

## Risk-Based Corrective Action Environmental Projects

By: Peter Smith, Lyndon Soileau and Keith Prieur

Waldemar S. Nelson and Company, Incorporated (NELSON) has extensive experience in the collection and toxicological assessment of soil, surface water and groundwater samples in site investigations at industrial and non-industrial facilities under all three commonly utilized regulatory programs in Louisiana. These programs include the Louisiana Department of Environmental Quality (LDEQ) – Risk Evaluation/Corrective Action Program (RECAP), LDEQ’s Voluntary Remediation Program (VRP), and the United States Environmental Protection Agency’s (EPA) Ready for Reuse Program.

The LDEQ has developed a tiered framework of risk based closure guidelines called RECAP for sites with contaminated media that are requesting a “No Further Action” (NFA) response from the Agency. The RECAP Standards are used to identify constituents in contaminated media that may require further evaluation to investigate a potential threat to human health or the environment. If a constituent concentration is below the appropriate Standard, then typically no further assessment is necessary. If a constituent concentration exceeds a RECAP Screening Standard, a more detailed site evaluation, referred to as Management Options, may be required to determine what level of corrective action may be appropriate to address the site. The tiered Management Options allow site evaluation and corrective action efforts to be tailored to site conditions and risks. As the Management Option level increases, the approach becomes more site-specific



**Structural demolition activities at an industrial facility**

and hence, the level of effort required to meet the objectives of the Option increases. Although the level of effort required for each Option varies, each Option achieves a common goal: protection of human health and the environment.

The LDEQ has committed to utilize the land use revitalization program Ready for Reuse, together with the existing Brownfields and Voluntary Remediation Program, to help promote redevelopment opportunities at facilities and sites throughout the state. These include operating facilities as well as facilities that are not in full use, where there is development

or redevelopment potential.

The LDEQ Voluntary Remediation Program provides a mechanism by which property owners (or potential owners) or others can clean up contaminated properties and receive a release of liability for further cleanup of historical contamination at a site. This release of liability flows to future owners of the property as well. The Ready for Reuse program is a cleanup program utilized by the LDEQ and developed by the EPA Region 6 in Dallas and has become part of the EPA’s National Land Revitalization Initiative. The goal of this initiative is to make land revitalization and



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professional services supplied to a former large industrial manufacturing facility which ceased operations in the year 2000. NELSON's affiliation with the facility dates back to initial site development in the 1950s and has continued through the years under changes in facility ownership and operations.

During past operations, NELSON assisted the facility with air, water and solid waste permitting projects. The facility's permitted solid waste units included three surface impoundments that were part of the site's stormwater and wastewater treatment system. In 1986 NELSON prepared the initial solid waste permit application for these impoundments. In 1994 NELSON prepared a solid waste permit modification and permit renewal application that was in accordance with newly promulgated solid waste regulations and incorporated the facility's earthen drainage ditch system into the solid waste permit. The facility's earthen drainage ditch system was part of the site's wastewater treatment system.

Following the facility's decision to cease operations and in order to facilitate the future use of the facility, NELSON assisted the facility in implementing an accelerated site investigation and closure program consistent with the EPA's Land Revitalization Action Agenda. The program involved the combined use of LDEQ's RECAP and EPA Region 6's Corrective Action Strategy, under the LDEQ's Voluntary Remediation Program and Ready for Reuse program. Implementing the project under these programs enabled site investigation activities to be completed in a timely manner and provided a method to establish when conditions at the facility were protective of human health and the environment, based on planned future land use.

In 2000 a Site Investigation Plan of the facility was prepared and approved by the LDEQ. The purpose of the Plan was to conduct sampling that addressed the closure of the facility's feedstock Materials Storage Areas and to address sampling of the facility's Solid Waste Management Units identified as requiring further investigation in the facility's RCRA Facility Assessment (RFA) Report developed by the EPA. The Site Investigation Plan was designed and implemented so that all collected soil and groundwater data were suitable for application to the LDEQ's Voluntary Remediation and the Ready for Reuse programs. The Site Investigation Plan was implemented under four separate phases that consisted of the following:

Phase 1 – Site-Specific Groundwater Elevation Study to validate the facility's conceptual site model.

Phase 2 – Closure of Feedstock Materials Storage Areas, Initial and Supplemental Investigations of Selected Solid Waste Management Units and Voluntary Remedial Actions.

Phase 3 – Closure of Permitted Solid Waste Units.

Phase 4 - Investigation of Areas of Interest that are located adjacent to and contiguous with the facility's processing areas.

Concurrent with the development and implementation of the site investigation, plans were developed for closure of facility operational areas and the permitted solid waste facilities. Following cessation of operations in 2000, NELSON prepared options for facility closure and demolition activities. Upon the facility's selection of a closure option, a scope of work document was prepared to perform residuals de-inventory and structural demolition activities. The general scope of work for residual de-inventory activities were divided into five categories and are as follows:

Tank/Vessel Residual De-Inventory - The removal and proper off site disposal of solid and liquids remaining in each tank.

Area De-Inventory - The removal and proper disposal of solids and visual metallic dusts.

Waste Oils - The removal and proper disposal of waste oils in various types of machinery throughout the facility.

Residual Product Handling - The recovery and containerization of product material encountered in various areas for shipment and reuse.

Miscellaneous Waste Items - The removal and proper disposal of miscellaneous waste items located in various areas that included rubber tires, batteries, air

reuse a fundamental of all EPA and state cleanup programs to help foster economic development and return previously contaminated properties or abandoned properties back to productive use.

NELSON has conducted these types of environmental risk avoidance/corrective action programs for the last twelve years in its Environmental Science and Engineering Department. We routinely perform between twenty to thirty Phase I Environmental Site Assessments each year, approximately one third of which progress into subsequent Phase II or risk evaluation efforts.

This article will detail recent risk-based corrective action programs conducted at two sites in southeastern Louisiana. The first project description will detail the



**Ambient Air Monitoring Station**



### Soil excavation for remediation of industrial facility drainage ditch system

conditioner compressors (window units), refrigeration units, paints, solvents, fluorescent bulbs and ballast.

In 2004 and extending into 2005 NELSON provided onsite supervision of all phases of residual de-inventory in former areas of operation and technical assistance regarding the abatement of regulated building materials, abatement contractor oversight and monitoring. In 2005 NELSON provided onsite supervision for structural demolition activities. The general scope of work for demolition activities included the demolition of identified structures to existing foundation grade level and the removal and proper offsite disposal or reuse of all generated debris. Every effort was made to maximize asset recovery of the debris and materials encountered during demolition activities which included carbon steel, stainless steel, copper, lead and concrete, as well as equipment and machinery. The maximization of asset recovery allowed site demolition to be completed at minimal cost to the facility. NELSON also provided ambient air monitoring during abatement and demolition activities.

In conjunction with facility closure, NELSON prepared a solid waste Closure Plan that was approved by the LDEQ and detailed the proposed closure of the facility's three permitted solid waste surface impoundments and the approximately 7,000 linear feet of the internal earthen drainage ditch system. Additionally the facility elected to voluntarily excavate surface soils across former non-regulated, operational areas of the site. NELSON prepared the

scope of work document that was submitted in the facility's Request for Proposal for solid waste closure activities. The surface impoundments for closure were approximately 1 acre, 5 acres and 10 acres in size. The implementation of the Closure Plan began in the spring of 2005 and was interrupted for approximately 3 months by the impact of Hurricane Katrina on the area. Closure activities included the excavation of over 100,000 cubic yards of soils to levels below established RECAP standards from the facility's internal drainage ditch system, two surface impoundments and additionally from process areas across the site and the in-place closure of an onsite oxidation pond. The remaining onsite 10 acre impoundment was used as a repository and upon final receipt of these excavated materials was capped with compacted clay material and closed in accordance with LDEQ solid waste regulatory guidelines. The use of an onsite facility for receipt of these excavated materials increased safety on area roadways by eliminating disposal transportation, preserved space in local area landfills and minimized the facility's disposal costs. The clay material utilized in capping the impoundment was obtained from an onsite borrow pit constructed specifically for solid waste closure activities. Utilizing clay from an onsite source resulted in a substantial savings in the facility's closure costs. At the completion of closure activities the facility's internal drainage system was modified to achieve a predominant surface sheet flow drainage pattern. NELSON provided onsite supervi-

sion for implementing the closure plan, performed all confirmatory sampling for regulatory purposes, performed all toxicological assessment of sample data, and prepared all certification of closure documentation and post-closure monitoring plans for submittal and approval by the LDEQ.

At the completion and approval of all phases of the Site Investigation and receipt of LDEQ approval of closure of the solid waste facilities in 2007, the facility had successfully met the requirements for certification under the LDEQ Voluntary Remediation Program and Ready for Reuse programs. This Ready for Reuse project included approximately 320 acres of the site and at this time remains the largest ever undertaken throughout the United States. NELSON staff personnel were recognized for their service in achieving completion of this project by the EPA and LDEQ in ceremonies awarding the facility full Voluntary Remediation Program and Ready for Reuse certifications.

The second project undertaken by the Environmental Department that will be described in this article is a smaller tract in a more urban environment.

The firm was contracted by the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard and St. Tammany Parishes to conduct environmental assessment activities on the property referred to as the Progressive Church site located in Marrero, Jefferson Parish, Louisiana. The Church site is a 20 acre tract of cleared, undeveloped property located in a residential and commercial area in Marrero between the West Bank Expressway and Fourth Street. The objective of the Regional Planning Commission and Progressive Church was to obtain environmental closure on the property through the Louisiana Department of Environmental Quality's (LDEQ) Voluntary Remediation Program. The goal of the Progressive Church is to develop the property into a multiuse facility that would include a new church, family life center and educational facility. The environmental assessments were necessary to satisfy the Church's objective to not be encumbered by environmental issues prior to development of the site.

With assistance from the Regional Planning Commission, the Progressive Church site qualified for financial assistance through the EPA's Brownfields Redevelopment Program. A brownfields site is

defined as real property, the development of which may be complicated by the presence of contamination. The intent of the Brownfields Program is to revitalize property that would otherwise remain unused because of environmental conditions. The EPA offers funding through grants and low interest loans for qualified applicants to conduct environmental assessments and cleanup programs.

NELSON was responsible for performing various levels of environmental assessments on the property. The project activities were conducted from mid 2005 through early 2008 and included a Phase I Environmental Site Assessment, a Phase II Environmental Site Investigation and Health Risk Evaluation, and a Remedial Action Plan and site remediation activities.

The Phase I Environmental Site Assessment (ESA) of the property was conducted in October 2005. The purpose of the Phase I environmental site assessment is to conduct an appropriate inquiry into the historical and current ownership and uses of the property. The intent of the environmental site assessment is to satisfy one of the requirements to qualify for the innocent purchaser's defense to CERCLA liability. The Phase I assessment activities consisted of a walk-through inspection of the property, a review of selected environmental regulatory databases, interviewing state environmental regulatory agencies, and reviewing previous environmental assessment documents. Historical aerial photographs, Sanborn maps, topographic maps and site survey drawings were also reviewed. A review of the property's history indicated that the primary past activity with the potential for environmental impact to the property was an auto salvage yard existing on the site from the early 1960's to 2004. In addition to the auto salvage yard, it was also discovered that an asbestos containing material was present in the shallow soil across a large area of the site.

Based on the findings of the Phase I ESA, NELSON recommended a Phase II assessment be conducted to determine the potential for contamination to exist from the auto salvage yard activities and to determine the extent of asbestos containing materials on the site.

Phase II Environmental Investigation activities were performed next and included the collection of soil and groundwater samples at the site to determine the nature and extent of any contamination. The Progres-



**The 20 acre Church Site located on the Westbank of Jefferson Parish**

sive Church was requesting a site closure on the land through the LDEQ's Voluntary Remediation Program. The Phase II activities were conducted in accordance with an LDEQ approved site investigation work plan prepared by NELSON.

Phase II sampling activities included the collection of a number of soil and groundwater samples across the site from depths ranging from 1 to 9 feet below ground surface. Based on the history of the site and at the request of LDEQ, the constituents of concern for this investigation included volatile organics, semi-volatile organics, total petroleum hydrocarbons for gasoline, diesel and oil, priority pollutant metals, and asbestos-in-soil. Analytical results were evaluated for health risk concerns following the guidelines established in the LDEQ – Risk Evaluation / Corrective Action Program (RECAP).

The findings of the RECAP evaluation indicated that the analytical results from one sample collected on the northern portion of the site at a depth of 2 feet below ground surface exhibited several constituents that exceeded limiting RECAP Screening Standards for specific metals, semi-volatiles and hydrocarbons. It was also determined that asbestos-in-soil, associated with fill material that was previously deposited across

portions of the site, was randomly detected at a depth of approximately 6 inches below ground surface.

Although the Progressive Church had the option to cap the contamination in-place as an acceptable and less expensive form of corrective action, they voluntarily elected to excavate the impacted area to non-industrial Screening Standards to eliminate land use restrictions that would be required if the detected contamination was not remediated. A Remedial Action Plan for the detected RECAP constituents and asbestos-in-soil was then prepared and submitted for the LDEQ's approval.

After LDEQ approval of the plan the remedial activities were conducted from January through March 2008. During the early phases of the project the Progressive Church sponsored neighborhood meetings with the local neighborhood associations, Parish and state officials to address concerns from all levels.

NELSON also assisted the Church in preparing the contractor bid package and request for proposal document that included a scope of work, remediation specifications and contractor qualifications. Daily site inspections were also provided during the soil removal activities to assure contractor compliance with the work plan.



**Excavation of impacted soil at the Church site**

The remedial activities consisted of the excavation and disposal of the detected RECAP constituents and the observed asbestos in soil. At the request of LDEQ, the following engineering controls were implemented during the excavation activities:

- The perimeter of the excavation area was barricaded with fencing and caution signs to prevent off-site access.
- Air monitoring for asbestos was conducted along the downwind perimeter of the excavation.
- Storm water runoff from the excavated areas was controlled to prevent asbestos impacted soil from leaving the Area of Investigation.
- Asbestos in soil was live-loaded for transportation and was not stockpiled on site.
- Designated staging areas and haul roads for the dump trucks and equip-

ment were established within the work area to prevent potential disturbance of the asbestos material.

The asbestos in soil was identified in the near surface soil in random locations across the area of investigation. The material was encountered at depths ranging from 6 inches to approximately one foot below ground surface. There were very isolated areas where the asbestos material was encountered at approximately two feet below ground surface. The excavation activities consisted of removing (scraping) the surface soil to an average depth of approximately one foot below ground surface with a track dozer. The soil was loaded onto lined dump trucks for transportation and disposal at a local landfill. The dozer was only allowed to excavate enough soil each day that could be loaded out for transportation and disposal at the end of each work day. The asbestos in soil was not stockpiled on the site overnight. A

LDEQ certified asbestos inspector was onsite during the excavation activities to visually inspect the exposed underlying surface to assure the asbestos in soil was removed. If asbestos material was observed in the underlying soil, an additional 6 inches (approximate) of soil was excavated in the immediate area where the material was observed. If the asbestos material was not observed in the underlying soil, the excavation activities were terminated. Over 10,000 cubic yards of soil were disposed of at the landfill.

During the remediation activities continuous air monitoring for asbestos fibers was conducted. Two (2) downwind air sample points were selected immediately outside the perimeter of the excavation area for continuous air monitoring each day during the excavation, loading, and truck traffic activities. During the entire project all air monitoring results were below the standard and no additional actions were required to control dust.

As required by the LDEQ, a Remedial Action Report was prepared to document that the remedial action goals identified in the VRP-RAP were successfully achieved. In response, on September 10, 2008 the LDEQ issued a Certificate of Completion and Termination letter to the Progressive Church for the successful completion of the remediation activities and certified that the work was completed in accordance with the LDEQ – VRP and EPA Brownfields guidelines. This type of closure is beneficial because it releases the Church and all future landowners from liability for past contamination at the site.

In recognition for our service and dedication during this project, NELSON received a Citation for Brownfields Excellence from the LDEQ in November 2008. Keith Prieur, NELSON’s project manager, also received a Certificate of Recognition for his dedication and commitment during the project.

With the environmental goals that were first established in the summer of 2005 achieved, the Progressive Church anticipates breaking ground on construction of its new church complex in Spring/Summer 2009.



**Keith Prieur, NELSON’s project manager for the Church site, accepts a Citation for Brownfields Excellence from Dr. Alex Appeaning, Deputy Secretary with LDEQ.**

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On Saturday evening, January 31st, our senior officers and their spouses gathered to celebrate the retirements of Rich Cabiro, Jim Cospolich and Jim Melancon.

Held at Austin's Restaurant in Metairie, the group shared a relaxed evening over cocktails and dinner. The firm's appreciation was expressed for the loyal and tireless service of these gentlemen who, together, served nearly 125 years! The gentlemen replied with their thanks for the opportunities at the company both professionally and personally and the generosity of the Nelson family. We look forward to continuing our relationships during a transitional period and wish them all the best as they progress to a more leisurely lifestyle.

Rich and Jane Cabiro



Jim and Shirley Cospolich

Jim and Sandra Melancon



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