Title of Presentation: Construction Documentation for the State of Wisconsin Department of Natural Resources (WDNR) During Walnut Street Chromium Plating Site Soil Remediation, Milwaukee, Wisconsin

Author: Mark J. Mobley, PE, CHMM

Key Words: TCE, PCE, chromium, sampling, in-situ, remediation, documentation, hazardous materials management

Abstract: This presentation discusses construction documentation during implementation of an innovative in-situ soil remediation at a former electroplating site located in a residential portion of Milwaukee, Wisconsin. The site was contaminated with chromium, tetrachlorethene (PCE), and trichloroethene (TCE). This remediation was interesting for the legal, socio-political, and contractual constraints imposed on the project and managing these complex constraints became crucial to the success of the project.

Introduction

Construction documentation played an important role in this project, especially in managing critical project elements such as: the post-remedial soil confirmation sampling approach; maintenance of gridlines to track soil with different chemical constituents and concentrations; certain control measures for protection of the public; and prevention of contaminant migration during site remediation.

In the midst of a challenging remediation project, it can be unclear if and how the field documentation may become critical to meeting the myriad of possible legal, socio-political, and contractual constraints influencing the project. As the number and potential significance of a project's constraints increases, so does the need for clarity of purpose and execution in its field documentation. The soil remediation project at the Walnut Street site, a former electroplating site located in a residential portion of Milwaukee, Wisconsin, is a project with a number of such complexities and constraints. The soil remediation method selected for the Walnut Street site is an innovative in-situ soil remediation approach involving the use of specialized mechanical mixing equipment, treatment chemicals, and hot air injection. Chromium, tetrachloroethene (PCE), and trichloroethene (TCE) were found in soils at concentrations exceeding site cleanup standards at depths of about 45 feet. These constituents were found at concentrations exceeding State and Federal regulatory limits for hazardous waste by toxicity characteristic. When the in-situ treatment techniques reduce concentrations to non-hazardous levels, then the soil is removed for off-site landfill disposal. Slightly more than half of the estimated 28,000 tons of contaminated soil may require in-situ treatment prior to removal and disposal. This paper examines the elements that are the focus of the project's field documentation program, indicates what makes

them critical elements, and summarizes the approaches, means, and methods used to meet some of the most significant project constraints.
Some of the elements include: the post-remedial soil confirmation sampling approach; maintenance of gridlines to track soil with different chemical constituents and concentrations; certain control measures for protection of the public; and prevention of contaminant migration during site remediation. This paper further indicates whether the documentation approaches were specified in the design, or developed during subsequent work planning, what improvements were made, when the improvements occurred, and their effectiveness.