Best Practices and Lessons Learned for an Efficient and Equitable Allocation

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Group 2

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BACKGROUND

The costs to clean up contaminated sediment sites can be substantial for large sites with complicated industrial histories. When multiple parties have contributed to the need for cleanup, the approaches for allocating costs among responsible parties can be as complicated and varied as the industrial history of the site itself. Potentially responsible parties often participate in an allocation process (often a form of alternative dispute resolution [ADR], such as mediation or arbitration) to determine their equitable shares of cost. These processes often require technical support to underpin and facilitate negotiations between parties. There is no standardized allocation approach: various methods can be used and allocation processes consider different factors, depending on the site (there are also legal considerations in an allocation process, which are not discussed as part of this evaluation). As large and complicated cleanup sites can be costly, attention to cost saving measures is crucial. Based on TIG Environmental's experience on numerous contaminated sediment site allocations, the authors compiled the below recommended technical best practices that promote an efficient allocation process and the considerations that lead to a more equitable allocation.

DEVELOP ALLOCATION PROCESS FRAMEWORK AND TIMING

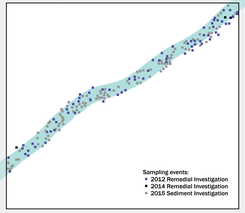
Developing a clear allocation technical framework and time line are important elements of the allocation process. This ensures that participating parties share the same expectations, contributing to successful completion of pre-allocation steps and an efficient allocation. Development of an allocation framework and time line requires the following:

- Clear statement of what will be allocated:
  - Costs associated with a remedial design and action, determined using a probabilistic cost estimate
  - Allocation consultant costs
  - Sampling costs (including past sampling costs)
  - Mutually agreed upon technical needs (for example, hydrodynamic model and remedial design)
  - Costs associated with long-term monitoring and reporting
  - Costs related to early action or source control activities
- Defined method for identifying temporally and geospatially defined historical and current sources and calculating allocation shares. Without a framework guiding how allocators determine allocation shares, parties will present varying amounts of information, and some may develop their own methodologies. Allocation calculation methods should identify the following:
  - Factors to consider (including Gore and Torres factors) and factors to disregard
  - How factors relate to each other (often represented as an equation) and how factors should account for quantitative (modeling of contaminated loads), semi-quantitative (when specific release quantities cannot be calculated), and qualitative considerations (when no release data is available)
  - Specific examples that include complex scenarios
  - Methods for early settlement or cash out agreements
- Defined milestones and priorities, including the following:
  - Relative time line for completion of steps
  - Hierarchy of steps, the information required to complete each step, and the entity or individual assigned to ensure completion of the step
  - Identification of whether there is an overall deadline to complete allocation and a contingency in case schedule delays occur
- Identification of guidelines or restrictions related to *ex parte* communications between participating parties/technical experts and the allocation consultants

Historical Sources/Facilities

In the context of an allocation, parties need to be specific about the geospatial and temporal parameters of a facility in order to allocate shares accordingly.

Sampling Locations Map



A common geospatial database accessible by all parties allows for greater transparency.

BUILD FAIRNESS AND TRANSPARENCY INTO THE TECHNICAL PROCESS

The steps related to discovery, disclosure, and submitting expert reports are often built into an allocation process to allow for fair access to available information and technical opinions. However, commonly omitted from the time line is the selection of neutral technical experts for common needs and disclosure of the individual parties' technical expert(s). Though technical experts develop technical opinions, not advocacy positions, this can create perceived conflicts of interest (COI) between parties. Even where no COIs exist, omitting neutral expert analysis and disclosure and acceptance of technical experts from the allocation process can result in the following issues:

- The allocation process becomes delayed by disputes among the parties and/or procedural issues
- Parties dispute and/or misinterpret findings of technical expert analyses (that may have employed different approaches)
- Parties may attempt to discredit the technical expert findings, sometimes citing perceived bias

Participating parties may want to consider identifying steps early in the allocation process in which individual parties' expert(s) are disclosed to the allocator and other participants and neutral technical experts are selected to perform certain analyses that benefit all parties. This would ensure the following:

- A more expeditious process, in which potential COIs are not argued late in the process
- Consensus among parties on the findings of the neutral technical expert analyses
- Greater transparency for all involved

DEVELOP A COMMON REPOSITORY OF PHYSICAL AND CHEMICAL DATA FOR SITE

Although analytical and spatial data are often gathered prior to initiating an allocation process, it is not often collected into a single repository. This can result in the following:

- Inefficiencies because multiple databases are created
- Quality and consistency issues because data completeness, handling, and conditioning cannot be verified
- Black-box analyses, in which the data inputs are not verified and where experts can use an "alter-to-suit" approach

Similarly, in complex, dynamic water body systems, a hydrodynamic model is often developed as part of the conceptual site model in the site investigation phase, usually well before the allocation process begins; however, these models do not typically address allocation-related questions. This can result in the following allocation issues:

- A perceived bias of the results, which parties view more favorable to the parties performing the investigation and provided funding for the model
- An output that is frequently low resolution and that does not cover the entire water body system, resulting in only general conclusions regarding the system

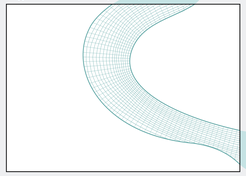
Development of a robust hydrodynamic model funded by all the participating parties will allow for a more efficient allocation process. This model should adhere to the following best practices:

- Be developed by a neutral expert before allocation technical expert work begins
- Have high resolution, cover the entire water body system, and address different scenarios based on local climatological patterns

Participating parties could fund the development of a shared single analytical database to reduce redundant work and ensure that parties are drawing conclusions based on the same information. Additionally, use of a platform such as an online GIS viewer, allows for a general user to evaluate environmental conditions and easily access site information. A shared database and geospatial data set could include the following:

- Analytical data from sediment sampling
- Analytical data from upland sampling
- Bathymetry
- Spatial features such as shorelines, riparian boundaries, outfall locations, drainage systems and defined boundaries and site features
- Hydrodynamic model results

High Resolution Hydrodynamic Model Grid



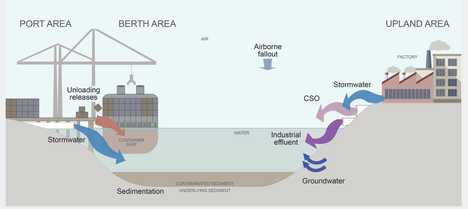
Smaller grid cells result in more detailed hydrodynamic modeling results.

IDENTIFY DATA GAPS AND CONSIDER NEEDS OF ALLOCATION WHEN COLLECTING SAMPLES/DATA

Sample and data collection can be conducted for a variety of reasons, whether it is to support an evaluation of the nature and extent of contamination, for remedial design, or for development of a hydrodynamic model. For complex sediment sites, consideration should be given to the full spectrum of data gaps when designing a sample/data collection program, as it is possible that multiple data needs could be met as part of a single event. Common allocation data gaps include the following:

- Areas where sediment delineation is needed for allocation
- Potential source areas with no analytical data
- Limited or lack of data to facilitate forensic analysis
- Fate and transport of contamination/sediment transport

Conceptual Site Model



Data gaps are often identified during the allocation process. Resolving them leads to a more complete conceptual model and a more accurate allocation.

CONCLUSIONS

The technical best practices identified in this evaluation should be considered/established early in the allocation process for improved efficiency. In scenarios where these technical best practices are omitted or implemented late in the process, parties' allocation shares can be more difficult to calculate, and it is likely the allocation process will take longer (leading to increasing costs). If there is no technical expert disclosure and acceptance process, this can result in perceived COIs and extended debate among parties about the legitimacy of an expert's work. If there is no common database or analyses conducted by neutral technical experts, parties duplicate data review and analyses, and have less confidence of the accuracy of other parties' analyses. This can result in extended debate among parties as to the correct data to use. If there is no hydrodynamic model – or a model that was developed outside of the allocation process without participating party consensus – advocating for cost shares requires speculation about contaminant transport and skepticism about the model's utility in context of an allocation. This can result in an extended allocation process and a less equitable allocation decision. If development of a hydrodynamic model occurs early in the process, it can foster greater insights about contaminant transport and may also lead to more focused and targeted sampling efforts, potentially reducing project costs. Although each site may require specific considerations during the allocation process, the strategic application of the best practices recommended here can promote more equitable, efficient, and cost-effective allocations.

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