

**Use of Mass Discharge as a Performance Metric in CERCLA Decision Documents:
Case Study of the Time Oil Well 12A Site**

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This presentation will present a case study (Time Oil Well 12A Site) where mass flux and mass discharge were used as a performance metric. The site is located in Tacoma, WA. The source of contamination at the site, named after the city production well where contamination was originally detected, is located beneath an old industrial building and surroundings contaminated with the disposal of petroleum hydrocarbons, solvents, and paint wastes. The site is located over a major aquifer used by the City of Tacoma for its water supply. The site has had a pump and treat system since 1988, had a soil vapor extraction system installed in the 1990's, soil excavations for large sources in the unsaturated soil zone at different times, and now is in the process of having a thermal treatment and an enhanced bio remediation component to attempt to remediate the main source of DNAPL from the saturated zones below the main source building and surroundings.

Many CERCLA decision documents for DNAPL site remediation lack clear remedial action objectives for determining and documenting when sufficient source treatment has been completed. Mass flux and mass discharge can be used as a performance metrics in decision documents to document when source treatment is considered "complete" and long-term groundwater restoration projects can be considered operational and functional. In addition, mass flux and mass discharge measurements can be used to help characterize sites and refine the site conceptual model so that remedial options can be optimized. However, mass flux and mass discharge measurements can be expensive and accurate measurements require site managers to have a good understanding of groundwater flow and hydraulic conductivity. Further, many EPA and State regulators are not familiar with setting groundwater remedial goals that are not concentration based estimates, and how mass flux and mass discharge goals can be utilized in long-term plume management strategies with remedial action objectives goals of meeting Maximum Contaminant Levels (MCLs). This presentation will discuss the advantages and drawbacks of utilizing mass flux and mass discharge to assist with the characterization, design and performance assessment of remedial actions from a regulator's perspective.