

## **Direct Technical Mentoring** **Hudson County Economic Development Corporation** **(HCEDC), Hudson County (Harrison, Secaucus, Kearny)**

### **Overview:**

Hudson County applied for and received a \$200,000 EPA Brownfield Assessment Grant in 2004. The Hudson County Economic Development Corporation (HCEDC), the county agency responsible for business and economic development, was given responsibility for implementation of the grant. The focus of the grant is three towns in Hudson County including: Kearny, Harrison and Secaucus.

During the summer of 2007, a portion of the grant was used to fund an investigation of a former industrial area in Harrison that was undergoing redevelopment as part of the Harrison Redevelopment Area Master Plan. Innovative investigation techniques were used to undertake the characterization program, which was focused on delineation of the extent of and potential for impacts from historic fill underling a parking lot. Historic fill typically contains metals and polycyclic aromatic hydrocarbons (PAHs), and in some instances petroleum products or polychlorinated biphenyls (PCBs). The redevelopment plan called for the area to be redeveloped with mixed use residential and commercial.

The remaining portion of the grant was used to evaluate environmental conditions at a former industrial site in Secaucus, known as the Keystone Metals site. A metal plating operation occupied the property until the late 1980's when it went bankrupt. The property is currently owned by the Town of Secaucus and is located in a residential area of the town. The town is considering converting a portion of the property into a park with the remaining portion sold for market rate residential housing. Previous environmental investigations and a certain amount of remediation have been performed at the property since the early 1990's. The objective of the investigation funded under the grant was to confirm previous sampling which indicated that much clean up had been performed and establish the current environmental conditions in context to the proposed reuse. The site is primarily impacted with chlorinated volatile organic compounds and heavy metals.

### **Description of TAB Services:**

#### **➤ *Harrison Area Wide Investigation, Harrison, New Jersey***

The Town of Harrison has identified a southern portion of the town as a redevelopment area. The town prepared a redevelopment plan and initiated its implementation. This southern portion of Harrison was created from "made land", fill material used to build up the marsh areas above flood zones. Filling began in the early 1900's and by 1940's this area of Harrison was comprised of heavy industrial land uses. In the 1980's industrial activity declined and Harrison lost its tax base. In late 1990's, the town took steps to declare this an

“area in need of redevelopment” and prepared a redevelopment plan. By mid 2000, redevelopment activity had begun with planning for the Harrison Commons, a mixed use residential and commercial area. One of the issues associated with redevelopment of this area was the nature and extent of the historic fill.

Since Harrison was one of the focus towns for the grant, the HCEDC offered to provide assistance to the site investigation by performing field work on a portion of the Harrison Commons development area. The issue with this area (at the time of the investigation a parking lot) was the underlying historic fill. While the metals and PAH values in historic fill can exceed residential soil clean up criteria, studies have shown that these chemicals do not migrate because they are poorly soluble and bound in the matrix. NJDEP has developed a remediation approach to historic fill that includes engineering control (in the form of caps) and institutional controls (deed notice and use restriction). One of the key requirements for implementing a historic fill remedial strategy is delineation of the fill and chemical characterization.



Pegasus Redevelopment Area (Harrison Commons) outlined in yellow.  
Area Wide Assessment in red. Secaucus, NJ

### ***Development of Scope of Work and Assessment Work Plan***

Through extensive experience with performing investigations at historic fill sites, NJIT TAB has developed an approach to site characterization called the Area Wide Approach. Essentially this approach uses a mixture of field measurement technologies coupled with a conceptual site model to rapidly delineate the historic fill and determine the chemistry. NJIT TAB worked with the HCEDC to develop a Scope of Work for an Area Wide Approach for the Harrison Commons. The first activity performed by NJIT TAB was to collect background information on site geology and historic land use data from various sources and build the conceptual site model. From this, NJIT TAB developed a Work Plan for the Area Wide Investigation that integrated various testing methods. NJIT TAB worked with USEPA Region 2 Mobile Laboratory to arrange for metals and VOC analysis. NJIT TAB staff then organized a meeting with NJDEP to discuss the Work Plan for the Area Wide Investigation and gain regulatory concurrence with the approach and methods. The program consisted of:

- Direct push electrical conductivity probe to measure historic fill thickness and variability
- Field measurement of metals in soil with hand held XRF
- Mobile laboratories to test for metals, PAHs, VOCs and PCBs
- Fixed base laboratory analysis to support mobile and field based analysis

***Assistance with Contamination Investigation, Data Analysis, Interpretation and Presentation***

NJIT TAB assisted the environmental consulting firm selected by the HCEDC to perform this work, PMK Group. Field work was performed in a short two day period due to the need to minimize disturbance to the parking lot (it was a pay for use commuter parking area). A track mounted Geoprobe was used to advance the electrical conductivity probe (ECP). Additionally a small “hand” operated rig and a truck mounted probe were used to collect groundwater and soil samples. A Niton XRF (provided by NJIT TAB) was used to measure metals content of the soil in the field. Soil samples for laboratory analysis were selected based upon XRF results and ECP logs. Samples were tested with the assistance of Region 2 EPA Mobile Laboratory Program. A fixed base laboratory was used to test a select few samples to Category 1 level analysis. NJIT TAB staff assisted in the field program and provided technical support during sample collection and data interpretation.

The outcome of this investigation program demonstrated that the Area Wide Approach is a viable method for delineating historic fill. The Direct Push Electrical Conductivity Probe (DPECP) accurately defined the thickness and variability of the fill. A combination of different testing methods could be used to create a collaborative data set that defined the chemical constituents of the historic fill. This data set demonstrated that the fill was mostly as expected and that if properly capped was not a threat to surface development. Currently the site is undergoing demolition and grading in the preparation for the construction of the first redevelopment structure, a parking deck to replace the parking lots.

➤ ***Keystone Metal Finishers Site, Secaucus, New Jersey***

The focus of this investigation was a two acre environmentally impaired property in Secaucus, New Jersey known as the Keystone Metal Finishers Facility located at 22 Raydol Avenue. The Keystone Metal Finishers facility was in operation from 1947 to 1960 as a standard metal plating facility. In 1960, the site activities were modified to include anodizing, tin nickel plating and electroless nickel plating. Operations ceased in the early 1980's.

The objective of the Area Wide Investigation at the Keystone Metal Finishers site was to evaluate the environmental conditions with respect to redevelopment. The Area Wide Investigation primarily focused on environmental conditions within the portion of the property with the potential for residential reuse.



**Keystone Metal Finishers Site, Secaucus, NJ**

### ***Assistance with Development of Assessment Work Plan***

The initial technical services provided by NJIT TAB were in developing a Work Plan for the field investigation. Again, the Area Wide Approach was used to investigate existing environmental conditions. Since this site had undergone environmental investigations in the past, NJIT TAB performed a file review of available information to develop a conceptual site model of site conditions with regard to hydrogeology and the distribution of chemicals of concern. The primary chemicals of concern were chlorinated solvents (CVOCs) in the sites soil and groundwater, historic fill constituents in the near surface soils (metals and PAHs) and CVOC soil gas migration (vapor intrusion).

### ***Stakeholder Coordination***

In order to develop consensus on the investigation program and focus the sampling to the most appropriate areas, NJIT TAB staff developed a Work Plan and organized several systematic meetings. These meetings included various stakeholders, among them the NJDEP Case Manager, the selected environmental consultant, USEPA Region 2 Mobile Laboratory personnel and HCEDC members. As a result of discussions at these meetings, it was determined that the objective of the field program would be to develop sufficient environmental information to allow an educated developer to assess the impact of environmental issues on site redevelopment and consider cost and schedule implications.

### ***Assistance with Contamination Investigation, Data Analysis, Interpretation and Presentation***

The field work was performed by PMK Group, the environmental consultant selected by the HCEDC. NJIT TAB arranged with USEPA Region 2 Mobile Laboratory to perform metals and CVOC analysis on soil, CVOC analysis on groundwater and VOC analysis of soil gas samples as well as provided technical assistance during the field work.

The results of the investigation indicated that several of the potential residential lots were not impacted and thus could be redeveloped. However, the testing confirmed that an area in the northern portion of the property had indeed been impacted by VOCs and remediation was necessary before this area could be subdivide into residential lots. Additionally, the testing showed that the surface soils had only low levels of metals and PAHs, indicating that very little historic fill had been placed on this property.



Groundwater sampling from a screen point driven in the ground by a geoprobe.



NJIT TAB worked with PMK Group to prepare a report that was presented to Secaucus officials and interested developers. NJIT TAB staff also prepared a presentation on the Keystone Area Wide Investigation which was given to the Hudson County Economic Development Corporation Brownfield Task Force.