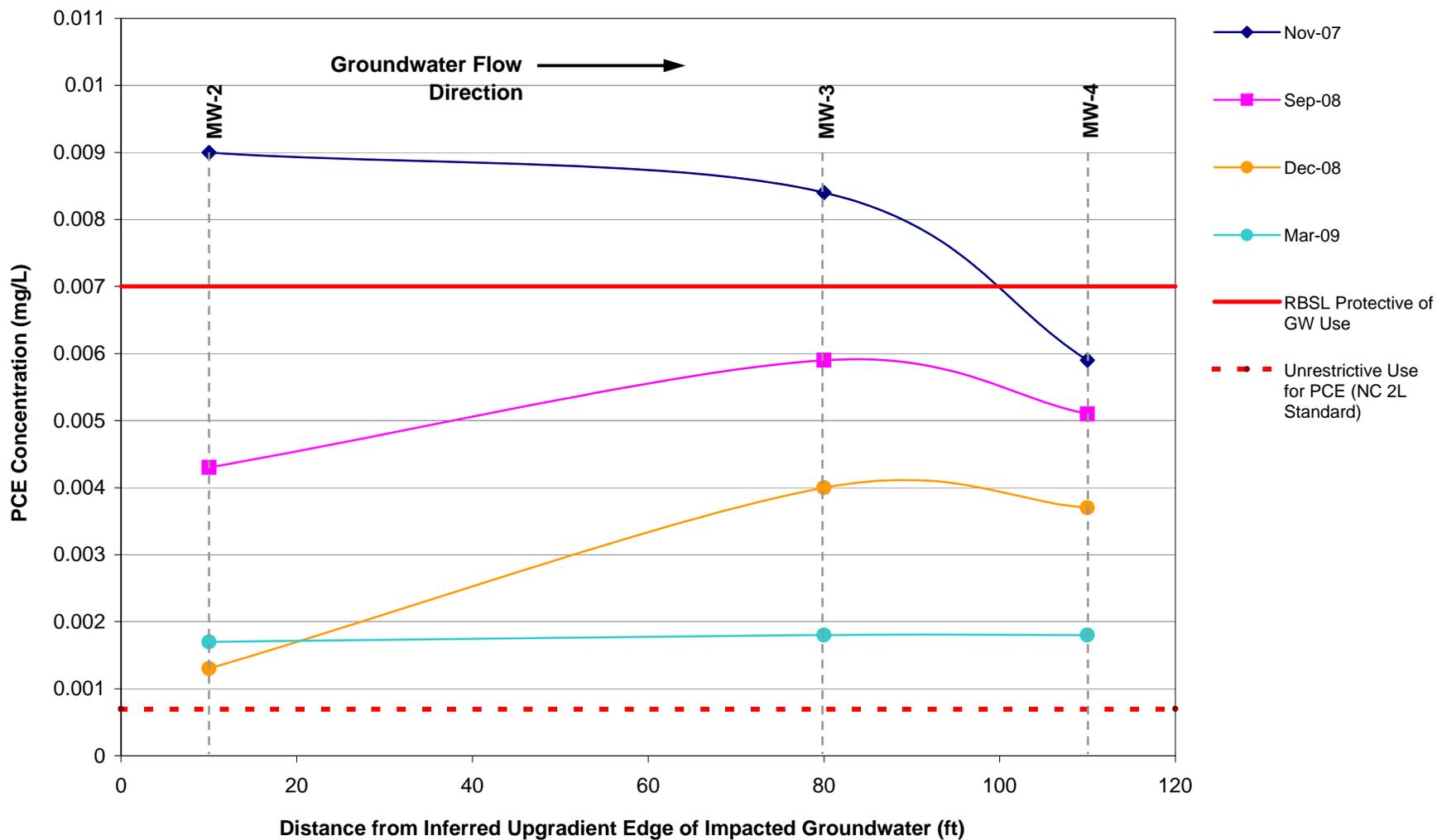
<p><b>CONCLUSIONS</b></p> <p><input checked="" type="checkbox"/> Risk is &lt; <math>1\text{E}-06</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-06</math> and <math>1\text{E}-05</math></p> <p><input type="checkbox"/> Risk is between <math>1\text{E}-05</math> and <math>1\text{E}-04</math></p> <p><input type="checkbox"/> Risk is &gt; <math>1\text{E}-04</math></p>
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<p><b>RECOMMENDATIONS (check all that apply)</b></p> <p><input type="checkbox"/> Collect confirmation samples</p> <p><input type="checkbox"/> Develop long-term monitoring schedule</p> <p><input type="checkbox"/> Evaluate for mitigation</p> <p><input checked="" type="checkbox"/> No further action for indoor air</p>
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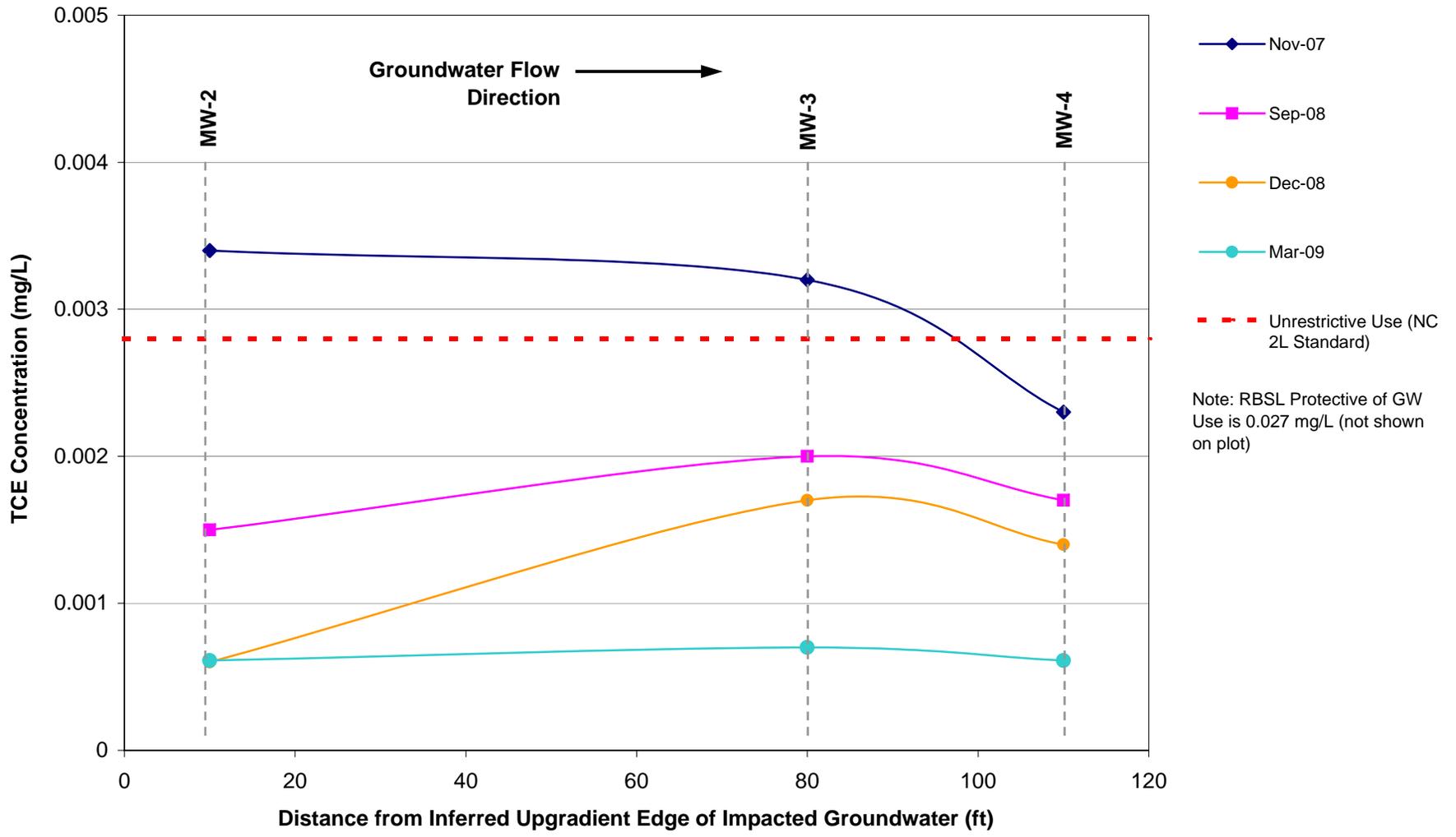
## **Appendix B**

### **Documentation of Plume Stability Evaluation**

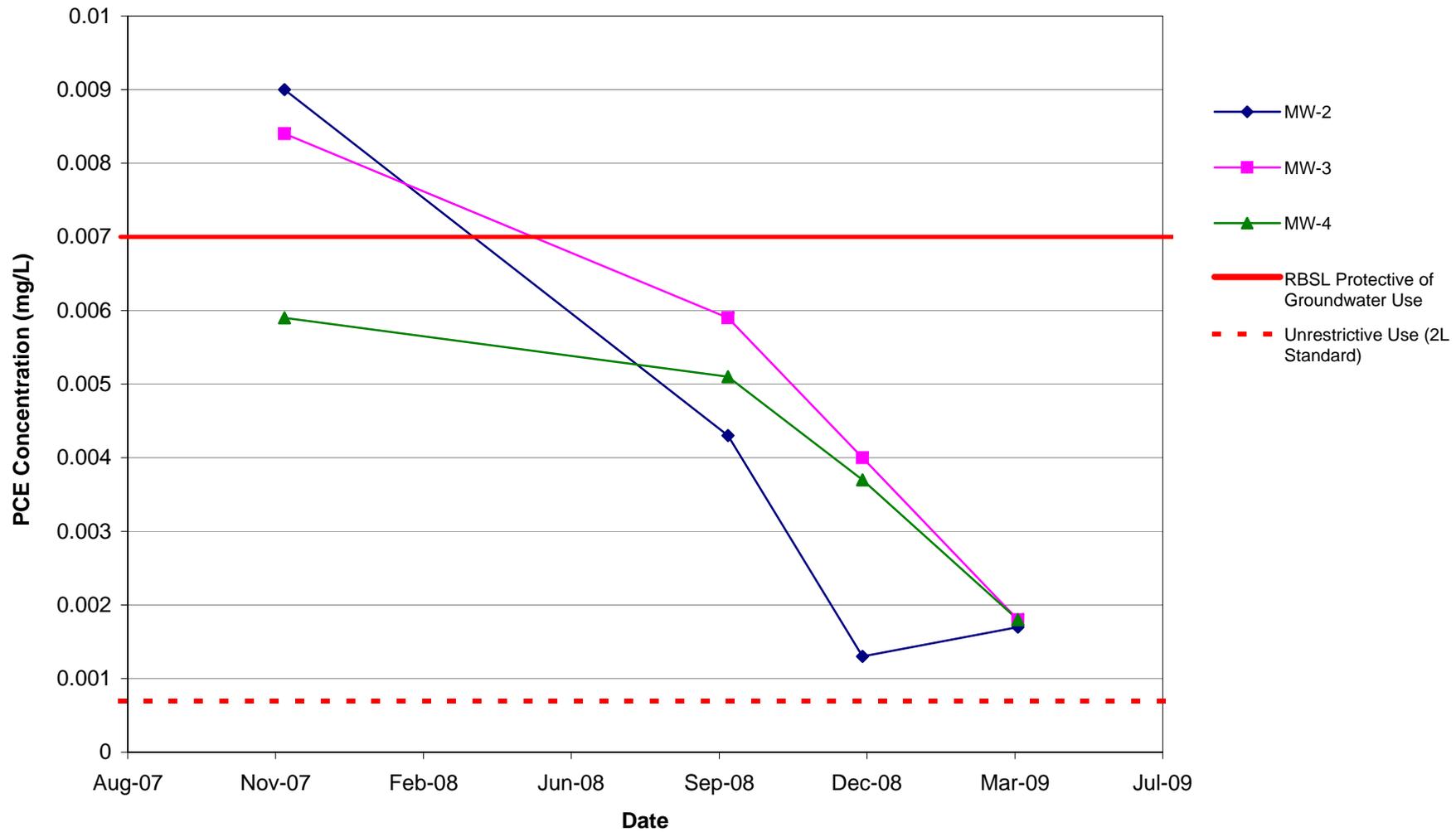
**PCE Concentration vs. Distance Graph**  
**Gay Laundry and Cleaners, Charlotte, NC**  
**DSCA ID: 60-0044**



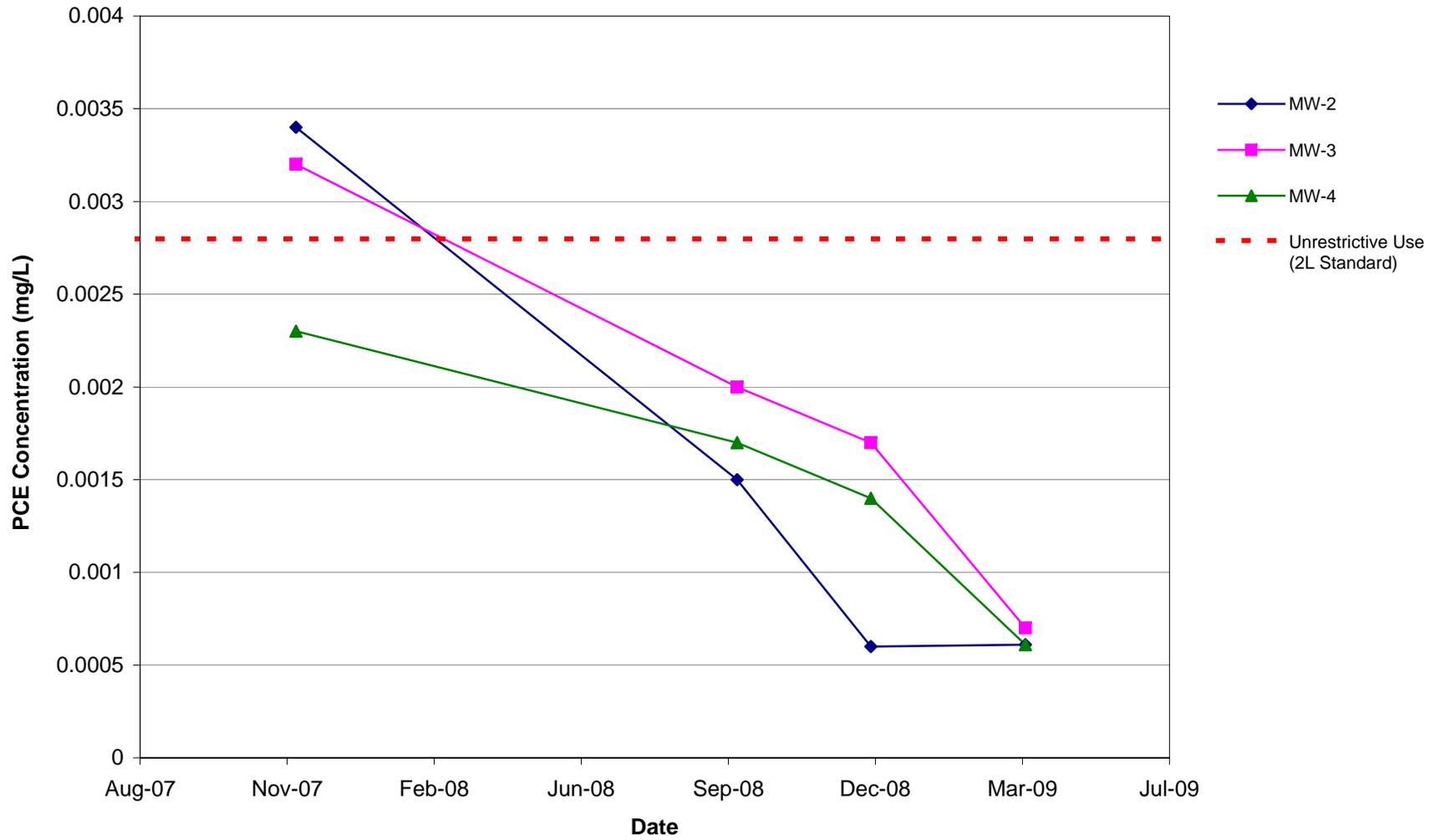
**TCE Concentration vs. Distance Graph**  
**Gay Laundry and Cleaners, Charlotte, NC**  
**DSCA ID: 60-0044**



**PCE Concentration vs. Time Graph**  
**Gay Laundry and Cleaners, Charlotte, NC**  
**DSCA ID: 60-0044**



**TCE Concentration vs. Time Graph**  
**Gay Laundry and Cleaners, Charlotte, NC**  
**DSCA ID: 60-0044**



**Table 5: Analytical Data for Groundwater**

**DSCA ID No.: 60-0044**

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Benzene	Benzo(a)pyrene	Carbon tetrachloride	Chloroform	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)
		[mg/L]																			
TWP-1	11/08/07	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	<0.0005	0.00153	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.00491</b>	<0.0005	<0.0005	0.00178	<0.0005	<0.0005
TWP-2	11/08/07	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	<0.0005	0.00167	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.00583</b>	<0.0005	<0.0005	0.00202	<0.0005	<0.001
TWP-3	11/08/07	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	<0.0005	0.0044	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	11/08/07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0217	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
MW-2	11/08/07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<b>0.009</b>	<0.001	<0.001	<b>0.0034</b>	<0.001	<0.003
	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.00064J	<0.001	<0.001	<0.001	<0.001	<b>0.0043</b>	<0.001	<0.001	0.0015J	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0013</b>	<0.001	<0.001	0.0006J	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0017</b>	<0.001	<0.001	0.00061J	<0.001	<0.003
MW-3	11/08/07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	<b>0.0084</b>	<0.001	<0.001	<b>0.0032</b>	<0.001	<0.003
	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.00098J	<0.001	<0.001	<0.001	<0.001	<b>0.0059</b>	<0.001	<0.001	0.002J	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<b>0.004</b>	<0.001	<0.001	0.0017J	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0018</b>	<0.001	<0.001	0.0007J	<0.001	<0.003
MW-4	11/08/07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	<b>0.0059</b>	<0.001	<0.001	0.0023	<0.001	<0.003
	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<b>0.0051</b>	<0.001	<0.001	0.0017J	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0014	<0.001	<0.001	<0.001	<0.001	<b>0.0037</b>	<0.001	<0.001	0.0014J	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.00085J	<0.001	<0.001	<0.001	<0.001	<b>0.0018</b>	<0.001	<0.001	0.00061J	<0.001	<0.003
MW-5	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.026	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.027	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
MW-6	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.0073	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
MW-7	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003

**Table 5: Analytical Data for Groundwater**

**DSCA ID No.: 60-0044**

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	1,1,1-Trichloroethane	1,1,1,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Benzene	Benzo(a)pyrene	Carbon tetrachloride	Chloroform	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)
		[mg/L]																			
MW-8	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
MW-9	09/04/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	12/03/08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
	03/05/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003
NC 2L Standard		0.2	NE	NE	0.07	0.007	0.0038	0.001	4.79x10 <sup>-6</sup>	2.69x10 <sup>-4</sup>	0.07	0.07	0.55	0.2	0.021	0.0007	1	0.1	0.0028	1.5x10 <sup>-5</sup>	0.53



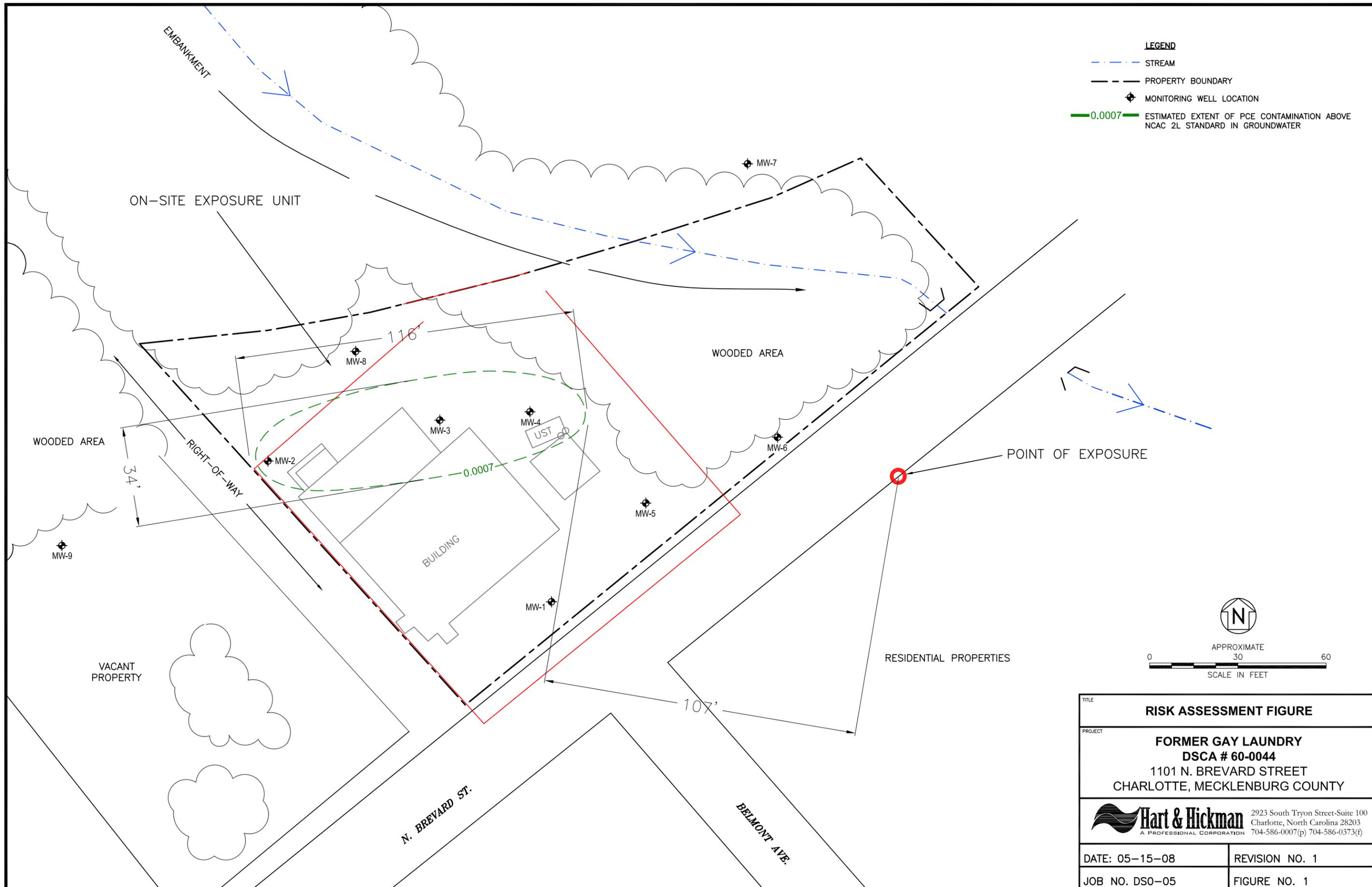
**Table 5(1): Analytical Data for Groundwater (User Specified Chemicals)**

**ADT 5(1)**

**DSCA ID No.: 60-0044**

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Isopropyl Ether (IPE)	p-Isopropyltoluene	Trichlorofluoromethane																
		[mg/L]																		
MW-8	09/04/08	<0.001	<0.001	<0.002																
	12/03/08	<0.001	<0.001	<0.002																
	03/05/09	<0.001	<0.001	<0.002																
MW-9	09/04/08	<0.001	<0.001	<0.002																
	12/03/08	<0.001	<0.001	<0.002																
	03/05/09	<0.001	<0.001	<0.002																
NC 2L Standard		0.07	NE	2.1																

S:\AAH\Master Projects\DSCA - DSO\DSO-05 Gay Laundry\Reports\Risk Management Plan\RMP FIGURE.dwg, 5/21/2009 1:12:32 PM, Adobe PDF



## **Appendix B**

### **Level 1 Ecological Risk Assessment Checklists**

**Ecological Risk Assessment – Level 1**  
**Checklist A – Potential Receptors and Habitat**

Site / Location: 1101 N. Brevard Street, Charlotte, North Carolina  
H&H Project No. DS0-05  
DSCA Site ID: 60-0044

1. Are there navigable water bodies or tributaries to a navigable water body on or within one-half mile of the site?

**Yes**, an unnamed perennial tributary of Little Sugar Creek cuts through the subject property. Little Sugar Creek joins with Sugar Creek, which joins with the Catawba River.

Little Sugar Creek itself is located within one-half mile of the subject site.

2. Are there any water bodies anywhere on or within one-half mile of the site?

**Yes**, an unnamed perennial tributary of Little Sugar Creek cuts through the subject property.

3. Are there any wetland<sup>1</sup> areas such as marshes or swamps on or within one-half mile of the site?

**No**, the National Wetlands Inventory did not show any, nor did a visual survey.

4. Are there any sensitive environmental areas<sup>2</sup> on or within one-half mile of the site?

**No**

5. Are there any areas on or within one-half mile of the site owned or used by local tribes?

**No**, Based on North American Consolation Database.

6. Are there any habitat, foraging area, or refuge by rare, threatened, endangered, candidate and/or proposed species (plants and animals), or any otherwise protected species on or within one-half mile of the site?

**Unlikely**. The stream and surrounding vegetative buffer may provide habitat for the Carolina Heelsplitter (*Lasmigona decorata*). However, surface runoff into the tributary from roadways, homes, and surrounding industrial sites would have severely impaired the water quality.

7. Are there any breeding, roosting, or feeding areas used by migratory species on or within one-half mile of the site?

**Unlikely**

8. Are there any ecologically<sup>3</sup>, recreationally, or commercially important species on or within one-half mile of the site?

**Unlikely**

9. Are there any threatened and/or endangered species (plant or animal) on or within one-half mile of the site?

**Unlikely**. The US Fish and Wildlife Service lists 5 protected species for Mecklenburg County. The NC Natural Heritage Program database for the Charlotte East, NC USGS topographic map

only showed a historic presence of the Carolina heelsplitter (*Lasmigona decorate*). However, surface runoff into the tributary from roadways, homes, and surrounding industrial sites would have severely impaired the water quality.

If the answer is “Yes” to any of the above questions, then complete Level 1 Ecological Risk Assessment, Checklist B for Potential Exposure Pathways.

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<sup>1</sup>Wetlands are defined in 40 CFR 232.2 as “areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” The sources to make the determination whether or not wetland areas are present may include, but not limited to, national wetland inventory available at <http://nwi.fws.gov> , federal or state agency, and USGS topographic maps.

<sup>2</sup>Areas that provide unique and often protected habitat for wildlife species. These areas typically used during critical life stages such as breeding, hatching, rearing or young and overwintering. Refer to Attachment 1 for examples of sensitive environments.

<sup>3</sup>Ecologically important species include populations of species which provide a critical food resource for higher organisms. Ecologically important species include pest and opportunistic species that populate an area if they serve as a food source for other species, but do not include domesticated animals or plants/animals whose existence is maintained by continuous human interventions.

**Level 1 Ecological Risk Assessment  
Checklist B for Potential Exposure Pathways**

- 1A. Can chemicals associated with the site leach, dissolve, or otherwise migrate to groundwater?

**Yes.** The primary constituent of concern is tetrachloroethylene (PCE). Based on published references (EPA, 2006), PCE is leachable to ground water and is slightly soluble in ground water. Furthermore, impacted ground water has been confirmed at the site.

- 1B. Are chemicals associated with the site mobile in groundwater?

**Yes.** Chemical mobility is primarily influenced by the chemical solubility and soil-water partition coefficient. Based on these values, PCE is classified as moderately mobile (Fetter, 1988).

- 1C. Does groundwater from the site discharge to ecological receptor habitat?

**Unlikely.** The primary ecological receptor habitat associated with the site is an unnamed perennial tributary of Little Sugar Creek that runs through the northeastern portion of the site. The extent of PCE contamination in ground water appears to be delineated to NC 2L Standards at the site and does not extend to the stream. Furthermore, no impacts have been detected in surface water samples from the stream.

**Question 1. Could chemicals associated with the site reach ecological receptors through groundwater?**

**Unlikely.** As discussed above, the extent of PCE contamination in ground water appears to be delineated to NC 2L Standards at the site and does not extend to the stream. The plume is stable and PCE concentrations are decreasing. Furthermore, no impacts have been detected in surface water samples from the stream.

- 2A. Are chemicals present in surface soils on the site?

**No.** There have been no soil impacts detected at the site.

- 2B. Can chemicals be leached from or be transported by erosion of surface soils on the site?

**No.** There have been no soil impacts detected at the site.

**Question 2. Could chemicals associated with the site reach ecological receptors through runoff or erosion?**

**No. There have been no soil impacts detected at the site.**

3A. Are chemicals present in surface soil or on the surface of the ground?

**No.** There have been no soil impacts detected at the site.

3B. Are potential ecological receptors on the site?

**Yes.** There is an unnamed perennial tributary of Little Sugar Creek that runs through the northeastern portion of the site..

**Question 3. Could chemicals associated with the site reach ecological receptors through direct contact?**

**No.** There have been no soil impacts detected at the site, impacts detected in ground water do not appear to extend to the on-site stream, and no impacts have been detected in surface water collected from the on-site stream.

4A. Are chemicals on the site volatile?

**Yes.** PCE is a volatile compound.

4B. Could chemicals on the site be transported in air as dust or particulate matter?

**No.** PCE has not been detected in site soils or surface water.

**Question 4. Could chemicals associated with the site reach ecological receptors through inhalation of volatilized chemicals or adhere chemicals to dust in ambient air or in subsurface burrows?**

**No. PCE has not been detected in site soils or surface water.**

5A. In Non-Aqueous Phase Liquids (NAPL) present at the site?

**No.** NAPL has not been encountered at the site.

5B. Is NAPL migrating?

**No.** NAPL has not been encountered at the site.

5C. Could NAPL discharge occur where ecological receptors are found?

**No.** NAPL has not been encountered at the site.

**Question 5. Could chemicals associated with the site reach ecological receptors through migration of NAPL?**

**No. NAPL has not been encountered at the site.**

6A. Are chemicals present in surface and shallow subsurface soils or on the surface of the ground?

**No.** There have been no soil impacts detected at the site.

6B. Are chemicals found in soil on the site taken up by plants growing on the site?

**No.** There have been no soil impacts detected at the site.

6C. Do potential ecological receptors on or near the site feed on plants (e.g., grasses, shrubs, forbs, trees, etc.) found on the site?

**Yes.** It is possible that wildlife feed on the site's vegetation.

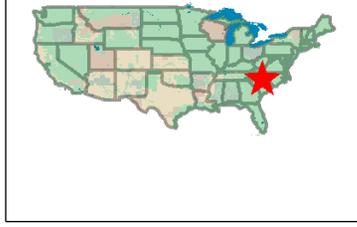
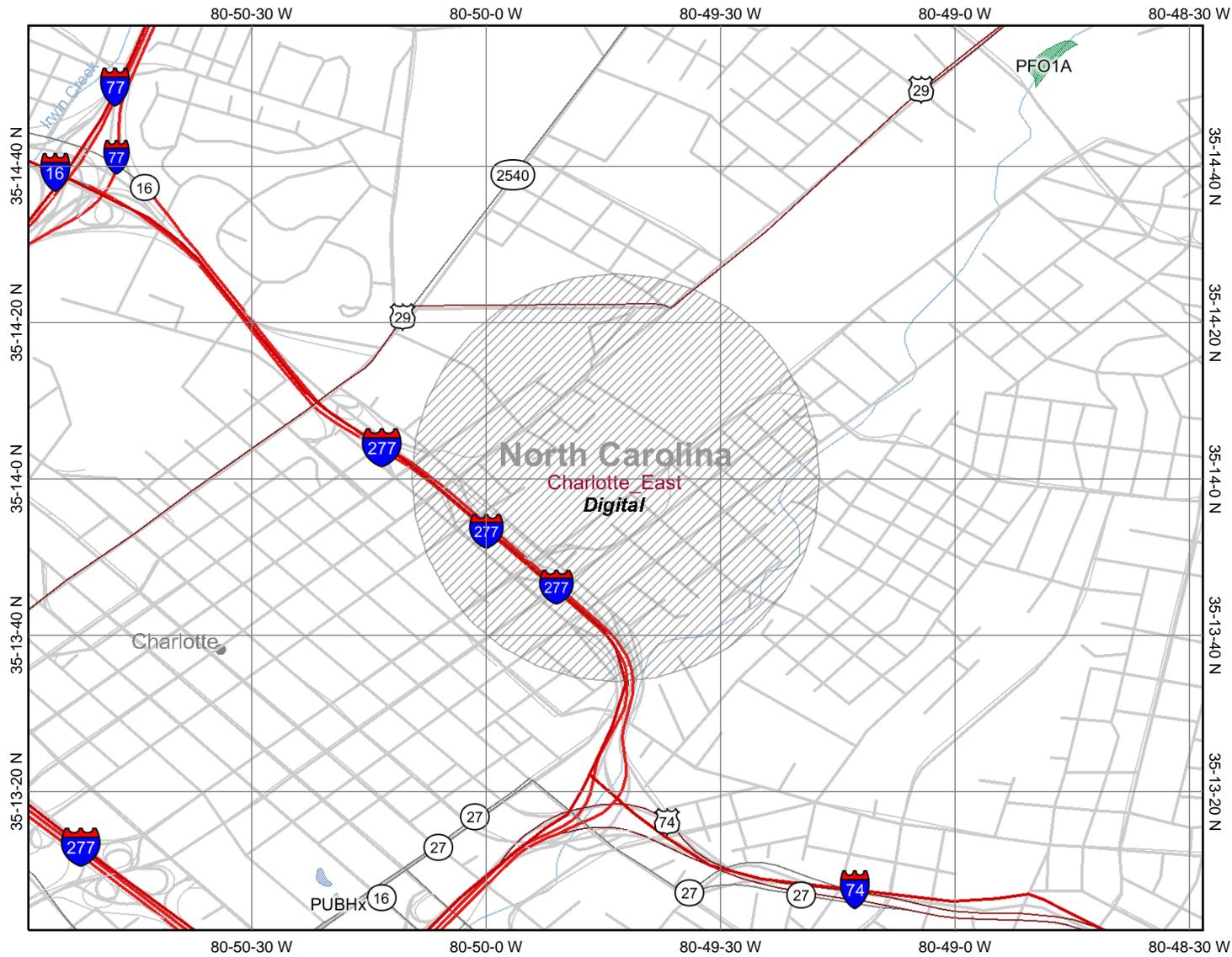
6D. Do chemicals found on the site bioaccumulate?

**No.** Based on published references (U.S. Agency for Toxic Substances and Disease Registry, 1997), PCE does not significantly bioaccumulate.

**Question 6. Could chemicals associated with the site reach ecological receptors through direct ingestion of soil, plants, animals, or contaminants?**

**No. There have been no soil or surface water impacts detected at the site.**

# DS0-05A Gay Laundry



## Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Map center: 35° 14' 0" N, 80° 49' 43" W



Scale: 1:25,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

## U.S. Fish & Wildlife Service

# Endangered Species, Threatened Species, Federal Species of Concern, and Candidate Species,

## Mecklenburg County, North Carolina



Updated: 01-31-2008

Common Name	Scientific name	Federal Status	Record Status
<b>Vertebrate:</b>			
American eel	<i>Anguilla rostrata</i>	FSC	Current
<a href="#">Bald eagle</a>	<i>Haliaeetus leucocephalus</i>	BGPA	Current
Carolina darter	<i>Etheostoma collis collis</i>	FSC	Current
<b>Invertebrate:</b>			
Carolina creekshell	<i>Villosa vaughaniana</i>	FSC	Current
<a href="#">Carolina heelsplitter</a>	<i>Lasmigona decorata</i>	E	Current
<b>Vascular Plant:</b>			
Dwarf aster	<i>Eurybia mirabilis</i>	FSC	Current
Georgia aster	<i>Symphotrichum georgianum</i>	C	Current
<a href="#">Michaux's sumac</a>	<i>Rhus michauxii</i>	E	Current
Prairie birdsfoot-trefoil	<i>Lotus unifoliolatus</i> var. <i>helleri</i>	FSC	Current
<a href="#">Schweinitz's sunflower</a>	<i>Helianthus schweinitzii</i>	E	Current
Shoals spiderlily	<i>Hymenocallis coronaria</i>	FSC	Probable/potential
<a href="#">Smooth coneflower</a>	<i>Echinacea laevigata</i>	E	Current
Tall larkspur	<i>Delphinium exaltatum</i>	FSC	Historic
<b>Nonvascular Plant:</b>			
<b>Lichen:</b>			

### Definitions of Federal Status Codes:

E = endangered. A taxon "in danger of extinction throughout all or a significant portion of its range."

T = threatened. A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

C = candidate. A taxon under consideration for official listing for which there is sufficient information to support listing. (Formerly "C1" candidate species.)

BGPA = Bald and Golden Eagle Protection Act. See below.

FSC = federal species of concern. A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as "C2" candidate species.

T(S/A) = threatened due to similarity of appearance. A taxon that is threatened due to similarity of appearance with another listed species and is listed for its protection. Taxa listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation. See below.

EXP = experimental population. A taxon listed as experimental (either essential or nonessential).

Experimental, nonessential populations of endangered species (e.g., red wolf) are treated as threatened species on public land, for consultation purposes, and as species proposed for listing on private land.

P = proposed. Taxa proposed for official listing as endangered or threatened will be noted as "PE" or "PT", respectively.

### **Bald and Golden Eagle Protection Act (BGPA):**

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) becomes the primary law protecting bald eagles. The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of "take" that includes "disturb". The USFWS has developed National Bald Eagle Management Guidelines to provide guidance to land managers, landowners, and others as to how to avoid disturbing bald eagles. For more information, visit <http://www.fws.gov/migratorybirds/baldeagle.htm>

### **Threatened due to similarity of appearance(T(S/A)):**

In the November 4, 1997 Federal Register (55822-55825), the northern population of the bog turtle (from New York south to Maryland) was listed as T (threatened), and the southern population (from Virginia south to Georgia) was listed as T(S/A) (threatened due to similarity of appearance). The T(S/A) designation bans the collection and interstate and international commercial trade of bog turtles from the southern population. The T(S/A) designation has no effect on land management activities by private landowners in North Carolina, part of the southern population of the species. In addition to its official status as T(S/A), the U.S. Fish and Wildlife Service considers the southern population of the bog turtle as a Federal species of concern due to habitat loss.

### **Definitions of Record Status:**

Current - the species has been observed in the county within the last 50 years.

Historic - the species was last observed in the county more than 50 years ago.

Obscure - the date and/or location of observation is uncertain.

Incidental/migrant - the species was observed outside of its normal range or habitat.

Probable/potential - the species is considered likely to occur in this county based on the proximity of known records (in adjacent counties), the presence of potentially suitable habitat, or both.

## NC NHP Quad Search Results

[New Search](#)

Returned Elements: 6 using: CHARLOTTE EAST  
 [Animal Assemblage 1] [Invertebrate Animal 1] [Nonvascular Plant 1] [Vascular Plant 2] [Vertebrate Animal 1]

<u>Major Group</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>	<u>State Rank</u>	<u>Global Rank</u>	<u>Quad - Status</u>	<u>Map - Habitat</u>
Animal Assemblage	<i>Colonial Wading Bird Colony</i>	None	None	None	S3	GNR	Charlotte East-Current	<a href="#">Link</a>
Invertebrate Animal	<i>Lasmigona decorata</i>	Carolina Heelsplitter	E	E	S1	G1	Charlotte East-Historic	<a href="#">Link</a>
Nonvascular Plant	<i>Dichelyma capillaceum</i>	Hair Claw Moss	SR-P	None	S1?	G5	Charlotte East-Historic	<a href="#">Link</a>
Vascular Plant	<i>Cirsium carolinianum</i>	Carolina Thistle	SR-P	None	S2	G5	Charlotte East-Historic	<a href="#">Link</a>
Vascular Plant	<i>Desmodium sessilifolium</i>	Sessile Tick-trefoil	SR-P	None	SH	G5	Charlotte East-Historic	<a href="#">Link</a>
Vertebrate Animal	<i>Lasiurus intermedius</i>	Northern Yellow Bat	SR	None	SU	G4G5	Charlotte East-Current	<a href="#">Link</a>

NC NHP database updated on: Sunday, May 4th, 2008.

Search performed on Tuesday, 23 September 2008 @ 15:34:29 EDST

[Explanation of Codes](#)

**Appendix D**

**Notice of Dry-Cleaning Solvent Remediation**

Property Owner: 1101, LLC  
Recorded in Book \_\_\_\_, Page \_\_\_\_  
Associated plat recorded in Plat Book \_\_\_\_, Page \_\_\_\_

### **NOTICE OF DRY-CLEANING SOLVENT REMEDIATION**

**This documentary component of a Notice of Dry-Cleaning Solvent Remediation (NDCSR or Notice), as well as the plat component, have been filed this \_\_\_\_ day of \_\_\_\_\_, 201\_\_ by 1101, LLC (hereinafter “Property Owner”).**

**The Notice concerns contaminated property.**

**A copy of this Notice certified by the North Carolina Department of Environment and Natural Resources, or its successor in function (hereinafter “DENR”) is required to be filed in the Register of Deeds’ Office in the county or counties in which the land is located, pursuant to North Carolina General Statutes (hereinafter “NCGS”), Section (hereinafter “§”) 143-215.104M.**

**This Notice is required by NCGS § 143-215.104M in order to reduce or eliminate the danger to public health or the environment posed by environmental contamination at a property (hereinafter the “DSCA Site”) being addressed under the Dry-Cleaning Solvent Cleanup Act of 1997, Article 21A, Part 6 NCGS § 143-215.104A *et seq*, (hereinafter “DSCA”).**

**Pursuant to NCGS § 143-215.104M, the Property Owner must file a certified copy of this Notice within 15 days of receipt of DENR’s approval of the Notice or the effective date of the dry-cleaning solvent remediation agreement, whichever is later. Pursuant to NCGS § 143-215.104M, the copy of the Notice certified by DENR must be recorded in the grantor index under the names of the owners of the land.**

The DSCA Site is located at 1101 North Brevard Street, Charlotte, Mecklenburg County, North Carolina and is approximately 0.51 acres in size. The DSCA Site was used as a retail dry-cleaning facility from approximately 1959 to 1974. Groundwater is contaminated with dry-cleaning solvents.

Attached hereto as **Exhibit A** is a reduction, to 8 1/2" x 11", of the survey plat required by NCGS § 143-215.104M. It is a plat that has been prepared and certified by a professional land surveyor and that meets the requirements of NCGS § 47-30. That plat contains the following information:

- (1) The location and dimensions of the areas of potential environmental concern with respect to permanently surveyed benchmarks; and
- (2) The type, location and quantity of regulated substances and contaminants known to exist on the DSCA Site.

Attached hereto as **Exhibit B** is a legal description of the DSCA Site that would be sufficient as a description of the property in an instrument of conveyance.

## LAND USE RESTRICTIONS

NCGS § 143-215.104M also requires that the Notice identify any restrictions on the current and future use of the DSCA Site that are necessary or useful to maintain the level of protection appropriate for the designated current or future use of the DSCA Site and that are designated in the dry-cleaning remediation agreement. **The restrictions shall remain in force in perpetuity unless canceled by the Secretary of DENR (or its successor in function), or his/her designee, after the hazards have been eliminated, pursuant to NCGS §143-215104M. Those restrictions are hereby imposed on the DSCA Site, and are as follows:**

**1. Underground water at the DSCA Site may not be used for any purpose without the approval of DENR.**

**2. No activities that encounter, expose, remove or use groundwater (for example, installation of water supply wells, fountains, ponds, lakes or swimming pools that use groundwater, or construction or excavation activities that encounter or expose groundwater) may occur on the DSCA Site without prior sampling and analysis of groundwater to the satisfaction of DENR in any areas proposed for such activities, and submittal of the analytical results to DENR. If such results disclose to DENR contamination in excess of North Carolina's groundwater quality standards, the proposed activities may not occur without the approval of DENR on such conditions as DENR imposes, including at a minimum compliance with plans and procedures, approved pursuant to applicable law, to protect public health and the environment during the proposed activities.**

**3. In January of each year, on or before January 31<sup>st</sup>, the owner of any portion of the DSCA Site shall submit a notarized Annual DSCA Land Use Restrictions Certification to DENR certifying that this Notice remains recorded at the Mecklenburg County Register of Deeds' office, that the Land Use Restrictions are being complied with.**

**4. No person conducting environmental assessment or remediation at the Site, or involved in determining compliance with applicable land use restrictions, at the direction of, or pursuant to a permit or order issued by DENR may be denied access to the DSCA Site for the purpose of conducting such activities.**

**5. The owner of any portion of the DSCA Site shall cause the instrument of any sale, lease, grant, or other transfer of any interest in the property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Notice. The failure to include such a provision shall not affect the validity or applicability of any land use restriction in this Notice.**

## EASEMENT (RIGHT OF ENTRY)

The property owner grants and conveys to the Department, its agents, contractors, and employees, and any person performing pollution remediation activities under the direction of the Department, access at reasonable times and under reasonable security requirements to the Property to determine and monitor compliance with the Risk Management Plan and the land use restrictions set forth in this NDCSR. Such investigations and actions are necessary by the Department to ensure that use, occupancy, and activities of and at the Property are consistent with the land use restrictions and to ensure that the structural integrity and

continued effectiveness of any engineering controls (if appropriate) described in the NDCSR are maintained. Whenever possible, at least 48 hours of advanced notice will be given to the property owner prior to entry. Advanced notice may not always be possible due to conditions such as response time to complaints and emergency situations.

### **REPRESENTATIONS AND WARRANTIES**

The Property Owner hereby represents and warrants to the other signatories hereto:

- i) that the Property Owner is the sole owner of the Property;
- ii) that the Property Owner holds fee simple title to the Property free, clear and unencumbered;
- iii) that the Property Owner has the power and authority to enter into this Notice, to grant the rights and interests herein provided and to carry out all obligations hereunder;
- iv) that the Property Owner has provided to DENR the names of all other persons that own an interest in or hold an encumbrance on the Property and have notified such persons of the Property Owner's intention to enter into this Notice; and
- v) that this Notice will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which the Property Owner is a party or by which the Property Owner may be bound or affected.

### **ENFORCEMENT**

The above land use restrictions shall be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. The land use restrictions shall be enforced by any owner of the DSCA Site. The land use restrictions may also be enforced by DENR through the remedies provided in NCGS § 143-215.104P or by means of a civil action; by any unit of local government having jurisdiction over any part of the DSCA Site; and by any person eligible for liability protection under the DSCA who will lose liability protection if the restrictions are violated. Any attempt to cancel any or all of this Declaration without the approval of the Secretary of DENR (or its successor in function), or his/her delegate, shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

If a land-use restriction set out in a NDCSR required under NCGS § 143-215.104.M is violated, the owner of the contamination site at the time the land-use restriction is violated, the owner's successors and assigns, and the owner's agents who direct or contract for alteration of the contamination site in violation of a land-use restriction shall be liable for remediation of all contaminants to unrestricted use standards.

### **FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS**

When any portion of the DSCA Site is sold, leased, conveyed or transferred, pursuant to NCGS § 143-215.104M the deed or other instrument of transfer shall contain in the description section, in no smaller type

than that used in the body of the deed or instrument, a statement that the DSCA Site has been contaminated with dry-cleaning solvent and, if appropriate, cleaned up under the DSCA.

The Property Owner shall notify the Division at least fourteen (14) calendar days before the effective date of any conveyance, grant, gift, or other transfer, whole or in part, of the Owner's interest in the property. This notice shall include the name, business address and phone number of the transferee and the expected date of transfer.

### **GENERAL PROVISIONS**

The Property Owner shall notify the Division within thirty (30) days following the Owner's petitioning for or filing of any document initiating a rezoning of the Property that would change the base zone of the Property.

### **CANCELLATION OF NDSCR**

A NDSCR may, at the request of the Property Owner, be canceled by the Division after the risk to public health and the environment associated with the dry-cleaning solvent contamination and any other contaminants included in the DSCA Remediation Agreement have been eliminated as a result of remediation of the Property to unrestricted use standards.

**OWNER SIGNATURE**

IN WITNESS WHEREOF, Property Owner has caused this instrument to be duly executed this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

1101, LLC

By: \_\_\_\_\_  
Name of contact:

NORTH CAROLINA  
\_\_\_\_\_ COUNTY

I, \_\_\_\_\_, a Notary Public of the county and state aforesaid, certify that \_\_\_\_\_ personally came before me this day and acknowledged that he is a Member of 1101, LLC, a North Carolina limited liability corporation, and its Manager, and that by authority duly given and as the act of the company, the foregoing Notice of Dry-Cleaning Solvent Remediation was signed in its name by him.

WITNESS my hand and official stamp or seal, this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
Name typed or printed:  
Notary Public

My Commission expires: \_\_\_\_\_  
[Stamp/Seal]

**APPROVAL AND CERTIFICATION OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**

The foregoing Notice of Dry-Cleaning Solvent Remediation is hereby approved and certified.

North Carolina Department of Environment and Natural Resources

By: \_\_\_\_\_ Date \_\_\_\_\_  
Jack Butler, Chief  
Superfund Section  
Division of Waste Management

LIMITED POWER OF ATTORNEY

I \_\_\_\_\_ “Property Owner”, do hereby grant a limited power of attorney to the Division and to the Division’s independent contractors, as follows:

**The Division and the Division’s independent contractors shall have the limited power of attorney to record this Notice, including its documentary and survey plat components, in accordance with N.C.G.S. § 143-215.104M on my “Property Owner” behalf. This limited power of attorney shall terminate upon completion of the recordation of the Notice.**

Signature of Property Owner

\_\_\_\_\_

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

STATE OF NORTH CAROLINA  
COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, a Notary Public of the county and state aforesaid, certify that \_\_\_\_\_ personally came before me this day, demonstrated her/his identity, and signed the foregoing certification

WITNESS my hand and official stamp or seal, this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
Notary Public

My Commission expires: \_\_\_\_\_

[Seal]

**CERTIFICATION OF REGISTER OF DEEDS**

The foregoing documentary component of the Notice of Dry-Cleaning Solvent Remediation, and the associated plat, are certified to be duly recorded at the date and time, and in the Books and Pages, shown on the first page hereof.

Register of Deeds for Mecklenburg County

By: \_\_\_\_\_

Name typed or printed: \_\_\_\_\_

Deputy/Assistant Register of Deeds

\_\_\_\_\_

Date

**EXHIBIT A**  
**SURVEY PLAT REDUCTION**



**EXHIBIT B**

**LEGAL DESCRIPTION FOR PROPERTY**

**EXHIBIT B**

(Legal Description)

BEING all that certain lot or parcel of land situated in the City of Charlotte, Mecklenburg County, North Carolina and more particularly described as follows:

BEGINNING at an iron stake in the westerly side of North Brevard Street in the City of Charlotte, North Carolina, the said iron stake being 467.5 feet from the center of the Seaboard Railway Company measured along the westerly side of North Brevard Street North 51 degrees 52 minutes East from the said center of the said Seaboard Railway track; thence from said iron stake, the point of beginning, North 40-15 West 143 feet to a tack in the center line of the Norfolk and Southern Railroad track; thence in a general easterly direction with a circular curve to the left, the curve having a radius of 819 feet, a distance of 243 feet to a point in the centerline of the Norfolk and Southern Railroad track; thence South 40-15 East 50 feet to a stake located in the westerly edge of North Brevard Street; thence with the westerly edge of North Brevard Street South 51-47 West 220 feet to the iron stake, in a point or place of BEGINNING.

**Appendix E**

**Example Annual DSCA Land-Use Restrictions Certification**

**Site Name: Gay Laundry and Cleaners**

**Site Address: 1101 North Brevard Street, Charlotte, Mecklenburg County, NC**

**NC DSCA ID No: 36-0004**

**ANNUAL DSCA LAND USE RESTRICTIONS CERTIFICATION**

Pursuant to Land Use Restriction Number \_\_\_\_\_ in a Notice of Dry-Cleaning Solvent Remediation (NDCSR) executed by \_\_\_\_\_ and recorded on \_\_\_\_\_ at the Mecklenburg County Register of Deeds Office, 1101, LLC hereby certifies, as an owner of at least part of the property that is the subject of the NDCSR, that the NDCSR remains recorded at the Mecklenburg County Register of Deeds office and the land use restrictions therein are being complied with.

Duly executed this \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

1101, LLC.

By: \_\_\_\_\_  
Name typed or printed:

NORTH CAROLINA  
\_\_\_\_\_ COUNTY

I, \_\_\_\_\_, a Notary Public of the county and state aforesaid, certify that \_\_\_\_\_ personally came before me this day and acknowledged that he/she is a Member of 1101, LLC, a North Carolina limited liability corporation, and its Manager, and that by authority duly given and as the act of the corporation, the foregoing certification was signed in its name by him/her.

WITNESS my hand and official stamp or seal, this \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

\_\_\_\_\_  
Name typed or printed:  
Notary Public

My Commission expires: \_\_\_\_\_

[Stamp/Seal]

**Appendix F**  
**Example Notice of Intent**

*NOTICE OF INTENT TO REMEDIATE A DRY-CLEANING SOLVENT FACILITY  
OR ABANDONED SITE*

The Dry-Cleaning Solvent Cleanup Act of 1997 (DSCA), North Carolina General Statutes (N.C.G.S.) Sections 143-215.104A through 143-215.104U, provides for the assessment and remediation of properties that may have been or were contaminated by chlorinated solvents. One of the DSCA requirements (See N.C.G.S. 143-215.104L) is a Notice of Intent to Remediate a Dry-Cleaning Solvent Facility or Abandoned Site (NOI) approved by the North Carolina Department of Environment and Natural Resources (DENR). The NOI must provide, to the extent known, a legal description of the location of the DSCA Site, a map showing the location of the DSCA Site, a description of the contaminants involved and their concentrations in the media of the DSCA Site, a description of the intended future use of the DSCA Site, any proposed investigation and remediation, and a proposed Notice of Dry-Cleaning Solvent Remediation (NDCSR) prepared in accordance with N.C.G.S. Section 143-215.104M. The required components of the NOI are included in the attached site maps and the proposed NDCSR.

A property owner who desires to enter into a DSCA Remediation Agreement must provide a copy of the NOI to all local governments having jurisdiction over the DSCA Site. Written public comments may be submitted to DENR no later than \_\_\_\_\_, 2010. Written requests for a public meeting may be submitted to DENR no later than \_\_\_\_\_, 2010. All such comments and requests should be addressed as follows:

**Billy Meyer, DSCA Program  
Special Remediation Branch  
Superfund Section  
Division of Waste Management  
NC Department of Environment and Natural Resources  
401 Oberlin Road, Suite 150  
Raleigh, North Carolina 27605**

**SUMMARY OF NOTICE OF INTENT TO REMEDIATE A DRY-CLEANING  
SOLVENT FACILITY OR ABANDONED SITE**

Gay Laundry and Cleaners  
DSCA Site # 60-0044

Pursuant to N.C.G.S. §143-215.104L, a Notice of Intent to Remediate a Dry-Cleaning Solvent Facility or Abandoned Site (NOI) has been filed with the North Carolina Department of Environment and Natural Resources (DENR). The purpose of this Summary of the NOI is to notify the community of the proposed remedy for the contamination site and invite comment on the proposed remedy.

The dry-cleaning operation was located at the following address and parcel in Charlotte, North Carolina:

1101 N. Brevard Street  
Parcel No. 08104201

Dry-cleaning solvent contamination related to activities at the site referenced above has been discovered in groundwater on a portion of the Property. An investigation of the extent of contamination has been completed. Based on the risks posed by the contamination, the proposed remedy for the site includes land use restrictions to control current and future site risks at the source property.

The complete NOI is available online at [www.ncdsca.org](http://www.ncdsca.org) , under “Public Notices”.

***The public comment period begins [REDACTED], 2010, and ends [REDACTED], 2010.***

Comments must be in writing and submitted to DENR no later than [REDACTED], 2010. Written requests for a public meeting may be submitted to DENR no later than [REDACTED], 2010. Requests for additional information should be directed to Mr. Billy Meyer at (919) 508-8415.

All comments and requests should be sent to:

Billy Meyer, DSCA Remediation Program  
Division of Waste Management, NC DENR  
401 Oberlin Road, Suite 150  
Raleigh, North Carolina 27605