

**Analysis of
Brownfield Cleanup Alternatives
Former Sanitary Laundry Site
625 North Broadway, Knoxville TN
S&ME Project No. 4143-15-072**



Prepared for:
City of Knoxville
Office of Redevelopment
400 Main Street, Suite 655
Knoxville, Tennessee 37902

Prepared by:
S&ME, Inc.
1413 Topside Road
Louisville, TN 37777

September 10, 2015



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City of Knoxville
Office of Redevelopment
400 Main Street, Suite 655
Knoxville, Tennessee 37902

Attention: Ms. Anne Wallace

Reference: **Analysis of Brownfield Cleanup Alternatives**
Former Sanitary Laundry Site, 625 North Broadway
Knoxville, TN
S&ME Project No. 4143-15-072

Dear Ms. Wallace:

S&ME, Inc. (S&ME) has completed an Analysis of Brownfield Cleanup Alternatives (ABCA) for the Former Sanitary Laundry property located at 625 North Broadway in Knoxville, Tennessee. The purpose of the ABCA is to briefly summarize information about the site and contamination issues, cleanup standards, applicable regulatory requirements, cleanup alternatives considered, and proposed cleanup alternative(s). As part of the community notification requirements for an Environmental Protection Agency (EPA) Brownfield Cleanup Grant (grant), the City of Knoxville must allow the community an opportunity to comment on the draft grant proposal. Following your review and comment on this ABCA, a public meeting is to be held to present the proposal and the ABCA, and to solicit public comments. The ABCA, public meeting information and public comments are to be included in the grant application, if you elect to pursue this funding opportunity.

S&ME appreciates this opportunity to be of service to you. Please call if you have questions concerning this report or any of our services.

Sincerely,
S&ME, Inc.

Elizabeth M. Porter, P.G., PMP
Project Manager

James R. Bruce, P.G., CHMM
Senior Reviewer



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1.0 Introduction

S&ME, Inc. (S&ME) has completed an Analysis of Brownfield Cleanup Alternatives (ABCA) for the Former Sanitary Laundry property located at 625 North Broadway in Knoxville, Tennessee (Figure 1, Appendix I). The purpose of the ABCA is to briefly summarize information about the site and contamination issues, cleanup standards, applicable regulatory requirements, cleanup alternatives considered, and proposed cleanup alternative(s). The ABCA has been prepared to support an application for a United States Environmental Protection Agency (EPA) Brownfield Cleanup Grant, if the City of Knoxville (City) elects to pursue this funding opportunity.

2.0 Background Information

Regulatory files available at the Tennessee Department of Environment and Conservation (TDEC) Knoxville Field Office (KFO) were reviewed by S&ME to compile this background information. In addition to the regulatory file review, using funds from an EPA Brownfields Assessment and Planning Grant, S&ME performed environmental services for the City on the former Sanitary Laundry and Dry Cleaning property at 625 North Broadway in Knoxville, Tennessee. The approximately 0.334-acre property is owned by the City of Knoxville, and is identified on the Knox County Tax Assessor's Tax Map as Tax Map 94D, Group P, Parcel 13 (Parcel ID 094—DP-013). S&ME generated the following reports to document the assessment activities:

- ◆ *S&ME Report of Phase I Environmental Site Assessment, Former Sanitary Laundry and Dry Cleaning Property, July 31, 2013*
- ◆ *S&ME Report of Phase II Environmental Site Assessment, Former Sanitary Laundry Property, September 12, 2014*
- ◆ *S&ME Report of Limited Asbestos and Lead-Based Paint Survey, 625 North Broadway Former Sanitary Laundry Facility, October 22, 2014*

Numerous additional reports and site-related documents are available in the extensive TDEC file. It is worthwhile to note that the reports referenced above and in the TDEC files include both the parcel at 625 North Broadway and the parcel at 750-760 Stone Street, located behind the subject property but also part of the former Sanitary Laundry operation. The parcel at 750-760 Stone Street contained the boiler house and a loading and vehicle maintenance building. The Stone Street parcel is currently owned by others and is excluded from this ABCA. The parcel addressed in this ABCA is shown in Figure 2, Appendix I.



The subject property at 625 North Broadway is occupied by an approximately 15,000 square-foot vacant building formerly occupied by Sanitary Laundry and Dry Cleaning. As summarized in the referenced reports and previous documentation available in TDEC files, historical resources reviewed indicate that Sanitary Laundry and Dry Cleaning operated on the subject property from 1926 until 1993. One dry cleaning solvent and two gasoline underground storage tanks (UST) utilized by the dry cleaner were located on the property or on the Stone Street parcel behind the building, which was also former Sanitary Laundry property. The gasoline USTs were removed in 1993. The dry cleaning UST was emptied in 1994 but based on observations made during the Phase I Environmental Site Assessment (ESA) site reconnaissance, this UST remains on the property, behind the building.

During a discussion regarding the site at the TDEC KFO on August 25, 2015, Dan Hawkins and Erin Sutton, both with the TDEC Division of Remediation (DOR), were asked about the status of USTs associated with the subject site. Ms. Sutton recalled that the dry-cleaning fluids tank was filled with concrete sometime in the 1990's. Neither Mr. Hawkins nor Ms. Sutton were aware of ongoing concerns associated with residual fluids in the site's USTs. TDEC records reviewed during preparation of this ABCA confirm that in 1994, the tank that previously held dry-cleaning fluids was emptied and subsequently filled with concrete.

Minor staining of the concrete floor was observed throughout the building during the Phase I ESA site reconnaissance. A loading dock was observed on the west side of the building. A large boiler was observed on the northeast portion of the building. An adjoining elevated concrete trough was also observed. The past use of this trough was not evident based on site observations. Steam piping used in the dry cleaning process was also observed throughout the building.

Soil and groundwater investigations have identified soil and groundwater contaminated with dry cleaning compounds, solvents, and petroleum products. The Phase I ESA documented evidence of recognized environmental conditions relative to current and former uses of the subject property. The recognized environmental conditions documented in the Phase I ESA include:

- ◆ The subject property operated as a dry cleaner from 1926 until 1993.
- ◆ The subject property was identified on multiple regulatory databases.
- ◆ Dry cleaning compounds and solvents at concentrations that exceed primary drinking water Maximum Contaminant Levels (MCLs) have been detected in groundwater.
- ◆ Two gasoline USTs and one heating oil aboveground storage tank (AST) have been located on or behind the subject property in the past (on the 750-760 Stone Street parcel).



- ◆ Evidence of one dry cleaning solvent UST was observed on the subject property. The contents of the UST were reportedly removed in 1994 but no soil testing was performed at that time.
- ◆ Numerous 55 gallon drums of dry cleaning fluids and oil were observed and removed from the Sanitary Laundry property in 1999.
- ◆ Two groundwater monitoring wells are located in the courtyard area west of the North Broadway building.
- ◆ One inground hydraulic lift was observed in the garage building behind the subject property (on the 750-760 Stone Street parcel).
- ◆ The subject property was placed on the State Superfund list in 1994.

In 1994, the subject property was added to the List of Inactive Hazardous Substance Sites by action of the Tennessee Solid Waste Disposal Control Board. The subject property was identified as Site No. 47-545, Sanitary Laundry and Dry Cleaners. A Notice of a Hazardous Substance Site was filed with the Knox County Register's Office in 1997. An Imminent, Substantial Danger Memorandum was issued by the TDEC Commissioner in 1999, due to the presence of multiple 55-gallon drums of hazardous substances onsite. TDEC initiated emergency removal actions in 1994, and again in 1999, addressing the underground storage tanks and two barrels of dry cleaning fluid in 1994, and implementing an emergency removal of the drums in 1999.

Based on the Phase I ESA findings, in 2014 S&ME conducted a Phase II ESA on behalf of the City to determine the nature and extent of subsurface contamination resulting from past use of the property. The Phase II ESA consisted of the collection and laboratory analysis of 34 passive soil vapor modules, subsurface soil samples, groundwater samples, soil gas samples and ambient air samples from the former Sanitary Laundry property, which included the subject site and the parcel to the west, behind the subject site. A Geoprobe® rig was used to obtain subsurface soil for field and laboratory analyses. Groundwater samples were collected from two existing monitoring wells and from six piezometers installed during the Phase II ESA sampling.

The analysis of soil samples revealed arsenic concentrations in 14 samples that exceeded the EPA May 2014 Residential Soil Regional Screening Level (RSL), and 13 samples that exceed the Industrial Soil RSL for arsenic. However, the reported arsenic concentrations did not vary significantly with depth or location and are therefore interpreted as naturally-occurring background. Of the volatile organic compounds (VOC) and polynuclear aromatic hydrocarbon (PAH) compounds detected in soil samples, only tetrachloroethylene and benzo(a)pyrene exceeded Residential Soil RSLs. None of the reported VOC or PAH concentrations exceed Industrial Soil RSLs.



Concentrations of petroleum hydrocarbons (EPH, TPH) that exceeded the TDEC Division of Solid Waste Management cleanup criteria of 100 milligrams per kilogram (mg/kg) were reported in soil samples collected from within the Sanitary Laundry building, the former auto repair building (behind the subject site) and the former UST locations (behind the subject site).

Arsenic concentrations detected in groundwater samples exceeded the corresponding arsenic Tapwater RSL. Lead concentrations detected in each groundwater sample exceeded the EPA drinking water MCL. Concentrations of benzene and the chlorinated solvents tetrachloroethylene, trichloroethylene cis-1,2-dichloroethene and vinyl chloride which exceeded the Tapwater RSLs and MCLs were detected in groundwater samples. Also notable is the detection of 1,2-dichlorobenzene, ethylbenzene, naphthalene, n-propylbenzene, the trimethylbenzene isomers, and xylenes that exceed the Tapwater RSLs.

The eight soil gas samples collected during the Phase II ESA reported concentrations of benzene, ethylbenzene, carbon tetrachloride, chloroform, tetrachloroethylene, trichloroethylene, 1,1-dichloroethane, 1,1-dichloroethene, and vinyl chloride that exceeded the respective Residential and/or Industrial RSLs. It is notable that tetrachloroethylene concentrations exceeded the Industrial Air RSL by up to three orders of magnitude in sub-slab samples within the three buildings located on the former Sanitary Laundry property. Tetrachloroethylene and trichloroethylene were observed in the soil gas below the building with maximum concentrations of 68,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and 10,000 $\mu\text{g}/\text{m}^3$, respectively.

Ambient air sampling resulted in concentrations of benzene, carbon tetrachloride, chloroform, chloromethane, ethylbenzene, tetrachloroethylene and trichloroethylene that exceed Residential and Industrial RSLs. The highest chloromethane, ethylbenzene, tetrachloroethylene and trichloroethylene concentrations were reported for air samples collected in the former Sanitary Laundry building, which occupies the subject property. A maximum concentration of tetrachloroethylene in ambient air was detected at 46 $\mu\text{g}/\text{m}^3$, and trichloroethylene was detected at 6.4 $\mu\text{g}/\text{m}^3$. Ambient air samples collected by TDEC on April 1, 2015 in the adjoining buildings tested positive for solvents, but at concentrations that TDEC indicated were "significantly below our risk based remedial goals." As a precautionary measure, TDEC plans to sample both adjoining properties a second time.

3.0 Applicable Regulatory and Cleanup Standards

The TDEC DOR has been involved with this site for many years. In an effort to support the City's redevelopment efforts, and to insure that site redevelopment is performed in accordance with applicable regulations, TDEC has prepared a Brownfield Voluntary Agreement (BVA) (Site No. 47-545). TDEC and the City have agreed that the BVA is to be made a condition of sale of the property. A copy of the BVA is included in Appendix II and should be reviewed for an understanding of the TDEC requirements for the subject property redevelopment. Some of the terms and conditions pertaining to property redevelopment are summarized herein:

- ◆ Prior to any part of the Property being used for a residence, domicile, daycare, school, or church, the Grantor, its successors, and/or assigns must notify TDEC DOR and must demonstrate to the satisfaction of TDEC DOR that any such proposed use listed above will not pose a danger to public health, safety, or the environment.
- ◆ Prior to the removal of soil at the Property, the Grantor, its successors, and/or assigns must notify TDEC DOR and must demonstrate to the satisfaction of TDEC DOR that any such proposed soil removal will not pose a danger to public health, safety, or the environment.
- ◆ The Grantor, its successors, and/or assigns must notify TDEC DOR prior to any invasive activity on the Property including soil borings or potable groundwater wells. The Grantor, its successors, and/or assigns must demonstrate to the satisfaction of TDEC DOR, through sampling and analysis approved by TDEC DOR, that any invasive activity will not pose a danger to public health, safety, or the environment.
- ◆ Any new building construction on the property shall incorporate an engineered vapor mitigation system designed to prevent subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels. Said vapor mitigation system plans shall be developed and certified by a professional engineer and provided to the TDEC DOR for review prior to construction. After installation, and within 90 days, the professional engineer shall submit a written report to the TDEC DOR documenting how the system was installed, any deviations from the plans the engineer provided to TDEC DOR, as-built drawings stamped by a professional engineer, and an Operation and Maintenance Plan identifying continued care, and operation and maintenance activities to be conducted to ensure the venting system is effective in

preventing subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels.

- ◆ The Grantor, its successors, and/or assigns shall be responsible for continued care, operation, and maintenance of the remedy. The Grantor, its successors, and/or assigns shall notify TDEC DOR in writing if the integrity of the remedy is compromised and take any steps necessary to eliminate the threat or potential threat to public health, safety, or the environment posed by the hazardous substance(s).
- ◆ The Voluntary Party agrees that criteria required in Tennessee Code Annotated (TCA) 68-212-206(d) shall be used in determining containment and cleanup actions, including monitoring and maintenance options to be followed under this Agreement.
- ◆ The Voluntary Party agrees to prepare a Soil Management Plan (SMP) for DOR approval prior to the commencement of construction activities. The SMP will include, but not be limited to, characterization of any excavated materials, handling procedures to ensure that any offsite disposal of impacted media meets all State and Federal requirements, and, if needed, installation of a barrier or engineered cap. A Health and Safety Plan shall be submitted to the DOR for review and comment.
- ◆ The Voluntary Party agrees to perform the work set forth in the SMP and the Voluntary Party shall submit a written report of its findings to the DOR within 90 days of completion of such work. The report shall include, but not be limited to, as-built drawings, details of any capping, and waste manifests for offsite disposal. The report shall also identify any areas where soil remains at the subject property that must be managed in the future to protect human health, safety, or the environment and requirements for future soil management and maintenance of any covers or caps.
- ◆ The Voluntary Party agrees that it will file any land use restriction identified by the DOR as necessary for the safe use of the property in accordance with TCA 68-212-225.

4.0 Evaluation of Cleanup Alternatives

The City and TDEC DOR have provided input on the proposed cleanup alternatives for the subject property, assuming that the site will be redeveloped for retail, commercial or residential purposes. Some aspects of the cleanup alternatives are dependent on the specifics of the as-yet unidentified

redevelopment plan, but certain general assumptions have been made to complete this evaluation. Three alternatives have been considered for the purpose of this ABCA, including:

- ◆ No action,
- ◆ Redevelopment using existing foundations,
- ◆ Removal of some or all of the existing foundations, followed by construction of a new structure.

4.1 No Action

The “no action” alternative is not considered viable because the subject property is currently in a state of disrepair and therefore has the potential to negatively impact surrounding property values. The current redevelopment climate in Knoxville and the recent assessments using funds from the EPA Brownfields Assessment and Planning Grant have generated interest in the area. The City is interested in leveraging this interest into an opportunity to advance the redevelopment of the subject site.

4.2 Redevelopment using existing foundations

Redevelopment using existing foundations would be a viable option if the proposed use for the subject property would support this approach. Demolition as warranted, and removal of debris in accordance with local, State and Federal regulations would be required. One advantage of this approach would be to limit subsurface disturbance to utility trenches or other limited areas where excavation would be needed to support the redevelopment design. A SMP would be required to characterize and address potentially impacted material that may be encountered during these limited excavation activities.

The proposed site redevelopment must address the potential for subsurface vapors to migrate to ambient air thru the existing concrete slab. As part of the site re-design for the proposed use, a soil vapor mitigation system would be required to protect building occupants. The goal of the soil vapor mitigation system would be to break the exposure pathway for vapor migration. Two potential approaches for the soil vapor system include an impervious barrier or a sub-slab depressurization system that creates a negative pressure beneath the slab and vents the vapors to the outdoor air. Additional evaluation of the existing structural integrity of the slab, taking into consideration the proposed site re-use, would be helpful in designing the appropriate vapor mitigation system. For preliminary budgeting purposes, application of a commercially available impervious barrier such as Retro-Coat™ has recently been quoted at a cost of up to \$7/square foot for application, excluding engineering, design and monitoring costs. For an approximately 15,000 square-foot structure (size referenced in the TDEC files, but not verified for this document), this would require \$105,000 to apply the impervious barrier.

If a sub-slab depressurization system could be used, the cost might be substantially lower, but the effectiveness would need to be evaluated thru testing to determine the connectivity of sub-base aggregate beneath the slab. Information regarding this connectivity would be needed to determine the number and positioning of vents and fans, and the specifications for vapor barriers that might need to be incorporated into the design to separate the depressurization system from ambient air.

In addition to the SMP and vapor mitigation system design, this cleanup alternative would also warrant a land-use restriction to document the vapor mitigation system details, establish that groundwater usage from the subject site is prohibited, and to document the established protocol for monitoring and maintenance of the vapor mitigation system.

4.3 Removal of some or all of the existing foundations

Removal of some or all of the existing foundations, followed by construction of a new structure, may be warranted depending on the proposed plans for redevelopment and a structural evaluation based on those plans. Assuming that some impacted soils and/or groundwater could potentially remain beneath the building following the removal of existing foundations, this cleanup alternative would require the same measures presented in Section 4.2, including a SMP, a vapor mitigation system, and filing of a land use restriction document for the site. In addition, this alternative would require that the excavated foundations and impacted sub-slab materials be characterized and handled in accordance with local, State and Federal regulations, and in accordance with the SMP. The estimated cost for this approach cannot be provided at this time, as it would depend on factors such as the extent of foundation demolition proposed, the width and depth of existing foundations, and the level of impacts encountered in the underlying soils. For comparison purposes, if the underlying material is classified as special waste that can be disposed at a Subtitle D Landfill, fees for excavation, transportation and disposal might be on the order of \$75/ton. If some or all of this material is classified as hazardous waste, excavation, transportation and disposal fees could increase to approximately \$350/ton.

Due to these potential fees associated with addressing excavated material, redevelopment under this scenario would likely incur additional site characterization and regulatory negotiation fees, as it would be in the developer's best interest to obtain a thorough understanding of the existing foundation and soil conditions in the vicinity of the proposed excavation areas to the extent practicable before excavation is initiated.

4.4 Changing Climate Concerns

EPA requires that the ABCA includes an evaluation of the resilience of the remedial option in light of reasonably foreseeable changing climate conditions. This includes a discussion of the observed and forecasted climate change conditions for Knoxville and the associated site-specific risk factors. In order to evaluate changing climate concerns, S&ME researched the following websites on September 4, 2015:

- ◆ <http://nca2014.globalchange.gov/report/regions/southeast#intro-section-2>
- ◆ http://toolkit.climate.gov/climate-explorer/?tp=g_a¢er=-9355279.1,4519567.9&zoom=4&p=L&layers=aag:1,aac:1,aad:1,abp:1,aak:1,aam:1

Due to the location of the site and the surrounding area, rising sea levels, changes in flood zones, increased salt water intrusion or increased risk of wildfires potentially associated with climate change would not be expected to have an impact on the proposed cleanup alternatives. Projected increases or decreases in temperature or precipitation or extreme weather events would also likely not impact the future site use, as it is located in a highly urbanized area surrounded by well-established buildings, roads and paved parking lots.

Changing dates for ground thaw/freezing or higher/lower groundwater tables could potentially impact the soil vapor concentrations. Proposed vapor mitigation systems are typically designed to be protective under a worst-case scenario based on known site conditions. Since the dry-cleaning operations have been out of service for over 20 years, and the former dry-cleaning fluid tank was filled with concrete in the 1990's, natural attenuation of organic contaminants of concern present at this site is likely occurring, and remedial design using recently documented site conditions seems to be a prudent approach for site redevelopment, irrespective of potential future fluctuations in groundwater table or thaw/freeze cycles.

Based on the databases researched and the projected climate change impacts, S&ME does not anticipate that modification to the proposed cleanup alternatives would be warranted to address changing climate conditions.

Appendices

Appendix I – Figures

Figure 1 – Site Vicinity Map

Figure 2 – ABCA Site Map



Topo Map Name: Knoxville, TN	Approx. Scale: 1"=1000'	 Subject Property Boundary	Site Vicinity Map Sanitary Laundry & Dry Cleaning 625 North Broadway Knoxville, Tennessee	Figure 1
Topographic Map Date: 1979	Checked By: EMP			
Topographic Map Revision: None	Drawn By: TSS		Project No: 4143-15-072	
Contour Interval: 20 feet	Date: 08-21-15			



Photograph from Google Earth

 Subject Property

Scale: As Shown
Checked By: EMP
Date: 08/21/15



ABCA Site Map
Sanitary Laundry & Dry Cleaning
625 North Broadway
Knoxville, Tennessee

Project No.: 4143-15-072

Figure
2

Appendix II – BVA 47-545

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF REMEDIATION
BROWNFIELD VOLUNTARY AGREEMENT

RE: Sanitary Laundry – 625 Broadway, Knoxville

SITE NUMBER: 47-545

INTRODUCTION

This Brownfield Voluntary Agreement (hereinafter “AGREEMENT”) is made and entered into as of _____, 201_, by and between [among] the Tennessee Department of Environment and Conservation (hereinafter “Department”), and _____, a _____ [e.g., organized under and existing pursuant to the laws of the State of Tennessee] (hereinafter [collectively] “Voluntary Party”) for the purpose of addressing a 0.4 acre portion of the above-referenced site (hereinafter “Site”), which has the real or perceived threat of the presence on the Site of hazardous substances, solid waste, or any other pollutant.

Robert J. Martineau, Jr. is the duly appointed Commissioner of the Department. Robert A. Binford, Director of the Department’s Remediation Division, has been delegated the authority to enter into these Agreements.

Pursuant to Tennessee Code Annotated § 68-212-224, the Commissioner is authorized to enter into an Agreement with a party who is willing and able to conduct an investigation and remediation of a hazardous substance site or Brownfields Project and who did not generate, transport or release the contamination that is to be addressed at the Site.

REQUIREMENTS

A. SITE LOCATION

The Site is located at 625 Broadway, Knoxville, Knox County, Tennessee and is shown in Exhibit A. The Site is approximately 0.4 acres in size and has a Knox County Parcel

Identification of Parcel 094DP013. A legal description of this tract is contained in Deed Book _____ Page _____ and is attached hereto as Exhibit B.

B. ELIGIBILITY

As required by T.C.A. § 68-212-224, a summary description of all known existing environmental investigations, studies, reports or documents concerning the Site’s environmental condition has been submitted to the Department by the Voluntary Party.(A copy of the Summary is attached hereto as Exhibit C). On the date of entering into this AGREEMENT, the Department has determined that the Site is not listed or been proposed for listing on the federal National Priorities List by the United States Environmental Protection Agency (EPA). By entering into this AGREEMENT, the Voluntary Party certifies to the best of the Voluntary Party’s knowledge that the Voluntary Party did not generate, transport or release contamination that is to be addressed at this site.

C. FINANCIAL REQUIREMENTS

Tennessee Code Annotated § 68-212-224 requires consideration of a fee to enroll in the Voluntary Cleanup Oversight and Assistance Program. The Commissioner has determined that a fee of three thousand dollars (\$ 3,000.00) DOLLARS is appropriate for the Site. This payment must accompany this AGREEMENT when it is signed on behalf of the Voluntary Party and returned to the Department. The Commissioner has set the following schedule of additional fees that apply to all sites working in cooperation with the Department to recover the expense of oversight. These fees are in place of hourly time charges and normal travel costs during the first 150 hours of oversight for the project.

Program Entry	\$ 750
Site Characterization	\$ 2,000
Remediation	\$ 2,500
Risk Assessment	\$ 2,000
Site Specific Ground Water Classification	\$ 2,000
Remedy Requirement Institutional Controls	\$ 500
Annual O&M Review	\$ 500

In addition to the fees identified previously, an annual longevity fee of \$3,000 will be charged to the Site on the anniversary of the date the site entered the program until a letter requiring no further action has been issued or this AGREEMENT has been terminated.

Upon reaching 150 hours of oversight, the Site will be charged the current hourly rate (e.g. seventy-five dollars (\$75.00) per hour for FY 2009-2010) per hour of oversight in addition to the fee schedule listed above. This amount includes the current hourly rate and pro rata portion of benefits for the Department's employees actively employed in oversight of work under this AGREEMENT, including preparation for and attendance at meetings, mileage, and the current State overhead rate. Additionally, any out-of-pocket expense, mileage, lab expense and costs including the State's current overhead rate, costs billed by State contractor(s) who are actively performing oversight or other unusual costs to the Department shall be billed to and paid by the Voluntary Party.

Fees must be paid to remain in the Voluntary Cleanup Oversight and Assistance Program and to receive a letter of no further action under Section H of this AGREEMENT.

D. IDENTIFICATION AND DOCUMENTATION OF CLEANUP

Based on the information submitted to the Department by or behalf of the Voluntary Party, and the Department's own review and investigation of the Site, the Parties hereto agree that the following environmental conditions are to be addressed under this AGREEMENT:

Sanitary Laundry and Dry Cleaning Company operated a dry cleaning facility at the site for approximately 60 years in the 1900's. During this time, petroleum products and dry cleaning fluids were stored in aboveground storage tanks, underground storage tanks, and drums. These materials were actively used for dry cleaning, laundry, and delivery vehicle fuel supply during the time of operation.

Investigation in 1993 indicated surface soil and groundwater on the Site were contaminated with hazardous substances including, but not limited to, petroleum hydrocarbons and chlorinated solvents. Impacts were the result of leaks from storage tanks and drums, as well

as, spills resulting from improper material handling. Two underground storage tanks used for petroleum products were subsequently removed in 1993.

The Site was added to the List of Inactive Hazardous Substance Sites by action of the Tennessee Solid Waste Disposal Control Board in 1994 and became Site #47-545, Sanitary Laundry and Dry Cleaners. TDEC initiated an emergency removal action in 1994 that containerized and disposed of the contents of an underground storage tank and two barrels of dry cleaning fluid, one of which was leaking. The underground storage tank contained fluid primarily consisting of water with trace levels of benzene, trichloroethene, and other hydrocarbons. A Notice of a Hazardous Substance Site was filed with the Knox County Register's Office on the Site in 1997. An Imminent, Substantial Danger Memorandum was issued by the Commissioner in 1999 due to the presence of multiple fifty-five (55) gallon drums of hazardous substances on the site. Access at the time was uncontrolled and there existed the potential for explosion and/or fire. TDEC initiated an emergency removal of the drums in October 1999.

The City of Knoxville, through an EPA Brownfields Assessment Grant (BF-95443509-1) completed additional investigation of the Site. The results of this study show there to be a continued presence of hazardous substances in the groundwater, soil, and air that include, but are not limited to, petroleum hydrocarbons and chlorinated solvents. Tetrachloroethylene and trichloroethylene were observed in the soil gas below the building with a maximum concentration of 68,000 $\mu\text{g}/\text{m}^3$ and 10,000 $\mu\text{g}/\text{m}^3$, respectively. These constituents also exceeded the EPA Regional Screening Levels for industrial facilities in the ambient air within the structure; a maximum concentration of tetrachloroethylene in ambient air was observed at 46 $\mu\text{g}/\text{m}^3$ and trichloroethylene at 6.4 $\mu\text{g}/\text{m}^3$.

E. AGREED LIABILITY RELIEF

T.C.A. § 68-212-224(a)(5) provides that, TDEC is authorized to limit the liability of a participant in a voluntary agreement or consent order entered into pursuant to T.C.A. § 68-212-224. Such voluntary agreement or consent order may limit the liability of such participant to the obligations set forth therein and exempt the participant from any further liability under any

statute administered by TDEC for investigation, remediation, monitoring, and/or maintenance of contamination identified and addressed in the voluntary agreement or consent order. TDEC may extend this liability protection to successors in interest or in title to the participant, contractors conducting response actions at the Site, developers, future owners, tenants, and lenders, fiduciaries or insurers (collectively "Successor Parties").

In accordance with the above referenced authority, TDEC agrees that other than with respect to the obligations set forth in this AGREEMENT, the Voluntary Party and Successor Parties (as hereinafter defined) shall bear no liability to the State of Tennessee under any statute administered by the Department for investigation, remediation, monitoring, treatment and/or maintenance of contamination identified in and addressed in this AGREEMENT (collectively referred to as the "*Matters Addressed in this Agreement*"); provided, however, that to the extent that the Voluntary Party or Successor Parties (as hereinafter defined) has or maintains an interest in the Site, or possesses and/or controls all or a portion of the Site, its liability protections hereunder are contingent upon its continued adherence and enforcement of any land use restrictions imposed pursuant to or as a result of this AGREEMENT, adherence to the soil management plan, and vapor mitigation system operation and maintenance described the Section H Agreed Actions to be Taken. Nothing in this AGREEMENT shall be construed as limiting the liability or potential liability of the Voluntary Party for contamination occurring after the effective date of this AGREEMENT. This liability protection and all other benefits conferred by this AGREEMENT are extended to all future "Successor Parties" conditioned upon performance of the obligations contained in this AGREEMENT, compliance with the Land Use Restrictions (hereinafter defined); provided and adherence to the soil management plan, and vapor mitigation system operation and maintenance described the Section H Agreed Actions to be Taken, that such liability protection to other persons does not apply to liability to the extent that such liability arose prior to the effective date of this AGREEMENT.

F. ADMINISTRATIVE SETTLEMENT; THIRD PARTY LIABILITY (include first sentence below for inactive hazardous substance sites (including hazardous waste sites) only)

This AGREEMENT also constitutes an administrative settlement for purposes of Section 113(f) of CERCLA, 42 U.S.C. §9613(f), pursuant to which the Voluntary Party and Successor

Parties (as hereinafter defined) have, as of the effective date of this AGREEMENT, resolved their liability to the State of Tennessee for *Matters Addressed in this Agreement*.

The Voluntary Party shall not be liable to third parties for contribution regarding *Matters Addressed in this Agreement*; provided that, the Voluntary Party gave the third party actual or constructive notice of this AGREEMENT, and the third party was given an actual or constructive opportunity to comment upon this AGREEMENT. The Voluntary Party has demonstrated to the Department that constructive notice was accomplished by publishing a summary of this AGREEMENT in the Knox News Sentinel at least thirty (30) days prior to the Effective Date of this AGREEMENT. Nothing in this AGREEMENT shall impair the rights of third parties with respect to tort liability claims for damage to person or property arising from the contamination addressed by the voluntary agreement.

G. LAND USE RESTRICTIONS

Upon acquiring the Site, the Voluntary Party agrees that said property will be restricted as follows:

1. Prior to any part of the Property being used for a residence, domicile, daycare, school, or church, the Grantor, its successors, and/or assigns must notify TDEC Division of Remediation and must demonstrate to the satisfaction of TDEC Division of Remediation that any such proposed use listed above will not pose a danger to public health, safety, or the environment.
2. Prior to the removal of soil from the Property, the Grantor, its successors, and/or assigns must notify TDEC Division of Remediation and must demonstrate to the satisfaction of TDEC Division of Remediation that any such proposed soil removal will not pose a danger to public health, safety, or the environment.
3. The Grantor, its successors, and/or assigns must notify TDEC Division of Remediation prior to any invasive activity on the Property including soil borings or potable groundwater wells. The Grantor, its successors, and/or assigns must demonstrate to the satisfaction of TDEC Division of Remediation, through sampling

and analysis approved by TDEC Division of Remediation, that any invasive activity will not pose a danger to public health, safety, or the environment.

4. Any new building construction on the property shall incorporate an engineered vapor mitigation system designed to prevent subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels. Said vapor mitigation system plans shall be developed and certified by a professional engineer and provided to the TDEC Division of Remediation for review prior to construction. After installation, the professional engineer shall submit a written report to the TDEC Division of Remediation documenting how the system was installed, any deviations from the plans the engineer provided to TDEC Division of Remediation, as-built drawings stamped by a professional engineer, and an Operation and Maintenance Plan identifying continued care, and operation, and maintenance activities to be conducted to ensure the venting system is effective in preventing subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels. .
5. The Grantor, its successors, and/or assigns shall be responsible for continued care, operation, and maintenance of the remedy. The Grantor, its successors, and/or assigns shall notify TDEC Division of Remediation in writing if the integrity of the remedy is compromised and take any steps necessary to eliminate the threat or potential threat to public health, safety, or the environment posed by the hazardous substance(s).

The Voluntary Party agrees that it will file any land use restriction identified by the Department as necessary for the safe use of the property in accordance with T.C.A. 68-212-225. Any Party receiving liability protection under this AGREEMENT that seeks approval for restricted uses or seeks to cancel or make a Restriction less stringent shall be responsible for any costs incurred by the Department in the review and oversight of work associated with the restriction modification. Upon filing, a copy of this notice shall be mailed to all local governments having jurisdiction over any part of the subject property.

H. AGREED ACTIONS TO BE TAKEN

1. The Voluntary Party agrees to send notification of this AGREEMENT by certified mail to all local governments having jurisdiction over any part of the subject property and to all owners of adjoining properties. The Voluntary Party shall provide adequate documentation to demonstrate that public notice has been accomplished.
2. The Voluntary Party agrees that criteria required in TCA 68-212-206(d) shall be used in determining containment and cleanup actions, including monitoring and maintenance options, to be followed under this Agreement.
3. The Voluntary Party agrees to equip all building structures with an engineered vapor mitigation system designed to prevent subsurface vapor phase contamination from migrating into the structure at concentrations greater than applicable screening levels. The Voluntary Party will provide plans certified by a professional engineer for the vapor mitigation system to the Department for review prior to construction. Within 90 days following completion of the system, the Voluntary Party shall submit a written report documenting that the system was installed. The report shall include as-built drawings stamped by a professional engineer and an Operation and Maintenance Plan identifying activities that must be conducted to ensure the venting system is operated in an effective manner consistent with its design specifications.
4. The Voluntary Party agrees to prepare a Soil Management Plan for Department approval prior to the commencement of construction activities. The soil management plan will include, but not be limited to, characterization of any excavated materials, handling procedures to ensure that any offsite disposal of impacted media meets all State and Federal requirements, and, if needed, installation of a barrier or engineered cap. A Health and Safety Plan shall be submitted to the Department for review and comment.
5. The Voluntary Party agrees to perform the work set forth in the Soil Management Plan and the Voluntary Party shall submit a written report of its findings to the Department within 90 days of completion of such work. The report shall include, but not be limited to, as-built drawings, details of any capping, and waste manifests for

offsite disposal. The report shall also identify any areas where soil remains at the Site that must be managed in the future to protect human health, safety, or the environment and requirements for future soil management and maintenance of any covers or caps.

6. Upon completion of all tasks set forth in this AGREEMENT, the Department shall issue to the Voluntary Party a letter stating the requirements of this AGREEMENT have been fulfilled and no further action is required of the Voluntary Party concerning contamination identified and addressed in this AGREEMENT. Upon the request of the Voluntary Party from time to time, the Department shall issue an interim status letter identifying what specific obligations remain to achieve completion of the work under this AGREEMENT. Issuance of a no further action letter shall not relieve the Voluntary Party of any responsibilities for operation and maintenance activities or continued adherence to and enforcement of land use restrictions, if any, pursuant to T.C.A. § 68-212-225. The Department reserves the right to require additional action for contamination caused by the Voluntary Party occurring after the date of this AGREEMENT or for contamination not identified and addressed under this AGREEMENT, if any. Each Voluntary Party or successor in title to the Site shall be responsible for compliance with the requirements of this AGREEMENT during the period in which such person owns an interest in the Site, or possesses and/or controls all or a portion of the Site.

I. ADDITIONAL REQUIREMENTS

1. The Voluntary Party may request a time extension for any deadline included in this AGREEMENT prior to the deadline. The time extension may be granted through mutual consent for good cause shown.

2. The Voluntary Party shall be responsible for the following obligations during periods when it owns the Site:

- (a) Comply with land use restrictions;
- (b) Do not impede effectiveness or integrity of institutional controls;
- (c) Provide cooperation, assistance and access;

(d) Whether or not permits are required for onsite cleanup activities, such activities shall meet the standards that would apply if such permits were required.

J. SITE ACCESS

During the effective period of this AGREEMENT, and until certification by the Department of completion of all activities under this AGREEMENT, the Department and its representatives or designees shall have access during normal business hours to the Site. Nothing herein shall limit or otherwise affect the Department's right of entry, pursuant to any applicable statute, regulation or permit. The Department and its representative shall comply with all reasonable health and safety plans published by the Voluntary Party or its contractor and used by Site personnel for the purpose of protecting life and property.

K. SUBMISSION OF INFORMATION, REPORTS, OR STUDIES

Any information, reports, or studies submitted under the terms of this AGREEMENT shall contain the following notarized statement:

“I certify under penalty of law, including but not limited to penalties for perjury, that the information contained in this document and on any attachment is true, accurate and complete to the best of my knowledge, information and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for intentional violation.”

L. RESERVATION OF RIGHTS

1. This AGREEMENT shall not be construed as waiving any right or authority available to the Commissioner to assess responsible parties other than the Voluntary Party for liability for civil penalties or damages incurred by the State, including any natural resource damage claims which the Department or the State of Tennessee may have under Section 107 of CERCLA or any other statute, rule, regulation or common law.
2. Nothing in this AGREEMENT shall be interpreted as limiting the Voluntary

Party's right to preserve the confidentiality of attorney work product or client-attorney communication. T.C.A. § 68-212-202 et seq. contains no provisions for confidentiality or proprietary information. Therefore, records, reports, test results, or other information submitted to the Department under this AGREEMENT shall be subject to public review. Any and all records, reports, test results or other information relating to a hazardous substance site or the possible hazardous substance at the Site submitted under this AGREEMENT may be used by the Department for all purposes set forth in T.C.A. § 68-212-201 et seq.

3. Voluntary Parties or Successor Parties may terminate this AGREEMENT as it pertains to them at any time upon written notice to the Department during the time period that they own the site and/or conduct operations at the site. Upon such termination, the Voluntary Party shall have no further obligations hereunder other than payment of oversight costs accrued to the date of notice of termination and adherence to any notice of land use controls filed under TCA 68-212-225; provided, that both Parties shall have and retain all authority, rights and defenses as if this AGREEMENT had never existed.
4. The Department may terminate this AGREEMENT by written notice to the Voluntary Party in the event that the Department receives timely comments from third-party contribution claim holders pursuant to the notice sent under Section F of this AGREEMENT, if any, and such comments disclose facts or considerations that indicate that this AGREEMENT is inappropriate, improper or inadequate; provided, however, absent fraud or intentional misconduct, that in such event the Voluntary Party may elect to waive the protections set forth in Section F hereunder and the remainder of the terms and conditions of this AGREEMENT shall continue to be in full force and effect. The Department's notice of termination must be made within thirty (30) days of the end of the 30-day notice period required by Section F. The Voluntary Party's waiver notice must be made within fifteen (15) days after receipt of the Department's termination notice.
5. The Department reserves the right to terminate this agreement if the Voluntary

Party fails to timely pay fees and other financial requirements specified in Section C Financial Requirements. For the purpose of this AGREEMENT, timely payment means the Department receiving payment from the Voluntary Party within 120 days of the first billing of a financial requirement or according to a payment plan agreed in writing between Voluntary Party and the Department.

- 6. If any provision of this AGREEMENT is held to be invalid or enforceable by a court of competent jurisdiction, then the remaining provisions of this AGREEMENT will remain in full force and effect.

- 7. Nothing in this AGREEMENT shall be interpreted as limiting the liability for the improper management and/or disposal of contaminated material removed from the site.

The individual(s) signing below on behalf of the Voluntary Party [**represent that they have the authority or are**] [represents that he is a] duly authorized agent(s), capable of entering into a binding AGREEMENT on behalf of the Voluntary Party. By entering into this AGREEMENT, [**these individuals certify**] [this individual certifies] that the Voluntary Party did not generate or did not cause to generate, transport or release contamination that is to be addressed at this site.

The Effective Date of this AGREEMENT is the thirtieth (30th) day after the publication of the notice described in Section F of this AGREEMENT.

Date	Robert A. Binford Program Administrator Division of Remediation	Date	Voluntary Party: