Minnesota Pollution Control Agency

Use of Petroleum Remediation Corrective Action Design Guidance in the Superfund, RCRA and Voluntary Investigation and Cleanup Programs April 2011

Policy Statement

The use of Petroleum Corrective Action Design Guidance (CAD Guidance) in the Superfund/Resource Conservation and Recovery Act and Voluntary Investigation and Cleanup (SF/RCRA & VIC) Programs as outlined below, is effective June 1, 2011. The CAD Guidance will be used as a general guide for corrective action design, implementation, and management of active remediation activities in the SF/RCRA &VIC Programs. Application of the CAD guidance in the above referenced non-petroleum programs is a valuable addition to the existing Risk-based Site Evaluation Process Guidance Document (RBSE) Guidance. This is an interim step toward a shared model and guidance for active remediation across the various programs.

Use of the CAD Guidance in the SF/RCRA & VIC Programs

Although the CAD Guidance was developed for use by the Petroleum Remediation Program (PRP) it has potential for application in the SF/RCRA & VIC Programs, as a guide, at sites where active remediation will be implemented. For sites undergoing active remediation work plans and reports can be drafted using the applicable elements of the CAD Guidance given the site specific conditions of the project. The CAD Guidance outlines both "simple corrective actions" intended to eliminate unacceptable risks in a straight forward manner and also "complex corrective actions" which requires collecting and evaluating more detailed information. Examples of complex corrective actions include mechanical remediation systems, stimulated biodegradation, in situ chemical oxidation injection, subsurface LNAPL body excavation, and combined approaches. This is not dissimilar to the RBSE guidance document on Remedy Selection which outlines two paths to selecting and implementing a remedial action, a "Practical Approach to Remedy Selection" and a "Traditional Remedy Selection Process". Only sites that plan to apply for Dry Cleaner Fund reimbursement or are utilizing other forms of public funding will need to include information that pertains to life-cycle cost estimates.

Brownfield Programs

MPCA Brownfield programs (Petroleum Brownfield Program and Voluntary Investigation and Response Program) refer to remedial activities at redevelopment sites as "response actions". Response actions completed for development purposes in the Petroleum Brownfield Program are ineligible for Petrofund reimbursement.

At most Brownfield sites response actions are driven by the needs of the redevelopment project. The vast majority of response actions at Brownfield sites involve excavation and will fall under the "simple corrective action" model in the PRP CAD Guidance. Using the "simple corrective action" model as a guide the voluntary party can develop a Response Action Plan (RAP) that provides a detailed design for the Response Action including a detailed schedule for implementation. The voluntary party can then obtain MPCA approval of the RAP, implement the RAP, then submit a RAP implementation report for review.

Vapor Intrusion

MPCA considers passive or active mechanical systems used to mitigate vapor intrusion in buildings to be human health risk mitigation systems rather than remedial systems. The SF/RCRA & VIC, and PRP have distinct guidance for the vapor intrusion pathway separate from the CAD Guidance. At some sites a health risk mitigation system such as a sub-slab depressurization system will be only one part of a larger remedial effort which includes operation of other remedial systems. In these cases the project will likely be working under the "complex corrective actions model". Sites where a risk mitigation system for vapor intrusion is the only mechanical system will likely follow the "simple corrective actions" model. One example of this would be a brownfield site where an excavation, driven by the needs of a redevelopment project was conducted and a sub-slab depressurization system was installed to address the potential for vapor intrusion.

Air Emission Controls

Contained within the CAD Guidance is guidance for evaluating air emissions from remedial systems. Guidance Document 7-9a Air Emission Controls describes the air emissions screening process used to determine if controls are required to address human-health risks associated with exposure to remedial system air emissions, particularly from soil vapor extraction systems and air strippers. In March, 2011 the SF/RCRA & VIC Programs were directed to begin using this guidance for evaluation of air emissions. A training session on use of the Air Emission Screening Spreadsheet was conducted on April 12, 2011 for SF/RCRA & VIC hydrogeologists. Staff from the PRP and Environmental Outcomes Division is available to provide additional training and answer questions as needed.

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Date

Attachment 1

In February 2011 the PRP introduced new guidance on conducting corrective actions at petroleum sites. A small percent of petroleum sites require corrective action. However corrective action sites in the PRP have historically consumed a disproportionate number of petrofund dollars, fifteen percent of petrofund dollars are spent on two percent of the sites. The goals of the guidance for the PRP are to improve corrective action design, implementation, and management through a consistent, thorough approval process to ensure success and optimize cost effectiveness. These goals will be achieved by the PRP primarily through clear delineation of remedial goals and oversight and evaluation of progress toward the remedial goals.

The CAD Guidance consists of the following 12 documents:

- 7-01 Corrective Action Design and Implementation (1/2011) (c-prp7-01)
- 7-02 Conceptual Corrective Action Design Report (CCAD) (1/2011) (c-prp7-02)
- 7-03 Focused Investigation Work Plan (1/2011) (c-prp7-03)
- 7-04 Focused Investigation Report (1/2011) (c-prp7-04)
- 7-05 Pilot Test Work Plan (1/2011) (c-prp7-05)
- 7-06 Pilot Test Report (1/2011) (c-prp7-06)
- 7-07a Remediation System Detailed Corrective Action Design Report (SDCAD) (1/2011) (c-prp7-07a)
- 7-07b Excavation Detailed Corrective Action Design Report (EDCAD) (1/2011) (c-prp7-07b)
- 7-08 Remediation System Operation Monitoring Report (RSOM) (1/2011) (c-prp7-08)
- 7-09a Air Emission Controls (1/2011) (c-prp7-09a)
- 7-09b Air Emissions Screening Spreadsheet (1/2011) (c-prp7-09b)
- 7-10 Discharging Contaminated Groundwater (1/2011) (c-prp7-10)

The CAD and Implementation (Guidance Document 7-01) serves as the main reference for the PRP CAD approval process. It describes the process for obtaining CAD approval at petroleum release sites and is supported by several guidance documents and report forms which are referenced throughout the document.

PRP CAD Approval Process from Design through Implementation