BANKRUPTCY ACTIONS INVOLVING ENVIRONMENTAL LEGACY PORTFOLIOS

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SUMMARY

This Article reviews the legal and environmental issues in bankruptcy matters involving: (1) a trustee responsible for dispersing funds to stakeholders, including those responsible for addressing environmental liabilities; or (2) alleged fraudulent transfer actions claiming inadequate environmental cost projections for environmental liabilities. In the first instance, the trustee must assign current costs for necessary and appropriate actions to achieve regulatory closure so that excess funds can be distributed to remaining stakeholders. In the second instance, a trier of fact considers the costs as of the date of the alleged fraudulent transfer to clean up environmental legacy sites. In both instances, stakeholders may have opposing views, those that contend cleanup costs are minimal and those projecting more costly actions. Common to both is the need to properly characterize the nature and extent of contamination, the risks posed to human health and the environment, and the associated environmental response actions needed. Ultimately, it is up to the trier of fact to weigh the legal issues, facts, and technical arguments to determine the necessary costs to address environmental legacy sites or portfolios.

Bankruptcy[1] is a legal process designed to allow companies and individuals with financial challenges to obtain a fresh start for ongoing lives and operations, or in the alternative to provide a mechanism for a rational winddown and liquidation process. Whether the end result of a bankruptcy is reorganization or liquidation, creditors of every sort must be considered and dealt with. In today's world, after decades if not centuries of extractive and/or manufacturing use of properties, and increased understanding and sensitivity to health and environmental effects of such use, it is not surprising that many bankruptcies involve significant environmental creditors and other environmental issues.

This Article will focus on Chapter 11 reorganizations of companies, because that is where most of the law has developed. But the law—and the analytical framework below—is also applicable to individual bankruptcies and liquidations. We focus on two of the most common scenarios involving contaminated properties or other environmental matters in the bankruptcy context:

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1. The term "bankruptcy" is for most purposes specific to the federal bankruptcy process codified in Title 11 of the U.S. Code. However, cognates exist in most other countries, and there are also state processes, such as receiverships and assignments for the benefit of creditors, that have many of the same goals. While we focus on actual U.S. bankruptcies, the lessons discussed herein are generally applicable to most of these cognates.

1. A trustee[2] distributing assets from a bankrupt estate to multiple stakeholders, including those needing funds to address environmental liabilities (such as a liquidating trust or a regulatory agency).
2. A dispute among parties as to the monetary value of environmental liabilities for a site or portfolio of legacy sites. This most often arises in a subsequent fraudulent transfer action[3] wherein one party alleges there were insufficient assets at the time of the challenged transaction to implement necessary environmental cleanup actions, but the same issues are present when a company is considering entering into transactions involving contaminated properties. In such cases, one party may allege that the transferee or the transferred entity was not solvent and did not receive reasonably equivalent value in the challenged transaction due to the scope and magnitude of environmental liabilities.

In both types of these bankruptcy matters, an environmental expert is often needed to establish the life-cycle environmental response costs, composed of both study and cleanup costs, to bring a hazardous waste site or portfolio of environmental legacy sites to regulatory closure. These expenditures can include:

- **Assessment**. Site assessment, engineering, and reporting costs, which are necessary to evaluate the nature and extent of contamination, identify potential human and ecological pathways and associated risks, determine feasible alternatives, and design and implement a remedy to achieve site closure.

- **Cleanup**. Capital costs to build or install a remedial system.

- **Ongoing costs**. Operation, maintenance, and monitoring (OM&M) costs, which are post-construction expenditures that ensure the continued effectiveness of a remedial action.

- **Regulatory oversight**. Costs of oversight work by the U.S. Environmental Protection Agency (EPA) or other regulatory entities.

- **Other**. Costs for natural resource damages (NRD).[4]

In addition to the response action categories discussed above, costs for litigation are sometimes incurred during or after site cleanup actions. Examples of litigation costs include activities related to environmental enforcement, general negotiations with state and federal agencies, actual or threatened environmental claims (e.g., toxic tort and property damage claims), and litigation with other potentially responsible parties (PRPs) to obtain contribution. These costs can include attorney fees, environmental consultants, sample collection and analysis, and expert witnesses. Inclusion or exclusion of litigation costs in bankruptcy matters is subject to the specific facts and circumstances of such cases.

I. Time Frames for Cost Projections in Bankruptcy Matters

Cost projections in these bankruptcy matters are conducted using one of two time frames:

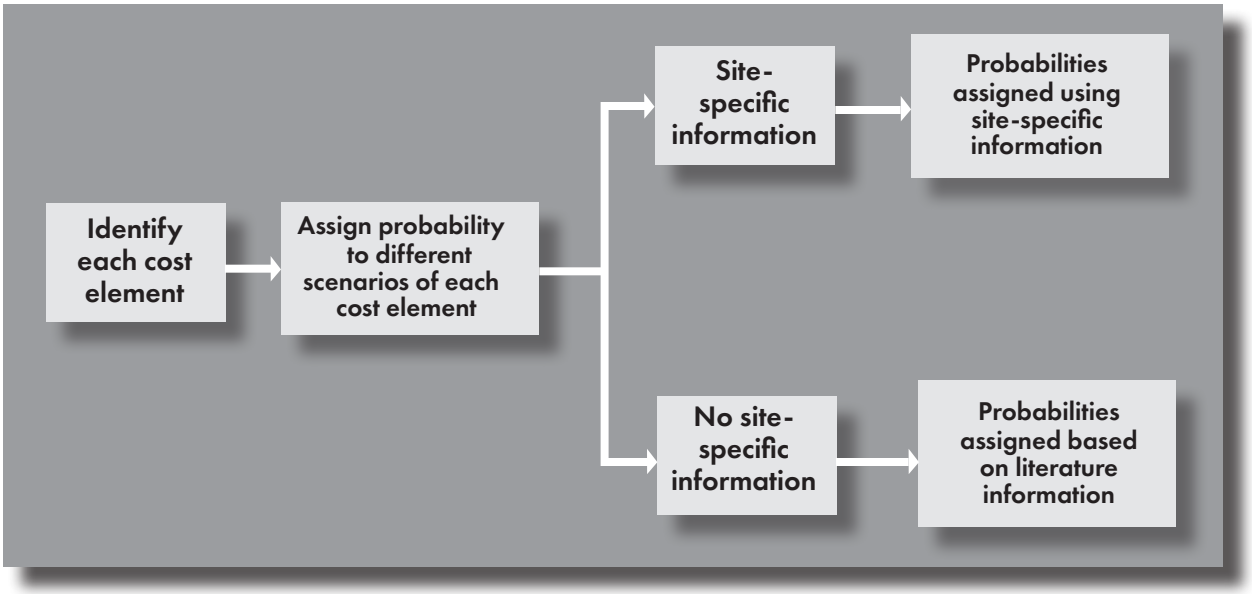
- *Current cost estimates* consist of the nominal dollars of environmental response actions (future assessment, cleanup, and OM&M) discounted to the current year using an applicable discount rate (present value). Current cost estimates use all available information reflecting the most up-to-date knowledge about environmental conditions at a site.

- *Cost estimates as of the date of the alleged fraudulent transfer (hereinafter referred to as "historical" costs)* consist of the nominal dollars of environmental response actions based on the cost categories assuming environmental conditions and environmental requirements that were known or knowable as of a specified historical date and discounted (present value) to that historic year using an applicable discount rate. The historical date can be associated with the transfer of assets and/or environmental liabilities from one entity to another.

Such estimates typically should not rely on information that was unknown or unknowable at the specified historical date, and such subsequent estimates should not be challenged based upon information that becomes available after the historical date upon which such cost estimates were based. As noted in §4.2.3 of ASTM International Standard E2137 (Standard Guide for Estimating Monetary Costs and Liabilities for Environmental Matters):

2. In Chapter 11 cases, the bankruptcy company becomes the "debtor in possession" (DIP) with essentially all the attributes of a trustee. The discussion herein will use the term "trustee," but in many cases, the trustee's powers will be exercised by the DIP.
3. Such actions can be based on provisions in the Bankruptcy Code and on provisions in state law. They were historically referred to as fraudulent conveyance actions, then as fraudulent transfer actions, and more recently as avoidable transfer actions. The description was changed because, while there are still some actions based on "actual fraud" with bad motives at play, the great majority of such actions involve only "constructive fraudulent transfers" that are not at all fraudulent—they are simply based on a court's subsequent finding that the bankruptcy debtor or other transferor was insolvent at the time of the transfer and did not receive reasonably equivalent value in the transfer.
4. Recovery of damages for injury to natural resources is authorized under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which defines "natural resources" as "land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources." CERCLA §101(16). The scope of natural resource liability encompasses "damages for, injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction or loss." *Id.* §107(a)(4)(C).

Figure 1. EV Decision Tree



> Subsequent estimates based on additional information should not be construed as indicating the prior estimates of *costs and liabilities* for environmental matters were unreasonable at the time they were made. Estimates should be evaluated on the reasonableness of analyses and judgments made at the time and under the circumstances in which they were made. Subsequent improved estimates should not be considered valid standards on which to measure the reasonableness of a prior estimate based on hindsight, new information, use of developing analytical techniques, or other factors.[5]

II. Cost-Estimating Methodologies

Both current costs and costs as of the date of an alleged fraudulent transfer can be derived using the principles set forth in ASTM E2137. ASTM is industry standard cost-estimating guidance that is used by environmental professionals. Either the most current ASTM version or the operative version applicable to a specified historical date is used.

ASTM E2137 includes several different cost-estimating approaches: quoted price (first included in the 2006 ASTM version), expected value, most likely value, range of values, and known minimum value. It also recognized that sites may be too uncertain to make a reasonable cost estimate. ASTM E2137 states that the estimator should decide which cost-estimating approach is appropriate for a given site. In making that decision, ASTM E2137 provides that the "estimator should take into account the number of events and quality of information available or obtainable when selecting the cost and liability estimation approach to be used."[6]

A *quoted price* is used when a fair value market price is provided by a vendor. If a quoted price from a vendor is not available, a quoted price for similar costs and liabilities in active markets can be used after adjustment for differences in cash flows or other relevant factors. The *expected value* (EV) requires that site information is sufficiently well-developed such that only one remedy will likely occur, or available information is sufficient to assign probabilities to various remedial action outcomes (see Figure 1). For example, in an EV estimate, if there are two alternatives such that Alternative 1 has a probability of 25% and Alternative 2 has a probability of 75%, the EV is equal to the sum of 25% of the cost of Alternative 1 plus 75% of the cost of Alternative 2.

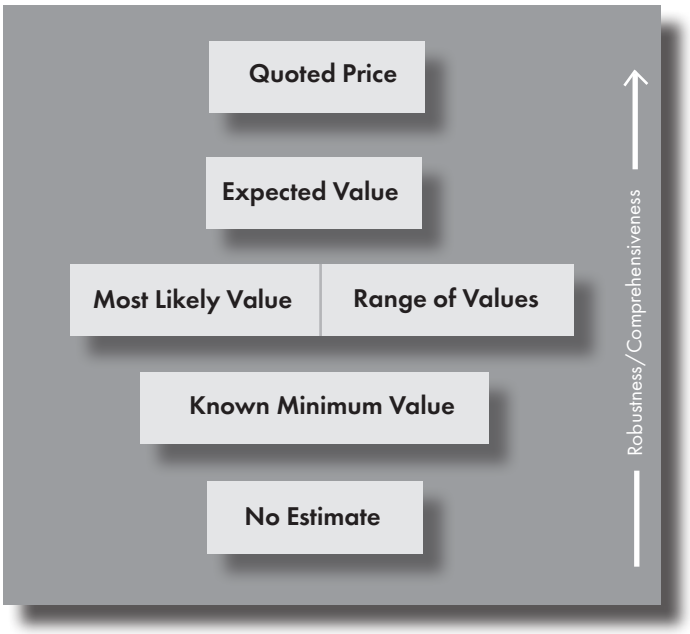
Where project documents indicate the most likely outcome for the site, the *most likely value* (MLV) approach can be used. According to ASTM E2137, the MLV "should represent a technical and regulatory scenario that is most likely to occur."[7] In determining the most likely scenario, the estimator should consider other scenarios set forth in the project documents or that might be appropriate based on other sites in a company's environmental portfolio or professional experience of the estimator. For sites where the MLV approach is used, the likelihood of the most likely scenario selected should be significantly greater than any other scenario, grouping, or cluster of outcomes as required under ASTM.

5. ASTM International, ASTM E2137-17, Standard Guide for Estimating Monetary Costs and Liabilities for Environmental Matters 3 (2017), *available at* https://www.astm.org/Standards/E2137.htm. Historical versions of ASTM E2137 include 2001 (first approved on March 10, 2001), 2006, and 2011.

6. *Id.* at 6.

7. *Id.* at 7.

Figure 2. Hierarchy of ASTM E2137 Cost Methodologies



Where the project documents do not provide a most likely scenario or the likelihood of one scenario cannot be determined to be significantly greater than any other scenario, grouping, or cluster of outcomes, a *range of values* should be used. According to ASTM E2137, the range of values "should cover costs from a low-cost estimate to a high-cost estimate, based on reasonable assumptions."[8]

When the information is not sufficient to determine an MLV or range of values, a *known minimum* value is used. Under ASTM E2137, "[w]hen the outcome and cost uncertainties are so great that it is premature to estimate a range of values or a most likely value, then a minimum value including component costs (for example, contracts entered, initial *studies*) that are reasonably certain to be incurred should be estimated."[9] Finally, there may be sites where it is not possible to estimate any costs because the uncertainties to assign any cost are too great and *no estimate* is assigned with respect to these sites.

The robustness of the above cost methodologies follows the hierarchy shown in Figure 2.

The cost estimates noted above can be determined using a variety of engineering methodologies and resources. Where sufficient site-specific cost information and/or data are known or knowable, costs can be developed based upon the specific cost information contained within project documents. When site-specific cost information is insufficient, remedial action cost estimates can be supplemented and/or developed using various engineering tools, including (1) unit costs published by RSMeans,[10] (2) cost-estimating software such as the Remedial Action Cost Engineering and Requirements System™ (RACER™), (3) unit costs for specific tasks based on professional experience and industry standards using time and material costs for select typical task-based remedial activities, (4) cost ranges developed from similar site types within a company's environmental portfolio or from other analogous sites, and/or (5) cost element information regarding the costs to clean up Superfund sites provided in a report submitted to the U.S. Congress.[11]

III. Information Used in Estimating Environmental Cleanup Costs

In providing cost estimates, the environmental professional must understand and/or make certain assumptions about the nature and extent of contamination, the risks associated with that contamination, the exposed human and ecological populations, the site cleanup requirements, and the technologies to be implemented to decrease site contamination to acceptable levels. Cost estimates based on current versus historical dates rely on different amounts of information as summarized in Table 1.

IV. Discount Rates Used to Determine Present Worth

As noted in the following table, to equate the value of future remediation costs to present-day funding, the future cash flows must be *discounted* at an expected rate of growth (discount rate—i.e., how much funding needs to be set aside today (present worth)) in order to cover remediation costs

8. *Id.* at 8.
9. *Id.*
10. Gordian Group Inc., Site Work & Landscape Costs With RSMeans Data (38th ed. 2019).
11. Katherine N. Probst & David M. Konisky, Superfund's Future: What Will It Cost?: A Report to Congress (2001); Neil M. Ram et al., *Estimating Remediation Costs at Contaminated Sites With Varying Amounts of Available Information*, 23 J. Remediation 43-58 (2013).

Table 1. Information Used in Two Common Scenarios Involving Contaminated Properties in the Context of Bankruptcy

Information Considered	Bankruptcy Context	
	Trustee Distributing Assets From a Bankrupt Estate	Dispute Among Parties in an Alleged Fraudulent Transfer Action
Time frame of information to consider	All information on or before the current date	Known or knowable information as of the date of the alleged fraudulent transfer
Soil, sediment, groundwater, soil vapor, air, or any other environmental data	All available data	Data collected on or before the historical date including both lab and field data. Data collected but not yet analyzed would not be considered
Consulting reports	All reports	All reports issued on or before the historical date. Draft reports that were in progress and were available on or before the historical date can also be considered
Regulations	All published final regulations. Pending regulations should be considered in light of their likelihood to impact future regulatory closure requirements	Regulations published on or before the historical date. Proposed or pending regulations as of the historical date could be considered in light of their likelihood to impact future regulatory closure requirements
Industry guidance	All pertinent industry guidance	Industry guidance available on or before the historical date. The pertinent historical versions of applicable industry guidance should be used rather than current versions
Remediation technologies	All proven or developing technologies	Proven or developing technologies known or knowable as of the historical date. Technologies that evolved after the historical date should only be considered in light of what was known about them as of the historical date
Costing tools	All applicable engineering costing tools	Costing tools available on or before the historical date. All unit costs should be based on prevailing unit rates as of the historical date
Discount rate	Based on factors that are applicable as of the current time frame	Based on information known or knowable as of the determination of the date of the fraudulent transfer

incurred sometime in the future. Three types of discount rates can be applied to determine present worth:

- Published values provided in EPA and Office of Management and Budget (OMB) guidance (see Table 2). Such discount rates are sometimes applied to multiple remediation alternatives under consideration so that relative cleanup costs between different remediation alternatives can be compared to one another.

- Discount rates based on expected growth or earnings rates. The appropriate discount rate for any discounted cash flow exercise considers how the funds will be invested and, in turn, grow over the duration of the investment period.

- "Risk-free rates" based upon investment instruments that carry little risk of default by the borrower.

Bankruptcy cases often rely on the expert analysis and opinions of suitably qualified economists to make a determination as to the appropriate discount rate for determining present worth. Higher discount rates will result in lower present worth cost estimates and vice versa (i.e., less must be invested today to achieve a defined future value if the interest rate is higher) (see Figure 3). Thus, the appropriate discount rate is often in dispute between parties where higher versus lower remediation costs favor a desired outcome to different parties in a bankruptcy proceeding. This conflict is further exacerbated by the frequently long duration of environmental remediation projects and the importance of discount rate on long-term cash flows.

Table 2. Guidance on Discount Rates for Estimating Present Worth in Environmental Matters

*EPA, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA**

"In conducting the present worth analysis, assumptions must be made regarding the discount rate and the period of performance. The Superfund program recommends that a discount rate of *5 percent before taxes and after inflation* be assumed. Estimates of costs in each of the planning years are made in constant dollars, representing the general purchasing power at the time of construction. In general, the period of performance for costing purposes should not exceed 30 years for the purpose of the detailed analysis."

"The discount rate (*5 percent* should be used to compare alternative costs, however, a range of *3 to 10 percent* can be used to investigate uncertainties)."

*U.S. Army Corps of Engineers & EPA, Guide to Developing and Documenting Cost Estimates During the Feasibility Study***

A real discount rate of 7% should generally be used for all nonfederal facility sites "in developing present value cost estimates for remedial action alternatives during the [feasibility study]." Further, "[f]or cost estimates that have large future year expenditures or where the discount rate assumption is a sensitive cost factor, a sensitivity analysis can be performed to evaluate the impacts of the discount rate assumption on the present value cost." Real discount rates from Appendix C of OMB Circular A-94 should generally be used for all federal facility sites.

*OMB Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs****

"Analyses should show the sensitivity of the discounted net present value and other outcomes to variations in the discount rate. The importance of these alternative calculations will depend on the *specific economic characteristics of the program under analysis."*

*OMB Circular A-94 (2018 Revision)*****

Nominal Discount Rates. A forecast of nominal or market interest rates for calendar year 2019 based on the economic assumptions for the 2020 Budget is presented below . . .

Nominial Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)

3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
3.3	3.3	3.4	3.4	3.5	3.6

Real Discount Rates. A forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the 2020 Budget is presented below. These real rates are to be used for discounting constant-dollar flows . . .

Real Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)

3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
1.3	1.3	1.4	1.4	1.5	1.5

*U.S. EPA, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA 6-12 to 6-13 (1988) (EPA/540/G-89/004) (OSWER Directive 9355-3-01) (emphasis added).

**U.S. Army Corps of Engineers & U.S. EPA, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study 4-4 to 4-5 (2000) (EPA 540-R-00-002) (OSWER 9355.0-75).

***OMB Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs 9 (1992) (emphasis added).

****OMB, Memorandum for the Heads of Departments and Agencies, 2019 Discount Rates for OMB Circular No. A-94, at app. C (Dec. 18, 2018).

Figure 3. Relationship Between Interest Rate and Present Value/Present Worth

V. Diverging Opinions Regarding Environmental Cleanup Costs

Diverging opinions about future cleanup costs in bankruptcy matters often arise because different outcomes favor different stakeholders. Stakeholders potentially viewing higher cleanup cost estimates as being the most favorable include:

- *Regulators* advocating that the most comprehensive cleanup is needed and/or to address future unanticipated costs or technology failures
- A *trustee* or *bankruptcy debtor* (typically the *plaintiff* in a subsequent fraudulent transfer action) alleging that the environmental liabilities were undervalued, so that the challenged transfer was not for reasonably equivalent value and is avoidable

Stakeholders potentially viewing lower cleanup costs as being the most favorable include:

- The entity (the *defendant*) that is defending a fraudulent transfer claim
- *Creditors* or other parties with financial interests in the outcome of the bankruptcy, who may receive a higher distribution if fewer funds are expended for environmental problems

PRPs with liability at a contaminated property, along with the debtors, can find themselves in conflicting positions because they may have to fund the balance of cleanup costs not paid by the debtors or other sources. PRPs typically want the debtors to fund as much as possible of the cleanup costs. This, coupled with high projected cleanup costs, results in a higher amount to be paid by the debtors. However, high projected cleanup costs may also result in higher amounts to be paid by the PRPs. Therefore, PRPs may not want to argue for extremely high cleanup costs. The most common result is that PRPs often press for lower overall cleanup costs but a high percentage contribution from the debtors, though that can vary depending on the circumstances.

A trustee should be impartial to the cleanup cost estimate because he or she represents the interests of all stakeholders and should seek the most realistic and defensible cleanup cost estimate. Environmental experts working on behalf of such trustees often use different technical approaches and assumptions resulting in varying and often opposing cost estimates. Some of those varying approaches are summarized in Table 3.

For example, a cost estimate using the ASTM EV method discussed earlier can favor lower costs by assigning the lowest probability to the highest cost and vice versa. The EV can also be biased by including unrealistic treatment alternatives in the probabilistic analysis to lower the overall cost estimate. A low-cost EV outcome can be achieved when *high probabilities* are assigned to a "no action" alternative or to a low-cost technology that has not been shown to be effective or implementable. A lower cost outcome can also be achieved by assigning *low probabilities* to more expensive cleanup alternatives such as excavating hazardous waste-impacted soil or active groundwater treatment for a groundwater remedy.

Different opinions about the extent of remediation and associated cost also result in divergent future cost projections. For example, in the *Tronox v. Kerr-McGee* fraudulent transfer litigation, discussed in Part VI, plaintiff's expert opined that excavation and off-site disposal of wood-treating waste in a residential neighborhood that was overseen by EPA was necessary and compliant with the national contingency plan (NCP). Defendant's expert opined that EPA's actions were not complaint with the NCP and that excavated soils should have been treated by a far less expensive technology (on-site treatment using low-temperature thermal desorption, or LTTD). The two different cleanup scenarios differed by approximately $200 million. In another bankruptcy matter, one expert developed future costs using an innovative and less costly technology to cap ponded waste material by evaporating water derived from the Great Salt Lake to create a solidified salt cap rather than a more costly alternative involving excavation and disposal in a correction action management unit. The two different approaches differed by about $100 million.

VI. Examples

Decisions in bankruptcy matters involving contaminated properties often consider opposing opinions about the cost to clean up environmental legacy portfolios. Ultimately, the trier of fact must weigh factual and technical information along with legal considerations to reach a decision as presented in the examples that follow.

American Smelting and Refining Co. LLC (ASARCO). EPA, along with other federal and state agencies, pursued and received almost $1.8 billion to fund environmental cleanup and restoration under a bankruptcy reorganization of ASARCO following the bankruptcy court's recommendation and the district court's confirmation of ASARCO's plan of reorganization. The payment addressed environmental cleanup and restoration at dozens of sites around the country, as documented in a number of settlement agreements approved by the bankruptcy court, including:

1. The custodial trust settlement agreement for past and potential future cleanup costs associated with approximately 18 ASARCO-owned sites in 11 states. It provided $70,955,493 to clean up the sites and fund the administrative expenses associated with the custodial trust.
2. The miscellaneous federal and state sites settlement agreement for past and future cleanup costs associated with 26 ASARCO-owned federal and state sites. It provided $104,814,679 to clean up the sites and

Table 3. Approaches or Assumptions Impacting Cleanup Estimates

Item	Low	High	Unbiased
Legacy portfolios	Include only those sites that have already been disclosed	Include disclosed sites plus overstate the number of undisclosed sites	Include disclosed sites plus the undisclosed sites most likely to require future environmental response actions
Site risks	Minimize site risks	Overstate site risks	Identified risks appropriate for exposed populations
Cleanup goals	Overly lenient	Overly stringent	Sufficient to address site risks based on regulatory standards and known or knowable site uses
Extent and type of remediation	Minimal and potentially insufficient	Extensive and potentially unnecessary	Sufficient to address site risks, are effective (both short- and long-term), reduce toxicity, mobility, and/or volume and are implementable
Event outcome probabilities in EV estimates	Favor low-cost technologies or other low-cost outcomes	Favor high-cost technologies or other high-cost outcomes	Include realistic outcomes with statistically significant probabilities to avoid shifting the EV through the addition of extreme outcomes with insignificant probabilities of occurrence
Discount rate	Higher rates	Lower rates	Applicable to forecasted time frame for implementing remedial actions and relevant to the parties at issue

fund the administrative expenses associated with the trust.

3. The Montana sites settlement agreement for past and future cleanup costs associated with five sites in the state of Montana that ASARCO owned but did not operate, and required the creation of a trust with separate accounts for each site. It provided funding in the amount of $138,300,000 to oversee cleanup and redevelopment of the sites.
4. The residual sites settlement agreement for past and future cleanup costs associated with three Superfund sites in the states of Idaho, Nebraska, and Washington. It provided $880 million, including interest, to clean up the sites, recover past costs, and fund the administrative expenses associated with the trust.
5. The Texas sites settlement agreement for past and potential future cleanup costs associated with ASARCO's owned portions of two sites in the state of Texas. It provided more than $52 million to clean up the sites and fund the administrative expenses associated with the custodial trust.
6. Several other state-specific and site-specific settlements providing more than $500 million for other purposes.[12]

Tronox.[13] This matter involved a portfolio of more than 2,700 environmental legacy sites in 47 states, associated with the former Kerr-McGee Corp., including federal Superfund sites in Jacksonville, Florida; Columbus, Mississippi; Manville, New Jersey; Soda Springs, Idaho; West Chicago, Illinois; Milwaukee, Wisconsin; and Wilmington, North Carolina. Future costs were estimated as of November 2005 that Tronox likely would have incurred for environmental sites that Kerr-McGee Corp. or its affiliates or predecessors owned, operated, and/or used for waste disposal.

Plaintiff's expert estimated a future cost of $1.5 billion to $1.7 billion (including NRD costs) (in 2005 dollars) to conduct necessary and appropriate response actions at each

12. U.S. DEPA, 2009 Settlement Agreements With EPA, https://www.epa.gov/enforcement/case-summary-asarco-2009-bankruptcy-settlement#settlements (last updated Mar. 18, 2019).
13. Editor's Note: Neil Ram and Nancy Nevins represented Tronox in this matter.

site based on information that was known or knowable as of 2005 based on (1) site-specific cost data (consultant estimates, project documents, Kerr-McGee spreadsheets, etc.); (2) RACER™, RSMeans, professional judgment, and/or other cost estimating techniques; (3) metric costs (average life-cycle costs of Kerr-McGee sites in a particular portfolio); and/or (4) information about the average cost to conduct response actions as reported in *Superfund's Future: What Will It Cost: A Report to Congress*.[14]

Defendant's expert estimated the net present value of Tronox's potential future environmental liabilities to be $330.6 million (inclusive of NRD costs) using a probabilistic analysis that (1) evaluated the range of reasonable cost scenarios (which includes variation for issues such as remedy, unit costs, quantity, timing, and duration), (2) assigned probabilities to the options (and within an option, to the various scenario elements—such as different quantities being evaluated), and (3) developed a simulation model to evaluate the many different combinations of alternatives to arrive at an EV and summary cost statistics.

Prior to trial, the court held that Tronox's recovery was not limited to the amount of the environmental and tort claims that had been filed in the Chapter 11 case and remained unpaid as §550 of the Bankruptcy Code allowed Tronox to recover, for the benefit of the estate, the property that it determined had been fraudulently transferred.[15] In his memorandum of opinion after trial,[16] Judge Allan Gropper awarded the plaintiff up to $14,166,148,000 subject to potential offsets. The case settled for $5 billion prior to a final determination on damages. The ruling considered the cost estimate derived by plaintiff's expert[17] for 372 of the 2,746 sites, explaining that plaintiff's expert "netted reimbursement from third parties, including the United States and certain States, and he apportioned costs based on the number of PRPs, the duration that Kerr-McGee or its predecessor had owned or operated the facility and, with respect to mining sites, the amount of ore mined relative to others."[18]

U.S. Magnesium.[19] The United States asserted that MagCorp and Renco Metals (collectively, the "debtors") were liable to EPA and the U.S. Department of the Interior's Bureau of Land Management under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)[20] for the cost of cleanup of hazardous substances released at a 4,525-acre site adjacent to the Great Salt Lake in Rowley, Utah, where MagCorp had previously operated a magnesium production facility (the "U.S. Magnesium Site").

Future remediation costs were estimated by the trustee's experts by identifying, screening, and selecting remediation actions for those areas requiring remedial action in accordance with the remedial alternative screening methods established by CERCLA. Costs assumed construction of various remedies at different site areas (termed preliminary remediation investigation areas, or PRIs) with associated future OM&M. Future remediation costs in dollars as of 2018 were determined (when the cost analysis was completed), and along with the present worth using real risk-free rates equal to 1.4% for 2018 to 2028, 1.6% from 2029 to 2038, 2.1% from 2039 to 2048, and 2.9% thereafter.

Under the settlement, the United States received allowed bankruptcy claims in the amount of $82,135,812, which resulted in a distribution of approximately $28.2 million to fund remediation at the U.S. Magnesium Site or reclamation of federal land used by MagCorp in its operations, and more than $400,000 in compensation for NRD, unpaid rent, and the unpermitted removal of minerals from federal land. The agreement also secured the commitment of the current operator of the magnesium production facility, US Magnesium LLC, and its parent entities, to use more than $5.8 million recovered from the debtors for environmental activities at the U.S. Magnesium Site.[21]

Sealed Air/W.R. Grace.[22] In March 1998, Sealed Air completed a multistep transaction involving W.R. Grace & Co., which brought the Cryovac packaging business and the former Sealed Air's business under the common ownership of the company. As part of that transaction, Grace and its subsidiaries retained all liabilities arising out of their operations before the Cryovac transaction (including asbestos-related liabilities). Various lawsuits ensued alleging that the transfer of the Cryovac business was a fraudulent transfer or gave rise to successor liability.

In November 2002, an agreement was reached with the committees to resolve all current and future asbestos-related claims in connection with the Cryovac transaction. In June 2005, the bankruptcy court signed an order approving the settlement agreement. In February 2014, the plan implementing the settlement agreement became effective with Grace emerging from bankruptcy. In accordance with the plan and the settlement agreement, Cryovac, Inc. made aggregate cash payments in the amount of $929.7 million to the WRG Asbestos PI Trust (the PI Trust) and the WRG Asbestos PD Trust and transferred 18 million shares of Sealed Air common stock to the PI Trust.[23]

Automobile Manufacturers. Following the 2009 filing of bankruptcy by Chrysler and General Motors, a $500 million environmental trust fund was created by the U.S. bankruptcy court for General Motors and the Revitalizing Auto Communities Environmental Response Trust was

14. Probst & Konisky, *supra* note 11.
15. Tronox Inc. v. Kerr-McGee Corp., 503 B.R. 239, 266 (Bankr. S.D.N.Y. 2013).
16. Memorandum of Opinion, After Trial, Tronox Inc. v. Kerr-McGee Corp., No. 09-10156 (ALG), 503 B.R. 239 (Bankr. S.D.N.Y. 2013).
17. Neil Ram was plaintiff's expert in the *Tronox* case.
18. Memorandum of Opinion, After Trial, Tronox Inc. v. Kerr-McGee Corp., No. 09-10156 (ALG), 503 B.R. 239 (Bankr. S.D.N.Y. 2013).
19. Editor's Note: Neil Ram, Nancy Nevins, and Chase Gerbig represented the bankruptcy trustee in this matter.
20. 42 U.S.C. §§9601-9675, ELR Stat. CERCLA §§101-405.
21. Press Release, U.S. Attorney's Office, Southern District of New York, Manhattan U.S. Attorney Announces Bankruptcy Settlement With Responsible Parties at US Magnesium Superfund Site (July 15, 2019), https://www.justice.gov/usao-sdny/pr/manhattan-us-attorney-announces-bankruptcy-settlement-responsible-parties-us-magnesium.
22. Editor's Note: Neil Ram and Nancy Nevins represented Sealed Air/W.R. Grace in this matter.
23. Sealed Air Corp., Annual Report (Form 10-K) (Feb. 22, 2016), https://ir.sealedair.com/static-files/13095e21-36c0-44c4-b53c-d642fd06fb03.

established to implement the cleanup at approximately 60 General Motors locations.[24] A $15 million environmental reserve was also created for Chrysler to clean up contamination from their automobile manufacturing operations.[25]

VII. Conclusion

While environmental law seeks to hold entities liable for the costs of environmental cleanup, bankruptcy law provides companies a structure through which parties can free themselves of their liabilities. This can create opposing goals of establishing sufficient funding to complete environmental cleanups versus dispersing funds desired by other stakeholders. It can also result in divergent opinions about the adequacy of funds needed to address future environmental liabilities. Regardless, environmental cleanup estimates should be based on sound engineering assumptions, industry guidance, regulatory requirements, and professional experience reflecting defensible and valid outcomes. Ultimately, it is up to the trier of fact to weigh the legal issues, facts, and technical arguments to determine the necessary costs to address environmental legacy sites or portfolios in light of the many other legal issues associated with bankruptcy matters.

24. Revitalizing Auto Communities Environmental Response (RACER) Trust, *Who We Are*, https://www.racertrust.org/About_RACER/About_Us (last visited Feb. 16, 2020).
25. In re Old Carco, LLC, No. 1:09BK50002, 2010 WL 5798397, at *32 (Bankr. S.D.N.Y. Jan. 22, 2010); Sarah Schenck, *Buoying Environmental Burdens in Bankruptcy Floodwaters*, Fed. Law., Sept. 2013, at 77-99.