Analysis of Brownfields Cleanup Alternatives – Preliminary Evaluation
Contaminated Soil and Groundwater Site
300, 329 and 500 Rutherford Street, Lynchburg, Virginia
State Tracking Number: VRP00423

Prepared by the City of Lynchburg

I. Introduction & Background

a. Site Location (*address*)

The subject property is located at 300, 329 and 500 Rutherford Street, Lynchburg, Virginia (herein referred to as "the Site"). The Site is currently unoccupied and owned by the City of Lynchburg.

b. Previous Site Use(s) and any previous cleanup/remediation

The Site was the former location of several manufacturing facilities between the early 1900s and 1996. A brief summary of each operation is outlined below.

- Thornhill Wagon Company operated a farm wagon manufacturing facility from 1911 to 1955, at which point the Site was sold to a furniture manufacturer, Lynchburg Veneer.
- Lynchburg Veneer and Lynchburg Dry Kilns were located in the western portion of the Site between and operated between 1955 and 1965.
- Allen-Morrison, Inc. manufactured and painted signs, operated from at least 1951 until 1996. Allen-Morison, Inc. ceased operations and abandoned the Site in December of 1996, after filing for bankruptcy.

As a manufacturer of paints and solvents, the Allen-Morrison, Inc. operation was permitted as a temporary storage/disposal (TSD) facility in 1980. According to a Targeted Brownfields Assessment Site Screening Report (WPI & Virginia Polytechnic Institute and State University, 2006), drums of waste paint and solvent were stored on a concrete pad prior to transport and disposal. Located underneath the concrete pad from 1966 until 1990 were six underground storage tanks (USTs) containing thinners, including Xylene, MEK, S-150, Toluene, and Diacetone alcohol. Eleven additional USTs containing either gasoline, heating oil, or diesel existed on the Site for various lengths of time between 1946 and 1995.

Prior to Allen Morrison, Inc. filing for bankruptcy in 1996, two petroleum release incidents were reported and corrective actions were completed. A brief summary of each incident is presented below.

- In January 1993, a leak from an onsite oil transfer pipeline was discovered and Pollution Complaint (PC) No. 1993-1405 was opened by the Virginia Department of Environmental Quality (VDEQ). Site investigations determined that groundwater contamination was a low health risk. Subsequent groundwater monitoring was conducted for several months until the state closed the case in May 1995.
- In April 1995, an oil leak was observed during an underground storage tank (UST) closure. Consequently, PC No. 1995-1089 was opened by the VDEQ. Approximately 60 tons of petroleum-contaminated soil was excavated and disposed offsite, leading to the state closure of PC No. 1995-1089 in June 1995.

Following the abandonment of the Site by Allen Morrison, Inc. in 1996, a joint site assessment was conducted in February 1998 by USEPA Region III, VDEQ, City of Lynchburg, and the City's Deputy Fire Marshal. This assessment revealed numerous drums and containers holding flammable and corrosive liquids, previously intended for sign production by Allen Morrison, Inc. Specifically, the USEPA discovered approximately fifty (50) 55-gallon drums and 300 – 400 smaller containers filled

with paints, flammable materials, and hazardous substances. The labels included hexane, ethyl acetate, sodium hydroxide, and cyclohexylamine. USEPA initiated consolidation and removal of the hazardous materials, and this work was completed between October 1998 and March 1999. The removal actions are documented in the Targeted Brownfields Assessment Site Screening Report (WPI & Virginia Polytechnic Institute and State University, 2006).

Subsequent to the joint site assessment in 1998, a multi-media sampling event was conducted in January 1999 by an USEPA Site Assessment Technical Assistance (SATA) team in order to quantify soil and groundwater contamination at the Site. The results of this investigation were documented in the Targeted Brownfields Assessment Site Screening Report (WPI & Virginia Polytechnic Institute and State University, 2006). The Site was not recommended for the National Priorities List (NPL) and designated "No Further Remedial Action Planned" in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database.

In 2003, the City of Lynchburg took ownership of the Site due to delinquent real estate taxes. The City of Lynchburg has demolished various onsite buildings and has entered the Site into Virginia's Voluntary Remediation Program (VRP), and is tracked by VRP No. VRP00423.

c. Site Assessment Findings (*briefly summarize the environmental investigations that have occurred at the site, including what the Phase I and Phase II assessment reports revealed in terms of contamination present, if applicable*)

Prior to taking ownership of the parcel in 2003, the City of Lynchburg hired Professional Service Industries, Inc. (PSI) to prepare an ASTM Phase I Environmental Site Assessment (ESA) Report for the Site and the adjacent parcel to the north herein referred to as the "Schenkel Property" which consisted of greenhouse buildings historically used for commercial greenhouse operations. The Schenkel Property is currently owned and operated by Lynchburg Grows as a non-profit urban farm.

The ASTM Phase I ESA Report dated February 2002 identified the following Recognized Environmental Concerns (RECs) for the Site.

1) The historical industrial usage of hazardous materials and petroleum-based products.
2) The absence of closure documentation for two fuel oil tanks visible in Sanborn Fire Maps from 1951 to 1973.
3) The absence of closure documentation for eight USTs reportedly "removed from ground" and the presence of three USTs reported as "currently in use", which include one (1) 500-gallon gasoline UST and two (2) 10,000-gallon heating oil USTs.
4) Missing information regarding the nature and extent of two closed LUST cases.

The report also identified one Historical Recognized Environmental Condition (HREC), in regards to the 1999 USEPA investigation and subsequent listings under CERCLIS, TSD CORRACTS, ERNS, TRIS, and RCRA databases.

In 2006, a Targeted Brownfields Assessment was performed at the Site by the VDEQ and WPI. An initial Site reconnaissance was performed in February 2004 and sampling in March 2006. Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, and pesticides were analyzed. Soil samples were collected at 12 subsurface locations at former aboveground storage tank (AST) and UST locations and six surface locations to determine background concentrations. Seven groundwater samples were collected and monitoring wells were installed up- and down-gradient of the former manufacturing facilities. Air monitoring was performed at all sample locations and analyzed for VOCs. All of the metals analyzed were detected in at least one soil and groundwater sample and many were detected throughout the Site. As a result of a VRP Tier III screening assessment, the Site passed the commercial/industrial exposure scenario with the exception of iron and SVOCs in soils. Additionally, as a result of the VRP Tier III screening, none of the constituents detected in groundwater

were considered a contaminant of concern under any commercial/industrial scenario.

In December 2009, the City of Lynchburg hired ONE Environmental Group, LLC to perform additional Site characterization work and develop corrective actions, which were documented in the Site Screening Report and Corrective Action Work Plan (March 2010). The objectives of this investigation included delineation of shallow soils associated with former railroad spurs, investigation of an onsite drainage area to the west of the Site, investigation of the reported oil release from a subsurface line associated with a UST, and collection of groundwater samples from existing monitoring wells. The results of this investigation reported concentrations of lead and polycyclic aromatic hydrocarbons (PAHs) in soil that exceeded risk-based screening criteria for the intended future use of the Site (recreational land-use). The areas with lead and/or PAH impacts include sections of the former railroad track spurs located to the south of Rutherford Street and an isolated area to the north of Rutherford Street. Low concentrations of chemicals associated with the former industrial processes performed at the Allen Morrison property have been documented in groundwater at the Site.

A risk assessment update was conducted as part of the 2010 Site Screening Report and Corrective Action Work Plan, in accordance with VRP guidance. Historical data were evaluated in the completion of the risk assessment, and Tier I, II, and III screenings were conducted in order to develop proposed corrective actions. The results of Tier III screening classified the exposure point concentrations of sediment, groundwater, and the groundwater to indoor air pathway as acceptable in all scenarios. The soil areas located along the former railroad tracks on the southern portion of the Site that exceed risk-based screening criteria require corrective action in order to pursue the planned future use of the Site as a recreational property. Institutional controls are being considered to restrict future groundwater use at the Site; and therefore, no additional investigation of groundwater was recommended.

d. Project Goal (*site reuse plan*)

Upon completion of the Site investigation and future corrective action, the City currently plans to develop the property into a public park, serving both the immediate neighborhood and larger community. The concept design integrates City Stadium, Lynchburg Grows, property currently utilized by the Lynchburg Humane Society and Allen Morrison properties as one park; encouraging shared use of park components. The park conceptual plans include a small community amphitheater, community center, parking, athletic field, playground, and landscaping. Conceptually the park will highlight sustainable practices in park design and best management practices for storm water management.

The Site is not zoned for single family dwellings and the City does not foresee any future residential use of the property.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility (*identify the entity, if any, that will oversee the cleanup, e.g., the state, Licensed Site Professional, other required certified professional*)

The cleanup will be overseen by the VDEQ and the City of Lynchburg. In addition, all documents prepared for this Site are submitted to the VDEQ under State Tracking Number VRP00423.

b. Cleanup Standards for major contaminants (*briefly summarize the standard for cleanup e.g., state standards for residential or industrial reuse*)

The City currently anticipates that the VDEQ VRP screening criteria for residential property use will be used as the cleanup standards. However, it is possible that risk-based cleanup standards for recreational site use will be generated for compounds of concern, in accordance with state regulations.

c. Laws & Regulations Applicable to the Cleanup (*briefly summarize any federal, state, and*

***local laws and regulations that apply to the cleanup*)**

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, Virginia environmental law, and City by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, all appropriate permits (*e.g.*, notify before you dig, soil transport/disposal manifests) will be obtained prior to the work commencing.

III. Evaluation of Cleanup Alternatives

a. Cleanup Alternatives Considered (*minimum two different alternatives plus No Action*)

To address contamination at the Site, three different alternatives were considered, including Alternative #1: No Action; Alternative #2: Capping; and Alternative #3: Excavation and Disposal.

b. Cost Estimate of Cleanup Alternatives (*brief discussion of the effectiveness, implementability and a preliminary cost estimate for each alternative)*

To satisfy USEPA requirements, the effectiveness, implementability, and cost of each alternative must be considered prior to selecting a recommended cleanup alternative.

Effectiveness

- Alternative #1: Given the goals for this Site stated in Section I(d), No Action is not considered effective in controlling or preventing the exposure of receptors to contamination at the Site.
- Alternative #2: Capping is an effective approach to prevent recreational receptors from coming into direct contact with contaminated soils. However, the effectiveness is dependent on regular maintenance, requires an institutional control (land use restriction), and may require a sub-slab depressurization system to mitigate vapor intrusion issues (if necessary). An institutional control will be required for groundwater under this scenario.
- Alternative #3: Excavation and Disposal is an effective approach to meet the future planned use of the Site due to the removal of contamination hot spots and lowering of site-specific risk. No maintenance of this cleanup alternative is anticipated and future Site use is adaptable to the City's plans and community needs. An institutional control will be required for groundwater under this scenario.

Implementability

- Alternative #1: No Action is easy to implement, since no actions will be conducted.
- Alternative #2: While capping consists of a simple implementation, long term maintenance and monitoring is required for continued effectiveness of the cap. As a result, this approach is the most time intensive.
- Alternative #3: Excavation and Disposal is more intensive than the preceding alternatives. Organization throughout the remediation process between contractors, environmental regulations, and the expected temporary disturbance to the surrounding communities will require extensive coordination; however, no long-term maintenance is necessary following the excavation and disposal.

Cost

- Alternative #1: No costs are anticipated.
- Alternative #2: Capping is estimated to cost roughly $175,000.
- Alternative #3: Excavation and disposal is estimated to cost roughly $250,000.

c. Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative #3, Excavation with Disposal. This alternative was determined to be the best approach to Site remediation given the planned future use of the Site (recreational). The Alternative #1, No Action cannot be recommended, as it does not address risks onsite or project goals. While capping contaminated soils is less expensive than excavation and disposal, the necessary annual monitoring and maintenance of the cap makes it difficult to implement. For these reasons, Alternative #3, Excavation with Disposal is the recommended alternative.