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A Waste Weighted Allocation Process

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The division of financial responsibility for cleanup under Superfund has become more difficult since the Supreme Court's decision in *Burlington Northern & Santa Fe Railway Co. v. United States,* 556 U.S. 599 (2009). Allocation among jointly and severally liable responsible parties was the old standard. Apportionment, or divisibility,[2] among responsible parties is now part of account for different types of waste and other factors. This paper explores a real world scenario where two of the apportionment factors used in *Burlington*—separate parcels of land, and different periods of time—did not apply. However, separate contaminant streams or waste types did. An allocation with a melded volume analysis and weighting based on site-specific data for those waste streams successfully provided the "rough justice" that ultimately resolves Superfund disputes.

Background

The scenario discussed here involved a solvent recycler site in Southern California that operated from approximately 1976 until 1991. The recycler processed both drums and bulk shipments of solvents and other materials for about 3,000 parties. As a result of the recycling operations, as well as spills and leaks of various chemicals, the soil and groundwater beneath the property became contaminated with percholoroethylene (PCE), trichloroethylene (TCE), Freon 11 and 113, and other contaminants. Contaminated groundwater extended downgradient in multiple plumes four and a half miles from the facility. Because the owner/operator of the recycling facility was insolvent, EPA named companies that sent large volumes of waste to the facility as potentially responsible parties (PRPs). For over 15 years, a group of PRPs has been remediating the site starting with drum removal and progressing through interim groundwater pumping and treatment. The interim response has also included some soil vapor extraction in locations close to the site. The next stage of cleanup will involve remediating the plume extending beyond the immediate site. The EPA has estimated that cleanup costs will exceed $70 million. EPA's Record

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[2] A person sued in a cost recovery action may try to establish that "there is a reasonable basis for division of harm according to the contribution of each person." MCL 324.20129(1). This is known as apportionment. It is an attempt to apportion harm and avoid joint and several liability. It should be distinguished from allocation, which is an attempt to use a contribution action to allocate damages in an equitable manner among parties already found to be jointly and severally liable. Michigan Environmental Law Deskbook, Chapter 5, Part V, Section 5.39.

of Decision (ROD) identified PCE, TCE, Freons 11 and 113, and 1,4-dioxane as contaminants of concern (COC) in the groundwater.

EPA used hazardous waste manifests to identify the PRPs. The hazardous waste manifests contained waste descriptions and waste volume data. The data source was consistent in that it was collected from the Uniform Manifests sent to the State of California from November 1982, when the use of Uniform Manifests was first implemented, until operations at the site ceased in 1991. Documents that predate 1982 were available, but were relatively inaccessible and disorganized.[3]

The Allocation Process

The objective for this cost allocation was to develop a system that would be:

1. Easy to understand
2. Based on objective criteria
3. Adopted quickly with minimal transaction costs
4. Fair

Identification of Waste

The Uniform Manifest documenting the shipment of material to a site for recycling generally provides the following information:

- General waste descriptions required by USDOT. These are chosen by the generator, but are generally not terribly precise;.
- A more detailed description or list of components contained in the waste is sometimes provided in detail lines.
- Additional descriptions of the waste can also be found found in annotations and comments.

The difficulty with the data found on Uniform Manifests is that it is anything but uniform. In this case, the variation in descriptions of components in materials lists and annotations was enormous. (E.g., variations in describing trichloroethane ranged from “1,1,1” to “111” to “Trich” to multiple trade names.) Most of this information was hand written. A raw classification of the waste categories from about 13000 manifests yielded about 2500 categories. What was clearly needed was a more functional and objective means to characterize the waste identified into discrete categories that could form the basis for an allocation.

An initial attempt to classify waste categories utilized searches for text fragments from descriptions of materials sent to the site, as recorded on the manifests. Examples of text fragments include:

- Freon ~ Freon | R-1* | Fluro | 5120 (a trade name)
- Alcohol ~ Alcoh | Isopro | methan|

[3] An alternative document collection might be used at another site, so long as the documents relied on are consistent in identifying and describing the waste and specifying volume. The primary criterion is that the information be sufficiently detailed to assign objective waste categories and to document unusual transactions.

- BTEX ~ Benz | Tolu | EthylB | Xyle |
- Chloro ~ Perc | Tetrach | Trich | Flexo and Quick (trade names)

This classification or speciation is most effective when an experienced industrial chemist or engineer reviews the manifests. [4] In this case, engineering review of the set of labels and descriptions used on the manifests enabled identification of reasonable / manageable groups based on the types of waste described. [5] Generic or clearly labeled or identified chemicals or chemical components are easily grouped. Other DOT and material descriptions are more difficult to place in appropriate categories.

For example, the classification "Paint Waste NOS"[6] when there is no other information on the manifest may be the best classification that can be made. An assessment of the relative volumes for material shipments that were difficult to classify showed that while they were accurate, their volumes were not significant against total site volume.

The fact that EPA identified certain chemicals as COCs for the purpose of selecting site remedies played an important role in classifying waste shipments for allocation purposes. The trade names and industrial names for chemicals and mixtures containing those chemicals differ from the CAS[7] numbers and the chemical names used in the ROD. The commercial names used in DOT descriptions, comments, and component identifications in Uniform Manifests had to be merged into appropriate classes and then matched to the COCs for later evaluation.

Some examples of the classifications used are:

1. Alcohol. This classification included materials described as isopro*, paint waste where the component description identified the alcohol, ethyl methyl and n-butyl Alcohols.

2. Chloro. This classification included 1,1,1 Trichloroethane and variations on that name, Percholoroethylene plus chemical and trade name variations, Chlorinated solvent and trade name variations.

3. Freon. This classification was subcategorized to Freon NOS, Freon Other and specific Freons where they were identified on the manifest. R-11 and R-113 were COCs in the ROD, and each constituted its own category.

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[4] Speciation analysis, according to IUPAC (International Union of Pure and Applied Chemistry), is the analytical activity of identifying and/or measuring the quantities of one or more individual chemical species in a sample. This is much more precise than the activity described here, but analogous.

[5] Teresa Sabol Spezio, PE, of CDM Smith had the background and engineering judgment to provide this detailed review.

[6] N.O.S. is a U.S. DOT abbreviation for *Not Otherwise Specified*.

[7] CAS = Chemical Abstracts Services—the source for CAS registry numbers which provide a unique, unmistakable identifier for chemical substances.

These classes were then used to group the manifests and their volumes for review by the parties.

Certain decisions and assumptions simplified the classification process and advanced the goal of minimizing transaction costs. First, a shipment line item was classified by the primary chemical or material described on the manifest without regard for the concentration expressed. That classification implied no discount or reduction in volume for the concentration expressed by the generator or found on the waste profile. Second, the full volume of waste sent to the recycling facility at the inbound (waste-in) volume was counted, without any discount for arguments that some recycled materials had been returned to the generator. Third, the argument that the facility was merely a transfer facility was also waived. These decisions eliminated a set of arguments that some PRPs could have asserted, but which would have substantially lengthened the allocation process. Any attempt to consider these arguments would have been a vain effort to achieve greater precision than was warranted by the data.

Party Review

Party review of the classifications—and an opportunity for the parties to challenge the classification system—was crucial for a number of reasons, not the least of which was the need for each party to understand and accept the characterizations applied to its waste streams. The engineering review of individual manifests was tempered by the parties' explanation of the characteristics of the waste streams from particular plants, locations, and EPA ID numbers. Information from the PRPs enabled variations in the use of DOT names and manifest completion to be properly characterized and standardized. Additional sources for waste stream classification included contemporaneous material data safety sheets (MSDS) and waste stream profiles created by the receiving recycling facility.

A Panel composed of group members reviewed the initial engineering characterizations, as well as the additional effort by each PRP to characterize its waste. A third party allocation consultant conducted an initial review of party "challenges," and the Panel then reviewed the consultant's recommendations. Appeals and presentations to the Panel as well as to the group's Steering Committee and to the group as a whole were an important part of the process as that helped assure each party that its issue had been reviewed and acknowledged.

Modeling

The next step was development of a model weighting each identified waste class. This model involved volume multipliers for each defined waste category. The model included a rough approximation of the relative cleanup costs for the COC components from the ROD as well as an appropriate discount for waste categories that did not contain COC components identified in the ROD. Paint waste, for example, may include a number of solvents as well as cleaners, metals and other components, but unless there was additional information on the manifest, a shipment of paint waste was not categorized as containing a COC component.

Volumes or tonnages of waste categories that were deemed not to contain COCs were discounted. That discount impacted the allocation among liable parties, though it was not a formula for divisible harm. A final differentiation involved the marker COCs for the extended plume and then the primary remedy driver COCs for the base plume.

Several tools are available for developing such a model. In this instance, MS Excel was used to show the discounts and weights and to evaluate the impacts that various changes in the discounts and weights would have on individual PRPs and on groups of PRPs. The Excel Solver tool provided a means to view the results of multiple variations of weighting factors. Graphic presentations of those results identified how changes in weighting factors would affect each PRP. The graphs also facilitated grouping parties according to types of waste, illustrated the impact of weighting changes, and suggested a possible range of weight factors that could result in final allocation. This enables the PRP group to develop the fairest—or put another way, an equally unfair—allocation.

Negotiation
Negotiation among PRPs centered on the relative weight factors for COC containing and non-COC containing waste categories. An important element in negotiations among PRPs, or groups of PRPs, is the "cost of failure to reach agreement." If the collective group fails to agree on a cost allocation, then individual PRPs and small groups of PRPs will proceed down a litigation path with substantial transaction costs. In litigation, each subgroup of PRPs is likely to incur expenses in excess of a million dollars, including expert fees to develop detailed scientific assessments of plumes, etc. The costs of formal mediation or arbitration includes not just the cost of the mediator or arbitrator, but also all the internal preparation and consulting time for formal presentations, as well as document exchange and review, analysis, and preparation of written arguments and responses. Although they can be somewhat less expensive, the cost of mediation and arbitration can approach the cost of litigation. Again, expenses of litigation, arbitration, or formal mediation can exceed a million dollars per party or group of parties.

A negotiated allocation process can proceed with dramatically lower costs. The Excel and Solver analysis used at this site identified the major interest groups, who in turn were encouraged to identify representative parties to participate in the mediation/negotiation. A member company with a mixed waste stream acted as the mediator in the negotiation. The mediator party's mixed waste stream offered a presumption of neutrality, and allowed it to objectively explain the financial impact of changes in the weighting formulae.

Discussions about the costs (including internal company costs) of litigation, formal mediation and arbitration helped all PRPs understand the implications of failure to agree on an allocation. Internal company costs to participate in the litigation and pseudo-litigation scenarios are also substantial although more difficult for third parties to estimate. Also difficult to assess were of the benefits of moving forward as a group, such as: consistent counsel, consistent administration, consistent engineering evaluation, consistent interface with the EPA, and opportunities for buyout, although difficult to quantify, also played a role in persuading PRPs to agree on an allocation of costs.

These assessments were generally undertaken in a large group format, but were on occasion more effective when presented and discussed in smaller interest group sessions. The smaller sessions provided an opportunity for the groups to more frankly evaluate their options, contributions and the costs and benefits of going forward separately or together. Shuttle discussions coupled with the modeling provided the opportunity for each group to evaluate just what would ultimately constitute a good mediated settlement.

The primary features of this internal-to-the-group or self-mediated process were:

1. An easy to understand baseline of source documents.
2. Standardized data classified into objective, understandable groupings which related to the ROD.
3. Simplified decisions that minimized transactions costs.
4. Process steps to assure that each company had a full understanding of its documents.

With this baseline and an ability to see the effects of discount changes, frank negotiation yielded an agreement, i.e. an outcome with which all parties were equally unhappy, but which they nearly all considered acceptable. The group, with one defection, moved forward to resolve its liability with the EPA and implement a cleanup in less time and with lower transaction costs than would have been expected. That is real progress in Superfund terms.