Connecticut's environmental site characterization guidance document: A due diligence road map

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Connecticut's Department of Environmental Protection has released its Site Characterization Guidance Document in final form, effective September 2007.

This Guidance Document, available to the public in draft form since 2000, establishes the industry standard for Environmental Site Assessments and reveals Connecticut DEP's criteria for evaluating whether or not a site has been properly investigated and remediated. The purpose of the Site Characterization Guidance Document is to describe a standard of care to be exercised by environmental professionals responsible for evaluating and documenting site investigations and for anyone required by law to conduct an investigation "in accordance with prevailing standards and guidelines in the State of Connecticut."

Connecticut provides numeric cleanup standards by regulation, RCSA 22a-133k-1 through 3 (the Remediation Standard Regulations or RSRs). In order to demonstrate compliance with the RSRs, the site must be characterized by the environmental professional in a manner consistent with the Site Characterization Guidance Document.

In connection with Connecticut's Property Transfer Act (C.G.S. Â§ 22a-134, et seq.), in 1989 (revised 1991) Connecticut DEP produced the Transfer Act Site Assessment Guidance Document (TASA). TASA and the 2000 Draft Site Assessment Guidance Document collectively constituted the standard by which phase Environmental Site Assessments are to have been conducted in Connecticut. As of September 2007, those documents are superseded by the Final Site Characterization Guidance Document.

The Site Characterization Guidance Document calls for the environmental professional to create a Conceptual Site Model of the site under investigation. That Conceptual Site Model requires development of hypothesis describing how releases could have occurred, where those releases may be located and where such releases may have migrated, along with potential impacts. It integrates site history, scientific knowledge, and site specific information in order to provide a context in which site specific data can be evaluated. Development of a Conceptual Site Model is designed to be an iterative process employing the scientific method. It requires the marshalling of existing information, creating temporary hypothesis, identifying data gaps, addressing those data gaps and adjusting hypothesis until the environmental professional has created a Conceptual Site Model consistent with the data found.

Finally, the Conceptual Site Model should be validated. The validated Conceptual Site Model should present sufficient data to fill all of the discovered significant data gaps, be consistent with the factual findings and data produced from the investigation, be scientifically defensible, and be logical in the sense that a non-scientist could follow the logic and reasoning and be comfortable with the conclusions. A Conceptual Site Model should be thoroughly documented and updated during each

phase of the site characterization presenting a narrative of what the environmental professional understands about the site including the hypothesis and assumptions and how those were validated and should include tables expressing the derived data and figures illuminating the site in the context of the investigation in order to support the narrative.

The Site Characterization Guidance Document offers specific guidance on the conduct of the typical phased Environmental Site Assessment using the Phase I Environmental Site Assessment as a tool to begin the Conceptual Site Model. A Phase I Environmental Site Assessment is an evaluation of the potential for contamination to exist on a property; an identification of Areas of Concern or AOCs and Contaminants of Concern or COCs. This should serve as a fundamental building block of the Conceptual Site Model. The Phase II Site Environmental Site Assessment presents a way of refining the model, identifying data gaps and addressing many of them. A Phase II Environmental Site Assessment is an evaluation of the soil and/or groundwater in the AOCs to determine the presence or absence of COCs. A Phase II may itself consist of several steps or phases. It can be used to modify the Conceptual Site Model by confirming or eliminating AOCs. A Phase III Environmental Site Assessment is a way of completing the resolution of data gaps and validating the hypothesis and assumptions in order to produce a validated Conceptual Site Model, supported by the data of the typical three-phase Environmental Site Assessment.

Guidance with regard to each of the Environmental Site Assessment phases is provided in the Site Assessment Guidance Document. In addition, Connecticut DEP has conducted courses on interpretation of the Site Characterization Guidance Document including how that document will be used by the Connecticut DEP to evaluate work submitted by environmental professionals.

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