

Institutional Control Audits; What Should They Tell Us?

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"There is limited data available on the number of sites where institutional controls have been used, the types of controls put in place, and what parties (e.g., potentially responsible parties, local government, state government, etc.) have implemented these restrictions. There has been little analysis of the effectiveness of institutional controls in large part because at many of the sites where institutional controls are called for in the Record of Decision (ROD), cleanups are not yet completed and institutional controls have yet to be implemented. At those sites where cleanup has occurred and institutional controls are in place, lack of systematic monitoring and reporting of the site makes it difficult to assess how effective the controls have been".

--- Robert Hersh et al. (1997) Linking Land Use and Superfund Cleanups: Uncharted Territory

Since I wrote the above passage eight years ago, EPA, in 2001, began designing an information system to track institutional controls (ICs) at Superfund and RCRA corrective action sites where waste was contained in place as part of the cleanup. Much of this work has consisted of selecting and defining elements in the tracking system database and devising mechanisms to share data with state regulators and local officials in order to create an inventory of ICs across cleanup programs. Currently, EPA is using the institutional control tracking system to collect baseline information about ICs at some 900 Superfund "construction complete" sites. However, a national network to assess how effectively ICs have been implemented across programs is likely to be years away.

In regard to IC monitoring, state cleanup programs are ahead of EPA programs and have put in place mechanisms to audit sites where institutional controls have been implemented. According to the recent report [State Brownfields and Voluntary Response Programs](#), eleven states, including Maine, Delaware, Pennsylvania, Florida, Georgia, South Carolina, Tennessee, Wisconsin, Arkansas, Colorado, and Arizona have designed tracking systems to assess how well ICs are performing in the field. In this short article, I'd like to briefly describe the Wisconsin IC audit program, discuss findings from the program's first round of audits, and throw into the mix a series of questions that state IC monitoring programs need to address.

The Wisconsin Department of Natural Resources (WDNR), with funding from EPA under section 128 (c) of the new Brownfields Law, has developed a process to audit sites cleaned up with the use of institutional controls (ICs) and recently reported the results from an audit of twenty-four sites that typically had been closed out (i.e., cleanup complete) three years previously. The purpose of the IC audit, according to WDNR, "is to evaluate the site for compliance with the conditions set at the time the "no further action" determination was made, to ensure those actions are effective." WDNR staff, rather than consultants, performs the audit. The process begins with a file review of case information about the site, includes an interview with the site owner, a site visit, and a summary report. On average, each audit takes 12 hours to complete. To ensure consistency across audits, the WDNR designed a compliance review form, which includes the following questions:

- Have site conditions changed since the closure of the case that would affect either a deed restriction or other requirements associated with the site?

- Has additional monitoring or remediation been done since the site was closed?
- If a performance standard was the final remedy, has it been altered?
- Have local zoning changes occurred since (site) closure?
- Were any new potential sources of contamination identified, and if so, does sampling need to be performed?
- If a new threat to public health or the environment exists, what should be done to address the problem and by whom?

There were no hard and fast criteria by which the sites were selected. According to WDNR, regional staff chose sites to audit based on compliance follow-up issues, in some cases by complaints, and by “regional staff preferences.” Of the twenty-four inspections conducted, follow-up actions were recommended at five sites that were not in compliance. Post-closure compliance problems included: removal of a protective cap, failure to maintain a cap; failure to record a deed restriction, the lack of an annual cap inspection; and the discovery of a new release from a drum storage area. It would appear that these problems were not the result of intentional violations or deliberate acts by site owners, but rather seemed to consist of owners being unaware of requirements.

The rate of non-compliance, (if one excludes the release from the drum storage area) is a rather surprising 17 percent. A department official said that “the overall non-compliance level was higher than we hoped, but at this point we just do not have enough data to make any broad conclusions on our universe of closed sites. Future evaluations should also consider the seriousness of the violation in addition to the overall number of sites in non-compliance.

The Wisconsin audit process is a useful first step, but it raises a number of questions that EPA and other states will need to grapple with as they refine their respective IC tracking systems. The long range goal of an IC tracking system is not simply to create an inventory of what types of ICs are in use and which parties are responsible for implementing them, but to help target enforcement resources on those sites that for various reasons are likely to shift out of compliance and where the consequences of IC failure to public health and the environment are most acute.

A model IC audit program would help regulators and the public clarify conditions under which existing ICs are likely to work, and under which conditions they are ineffective and should not be used as a substitute for treatment. As more and more states begin to create their own IC tracking programs, data needs to be systematically collected and analyzed to help answer questions about compliance rates, the harms caused by inadvertent or intentional IC failures, the thresholds for enforcement employed by state programs, the criteria used to select appropriate enforcement responses, and the costs to maintain ICs and to run state IC audit programs.

During the past decade, institutional controls have been used widely at contaminated sites, but they are only acceptable if they reliably achieve risk levels consistent with federal and state mandates to protect human health and the environment. We have been flying blind on the question of IC reliability, with only anecdotal evidence to inform our opinions. Perhaps in the next few years state IC audit programs will provide regulators and the public with empirical evidence to evaluate the long term efficacy of ICs.