

What's new at CA RICH

Congratulations to **Richard Izzo** on his recent, well-earned promotion to the position of Vice President here at CA RICH. Mr. Izzo continues to provide management, organizational continuity and technical direction to help shape the Firm's professional service capabilities and contribute to its stellar reputation for excellence. Mr. Izzo was recently featured in the October 16-22, 2015 issue of Long Island Business News (LIBN) in which he was interviewed for LIBN's article entitled "Environmental Firms Get Busy as Real Estate Deals Pick Up".

In addition, CA RICH Environmental Scientist, **Bill Fitchett** was recently featured in LIBN's 2015 "Book of Lists", a Who's Who of professional environmental consultants.

CA RICH is pleased to announce that Associate, **Victoria Whelan** has been appointed to the position of Regional Coordinator by the Institute of Professional Environmental Practice (IPEP). IPEP is an independent organization providing Certification for Qualified Environmental Professionals (QEPs) through rigorous review and examination of applicable environmental knowledge.

CA RICH continues its work on Brownfield sites across the greater New York Metropolitan Area under the New York State Brownfield Cleanup Program and New York City Voluntary Cleanup Program. The Firm has a variety of affordable housing projects in the Programs' investigation stages, application stages, as well as remediation and post-remedial monitoring stages.

For more information about CA RICH or the ENVIRONMENTAL BULLETIN, please call (516) 576-8844 or write to:

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CA RICH CONSULTANTS, INC.

A full-service environmental consulting firm providing strategic consulting and on-site support to help business owners manage all their environmental issues. CA RICH, independently-owned since 1982, is staffed by experienced environmental professionals skilled at understanding the intent behind environmental regulations, balancing business needs with environmental practicalities.

The Company provides environmental consulting; Phase I & II Assessments; Compliance audits; Investigation; Remediation; Groundwater resource management; Storage tank, indoor air quality & hazardous waste management; Soil vapor intrusion mitigation; Brownfield redevelopment; Property acquisition; Sustainability, Expert testimony; Strategic thinking & dispute resolution; and all other professional services related to evolving regulations and client needs.

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CA RICH CONSULTANTS, INC.



Changing Times - From SVE to SSD

By Jason Cooper

Protection of indoor air quality remains at the forefront of the environmental industry. To this end, we are experiencing ever-increasing demand for testing and remedial action to protect building occupants from soil vapor intrusion.

In some cases, remediation systems utilizing soil vapor extraction (SVE) that have been successfully operated over time to remove volatile organic compounds (VOCs) from the subsurface may be converted to less costly systems intended to provide ongoing protection of the indoor air quality within a building.

CA RICH is currently working on a site in Farmingdale, NY with the New York State Department of Environmental Conservation (NYSDEC) at which this transfor-



mation is now underway. Specifically, we are modifying the components of an SVE system to convert it to a Sub-Slab Depressurization (SSD) system. This change is a direct result of the successful cleanup of the soil vapor outside the building footprint from the SVE system and the need to

address on-going concerns over residual VOC levels in the sub-slab soil vapor beneath the building.

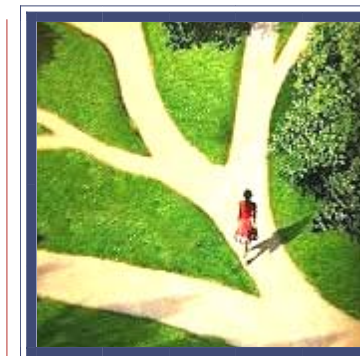
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Disposal Pathways for Urban Fill

By Richard Izzo

The illegal stockpiling and dumping of urban fill on Long Island has gotten quite a bit of press recently, and if one reads the local papers, they will know that CA RICH has been involved with the testing and remediation of at least one of these dumpsites. The prevalence of this issue in the news along with the continued burgeoning of brownfield redevelopment in the New York metropolitan area has prompted this review of how exactly we classify fill for proper disposal.

Aside from finding a gigantic pile of fill that someone dumped on a property, developers are now routinely dealing with the issue of characterizing on-site subsurface fill materials that must be removed to make way for new buildings; and deciding exactly how to do so in accordance with prevailing regulations. In long-established urbanized areas, redevelopment sites historically contained old industrial or residential structures long since demolished with the resultant 'C&D' debris bulldozed into the foundations mixing with native soils. The native soils may also have been impacted by chemical or petroleum releases prior to building demolition.



There are three potential disposal classifications for these materials: 1) construction & demolition debris (C&D), 2) non-hazardous regulated waste, and 3) hazardous waste. The cost for transportation and disposal under these three classification ranges is generally \$15-20 per ton for C&D, \$30-60

per ton for non-hazardous, and up to \$150-250 per ton for hazardous waste.

Until fairly recently, most of the fill dug up at redevelopment sites was disposed of in the most cost-effective manner as C&D debris. The main reason for this (aside from cost) is that these sites were not highly regulated from an environmental standpoint, so unless obvious signs of contamination were present, there was no need to characterize the materials. If the fill looked OK, nobody cared what was actually in it. It

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was just labeled “clean fill” and either shipped off along with the other C&D debris or even sold or given away to folks who needed to fill a hole somewhere.

Here in New York, the New York State Department of Environmental Conservation (NYSDEC) Rules and Regulations (NYCRR Subpart 360-1) define C&D as “uncontaminated solid waste..” including “soil, rock, wood..”. There is no specific provision in the regulations as to what constitutes “uncontaminated”. However, if analytical testing shows that the materials contain any contaminants in excess of NYSDEC soil cleanup objectives (NYSDEC part 375), then the fill can no longer be characterized as C&D and thus, must be disposed of off-site as “regulated waste” at a facility licensed to accept it. Furthermore, on Long Island, where we rely upon a sole source aquifer for potable water, soil or fill containing certain contaminants that exceed “protection of groundwater” criteria (defined in Part 375) are required to be sent “off Island”.

So what triggers the need for testing? Because many of the redevelopments within the NY Metropolitan Area are proceeding with City or State oversight under the City Environmental Quality Review (CEQR), the City Voluntary Cleanup Program (NYCVCP) or the State Brownfield Cleanup Program (NYSBCP), site redevelopment cannot take place without environmental assessment; usually in the form of a Phase I & Phase II Environmental Site Assessment (ESA).

A Phase I will reveal previous site usage (among other things) and a Phase II will normally include some form of on-site soil testing and analyses. Even if there has been no petroleum or chemical release on the site, chemical analysis, more often than not, results in the detection of low levels of certain contaminants associated with “urban fill” including some heavy metals and the class of base-neutral organic compounds known as



Excavation of urban fill at a NYC Brownfield site

PAHs. As such, the C&D disposal pathway is off the table for fill materials from most of these sites. The fill removed from these sites for construction purposes must be disposed of as non-hazardous regulated waste. In addition, there is usually a requirement that a minimum two-feet of documented clean fill be imported to cover the on-site materials in areas that will not be covered by a building or asphalt/concrete.

This situation gets a bit more complex if the levels of contaminants in the fill materials are higher, or if historical property usage identified in the Phase I ESA includes the former presence of on-site industry that would be connected with the usage of the chemicals found. Examples of this include metal plating or dry cleaning.

According to 6 NYCRR Part 371, solid waste must be considered hazardous waste if it meets one of two criteria: 1) Characteristic Waste, or 2) Listed Waste. A characteristic hazardous waste is just that: one that exhibits characteristics of being hazardous. These include ignitability, corrosivity, reactivity and toxicity characteristic leachability. These characteristics are determined through analytical testing and are required analyses for acceptance at all regulated waste disposal sites (even the non-hazardous ones). So, for example, if the levels of metals in on-site fill are elevated and it is shown through analytical testing that these metals are leachable in excess of the regulatory threshold, it is hazardous waste.

Then there’s “listed waste”. These substances are specifically listed in “Part 371” and assigned Hazardous Waste Numbers. A listed waste does not have to fail any analytical testing to be classified as hazardous waste. It only has to be associated with an on-site usage in a concentration greater than 10%. If a Phase I ESA discovers there used to be a dry cleaner on the property, and a Phase II finds concentrations of dry cleaning solvents (e.g. perchloroethylene or PCE) above NYSDEC cleanup objectives in the underlying soil/fill, then according to regs. it must be classified hazardous waste because dry cleaning utilizes PCE in greater than 10% concentration.

This classification is intended to protect from a potential regulatory loophole against the old saw: “dilution is the solution to pollution”. By requiring PCE as hazardous in any concentration, it prevents users from diluting it down below a regulatory threshold for disposal as non-hazardous waste. So even if found in only small amounts, if there was a dry cleaner, it still must be managed as hazardous waste.

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An SVE system is a commonly-used and effective remedial methodology designed for the removal of contaminated soil vapor, primarily attributable to soil and/or groundwater contamination. It is comprised of many parts, but the main components include a regenerative blower, granular activated carbon (GAC) vessels or drums, and SVE wells/piping. The components are sized based upon site conditions and designed to remove contamination from the sub-surface for remedial cleanup purposes.

A large contamination plume may require the utilization of a large sized blower or multiple blowers along with hundreds of feet of piping and requires monitoring, emission sampling, reporting, and carbon change outs. Operation of these systems over time results in proven reduction of VOC levels to acceptable concentrations, but oftentimes, residual low-level



SVE system

contamination may remain near or beneath a building. Continuing to operate an SVE system indefinitely can be costly and may be ineffective or inefficient in controlling sub-slab soil vapor.

What can a property owner do to cut costs, while still maintaining a healthy environment? One possible solution is to convert the SVE system into a less-costly SSD system. An SSD system and SVE system operate using a similar methodology as they both utilize vacuum to remove vapors; however, an SSD system is designed solely to prevent the intrusion of sub-slab soil vapor into a building while an SVE system is designed for reduction of VOC concentrations (i.e. remediation). A typical SSD system is comprised of a rooftop fan that provides vacuum to the sub-surface, a vacuum gauge, and the associated piping.

For the Farmingdale site, the vapors outside the building footprint have been adequately addressed utilizing the SVE system and do not require further remediation. Further operation of the SVE system in an effort to control the sub-slab vapors from beneath the building would be inefficient and not cost effective.



Rooftop SSD fan

CA RICH is currently working in cooperation with NYSDEC to design an SSD system that will control the vapors from beneath the building. This system conversion includes utilizing some of the sub-surface components of the SVE system and replacing the regenerative blower and carbon vessels with rooftop SSD fans.

Once the State-approved SSD system has proven effective and confirmatory air sampling has been completed, the former SVE system will be officially decommissioned. The benefits to operating the new SSD system include no emission sampling, no carbon change outs, with site inspections typically required only on an annual basis, as opposed to quarterly as typically required for an SVE system. In addition, operational costs are significantly reduced as the SSD fans require much less electricity to operate as compared to a blower. A typical SSD system will operate for years with little to no maintenance.

For more information on SVE-SSD conversions or soil vapor intrusion, contact CA RICH.

