## **EXECUTIVE SUMMARY**

This report summarizes work performed and data collected during the soil gas and vapor intrusion assessment conducted under the footprint of the proposed Fairfield County Jail/Public Safety Facility at 334 West Wheeling Street, Lancaster, Ohio. This work was conducted between July 24, 2014 and September 5, 2014 and encompassed two sampling events. A risk assessment was performed using the soil gas data and this report presents the final conclusions of this portion of the work.

This report also summarizes work performed and data collected during the soil gas and vapor intrusion assessment inside the existing Sheriff's Office and Minimum Security Misdemeanor Jail (MSMJ). The first of two sampling events was conducted on August 4 and 5, 2014 inside the existing facility. This report presents the results from the first of two sampling events. Additional sampling will be performed in November 2014 and a separate report presenting the second data collection results and conclusions will be prepared after results are received.

This work was performed to gather specific information on concentrations of naphthalene and mercury in soil gas under the proposed Fairfield County Jail/Public Safety Facility as well as to assess soil gas concentrations of these constituents under and within the existing Sheriff's Office and MSMJ. The investigation was conducted at the Sheriff's Office and MSMJ because the fill materials found under the proposed building footprint of the proposed facility were assumed to be present under the existing building based on historical site usage.

These efforts were performed as a follow-up to the "Limited Phase II Environmental Site Assessment for the Proposed Fairfield County Jail/Public Safety Facility" report dated July 7, 2014. During this initial investigation, the potential exposure to indoor air for workers and residents at the proposed jail was calculated using measured soil concentrations because soil gas was not collected. When these calculations were performed, the concentrations of mercury and naphthalene in the soil indicated a potentially unacceptable health risk that would require installation of a vapor barrier beneath the proposed jail. However, when such a potential risk is calculated using soil concentrations, Ohio EPA recommends that soil gas concentrations be measured and used in subsequent risk calculations.

Therefore, the objectives of this work were to:

- 1) determine if the vapor intrusion pathway is complete;
- 2) collect sufficient data to evaluate any complete exposure pathways to residents of the proposed jail;
- collect sufficient data to evaluate any complete exposure pathways to workers in the proposed jail;

- 4) evaluate the potential for sub-slab vapors to present an indoor air risk in the existing Sheriff's Office and MSMJ; and
- 5) use the data collected during this investigation to determine, what, if any mitigation measures may be appropriate.

To achieve these objectives, soil gas samples were collected in six locations under the proposed building footprint of the Fairfield County Jail/Public Safety Facility. The samples were collected from subsurface probes installed coincident with the borings where the concentrations of mercury and naphthalene were highest in the soil. Two sampling efforts were conducted in July and September 2014 to measure soil gas concentrations. Neither mercury nor naphthalene was detected in the soil gas in either of the two sampling events. Risk assessment calculations performed using this soil gas data show that the soil to indoor air pathway does not pose an unacceptable risk to either workers or residents at the proposed Fairfield County Jail/Public Safety Facility. Therefore, the proposed building design does not need to include a vapor barrier.

To further achieve the objectives relating to vapor intrusion to indoor air inside the existing Sheriff's Office and the MSMJ, sub-slab vapor samples were collected at five locations chosen to represent potential exposure in areas of different building usage. These samples were collected to determine whether mercury and/or naphthalene were found under the building slab in concentrations that could migrate to the indoor air. As a precaution, indoor air sampling locations were collocated with the sub-slab vapor samples. The purpose of these samples was to measure concentrations of mercury and naphthalene in indoor air in the event that the sub-slab vapor samples showed concentrations of naphthalene and/or mercury. The first of two sampling events was August 4 and 5, 2014. Neither naphthalene nor mercury was detected in either the sub-slab vapor or indoor air samples. However, the protocol for assessing the vapor intrusion pathway requires that more than one sampling event be conducted before reaching a supportable conclusion. Therefore, a second sampling event will be conducted in November 2014 to allow for sample collection during two different HVAC conditions (i.e., seasonal variations) within the existing building.