

**Direct Technical Mentoring**  
**Middlesex County Improvement Authority (MCIA)-Brownfields**  
**Petrol Program and Hazardous Waste Site Assessment Grant,**  
**Middlesex County**  
**(Middlesex Boro., Highland Park Boro., and Carteret City)**

**Overview:**

In 2005 the Middlesex County Improvement Authority (MCIA) received a petroleum products Brownfield Assessment Grant and in 2007 a hazardous materials Brownfields Assessment Grant from the USEPA, together totaling \$400,000. With regards to the Brownfield Petroleum Sites (PETROL) Program Grant, three municipalities in Middlesex County were the focus: Middlesex Borough, Highland Park Borough and Carteret City. Each municipality identified possible properties for consideration; most of which were abandoned gas stations, but several were more complex automotive maintenance facilities and one was an automotive salvage yard. The grant funds were applied to investigating a property at 900 South Ave. in Middlesex Borough and several properties in the West Carteret Redevelopment Area on Roosevelt Blvd. in Carteret.

The Hazardous Substance Assessment Grant focused on the Lincoln Boulevard portion of Middlesex Borough. Several former industrial facilities existed along this important thoroughfare and Middlesex Borough has designated this area as a rehabilitation area, with the intent to attract redevelopment. The assessment grant investigated 146 Lincoln Boulevard.

**Description of TAB Services:**

➤ ***Petroleum Sites (PETROL) Program Grant***

***Assistance with Site Prioritization***

NJIT TAB staff evaluated the petroleum sites (22 in total) as initially proposed by the involved municipalities and prioritized them for investigation activities. As there were insufficient funds in the grant to investigate all the candidate sites, NJIT TAB's prioritization allowed allocation of resources in the most cost effective manner. The proposed sites in the three communities were reviewed by NJIT TAB staff in conjunction with the MCIA and were organized into three categories. Sites in Category 1 could receive No Further Action (NFA) with little cost. Sites in Category 2 required initial PA/SI activity and a defined scope. Sites in Category 3 required (RI) activities where Triad could be the most cost effective method for delineating impacts.

- **Category 1: Closure Documentation Needed-** These are sites that either have had no releases or have been fully investigated and/or remediated to NJDEP satisfaction. In some cases Site Investigation (SI) activities have demonstrated no release has occurred and in other cases, Remedial Investigations (RI) and remediations have been performed in accordance with the Technical Rules. Sites in this category primarily require thorough documentation to support a No Further Action determination and closure.
- **Category 2: Preliminary Assessment and Site Investigation (PA/SI) Needed-** These are sites where little to no environmental information is available and there is no documentation regarding site history. These sites require a Preliminary Assessment to document former site use and potentially a Site Investigation to provide sampling information confirming that a release has occurred. If impacts are identified, a Remedial Investigation may be required.
- **Category 3: Triad Based Remedial Investigation Needed-** These are sites where a certain amount of investigation has been performed and a release has been confirmed. However, complete delineation in accordance with the Technical Rules has not been accomplished and NJDEP has requested further characterization activities. These are sites that are candidates for Triad Based Remedial Investigations to delineate impacts in soil and groundwater as a basis for remedial design.

#### ***Assistance with Consultant Procurement***

In the Fall of 2007, NJIT TAB staff assisted the MCIA in acquiring an environmental consultant to support the Petrol Program. NJIT TAB assisted MCIA with the preparation of a Request for Qualifications/Proposals (RFQ/P) and assisted in the review of the proposals.

#### ***Assistance with Stakeholder Coordination and Data Presentation***

NJIT TAB participated in meetings with key municipal officials and provided a presentation regarding the preliminary category analysis for the sites.

#### ***Assistance with Development of Assessment Work Plan and Technical Field Support***

NJIT TAB worked with the selected environmental consultant, Langan Engineering, to develop a Work Plan for site assessment activities at 900 South Street, Middlesex Borough. In order to maximize the value of the grant funds, the Triad approach was identified as the investigation method. NJIT TAB provided technical support in identifying testing methods, sampling tools, sensor probes and other rapid site characterization methods. NJIT TAB organized a systematic planning meeting with regulatory agencies including NJDEP to gain agreement on the site characterization approach. NJIT TAB staff also provided field technical support during the investigation.

NJIT TAB presented the proposed investigation program at two meetings with Carteret municipal officials in anticipation of future planned investigations in the Roosevelt Avenue Redevelopment Area in Carteret City.

➤ ***Hazardous Substance Grant***

In addition to the Petroleum Grant, MCIA also received a Hazardous Substance grant for environmental site assessments. The first site selected for this grant was 146 Lincoln Boulevard in Middlesex Borough. This location is comprised of a former drum cleaning operation that caught fire in 1986 and has been vacant since that time. Limited testing at the site had identified arsenic (As) in the soil and potentially in the groundwater. The Borough had identified a redeveloper who was interested in combining this property with an adjacent property for residential development.



146 Lincoln Boulevard, Middlesex Boro., NJ

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

As part of the initial planning stage, NJIT TAB developed a conceptual site model (CSM) for use in selecting investigation techniques and targeting analytical testing to the appropriate parameters. For example, one of the key COC's was arsenic. Reliable real time testing methods exist that can be used to delineate arsenic impacts in a dynamic interactive manner. NJIT TAB developed this model based on our review of NJDEP files (NJDEP OPRA process) and our summary of the site's environmental conditions. NJIT TAB assisted in the development of a scope of work which would not only satisfy the NJDEP Technical Requirements, but also provide complete delineation of the arsenic so the developer could prepare a remedial action cost estimate.

***Assistance with Request for Proposal***

NJIT TAB provided technical review assistance of MCIA's draft Request for Proposals prior to its distribution to potential consultants. NJIT TAB's focus in this technical review was the portion that related to the Triad Based Remedial Investigations approach.

***Technical Field Support***

NJIT TAB worked with the selected environmental consultant to develop a Work Plan. Since the primary contaminant of concern was Arsenic, a Triad Based Remedial Investigations approach using X-ray fluorescence (XRF) was selected. NJIT TAB staff helped develop the technical approach using an XRF to test site soils for Arsenic and provided technical guidance during the field investigation.



**Hand Held X-ray Fluorescence (XRF)**