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ADEQUATE SAMPLING DURING OVER EXCAVATION

Over-excavation can be considered expedited corrective action, as described under Iowa Administrative Rule 567 IAC 135.12 (455B), and, as such, may be conducted at any time during the RBCA process as provided therein.

Field screening should be conducted before, during, and after excavation to verify removal of the soil source has been completed. Soil samples must be obtained from the completed excavation for field screening and laboratory analysis to confirm remaining soil contaminant concentrations are below Tier 1 levels. The sampling guidelines described in paragraph IAC 135.12(11)"c" and Tier 2 Guidance section 5.6 apply to the finished excavation limits. Adequate documentation of vapor screening (PID, FID, or similar), visual, and/or olfactory observations, field screening, and sample selection justification must be provided in the excavation report. Samples for laboratory analysis shall be collected from not more than one foot into the base and sidewalls of the excavated area.

Field Screening. As described under paragraph IAC 135.12(11)"c" and Tier 2 Guidance section 5.6, *adequate* field screening shall consist of at least 1 (one) field screening sample taken and reported from each 100 square foot area (or portion thereof) of the base and each 100 square foot area (or portion thereof) of each sidewall of the completed excavation. In some cases the area of a sidewall or the base may be less than 100 ft^2. In these cases, at a minimum, at least 1 (one) field screening sample must be taken and reported from each sidewall and the base of the *completed* excavation for a total of 5 (five) field screening samples. Sample locations should be selected for field screening based on visual or olfactory indications of possible contamination. All observations and vapor screening results must be documented in the excavation report. In some cases, based on field observations (discolored soils, petroleum odors, etc), more than 1 (one) field screening sample from each 100-ft^2 area may be warranted.

Laboratory Samples. As described under paragraph IAC 135.12(11)"c" and Tier 2 Guidance section 5.6, adequate sampling for laboratory analysis shall consist of 1 (one) lab sample taken from each 400 square foot area (or portion thereof) of the base and each 400 square foot area (or portion thereof) of each sidewall of the completed excavation. In some cases the area of a sidewall or the base may be less than 400 ft^2. In these cases, at a minimum, at least 1 (one) soil sample must be submitted for analysis from each sidewall and the base of the completed excavation. Samples to be submitted for laboratory analysis will be selected, based on highest PID, from the field screening samples within the designated area. In some cases, based on PID readings, more than 1 (one) lab sample from each 400-ft^2 area may be warranted.

In the event excavation is conducted in such a manner as to create more than four sidewalls, field screening and laboratory samples must be obtained from each sidewall.

Example 1: Given excavation limits of 5 feet deep x 6 feet wide x 10 feet long. The minimum number of field screening samples = 1 (one) for each sidewall and 1 (one) for the floor of the excavation, totaling 5 (five) field screening samples. The minimum number of samples submitted

for lab analysis would be 5 (five); 1 (one) from each sidewall and 1 (one) from the base of the excavation.

Example 2: Given excavation limits of 10 feet deep x 10 feet wide x 35 feet long. The minimum number of field screening samples = 1 (one) for each sidewall along the width of the excavation, 4 (four) for each sidewall along the length of the excavation, and 4 (four) for the floor of the excavation, totaling 14 field screening samples. The minimum number of samples submitted for lab analysis would be 5(five); 1 (one) from each sidewall and 1 (one) from the base of the excavation.

Example 3: Given excavation limits of 12 feet deep x 38 feet wide x 65 feet long. The minimum number of field screening samples = 5 (five) for each sidewall along the width of the excavation, 8 (eight) for each sidewall along the length of the excavation, and 25 for the floor of the excavation, totaling 51 field screening samples. The minimum number of samples submitted for lab analysis would be 15; 2 (two) from each sidewall and 7 (seven) from the base of the excavation. *NOTE: In this instance, selecting 7 lab samples based on highest PID does not refer to selecting the highest 7 PID samples from the entire excavation bottom. Instead, this refers to selecting the highest PID sample from each of seven 400 ft^2 areas scattered across the base of the excavation.*

Finally, the Tier 2 must be re-evaluated and all the affected portions of the Tier 2 Report, including the Tier 2 disk, must be submitted with the Over Excavation Report. The over excavation analytical results must be entered in the Tier 2 portion of the software for proper re-evaluation of the soil pathways. The results of all prior soil sample locations, removed during the course of the over excavation, must be marked as `ignore' in the soil data adjustment section. All sample information (concentrations, location, elevation, etc.) must be entered in the data table.

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