



Costs

IC management imposes costs on environmental agencies, beginning with the process of IC selection and continuing indefinitely to cover IC registries, IC monitoring, stakeholder outreach, and IC enforcement. IC management costs affect the entire IC lifecycle (see Figure 1). While ITRC did not calculate the relative costs across each component of the IC lifecycle, IC management activities related to IC registries and IC monitoring likely constitute the largest share of IC management costs.

The ITRC survey gathered responses from states about how they fund IC monitoring specifically (Question 17) and IC management in general (Question 31). Most states reported that they fund IC activities through the same sources of funding that they use to fund other cleanup programs. IC-specific funding sources, however, are a growing trend, with seven states reporting mechanisms to collect fees related to ICs. IC-specific funding, in turn, triggers the question of how to estimate the IC-specific costs associated with site management. This section addresses IC cost estimating and state examples of IC-specific funding and fees.

Financial assurance presents additional costs. Financial assurance for ICs assures that obligated parties possess the needed funds to perform or pay for needed IC management. In the ITRC survey, approximately 25% of states reported the use of financial assurance specific to ICs. Finally, this section summarizes the typical best practices related to IC costs, cost estimating, and financial assurance.

Estimating the Costs of ICs

While some states calculate and assess IC fees, no generally accepted approach to estimating IC fees is broadly practiced. To address the lack of consistent cost estimates, the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) has developed an IC costing tool designed to assist state agencies with the process of estimating the full scale of long-term IC stewardship costs (ASTSWMO 2012). Similar to the components of IC management described in this guidance, ASTSWMO's cost tool divides IC costs into five cost categories: 1) planning, 2) community engagement, 3) information management, 4) monitoring and inspection, 5) enforcement. Within each category, the cost tool itemizes various costs items and provides a spreadsheet to assist with the process of identifying all the costs associated with ICs - ranging from relatively fixed costs related to computer systems and program management as well as site specific costs requiring staff time and other resources.

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States that helped develop the ASTSWMO tool also used the costing framework to draw observations suggesting that IC management for an average site might impose a cost burden of approximately \$1,000 per year (ASTSWMO 2012). For example, Delaware reported that “[a] basic annual file review, site inspection, follow-up letter and database update was estimated at approximately \$1,000 per site per year.” Since that time, however, Delaware has employed a state-wide one-call monitoring approach at a fraction of the per-site cost. Mississippi predicted monitoring and inspection costs at \$920 per site per year. Mississippi further predicted that “the State may decide to charge a flat fee of \$1,700 up front with a \$1,000/annual “permit” fee for LTS activities to cover the costs over time.” Missouri developed a tailored version of the ASTSWMO cost tool and calculated similar annual IC cost numbers of approximately \$1,000 per year.

Current State Practices for Collecting IC Fees

Several state environmental agencies charge fees to cover the state agency costs for issuing and administering ICs. In general, states charge and collect IC fees in one of two ways: a one-time fee or ongoing fees. States that charge a one-time fee usually do so around the time of IC implementation. Other states charge ongoing fees, billed periodically, based on a fixed schedule or based on the labor hours and costs incurred by the stage agency. Kansas places these IC fees directly into a state IC trust fund where they are held for use solely on IC oversight and administration.

▼Alabama

Under its UECA statute and implementing regulations, the Alabama Department of Environmental Management (ADEM) charges one-time fees for the use of Environmental Covenants. ADEM's implementing regulations for UECA establish three categories of ICs, which, in turn, impacts the Environmental Covenant fees. Category 1 covers restrictions for water use. Category 2 covers restrictions that only allow for commercial/industrial uses or that prohibit schools or daycare uses. Category 3 covers excavation restrictions and restrictions for hunting and fishing (Alabama 2013).

Depending on the category of IC restriction imposed by the Environmental Covenant, ADEM charges sliding scale fees for the use of Environmental Covenants. The fees include 1) a processing and review fee, and 2) a Registry Recording fee. The Registry Recording fee also covers the cost of performing routine inspections for 30 years (Alabama 2013). ADEM enumerates the fees at Schedule J within the section of its regulations covering fees generally (Alabama 2013). Table 6 shows the Environmental Covenant Fees as listed in Schedule J.

Table 6. Alabama Department of Environmental Management IC fees

Environmental Covenant Fees: Activity	Initial Issuance	Modification
<i>Processing and Review Fee:</i>		
Institutional Controls (ICs)	\$4,285	\$1,070
Engineering Controls (ECs)	\$6,425	\$1,610
<i>Registry Recording Fee:</i>		
Class 1 Controls	\$13,705	\$635
Class 2 Controls	\$9,420	\$635
Class 3 Controls	\$5,245	\$635

▼Arizona

The Arizona Department of Environmental Quality (ADEQ) charges an up-front fee for the use of ICs. ADEQ regulations both require the fee and set a fee calculation schedule, which itemizes the elements of the total fee. Based on the fee calculation schedule, a one-time IC fee ranges from approximately \$7,000 to \$10,00 and covers various Department activities including "ongoing activities," the costs to administer an IC registry, and other ADEQ administration activities covering ICs (Arizona).

Arizona DEQ's regulations also require and set a fee calculation schedule for the use of ECs. Fees for ECs range from \$6,000 per site and upward. Fees greater than \$6,000 trigger in the case where groundwater monitoring or other "ongoing activities" are required by ADEQ, and are calculated on a case-by-case basis depending on the number of ADEQ hours required, among other things (Arizona).

▼Kansas

Pursuant to the Kansas Environmental Use Control law, the Kansas Department of Health and Environment (KDHE) charges sliding-scale fees for IC use based on whether the site constitutes a Category 1, Category 2, or Category 3 site (Kansas 2013). Category 1 sites include those smaller than five acres, with low residual contamination, and which require inspections at five-year frequencies. Category 2 sites include those larger than five acres, with moderate residual contamination, and which require inspections at one to 5 year frequencies. Category 3 sites include large sites with residual contamination of higher toxicity and mobility, pose complicated maintenance requirements which may require inspections at greater than annual frequencies, among other things.

The IC fee for Category 1 sites does not exceed \$2,000. For Category 2 sites, the IC fee does not exceed \$10,000. No cap on IC fees exists for Category 3 sites. The fee is based on site specifics such as on the size of the property, physical properties of residual contamination, type of protective structures, and anticipated inspection frequencies. Category 3 sites also trigger the need for a Long Term Care Agreement between the state and the party desiring IC use, in which the party agrees to pay the fees necessary for the state to administer the IC. Further, at Category 3 sites KDHE is authorized to require financial assurance to cover the costs for additional remediation should IC protections fail.

Finally, the Kansas Environmental Use Control law provides that all payments received from IC fees will be deposited in the State treasury and credited to an EUC fund. The law then enumerates future EUC activities for which monies in the fund may be spent (Kansas 2013).

▼Missouri

Pursuant to the agency's Voluntary Cleanup Program regulations, the Missouri Department of Natural Resources (MDNR) charges an IC fee to persons using ICs as part of voluntary cleanups (DPRA 2013). The regulation states that "[f]or sites which require engineering and/or ICs (such as capping or deed restrictions), the person shall submit a fee to cover the department's long-term monitoring costs ... ranging from five thousand dollars to fifteen thousand dollars (\$5,000-\$15,000)." While the regulation authorizes fees ranging from \$5,000 to \$15,000, as a practical matter since January of 2014, MDNR charges the maximum authorized IC fee, \$15,000, in each case.

The decision to charge the maximum authorized fee was based on IC cost estimating exercises performed by the agency, utilizing IC cost estimating tools modeled under the ASTSWMO cost estimating tool (ASTSWMO 2012), described above, but tailored for use in Missouri. These IC cost estimation exercises highlighted the site-specific costs imposed on the agency, when taking into account the various state-agency administrative requirements needed to manage ICs over their life cycle.

▼California

In 2003, the California Department of Toxic Substances Control (DTSC) published a regulation that, among other things, requires the DTSC to recover its costs of administering land use covenants 22 CCA 67391.1 (Regulations 2016) It provides "[t]he Department shall require responsible parties, facility owners or operators, or project proponents involved in land use covenants to pay all costs associated with the administration of such controls 67391.1(h) (California 2016)."

Based on this authority, the DTSC includes statements in land use covenants that require the covenantor (the party seeking the covenant) and subsequent property owners to pay IC administration costs. The model covenant language reads as follows:

The Department has already incurred and will in the future incur costs associated with this Covenant. Therefore, the Covenantor hereby covenants for the Covenantor and for all subsequent Owners that, pursuant to California Code of Regulations, title 22, section 67391.1(h), the Owner agrees to pay the Department's costs in administering, implementing and enforcing this Covenant.

Generally, DTSC sends quarterly bills to collect its costs for administering, implementing and enforcing land use covenants. Billing occurs for those sites that have a cost recovery provision within the land use covenant itself, or, in cases where an Operation and Maintenance Agreement or other cost recovery mechanism is in place. The costs billed include staff time, travel, and equipment and contract costs.

▼New Jersey

The New Jersey Department of Environmental Protection (NJDEP) charges one-time and ongoing annual fees for IC and EC use under a permit program known as the Remedial Action Permit. Of all the IC fee regimes reviewed by ITRC, only the NJDEP IC fee occurs under a permit program.

In 2009, the New Jersey Site Remediation Reform Act (SRRA) authorized NJDEP to "establish a permit program to regulate the operation, maintenance and inspection of engineering or ICs and related systems installed as part of a remedial action of a contaminated site (NJ 2016)." Pursuant to SRRA, NJDEP issued regulations requiring Remedial Action Permits when ICs or ECs are used as part of soil or groundwater remediation. Among other things, the regulations identify the persons who must obtain the permit, set provisions to assure the permit remains in force for the life of the IC or EC, and establishes a formula for calculating permit fees covering ICs and ECs N.J.A.C. 7:26C-7-1 through 7-13 (addressing "Deed Notices, Groundwater Classification Areas and Remedial Action Permits")(NJ 2015).

Engineering and institutional controls implemented as part of a remedial action are established under a Remedial Action Permit. Remedial Action Permits covering ICs or ECs must be obtained by any owner of a contaminated property, and by each subsequent owner, as well as parties responsible for the pollution (permits are not required on CERCLA sites). Because multiple entities could be required to obtain the permit, the regulations allow the parties to become co-permittees. NJDEP guidance documents further explain the permit process required when ICs or ECs are used, and among other things provide

a tabular summary of required fees (NJ 2010). Table 7 summarizes the schedule of fees when an engineering and/or IC is implemented as part of a remedial action. As shown in the table, fees cover the initial application, interim steps such as modification, termination, and ownership transfer, as well as ongoing annual fee.

Table 7. New Jersey Department of Environmental Protection EC/IC fees

Permit	Media		
	Soil	Groundwater - MNA	Active Groundwater
Permit Application	\$940	\$1,250	\$1,565
Permit Modification	\$625	\$940	\$1,250
Permit Termination	\$940	\$965	\$1,375
Transfer of Ownership	\$415	\$415	\$470
Annual Fee	\$205	\$205	\$205

All fees are subject to review and revision annually. The annual fee covers the cost of processing biennial certification reports, with inspections required at a minimum of every 5 years for engineering controls. The cost of recording of deed notices with the county is not included in these fees. Fees are calculated in accordance with 7:26C-4.5, *Remedial action permit fee formula*.

Financial Assurance and Using Insurance for ICs

Assuring that obligated parties possess the needed funds to perform needed IC management is often a necessary component of long-term IC management. Financial assurance mechanisms can guarantee the needed funds exist. As early as 2006, Government Accounting Office studies highlighted the need and importance of financial assurances for achieving full completion of environmental cleanup remedies (GAO 2006).

Common types of financial assurance mechanisms include trust funds, surety bonds, letters of credit, insurance, issuance of financial test and corporate guarantees, typically with the government regulator named as beneficiary. The ITRC survey indicates that approximately 25% percent of states reported that they require financial assurance specific to ICs. This survey and related research tends to show that state agencies increasingly require financial assurance to help assure long-term stewardship, particularly when ECs are used.

State approaches to financial assurance and using insurance ▼

Except under limited circumstances, the NJDEP requires financial assurance whenever ECs are used as part of a remedial action. NJDEP regulations and associated guidance documents list the types of acceptable financial assurance and describe acceptable procedures for calculating the amount of funds needed for financial assurance (Program 2010). Acceptable mechanisms, for example, include environmental insurance, a line of credit, or a remediation trust fund agreement.

In Kansas, legislation as well as KDHE regulations authorize KDHE to require financial assurance where ICs are used for "Category 3" sites; see discussion further above describing Category 3 sites (Environment 2005). Financial assurance should be adequate to cover the costs for various stewardship duties as set forth in a site-specific Long Term Care Agreement for activities such long term inspection and maintenance, protective structures, and the potential for release or migration of environmental contamination from the property. Acceptable forms of financial assurance include: environmental insurance; performance or financial guarantee bond (requires standby trust); irrevocable letter of credit (requires standby trust); qualification as a self-insurer (financial test); corporate guarantee (financial test). In addition, the department has determined that financial assurance may be demonstrated by the use of a trust fund or other methods as approved by the Secretary (Kansas 2005).

In Washington, legislation authorizes required financial assurance "where the cleanup action selected includes engineered and/or institutional controls" and it enumerates the type of acceptable financial assurance mechanisms (Washington 2003).

In Illinois, state rules allow "highway authority agreements" as an acceptable type of IC to address residual contamination left in place within a right-of-way (such as street, road, highway, and others). The highway authority agreements are entered

into between the responsible party and the relevant highway authority, which can be a state agency or local agency depending on the type of right of way. The responsible party agrees to pay, in the future, for the costs of managing residual contamination during future right-of-way activities. A number of authorities (particularly local authorities) require, when entering into a highway agreement, that the applicant (obligated party) provide a payment bond as financial assurance. This bond covers the estimated amount it would cost to remediate (for example, excavate soils) within the scope of the highway agreement. This assurance provides the needed funds to address residual contamination if the applicant did not respond to written requests for reimbursement of costs associated with managing residual contamination during future right-of way activities.

States often list environmental insurance as an acceptable type of financial assurance. Environmental insurance is a cost mitigation tool designed specifically to address the outcome of a risk event. For the long-term stewardship of an IC, an insurance policy may be an effective means to protect agencies and stakeholders from unexpected costs arising from an IC failure. Site Pollution Liability, (SPL, also known as PLL or EIL) policies can be tailored to the long-term stewardship liabilities associated with ICs. SPL policies can cover preexisting conditions as well as coverage for errors and omissions in monitoring and enforcement. Underwriting criteria for SPL policies may require proper establishment of ICs and a plan for appropriate monitoring and annual certification. At least one insurer has tailored its environmental insurance policy directly for use when ICs or ECs exist (Terradex 2015).

Model Best Practices for Estimating IC Cost, Fees, and Financial Assurances

The process of estimating the costs imposed on environmental agencies and designing mechanisms to fund those costs remains an evolving practice. Relatively few states directly estimate IC-related costs or collect IC fees. The momentum beginning to occur in these areas, however, indicates a growing trend and practice.

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No standard methodology exists for estimating the IC-related costs imposed on state agencies. As noted above, however, some states publish formulas for calculating IC fees and these formulas mean to capture the costs imposed on the agencies and based largely on estimating staff hours and related indirect costs. ASTSWMO has identified a more holistic IC cost estimating approach, which lists a wider set of cost elements ranging across all the direct and indirect components that state agencies manage across the IC life cycle. The process of calculating accurate estimates of IC costs imposed on state agencies, whether under the approach suggested by ASTSWMO or similar approaches, seems likely to continue as a model practice.

Current practices related to charging IC fees also remain at an evolving stage. Current practices involve the collection of one-time fees and ongoing fees. In the case of ongoing fees, New Jersey employs a permit system, which charges a fixed annual fee. Rather than under a permit scheme, California collects fees directly from parties subject to recorded land use control documents pursuant to specific fee assessment provisions in these documents. California's fees are billed quarterly based on the actual costs imposed on the agency. In the case of one-time fees, some approaches allow for flexibility to charge higher fees in the case of more complex sites. The process of collecting fees, while still employed by relatively few states, also seems likely to continue and grow as a model practice.

In Kansas, IC fees are placed into a state-created LTS trust. Doing so assures that the generated fees on IC-specific efforts – as opposed to the funds going to general fund pools where they might not be earmarked specifically for LTS purposes. This practice could prove attractive to states where fees are earmarked to fund IC-related agency efforts.

Existing financial assurances at IC and EC cleanup sites were exhaustively studied as part of this guidance. Because financial assurance helps to assure appropriate funding remains available from responsible parties, this practice can also be an important component of IC management at state agencies.