Analysis of Brownfields Cleanup Alternatives – Preliminary Evaluation
Contaminated Soil Site, 100 Main Street, Smalltown, USA
State Tracking Number: 123456

Prepared by the Town of Smalltown

**Please refer to Frequently Asked Questions (FAQ) K.16-17 regarding this document. Please note that the draft Analysis of Brownfields Cleanup Alternatives (ABCA) submitted as part of the proposal is intended as a brief preliminary document. The format of this document may not meet state requirements for the evaluation of cleanup alternatives. **

I. Introduction & Background

a. Site Location (*address*)

The site is located at 100 Main Street in Smalltown, USA (herein referred to as "the Site").

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

The Site was the former location of an automotive repair facility and scrap metal yard. The automotive repair facility was owned by Arnie's Auto Repair and operated between 1957 to 1989 from an onsite 600 square foot, one story concrete building. Following the closure of the repair facility, the new owner, Marty's Metals, used the northwest corner of the Site, an estimated ¼ acre area, as a scrap metal yard. Marty's Metals operated until 1997, when it went bankrupt. All scrap metal was removed by Marty's Metals at that time. In 2001, the Town of Smalltown ("the Town") took ownership of the parcel due to unpaid taxes. The Town demolished the onsite building and secured the perimeter of the Site with 6-foot chain link fence in early 2003. An underground hydraulic lift used by the automotive repair facility was left in place at that time.

One small underground storage tank (UST), which previously housed hydraulic oil used to operate a hydraulic automobile lift, and the hydraulic lift were removed in fall of 2003 by the Town under state cleanup funds. The underground storage tank and hydraulic lift were steam cleaned and sent offsite for recycling at that time. Soils immediately surrounding the tank and lift were also excavated and transported offsite for disposal. At this time, the Site was entered into the state's voluntary cleanup program and is tracked under State Tracking Number 123456.

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, the Town hired Qualified Environmental Professionals Incorporated (QEPI) to prepare an ASTM Phase I Report for the Site, dated January 2001. The ASTM Phase I Report identified three Recognized Environmental Concerns (RECs) for the Site, being: 1) the hydraulic oil underground storage tank and surrounding soils, 2) the hydraulic lift and surrounding soils, and 3) soils within a ¼ acre area that was previously used as a scrap metal yard in the northwest corner of the property.

As stated above, the underground storage tank, hydraulic lift, and surrounding soils were excavated and transported offsite in 2003. Confirmation samples collected from the excavations revealed that no contamination remained in the area of the hydraulic lift, but soils with contaminant concentrations above state cleanup standards remained within the tank grave.

In summer 2004, QEPI conducted Phase II site assessment activities to evaluate the extent of contamination remaining at the Site. Six soil borings, all of which were converted to groundwater monitoring wells, were advanced in the area surrounding the underground storage tank grave (the "underground storage tank area"). Soil and groundwater samples were collected from this area and analyzed for Total Petroleum Hydrocarbons, in accordance with EPA and state-approved procedures. Analytical results showed an area downgradient from the underground storage tank grave with soils that exceed state cleanup standards. Total Petroleum Hydrocarbons were detected in groundwater at concentrations below the state cleanup standards within two monitoring wells.

Within the scrap metal area, ten additional borings were advanced during the Phase II investigations. Two of the ten scrap metal area borings were converted to groundwater monitoring wells. Soil and groundwater samples were collected and analyzed for priority pollutant metals, in accordance with EPA and state-approved procedures. Results showed widespread contamination of surface soils within this area. Metals detected in soil include arsenic, cadmium, and lead. No metals were detected in groundwater samples.

The risk assessment conducted as part of Phase II activities concluded that there is risk to the recreational user of the park (planned reuse) and a resident (not planned) due to direct contact with soils in the scrap metal area. Risk from direct contact with the soils in the underground storage tank area was also calculated for the residential scenario. In addition, a vapor intrusion risk was also determined for commercial workers in nearby properties due to indoor air exposures from contaminants emanating from petroleum contaminated soils in the underground storage tank area. Therefore, cleanup of soils within both the underground storage tank and scrap metals areas are required.

d. Project Goal (*site reuse plan*)

The planned reuse for the Site is a recreational park. The Town does not currently have a park in the immediate downtown area, and the Town's Master Plan includes the construction of a recreational park that can serve as an outside area for the community, including the employees of the downtown businesses, and visitors to enjoy.

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

e. Regional and Site Vulnerabilities

According to the US Global Change Research Program (USGCRP), trends for the northeast region of the United States include increased temperatures, increased precipitation with greater variability, increased extreme precipitation events, and rises in sea level (see attached summary included in *Attachment A*). Some of these factors, most

specifically increased precipitation that may affect flood waters and stormwater runoff, are most applicable to the cleanup of the site.

According to FEMA Flood Zone Map 23014500504A, the Site is located within a Zone C of the Cercla River (see *Attachment B*), where minimal flooding is expected. This is presumably due to the presence of the flood wall that extends along the eastern portion of the river. However, greater storm frequency and intensity may result in more frequent and powerful flood waters within the Cercla River, which may result in changes to the flood zone and increased risk of flooding of the Site.

The Site receives stormwater discharge from the adjoining parking lot. Under current Site conditions, increased precipitation and extreme weather could result in additional stormwater runoff and potential erosion to the Site from the mostly impermeable parking lot area.

Based on the nature of the Site and its proposed reuse, changing temperature, rising sea levels, wildfires, changing dates of ground thaw/freezing, changing ecological zone, saltwater intrusion and changing groundwater table are not likely to significantly affect the Site.

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 state environmental department. In addition, all documents prepared for this site are submitted to the state environmental department under State Tracking Number 123456.

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

The Town currently anticipates that the state standards for recreational use will be used as the cleanup standards. However, it is possible that risk-based cleanup standards 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, state environmental law, and town 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 with Offsite Disposal.

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

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

Effectiveness – Including Vulnerability/Resiliency Considerations

- Alernative #1: No Action is not effective in controlling or preventing the exposure of receptors to contamination at the Site.
- Alternative #2: Capping is an effective way to prevent recreational receptors from coming into direct contact with contaminated soils in the scrap metal area, if the cap is maintained. However, capping is not an effective way to control other exposures, such as the direct contact risks for residents for both areas and the vapor intrusion risk to the commercial worker from petroleum contamination from the underground storage tank area. To mitigate the vapor intrusion risk, the capping alternative must also include installation of a sub-slab depressurization system within the neighboring building. In addition, an institutional control (land use restriction) would need to be recorded on the deed to prevent residential use of the property (in order to meet the objective of eliminating the direct contact pathway for residents). Based on the grade of the Site and presence of the river wall, floodwaters, should they reach the site in the future, would pool in the lower elevations of the Site and would require engineered drainage areas that maintain the integrity of the cap.

  Part of the design planning is to divert the stormwater drain through the Site to be discharged offsite to the southeast. Therefore, increased stormwater discharge due to greater storm intensity is not expected to impact the Site with proper engineering, which is planned despite the selected remedial alternative.

- Alternative #3: Excavation with Offsite Disposal is an effective way to eliminate risk at the Site, since contamination will be removed and the exposure pathways will no longer exist.

Implementability

- Alternative #1: No Action is easy to implement since no actions will be conducted.
- Alternative #2: Capping is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting. Because the Site is located within the 100-year floodplain of the Raging

River, increased monitoring and additional maintenance would likely be required after flooding events.

- In addition, this alternative requires the installation and monitoring of a sub-slab depressurization system on the neighboring building and the implementation of a land use restriction on the property. Therefore, this alternative is considered the most difficult to implement.
- Alternative #3: Excavation with Offsite Disposal is moderately difficult to implement. Coordination (e.g., dust suppression and monitoring) during cleanup activities and short-term disturbance to the community (*e.g.*, trucks transporting contaminated soils and backfill) are anticipated. However, ongoing monitoring and maintenance will not be required following excavation and offsite disposal.

Cost

- There will be no costs under Alternative #1: No Action.
- It is estimated that Alternative #2: Capping costs will be on the order of $150,000.
- Alternative #3: Excavation with Offsite Disposal is estimated to cost roughly $250,000.

c. Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative #3: Excavation with Offsite Disposal. Alternative #1: No Action cannot be recommended since it does not address site risks. Alternative #2: Capping is less expensive than excavating soils and disposing them offsite. However, Alternative #2: Capping would require ongoing monitoring and maintenance of the cap, the installation and maintenance of a sub-slab depressurization system to mitigate vapor intrusion risks, and the implementation of land use restrictions, making it more difficult to implement than Alternative #3: Excavation and Offsite Disposal. In addition, soils in the underground storage tank area excavated under Alternative #3: Excavation and Offsite Disposal will be transported to an asphalt batch facility, to be reused as asphalt. For these reasons, Alternative #3: Excavation with Offsite Disposal is the recommended alternative.

Green and Sustainable Remediation Measures for Selected Alternative

To make the selected alternative greener, or more sustainable, several techniques are planned. The most recent Best Management Practices (BMPs) issued under ASTM Standard E-2893: Standard Guide for Greener Cleanups will be used as a reference in this effort. The Town will require the cleanup contractor to follow an idle-reduction policy and use heavy equipment with advanced emissions controls operated on ultra-low sulfur diesel. The excavation work would be conducted during the dry-weather months (summertime) in order to minimize groundwater infiltration into the excavation area, in turn reducing dewatering needs and the amount of dewatering liquids requiring disposal/treatment. The number of mobilizations to the Site would be minimized and erosion control measures would be used to minimize runoff into environmentally sensitive areas. In addition, the Town plans to ask bidding cleanup contractors to propose additional green remediation techniques in their response to the Request for Proposals for the cleanup contract.