THE CARLSON REPORT

Straight Talk on Environmental Issues

Ten Critical Issues to Consider When Using Engineered Barriers

Understand the Trade-offs when Obtaining an NFR Letter

Today, soil contamination can usually be left in place if covered with an "engineered barrier" such as a parking lot or building foundation, saving property owners and developers significant amounts of money[1].

The use of barriers, however, also means long-term maintenance responsibilities and can complicate development plans. It pays to carefully analyze the use and impact of barriers early in the development process.

Confer Early and Often

Since the Illinois EPA's Site Remediation Program was created in 1997, Carlson Environmental has obtained over 100 No Further Remediation (NFR) Letters for clients. A majority of projects involved the use of engineered barriers as the basic approach to remediation. From this experience, we have found that a close working relationship between environmental consultant, project architects, engineers and the developer *early in the design period* can avoid major disruptions and unanticipated costs during construction.

What we Have Learned—Carlson's Top Ten List

Our project experience has taught us a number of lessons that make the cleanup process more efficient and economical. According to Ed Garske, project director on Carlson's major remediation projects, "It is much easier to avoid a problem than to solve a problem, and to avoid problems we work with clients to address a number of issues early in the process. We refer to this as our 'Top Ten' list of development considerations."

10. **Ask your consultant: *How do I get my NFR Letter?* and *How do I keep my NFR letter?*** The Illinois EPA periodically inspects properties with NFR letters to see if they are in compliance. Sites that violate the terms of their letters risk having them voided. The most common issues involve breaches of the barriers. It is helpful to have a program in place to avoid this problem.[2]

9. Keep in mind that an NFR letter will not be issued until barriers are in place--but that's OK. The Illinois EPA will not issue an NFR Letter until barriers are installed and documented in a written report.[3] If the site has an approved cleanup plan (Remedial Action Plan or RAP), the letter will be granted if the plan is implemented. Many of our projects have moved forward on the basis of "approved" RAPs.

8. Details of barrier construction must be documented. To issue the final NFR letter, the Illinois EPA requires that construction details must be certified. This means that some party must observe a portion of the construction process and document details in order to confirm compliance with the approved plan.

7. If clean soil is used as a barrier, its condition must be documented. In addition to concrete and asphalt materials, a layer of clean soil can also act as a barrier; yet, Illinois EPA will require a demonstration that the soil is *not* contaminated. This will involve testing or documentation of the source.

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[1] For a discussion of how engineered barriers work see "The Great Coverup: the Use and Limitations of Engineered Barriers," *The Carlson Report*, November 2003, available at www.carlsonenv.com.

[2] For example, Carlson has provided some clients with the *Engineered Barrier Maintenance Protocol*™ to address such problems. See "Suggestions for NFR Compliance," *The Carlson Report,* September 17, 2002 on our web site. Also keep in mind that if circumstances change, you can work with the Illinois EPA to renegotiate the terms of the NFR letter.

[3] The Remedial Action Completion Report.

6. Obtain Illinois EPA approval before using synthetic liners as barriers. Synthetic liners can be used in place of concrete and asphalt. The specific material may not be suitable for the planned use. For example, some liners will protect against ingestion but not inhalation. Check with the Illinois EPA's Site Remediation Program first.

5. Don't forget that barriers may be needed for landscaped areas and borders. Engineered barriers seldom cover an entire site. Sometimes this fact is overlooked in negotiating the scope of an NFR letter. If a barrier is needed for a landscaped area and none is in place, this could be grounds for voiding a letter when the site is later inspected. Make sure such areas are addressed during the site development phase.

4. Anticipate breaches. All barriers are subject to deterioration through weathering and normal wear and tear. Also, work on underground utilities may involve the penetration of a barrier. A protocol should be in place to anticipate such situations and ensure that barriers are repaired in a manner consistent with the terms of the NFR letter. It also pays to have an awareness program in place to minimize unintentional breaches and assign responsibilities for repairs.

3. Construction worker caution statements. Remediation sites can have a degree of soil contamination that poses a theoretical health risk to construction workers who may be doing work on the site. This presents a health and safety issue when the site is being developed, and also when subsequent work is being done if contaminated soils under a barrier are exposed. Site owners or tenants should be prepared to inform workers of these conditions and have a health and safety plan in place to protect them. These programs need not be complicated. It pays to inform contractors who will be working on the site since it may affect their bids.

2. Consider limiting the areas subject to engineered barriers. The applicant in the remediation process has a great deal of flexibility in creating the terms of the NFR letter, particularly with regard to the types and locations of "designated engineered barriers" that will be incorporated into the remedial strategy. Only those materials and locations designated would be subject to the requirements set forth in the NFR letter. Therefore, developers should consider minimizing the area covered by designated barriers if it is desirable to limit the area that would need to be maintained.

1. Factor the role of engineered barriers into early planning and decision-making. With the advent of barriers as a remediation technology, it has become imperative that they be factored into the design process. Site buildings and foundations become the basic elements of the cleanup program**.** Therefore, their placement and the overall fingerprint of the site become crucial. Failure to factor barriers into the initial layout of the site can result in increases in development costs and awkward situations for those who occupy the site later on. Carlson's Margaret Karolyi advises that environmental consultants should be "elbow-to-elbow" with the architects and engineers when the site is laid out. "If there is one lesson we have learned over the years," she says, "it is that we need to work closely with the developer and their consultants from the very start. This approach prevents potential upsets and saves time and money."

For Further Information:

Ed Garske (312) 704-8850
Margaret Karolyi (312) 704-8843
www.carlsonenv.com

Illinois EPA Site Remediation Program
Rick Lucas, PE
Rick.Lucas@epa.state.il.us
(217) 782-0462
Greg Dunn, LPG,
Greg.Dunn@epa.state.il.us
(217) 785-2389