

US EPA ARCHIVE DOCUMENT

Cost Estimating for RCRA Financial Assurance

- A good cost estimate is a key link between an approved permit, plan, or remedy selection and the need to obtain adequate financial assurance
- Many – if not most – facility cost estimates are believed to be inadequate both in their levels of detail and in their use of current pricing
- Regulators need enhanced resources in order to review and evaluate facility cost estimates

Cost Estimating for RCRA Financial Assurance

- Regulatory Requirements
- Cost Estimating Resources
- Cost Estimating Basics
- Cost Estimating Examples



REGULATORY GUIDANCE

- 40 CFR 264.142 and 144
- 40 CFR 265.142 and 144
- OSWER Directive 9476.00-5
(January, 1987)
- OSWER Directive 9476.00-6
(November, 1986)
- Interim Guidance – RCRA Corrective Action
(September, 2003)

REGULATORY REQUIREMENTS

- Based upon Closure & Post-Closure Plans
- Most Expensive Options
- Third-Party Costs
- Salvage Credits and Zero Economic Value
- Annual Updates
- Corrective Action Plans

Facility cost estimates are required for closures & post-closures

- Facility cost estimates shall be based upon closure & post-closure plans, whether permitted or interim status
- Each activity listed in a permit or plan shall be accounted for and priced in the estimates
- Post-closure maintenance usually – but not always – is based upon 30-year periods of performance

Facility Cost Estimates Shall Reflect the Most Expensive Options

- Estimates shall reflect closure costs for each activity covered by the permits or plans
- Estimates shall be predicated upon the assumption that all activities are to be closed concurrently
- Estimates shall include the maximum permitted quantities and volumes
- Estimates with onsite disposal pricing also should include offsite transportation and disposal options

Facility Cost Estimates Shall Reflect Third Party Costs

- Estimates shall not be based upon the use of in-house resources even if available
- Parent companies and subsidiaries shall not be considered third parties for estimating purposes
- Market-based pricing which reflects outside contractor services should be used to develop the estimates

Facility Cost Estimates Shall Preclude Salvage Credits and Zero Costs for Wastes Generated During Closure

- Potential salvage values – such as reusable drums or tanks – shall not be incorporated into cost estimate to offset costs
- Disposal costs for recycling of hazardous or non-hazardous materials with potential economic value shall not be assigned “zero” values

Facility Cost Estimates Shall be Updated Annually for Inflation and/or to Reflect Changed Conditions

- To account for inflation, either:
recalculate estimates annually using
current pricing; or multiply original
estimate by an inflation factor
- If TSDF units are added, expanded or
closed, cost estimates must be updated to
reflect the changed conditions

Cost Estimates for Corrective Action

- Congress intended TSDFs to provide adequate financial assurance for corrective actions
- Cost estimates are necessary to determine the values of financial assurance required
- See “Interim Guidance on Financial Responsibility for Facilities Subject to RCRA Corrective Action”

Cost Estimating Resources

- CostPro parametric software and manual
- RACER parametric software with on-line help
- RSMeans cost references (manuals or CDs)
- Other cost estimate review resources

CostPro Software

- Developed by EPA in mid-1990's and follows the detailed methodology of OSWER Directive 9476.00-6 (1986)
- Provides seventeen (17) basic models developed primarily for closure and post-closure activities



RACER Software

- Developed by USAF in early 1990's for use by RPMs to estimate the costs of CERCLA and RCRA activities
- Provides approximately 100 parametric models – including key remediation technologies as well as many civil works activities, such as infrastructure construction and demolition



R.S. Means Cost References

- Provides a common database for both RACER and CostPro systems
- Includes thousands of line items
- Two complementary references for environmental line items
- Other references for civil works activities

Other Resources of Cost Estimate Review Support

- Intra-office cost estimating expertise – such as a CERCLA counterpart
- Intra-office databases or prior case files of similar projects – RCRA and CERCLA
- Other state or Federal resources
- Outside contractors – without conflicts of interest - employed on an as-needed basis

Cost Estimating Basics

- Estimate Format
- Quantity Takeoff
- Production Efficiency
- Unit Pricing
- Total Cost



Estimate Format

- A Work Breakdown Structure (WBS) approach is the ideal method to organize the estimate
- A WBS is analogous to an outline for a thesis or term paper
- A WBS begins with major activities and adds increasing levels of detail as necessary



Drum Storage Closure WBS

- Inventory Drums
- Dispose of Drums
 - solids drums
 - liquids drums
- Decon Building
 - wash/rinse
 - sampling & analysis
- Health & Safety
 - levels of protection
 - planning & inspections
- Site Supervision
- Site Certification

Quantity Takeoff

- May be included in permit or specifications
- May be derived from plans or from known processes or activities
- May be based on other parameters (such as calculating the quantity of excavation crew hours using soil volume and production efficiency of excavator)
- Document basis of quantities employed



Production Efficiency

- The amount of time required to perform a task will affect the cost
- Some production efficiencies – or hourly outputs – can be found in standard databases such as RSMeans
- Some production efficiencies may be based upon either facility or regulatory experience with other projects
- Document basis of production utilized



Unit Pricing

- Most unit prices can be found in standard databases such as RSMeans or in office case files
- Unit prices are tied to production efficiencies – “faster” usually equates to lower cost and “slower” usually means higher cost
- For offsite T&D, it may be necessary to call other TSDf facilities for pricing
- Document basis of pricing

Total Estimated Cost

- RSMeans unit pricing usually is based upon subcontractor rates, including overhead and profit, and may be considered contract direct costs
- In addition to contract direct costs, estimates should include contract indirect costs – also called third-party general contractor costs - such as site management, home-office G&A, and profit
- In addition, the cost estimate should include design costs and contingencies, as necessary

Cost Estimate Samples

- CostPro Example – Landfill Cap
- RACER Example – Pump & Treat
- Excel Example – Drum Storage Warehouse

Summary and Discussion