

**Sampling Activities
at
Abandoned Crestwood Well #1**

During the week of June 8, 2009, the Illinois Environmental Protections Agency's Office of Site Evaluation conducted a soil and groundwater investigation in Crestwood, Illinois (see Attachment 1). The investigation included a portion of the Playfield Plaza Shopping Center and the area near the Abandoned Crestwood Well #1. Within the Playfield Plaza Shopping Center is a dry cleaning facility and a possible underground storage tank. The investigative area is illustrated in Attachment 2.

Located to the southeast of Playfield Plaza Shopping Center is Crestwood Community Well #1. The well is located within Playfield Park approximately 245 feet south-southeast of the dry cleaning facility. According to past well logs, the well was constructed in 1959 to a depth of 345 feet below ground surface. According to the Illinois Department of Public Health the well was abandoned and sealed and closed on March 20, 2009.

The Office of Site Evaluation investigation gathered information to help determine whether the Playfield Plaza Shopping Center may have contributed to contamination of the Abandoned Crestwood Well #1. Another purpose of the investigation was to determine the geology and shallow groundwater flow direction above the bedrock within the area of the abandoned well.

Prior to sampling, Illinois EPA arranged a Joint Utility Locating Information for Excavators (JULIE) meeting with all appropriate utility companies. The project was assigned dig number #X1490766. On June 4, 2009, all requested utility companies arrived in Crestwood for a meeting to discuss the sampling plan. Over the next several days, each utility company, or their representative(s), located and marked their respective underground utility.

All soil borings were completed using Illinois EPA's hydraulically driven unit that uses both static force and percussion to advance sampling tools into the subsurface. Four-foot soil cores were obtained by advancing a sampler into the ground. The soil cores were collected in a plastic sleeve during advancement of the sampler, which can be cut allowing access for logging and sampling purposes. Soil cores were evaluated for organic vapors by using a Photoionization Detector (PID). While the soil cores were exposed, the shallow portions of some of them were analyzed for inorganic constituents using the X-Ray Fluorescence (XRF) Spectrum Analyzer. The soil cores were also visually inspected for any staining or other potential signs of contamination. Attachment 6 contains the boring logs for each soil core including PID readings. Attachment 5 includes XRF results.

Groundwater samples were collected by advancing steel rods with an attached retractable slotted screen into the soil. Once the steel rods were advanced into the desired saturated zone, the slotted screen was released and exposed to the groundwater thus allowing it to enter the screen. Plastic tubing was inserted into the hollow rods and a peristaltic pump was used to draw the groundwater from below and fill the appropriate sample containers. Groundwater sampling efforts followed protocols set forth in Illinois EPA Bureau of Land's Sampling Procedures Guidance Manual.

Illinois EPA also installed 6 temporary, 1 inch diameter, piezometers throughout the investigative area. The depth of each piezometer varied, but they all had 10 feet of screen at the bottom. Sand was packed around the screened sections of each piezometer until reaching a depth of 2 feet above the screened area. Bentonite was used to complete the seal around the PVC pipe. The depth and screened intervals of each piezometer can be found in Attachment 4. After determining depth to groundwater, plastic tubing was inserted into the piezometer and a peristaltic pump was used to draw the groundwater for groundwater sample containers. The groundwater samples were collected in accordance with protocols set forth in Illinois EPA Bureau of Land's Sampling Procedures Guidance Manual. After each piezometer was sampled, they were pulled from the ground and bentonite was used to fill the remaining void.

Following the collection of each Geoprobe boring and sample, their location was mapped using a Trimble Global Positioning System (GPS) unit. The location of each soil sample is illustrated in Attachment 3. Each location was also photographed and is illustrated in Attachment 7.

An area of concern that local citizens recently brought to Illinois EPA's attention is possible lead contamination of the soil beneath the Village's water tower. As with many water towers, maintenance requires them to be periodically painted. To prepare the surface for paint, sandblasting is usually done. The local citizens were concerned that lead-based paints may be present in the shallow soil beneath the water tower as a result of sandblasting. Illinois EPA's Office of Site Evaluation used an XRF to analyze the soil beneath the water tower at 5 locations. Each location was analyzed at the surface and at 3 inches below the surface. Their locations are illustrated in Attachment 8 and the XRF results can be found in Attachment 5.

From June 8 through June 11, 2009, 11 soil borings were completed at various depths throughout the investigative area. From the bore holes, 4 soil samples and 10 groundwater samples were collected for laboratory analysis. Both soil and groundwater samples were analyzed for volatile organic compounds by Illinois EPA's Division of Laboratories located in Springfield, Illinois. Laboratory data sheets can be found in Appendix A.

Attachments

1	Site Location Map
2	Investigative Area Map
3	Sample Location Map
4	Sample Reference Table
5	X-Ray Fluorescence Results
6	Soil Boring Logs (including PID results)
7	Illinois EPA Sample Photographs
8	X-Ray Fluorescence Location Map (beneath water tower)
9	VOC Concentrations in Groundwater
10	VOC Concentrations in Soil
Appendix A.....	Analytical Sample Data