



## **MOUNDS LAKE PROJECT**

**Anderson, Indiana  
SESCO Project # 4168**

**Prepared For:**

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## EXECUTIVE SUMMARY

As part of Phase Two of the Mounds Lake Project (Project), SESCO Group, Inc. (SESCO) has been tasked with identifying sites that could present an environmental concern to the Project and to provide remediation cost estimates for those sites. SESCO used a range of methods to identify sites including historic records reviews, interviews with local citizens and visual surveys. To develop remediation cost estimates SESCO employed a risk based approach, used accepted environmental engineering best management practices, and considered a range of contaminant level scenarios.

Several sites, totaling 120 acres of the proposed 2,300 acre Project footprint, were identified that potentially pose environmental concerns. There are currently no active remediation projects being conducted within the Project area. A remediation project at an up gradient former General Motors (GM) property is scheduled to begin late in 2014 or early 2015. Historic environmental concerns that have not been fully addressed were discovered for a number of the identified sites. Sampling data from an existing ground water monitoring well network, which was originally installed by General Motors (GM), indicates the presence of low levels of contaminants at some locations. A review of data from the former GM wells indicates an overall downward trend in observed contaminant levels since 1996, to the point of non-detection at many locations. For identified sites where data gaps do exist, additional investigations will be necessary to understand subsurface conditions. The additional investigations will be performed in a subsequent phase of the Project in order to properly plan for any necessary remediation.

Based on the limited data available at this time and assuming the presence of significant quantities of contaminated materials, SESCO estimates the cost to remediate the identified sites at \$35 million dollars. The cost could be higher or lower depending on what is actually discovered during the investigations at the individual sites. Additional evaluation of the RCRA closures of the former GM Scatterfield Road facilities is also warranted at this time in light of the proposed Mounds Lake Project.

There will be stringent oversight by and close coordination with state and federal regulatory agencies. There have been a number of discussions with IDEM and USEPA regarding environmental aspects of the Project. Investigation and remediation plans will be carefully reviewed and approved by various regulatory agencies as the Project proceeds. If properly investigated and remediated, subsurface environmental impacts related to current and past land uses of the Project site will not pose a risk to or prohibit the construction of Mounds Lake as a regional drinking water supply. Based on available information, none of the identified sites present an environmental risk or remediation cost so great as to prohibit the Project from advancing to the next phase of development.

## INTRODUCTION

The SESCO Group (SESCO) is pleased to present to the Anderson Corporation for Economic Development (CED) these initial environmental impact findings and recommendations for the Mounds Lake Project (Project).

SESCO has identified sites and reviewed available information for areas that have the potential to adversely impact the water quality of the proposed reservoir. The identified sites include several privately owned properties within and adjacent to the Project footprint. SESCO also presented information to owners of identified sites about environmental liability and future options. In addition, SESCO has evaluated risks mitigation strategies to minimize environmental concerns related to future demolition activities. It should be noted that it is not within SESCO's scope-of-work to address any ecological, archaeological, or geotechnical issues related to the Project. However, it is anticipated that there will be close coordination between various groups on these issues as the project proceeds.

Construction of the proposed Project will directly impact many businesses and residential properties. A premature discussion of potential environmental contamination at specific properties, without valid current data from thorough, subsurface investigations, could result in a stigmatization of property owners. Conversely, it is absolutely essential that SESCO thoroughly investigate sites with potential environmental concerns that could adversely impact future water quality in the proposed reservoir. Clearly, it is not SESCO's desire to negatively impact or damage area property owners in any way. For this reason, this report does not single out any individual property with potential environmental concerns, but addresses the locations in aggregate. We recognize that what is being proposed is a water supply resource for multiple communities for generations to come. It is SESCO's intent to balance the sensitivities of property owners with obtaining the critically important data needed to develop remediation strategies and insure public safety. SESCO will strive to maintain this balance throughout the Project process.

Additionally, SESCO is committed to attend and participate in public meetings, as directed by CED, in order to present findings or communicate with various stakeholder groups. SESCO understands the importance of a full and open dialogue between the Project teams and the public.

## PROCESS AND FINDINGS

The balance of this document outlines, in a macro way, the Mounds Lake environmental assessment process. SESCO has generally identified sites within and adjacent to the proposed Mounds Lake boundaries that potentially present an environmental concern. By the use of a risk based approach to quantify the potential impacts of identified sites that may have environmental concerns, we have developed categories of concern within the commercial areas of the Project footprint and assumed various contaminant level scenarios. This has been accomplished by using accepted environmental engineering best management practices, extensive research of current and historic operations of the area, and SESCO's collective experience with similar sites.

SESCO conducted a preliminary review of available water quality data for the White River (West Fork) to determine if there are any significant sources of contamination that would be detrimental to the viability of the Mounds Lake Project. SESCO reviewed available documents published by the following entities:

- Delaware County Health Department
- Madison County Health Department
- Muncie Sanitary District and Bureau of Water Quality (BWQ)
- Anderson Water Pollution Control Department
- Anderson Water Department
- Indiana Department of Environmental Management (IDEM)
- Indiana Department of Natural Resources (IDNR)

Based on SESCO's review, there is no evidence that indicates that specific sites within or adjacent to the proposed Project footprint are significantly impacting the White River at this time. SESCO is aware that upstream combined sewer overflows and various non-point sources do adversely impact the water quality of the White River during wet weather events. Detailed considerations regarding how these sources may impact the overall water quality of a proposed reservoir are beyond the scope of this study. However, this will be evaluated in a subsequent phase of the Project. Additional water quality investigations will be on-going as the Project moves forward. Furthermore, there have been conversations with upstream communities regarding mitigation strategies to address various point and non-point source water quality concerns. Determining how to best address these issues will be an ongoing process as the Project moves into the next phases of development.

SESCO also conducted a groundwater sampling event of the remaining off-site GM groundwater observation well network, consisting of nine (9) wells, per the current Indiana Department of Environmental Management (IDEM) Remediation Closure Guide (RCG) technical guidance. The groundwater sampling was performed to quantify the potential impacts of the former GM Plant 7 slurry wall area. In the past, GM constructed a slurry wall around an area of soil contaminated by chlorinated solvents. The slurry wall was designed to contain the contamination within the constructed barrier. However, the slurry wall has failed to completely contain the contamination. The City of Anderson reports that the United States Environmental Protection Agency (USEPA), the agency of record responsible for

remediation at the site after the GM bankruptcy, has committed to remediate the area. It is anticipated that this effort will begin in late 2014 or early 2015.

The groundwater samples collected from the observation wells were submitted for laboratory analysis of Volatile Organic Compounds (VOCs), Polynuclear Aromatic Hydrocarbons (PAH), Polychlorinated Biphenyls (PCB), and Total Priority Pollutant Metals. The laboratory analytical results were compared to the appropriate IDEM Remediation Closure Guide (RCG) screening levels and vapor exposure screening levels.

The laboratory analytical results indicate that concentrations of Trichloroethene (TCE) in groundwater collected at three (3) wells exceed one (1) or more of the IDEM screening levels. Concentrations of all other contaminants of concern (COCs) were below their respective laboratory detection limit and/or their respective IDEM screening levels. The area encompassing the observation wells has a northerly groundwater flow direction towards the White River. Details of the sampling event are provided in a separate document included as **Attachment A**.

Compared to historical sampling events conducted by other consultants since 1996, concentrations of VOCs across the remaining off-site groundwater observation well network have generally shown a stable to decreasing trend, as shown below in **Table 1**. Additional sampling events, after the proposed remediation of the former Plant 7 area slurry wall is complete, are recommended to confirm that observed contaminant levels are continuing to decrease.

**Table 1**

| Sample ID | Date     | Concentration of TCE (ppb) |
|-----------|----------|----------------------------|
| OW-09     | 10/1/96  | NA                         |
|           | 10/3/12  | 14.3                       |
|           | 3/18/14  | <5.0                       |
| OW-12S    | 2/29/00  | 79                         |
|           | 10/4/12  | 10.1                       |
|           | 3/18/14  | 7.9                        |
| OW-16S    | 11/23/99 | 54                         |
|           | 10/4/12  | 21.9                       |
|           | 3/18/14  | 24                         |
| OW-16D    | 11/23/99 | 88                         |
|           | 10/4/12  | 82.7                       |
|           | 3/18/14  | 26                         |

- Only wells with historic impacts of TCE are shown.
- TCE – Trichloroethene
- ppb – Parts Per Billion
- NA – Not Analyzed

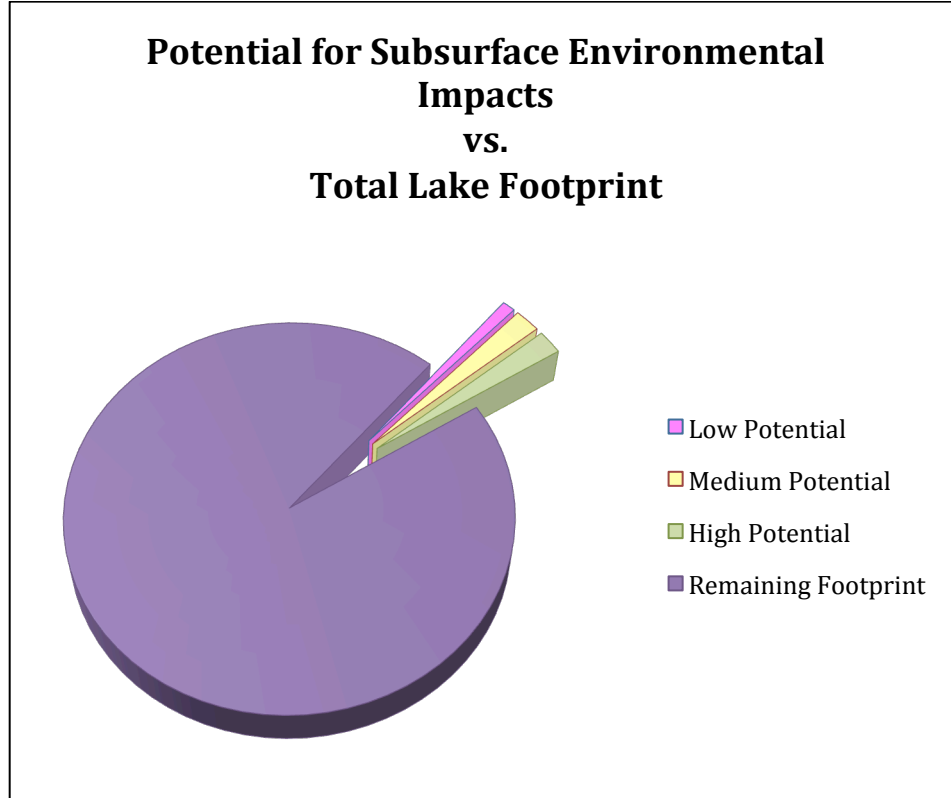
In order to determine the nature of current and historic operations and the extent of the potential environmental concerns of each identified site, SESCO performed site visits, conducted initial meetings with property owners, and reviewed all available documents including:

- Area-Wide Environmental Assessment Report for the Anderson Indiana Proposed Redevelopment Area, dated December 5, 2012 (Weston Solutions, Inc.)
- Indiana Department of Environmental Management (IDEM) files
- Madison County GIS website
- Topographic maps for the area (to determine estimated depth to groundwater and of fill material)
- Historic aerial photos of the Anderson, IN area (1939 to 2012)
- Available Anderson, IN city directories (1913 to 2013)
- Phase I Environmental Site Assessment (ESA) report, dated December 3, 2013 (SESCO)
- Phase I ESA report, dated September 15, 2004 (IVI International, Inc.)
- Groundwater Investigation Report (Former GM Scatterfield Rd. Plants) dated January 7, 2013 (Weston Solutions, Inc.)

Following the review of all known and available public documents, SESCO has confirmed that there are no currently active remediation activities being conducted within the proposed lake footprint that constitute an immediate risk to the viability of the Mounds Lake Project. Furthermore, for sites where business operations were properly permitted and conducted, there should be limited risks to the Project. However, SESCO has identified previous violations that have not been satisfactorily addressed at some sites. This combined with comments from property owners and members of the public regarding alleged improper disposal of materials in the past, raises the possibility that subsurface environmental concerns are present at sites within the Project footprint.

Of the overall proposed 2,300 acres, SESCO has identified approximately 120 acres within the proposed lake footprint that may have a potential for subsurface contamination due to current and/or historic site operations. SESCO has created a pie chart illustrating areas that are identified as having low, medium, and high *potential* for contamination, not expected or actual contamination. SESCO categorized specific sites by reviewing available environmental site assessments and public documents regarding current and historical area use and operations, historical aerial photos and topographic maps to determine the size and depth of the potentially impacted areas, and the application of our knowledge of the potential contaminants associated with various types of operations. As illustrated below in **Figure 1**, these areas with the *potential* for subsurface environmental impacts encompass approximately 5% of the proposed lake footprint, with only 2% of that area falling in the “high” potential range.

Figure 1



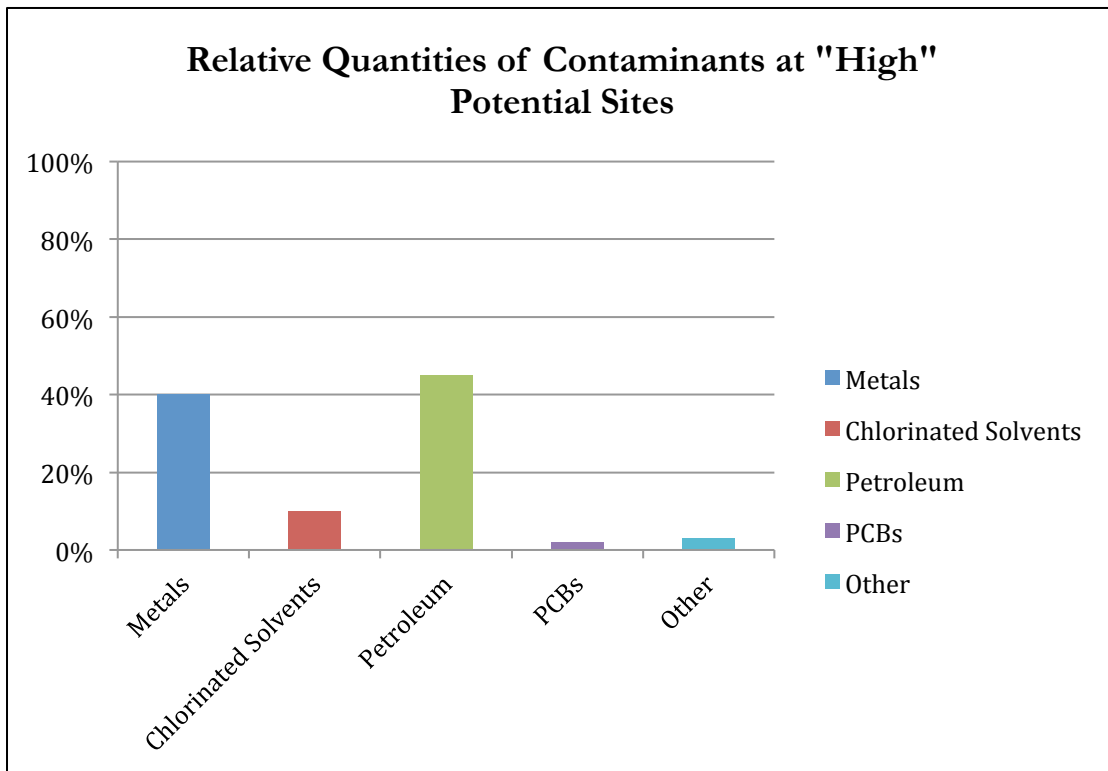
To ensure appropriate protection as a water supply resource, and to address public concern regarding exposure to contaminants, the remediation option that has been considered at this time is contaminant removal. This approach assumes that materials that are not impacted would be left in place. This approach provides a conservative basis for budgeting efforts, while maintaining the utmost concern for public health and welfare. However, another type of remediation that may be considered in the future is capping and lining areas to prevent direct contact with the water in the Project area. Future feasibility studies and coordination with regulatory agencies would be necessary to determine the appropriate remediation strategy.

Based on our experience, the information available for review, and the assumption that contaminant removal is the chosen remediation method, a reasonable cost estimate for remediation of these areas could be approximately \$35 million dollars. Additionally, SESCO currently projects investigation costs to be up to 10% of the remediation projections. However, the data that was used to estimate remediation costs using contaminant removal is very limited in nature, resulting in an estimate that is largely based on assumptions. Even if soil and groundwater sampling was conducted at publicly owned properties surrounding and within the Project footprint, the results may or may not provide useful information due to the need to still investigate and characterize the privately owned, potential source properties. Therefore, the actual cost of remediation is difficult to project at this time and may be substantially less, or significantly more. Only as the overall Project progresses and individual

subsurface investigations are performed, will we be able to refine the remediation methods that will be considered and the associated estimated cost range.

Examples of possible contaminants that might be encountered at the areas with the potential for subsurface environmental impacts include, but are not limited to: chlorinated solvents, various metals, polychlorinated biphenyls (PCBs), and petroleum products. There is very limited data regarding the types of potential contaminants for some of the areas categorized as having a “high” potential for subsurface impacts. Assumptions of possible contaminants at those sites were made based on current and historical operations, review of available environmental assessment reports, and the potential for illegal dumping of unknown materials. With that in mind, the following bar chart (**Figure 2**) illustrates the various possible contaminants that might be present within the areas categorized as having a “high” potential for subsurface impacts and their relative proportions.

**Figure 2**



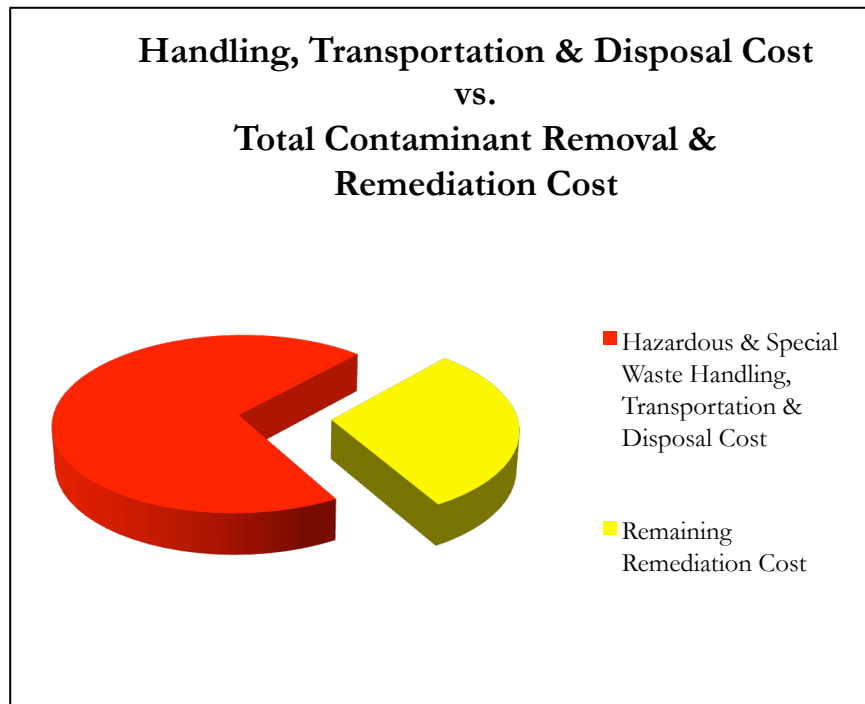
When developing probable worst case scenario remediation cost estimates, SESCO assumed that no more than 30% of the contaminated waste stream would be considered hazardous, and the remainder would consist of materials that can be disposed of as special waste. This assumption was made based on professional expertise and environmental engineering best management practices. Hazardous waste is waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products (cleaning solvents or pesticides), by-products of manufacturing processes, or medium impacted by products that are considered hazardous (soil impacted with cleaning solvents). Special waste is a waste that requires special handling,



trained people, and/or special disposal methods. A waste may be a special waste because of its quantity, concentration, or physical, chemical, or biological characteristics, but it is exempt from the hazardous waste regulations (wastewater treatment plant sludges, grease trap waste, and petroleum impacted soils).

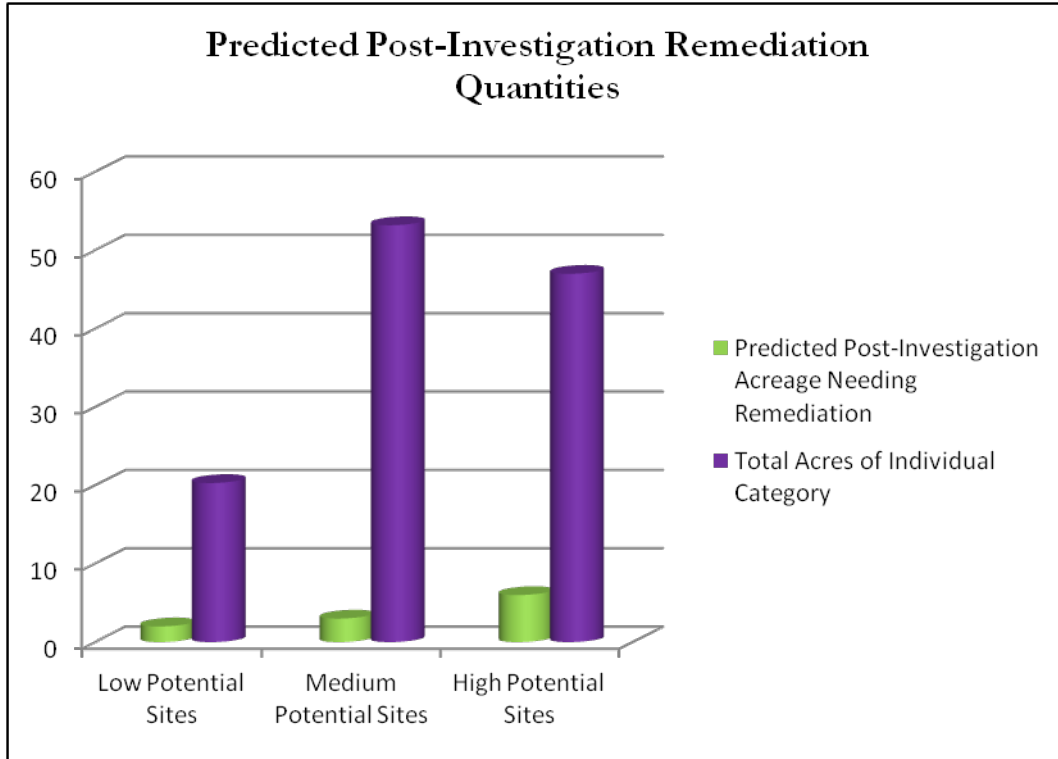
Handling (excavation & loading), transportation and disposal of hazardous and/or special waste can be very costly and, on average, consists of approximately 70% of the total remediation cost when contaminant removal is the selected remediation technique (see **Figure 3** below). When estimating the remediation cost of contaminant removal, SESCO assumed that historic construction/demolition debris, potentially encountered during remediation excavations, would be left in-place, as it does not pose an environmental risk by doing so and would significantly reduce the overall transportation and disposal costs.

**Figure 3**



Upon completion of individual subsurface environmental investigations, the amount of actual contamination that will require removal and remediation within the identified 120 acres will likely decrease. Based on our experience with sites similar to those identified as areas of concern and the lack of abundant historical data to prove otherwise, the following bar graph (**Figure 4**) illustrates SESCO's predicted portion of those areas that will actually be impacted and require removal and disposal as part of remediation activities.

Figure 4



**RECOMMENDATIONS:**

In an effort to identify and quantify actual subsurface environmental concerns, SESCO recommends that each site with potential environmental concerns be individually evaluated and a thorough subsurface investigation be performed to determine the nature and extent of contamination. Using this information specific remediation plans for sites with actual concerns will be developed and implemented during a future phase of the Project.

The subsurface investigations will follow requirements provided by the USEPA and the IDEM. For those sites where there is very little information available regarding the subsurface contents and location of a potential source(s) of contamination, SESCO would use a grid patterned sampling design to gather soil and groundwater data. This involves choosing an initial location for the first boring, and then the remaining sampling locations are defined so that all locations are at regular intervals over a specific area. Grid sampling is used to search for “hot spots” and ensures uniform coverage of a site. This can be a square grid pattern or a triangular grid pattern, as shown below in **Figure 5**, where the samples would be collected where the lines intersect. The number of samples per grid location, and their associated depths, will vary from site to site.

Figure 5

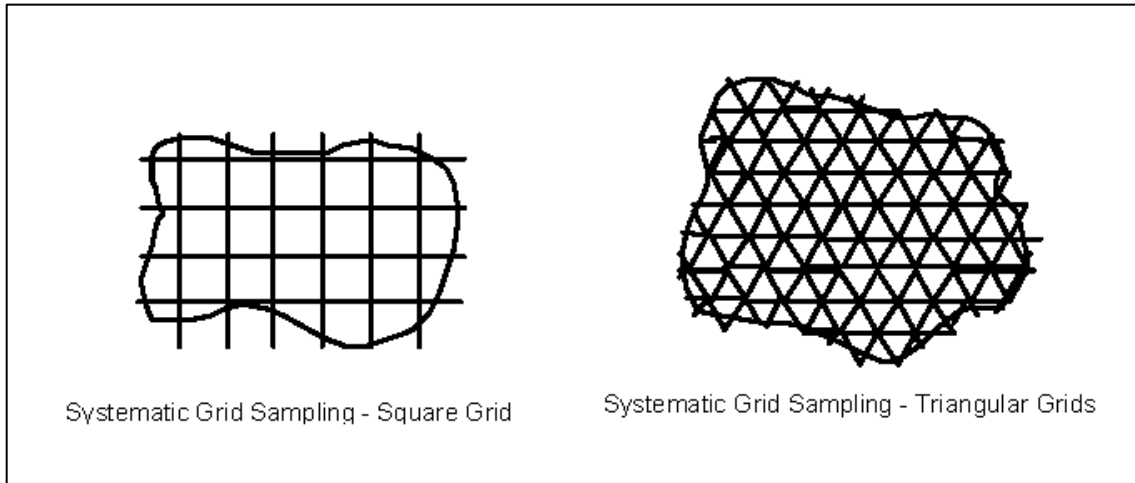


Illustration obtained from the United States Environmental Protection (EPA) document QA/G-5S: “Guidance on choosing a Sampling Design for Environmental Data Collection”, dated October 2002.

For those sites where a suspected source of contamination is generally known, SESCO would use a more judgmental sampling design where the first boring would be placed at the source location and the remaining borings would be step-outs in each direction from there until the area of impacts has been defined. This type of sampling is based on professional judgment to choose the sample locations. The diagram below depicts an example of judgmental sampling (**Figure 6**).

Figure 6

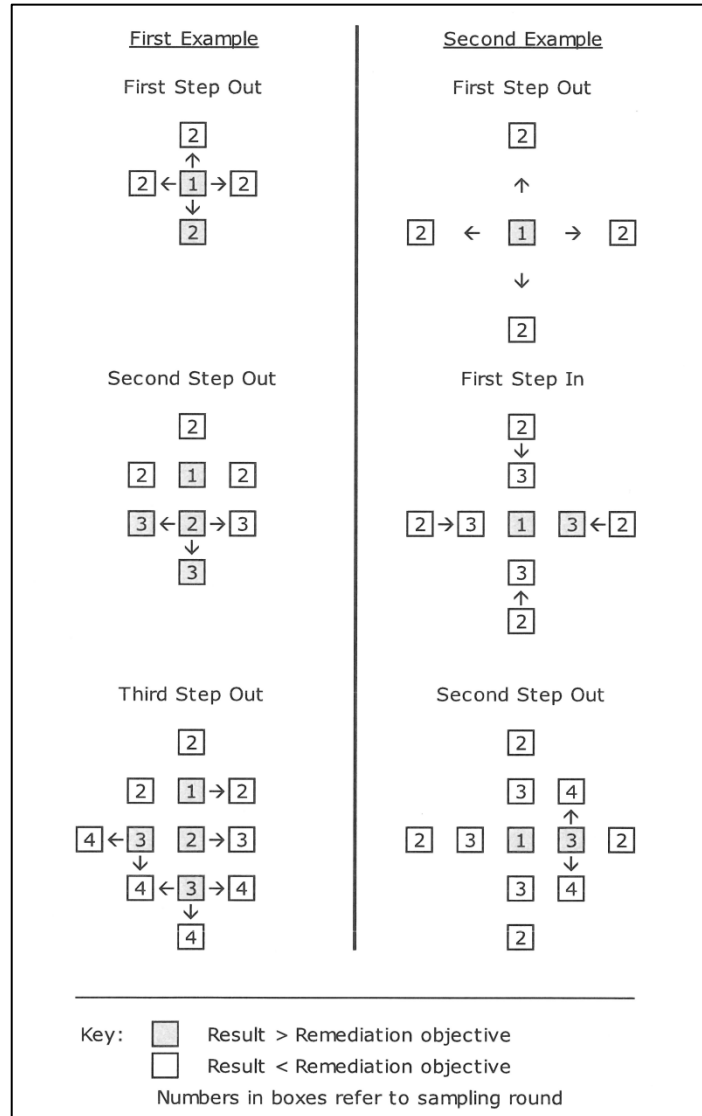


Illustration obtained from the Indiana Department of Environmental Management (IDEM) Remediation Closure Guide (RCG) document dated July 9, 2012.

As the Mounds Lake Project proceeds to the property acquisition phase, SESCO proposes to meet with each property owner and explore all aspects of what, if any, environmental issues may exist.

As part of the acquisition process, SESCO recommends preparing and incorporating an environmental questionnaire for each parcel that is to be acquired. The questionnaire should include questions concerning items such as the presence of underground storage tanks (USTs), above ground storage tanks (ASTs), asbestos containing materials (ACMs), lead-based paint, on-site drinking water wells, and septic systems. If the questionnaire response reveals items of concern (e.g. USTs or asbestos piping insulation), we recommend that a SESCO representative perform a site visit to substantiate the comments and prepare a site

specific scope-of-work to address any environmental issues prior to demolition activities. We also recommend that a representative oversee demolition activities in the event additional and unknown environmental issues arise. Following the completion of the previously mentioned activities, SESCO will develop an instrument to be associated with each property's environmental disclosure document, establishing a record of environmental oversight and abatement/remediation activities for each parcel that the Mounds Lake Project acquires.

Following property acquisition and the individual subsurface investigations, SESCO will develop comprehensive remediation plans, and associated cost estimates, for all sites identified as having environmental concerns with the potential to adversely impact the Project.

SESCO also recommends that, prior to the start of demolition, the now unrelated codes from within each political subdivision (demolition, UST, drinking water well, and leach field) be unified, re-written, and adopted by a common governing body of the Project area.

### **ABOUT SESCO**

SESCO is an Indiana based environmental investigation, remediation, and redevelopment firm. We are made up of nearly 25 professionals that include Licensed Professional Geologists, Licensed Professional Engineers, Certified Hazardous Materials Managers, and Environmental Professionals with over 137 years of combined experience, as well as an advanced degreed professional staff with over 25 combined years in public policy and relations. Furthermore, SESCO is of Indiana. We, as its employee group, live in and travel the Project area daily. As residents, we are committed to looking at this Project through the eyes of the community, as well as through rigorous science.

*SESCO is committed to provide the collective resources of our office, reflect the best practices of our industry, and present un-biased, objective opinions on the environmental liabilities for the Mounds Lake Project.*

The Mounds Lake Project is unique. Every SESCO project is. We recognize there are many facets involved that require acute attention. Investigating the impacts of potential underground contamination in an environment where modern retail, residential, and public utility assets will be submerged by a body of water is an exciting opportunity. Each of those circumstances require a level of due diligence from SESCO where we aspire to reach a level of comfort regarding the perception of the community that the lake will serve. It is with these higher, self-imposed criteria, along with meeting all local, state, federal regulations, that we based all of our actions.